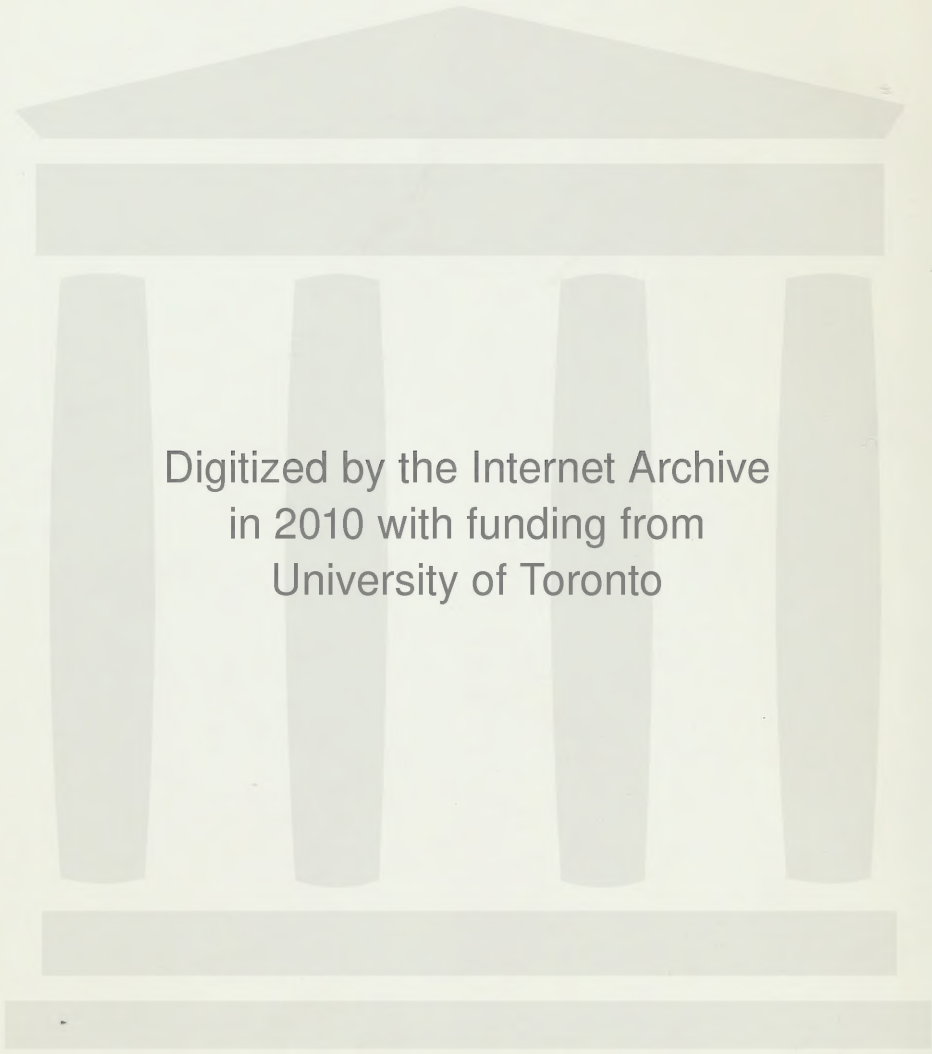

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Original Articles.

ORTHOPEDIC PRINCIPLES FOR USE IN GENERAL PRACTICE.*

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It was with great pleasure that I accepted your President's invitation to speak to you tonight, for the reason that I felt that there were many things pertaining to orthopedics in which you should be interested. As I have thought the matter over it has seemed to me that there are many points in orthopedics which touch the work of a man in general practice, and which would be well for me to emphasize. I am going, therefore, to speak of these junction points, and try to give you my ideas as to the way in which they should meet. I have done this on purpose, for I felt that this way of approaching these subjects would be of more real and practical interest and value to you than for me to take some one subject in which I was especially interested from a research point of view and work it off on you as a dress rehearsal for myself.

Before going further, however, it might be well for me to define "orthopedics," for I find that many people, even physicians, are ignorant of the real meaning of the term, and believe an orthopedist to be one and the same with an osteopath or a chiropodist. Now "orthopedic" comes from two Greek words meaning "straight" and "child," and the compound word means, freely translated, "to make the child straight." This is what we have set ourselves to do, and from this ideal the work has spread to include the larger field of adult bone and joint work with its many difficulties and problems. A great deal of our work is laborious and long drawn out, and many a general surgeon and practitioner of medicine neither cares for nor is fitted temperamentally to do it. He prefers, if he is a surgeon, to "explore" or "remove the appendix," sit the patient up in a few days, and have the case home in a week well, and I know a medical man would much rather take temperatures, pulses, differentiate râles, and talk wisely about pre-tubercular conditions, than apply plaster jackets regularly every two or three months over a period of two or three years in scoliosis cases. We would get our cases well quickly also, but we unfortunately cannot do so, for the very pathology of the diseases we meet, involving as they do bones and joints, precludes such roseate possibilities. Two or three years is often our best prognosis in the severer affections.

Having thus meandered, I will now return to the subject.

I have purposely and carefully selected the following conditions, all of which are usually seen first by the family physician, as is indeed true of all other orthopedic affections, and either treated by him for a longer or shorter period, and then referred to a hospital or a consultant. I will first take up the congenital deformities which are common, and then go on to the acquired ones.

* Read by invitation before the Waltham Medical Club, Waltham, Mass., Nov. 14, 1912.

CONGENITAL CLUB FEET.

Now you are all familiar with congenital club feet, and it may seem strange to you that I should refer to apparently so simple and well known a condition. But when I tell you that a club foot improperly treated is one of the most difficult and lasting problems we have to meet it will not seem so strange that I wish to emphasize certain points in the treatment.

Congenital club feet are the result of one of three conditions, namely, (1) embryonic, (2) foetal, and (3) true congenital or inherited. The first condition is due to some defect in the laying down of the three embryonic layers, namely, the epiblast, mesoblast and hypoblast, the second probably mechanical from some intrauterine pressure, and the third from some true inherited tendency. The first may be recognized by some other congenital defect such as webbed fingers, club hands, etc., the second by the existence of club feet alone, and the third by the family history. The treatment is always the same.

Club feet can be absolutely cured and normal feet obtained if the child is given adequate treatment early enough. By that I mean within the first eight weeks of its life. This can be done without operation. Do not tell parents to wait until the child is one, two or three years old before having anything done, but tell them to start treatment at once. Time lost at the start can never be regained, and the earlier treatment is begun the more normal the foot the patient will have later in life. This I know from long experience with many club feet. At the Children's Hospital the earlier we get a case the better we like it. These cases have a plaster cast applied without ether in the following way, and it is renewed every two weeks until the cure is complete. The leg is wound with sheet wadding, and a narrow plaster bandage is applied around the base of the toes. A similar bandage is applied above the flexed knee. When these have set more bandages are applied, being carried from the upper one downward and outward about the one at the base of the toes and up the outer side of the leg again to the starting point, the foot meanwhile being held in as much of a corrected position as possible. By this means the foot is held in a sling, which on account of its method of application tends to put the foot in an abducted, everted and dorsally flexed position. The bandages are then covered in by more plasters and allowed to harden. The knee is flexed to prevent the cast from twisting on the leg, which would allow the foot to go back to its former position. Too much padding should not be

used, for the foot will slip inside of it. The circulation should be most carefully watched, and it is often advisable to bivalve the plaster cast before allowing the child to go home. The parents should be instructed to watch the color of the toes and note any undue swelling, and should report for observation frequently. By applying these casts every two weeks the most severe deformities can be over corrected, and by over correction only can any club foot be cured. Over correction as applied to a club foot means a foot well everted, abducted, and capable of full dorsal flexion. Later, when the over correction is complete, massage, a light brace for six months to a year to hold the over correction, and constant use of the foot in weight bearing, if the child is old enough to walk, are the measures indicated.

Older children with club feet, which may or may not have been treated, usually have to undergo bone operations and tenotomies, which are at the best mutilating, and rarely give as good a subsequent result, and the existence of the condition is but a reflection on the medical men for their failure to educate the families under their care to the necessity for early and immediate procedures.

One other congenital condition which causes club foot is that known as spina bifida occulta. This is a condition due to a faulty closure of the mesoblastic layer of the embryo, resulting in a spinal cleft, covered by skin and hair, and without the presence of a tumor, as seen in cases of spina bifida.

Such cases are not very rare, and any child with a single club foot should have its spinal column most carefully examined. The club foot in these cases is due not to mechanical causes, but to faulty innervation. These cases are often seen in consultation on account of the club foot, or even an undeveloped leg, and the stripping of the child and a careful examination of the back for the presence of a tuft of hair or a cleft in the spinous processes will alone disclose the real cause of the difficulty. The deformity often can be treated as other club feet, but on account of the poor nerve supply great care must be used to prevent sloughs. Other deformities, such as dislocation of the hip, frequently coexists in these cases.

WRY NECK.

The next common congenital deformity is wry neck or torticollis. This is not at all infrequent, and is a condition met with in all degrees. The cause has been thought to be intrauterine pressure, which, holding the foetal head in the position of deformity, causes a lack of proper blood supply from the thyroid arteries to the sternal and clavicular heads of the sterno-cleido mastoid muscle, which results in a hyaline degeneration of these portions of the muscle analagous to the condition of muscle seen in the ischaemic paralysis of Volkmann. This in turn leads to a contraction or shortening of greater or less extent of that muscle, and results in the child's head being tipped to one side and the chin rotated to the other. Some men believe that the cause may be found to be the result of an organized hematoma in the muscle body due to partial rupture or injury at birth from trauma or the use of forceps. This question is, however, open to discussion. Other conditions not due to a true contraction of the sterno-cleido mastoid muscle may cause wry neck, such as cervical adenitis, infectious arthritis of the cervical spine, congenital defects of the spine, which, however, will not be considered here. The contraction of the muscle can always be felt, and generally seen, provided an attempt is made to put the head straight or to tip it in the opposite direction of the deformity, when the muscle stands out like a tight cord, extending from the sternal notch to the mastoid.

When the contraction is not marked and the child is young, gradual and daily massage and stretching by trying to put the head into the opposite position will often be sufficient to establish a cure. This treatment is of no avail, however, unless faithfully and carefully carried out with adequate force. Later, when the child is older, say five to ten years of age, it is well to divide the two heads of the muscle by open incision at their origin on the clavicle. Tenotomy has been practiced, but is neither safe nor sufficient. After division of the muscle it is necessary to put on a plaster cast including the head, shoulders and upper chest, which holds the head in exactly the extreme opposite position of the deformity. That is, for a left wry neck before operation the left mastoid would be held down nearer to the left shoulder than the right, and the chin would be rotated to the right shoulder. After operation the right mastoid process should be as near the right shoulder as possible, with the chin pointing towards the left. These casts should be worn about two or three months, depending on the age of the case and the degree of vertebral deformity existing in the cervical spine as shown by x-ray. There is always present some facial asymmetry, which, if the case is treated early enough, practically always clears up so as not to be noticeable. The deformity if left long untreated leads to marked facial asymmetry, change in the axis of the eyes, cervical and dorsal scoliosis, and it is often a question in adult life whether it is better or not to leave it alone provided the patient does not suffer, for he will have considerable readjusting to do following any operative procedure. After the cast is removed a light brace may be worn for several months to hold the head over corrected, meanwhile using massage and exercises for the neck muscles.

Next we have to consider the acquired deformities, and I shall first speak of infantile paralysis, which by its prevalence in this community of late years has left with us so many cripples. Infantile paralysis has been before us all so much of late in an etiological and patho-

logical aspect that I shall not touch on these points, but will merely point out the essentials of what might be called the first aid treatment.

It occurs most frequently in children between the ages of two and three years, and the early symptoms are very varied. The most common ones, however, are fever, tenderness over the affected parts, vomiting, constipation, and at times retraction of the head. All these symptoms may vary. Often the parents tell me that the child went to bed all right, but complained of feeling tired, and woke up paralyzed.

The paralysis may make its appearance at once, and in the majority of cases usually appears during the first four days. The parts involved are as a rule one or both legs, a leg and an arm, both arms and both legs, and the back muscles of the trunk. It may be stated here that the character and severity of the onset and the distribution of the paralysis give no indication as to the ultimate prognosis. Cases apparently severely crippled may make a complete recovery, and it is a fact that about 15% do so recover. The cases, however, which are going to regain complete control of their musculature do so generally within a period of three months, although in many cases which do not make a complete recovery there is often a slow and gradual improvement in the muscle tone over a period of years.

The diagnosis of these cases is usually easy *after* the onset of the paralysis, and there are no positive signs at present by which one can make a diagnosis before the onset of the paralysis. Sudden onset, motor paralysis, absence of reflexes, cold extremities, tenderness or pain, no loss of sensation, and later muscle atrophy, mean but one thing, namely, infantile paralysis.

Having an acute case of this kind, the question is what to do? First of all, insist on absolute rest and quiet and free catharsis. Have the child on a hard pillow or a Bradford frame. Next, following the acute period, it is of the utmost importance to prevent stretching of the paralyzed muscles, and if the legs are involved it is generally wise to put them in plaster casts or troughs, keeping the feet and legs in the normal and proper relations. By doing this, subsequent contractions and deformities are prevented. If the paralyzed parts are cold, wrap them in cotton, but be sure that all pressure from bed clothes and dragging from bad position, which cause an over-stretching of the paralyzed muscles, are prevented. Massage and electricity are not to be used during this stage—in fact electricity rarely does good in any stage and its use has largely been given up.

Following the subsidence of the acute attack the child should be kept in bed for several weeks, with the paralyzed parts protected as suggested, and the massage should be begun, but should be most lightly applied and used. Then should come the fitting of braces if necessary and such apparatus as is needed to make getting about possible, together with the prevention of deformities. During this period massage, muscle training and operative procedures are indicated. It is not wise to operate within two years of an attack, nor on too young a child, except possibly to do a tenotomy for a contraction. Tendon transplantation and the insertion of silk ligaments for the correction or prevention of deformities, and the removal of bones such as astragalectomy for flail foot, or arthrodesis of joints, are procedures which are best done later in life, that is, in the second decade, and should be planned most carefully after a thorough study of the needs of the individual case.

This is but a sketch of what I could say to you on this most interesting subject, but I believe that if I started to tell you how to treat each individual deformity which might occur, with a description of the apparatus best suited for its correction, the evening would stretch into tomorrow morning, and on the whole you would not be a great deal wiser.

SYNOVITIS OF THE KNEE JOINT.

This most common condition may be due to many causes, but is generally the result of trauma, and is known as acute synovitis of the knee, or water on the knee. The treatment is simple, but in spite of that I find that there are nearly as many ways of treating such a condition as there are different physicians. There are definite conditions to meet, however, in every case. These are to fix the joint, to prevent weight bearing, to diminish the pain and tension in the joint, to get rid of the excess synovial fluid, and to restore function within a reasonable time without too great loss of power from muscle atrophy in the leg. Now there are certain definite ways of accomplishing all this.

First, apply a ham splint, and have the patient go to bed or keep the leg in a horizontal position. Second, apply an ice bag over the knee; fasten this on by a many-tailed bandage and keep it in position for at least 48 hours, when it will be found that the pain has gone and the swelling generally much diminished, meanwhile protecting the skin with a piece of flannel. Many men believe in tapping the knee joint when it is much distended with fluid, and do this in their office with a trocar. They can do it if they wish to assume such a responsibility, but the more I see of knee joints the less I want to go into them under any conditions, and least of all in such a way. The fluid will always go down under the treatment described if given a chance, and I do not believe that tapping should be done except under exceptional conditions, and then with extreme surgical precautions. After the first few days let the patient get about with crutches without weight bearing, and start baking by electric light, and the use of gentle massage. If the swelling goes down well and the pain stops do not start passive motion, but take the splint off by the end of the first week, bandage the knee with a flannel bandage, with a felt

horseshoe pad about the patella to keep the direct pressure off it, and allow weight bearing, with what use in flexion the patient cares to give the joint. In this way you can get your patient well more quickly than usual, have a better joint, and a more useful leg than under the old regime, where the splint was put on and left for at least three weeks, at the end of which time the joint, although it might have no fluid in it, was absolutely motionless and stiff, and several weeks more were spent in recovering lost motion and regaining muscle strength. Intelligent use of the joint, even if it has a little fluid in it, does it far more good than all the fixation in the world, and makes for a better and quicker convalescence.

GONORRHEAL ARTHRITIS.

This disease is not infrequent. At its onset it is often confused with acute articular rheumatism, and it is one of the most difficult conditions to treat that is met with. It is always the result, as its name implies, of a gonorrheal infection, either of recent date or as a result of some old focus lighting up, and 10% of the cases of gonorrhea are followed by joint involvement—usually monarticular in one-half of all cases—which may come on during any stage of the disease, even when it has been latent for a long period of time. Foci existing in the prostate, seminal vesicles, uterus, tubes and ovaries may light up at any time and cause joint symptoms.

The joints usually affected are the larger ones —such as the hip, knee, ankle, wrist and elbows, —but the smaller ones—such as the tarsal, sterno-clavicular joints—do not always escape. The spine is often attacked, and many stiff backs in young men are due to this infection.

Arthritis never follows an attack of anterior urethritis, but when the infection reaches the posterior urethra, prostate and seminal vesicles, the joints may then become involved.

There are two types which are typical, and which can be classed as acute and chronic.

In the acute type the onset is sudden, coming on not long after the exposure to the infection; there is a chill, high temperature, full pulse, constipation and very severe and exquisite pain over the joint or joints involved. The discharge from the urethra may cease during this acute joint attack. The course of the attack may be rapid, and the patient may convalesce quickly. There is, however, always a tendency to recurrence.

The serous effusion may cause severe and agonizing pain, and aspiration or opening the joint and washing it out with salt solution or weak corrosive may be necessary. The serous exudates usually subside under bandaging and rest.

The chronic type, on the other hand, suggests a general infection. There is loss of weight and strength, and a condition exists of general debility. The joint symptoms may start up after passing a sound and often after urethral injections which spread the infection to the deep urethra. In these cases the joint may resemble in a general way an acute tubercular joint. The fibrous exudate and peri-articular inflammation cause limitation of motion, and lead to adhesions and ankylosis. Flat and acutely painful feet resistant to all splinting treatment, such as strapping, pads and plates, are often examples of gonorrheal infection of the tarsal joints and soft parts of the foot.

Inflammation may extend from a gonorrheal joint along the adjoining long bones to a greater or less extent; but such thickening is generally due to inflammatory infiltration of the tissues above the periosteum.

The spurs on the plantar surface of the os calcis are probably familiar to you all. They may be produced by one of two means: The one from muscle strain and irritation and pressure, and the other by bacterial influence.

Following an urethritis, there may be pain, sharp and severe, in one or both heels, occurring generally in males (some observers say wholly) between the ages of eighteen and thirty. The pain is so severe as to incapacitate the patient and make active treatment necessary.

The pain from these spurs, if not relieved from pressure, by pads, strapping, or lack of weight bearing for a while, may be removed by operation, which usually gives prompt relief. In a certain number of these cases the presence of the gonococcus has been determined at operation.

The treatment of these joints locally is best carried out by rest—either by splinting in a cast or by bed treatment—and later by massage and easy motions. In the very painful joints, operation may be indicated for relief of pain. Beyond these local measures there are other things which should be done, namely: (1) Building up the general condition, (2) in the acute and recent cases the use of the serum or bacterins; and (3) in the old cases—and by that I mean the cases which are essentially chronic, having arisen from previously latent foci, the use of such orthopedic measures as may promise relief.

Dilating the urethra by means of a sound, and washing it out with medicated solutions, is often of the greatest importance, for often old foci are concealed behind urethral folds or deep strictures, biding their time to make trouble, and furnishing a potent source of evil.

When the foci are in the vesicles or prostate, rectal massage of these organs is to be carried out, and Fuller of New York has achieved remarkable results in certain cases of infected joints by incising the vesicles. Prostatic abscesses are to be opened and drained. Following these procedures marked changes in the joint conditions are often noted in a very short space of time. The most interesting development of recent years in the treatment of these joints is by means of the sera and bacterins; and many observers regard the employment of these products as of value, but brilliant results are not to be expected. There is great variability in the toxicity of the cultures of the or-

ganisms, and in gonorrheal joint infection there is as yet no well-established ground for believing that the use of these products can produce any marked curative effect. It is perfectly obvious that vaccines have not proved useful in most people's experience, and also, in the chronic cases, that organized thrombi, ankylosis, subluxations, contracted tendons and bone proliferation will not yield to sera or bacterins. It is also reasonable to suppose that a serum which may be given may contain no specific antibodies for that specific case, when of course no benefit can be expected.

The present-day opinion is towards the use of the mixed vaccines—especially in gonorrhea—where the vaccine contains not only gonococci, but also strains of staphylococcus aureus, albus and citreus. By their use the deep infections of the prostate, vesicles and epididymis are best attacked, for their chronic inflammatory areas are seldom free from the common pus-producing organisms.

Case I. J. B., age 31, single. Contracted gonorrhea six years ago, followed soon after by an acute inflammation of the right knee joint. This condition lasted ten weeks, and cleared up under ordinary methods, without the use of vaccines or sera.

Seven months ago, for no apparent cause, the right foot, left knee and back began to pain him, since when the back has become increasingly tender, painful and stiff, and the right foot has become swollen over the dorsum, stiff and painful. The condition of the knee joint has cleared up, but there has remained a tender area over the tibial tubercle on the left. He has considerable difficulty in walking and getting about, and also experiences great pain in his back when in bed and when attempting to bend it in any direction.

I saw him first on Jan. 9, 1912, after he had plates tried for his feet, without relief. He had also had about six doses of anti-gonococcic serum given him, without any noticeable benefit. His general condition was very poor, and he was steadily losing ground.

An x-ray was taken of the right foot, which showed bony spurs between the astragalus and os calcis, and between the astragalus and the internal cuneiform, besides bone atrophy and general cloudiness of the tarsal joints. A plaster cast was applied to the foot from the toes to the knee, and the back was strapped. Crutches were supplied, and daily baking with the radiant electric light, and massage, was instituted. He at once began to be better, but it was thought advisable to have him under closer control, so he was admitted to the Cambridge Hospital. Here he had his baking and massage continued. He wore the cast on the leg, and also had a plaster jacket applied to protect his back. At the end of a month he was discharged, much improved. Since then his improvement has been rapid, due largely, I believe, to massage of his prostate and vesicles, and dilatation of his urethra by means of a sound. Since this local treatment has been instituted, more shreds have appeared in his urine, showing that he was apparently getting rid of some focus of disease. He gained weight, over seven pounds in two weeks. His back is no longer painful, but is still somewhat stiff; the foot is practically well, not swollen or tender; but in order to overcome a slight valgus present and prevent strain, he wears a plate. Movements of the foot are free and painless in all directions.

Case of Mr. P., No. 2. J. P., age 40, married. Seen in consultation with Dr. Dudley of Cambridge. The history was as follows: No definite venereal history, but stated that many years ago he fell astride a log, and following that he had a urethral discharge. The present attack began a few weeks before I saw him, following the attempt to dilate a urethral stricture, accompanied by a cystitis. He complained of great pain and tenderness in the back, and had great difficulty in even turning in bed. The right knee joint was swollen, full of fluid and tender, as was also the left ankle. The swelling involved also the tarsal bones, and was thick and boggy in character. He had been having autogenous vaccines, his blood cultures having showed the Neisser bacillus besides others, without benefit for some time, had had some baking of his joints, and was confined to his bed. I strapped his back firmly in hyperextension, bandaged his joints, instituted bladder washings, prostatic massage, and advised the further dilatation of his stricture, which could at that time take only about a No. 18 French sound. The vaccines were continued.

I saw him again about ten days later. He then was considerably better. The right knee was not as painful, the fluid was largely gone, and the back was distinctly better. The cystitis had practically cleared up. I advised omitting the vaccines, for I could not see that they were doing any good. His back was restrapped, and I also strapped his ankle. He was advised to get up with crutches and to try to get about. As his urethra was not any further dilated I advised the use of larger sounds and the continuation of prostatic massage. I have since heard that his progress has been steady but slow, that he now takes a walk about the room without crutches or cane, and that the urethra will take a 28 French sound.

This case shows how obstinate such cases may be, and how dangerous it may be to fall astride a log. It also illustrates the value of prostatic massage, support to irritated and inflamed joints, and the gradual dilatation of a stricture to the full size of the urethra so as to obliterate folds, behind which old foci may be lodged.

I now wish to take up my last, but not least important subject, and will speak of a condition which is familiar to you all, namely, flat feet. Now feet are of all kinds, and are as purely individual in their idiosyncrasies as the person may be to whom they belong. There are several different types which you all see, however, and which may be divided roughly as follows:

(1) Weak feet.
(2) Flat feet.
(3) Painful and irritable feet.

These three conditions are of all degrees, and a foot may be weak, flat and painful as well as have only one of these conditions present. Feet of class one are usually seen in children and young people, in individuals with generally poor musculature, and in many others, as a result of poor shoes, which may cramp the feet and so

cause loss of muscular strength. The feet are generally no more than pronated slightly, that is, there is a slight eversion of the sole of the foot, which brings the weight bearing line inside the inner edge of the foot and so causes strain, tired feet and inability to be on the feet long.

The following case is one in point, and is so typical of many that it should not be overlooked:

CASE I. Miss H., age 43. Has had trouble with feet for past seven years. Has tried various kinds of shoes, pads and shanks without relief. The disability has become more marked this last year, and she experiences so much discomfort and her legs and feet become so tired after doing a little housework or walking a few blocks to the town, that she is practically incapacitated for the rest of the day. When she had reached this stage I saw her in consultation with her physician, with the questions of what was the matter, what was best to do, and why had not Thomas' heels, pads and shoes relieved her, to be answered.

On examination it was seen at once that her muscles were flabby from disuse, that the pronation of her foot had caused a joint strain in the knee and had started up a low grade synovitis there. She had been wearing a bandage about this knee for an indefinite time, which had caused further muscle atrophy, resulting in further joint relaxation. She had also worn a bandage about one of her ankles, with the same result. It was at once obvious that no foot splinting, by plates or otherwise, would be of avail until the muscle tone was bettered in her calves and thighs. I therefore started vigorous daily massage, electric light, baking and passive resistance exercises for the calf and thigh muscles, I made her take off her bandages, get low, snug-fitting shoes, give up her pads, and now at the end of about seven weeks she is practically a new individual, able to go about as she has not done for years, simply for the reason that she has recovered the use of her legs, which up to this time she had neglected to use sufficiently to keep her muscles in proper condition.

Other cases of class one may be much more simple than this one proved to be, and can usually be relieved by building up the inner edge of the heel about an eighth of an inch, and perhaps putting a slightly higher shank into the shoe, or by soft felt pads. Foot exercises, passive and active, are often advisable to prescribe, and the patient can then get well or not as she or he wishes, according to the degree with which he is faithful to the exercises.

Class 2 consists of those feet which are called flat. That is, where the long plantar arch touches the ground, in the extreme cases, to those where there is only a slight diminution of that arch. These are best treated by temporary splinting by plates or pads to allow the normal restoration of muscle balance, combined with exercises to strengthen the stretched and relaxed muscles. In certain mild cases, where a plate does not give relief or seem advisable, a flexible shank shoe may help by allowing the cramped and stretched muscles to do more work and so regain their tone. For people who stand a great deal the flexible shank is not satisfactory, for the foot muscles have to do all the work all the time under conditions in which they were never meant to work. For walking, however, it is good, for it allows freer use of the foot muscles than a stiff shanked shoe. When the feet are very flat, often plates and shoes are unsatisfactory and offer no relief, and manipulative procedures are then in order. The following case is one of severe flat foot, crippling in degree, and relieved absolutely by rest and fixation.

CASE II. Early last summer I saw in consultation with her physician a lady who had trouble with her feet for a year or two. She had tried several kinds of plates without relief, for they could not be fitted properly on account of the extreme relaxation of her foot, which was so great as to allow the scaphoid to touch the ground in weight bearing. I strapped her feet for a couple of weeks, which gave her only temporary and partial relief, and then sent her to a hospital, where I manipulated her feet under ether with a Thomas wrench. When I found that I could reduce the partial dislocation of her scaphoid and get her feet into an extreme varus position with very little force by my hands, I put her feet into plaster casts and left them there three weeks. All this time she had to go about on crutches, bearing what weight she could on the outer side of the casts and with the soles of the feet practically facing each other. At the end of this time I renewed the casts and strapped her feet again, until I could fit her to plates, which would tend to keep the inversion of the foot and at the same time hold the scaphoid in place. Before this treatment she was unable to get about without a great deal of pain, and was confined to the house. Since the restoration of her plantar arch she has been perfectly well and free from pain and discomfort, although having to wear plates.

Class 3 includes those painful and irritable feet which one sees as the result of over use, either in an acutely inflamed state or as a result of long continued abuse, resulting in a very stiff inflexible foot with some pronation and marked general contraction and spasm.

These feet are best treated by rest, that is, if not very bad, by strapping with sticking plaster and freedom from weight bearing, or if bad, by plaster casts extending to the knee, put on with the patient under ether, following either stretching by a Thomas wrench or division of the peroneal tendons so as to correct the valgus or eversion of the foot. The feet are put up in an extreme varus, or inverted position of the foot, as can be obtained, and kept in the casts for at least three weeks, at the end of which time plates are fitted to hold the position and the patient allowed to get about.

CASE III is that of a young man dependent on the use of his feet for a living, who had had considerable difficulty in getting about for some time. He had worn plates for several months without relief, and his feet were getting steadily worse, that is, more and more painful and irritable. I saw him in consultation with Dr. Andrews of Cambridge, and found the following condition: Both feet slightly

swollen and everted, marked general spasm and pain on attempt to adduct the foot; the general spasm was so marked that it was not possible to move the foot in adduction at all, and the attempt caused considerable pain. It seemed to me that as this young man wanted to go to work as soon as he could, and as his work depended on his being on his feet, the quickest way was the best for all concerned. He was given ether, the feet were manipulated and wrenched around into a varus position, and plaster casts were applied from the toes to the knees. He wore these for three weeks, when they were removed and plates fitted. This was about two years ago, and he recently told me that he works regularly and walks considerably, and has had no further trouble. In his case the general spasm from muscle irritation and strain was too great to be overcome without adequate and proper force, which plates could not supply. The enforced rest and stretching under ether supplied that want, as a result of which he is now well.

SIX YEARS' TREATMENT OF PULMONARY TUBERCULOSIS BY THE CLASS METHOD.*

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The present paper is based upon data taken from the six years' continuous work of the writer, as the physician-in-charge of the Tuberculosis Class under the auspices of the Arlington Street Church, Boston. Between the dates May 1, 1906 and May 1, 1912, 113 patients applied for admission to the class; of these, 103 were admitted as members. These 103 patients have been under observation for periods ranging from one month to five and one-half years, and are included in this report, whether or not under treatment at the present time. The reasons for including all the cases is that only four of the present class members have been under treatment less than three months; to throw out these cases would necessitate eliminating twenty-two discharged cases that remained in the class less than three months.

During the month of April, 1912, I obtained direct personal knowledge of 99 of these 103 cases. The remaining four were last heard from November, 1906, April, 1908, July, 1910, and March, 1911, respectively. Of the 99, 24 are known to be dead, 75 are living. Sixty-two of the latter were examined by me during the month of April, 6 of the remainder had left Boston and 7 failed to keep their appointments. Of the six that had left Boston, only one had remained in Massachusetts.

Study 1.

The following table shows graphically what results have been obtained. The nomenclature and classification is that approved by the National Association for the Study and Prevention of Tuberculosis in its report of 1909.

It will be noticed that the total number of discharged cases is only 82. This shows that there were 21 cases under treatment May 1, 1912. The second column gives the definite condition of 99 on May 1, 1912, and the last known condition of the four who could not be traced this year.

An analysis of these results shows that 22 cases were discharged as arrested, 33 as improved, 21 as progressive, and 6 as dead. It is most important to note, however, that, although no cases were discharged as apparently cured, 16, or 15½% may be considered such May 1, 1912. The number of arrested cases has increased since discharged from 22 to 25, or 24%; the improved have increased from 33 to 34, or 33%; while, of the 21 progressive cases, only 18 have died. Thus 72½% of the original number are living and but 23½% have died during six years. What better evidence of the continuation of the treatment after leaving the class can be furnished than this striking improvement, which has marked the subsequent life of our graduate members?

Study 2.

Have these results been obtained by selecting particularly favorable cases for this treatment? A further study of the table will show that this is not the case. Only 10% of the patients, who have been chosen for the class, could be considered incipient at entrance. 90% were well marked- 38% moderately, and 52% far advanced. Of the incipient cases, all but one have been arrested or apparently cured. Of the 39 moderately advanced, 28% have been apparently cured, 30% arrested, 28% improved, and 12% have been progessive or have died. Of the 54 far advanced, 3½% have been apparently cured, 13% arrested, 39% improved, and 44½% progressive, or have died.

As an example of a far advanced case apparently cured, I wish to cite G. K., married, age 34. Admitted September 19, 1906. Third stage involve-

TABLE FOR STUDY ONE.

	TOTAL	APPARENTLY CURED		ARRESTED		IMPROVED		PROGRESSIVE		DEAD	
		DISCH'D	MAY 1, 1912	DISCH'D	MAY 1, 1912	DISCH'D	MAY 1, 1912	DISCH'D	MAY 1, 1912	DISCH'D	MAY 1, 1912
Incipient	10	0	3	5	6	1	1	0	0	0	0
Mod. Advanced....	39	0	11	16	12	13	12	2	2	0	2
Far Advanced	54	0	2	1	7	19	21	19	2	6	22
Total	103	0	16	22	25	33	34	21	4	6	24

* Received for publication, Nov. 28, 1912.

ment of the lungs; general condition, poor; digestion markedly impaired; average of pulse for one week, 95-105; temperature, 98.4; and a history of repeated hemorrhages over a period of seven years. She was discharged as improved March 20, 1907, but continued to sleep out of doors until the winter of 1911-12. She has worked steadily since May 1, 1908, and has maintained a constant weight for the last four years. During these four years she has been entirely free from cough, expectoration, and has had a pulse averaging 68-78. The examination of the lungs shows retrogressive changes. She has raised no blood for over five years.

For a further understanding of the kind of cases submitted to our class-treatment, let us consider one important source from which we have secured patients. While on service at the Carney Hospital Out-patient Department October, November, and December, 1911, I treated 432 new cases. In that number, the diagnosis of pulmonary tuberculosis was made 43 times. From the latter number, with the assistance of the class friendly-visitor, I selected eight cases which proved suitable, from their nearness to Boston, from their home conditions and their personal attitude toward the disease, to be class patients. Thus out of an ordinary out-patient clinic it may roughly be assumed that one case in five or six would be found adaptable.

For this treatment to be successful there must be an opportunity for the patient to sleep out of doors, have the proper clothing, sufficient food and a fair amount of intelligence and adaptability. It has always been the policy of this class to choose those cases which give promise of obedience and perseverance, rather than those which seem to have favorable signs and symptoms. Thus no case has been considered too advanced to be given an opportunity to discover what we might do toward prolonging life. We have not been too insistent, moreover, at the start that a patient follow the rules implicitly, as our experience has taught us that it takes at least one month to persuade a new patient to conform to all the rules. Favorable cases have been encouraged to go to sanatoria and in several instances have stayed in the class only while waiting to be admitted to the proper sanatorium. On the other hand, 60 cases have remained that have been unsuitable for sanatorium treatment; 35, who were refused admission because too advanced; 7, refused admission because they had no civic settlement; and 18 children for whom, until recently, no provision has been made at our public sanatoria.

In this selection of the cases, my object has been to prove that this treatment affords recovery to people who, otherwise, would not be reached; and in consequence, occupies a definite place in fighting tuberculosis. What, therefore, has been the expense in money and in energy? and what results have been obtained by that expense?

Study 3.

The expense of energy can be measured first by the length of time that patients have been kept in the class. This study will be facilitated by the following table.

LENGTH OF TIME PATIENTS HAVE BEEN KEPT IN THE CLASS.

				TOTAL			TOTAL			TOTAL			TOTAL	GRAND TOTAL
Patients	1–2 mos.	12	1 yr. 1 mo.	2	2 yrs.	2	3 yrs.	1	5 yrs. 1 mo.	1				
	2–3 mos.	14	1 yr. 2 mos.	1	2 yrs. 2 mos.	1	3 yrs. 1 mo.	1	5 yrs. 3 mos.	1				
	3–4 mos.	5	1 yr. 3 mos.	2	2 yrs. 4 mos.	2			5 yrs. 6 mos.	1				
	4–5 mos.	6	1 yr. 5 mos.	1	2 yrs. 5 mos.	1								
	5–6 mos.	7	1 yr. 6 mos.	2	2 yrs. 6 mos.	2								
	6–7 mos.	7	1 yr. 8 mos.	4	2 yrs. 8 mos.	1								
	7–8 mos.	7	1 yr. 9 mos.	1										
	8–9 mos.	6	1 yr. 11 mos.	1										
	9–10 mos.	4												
	10–11 mos.	1												
	11–12 mos.	6												
	1–12 mos.	75		14		9		2		3				103
		73%		13%		9%		5%		3%				
Months		347		247		251		73		190				1138

The average time of treatment for all cases has been 11 months. Seventy-five cases or 73%, however, have an average of 5 months, while 26, or 25%, were in the class less than 3 months. Of these 26, 4 are in the class now; 7 left to go to various institutions; 1 died; 3 became too sick to come to the class and died later; 6 were compelled to stop treatment sooner than advised, but have continued to follow directions carefully; 6 left against advice because sleeping out of doors or other regulations were distasteful. We wish to note here that 33% of the deaths have occurred among those in the class less than three months. A great amount of energy has not been expended, therefore, upon the absolutely hopeless case. On the other hand several advanced cases whose progress was necessarily slow remained in the class from one year to five and one-half years. This number comprises 27% of the total. Without doubt this has meant the expenditure of a great deal of energy on our part. Has not a method of treatment, however, which can keep its adherents under observation for such long periods without any relaxation on their part from the prescribed treatment, much to commend itself?

The expense of energy can be further determined by giving a brief statement of the routine work of the friendly visitor and the physician. The class meets as a whole once a week for two hours. Patients are examined at the physician's office as often as once in six weeks. Formerly the sputum was examined every month, but for the last two years less frequently. The friendly visitor visits the patients in their homes, according to the length of time they have been in the class, once in one, two or three weeks; and occasional visits are made at the homes by the physician. Once a month a committee meeting lasting one hour is held at the Arlington Street Church at which a monthly report is read and the needs of the class are discussed with those members of the church who are interested in this particular work. After discharge patients continue to make two or three visits yearly to the class, and the friendly visitor makes as many calls at their homes, encouraging them to continue sleeping out of doors, to take the proper amounts of food, and more especially the proper amount of rest. If she finds any reappearance of untoward symptoms, such as a return of cough, loss of weight and strength, she sees that the patient comes back to the class for re-examination.

Study 4.

How effective has the treatment been? First of all let me repeat that 72½% of the total number of patients were known to be alive May 1, 1912. Secondly it has been possible to secure such a hold upon the patients that they have continued the treatment faithfully over prolonged periods. There is no doubt that the most striking results have come from this long time that very sick patients have been kept under observation. It is not enough, however, to have succeeded in keeping several people alive. What proportion of them, therefore, have been able to resume useful lives? To answer this question, I have arranged the following table:

LENGTH OF TIME PATIENTS HAVE WORKED SINCE JOINING THE CLASS.

	TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL	GRAND TOTAL
2 mos.	1	1 yr.	1	2 yrs.	5	3 yrs.	6	4 yrs.	3	5 yrs.	1	
3 mos.	1	1 yr. 3 mos.	1	2 yrs. 2 mos.	2	3 yrs. 2 mos.	1	4 yrs. 5 mos.	1	5 yrs. 1 mo.	1	
4 mos.	1	1 yr. 6 mos.	2	2 yrs. 3 mos.	1	3 yrs 6 mos.	3	4 yrs. 6 mos.	3	5 yrs. 6 mos.	1	
6 mos.	3	1 yr. 7 mos.	1	2 yrs. 4 mos.	1			4 yrs. 7 mos.	1			
7 mos.	3	1 yr. 8 mos.	2	2 yrs. 6 mos.	2							
8 mos.	3	1 yr. 9 mos.	1									
9 mos.	4	1 yr. 10 mos.	1									
11 mos.	2											
1–11 mos.	18	1–2 yrs.	9	2–3 yrs.	11	3–4 yrs.	10	4–5 yrs.	8	5–6 yrs.	3	59
	17½%		9%		10%		9½%		8%		3%	57%
Months	130		165		291		380		414		187	1537

Average number of months of work of 59 patients has been 26½.

From this table it will be seen that 59, or 57%, are working; three, or 3%, two to four months; nine, or 9%, one year to one year and ten months; 11, or 10%, two to two and one-half years; 10, or 9½%, three to three and one-half years; eight, or 7½%, four to four years, seven months; three, or 3%, five to five an one-half years. Forty-one, or 39% of the total class membership, have worked over one year. Three, however, have died subsequently, and seven have had such marked disease of the lungs as to be permanently below par, while the remainder, 31, are to-day in good physical condition.

Fourthly it is important to state that several patients have had to work all the time that they were under treatment, which would have been manifestly impossible had they gone to a sanatorium. Moreover, ten who are called members because they are making weekly visits to the class are working. This has been an additional reason why I have considered it proper to include all patients in the present analysis. The following case is a good illustration of one of our working patients.

P. D., married, age 26. Admitted November 23, 1910. Moderately advanced. Weight 120 pounds. This man could not stop working entirely, but was allowed to cut his working day down to four hours. He began to sleep outdoors and to go to bed about 8 p. m. February 9, 1911, his weight was 144¾ pounds, and he could do as much work then in four hours as he formerly did in eight. May 5, 1911, his weight had increased only to 148¼ pounds, but he was then doing a full day's work. He has improved steadily and now weighs 170 pounds, a gain of 50 pounds; has no cough nor expectoration; temperature is normal and the pulse averages 72. This result has been achieved without the loss of a single day's work.

Thus far stress has been placed upon the favorable results in this work. I should now like to discuss the 24 cases that have died. It is a significant fact that 12 deaths occurred before November, 1907, or in the first year and a-half that the class was organized, a period, when there was not only little enthusiasm for this mode of treatment, but much open opposition to it both from the laity and the medical profession. Therefore, it was necessary to admit many who were desperately sick and those for whom we could hope to do very little. What we did for those hopeless cases, however, gave us our start and made it steadily more and more possible to draw a favorable set of patients. Now the methods of class-treatment and the

kind of cases best adapted to it are better understood. In 1908, two patients died; in 1909, three; in 1910, three; in 1911, four; and none thus far in 1912. Of the 24 cases that died, nine, or 38%, were in the class less than three months, eleven, or 46%, from three to eleven months; and only four, or 16%, for more than a year. The last four stayed long periods, two years and two months, two years and four months, two years and five months and five and one-half years, respectively. No case lived less than three months and eleven or nearly 50% lived from one year to five and one-half years after starting the treatment. The question may properly be asked of what advantage is it to keep these very sick people alive? I should like to answer that question by citing the following case.

M. W., married, age 31. Admitted May 9, 1906. Very far advanced. Weight 109 pounds. This woman had a process involving both lungs; pulse, 120; temperature, 98.6; urgent dyspnoea, severe cough and profuse expectoration. She was accepted after being refused at Rutland, much against the advice of Dr. J. H. Pratt, as both of us considered that she could live but a short time. She showed such a remarkable spirit and was so eager to live for the sake of her family that I admitted her, nevertheless. No patient that I have ever had followed the treatment more punctiliously. In May of 1908 her weight had increased to 130 pounds and all her symptoms had definitely abated. During the summer of 1908, while on a visit to her former home in Nova Scotia, she had two severe hemorrhages. As a result the process lighted up and progressed steadily from that time. Her weight gradually dropped to 95½ pounds and her pulse was constantly above 115. She lived, however, till November 2, 1911, and was able to keep her family united all that time. She saw her small boy grow from an infant 3½ years old to a manly little boy of 9. Such courage, perseverance and cheerfulness as she showed during the 5½ years that she was under observation I have never seen equalled. Two days before she died she told me that "she was as anxious to live every year, month, week or day possible, as she was the day she started the treatment."

The results obtained by this class method cannot be measured simply by its effect upon the patient. Its field has been far wider. Its influence has extended from the patient to his entire family and from there to an entire neighborhood.

How this has happened is illustrated by the case of E. S., a little girl 8 years old. She was admitted December 16, 1909. Weighed 59½ pounds; moderately advanced. Her mother saw that she followed the treatment carefully and was much impressed with her rapid improvement. She determined that the rest of the family should sleep out of doors, so that for the last 2½ years this entire family, consisting of a husband and wife, three sons and one daughter have slept out regularly. This spring the mother stated to me that in no winter had she burned so little coal as in the one just passed, which will long be remembered as a severe one. Her children throughout the winter have insisted upon playing their games and eating their meals in rooms with the windows flung wide open to such an extent that curious neighbors have asked if the house were vacant. It would be difficult to find four stronger, healthier-looking children than these. The mother also tells me that she has had no doctor's bill to pay for over 1¼ years, whereas, formerly a week was a long time to go without sending for a physician.

Having discussed briefly the results, and the expense of energy, let us now consider the financial cost. During the six years the class has cost the Arlington Street Church $6748.50, an average of $1124.75 per year. I have divided this sum into two parts: (*a*) which represents the actual running expenses of such a class and includes salaries, friendly visitor's expenses, stationery and thermometers, amounting to $4727.11; (*b*) which indicates the poverty of certain patients and the generosity of those financing this movement and includes cots, tents, blankets, chairs, food, rent and board, totalling $2021.39. The average cost per patient including the entire amount has been $65.52; excluding the special charities, it has been $45.90. Thus by the expenditure of $45.00 to $65.00 per patient, 47 people have been enabled to return to positions ranging from houseworkers, waitresses, dress-makers, nurses, night-watchmen, teamsters, plumbers, bookkeepers, and factory hands, from which they are receiving wages ranging from $5.00 to $25.00 per week. In addition 12 children have returned to school. One of our most expensive cases, financially speaking, has earned since going back to work over $1500, or, five times what we spent on him. As the average stay in the class has been eleven months, it has cost $4.17 per month per patient, when we take the smaller amount (*a*); and $5.95 per month inclusive of all expenses. This sum, therefore, has made it possible for 59 people to return to work for an average of 26 months to date.

The scope of the work and various points in this method can be further illustrated and more easily grasped by citing particular cases.

G. P., boy 9 years old. Admitted December 9, 1909. Far advanced process at both apices. Weight, 48¾ pounds. For several years he had acted the rôle of chief entertainer in his family, as a singer of songs, a reciter of pieces and, when I first met him, was in the habit of staying up nearly every night till 10 or 10.30 to play bridge with his parents. He ran an almost continuous temperature of 99-100 for the first eight months of treatment, although he was kept very quiet and slept out of doors. Now he weighs 64¾ pounds, stands high in school and has been free from temperature, cough and expectoration for over a year.

L. A., boy 10 years old. Admitted December 14, 1911. Weight, 52¼ pounds. He had a third stage condition in his lungs, an old tubercular hip, an active tubercular phlyctenular keratitis and two discharging ears. While under treatment this winter he has had periods when his daily temperature has been as high as 102. Here again the boy had been allowed to sit up regularly till after 10 at

night, and to play hard during the day. At my request he was sent to bed at 7 o'clock and permitted to sleep as late as he would in the morning. For over two weeks he slept till 10.45 or 11.00 a. m., 17 or 18 hours without waking. At present he sleeps from 13-15 hours daily, weighs 56¾ pounds, his conjunctivae are clear, and his ears stopped discharging more than a month ago.

The next two cases, in addition to M. W. already cited, show what has been accomplished with apparently hopeless involvement of the lungs.

F. E., young man 19 years old. Weight, 121½ pounds; height, 5 feet, 11 inches. Admitted November 6, 1906. Far advanced, both lungs involved; a large cavity in left. Temperature, 101.8; pulse, 120, when absolutely quiet. Disposition, morose. While under treatment, a cavity developed at the right apex in back. He was transferred from the class April 1, 1909, to the Mattapan Cottage Hospital with a temperature averaging 99.6, pulse 116 and weight 186½ pounds, a gain of 65 pounds while under observation. This young man continued to improve slowly so that in 1911 cough and expectoration had almost entirely ceased, lungs had healed remarkably, pulse had dropped to an average of 68-78, temperature 98.4. The disposition had become cheerful, hopeful and ambition had made its appearance. Weight had remained constant at 178 over a year. He improved so much during the summer that he was allowed to act as barber among the patients and was sent to Boston on errands by the Camp authorities. I had promised him a good position in October. September 16, however, just after he had gone to bed, he started to cough and asked for a basin, which was brought to him, but before lights could be lighted he had bled to death from a sudden, severe and wholly unexpected hemorrhage. He had been under observation nearly five years.

P. G., man 42 years old. Weight, 115. Admitted May 1, 1906, but treated by me privately from January 18, 1906. I consider this the most remarkable case that has been under my care; it has always made me hesitate before giving a fatal prognosis in this disease. He had the distinction of being told at three of our leading Boston hospitals during the first two weeks of January, 1906, that he had practically no chance of living a month, and that no sanatorium would accept him. His temperature in bed was 100.4, pulse 108; both lungs showed extensive involvement, with a large cavity in the left lung from the spine to the angle of the scapula. He coughed incessantly, raised two cups of sputum daily and could eat almost nothing. He followed treatment as carefully as possible under very adverse circumstances; among other things, he had to contend with a wife who for two years repeatedly asked me why I did not let "that man" die in order that she might marry a man who could support her. He had several hemorrhages at various times, but slowly improved and gained weight up to 142 pounds, his temperature became normal, pulse ranged from 75-90, but cough continued and the expectoration amounted to one cup daily. May 1, 1908, it seemed wise to let him go to work. He worked off and on till February, 1909, when he had a very severe hemorrhage with an exacerbation of the process in his lungs. He rested carefully then for three months, and started to work again May 6, 1909, as a gate-tender. He worked every day including Sundays and holidays until March 7, 1910, when he became night-watchman at a steam-packing factory. He has worked every night since then, Sundays and holidays included. His duties are to sweep two floors 125 by 40 feet and two store-rooms from which he removes from one to four barrels of dirt each night. This dirt must be carried on his back to a dump. It takes him just three hours working steadily to do this. In the meantime he must make the rounds of the building every hour; this takes him seven minutes each time. Besides this, he must keep the fire going all night to maintain the steam at sufficient pressure so that the private fire-apparatus can be used at any time; in the morning he must rake down the fire, clean out the ash-pit and have steam up so as to start the factory at 7 a. m. Today his lungs show a healed process throughout, the heart is drawn over to the left so that the right border is to the left of the sternum and the left border at the anterior axillary line. His pulse varies from 68-84, temperature 98.0, and the weight has remained constant at 125-127 since October 20, 1910. He goes for a week at a time without coughing and raises less than a teaspoonful of sputum daily.

Four of our cases, C. E., A. J., C. A. J., V. MacA., are interesting because they have had the complication of pregnancy. Three have passed through child-birth successfully and without exacerbation of their processes, which would have been detected, as they were kept under close observation before, during and after the puerperium. One of these cases after an interval of four years is about to have another child. The fourth case is half-way through her pregnancy now and is in splendid condition. All of them have lived outdoors during the entire time and as soon after the birth as possible. None have been allowed to nurse their children, nor have they assumed care of the child till it was a year old.

The last case which I wish to cite is interesting because of the large gain in weight in a comparatively short time, and more especially because of his faithfulness to the principles taught him.

J, MacC., man 22 years old. Admitted August 8, 1906. Weight, 173½ pounds. Incipient case, with slight involvement of right apex. This man literally lived outdoors and improved rapidly. He went back to work November 7, 1906, weighing 185½ pounds. He has worked steadily since then. Throughout the first winter his weight increased to 194½; now he weighs 210. This is none too much for him as he is 6 feet, 2 inches tall and his muscles are large and firm. His lungs show no evidence of past or present trouble. From the day he started the treatment, he has never been outdoors less than twelve hours a day.

CONCLUSIONS.

1. The scope of the class work, though small, is larger than appears at first sight, because its influence extends beyond the individual patient and includes his entire family.

2. It is not too special to be practical, since one case in six of an ordinary clinic is suitable for this treatment; and 90% of the cases treated were advanced.

3. The expense of money is comparatively small; $65.00 per patient, or $5.95 per patient, per month.

4. The expense of energy, though considerable, is not out of proportion to the results obtained.

5. (*a*) The results show that 72½% of the patients are living at the end of six years.

(*b*) That this furnishes a means by which patients can be kept under observation for long periods, one to five years.

(*c*) That it cultivates in the patients a spirit of great faithfulness toward the treatment after discharge from the class, which is evidenced by their continuance of out-door sleeping and their marked after-improvement.

(*d*) That a large proportion, 57%, of the cases have returned to useful occupations for an average of 26½ months; and that some cases were able to have their processes arrested without losing a day's work.

(*e*) That the number of deaths has not been discouragingly large, 23½% in six years. That 50% or more occurred among those in the class less than three months.

6. It affords relief to persons who would otherwise not be reached. (*a*) The far advanced. (*b*) Those without civic settlement. (*c*) Children. (*d*) Those who under no conditions will leave their homes.

7. For these reasons this method of treatment is entitled to definite recognition. Without it, a valuable aid in the common fight against tuberculosis is lost. Just as the sanatorium teaches the discipline, encouragement and details of treatment to the individual, in like manner does this method act as an object lesson to teach the same essentials in the home, amidst the routine of daily living.

THE RÔLE OF PTOSIS IN GYNECOLOGY.*

BY ROBERT M. GREEN, M.D., BOSTON.

VISCERAL PTOSIS, as a physical phenomenon, has long been recognized by others than physicians; but its medical recognition as a clinical disease entity and as an associated and etiologic factor in the production of other pathologic conditions is of comparatively recent date. In its common acceptance the term ptosis is understood as referring to prolapse of the abdominal viscera, not into a hernial sac, but into an abnormal position within the intact peritoneal cavity. This condition, whatever its cause, may be associated with, or may itself produce, similar downward displacement, or other disease, of the underlying pelvic viscera. In the female, particularly, these pelvic disturbances may be of great importance to the comfort and welfare of the individual; so that apart from the intrinsic conditions of abdominal prolapse, ptosis may play an important part in the consideration and remedy of pelvic affections. The rôle of ptosis in gynecology is therefore deserving of special study in connection with that of the general subject.

Prior to 1909, little had been written on ptosis in its gynecologic aspect. In that year, however, Reynolds and Lovett[1] published their first paper on this topic, and from their work has proceeded its more recent investigation. The present consideration of the literature, therefore, will take their report as a point of departure, and will aim to correlate what has been hitherto done without adding more new material.

In 1909 Reynolds and Lovett[1] published a preliminary report of work which they undertook in order to determine the application of physiologic research on the static problems of the human body to certain problems in clinical gynecology. Their investigations were chiefly concerned with the influence of corsets and high-heeled shoes on the symptoms of pelvic disorders. Reynolds points out that "if our belief that the abdominal ptoses are frequently the result of static conditions is in any sense correct, it is evident that if one of the operations for the correction of a retroversion or other ptosis is undertaken in the face of general static conditions which constantly urge the uterus backward, it is pretty sure to be either an anatomic or a symptomatic failure." Lovett, from the orthopedic standpoint, presents a study of cases of static backache, and of the effect upon them of various forms of corsets and shoes. The static backache, he finds, is usually due to conditions, such as a faulty corset, which throw the centre of gravity of the body too far forward. Singularly enough high-heeled shoes, though bad for the feet, tend to correct the evil of a bad corset. The good corset throws the centre of gravity farther back, and will relieve such a backache. The type of woman most subject to static backache and to visceral ptosis is the "unstable type with pronounced curves of figure whose outlines make wide excursions to one side and the other of the base of support." Since backache is the commonest single symptom of pelvic disease, it is therefore important for the gynecologist to differentiate such backaches as are associated with ptosis due to static conditions which can be corrected by a properly fitting corset or other appliance.

In 1910 Reynolds and Lovett[2] published the completion of their experimental study of certain phases of chronic backache, in which they elaborated the principles noted above, and figured the apparatus used in determining whether the posture of a given patient were at a fault. Such faulty posture, with its attendant backache, may be due to habit, fatigue, errors in clothing, or to trauma. It may be remedied by removal of the cause and by the temporary or permanent use of a properly fitting corset which keeps the

* Read at a meeting of the Surgical Fortnightly, Oct. 15, 1912.

centre of gravity back to its normal position. When backache is primarily associated with inflammatory or neoplastic pelvic disease, the faulty posture may be due to the patient's instinctive effort to relieve pressure on the diseased organs. The change in posture increases the backache, and thus a vicious circle is established. On the other hand, retroverted uteri and prolapsed ovaries "can be promptly relieved by minor intrapelvic treatment after the static faults which caused them have been corrected. Ptosis of the kidneys and upper abdominal viscera are equally important and should be considered. The complication of ptoses with inflammatory conditions demands evidently the weighing of relative indications in the individual case. Throughout the field of gynecologic practice the estimation of static conditions is of importance whenever backache is a symptom."

In 1910 Richard R. Smith[3] reported a study of enteroptosis which he had made on 400 women. He finds the typical characteristics of the woman subject to enteroptosis to be lack of fat, diminution in size of the thorax and upper abdomen, and muscular hypotonus, particularly in the abdominal wall. These form a type of woman which every physician will recognize, a type also more subject to static defects and to consequent pelvic disturbance.

Ochsner[4] studying the same problem in 1910 from a surgical point of view points out that the pendulous abdomen of enteroptosis, whatever its cause, allows the abdominal viscera to lie in front of instead of above the pelvis. It is the pressure of these misplaced organs which may cause retroversion of the uterus. For the relief of such pendulosity, he recommends Webster's operation of "laying bare the rectus abdominis muscle on either side of a median incision by laying open the fascia and then suturing all the layers successively, securing union between the internal edges of the recti muscles."

From a medical point of view Musser,[5] in the same year, studied other conditions,—neurasthenic and symptomatic,—associated with enteroptosis, and concluded these to be often not results but concomitants, parallel symptoms, with the ptosis, of a fundamentally depraved, bankrupt vitality, expressing itself in the various physical failures of the unfit. For these congenital ptoses, and the conditions associated with them, little can be done by medicine and nothing by surgery. For the acquired ptoses, in persons not wholly of a morbid habit, much can be done by removal of the cause and temporary aid till its results are overcome with prevention of its recurrence. When the symptoms for which relief is sought are gynecologic, the treatment must be determined by determination whether they are due to ptosis or are associated with ptosis as a cause or accompaniment.

Late in 1910 Reynolds[6] again reported some further results of his study of the etiology of the ptoses and their relation to neurasthenia. In this he also recognized under the static abnormalities producing ptosis, not only the thin, flat-backed, round-shouldered type but also the fat, overfeminine type, with hyper-extended knees, large hips, hollow back, small waist, prominent breasts, and small hands and feet. In both types "the centre of gravity is habitually carried too far forward." From these general static abnormalities leading to ptosis, he distinguishes the local causes of pelvic ptoses, among which he enumerates obstetric trauma, inflammatory diseases and developmental anomalies, the latter including chiefly excessive adherence of vagina to rectum, persistence of the ileolumbar ligament on the right side, and anteflexion of the cervix. All these conditions, he believes, may be and often are associated with neurasthenic phenomena, which may be relieved by relief of the ptosis, when the latter is acquired, but are not relieved when both are symptoms of an irremediably depraved, unstable physical organization.

The most elaborate and complete single recent paper on the subject of splanchnoptosis is that published this year by Burckhardt[7] of Königsberg. He reviews the entire topic in all its aspects, and presents an exhaustive bibliography of 582 titles. His work deals chiefly with ptoses of the abdominal viscera, but some of the references are to papers on gynecologic details of the general problems.

The very latest work to appear on the subject of ptosis in gynecology is that of Dickinson and Truslow[8] in a paper entitled "Averages in Attitude and Trunk Development in Women." These authors describe the three types of feminine posture as the normal, the kangaroo, and the gorilla, the second corresponding to the hollow-backed, the last to the flat-backed type above described. They give directions and methods for plotting the attitude, and emphasize its importance as a determining factor in gynecologic pain and ptosis.

CONCLUSION.

In conclusion it may be said that the rôle of ptosis in gynecology is primarily in the production of pelvic displacements, secondarily in association with and as a result of intrinsic disease of the pelvic viscera. In the one case it is a cause, in the other a symptom. When the ptosis is primary it may be congenital, in subjects of a depraved general physique, or acquired either by static errors or as a result of the fatigue and trauma incident to life. In any event, it should be considered as a possible cause for gynecologic symptoms, especially backache, and the proper measures adopted for its cure or relief.

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THE MARINE HOSPITAL AT BERCK-SUR-MER, PRINCIPALLY FOR CRIPPLED CHILDREN. THE LARGEST INSTITUTION OF ITS TYPE IN THE WORLD.

BY DOUGLAS C. McMURTRIE, NEW YORK.

SITUATED on the seashore of France at Berck-sur-Mer there is located the largest marine hospital in the world, an institution accommodating well over 1,000 patients. In many respects, and especially as regards its facilities for out-of-door treatment, the hospital is an establishment of great interest.

Though not specifically stated, the hospital is orthopedic in character and devoted largely to the treatment of the crippled children of Paris. Other cases of a medical or convalescent type are taken, but patients suffering from surgical tuberculosis are in the great majority.

The hospital was originally intended for scrofulous children when it was opened on July 8, 1862, with a capacity for 100 patients. It is probable that chance had a great deal to do with the choice of Berck for the site but it would be



Marine Hospital, Berck-sur-Mer.
View from Beach.

difficult to find a better location along the English Channel. Situated at .40 west longitude and 50.20 north latitude, the hospital is flanked by a stretch of beach fourteen miles long and, at highest tide, about a mile wide. This beach is of clear sand, free from pebbles or rocks. It faces due west and is protected from the cold north and east winds and is not affected by the southwest storm. In this latitude the temperature at sea-level is never very high and even in the extremes of winter never goes below 17° Fahrenheit and during most winters stays between 23° and 25°. The sand beyond the high-water mark is never frozen to a greater depth than two inches, and, according to the hospital authorities, this explains how the children are able to live in the open air and on the beach throughout the greater part of the winter.

There are no salt marshes in the vicinity. The sands are not shifting and every receding tide leaves a number of pools where the children can paddle and bathe in still water that often reaches a temperature of 77° Fahrenheit.

In 1867 there was started in a plot of 87 acres a new hospital with a capacity of 700 beds. The first small hospital had been located about ten feet above high tide (about 25 feet above average tide) but eight years' experience had shown that this was too low and the new hospital was built on a level six and a half feet higher. A balcony was built around the building, wings and court, providing a covered walk for the children a third of a mile in length.

There were fourteen dormitories of thirty-six beds apiece, each bed being allotted 1400 cubic feet of air. Five infirmaries, each containing sixteen beds, had the same cubic allowance of air. Two gymnasia were built in the playgrounds for use in winter and bath-houses for use in summer. A large swimming pool was built in the hospital so that sea bathing might be continued during the cold season. In addition there were tubs for warm baths, fresh and salt, a hydrotherapy room, Turkish baths, and bathrooms for the employees. The cost of construction amounted to about $625,000. In 1872 another addition, the "Rothschild Hospital," was built. Little by little the hospital originally designed for scrofulous and rachitic children, lost its original character and by 1901 became more of an active orthopedic hospital. The facilities were not entirely adequate for this type of work and between 1905 and 1910 there were erected additional buildings which increased the capacity by 300 beds. In 1909 an isolation building was constructed. Each year during the early part of August vacation clinics are held, which are attended by large numbers of French and foreign physicians who are interested in the seaside treatment.

According to the rules enacted in 1909 the beds are divided into two classes: those for bedridden children, and those for ambulatory cases. Four-fifths of the cases are surgical and one-fifth medical. The maximum length of stay is one year.

The children are recruited as follows: Each month the director of the marine hospital advises the General Hospital Board of Paris regarding the number of beds unoccupied and the probable number of children who will leave for Paris the following month. The different Paris hospitals are then informed of the number of vacancies for various types of patients, which they will have the privilege of filling. The director of each hospital sends the list of children chosen by the surgeons and physicians to the General Board which makes inquiries as to the status of the parents. After this the proposals are returned to the different hospitals which bring the children before the admission committee, which sits on the second Monday in each month at the "Hopital des Enfants Malades." The children are examined individually by the committee. As soon as one of them is appointed to leave, a ticket is given to the person who has the child in charge, indicating the date and hour when the patient must be brought to the hos-

pital, from which to be taken in a vehicle to the railroad station, "Gare du Nord."

The journey from this station in Paris to that of Rang-du-Fliers is made in a car specially designed and fitted for the service and belonging to the hospital administration. The car can accommodate about fifty children in addition to the persons in charge, viz. six nurses, one house surgeon and an employee of the administrative department who is in charge of the trip. The contract cost for the journey irrespective of the number of children and nurses is $37.35. The monthly vacancies average about eighty, so the car makes two trips both ways, with forty children each. The monthly list of children that are to return to Paris is made out by the surgeon; it includes the cured, those whose stay has not proved beneficial or has been unfavorable, and those called back by their parents. Each hospital receives one week in advance a return list of the children sent by it, and notifies the parents to be on hand, at the hospital, to take charge of them upon arrival.

The children are taken in carriages from the marine hospital to the station at Rang-du-Fliers, where they must arrive before 7.15 a.m. The car, which is kept at the Calais Station, is attached to the fast train leaving Calais at 5.58 a. m., arriving at Rang-du-Fliers at 7.28 and leaving again at 7.31 a. m. In three minutes the employees who are trained to the work, get the 40 or 50 children on board, together with the linen and baggage. The train reaches the Paris station at 10.20 a. m., where the representatives of the different hospitals await the children. The employee in charge of the trip hands over to the representative of the hospital whence they came, the little patients of his institution, the sorting out being facilitated by armlets with which the children are tagged before leaving Berck. Upon reaching the various hospitals the children are handed over to their parents. The special car which has brought from Berck the first returning contingent is used the next day to take back the first contingent going out to the hospital. A second round trip is made the two following days. The car is then housed at Calais till the following month.

The departures from Paris take place at 11.30 a. m. On their arrival at Fliers the children are taken in carriages to the Marine Hospital where they are installed in the isolation wards, two distinctions being made: In one case they are segregated from the rest of the patients at the hospital, in the other they are isolated individually. Children of the latter class are given beds in separate glass cubicles, and thorough antiseptic precautions are taken. Children of the former class are allowed in the court of the isolation building, then out upon the sand dunes and later upon the beach, but all the time kept apart from the regular patients. At the end of the month they are distributed among the various hospital wards. The children who are isolated in cubicles for the month are kept separate from the other patients for a second month, but during this period in a common room.



Isolation Cubicles.



Outdoor Treatment.
Gallery Outside Ward A.



New Building, Ward A.
The beds have been rolled out on the gallery.

There is also a contagious pavilion with 40 cubicles. The diseases are treated by the Pasteur hospital system which does not call for a special pavilion for each disease. After leaving the isolation department the children are placed in three groups: the bedridden in the buildings facing the sea, the semi-ambulant on the ground floor of the old buildings, and the fully ambulant on the upper floors of the old buildings.

The bedridden cases of long duration are lodged in the new building facing the sea, and as they are not in a position to be taken to the beach they spend much of their time on the galleries outside the wards. The use of outside gal-

leries is one of the features of the hospital at Berck and is worthy of imitation. The illustration of ward A shows it almost empty, the beds having been wheeled out upon the outdoor gallery, as shown in another photograph. The semi-ambulant patients are quartered on the ground floor of the older buildings. This arrangement avoids crowding the wards assigned to the bedridden and allows the children to take the prescribed amount of exercise in the adjoining yards and playgrounds, exposed to the sun. The ambulant cases in an advanced state of convalescence are provided for on the second and third floors of the old buildings. They go out on the beach morning and afternoon, take sea baths in summer and warm salt baths in the pool in winter. Marine treatment is supplemented by the regular orthopedic procedure, though operations are avoided except when absolutely necessary. All modern facilities are provided for the hospital work. There are large modern kitchens in both the new and the old buildings and there is a large laundry equipped with adequate machinery to take care of the washing.

The children are placed on one of the three following diets: (*a*) milk diet for those of any age who can assimilate milk only, (*b*) diet for children between the ages of two and seven, (*c*) diet for those over seven years of age.

These diets are made up as follows: (*a*) The milk diet consists of two quarts of milk per diem. (*b*) This diet consists of 2 quarts of milk and ½ lb. of bread during the day, plus the following: *Breakfast,* ½ pint of milk soup or cocoa made with milk. *Luncheon,* ½ pint of meat or vegetable soup, ¼ lb. of fish or 1-5 lb. of meat; ½ gill of purée of dried vegetables or 6 oz. of rice or macaroni paste or 5 oz. fresh vegetables or potatoes. *Dessert* is served as a collation between luncheon and dinner and consists of either 1½ oz. of jam or 2-3 oz. of cheese or 2 oz. of dried fruit or ½ oz. of chocolate. *Dinner,* ½ pint of milk soup, an egg, and a vegetable different from the one at lunch. (*c*) This diet comprises for the day 1½ pints of beer, ¾ gill of wine, 13 oz. of bread, plus the following: *Breakfast,* same as diet *b*. *Luncheon,* same as diet *b* except slightly heartier. *Dessert* is served as collation same as diet *b*. *Dinner,* ½ pint of meat or vegetable soup, 2 eggs or 5 oz. of meat and a vegetable different from luncheon.

The hours for meals are as follows: For bedridden patients, breakfast 7 a.m., luncheon 10 a.m., collation 2 p.m., dinner 4 p. m. For ambulant patients, breakfast 7 a. m., luncheon 10.30 a.m., collation 2 p. m., dinner 4.30 p. m.

There are four class rooms each with a capacity of fifty children where the educational requirements of those patients who are well enough are provided for. School hours are from 8 to 9.30 a.m. and from 2.30 to 4 p.m. for the older pupils. The elementary classes are from 9.30 to 11 a. m. and from 2.30 to 4 p. m. The duties of the teachers do not exceed four hours per day.

Medical Progress.

RECENT PROGRESS IN GENITO-URINARY SURGERY.

KIDNEY.—RENAL TESTS.—URETER.—BLADDER.—URACHUS.—PROSTATE.—TESTIS.—CLOSURE OF NEPHRECTOMY INCISION.—CANCER OF PROSTATE.—EXCLUSION OF THE BLADDER.— RESULTS OF SURGICAL TREATMENT OF RENAL CALCULI.—THE END RESULTS OF NEPHRECTOMY IN CASES OF RENAL TUBERCULOSIS.

BY F. S. WATSON, M.D., AND PAUL THORNDIKE, M.D., BOSTON.

KIDNEY.

Perinephritic Infection.—Harzbecker[1] reviews the entire subject and reports a series of cases from Körte's clinic. He insists that the cause of the infection is usually traceable, often to some slight condition such as a paronychia, furuncle or carbuncle. The urine sometimes shows casts and blood cells and occasionally the organism may be isolated from it.

Ascending Infection.—Müller[2] studied the pathology of non-tubercular infections of the kidney and concluded that the process extends from pelvis to parenchyma through lymph channels and not by way of tubules, although as the infection extends along the lymph channels it may often rupture into tubules, so infecting them.

Tuberculosis of the Kidney.—J. H. Cunningham, Jr.[3] This is a study of the relativeness of tuberculosis of the kidney to tuberculosis of the lungs. It was found that out of 825 hospital cases of pulmonary tuberculosis, 70, or 8% had renal involvement and of these 70 cases, 11 or 15 5-7%, had a unilateral infection only. From urine analysis, 216 cases, with albumin found in only 13, and guinea-pig inoculation being negative for tuberculosis in every case, Cunningham concludes that renal tuberculosis is not often associated with pulmonary tuberculosis even when the latter is far advanced in its development The latter part of this work was devoted to experiments to determine whether tubercle bacilli are eliminated from the circulation by the kidneys without producing tuberculosis of these organs. The writer thinks his work justifies the inference that "it is not common, at least, for the tubercle bacillus to be eliminated through the kidneys without affecting the organs in patients sufferings from pulmonary tuberculosis."

Use of the X-ray in Tuberculosis of Kidney.—The writers[4] assert, as the result of a study of a small series of cases, that the findings are typical and permit an exact anatomic orientation of the conditions before operation.

RENAL TESTS.

The Phthalein Test.—Rowntree and Geraghty[5] follow their original article with this second one which contains the following conclusions:

1. The absorption of phenolsulphonephthalein following injection into the lumbar muscles is better than the absorption from the gluteal injection, while the latter is superior to subcutaneous injection.

2. Administration into the lumbar muscles is the method of choice.

3. Experimentally those diuretics that stimulate the renal cells to increased activity cause some increased secretion of phenolsulphonephthalein, while those that act mechanically produce no increased secretion. Clinically diuretics do not influence the phthalein output.

4. Experimental evidence seems to indicate that phenolsulphonephthalein is excreted mostly by the tubules but probably also to a slight extent by the glomeruli.

5. The renal cells display a striking specificity in the excretion of phenolsulphonephthalein.

6. Phenolsulphonephthalein has many advantages over all other functional tests so far proposed.

7. It is better adapted for use as a functional test than any other drug previously employed for the same purpose, on account of its early appearance in the urine and the rapidity and completeness of its elimination by the kidney and the reliance to be placed on its findings.

8. The method of quantitative estimation of the amount of drug excreted is simple and exceedingly accurate.

9. It is of immense value from a diagnostic and prognostic standpoint in nephritis inasmuch as it reveals the degree of functional derangement in nephritis, whether of the acute or chronic variety.

10. In the cardiorenal cases so far studied the test has proved of value in determining to what degree renal insufficiency was responsible for the clinical picture presented.

11. The test has proved of value not only in diagnosing uremia from conditions simulating it, but has also successfully indicated that uremia was impending when no clinical evidence of its existence at the time was present.

Excretion of Formaldehyde.—Burnam[6] concludes from a study of many specimens of bile, sputum, saliva, urine, etc., that even after large doses of the drug only minute traces appear in these fluids and that it occurs in such small traces as to be without value therapeutically. In urines, however, free formaldehyde is found at times in quantity and only in these cases does any benefit appear from the use of the drug. In other words, the clinical and chemical findings have agreed.

Excretion of Formaldehyde.—O. R. T. L'Esperance.[7] This paper represents a study of the Burnam test just mentioned above. The author concludes:—

1. Formaldehyde appears in the urine in only 52% of patients taking urotropin.

2. Reaction of the urine is of no importance.

3. Alkalies taken with or in combination with urotropin have no effect on excretion.

4. Duration of excretion of formaldehyde is about four to six hours.

5. Increase of dosage does not affect excretion in negative urines.

6. Urotropin practically symptomless in average dose.

7. The urine of all patients taking urotropin should be tested for formaldehyde.

8. Patients not excreting formaldehyde are symptomless regardless of the amount of urotropin taken.

The test is performed as follows: To about 10 c.c. of suspected urine in a test tube at body temperature is added:

1. Of solution phenylhydrazine HCl 0.5% gtts. iii.

2. Solution sodium notroprusside 5% gtts. iii.

3. Of saturated solution sodium hydrate a few drops poured along the side of the test tube.

As this latter solution diffuses throughout the urine in the tube, if formaldehyde is present (or the urine is positive), a deep purplish-black color is seen quickly changing to dark green, gradually getting of a lighter shade of the same color, to finally, pale yellow.

With a urine that does not contain formaldehyde (or is negative) the color reaction is as follows: As the saturated solution sodium hydrate diffuses through the urine in the tube, a reddish color is seen gradually turning to light yellow.

Diastase Test for Renal Function.—The writer[8] says that diastase ferment is eliminated less well by diseased kidneys than by normal ones just as is the case of sugar, salt, etc. He therefore contends that the amount of diastase in the urine may be used as an index of renal function. The technic for the test is merely addition of 1 drop of normal 1-10 solution of iodin to each of ten test-tubes containing progressively increasing amounts of the urine, to each tube having been previously added the same amount of a 1% solution of starch. The iodin stains the undigested starch blue, while in the tubes in which the action of a diastase is apparent the tint is yellow or orange.

URETER.

Ureteral Ligation.—Barney[9] has written his article embodying three years' experimental work on animals, in the effort to show by results the effect of sudden and complete occlusion of the ureter. His summary of results is as follows:—

1. Sudden and complete occlusion of one ureter may produce no symptoms whatever, and uninterrupted recovery may ensue in 21% of cases, but,—

2. In the event of an injury to both ureters there is complete anuria in all, as is to be expected, whereas,—

3. In the unilateral injuries suppression of urine occurred in only 1.6%.

4. Ureteral fistulae are developed in 24%, their site depending upon the nature of the operation.

5. Where only one ureter is ligated, pain and tenderness in the kidney, usually subsiding spontaneously is to be expected in 26%. It has not been found in cases of bilateral injury.

6. Infection of the kidney produced by the injury to the ureter, or aggravated by it, and necessitating subsequent nephrectomy, occurred in 15%.

7. Both ureters may be clamped for as long as 72 hours with complete recovery after removal of the obstruction, whereas one ureter may be completely blocked for ten days without destroying the integrity of the kidney.

8. Of 15 patients in whom the subsequent condition of the kidney was investigated, hydronephrosis was observed in 80%, but in no case was this of more than moderate size. In the remainder there was said to be "no change" in the condition of the kidney.

9. The mortality of bilateral occlusion of the ureter is found to be 33.3%, whereas,—

10. In unilateral occlusion the death rate is 17.8%, but in both instances we must consider the influence of other factors, such as the previous condition of the patient, and the severity of the operation.

11. Our investigation of this series of cases shows (*a*) that there is a strong probability that many a ureter is ligated without the fact being known, and (*b*) that in the presence of postoperative anuria, and in the absence of localizing symptoms examination of each ureter by the cystoscope may be the only means of determining whether one or both ureters have been occluded.

Scott[10] in a series of 41 experiments on dogs and similar in character to Barney's just quoted, reaches the following results:—

1. Complete ligation of the ureter produces hydronephrosis, the degree depending upon the duration of the obstruction.

2. The changes occurring in the kidney parenchyma after complete obstruction of the ureter take place in a definite order. First, the straight tubules are dilated, then the convoluted tubules are similarly affected, and last to suffer are the glomeruli. These changes consist of dilatation of the tubules, flattening of the epithelium, granular changes of the epithelial cytoplasm and occasionally breaking of the cell wall. The interstitial tissue is usually increased and in late stages the blood-vessels are sclerotic.

3. Compensatory circulation by anastomosis of the renal vessels with vessels entering the kidney through the capsule probably plays no part in determining whether a primary atrophy or hydronephrosis develops after complete ligation of the ureter.

4. Incomplete obstruction of the ureter produces hydronephrosis.

5. The degree of hydronephrosis following incomplete ligation of the ureter depends upon the duration and upon the pressure required to force urine past the constriction.

6. Complete permanent obstruction produces hydronephrosis more rapidly than an incomplete obstruction of the ureter.

7. The microscopic changes following incomplete obstruction of the ureter are practically the same as those following complete obstruction.

8. Complete ligation of the ureter retards secretion of the kidney but will not completely arrest it.

9. In hydronephrosis of highest degree, the kidney epithelium is never completely destroyed, but is capable of further secretion.

10. Complete permanent ligation of the ureter does not produce atrophy of the kidney, but this resulted in one case of incomplete obstruction.

Beer[11] in a third article embodying the results of similar experimental work, offers the following résumé of his results:

Infection of a non-stenosed ureter may lead to a hydronephrosis, but rarely to abscess formation. Aseptic ligature of ureter leads regularly to a primary hydro-ureter and hydronephrosis, but at about three weeks an atrophy and shrinkage of the hydronephrotic sac begins and continues so that after three to four months the kidney is represented by a small fibrous mass, provided infection is not present, in which case a huge hydronephrotic sac results. After three weeks' exclusion sufficient parenchyma persists to warrant an attempt at secondary implantation of the ureter into the bladder.

Ureter Grafting.—Chiasserini[12] experimented upon the ureters of dogs with grafts, using pieces of vein or artery, suturing the grafted material to the cut ends of the ureter by a modified Carrel method. His conclusions follow:

1. There is a possibility of the vessel introduced between the two ureteral ends becoming firmly united to them.

2. The piece transplanted, a few days after the operation becomes shortened so as to draw the two ureteral ends nearer together.

3. The graft becomes thicker and hard, while the lumen is nearly obliterated.

4. The stenosis causes a stoppage in the flow of the urine with consecutive dilatation of the canal of the ureter and hydronephrosis. It is certain at any rate, he says, that vascular grafts cannot be used to replace a segment of the ureter.

BLADDER.

Iodin Vapor in Cystitis.—Farnarier[13] advocates and reports good results from the treatment of cystitis, both acute and chronic, with iodine vapor injected into the bladder through a catheter from a flask in which the vapor is generated by heat from iodoform.

Colon Bacillus.—Koll[14] presents a clinical and experimental study of the colon bacillus in the bladder and elsewhere in the urinary tract, and presents the following conclusions, reached from his work on a comparatively small number of cases, relative to the value of liquor aluminum acetate as a therapeutic agent:—

1. Liquor aluminum acetate in a dilution of 2% is an active germicidal and antiseptic agent to the colon bacillus and the colon group of bacteria.

3. Liquor aluminum acetate in 2% dilution has no deleterious effects upon the mucous membrane of the urinary tract.

3. The germicidal and antiseptic properties are due to the acid radical of the drug, as proven with the experiments with acetic acid.

4. Whether or not the acetic acid produces any untoward action upon the mucous membrane of the urinary tract will be reported upon in a subsequent communication.

5. The internal administration of the subacetate of aluminum raises the total acidity of the urine, which is desirable in dealing with the colon bacillus infections of the urinary tract.

The clinical observations lead us to believe that:—

1. Colon bacillus infections of the kidney pelvis, urinary bladder and male urethra are more promptly ameliorated by the 2% liquor aluminum acetate than by any therapeutic measure previously used.

2. The bacteria in the urethral discharge disappear in from 36 to 48 hours following the instillation with the liquor, but other astringents may be necessary to "dry up" the discharge.

3. Care must be exercised in the preparation of the liquor aluminum acetate as an excess of free acetic acid will produce unpleasant subjective symptoms. The solution must not be more than a week to ten days old when used.

4. The liquor aluminum acetate is of value only in those cases where the presence of the colon bacillus is proven by cultivation under the most careful aseptic precautions.

URACHUS.

Smith[15] reports three operated cases, two of patent urachus and one of tumor with a broad, fibrous urachus for its pedicle.

Pearse[16] reports an extraordinary case of tuberculosis in a patent urachus with haematuria.

Schwarz[17] describes what he believes to be the first recorded case of primary cancer of the urachus. It occurred in an elderly man and was removed without difficulty.

These cases are recorded for their interest and rarity.

PROSTATE.

Lendorf[18] agrees with Zuckerkandl and Tandler that the old arbitrary division of the prostate into two lateral and one median lobe is no longer tenable and that the nomenclature of prostatic anatomy and pathology must be radically revised to represent known facts. He insists that the hypertrophy of later years is a hyperplasia of bits of prostatic tissue under the mucosa of the prostatic urethra and inside the vesical sphincter and that the prostate itself is pushed outward by this hyperplasia and is not removed in suprapubic operations and the ejaculatory ducts should remain intact. Kolischer,[19] Marion,[20] Legueu[21] uphold these anatomical and pathological views.

Chiari[22] also considers that the newly found tissue is largely adenomatous in character and suggests neoplasm. These essential changes in the gland take place independently of any inflammatory process.

TESTIS.

Barney[23] studied 153 cases of tubercular epididymitis at the Massachusetts General Hospital and advocates epididymectomy with vasectomy as the operation of choice in such cases.

Mallannah[24] in studying hydroceles from a bacteriological point of view, found one case which contained bacillus pyocyanens. He injected a vaccine containing 25,000,000 of this germ into the evacuated tunica vaginalis and after a fairly severe inflammation the case was cured. Encouraged by this case, he accomplished similar results in a dozen or more other cases.

Caforio[25] claims good results for auto-serotherapy in hydrocele cases and says he found it adequate in 45% of his cases.

CLOSURE OF NEPHRECTOMY INCISION.

Mayo, Wm.[26] advocates the entire closure of the outer wound after nephrectomy in cases of tuberculous kidney. This advice rests upon his belief that in many cases in which the frequently resulting sinus after this operation in the cases above mentioned allows the production of a mixed infection which accounts for some of the manifestations that may appear following these nephrectomies and also may account for the death of some of the patients having such fistulae.

After cleansing the operative field as well as possible and removing all tuberculous material that may have been spilled in it, he fills the cavity made by the operation with normal saline solution and sutures the outer wound tight. He believes that the salt solution, which is rapidly absorbed, enables the safe absorption of the material which is infected with the tubercle bacilli in an attenuated state because diluted and absorbed quickly before having the time to establish favorable cultural conditions.

CANCER OF THE PROSTATE.

Desnos[27] reports two cases of cancer of the prostate in which he removed the gland dur-

ing the early phase of the disease. The patients were respectively 66 and 67 years of age. Each of them had begun to have frequent and distressing urination three years before.

The prostate was removed by the perineal route in both cases. The gland was very adherent to the outer capsule in the first case, less so in the second one. Hemorrhage was unusually abundant in both cases.

The examination of the specimens showed cancerous nodules in both of the glands. Convalescence was prompt in both cases and there has been no recurrence in one of them during five years and in the other during four years.

The operations were the ordinary perineal enucleations of the gland within the outer fibrous sheath.

EXCLUSION OF THE BLADDER.

Revue Clinique D'Urologie.[28] In this article are given the results of exclusion of the bladder in cases of renovesical tuberculosis in which either nephrectomy cannot be practised or having been done has failed to give permanent relief owing to the vesical lesion and the passage of the urine over its infected surface from the second kidney or to the infection of the second kidney with tuberculosis when nephrectomy has been done on its fellow of the opposite side.

The article refers to five cases done previous to the two in which the writer has followed the same plan as in these five, which was that of making derivation of the urinary secretion by implantation of the divided end of the ureter of the remaining kidney—the opposite one having already been removed by nephrectomy—into the intestine in two cases and by nephrostomy and establishment of permanent renal fistula in the loin in five others. The first two died, the last five survived. All of these five patients were relieved or nearly so of the painful vesical tenesmus from which they had suffered.

RESULTS OF SURGICAL TREATMENT OF RENAL CALCULI.

Kouznetzki[29]. The writer presents the results of surgical treatment in 82 cases of renal and ureteral calculus which occurred in the clinic and private practice of Prof. S. P. Federoff of St. Petersburg. The methods and results of the surgical procedures in these cases were as follows: There were fifty-two cases in which the disease was unilateral and seventeen in which it was bilateral. Of the former 7 died after the removal of the calculus, of the latter 6 died. Two other patients died after operations done when anuria was present. In one of them the condition had been present for eight days. A unilateral operation was done and the patient died on the thirteenth day afterward. The operation was pyelolithotomy. The disease was bilateral in this case.

In the second case with anuria in which death followed the surgical intervention a simultaneous bilateral nephrolithotomy was done. Anuria had been present for five days in this case. The patient was 78 years old. Death followed on the sixth day after the operation. In both cases the urinary secretion was established but this fact did not save the lives of the patients.

In a third case with anuria a unilateral ureterolithotomy was done and the patient survived. There was but one kidney present in this case. The patient was a woman 65 years of age.

In seven of the cases of bilateral disease the operation was done on both sides at one sitting. Three of the patients died, all of sepsis. In 10 other bilateral cases one kidney only was operated. Three of these patients died. Two of them from uremia, one of thrombosis of the renal artery.

Summary of bilateral cases in three of which anuria was present. Number of cases 17, unilateral operation 10 cases, deaths 3; 7 cases simultaneous bilateral operation, deaths 3.

Pyelolithotomy was done in 11 cases of unilateral disease. Cure resulted in all of them. Nephrolithotomy was done in but 6 cases. In two of them cure followed. One patient died, and one had fistula and two were submitted to secondary nephrectomy. Ureterolithotomy was done in four of the 11 cases of ureteral calculus. One patient died.

Nephrectomy (not stated whether primary or secondary) was done in 24 cases. There were three operative deaths, one from secondary hemorrhage due to slipping of ligature on pedicle, one of uremia and one of double pneumonia.

The writer is an advocate of pyelolithotomy when the operation is possible to do.

THE END RESULTS OF NEPHRECTOMY IN CASES OF RENAL TUBERCULOSIS.

Israel.[30] From this very important communication of Israel the following conclusions are stated with regard to the end results of nephrectomy in cases of renal tuberculosis. They are based upon a study of 1023 cases in which the operation was done, 170 of them being Israel's own cases. The results noted before six months after operation are called the near results; those after six months are called the distant or later results. 10-15.0% of the patients died in the cases reported at longer than six months or less after the operation and 12.9% of them died within the first six months following nephrectomy. The total mortality taken together was 25.0% and the lives of 75.0% were saved by the operation. The chief cause of the deaths in the deaths occurring later than six months was pulmonary tuberculosis in men and the chief cause of deaths in the fatal cases occurring under six months following operation was acute miliary tuberculosis.

In most of the fatal cases of acute miliary

tuberculosis the condition is a result of the operative procedure. The condition occurs twice as often in the first half year after nephrectomy than at any and all later times.

More than one half of all the deaths that are after the first six months occur in the course of the second year following operation. Among these fatal results 45.2% are due to pulmonary tuberculosis, 35.9% to tuberculosis of the opposite kidney and 140% to miliary tuberculosis.

In almost one-half of the fatal tuberculous infections of the remaining kidney after its fellow has been removed by nephrectomy death occurs in the course of the second year after the operation on the first kidney. A few have been reported in which the infection of the second kidney did not lead to death until nine years after the nephrectomy.

In the great majority of the cases of the series in which tuberculosis of the second kidney appeared after the nephrectomy the second kidney was already infected with tuberculosis when the operation was done on the fellow organ.

Nephrectomy in cases of bilateral renal tuberculosis is justifiable only when one kidney is extensively invaded, when there are in this kidney attacks of severe pain or when the disease in it gives rise to repeated and severe hemorrhages and when the second kidney is only in the early stage of tuberculous infection.

In unilateral cases the removal of the infected kidney greatly protects the second one.

After nephrectomy in unilateral cases tubercle bacilli disappear from the urine in three quarters of the cases.

The larger the number of cases there are in which the bladder is infected the larger will be the number in which the bacilli persist after nephrectomy.

The absence of tubercle bacilli is only to be determined by an inoculation test.

The presence of tubercle bacilli may occur despite general good health of the patient and with a normal functional performance of the remaining kidney and of the bladder. This has been observed as late as the 17th year after the removal of the tuberculous kidney. The bacilli may be present when the urine is absolutely free from any trace of albumen.

Cystoscopic examinations of the bladder after nephrectomy show that the process of tubercular inflammation of the viscus is greatly improved in 43.5% of the cases, and complete healing of the process in 43.1%. Unchanged or worse in 9.0%.

In the larger number of cases the bladder inflammation, when it continues after nephrectomy, is not of tubercular nature, at later examinations.

When the frequent urination becomes worse after the operation it is generally due to an infection or extension of an already present infection of the other kidney, sometimes, but much less often to an involvement of the prostate. If the painful micturition has been dependent on tubercular involvement of the bladder the disappearance of the pain is strong evidence that the process in the bladder will disappear. Pregnancy after nephrectomy does not exercise a deleterious influence upon the remaining kidney than if the patient had two kidneys, if the remaining organ is not infected. Tuberculous infection of the ureter usually heals spontaneously in most instances.

Every factor in the study of this series of cases, speaks emphatically in favor of early nephrectomy in unilateral tuberculous renal infection.

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Reports of Societies.

AMERICAN SURGICAL ASSOCIATION.

Meeting Held in Montreal, Canada, May 29, 30, 31, 1912.

BLOODLESS SURGERY OF THE LIVER. AN EXPERIMENTAL STUDY OF THE POSSIBILITY OF EXCISION OF MAXIMUM AMOUNTS OF LIVER TISSUE, WITH THE USUAL INSTRUMENTS AT HAND IN ANY HOSPITAL.

BY JOHN R. McDILL, M.D., OF MANILA, PHILIPPINE ISLANDS.

An enterostomy clamp armed with rubber tubing is passed through a one-inch incision just below the ribs in the mid-axilliary line into the abdomen; one blade is introduced into the foramen of Winslow about 2 inches; when the clamp is closed the circulation in the liver can be turned on or off completely or partially as desired.

For the support of the parts after resections of large wedges of liver tissue, a Martin gum bandage passed entirely around the liver is proposed.

The experiments on dogs show that 20 to 30 minutes complete interruption of circulation is not followed by bad results, and it is thought that in clinical work the circulation can be completely interrupted with safety for from 8 to 10 minutes. More experimental work, however, will be required to determine the limits of this precedure.

CONCLUSIONS.

1. Extensive liver resection for diseases is limited to primary, single or closely grouped, accessible, condition: size may be no contra-indication, unless too near the portal vein or hepatic arteries. In all primary growths observe Tuffier's caution carefully to determine glandular involvement along the vessels at the base of the liver.

2. All procedures can probably with safety be made entirely bloodless for at least 8 or 10 minutes: by opening and closing the forceps the circulation can be turned partially or entirely on or off to avoid the danger of a too prolonged interruption: this controlled blood stream also favors hemostasis by slowly filling up cut vessels and stitch wounds with coagula: compresses to cut or wounded surfaces during a reestablishment of circulation would prevent undue loss of blood and allow of ligation or circumstitching of venous channels.

3. Great congestion of the gastro-intestinal branches of the portal system, blueness of the intestines, and subperitoneal ecchymoses while using the clamp indicate a dangerous degree of back pressure. The shorter the time of complete temporary arrest of circulation, the better.

4. The variability of the liver tissue, and of degrees of portal pressure should be remembered: a marked chronic portal congestion should contra-indicate extensive operations.

5. Traumatic rupture of the liver frequently occurs without any external evidence: owing to structural arrangements, tearing of large vessels may result in continuous hemorrhage which is partially checked by reflex muscular rigidity and intra-abdominal tension, relief of this pressure upon opening an abdomen allows of increased bleeding unless immediate digital compression of the hepatic vessels is effected.

6. In favorable cases liver tissue can be removed to the physiologic limit under practically bloodless conditions.

7. Chloroform is always contra-indicated in liver operations on account of the danger of sudden fatty degeneration and of necrosis and hemorrhage, due to the elimination of fibrinogen by the chloroform and inefficient coagulation: because fibrinogen is either formed wholly in the liver or is wholly dependent upon liver activity for its production.

8. The clamp can be left in situ, open, to control a possible secondary hemorrhage.

9. The instruments required for any liver surgery are in the usual hospital armamentarium.

DISCUSSION.

DR. LEONARD FREEMAN, Denver, in discussing this paper said that he had found one of the most reliable and simple methods of preventing hemorrhage in resection of the liver to be the use of strips of gauze, made from the ordinary small folded tapes of gauze found in every operating room. A pair of narrow forceps of sufficient length to reach through the liver substance, are plunged through the substance of the liver at the margin of the portion to be removed, seize two pieces of gauze and drag them through the hole in the liver: this procedure is repeated until the portion of liver to be removed is completely surrounded by gauze loops. The portion of each loop which lies beneath the liver substance has been cut in two and united with catgut in order to facilitate its removal. When these loops are tied down, not too tightly, the hemorrhage is completely controlled, and the portion of liver can be cut away like a piece of cheese. Another method employed in resecting large portions of the liver for multiple tumors, is by the use of two wires forming a wire clamp; this method is particularly applicable to where a more or less detached portion of liver is to be removed. The wires should be stiff and long enough when placed on each side of the tongue of tissue that their edges may project from the abdominal wound, and they can be bent in a gradual curve if necessary. In employing this method three or more catgut loops are dragged through the liver by means of a small pair of alligator forceps which seize the loops so that the free ends are all on one side; then one of the wires is inserted through the loops upon one side and the ends of the loops are tied over another wire on the other side, the wires then being brought firmly together, clamping the liver substance. At the end of a number of days the wires may be withdrawn, leaving the catgut loops in place to dissolve at will.

ACUTE PANCREATITIS WITH VERY EXTENSIVE FAT NECROSIS.

BY LUCIUS W. HOTCHKISS, M.D., OF NEW YORK CITY.

DR. HOTCHKISS reported a case which had some extraordinary features which served to emphasize the great difficulties of diagnosis and treatment in this condition. He described briefly the results of animal experimentation by Frugoni and Stradiotti, in Florence, to determine the exact chemistry of fat necrosis, as well as the mechanism of its origin and spread. The case which formed the basis of the paper was that of a man of 28 who was brought to Bellevue Hospital about 12 hours after an acute sudden seizure of intense abdominal pain and vomiting, but without any notable shock, and in which the diagnosis was very obscure for several days, by reason of the development of certain pulmonary conditions. On the fifth day a tentative diagnosis of acute pancreatitis was suggested, when a definite, rounded, tender mass developed in the epigastrium. He was transferred to the surgical ward and operation at once performed, opening anteriorly through the lesser omentum, which was the seat of extensive fat necrosis into the lesser sac, and liberating much bloody fluid under pressure. Eighteen days later, as the patient was failing, a second operation was done, opening the lesser sac through a left lumbar incision and setting free large pieces of necrotic fat and pancreas. This opening, together with the reopened anterior incision, established free through drainage, and although the patient was extremely weak, emaciated and anemic, he improved steadily and the posterior opening closed. A third operation, which had to be undertaken nearly a month later for a perforation of the stomach which suddenly developed and threatened to cause starvation of the already enfeebled patient, consisted in the

rapid suture of a small perforation in the posterior stomach wall just above the greater curvature. After this, convalescence proceeded uninterruptedly and the patient reported well and fat several months later.

DISCUSSION.

Dr. Joseph C. Bloodgood, Baltimore, considered this an unusual case, there being but few cases of perforation of the stomach in acute pancreatitis recorded as recovering after operation.

Dr. Joseph Ransohoff, Cincinnati, had had several cases of acute pancreatitis in his own practice and had seen several others in consultation, but in no one of these had the diagnosis been made before operation. He cited an interesting case of acute pancreatitis following a simple operation for the removal of the semilunar cartilage of the knee in an apparently healthy young man of 18. The result was fatal.

Dr. Maurice H. Richardson, Boston, said that he had never had any success in operating on cases of acute pancreatitis, that all his recoveries had occurred in cases which had been left to Nature. He believes that operative interference in a suppurative condition involving the entire pancreas is almost certain to bring about a fatal result.

Dr. John B. Deaver, Philadelphia, stated that internists frequently confused a condition of pancreatitis with effusion with that of pleuritic effusion, but in his opinion acute pancreatitis should always be considered when there was a history of sudden illness accompanied by acute epigastric tenderness and rigidity.

Dr. Fred B. Lund, Boston, reported two cases of acute pancreatitis operated upon successfully.

Dr. Charles A. Porter, Boston, referred to two cases of acute pancreatitis. In one a diagnosis of acute intestinal obstruction had been made but a condition of acute hemorrhagic pancreatitis found: in this case an incision was made along the pancreas, a large amount of the viscus sloughed, but the patient eventually recovered. Because of persistent right-sided pain, however, a second operation was performed, when a putty-like accumulation was removed from the head of the pancreas; the patient later developed diabetes: he has been under observation for about five years. In the other case the condition of acute pancreatitis developed four days after a forceps delivery under ether; when the abdomen was opened an acute fat necrosis was found, and the woman died two days later.

Dr. Robert G. Le Conte, Philadelphia, stated that there had been two cases of acute pancreatitis with fat necrosis followed by recovery after operation at the Pennsylvania Hospital.

Dr. Henry B. Delatour, Brooklyn, reported a case very similar to that by the author, in a patient of 32 whom he saw on the 5th day after onset of symptoms; there was a decided bulging just above and to the left of the umbilicus; a median incision was made, and there being evidence of fat necrosis, on examination the cavity was found to extend back to the stomach. The anterior wound was lightly packed and a posterior left lumbar incision made, permitting the evacution of about a quart of thin purulent material. This wound was packed with zinc oxide gauze and a rubber drainage tube inserted. On the 5th day following operation there was a discharge of the contents of the stomach through the drainage tube, anterior drainage having been removed at the end of the 4th day. The patient recovered.

Dr. George Woolsey, New York City, considered the essential feature in the treatment of these cases to be the drainage, saying that he never touches the pancreas and has had no trouble in any of his cases in obtaining a good result. He simply institutes drainage.

Dr. Frederic Kammerer, New York City, reported two cases of acute pancreatitis occurring in his practice during the last few months.

Dr. Robert B. Greenough, Boston, referred to two cases of mild pancreatitis occurring in his practice during the past winter, which recovered without operative interference. In both there were symptoms of intestinal obstruction high up. In one, Dr. Pratt made examinations of the urine and found acetone and diacetic acid, and also diastase, and he considered this satisfactory evidence of a condition of pancreatitis.

Dr. Emmet Rixford, San Francisco, mentioned a case of pancreatitis in which the fat necrosis surrounded the mesenteric vein, causing complete obstruction of the same, the patient dying of congestion.

Dr. Samuel J. Mixter, Boston, cited a case showing how quickly fat necrosis may develop after the opening of the abdominal cavity when no evidence is discernible of this condition at the time of operation. In his experience the cases which recovered had usually been those in which the least amount of surgery was done, and he advocated the simple drainage by gauze.

Dr. N. B. Carson, St. Louis, mentioned the difficulty before operation of differentiating some cases of cholecystitis from those of acute pancreatitis, and referred to a case previously reported by him, in which a diagnosis of gallstones was made but which on exploration proved to be a condition of pancreatitis; drainage was instituted and the patient made a good recovery.

Dr. Howard Lilienthal, New York, referred to six cases of acute pancreatitis operated upon by him with five recoveries. He considered that it was important to take into consideration the grade of the infection and the bacteriology of it as well as the extent of the enlargement of the pancreas.

Dr. Edwin Martin, Philadelphia, spoke of five cases of acute pancreatitis, in each of which the diagnosis was made by the medical attendant: three of these cases occurred in the practice of the late Dr. John H. Musser.

HEMMORRHAGE INTO THE PERITONEAL CAVITY CAUSED BY ACCIDENTAL RUPTURE OF THE OVARY.

BY ALEXANDER PRIMROSE, M.B., C.M., EDINBURGH; M.R.C.S., ENGLAND; TORONTO, CANADA.

As the result of a severe strain a blood cyst of the ovary may rupture and cause serious and even fatal hemorrhage into the peritoneal cavity. The author submits that such an accident is not only possible, but that it is probably of much more common occurrence than we imagine. The most common cause of intraperitoneal hemorrhage in women is dependent upon an extra-uterine gestation, and this fact has probably caused many authors to overlook other etiological factors in the production of such hemorrhages. The two cases now recorded by the author were not connected with pregnancy. In both in-

stances what appeared to be a normal Graafian follicle had ruptured as the result of an accidental strain. In one instance that patient lifted a heavy weight and the rupture immediately occurred. In the other case the patient had a violent attack of vomiting in the early stage of an acute appendicitis and this brought about a similar result. In both instances serious hemorrhage occurred into the peritoneal cavity and almost proved fatal in one of the patients. The sequence of events in the latter case was quite obvious. The patient had an attack of acute appendicitis two days before her monthly period was due, and a violent attack of vomiting had brought about rupture of a Graafian follicle. The hemorrhage into the peritoneal cavity had been slow and had shown no symptoms but was only discovered when the abdomen was opened for the removal of the appendix 12 hours afterwards. Had the patient been left until morning she not only would have run considerable risk from an attack of acute suppurative appendicitis, but she might have lost her life from hemorrhage.

SURGICAL DISEASES OF THE ABDOMEN AND UTERUS COMPLICATING PREGNANCY.

BY MAURICE H. RICHARDSON, M.D., BOSTON.

Two things in the course of modern surgery have made this subject of especial importance to the medical profession; the first, is the great multiplication of abdominal operations by which conditions result interfering with pregnancy; and the second, is the perfection of operative technique by which operations within the abdomen even upon the uterus itself may be performed without interrupting the course of pregnancy. The surgical treatment of pathological conditions complicating pregnancy should be influenced, first by our knowledge of the great tolerance of the pregnant uterus to general anesthesia and to operative manipulation, sometimes of great extent. In the author's experience, pregnancy has never been interrupted in such operations as those for chronic appendicitis, acute cholecystitis, the removal of ovarian tumors, or that of uterine fibroids so large as to prevent the successful delivery of a visible child. Moreover, success has followed the freeing of a gravid uterus from a ventral fixation at four months.

Contary to his early convictions, the experience of recent years has made him confident of success in the imperative operations of abdominal surgery if undertaken early. In the beginning of our experience with appendicitis and with peritonitis of all kinds a frightful mortality prevailed during pregnancy. So great was the danger in acute appendicitis that the prophylactic operation appealed very strongly to experienced surgeons when there was the slightest evidence of a grumbling appendix. So, in other causes of peritonitis, it has seemed reasonable to remove that cause early in the pregnancy lest later the almost hopeless complication of a general peritonitis destroy mother and child in advanced pregnancy.

In support of the proposition to remove by operation such threatening conditions as acute appendicitis, acute cholecystitis and other sources of general peritonitis the evidence of personal experience was brought to show the splendid results of early intervention when the manipulations were trivial and brief and drainage was unnecessary.

A second group of cases is that of abdominal tumors not interfering directly with the uterus itself, but taking up abdominal space that cannot be spared by the full term uterus. Such operations as the removal of large ovarian cysts or other tumors have been followed by no interferences with the course of pregnancy. Not that these operations should be performed during pregnancy unless there is good reason for their performance, but in case of absolute necessity the surgeon in the great majority of cases need not fear an interruption to the pregnancy. To show the tolerance of the uterus as well as the difficulty at times of recognizing a pregnancy, unsuspected until its demonstration by laparotomy, instances were given in which it had been found impossible to say, with the uterus in the surgeon's hands, whether it was pregnant or enlarged by a new growth.

An important consideration in the paper was that of being always prepared, in a woman of child-bearing age, for an unexpected pregnancy. Pregnancy may be wholly unexpected but it should never be unsuspected. Many of the gravest emergencies and most difficult problems of decision are suddenly presented in the treatment of demonstrated but unexpected pregnancy. This fact should always be borne in mind in the diagnosis and prognosis of pelvic tumors in women of child-bearing age.

The most important consideration in this paper was the diagnosis, prognosis, and treatment of tumors of the pregnant uterus itself. The guiding idea was the wonderful tolerance of the pregnant uterus and its power of self-extrication from mechanical difficulties apparently unsurmountable. Evidence was given in support of this proposition that when in doubt a pregnant uterus presenting tumors that would apparently prevent parturition should be watched knife in hand. In several cases success followed the removal of a fibroid from the uterine body or cervix apparently hopelessly obstructing the parturient canal. Full term healthy children were delivered normally. In other cases fibroid tumors situated at or near the fundus did not interfere at all. One must not judge of the difficulties by the early situation of these tumors. An apparently large fibroid of early pregnancy is merged in the uterine body at term and may be hardly perceptible; in one instance no tumor could be felt after parturition. Instances were given in which conservatism under great apparent difficulties proved successful in normal parturition, and others in which surgical intervention under similar difficulties proved likewise successful. The writer's conclusions were as follows:

A pregnancy threatened by surgical conditions within the uterus should not be interrupted unless

1. It is clear that pregnancy cannot possibly go on.

2. For pregnancy to be allowed to continue it must appear that the life of the child is practically safe while the danger to the mother is slight.

3. To allow the pregnancy to continue uninterruptedly it must appear that at the last moment through intervention both mother and child may be saved by a Caesarian section or by an operation no more dangerous to the mother than would have been an early operation destructive to the child and saving to the mother.

4. To allow pregnancy to continue it must appear that the child can live without jeopardizing by delay the success upon the mother of a radical operation for malignant or other disease.

DISCUSSION.

Dr. Joseph C. Bloodgood, Baltimore, in discussing Dr. Primrose's paper said that some years ago he reported two cases of clinically acute appendicitis, in one of which was found free blood in the peritoneal cavity coming from the right ovary; hemorrhage was not excessive, nothing was done to the appendix, and the patient recovered. In the second case the hemorrhage was found coming from the fimbriated end of the Fallopian tube, the operation taking place during menstruation. In neither case was there any clinical suggestion of hemorrhage. Following this experience the speaker stated that he went over the histories of a number of cases and found that in the case of men he had never seen, or never recorded, hemorrhage in the peritoneal exudate. Up to the present time he had records of six cases of early appendicitis in women, some during the menstrual period, some in the interval, with considerable hemorrhage in the peritoneal cavity, but never to the degree reported by Dr. Primrose. In many cases the hemorrhage was but slight and there was no indication for the removal of ovary or tube.

Dr. Howard Lilienthal, New York City, reported a case bearing on both the papers under discussion. The patient, a woman of 32, married two months, had menstruated for the last time six weeks before he saw her, and then after an indiscretion in diet she vomited and became very faint. In a few hours another attack of faintness came on, followed by others at short intervals; she had all the symptoms of hemorrhage. Incision revealed a fibroid as large as a cocoanut attached to a pregnant uterus, and the peritoneal cavity full of blood. The fibroid was removed and the uterus sutured; the site from which the hemorrhage came could not be discovered. The patient made a good recovery, and there had been no miscarriage at the time of this report, three weeks after operation.

Dr. Archibald MacLaren, St. Paul, took exception to the usual idea that a certain time must elapse before a diagnosis of pregnancy can be made, believing that with fair probability it could be easily diagnosed at the first missed menstrual period. He thoroughly agreed with Dr. Richardson in his position regarding operations during pregnancy, and reported several instances where operative interference being necessary because of ovarian tumors, fibroid growths, and the freeing a ventral fixation, it resulted in no interruption to the course of pregnancy.

Dr. Lewis S. McMurtry, Louisville, in discussing Dr. Primrose's paper stated that in his opinion it was a very valuable communication because of the very prevalent idea that these hemorrhages are invariably due to ectopic gestation. He suggested that there was a possibility, however, in the cases reported, of the condition being the result of a tubal abortion.

Dr. Thomas W. Huntington, San Francisco, in discussing Dr. Richardson's paper, considered it a wise precaution to remove at an early date in pregnancy what he termed an "occult" appendix, that is one causing few symptoms but which every now and then gave sufficient evidence of its existence to warrant removal, considering that adhesions might result from such an appendix which might later be a source of serious difficulty.

Dr. Ellsworth Eliot, Jr., New York City, cited a case of a young woman 18 years of age supposed to be suffering from an attack of acute appendicitis in whom operation revealed no disease of the appendix but the peritoneum filled with blood, there being found a laceration of the right Fallopian tube near its fimbriated extremity. This extremity was amputated and miscroscopical examination gave no evidence of a tubal pregnancy.

Dr. Leonard Freeman, Denver, in this connection, referred to a case in the practise of one of his brother physicians, in which an athletic young lady in vaulting a fence experienced violent pain and collapse. Exploration demonstrated a Fallopian tube torn near its centre; ovaries, other tube, and uterus normal in every way with no sign of pregnancy.

Dr. John B. Deaver, Philadelphia, stated that he considered acute appendicitis more important in the female than in the male, and that he believed salpingitis often resulted from the condition of the appendix. It was his experience to see more cases of tubal abortion than of tubal rupture. In acute appendicitis during pregnancy, he advocated immediate removal of the appendix.

Dr. Richard H. Harte, Philadelphia, related the history of a case in connection with the paper by Dr. Primrose. The patient, a woman long past the menopause, was driving when she suddenly experienced violent pain on the right side; operation disclosed a large ovary, about twice the normal size, ruptured directly across, and the pelvis filled with blood. The ovary was removed, and after much examination microscopically a report was finally sent in of angiosarcoma. This case occurred over a year ago and up to the present time there has been no recurrence of the condition in the pelvic organs.

Dr. Robert G. LeConte, Philadelphia, detailed a case practically similar to that reported by Dr. Primrose, occurring in his practice a short time previously. The patient was admitted to the hospital with all symptoms of ruptured ectopic pregnancy; at operation a quart of clotted and fluid blood was removed; the right ovary was ruptured and had the appearance as if a Graafian follicle had existed filled with blood and been torn across, the vessel still bleeding; ovary was removed and tube left. The pathological report had not yet been received but it more closely resembled a laceration of the ovary than an extra-uterine pregnancy.

Dr. A. Vander Veer, Albany, reported a case in connection with Dr. Primrose's paper, in which a diagnosis of intra-peritoneal hemorrhage was made but operation not performed. The patient recovered slowly but completely, having an icebag applied and being kept in a condition of complete rest. He also referred, in connection with Dr. Richardson's paper, to a paper of his own on the subject of pregnancy complicated with inoperable cancer of the cervix, and said that it was his custom under such circumstances to advocate the emptying of the uterus.

Dr. Arpad G. Gerster, New York City, stated that he had twice seen a pregnant uterus removed, once supposedly for an ovarian tumor and once for a fibroid growth, and deprecated the making of such diagnoses, which seemed impossible in the late months of pregnancy. He added to Dr. Richardson's list of conditions requiring operation that of a twisted ovarian tumor on the right giving the symptoms of an acute appendicitis.

Dr. Charles A. Porter, Boston, in connection with Dr. Richardson's paper, called attention to the

following case. A woman of 30, married and pregnant two months, had pain, tenderness and fever, then increasing constipation and tenderness in the left iliac fossa. Visible peristalsis. Operation showed an almost complete obstruction of the cecum and a large intramesenteric abscess, probably a diverticulitis. Abscess was drained and a lateral anastomosis was done without excision. Patient has made a good recovery and so far, two months since operation, there has been no interference with the pregnancy.

DR. MAURICE H. RICHARDSON, Boston, in speaking regarding the case reported by Dr. Primrose, stated that he had frequently seen a ruptured Graafian follicle and had removed more than one ovary, considering it to be the cause of an intraperitoneal hemorrhage.

(*To be continued.*)

Book Reviews.

Manual of Human Osteology. By A. FRANCIS DIXON, M.B., Sc.D., University Professor of Anatomy and Chirurgery, Trinity College, Dublin. Illustrated with 178 figures, many in colors. New York: William Wood and Company. 1912.

This admirable treatise on osteology is intended for the practical use of students engaged on the actual study of the bones. The Basle anatomic nomenclature is used throughout, the names being printed in heavy black type. The more familiar English terminology, however, is also given in italics, enabling readers to become accustomed to the equivalents. The excellent illustrations are drawn by Mr. J. T. Murray, and contribute much to the value of the book. To the systematic descriptive consideration of the skeleton, occupying 262 pages, are appended chapters on the composition, shape, structure, and development of bones, and a compendious index. The work is one of merit, and should be welcomed by students and by teachers of anatomy.

The Chemic Problem in Nutrition. (Magnesium Infiltration). A Sketch of the Causative Factors in Disorders of Nutrition as Related to Diseases of the Nervous System. By JOHN AULDE, M.D., formerly assistant physician, out-patient department, Jefferson Medical College Hospital; Demonstrator of physical diagnosis and clinical medicine. Medico-Chirurgical College. Illustrated with four plates. Philadelphia, John Aulde, M.D. 1912.

The author uses a few well known facts as a basis for his theory and then gives his fancy free play and unfolds the most minute activities of the cells like a moving picture though their true agency in metabolism is only surmised by our greatest scientists and their secret remains locked to most medical men. The book reads very much like "Science and Health" which is not science though it may produce health. The following sentence indicates the wild range the author allows his fancy: "Christian science, psychotherapy and the more recent 'Emmanuel' movement, all depend for success upon dirigation, a mental psychologic process, by which alkalescence is secured through 'nerve stimulus' brought about or initiated by introspection." According to the author everything from summer complaint of children to typhoid spine is due to the excess of acid and consequent replacement of lime by magnesium salts; even the innocent chalk mixture which on account of its insolubility is absorbed, if at all, in most minute portions, and acts locally, is called upon to furnish proof for his theory in that the lime contained replaces the magnesium in its turn driven out of the cells. In all treatment the author "re-establishes the physiologic equilibrium upon a normal basis in respect to chemic reaction." In other words the work is a treatise on "psychological chemistry" which is neither psychology nor chemistry.

State Board Examination Questions and Answers of the United States and Canada. Fourth edition. New York: William Wood and Company. 1912.

Like its predecessors, this volume claims to be "a practical work giving authentic questions and authoritative answers in full that will prove helpful in passing state board examinations." The material is reprinted from the *Medical Record.* In this edition, for the first time, all answers are given in full instead of occasionally by reference to text-books. All quotations from text-books are duly credited. Despite this completeness of statement, the fourth edition has only 812 as against 819 pages in the third. This is accounted for by the otherwise unexplained omission, in the fourth edition, of the examination papers of Arizona, Delaware, Florida, Idaho, Minnesota, Montana, Nevada, North Dakota, Oklahoma, Oregon, South Dakota, Washington, and British Columbia. The volume should be of great service to those engaged in preparing themselves or others for state registration in medicine.

Selected Papers on Hysteria and Other Psychoneuroses. By PROF. SIGMUND FREUD. Second, enlarged edition. Translated by A. A. Brill, M.D. 8vo., pp. x, 215. New York: The Journal of Nervous and Mental Diseases Publishing Company. 1912.

This translation of various articles by Freud appeared about three years ago and was reviewed in this JOURNAL.[1] This second edition is unchanged except for the addition of an article on "Wild Psychoanalysis" and another on "The Future Chances of Psychoanalytic Therapy," which present some of the author's later contributions.

[1] Vol. clxii, p. 222.

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STATUS OF THE BALKAN WAR.

The peace conference between representatives of Turkey and of the allied Balkan states has now been in session at London for nearly three weeks. Demands and conditions on both sides have been formulated and discussed; certain points of settlement have been determined, some concessions have been made, but various difficulties and disagreements have prevented the establishment of definite terms. Meantime an armistice has prevailed at the seat of war, except in the case of the Greeks who have continued to conduct hostile maritime operations against the Turkish coast and its neighboring islands. In spite of their action, however, and of the threatening attitude assumed by Austria towards the Serbs, it appears that on the whole the prospect is brightening, and that probably satisfactory terms of settlement will be ultimately arranged without more warfare and without involving quarrel among the great nations of Europe.

Meanwhile, during the cessation of hostilities, the opposing armies remain encamped in territory already occupied; and although their situation is more tolerable than before, the advance of the severe Balkanic winter must soon measurably augment their hardships. The same cause, however, should also put an end to the epidemics of cholera which are still in progress. Report from Constantinople on Dec. 7 stated that in the preceding three weeks over 1000 cases of the disease had occurred in that city and at Stamboul, with a mortality of 50 per cent. Report from Vienna to the *British Medical Journal* on Dec. 14 describes the situation as follows:

"The outbreak of cholera in the Balkans has given rise to considerable anxiety throughout Europe, but nowhere is it more keenly felt than in Austria-Hungary, where the business relations now interrupted by the war will be resumed directly hostilities cease, and must necessarily expose the whole country to infection. The deplorable lack of sanitation and complete disregard of prophylactic measures in the affected districts, combined with the decreased vitality of the population after an exhausting campaign, have caused the Austrian Board of Health to impose a strict quarantine on all travellers arriving from the Balkan States and Asia Minor, especially those who have come by sea. A special Cholera Committee, composed of the head of the Vienna Serum-therapeutic Institute, the well-known Professor Kraus, and four of his assistants, and the pathologist, Dr. Kannitz, Professor Weichselbaum's assistant, has been sent to Sofia for the purpose of investigating the epidemic at close quarters; and as plague and typhoid are also rife it has been provided with large quantities of Haffkine's serum. It has been ascertained through the Austrian diplomatic agents in the Turkish provinces of Asia that cholera has broken out in Syria and Aleppo, whilst the yearly pilgrimages to Mecca have imported both cholera and plague from India and China, and both diseases are raging fiercely in Persia and the deserts of the Kirghiz Steppe. It should be added that the Turkish Government has become so much alarmed that a formal application has been made to Vienna for medical volunteers whose sole duty will be to check the spread of cholera in the Turkish army."

It is a striking and encouraging commentary on the real progress of modern civilization that the scientific and humanitarian work of relief thus goes on simultaneously with the barbarism of war, and is even supplied and administered by those who, not many centuries ago, would have either held aloof or taken a partisan stand in the conflict.

Other nations besides Austria have been active in medical relief. Very large Red Cross expeditions have been sent out also by Italy, France, Germany, and Russia. A correspondent of the *British Medical Journal* states that on Dec. 7 the British Red Cross Mission at the seat of war comprised 213 persons, exclusive of servants.

"The first European Red Cross party to reach the seat of war was the British Red Cross unit for Montenegro. This party, under Dr. Bradford, is established at Antivara, the seaport town of Montenegro. Here a base hospital was started on October 20 in a disused tobacco factory. This hospital is quite full, and during the armistice more wounded will arrive. Over

500 patients have already been dealt with. In addition to the hospital, dressing stations have been established at Rjeka, St. Nikola, and San Giovanni di Manua. Owing to the bad state of the roads most of the wounded arrive by water and the wounds are septic.

The Servian units of the society were last heard of at Uskub where a great many wounded had accumulated. These units had proceeded straight to the front on arrival. The Bulgarian units are also at the front, and are at the moment out of reach of communication. They were last heard of at Kirk Kilissi, but they have probably pushed forward with the advancing column.

The Greek units of the society are in Salonica, which town they entered immediately after its capitulation. They are established in a derelict Turkish hospital, and have had a great mass of sick and wounded to deal with. This hospital is designed for 250 patients, but at the date of the last report (November 22) it contained 585 sick and wounded. The extra patients were lying in the passages, on the landings, and in the wall spaces. A Rest Camp is being established for such patients as are only suffering from exhaustion and starvation. The weather is unfavorable and, indeed, severe. The Duchess of Sparta applied to the society to send out six female nurses at Her Royal Highness's expense. These nurses, at first stationed at Athens, are now at Salonica, where they are doing excellent work.

"The Red Cross Mission to Turkey has been much occupied. Its base hospital is in the Fine Art School at Constantinople on Seraglio Point. Minor hospitals for the sick have been established near the Chatalja lines. There has been much cholera and much dysentery, but the cholera is rapidly declining, and there is every hope that the epidemic is now practically over. Among the Red Cross staff at Constantinople is an officer of the Indian Medical Service who has had a large experience of cholera, together with a bacteriologist especiallly versed in tropical diseases."

Americans, meantime, have not been inactive, but are doing their full share in the work of relief. The total of the American Red Cross Fund amounts to about $40,000, of which Massachusetts has contributed $6,638. Report from Constantinople on Dec. 11 said:

"The Americans seem to be the only persons assisting in the interior. Dr. W. S. Dodd and his wife, whom the Ambassador and Mrs. Rockhill brought to Constantinople specially for the purpose of organizing a hospital for the wounded, are now able to leave the hospital entirely in the hands of the British workers with whom they have been associated, the number of British Red Cross attendants having been augmented recently. Dr. and Mrs. Dodd have returned to Konia, which is their mission field, with a large sum of money at their disposal to aid the refugees in tiding over the winter.

"The San Stefano cholera camp, in which a dozen British attendants are now engaged in addition to several Austrian sisters of charity and others, is being financed by American Red Cross funds. The ambassador has received from Washington an extension of Surgeon Major Ford's leave and he will remain another month and continue his labors in the cholera camp, which remains in a horrible condition. The little band of foreigners are able to care for only a few hundred, while the camp, despite the death roll of thousands, still contains several thousand patients, and new contingents are constantly arriving."

Whatever the political outcome of the Balkan War, it appears that, like most other recent great wars, it will at least have afforded opportunity for the demonstration of many of the Christian virtues, and perhaps also for scientific medical practice, study, and progress.

THE RELATION OF THE BORDET-GENGOU BACILLUS TO THE LESION OF PERTUSSIS.

IN the issue of the JOURNAL for Nov. 21, 1912, [Vol. CLXVII, p. 740], we commented editorially on the recent important research work of Drs. Mallory and Hornor on "The Histologic Mechanical Lesion of Pertussis." In conclusion we said: "It remains definitely to identify Mallory's bacillus with that of Bordet and Gengou, or to obtain the true causal agent [of pertussis] and test it in the same manner. Experiments to this end are now in progress."

This supplementary experimental investigation has now been completed by Mallory, Hornor, and Henderson, and the entire results of the authors were presented at the November meeting of the Boston Society of Medical Sciences. The course of these further experiments was essentially as follows:

First, a puppy was inoculated intratracheally with sputum from patients in the acute stage of whooping-cough, with the result that after six weeks numerous minute bacilli, corresponding morphologically in every way with those previously demonstrated as occurring in human tissues during the disease, were found between the cilia of many of the epithelial cells lining the puppy's trachea. Second, after repeated failures, pure cultures of this organism were

finally obtained on potato-blood-agar both from the sputum of human patients with pertussis and from an infected puppy. These bacilli, which correspond in every way with those of Bordet and Gengou, are described as Gram-negative and of about the size of influenza bacilli. Their colonies possess a peculiarly tenacious, mucoid character, which probably explains their adhering to the cilia of the cells and matting them together. Third, with the pure cultures thus obtained, the first inoculation experiments were repeated with puppies, rhesus monkeys, rabbits, and guinea-pigs. From the animals thus successfully inoculated, the organism was reobtained in pure culture and was often found between the cilia of the epithelial cells. Fourth, several puppies, successfully infected by contagion, showed the typical lesion. The chief symptoms of these puppies were sneezing and spasmodic cough. The only symptom shown by infected rabbits was emaciation. Inoculation was found to be unfailingly and most easily induced by slow injection through the nose. The lesion in the infected animals corresponded in every way with that in man but the number of organisms between the cilia was rarely as great.

These important experiments, therefore, which will be described in full in an article to appear in a future number of the *Journal of Medical Research,* not only demonstrate the primary essential lesion of pertussis and the relation of the causal agent to it, but also complete the demonstration, in accordance with Koch's law, that the Bordet-Gengou bacillus is the cause of whooping-cough. Moreover, they clear the way for further investigation in search for a vaccine or antitoxin which may be of use in the treatment of this very serious infection.

Such a piece of research, logically and successfully carried to completion, is not only a credit to its authors and to the Boston profession, but is a valuable and beneficent contribution to the progress of medical science in the knowledge and control of human disease, suffering, and death.

SECTION FOR ORTHOPEDIC SURGERY IN THE AMERICAN MEDICAL ASSOCIATION.

At the meeting of the American Orthopedic Association at Atlantic City last June, a project was initiated and formulated for the establishment of a new section in the American Medical Association, to be devoted to the study of orthopedic surgery. Application to this effect was made and granted, and Dr. Newton M. Shaffer, of New York, was elected president and Dr. John Ridlon, of Chicago, secretary of this section for the ensuing year.

The formation of the new section for orthopedic surgery should be an important benefit to the medical profession. It is intended primarily for the many able men who, though not devoting their entire time to the promotion of orthopedic knowledge, are yet making contributions thereto, and are interested in its progress. The first meeting of the new section will be held next June at Minneapolis, Minn.

An editorial in the November number of the *American Journal of Orthopedic Surgery* calls attention as follows to the present importance of this new establishment:

"The coming year is one of great significance to orthopedic surgeons. There is to be a subsection for orthopedics in the section on surgery at the International Medical Congress in London in August; our own annual meeting with the Congress of Physicians and Surgeons will be held in Washington in the spring; and the American Medical Section for Orthopedics in Minneapolis, as already stated."

Orthopedics is a division of great and growing importance in the general field of surgery, and the formation of the orthopedic section in the American Medical Association marks a significant step in its progress. The American Orthopedic Association, organized in 1887, will remain the chief and principal society of specialists in this branch. The new section will aim to correlate with their work the orthopedic contributions of other surgeons throughout the country, and to make more accessible to practitioners at large the active advances in this department of surgical science.

APPOINTMENT OF DR. ALSBERG.

The recent appointment, announced in another column of this issue of the Journal, of Dr. Carl L. Alsberg to succeed Dr. Harvey W. Wiley as chief of the bureau of chemistry of the United States Department of Agriculture, is a worthy selection for an important post. Dr. Alsberg is a graduate of Columbia University and of the New York College of Physicians and Surgeons. From 1902 to 1908 he was a teacher in the department of biological chemistry at the

Harvard Medical School, and since that time has been connected with the poisonous plant laboratory of the bureau of plant industry at Washington, D. C. In his new position he will have particular charge of the administration of the pure food and drug laws of the United States, and in that capacity will have abundant opportunity to show himself a fearless and efficient public servant.

MEDICAL NOTES.

TYPHOID FEVER AT A GERMAN ARMY POST.—Report from Hanow, Prussia, on Dec. 18 states that typhoid fever is epidemic among the German troops quartered in barracks at that city. There are said to have been 170 cases and two deaths of the disease.

BONUS FOR BIRTHS IN AUSTRALIA.—Report from London on Dec. 22 states that the Australian federal government has recently enacted legislation providing a bonus to parents of $25 for every birth registered in the commonwealth, unless the mother be a colored native.

AN INDIAN CENTENARIAN.—Mrs. Maggie Adams, an Indian squaw, who died recently at Garibaldi, near Bay City, Ore., was locally reputed to be 113 years old.

MENINGITIS IN A GEORGIA TOWN.—Report from Midville, Ga., on Dec. 24 states that there have recently been 12 deaths from epidemic meningitis in that town, and that 9 cases of the disease still remain under treatment. Strict quarantine is being maintained by armed deputies stationed on every highway.

BOSTON AND NEW ENGLAND.

FREE HOSPITAL FOR WOMEN.—The recently published thirty-seventh annual report of the Brookline Free Hospital for Women records the work of this institution for the year ending Oct. 1, 1912. During this period 571 patients were admitted to the hospital, upon 490 of whom 1414 operations were performed. In the out-patient department there were 6049 consultations and 1050 new cases. During the past two years 25 pupil candidates have been graduated from the training-school for nurses.

BOSTON MEDICAL LIBRARY.—The recently published thirty-seventh annual report of the Boston Medical Library records the progress of this institution for the year ending Nov. 12, 1912. During this period 3212 new volumes, and 2909 pamphlets were added to the library, making a total on Oct. 31, 1912, of 75,022 volumes and 55,386 pamphlets. There are 6671 volumes in the duplicate library, and 632 periodicals are on file in the reading room. The attendance of readers during the year was 12,187, an increase of 211 over the previous year. The collection of medals now numbers 3661 specimens. The total membership of the library is 663.

FREE PUBLIC LECTURES ON MEDICAL SUBJECTS.—Next Sunday afternoon, Jan. 5, at four o'clock will be given at the Harvard Medical School the first of this year's series of free public lectures on medical subjects offered by the Faculty of Medicine. The complete schedule of this course of lectures is as follows:

Jan. 5. Dr. Charles W. Eliot. Preventive medicine in relation to industrial and international concord.

Jan. 12. Dr. John Lovett Morse. The care and feeding of young children.

Jan. 19. Dr. Charles J. White. Leprosy and its care in Massachusetts.

Jan. 26. Dr. Mark W. Richardson. What the State Board of Health is doing to protect the health of the citizens of Massachusetts.

Feb. 2. Dr. Edward H. Nichols. The sexual instinct—its abuse and control. (To men only.)

Feb. 9. Dr. Hugh Cabot. The responsibility of the community for the prevalence of venereal disease.

Feb. 16. Dr. David L. Edsall. Dangerous effects of patent medicines.

Feb. 23. Dr. Edward H. Bradford. Fresh air, exercise, and physical condition.

March 2. Dr. Paul Thorndike. The bladder ailments of men in later life. (To men only.)

March 9. Dr. Myles Standish. Ophthalmic catastrophies.

March 16. Dr. George L. Walton. How to cultivate emotional poise in an emotional age.

March 23. Dr. Howard T. Karsner. The rise of experimental medicine.

March 30. Dr. William P. Graves. Tumor diseases peculiar to women. (To women only.)

April 6. Dr. E. H. Place. The management of scarlet fever and measles.

April 13. Dr. E. E. Southard. The new State Psychopathic Hospital.

April 20. Dr. Clarence J. Blake. The effect of occupation on the hearing power.

April 27. Dr. Franklin S. Newell. The hygiene of pregnancy. (To women only.)

May 4. Dr. Howard A. Lothrop. Treatment of some emergencies of a surgical nature.

May 11. Dr. Charles A. Brackett. The preservation of the natural teeth.

May 18. Dr. S. B. Wolbach. Future lines of investigation of infectious diseases.

Copies of this announcement and further information in regard to any of the lectures may be obtained by addressing The Chairman of the Committee on Public Lectures, The Harvard Medical School, 240 Longwood Avenue, Boston.

Current Literature.

Medical Record.

December 14, 1912.

1. Lederle, E. J. *The Sanitary Control of Local Milk Supplies Through Local Official Agencies.*
2. Kelsey, C. B. *Local Anesthesia in Operations on the Rectum.*
3. Allport, F. *Railroad Hospital Associations.*
4. *Fisher, J. W. *Fuller Report Upon the Use of the Sphygmomanometer in Examinations for Life Insurance.*
5. Robinson, B. *Heart Murmurs and Patients.*
6. Reynolds, W. S. *Report of a Case of Ureteral Calculus Treated with Oil Injections.*
7. Wood, A. *A Safety Screw Driver and Screws for Lane Plates.*

4. Fisher presents a supplementary report on the use of the sphygmomanometer in examinations for life insurance. His new statistics strongly confirm his deductions of a year ago and eminently justify the rejection of applicants in whom blood pressure above 150 mm. is the only impairment found.

[L. D. C.]

New York Medical Journal.

December 14, 1912.

1. Clark, L. P. *The Prevention of Epilepsy.*
2. *Novak, E. *Overeating as a Cause of Acute Appendicitis.*
3. Voorhees, I. W. *Labyrinthitis and Cerebellar Abscess.*
4. Duncan, C. H. *Autotherapy.*
5. Sautter, A. C. *Defective Vision in Children.*
6. Stanton, E. M. *The Prognosis in Gall-stone Disease.*
7. Warren, G. W. *Albumin Determination.*
8. Barnes, H. L. *Pneumonia in Open-air Sanatoria.*
9. White, J. M. *Simple Perineal Enucleation of the Prostate Gland.*
10. Murphy, J. B. *Surgery of the Bones and Joints.*
11. Smith, R. R. *A Description of the Enteroptotic Woman.*

2. Novak discusses the etiology of appendicitis and makes the statement that a considerable number of cases are caused by overeating. Overdistention of the stomach may compress the superior mesenteric vessels lying immediately behind the stomach, and such compression interferes with intestinal circulation. The first effect of such a circulatory disturbance is the excitation of more or less violent peristalsis in the intestine and this explains the pain usually felt in the epigastrium at the onset of an attack. Another effect of this disturbance of circulation is exerted upon the appendix itself, the resistance of which is reduced to such an extent that it often falls a prey to the action of the ever present colon bacillus and other intestinal organisms.

[L. D. C.]

Journal of Experimental Medicine.

October 1, 1912.

1. Lewis, T. *Fibrillation of the Auricles; Its Effects Upon the Circulation.*
2. Ingebrightsen, R. *Studies Upon the Characteristics of Different Culture Media and Their Influence Upon the Growth of Tissue Outside of the Organism.*
3. *Fraser, J. *The Relative Prevalence of Human and Bovine Types of Tubercle Bacilli in Bone and Joint Tuberculosis Occurring in Children.*
4. Sprunt, T. P., and Luetscher, J. A. *Acute Vascular Lesions in Mice Following Injection of Pneumococci.*
5. Erlanger, J. *Sinus Stimulation as a Factor in the Resuscitation of the Heart.*
6. Gay, F. P., and Robertson, T. B. *The Antigenic Properties of Split Products of Casein.*
7. Gay, F. P., and Robertson, T. B. *The Antigenic Properties of a Protein Compounded with Casein.*
8. Jobling, J. W., and Bull, C. G. *Studies on Ferment Action.*
9. Craster, C. V. *Conditions Governing the Growth of Displaced Normal Tissue.*
10. Stewart, G. N. *Testing for Epinephrin (Adrenalin) in Blood*
11. Hanes, F. M. *Lipoid Metabolism in the Developing Chick and Its Relation to Calcification.*
12. Bullock, F. D., and Rohdenburg, G. L. *Cell Prolification and Parasites in Rats.*
13. Park, E. A. *Observations with Regard to the Action of Epinephrin on the Coronary Artery.*
14. Janeway, T. C., and Park, E. A. *The Question of Epinephrin in the Circulation and Its Relation to Blood Pressure.*
15. Park, E. A. *The Physiological Action of Epinephrin on the Bronchi.*
16. *Bass, C. C., and Johns, F. M. *The Cultivation of Malarial Plasmodia.*

3. Fraser studied the material obtained by operation from 70 cases of bone and joint tuberculosis occurring in children; a large proportion of these cases showed the bovine tubercle bacillus; in the cases in which the human bacillus was present, the history as a rule showed the possibility of a direct infection from patient to child. Fraser thinks that there can be no doubt that the milk was the medium through which the infection occurred in the cases due to bovine bacillus.

16. Bass and Johns were able to cultivate malarial plasmodia outside of the body, by means of a special technic. The important feature of the cultivation is red blood cells and the writers found no evidence that malarial plasmodia can be grown outside of these cells. They cultivated one or more generations of the aestivo-autumnal parasites from each of 29 patients and carried one culture through four generations. They also cultivated the tertian parasites six times. The asexual cycle of these parasites cultivated in vitro does not differ from the same cycle growing in vivo; the sexual cycle was not cultivated.

[R. I. L.]

November 1, 1912.

1. *Lamar, R. V. *Chemo-Immunological Studies on Localized Infections.*
2. Sprunt, T. P., Colwell, H. S., and Hagan, H. J. *Pigment Formation in the Liver During Autolysis and Its Relation to the Pigmentation of Hemochromatosis.*
3. Oppenheimer, B. S., and Oppenheimer, A. *Nerve Fibrils in the Sino-Auricular Node.*
4. Noguchi, H. *Cultivation of Spirochaeta Gallinarum.*
5. Woglom, W. H. *The Duration and Extent of In-*

duced Resistance toward Tumor Transplantation in Mice.

6. COLE, R. *Toxic Substances Produced by Pneumococcus.*
7. DOCHEZ, A. R. *The Presence of Protective Substances in Human Serum During Lobar Pneumonia.*
8. *DOCHEZ, A. R. *The Occurrence and Virulence of Pneumococci in the Circulating Blood During Lobar-Pneumonia and the Susceptibility of Pneumococcus Strains to Univalent Anti-Pneumococcus Serum.*
9. DOCHEZ, A. R. *Coagulation Time of Blood in Lobar-Pneumonia.*
10. PEABODY, F. W. *The Carbon Dioxide Content of the Blood in Pneumonia.*

1. Lamar working with experimental pneumococcus meningitis in monkeys, which is invariably fatal in the untreated animal, found that a mixture of sodium oleate, immune serum and boric acid exerted regularly a more powerful action than immune serum alone and not only prevented the occurrence of the infection but also in repeated doses led often to the complete recovery of the infected animal.

8. Dochez studied the bacteriology of the blood in 37 cases of lobar-pneumonia. He was able to isolate the pneumococcus from the blood in approximately 50 per cent. In general, the course of the infection was more severe in individuals from whose blood the pneumococcus could be isolated. Seventy-seven per cent. of the patients with positive blood-cultures died and 79 per cent. of the patients with negative blood-cultures recovered.

[R. I. L.]

DECEMBER 1, 1912.

1. EPSTEIN, A. A. *A Contribution to the Study of the Chemistry of Blood Serum.*
2. *COHN, A. E. *On the Differences in the Effects of Stimulation of the Two Vagus Nerves on Rats and Conduction of the Dog's Heart.*
3. PEARCE, R. M., AUSTIN, J. H., AND MUSSER, J. H., JR. *The Relation of the Spleen to Blood Destruction and Regeneration and to Hemolytic Jaundice.*
4. KARSNER, H. T., AND PEARCE, R. M. *The Relation of the Spleen to Blood Destruction and Regeneration and to Hemolytic Jaundice.*
5. PEARCE, R. M., AND AUSTIN, J. H. *The Relation of the Spleen to Blood Destruction and Regeneration and to Hemolytic Jaundice.*
6. FOLIN, O., KARSNER, H. T., AND DENIS, W. *Nitrogen Retention in the Blood in Experimental Acute Nephritis of the Cat.*
7. MANDELBAUM, F. S. *A Contribution to the Pathology of Primary Splenomegaly (Gaucher Type) with the Report of an Autopsy.*
8. CHURCHMAN, J. W., AND MICHAEL, W. H. *The Selective Action of Gentian Violet on Closely Related Bacterial Strains.*
9. OPIE, E. L. *Lymph Formation and Edema of the Liver with Experimental Nephritis Produced by Cantharidin.*
10. HOWARD, C. W., AND CLARK, P. F. *Experiments on Insect Transmission of the Virus of Poliomyelitis.*
11. JOBLING, J. W., AND STRAUSE, S. *Studies on Ferment Action.*

2. Cohn working with dogs found that there was usually a great qualitative difference in the action of the two vagus nerves on the heart.

[R. I. L.]

JOURNAL OF INFECTIOUS DISEASES.

SEPTEMBER, 1912.

1. SEDGWICK AND MACNUTT. *Is Typhoid Fever a Rural Disease?*
2. RUEDIGER. *Sporotrichosis in the United States.*
3. SIMONDS AND KENDALL. *A Simple Method for Isolating Anaerobes in Pure Culture.*
4. *ROSENAU. *Experimental Infectious Endocarditis.*
5. *GURD. *Variations in the Complement Content of Serum and Plasma.*
6. ROSENAU. *On the Nature of the Toxic Substances from Pneumococci.*
7. JACKSON. *Experimental "Rheumatic Myocarditis."*
8. MORSE. *A Study of the Diphtheria Group of Organisms by the Biometric Method.*
9. ROSENAU. *On the Toxicity of Broth, of Pneumococcus Broth Culture Filtrates and on the Nature of the Protrolytic Enzyme Obtainable from Pneumoccoci.*

4. Rosenau's original view of the causal factor of endocarditis being an attentuated pneumococcus receives additional support in this paper. Furthermore he shows that the bland cases are produced by organisms of this variety, of a low degree of virulence; that the severe and malignant forms are the results of infection grafted on a previously diseased valve. The original infection is cared for by the rich capillary structure of the valve. This becomes sclerosed by one attack, so that a second infection, even with the same organism, meets no resistance. The result of this process is the formation of vegetation with ulceration, with the well known train of dangerous and generally fatal sequelae.

5. Gurd shows that the amount of complement developed in the serum of different animals is nearly absolutely constant in amount. Variations from this figure are due to differences of temperature which tend to inactivate the serum. The author believes that this element exists in the body not as complement but as a substance, which he calls "complementogen," which is activated to complementary activity by some of the body fluids or cells. He recommends heating the serum to 37° C. for one-half to one hour and placing it at 2° C. If this is followed the serum remains active for 24 to 48 hours.

[L. H. S.]

NOVEMBER, 1912.

1. SCHORER. *Experimental Study of Milk.*
2. ROSENAU. *A Study of Streptococci from Milk and Epidemic Sore Throat, and the Effect of Milk on Streptococci.*
3. TUNNICLIFF. *The Content of Antibodies of Normal Human Colostrum and Milk.*
4. WELLS AND HEIDENBURG. *Studies in the Biochemistry and Chemotherapy of Tuberculosis.*
5. *CORPER. *Intravitam Staining of Tuberculous Guinea-pigs with Fat-soluble Dyes.*
6. WELLS AND CORPER. *The Lipase of Bacillus Tuberculosis and Other Bacteria.*
7. *HARRIS. *The Production of Antirabic Immunity by Intraspinal Injections of Virus.*
8. ANDERSON AND GOLDBERGER. *Natural and Induced Immunity to Typhus Fever.*
9. NAVY, PERKINS, AND CHAMBERS. *Immunization by Means of Cultures of Trypanosoma Lewisi.*
10. ARKINS. *The Influence of Certain Oxidizing Agents. (Sodium Iodosobenzoate and Sodium Iodoxybenzoate) on Phagocytins.*
11. MORSE. *The Application of the Complement Fixation Reaction to the Diphtheria Group of Organisms.*
12. KING AND WILSON. *Studies in Hog Cholera.*
13. STEINHARDT, POOR AND LAMBERT. *The Production in Vitro in the Normal Brain of Structures Simulating Certain Forms of Negri Bodies.*
14. SURFACE. *Bovine Infectious Arthritis, Epizootic Among Guinea-pigs.*
15. GLOWSET. *Intra-leukocytic Bodies in Scarlet Fever.*
16.* TUNNICLIFF. *Observations on the Phagocytic Activity of the Leukocytes in Measles.*
17. ROSENAU AND ARKIN. *The Action on Dogs of the Toxic Substance Obtained from Virulent Pneumococci and Pneumonic Lungs.*

5. Fat dyes failed to stain the fat found in tubercles in the living guinea-pig. This the author considers as additional support to the old theory that this fat is not deposited from the fat intake of the subject, but is the result of action on the intracellular fats of the tissues forming the tubercle. In no instances were the fatty envelopes of the tubercle bacillus stained by the action of the injected dyes.

7. Harris has produced immunity against rabies in rabbits rapidly by single intraspinal injections of non-infectious desiccated virus. The material used for this result is not affected by age and may be stored in quantities.

16. The leukopenia and diminution in phagocytic activity of the leukocytes to streptococcus, staphylococcus and the tubercle bacillus, may account for the frequency of secondary infection in measles.

[L. H. S.]

THE LANCET.

DECEMBER 7, 1912.

1. MOULLIN, C. M. *The Bradshaw Lecture on the Biology of Tumors.*
2. SOLLY, R. V. *Some Cases of Pyrexia.*
3. WALLACE, A. T. *The Suppression of the Convulsion in Eclampsia.*
4. *STRONG, G. R. *Eight Cases of Osteomyelitis of the Spine.*
5. BANGOR, H. *Epithelial Proliferation Induced by in Injection of Gas Works Tar.*
6. AYTOUN, J. H. *Acute Inversion of the Uterus.*
7. JACOB, F. H. *Case of Extensive Fibro-Angioma Treated by Radium.*
8. LYONS, W. C. *A New Form of Tuberculin (T. F.) Some Notes on Its Diagnostic and Therapeutic Value.*
9. GAYFORD, C. *An Interesting Case of Arrested Tuberculosis.*

4. Strong reports eight cases of osteomyelitis of the spine. He believes that if all cases of this nature were more carefully investigated instead of having at once made on them the diagnosis of tuberculosis, there would be more cases of osteomyelitis and fewer of tuberculosis.

[J. B. H.]

THE BRITISH MEDICAL JOURNAL.

NOVEMBER 30, 1912.

1. *LAMBOTTE, A., LANE, W. A., LUCAS-CHAMPIONNIERE, J., STEINMANN, F., ET AL. *Report of the Committee on Treatment of Simple Fractures.*
2. BASTIAN, H. C. *Remarks on Further Experiments Concerning the Origin of Life.*

1. The greater part of this number of the *British Medical Journal* is devoted to an elaborate report of a committee appointed to consider the treatment of simple fractures. This committee reports as follows:

(1.) Non-operative treatment of the shafts of the long bones in children under fifteen years, except that of both bones of the forearm, gives good results. Operative treatment gives equally good results. In comparison with non-operative results in children, such results in adults are not satisfactory, the older the patient the worse the result.

(2.) The most certain way to obtain a good functional result is to obtain a good anatomical result; operative measures which secure absolute approximation and fixation of the fragments is the surest way to obtain such results. Operative treatment should not be regarded as a method to be employed in consequence of failure of non-operative measures. Operative treatment requires much skill and experience. The mortality is so small as to be disregarded, for surgeons and practitioners without such skill and experience non-operative measures are likely to remain for some time the more safe and serviceable. These conclusions are elaborated in a series of appendices in which various methods are explained and illustrated by charts, diagrams and plates. [J. B. H.]

DECEMBER 7, 1912.

1. *JONES, R. *Presidential Address on the Present Position of Treatment of Fractures.*
2. MOULLIN, C. M. *The Bradshaw Lecture on the Biology of Tumors.*
3. KEITH, A. *The Functional Nature of the Cecum and Appendix.*
4. POWER, D'A. *Remarks on Recent Progress in Connection with Syphilis.*
5. GOODING, S., AND ETHERIDGE, F. L. *A sequel to Novocain Injection.*

1. This is a long paper in which Jones reviews what he considers to be the present treatment and the best treatment of fractures. The article is long, covering fractures of all kinds. There are many excellent plates and illustrations. For those interested in this subject, this paper should be of great value.

[J. B. H.]

THE PRACTITIONER.

DECEMBER, 1912.

1. *TAYLOR, F. *Sleepiness.*
2. HERMAN, G. *On the Teaching of Operative Surgery.*
3. *JONES, R. *The Relation of Epilepsy to Insanity and Its Treatment.*
4. WINGRAVE, W. *Bacilluria and Pyuria.*
5. MCDONAGH, J. E. R. *The Treatment and Pathology of Venereal Diseases as We See Them Today.*
6. *STEPHENSON, G. *On Cases of Eye-Strain Simulating Grave Organic Disease of the Central Nervous System.*
7. MACLEOD, J. M. H. *Recent Advances in Dermatology. Eczematoid Ringworm.*
8. *MILLER, H. C. *Rest-Cures in Theory and Practice.*
9. CURLE, D. *Observations on the Action of Iodine and Also On New Methods of Using It.*
10. HICKS, P. *A Common Cause of Cough.*
11. CLARKE, H. T. *A Case with Comments. Illustrating the Extreme Malignancy of Chrondo-Sarcoma.*
12. RYAN, C. A *Case with Comments. Sub-Tertian Malarial Fever Complicating Pregnancy.*
13. RUSSELL, W. B., AND WOOD, F. L. *A Case with Comments. A Case of Paratyphoid Infection.*

1. This paper on sleepiness is of interest from the literary as well as clinical point of view. The writer takes up the subject from all sides in a charming as well as instructive manner.

3. Jones considers epilepsy in a long article from the historical view point, and then takes up the varieties of epilepsy, the life of the epileptic, the aura, paroxysm and the pre- and post-paroxysmal stages. The article takes up briefly numerous points in regard to this disease and its relation to insanity.

6. Stephenson reports a series of interesting and instructive cases in which eye-strain simulated various forms of grave organic disease of the central nervous sytem.

8. Miller discusses various forms of rest cure- especially the Weir-Mitchell method and the disadvantages and limitations of these cures. He writes at length as to the futility of many such "cures," because of insufficient consideration to other factors, physical or mental, such as eye-strain, self-repression, etc. The aim of every rest-cure should be not only to put the patient on his feet again, but to teach him how to stay there; in these two things are essential—avoidance of routine and the most individual study of the cases. [J. B. H.]

EDINBURGH MEDICAL JOURNAL.

DECEMBER, 1912.

1. *RITCHIE, W. T.. *Auricular flutter.*
2. STRUTHERS, J. W. *Perforated Duodenal Ulcer.*
3. GUY, W., AND ROSS, J. S. *Nitrous Oxide and Oxygen as an Anesthetic for Dental and Surgical Purposes.*
4. MONCRIEFF, R. S. *Note on the Incorporation of Surgeons and Barbers.*
5. OLIVER, J. *Secretory Activity in the Mammary Glands Independently of Pregnancy.*

1. The term "flutter" applied to human auricles means a series of rhythmic co-ordinate contraction of the auricular muscles at a very rapid rate. In the first case described by the writer the rate was about 270-300 per minute in a case of heart block. In auricular fibrillation the beats are irregular thus differing from auricular flutter. He describes six cases in great detail with many tracings. Treatment is rest in bed with administration of digitalis or strophanthus preparations. The writer covers this complex subject in a thorough and careful manner.

[J. B. H.]

PROCEEDINGS OF THE ROYAL SOCIETY OF MEDICINE.

NOVEMBER, 1912: VOL. VI, NO. 1.

1. LEWIS, P. *Sepsis and Spa Treatment.*
2. CANTLEY, E. *Tetanoid Spasms. Partial Aphasia.*
3. PARKINSON, J. P. *Congenital Syphilis; Hematuria.*
4. POYNTON, F. J. *Congenital Family Cholemia.*
5. BOX, C. R. *Excision of Spleen for Congenital Family Cholemia.*
6. HEATH, P. M. *Genu Valgum Due to Rarefaction and Deformity of the Shaft of the Femur.*
7. MILLER, R. *Cerebral Maldevelopment with Infantilism and Idiocy.*
8. FITZWILLIAMS, D. C. L. *Coxa Vara.*
9. KELLOCK, T. H. *Traumatic Pancreatic Cyst After Operation.*
10. STEPHENSON, S. *Ocular Torticollis.*
11. BANKART, A. S. B., AND DAWNAY, A. H. Y. *Torticollis of Ocular Origin.*
12. TURNER, P. *Lateral Sinus Thrombosis Followed by Thrombosis of the Facial Vein.*
13. WHIPHAM, T. R. *Anterior Poliomyelitis.*
14. MORISON, A. *Malformation of the Heart—Foramen Primum.*
15. CANTLEY, E. *Specimen of Tuberculous Right Kidney from a Child.*
16. WILLIAMS, E. C. *Notes on a Case of Precocious Development in a Boy, Aged Six Years.*
17. GOSSAGE, A. M. *Coarctation of the Aorta.*
18. DAVIES, H. M. *Arteriovenous Anastomosis for Gangrene Due to Syphilitic Endarteritis.*
19. GOW, A. E. *Unusual Rashes in Two Brothers.*
20. OSLER, W. *Circulatory Disturbance with Cervical Rib.*
21. WEBER, F. P. (*a*) *Giant Urticaria of Five Years' Duration.* (*b*) *Multiple Calcification in the Subcutaneous Tissue.*
22. SHAW, H. B., AND HOPKINS, P. *Double-jointedness, Dermatolysis, and Multiple Subcutaneous Tumors.*
23. MCGAVIN, L. H. *Report of Nine Surgical Cases.*
24. ROTH, P. B. *Traumatic Myositis Ossificans.*
25. BATTEN, F. E. *Case of Tremor.*
26. ADAMSON, H. G. *Subcutaneous "Sarcoid" Tuberculide of Darier and Roussy.*
27. DAVIS, H. *Paget's Disease and Inherited Alopecia.*
28. DORE, S. E. *Chancre of the Lower Lip.*
29. LITTLE, E. G. G. *Edema Neonatorum.*
30. *MCDONAGH, J. E. R. *The Life-cycle of the Organism of Syphilis.*
31. MACLEOD, J. M. H. *Multiple Lupus Vulgaris.*
32. SEQUERIA, J. H. (*a*) *Necrosis of the Terminal Phalanges.* (*b*) *Lichen Planus of the Palms.*
33. WALSH, D. *Relation of Heart Disease to Skin Lesions.*
34. *MORTON, R. *Arthritis*
35. *HAMER, W. H. *The Influence of Migration Upon the Phthisis Death-rate.*
36. BROADBENT, J. F. H. *Aneurysm of the Aorta.*
37. *TOOTH, H. H. *Growth and Survival Period of Intracranial Tumors.*
38. BRIGGS, H. (*a*) *Hydatid Mole.* (*b*) *Vaginal Adenomatous Polypus.*
39. MAXWELL, R. D. *Hematocolpos.*
40. *WILSON, T. *Gelatinous Glandular Cysts of the Ovary.*
41. PRIDEAUX, W. DE C. *An Improved Anesthetic Facepiece.*
42. WALLACE, J. S. *Food and the Teeth.*
43. NORTHCROFT, G. *A Misplaced Mandibular Promolar.*
44. READ, T. G. *Bread in Its Relation to Dental Caries.*
45. MCKENZIE. D. (*a*) *Lateral Sinus Thrombosis.* (*b*) *Epithelioma of the Meatus.*
46. MILLIGAN, W. (*a*) *Carcinoma of the External Ear.* (*b*) *Malignant Disease of the Middle Ear.*
47. MUECKE, F. F. *Bilateral Attic Disease.*
48. TOD, H. F. *Epithelioma of Auricle and External Auditory Canal.*
49. MILLIGAN, W. *Epidiascopic Demonstration of X-ray Negatives of Normal and Pathological Temporal Bones.*
50. LAKE, R. *Left Otorrhea and Right Temporal Sphenoidal Abscess.*
51. YEARSLEY, P. M. *A Simplified Apparatus for Inflating with Heated Air.*
52. PETERS, E. A. *Capillary Angioma of the Right Membrana Tympani.*
53. DAVIS, H. J. *A Horsebean Removed from the Middle Ear.*
54. MOLLISON, W. M. *Non-Infective Meningitis Five Months After Cerebral Abscess.*
55. *SHATTOCK, S. G. *The Microscopic Structure of Urate Calculi.*
56. *FARRANT, R. *Thyroid Action and Reaction.*
57. *WALTON, A. J. *Injury of the Semilunar Cartilages.*
58. *MARTIN, A. M. *Injuries to the Semilunar Cartilages.*
59. *DIXON, W. E. *The Selective Action of Drugs on Nerve-Endings.*

30. McDonagh reports an admirable study of the life-cycle of *spirocheta pallida*, illustrated by two excellent plates of microscopic figures in series.

34. Morton's presidential address on arthritis is illustrated by seven excellent x-rays.

35. Hamer, from an elaborate statistic study, illustrated by ten tabular diagrams, concludes that hereditary susceptibility is a more important factor in phthisis mortality than environment.

37. Tooth's observations, based on the reports of 500 cases, are illustrated by six tables and 33 photomicrographs. He writes with special reference to the pathology of the gliomata.

40. Wilson's article is illustrated by six case-reports and by eight excellent photomicrographs of pseudomyxoma of the peritoneum.

55. Shattock's article is illustrated by 13 microscopic sections showing the minute structure of urate calculi.

56. Farrant discusses the physiologoy of the thyroid gland with special reference to the formation of thyroid tumors. There are 30 excellent photomicrographic sections.

57 and 58. Walton presents a careful study of the mechanics of semilunar cartilage injuries, illustrated by several cases and by 20 outline figures. He believes hyperextension to be the primary factor in the production of these lesions. Martin reports his per-

sonal experience of 449 cases of operation for semilunar cartilage injuries.

59. Dixon presents a scholarly piece of pharmacologic research on the selective action of drugs on nerve-endings. There is appended an admirable bibliography of 91 titles on the subject.

[R. M. G.]

Revue de Médicine.

October, 1912.

1. Roque, G., and Cordier, V. *The Tubercular Nature of Ascites in Cirrhosis, Particularly that of Laënnec.*
2. Gougerot, H. *The Classification of Acute Tuberculosis.*
3. Labbé, H., and Vitry, G. *The Nitrogen Exchange in Phthisis.*
4. *Cécilsas, J. *Artificial Pleurisy. The Rational Treatment of Pulmonary Tuberculosis.*
5. Oliver, J. *Secretory Activity in the Mammary Glands.*

4. Cécilsas believes that the beneficial results to pulmonary disease from artificial pleurisy are not due simply to a mechanical action, but rather to an inflammatory action arising from the presence of that foreign body. Weiss has shown that this may be done by the introduction into the lung of a flood of white cells and oxydase. The author goes even further and advocates the injection into the diseased portion of the lung itself some sterile irritant such as terpentine. This produces a local inflammation with the resulting reaction on the part of the tissues. He has attempted this radical step in the treatment of two cases of phthisis, presenting distinctly localized apical disease. The immediate results were somewhat alarming, but the subsequent course of the disease served to warrant the experiment.

[L. H. S.]

November, 1912.

1. Couteaud, M. *Europe's Part in the Tuberculosis Epidemic in Polynesia.*
2. Roque, G., and Cordier, V. *The Tubercular Nature of the Ascites in Cirrhosis, Particularly that of Laënnec.*
3. *Leroux, C., and Grunberg, W. *The Offspring of 442 Tubercular Working Families.*

3. The authors, in a careful study, show the influence of heredity, direct and remote, upon the children of tubercular working parents. Such children, when they survive even to childhood, are shown to be more prone to the common diseases than are their more fortunate neighbors. Deformities and dystrophies are also more prevalent in this group. They suggest as a remedy an improvement of local and general hygienic condition in this class.

[L. H. S.]

Deutsches Archiv für Klinische Medizin.

October 23, 1912.

1. *Reiss, E., and Jehu, W. *Alimentary Galactosuria with Liver Disease.*
2. Ronbitschek, R. *Alimentary Galactosuria with Experimental Phosphorus Poisoning.*
3. *Lang, G. *Arterial Pressure in Asiatic Cholera and Its Changes Under the Influence of Large Salt Solution Infusions.*
4. Hohlweg, H. *Disturbances in Hydrochloric Acid Secretion in the Stomach in Diseases and After Extirpation of the Gall Bladder.*
5. Klercker, K. O. *The Study of Pentosuria Based on Two Cases.*
6. Weber, A. *Dicrotesia of the Pulse.*
7. Arneth. *Relation of Eosinophilic Leucocytes to Croupous Inflammation of the Lung.*
8. Conzen, F. *Tests for Renal Function.*
9. v. d. Velden, R. *Effect of Radium Emanations on the Blood.*

1. In an exhaustive study of certain types of liver disease these authors conclude in regard to alimentary galactosuria that in fever-free conditions it occurs most markedly in catarrhal jaundice. They have not been able as yet to study cases with severe parenchymatous degeneration such as phosphorus poisoning, yellow acute atrophy, etc. Moderate galactosuria occurs in most diseases of the liver but rather speaks against carcinoma, Cholelithiasis and passive congestion. Its presence usually excludes tumor disease of the liver. Normal tolerance towards galactosuria may occur in all liver conditions except catarrhal jaundice.

Accompanying this work is a report of a few experiments on dogs.

3. In the algid stage of Asiatic cholera in average cases the maximal blood-pressure falls but the minimal is apt to increase so that the average remains about the same. In the severest cases they both sink but the minimal less than the maximal. The cause of the fall in pressure is a diminution of the whole volume of blood through loss of water and contraction of the vessels. If after two liters of fluid are replaced the blood-pressure has returned to normal the balance of lost fluid is restored. If now more fluid is added the vessels become over distended and increase in heart action results. In the days following the algid stage an increase of blood-pressure occurs usually in other than the cholera typhoid type. In the cholera typhoid type the blood-pressure is usually increased. The blood-pressure is an indication, therefore, of the amount of salt solution infusion to use. The individual case varies, but from two to three liters are generally the limits. [C. F., Jr.]

Wiener Klinische Wochenschrift.

No. 49. December 5, 1912.

1. Schottlaender, J. *How Can the Early Operation of Cancer of the Womb be Furthered?*
2. Izar, G. *Antigens for the Meiostagnim Reaction.*
3. Stein, B. *The Treatment of Leukemia with Benzol.*
4. Tsiminakis, C. *Neuclein Acid Treatment of Progressive Paralysis.*
5. Tedesco, F. *A Case of Healed Gunshot Wound of the Heart.*
6. Zuckerkandl, O. *Discussion on Wilms's Prostatectomy.*

Annales de L'Institut Pasteur.

October 25, 1912.

1. Bordet, J., and Delange, L. *Coagulation of the Blood and Origin of Thrombine.*
2. Bertrand, G. *Extraordinary Sensitiveness of Aspergillus Niger Towards Mangenese.*
3. *Marchoux, E., and Lovel, F. *Leprosy in Rats; Its Etiology and Similarity to Human Leprosy.*
4. Cesari, E. *Studies Upon the Bacillus of Schmorl.*
5. Armand-Delille, S. F. *The Variations in Alexine after Anaphylactic Shock in Active and Passive Anaphylaxis.*

3. Following up their work reviewed in the preceding number these authors describe in this paper the peculiarities of the leprosy bacillus infection found in rats and its nature of transmission. The bacillus is destroyed only by fifteen minutes' exposure to 60°C. If the infection is more superficial it signifies that it entered by means of the skin. It follows along the lymphatics, and the point of inoculation does not always show the most severe infection. Transmission by the genital tract does not seem probable nor are insects carriers of the disease. The exfoliations from the skin probably play only a small rôle. The transmission seems to be by contact of in-

jured skin with infected skin. If a number of the bacteria are introduced into the digestive tract the disease appears in the lungs. The glands of the rats spontaneously inoculated are larger than those artificially inoculated. The glandular form is the one resulting from inoculation. To produce the musculocutaneous form impure products must be injected.

[C. F., JR.]

IL POLICLINICO.

NOVEMBER, 1912.

MEDICAL SECTION.

1. GHILARDUCCI, F., AND MILANI, E. *Biologic and Therapeutic Action of the Fluorescent Substances Associated with the X-rays.*
2. MASSERINI, P. *Clinical and Radiological Diagnosis in a Case of Biloculate Stomach.*
3. *BILANCIONI, G. *The Graphic Study of Respiration in Stenosis of the Upper Air Passages.*

3. Bilancioni presents a report of an elaborate study with graphic records of the respiration, thoracic and abdominal, in cases of obstruction of the upper air passages. He finds that in adenoid vegetations the respiration undergoes considerable modification, consisting especially of extreme irregularity of rhythm with some diminution in frequency and variation in depth. In laryngeal stenosis from any cause the respiration is shallower than normal, and less frequent, but maintains its normal rhythm. After tracheotomy is observed the inverse of the physiological rhythm, with prolonged inspiration, also more frequent and less superficial breathing. [L. D. C.]

DECEMBER, 1912.

SURGICAL SECTION.

1. PEREZ, G. *So-Called Bone Cysts.* (*Continuation.*)
2. GAZZOTTI, G. *Experimental Contribution to the Study of Infibulation.* (*To be continued.*)
3. *BARNABO, V. *Resection of the Testicle.*
4. AGAZZI, B. *The Course and Results of Some Experimental Lesions of the Kidney.*

3. Barnabo' makes further report on his experimental researches on testicular resection on nine rabbits. [R. M. G.]

Miscellany.

RESIGNATION.

DR. FRANZ PFAFF has resigned as professor of pharmacology and therapeutics in the Harvard Medical School.

APPOINTMENT.

DR. CARL LUCAS ALSBERG, formerly instructor in biological chemistry at the Harvard Medical School, has been appointed chief of the bureau of chemistry of the United States Department of Agriculture.

NOTICE.

TWO-YEARS' INTERNESHIP—GOOD SAMARITAN HOSPITAL, GUANAJUATO, MEXICO.—This is a missionary hospital which was started by the Methodist Episcopal Church.

Guanajuato is a city of 60,000, located 160 miles northwest of Mexico City. It stands at an altitude of 6500 feet in a rich silver-mining region.

One year's report of the hospital staff shows 339 visits to homes; 4579 consultations, 24,523 treatments, 52 major and 279 minor surgical operations, medicines furnished 17,587 patients.

For this interneship a man is required who has had a thorough medical education and who is prepared to make his professional knowledge and skill directly subservient to the furtherance of the gospel.

Communications may be addressed to the director of the hospital, Dr. Levi B. Salmans, Good Samaritan Hospital, Guanajuato, Mexico.

RECENT DEATHS.

DR. CALEB DUDLEY BOYLSTON, who died on December 16 at the home of his daughter, Mrs. Abby Wood Smith, in New York, at the age of ninety-one years, had the double distinction of being among the last survivors of the men who crossed the plains in 1849 to California, after the discovery of gold there, and of having descended directly from the first native American physician. This was Thomas Boylston, Jr., the great grandfather of Mr. Boylston's great grandfather, who was born in Brookline in 1645 and was the son of the original Thomas Boylston, who came to this country from Staffordshire, England, in 1635. It was Dr. Thomas Boylston's son, the celebrated Dr. Zabdiel Boylston, who made the first attempts to inoculate against smallpox and who in 1721 inoculated his own six-year-old son.

DR. H. P. PORTER, a former United States army surgeon, who died on Dec. 23 at Butler, Mo., was born in Connecticut in 1839.

DR. PAUL OSCAR MEYER, of the Borough of Queens, New York City, died on Dec. 17, at the age of fifty-six years. He was a native of Germany, and was graduated from the University of Berlin in 1882.

BOOKS AND PAMPHLETS RECEIVED.

Motor Car Anatomy by Franklin Pierce.

RECORD OF MORTALITY.

FOR THE WEEK ENDING SATURDAY, DEC. 21, 1912.

CITIES.	Reported deaths in each.	Deaths under five years.	CITIES.	Reported deaths in each.	Deaths under five years.
NewYork	1,481	515	Pittsfield	10	2
Chicago	758	198	Waltham	13	2
Philadelphia	—	—	Brookline	8	—
St. Louis	—	—	Chicopee	6	2
Baltimore	—	—	Gloucester	11	—
Cleveland	—	—	Medford	8	2
Buffalo	—	—	North Adams	8	1
Pittsburgh	—	—	Northampton	7	0
Cincinnati	—	—	Beverly	1	1
Milwaukee	—	—	Revere	3	—
Washington	—	—	Leominster	5	1
Providence	—	—	Attleboro	4	0
Boston	244	57	Westfield	6	1
Worcester	48	6	Peabody	—	—
Fall River	36	18	Melrose	5	—
Lowell	48	16	Woburn	3	2
Cambridge	27	9	Newburyport	4	2
New Bedford	27	3	Gardner	3	0
Lynn	19	4	Marlboro	—	—
Springfield	24	9	Clinton	5	1
Lawrence	—	—	Milford	—	—
Somerville	21	4	Adams	—	—
Holyoke	—	—	Framingham	—	—
Brockton	17	4	Weymouth	—	—
Malden	16	4	Watertown	1	1
Haverhill	12	—	Southbridge	2	1
Salem	17	3	Plymouth	—	—
Newton	9	—	Webster	3	2
Fitchburg	11	3	Methuen	—	—
Taunton	10	1	Wakefield	6	—
Everett	3	1	Arlington	—	—
Quincy	—	—	Greenfield	—	—
Chelsea	5	1	Winthrop	2	1

Original Articles.

REPORT OF 110 CASES OF RENAL AND URETERAL CALCULI AND OF TEN CASES SIMULATING THESE CONDITIONS, WITH COMMENTS.

BY F. S. WATSON, M.D., BOSTON.

This communication does not profess to present its subject in an exhaustive form but to give brief analyses of some of the more essential matters connected with it and such comments as the writer is led to make by his interest in certain features of the subjects.

Number of cases	120
Renal calculi	100
Ureteral calculi	10
Simulating renal calculi	10

CHEMICAL CHARACTER OF CALCULI.

	PER CENT.
Oxalates	34.0
Uric acid	24.0
Phosphatic	22.0
Mixed	16.0
Cystine	4.0

The chemical character of the calculi of this series does not differ essentially from that of two other series reported by Sir Henry Thompson and Mr. Morris in which, taken together, there were 191 cases in which the chemical composition of the calculi was as follows:

	PER CENT.
Oxalates	39.0
Uric acid	21.0
Mixed	17.0
Phosphatic	17.0
Cystine	2.0

Size of calculi.—There were four cases, two of bilateral calculous disease in which the calculi were of considerable size. The size of the two largest was 1¾ by 2 inches and of the other 1¾ by 2½ inches.

Calculi too large to pass through the ureter were	32
Calculi small enough to be passed spontaneously	66
Not recorded with respect to size	12
	110

Number of calculi present at one time in the kidney.—In 16 cases there was more than one calculus present in the kidney at the same time. The largest number was in one case in which there were six calculi in one kidney and ten in the other.

Recurrence of calculus after long intervals of freedom from the condition.—In six cases the patients discharged calculi after several years of apparent entire freedom from the malady and after having passed calculi before.

The longest interval in any of these cases was fifteen years between the first and the second attacks.

Relative frequency of bilateral calculus.—In 20.0% of the series calculi were formed in both kidneys. In 12.0% stones co-existed in both kidneys. Albarran and Legueu estimate the frequency of bilateral calculi as being 50.0% of all cases. Kummel puts the proportion at 28.0% and Kraft at 36.0%.

Symptoms.—Pain and tenderness on pressure over the kidney appeared in the writer's series as follows:

Pain was entirely absent in	12
Was in the form of typical renal colic	40
Frequently repeated dull pain in kidney	20
Vesical irritability	8
In sciatic region	3
In a limited area beneath last rib	2
Simulating pain of appendicitis	4
In heels (on three separate occasions)	1
Directly over site of calculus in ureter	4
	94
Not noted	16
	110

In five cases irritable bladder was the *only* symptom. In one pain in the heels was the *only* symptom. This pain came on from one to three days before the passage of large numbers of very small concretions of pure uric acid on three separate occasions and ceased entirely when the concretions had been passed. The patient had never had it on any other occasion.

Pain was associated with hematuria in all but twelve of the cases.

Errors in diagnosis.—In four of the cases the diagnosis had been made of appendicitis. In one instance it was believed to be a small deep-seated circumscribed consolidation in the lower part of one lung. In one case it was mistaken for gall-stones. In eleven cases the condition had been overlooked. Five of these were the cases in which irritable bladder was the only symptom.

Tenderness on pressure over the kidney in the space immediately below the last rib and just outside the outer border of the quadratus lumborum muscle or upon bimanual pressure over the kidney was absent in sixty per cent. of the writer's series of cases. When present it was most marked in the space in the back mentioned above. In two of the cases it was much more easily produced by pressure on the anterior wall of the abdomen over the kidney than elsewhere. In four it was situated directly over the appendix. In three of these four cases the calculus was impacted in the ureter, directly beneath the point of tenderness. In two more of the ten cases of ureteral calculi, the same thing was true with respect to tenderness being located directly over the point where the stones lay.

HEMATURIA.

As the only symptom	14
Visible to the naked eye	49
Microscopic blood	46
Large quantities of blood	5
Absent	10
Not noted in	5

The absence of hematuria is seen in this series to be very nearly as frequent as is the absence of pain. In constancy there is little difference between these two cardinal symptoms of calculus. It is to be noted that in the cases simulating calculus there were four in which hematuria was present in microscopic form, and in all of the cases of this sort, pain in form more or less characteristic of renal calculus occurred. In most of the cases pain and hemorrhage was increased by active bodily movement.

Enlargement of the kidney.—There was no palpable enlargement of the kidney in the large majority of the cases of this series. It is recorded as being present, in fact, in but 12 of them and in five of this number the kidney was the seat of either hydro- or pyonephrosis.

Spasm of the abdominal muscles of affected side.—This symptom was seen in a considerable number of the cases. It is noted as occurring in fifty-six. All of these patients were subjects of renal colic. In one of them there was a slight degree of muscular tension noticed for a good many days after the cessation of the attack of renal colic. This patient subsequently passed two more calculi. The spasm of the muscles was in all the patients limited to the side on which the calculus was located.

Great restlessness and often vomiting accompanied the renal colic in the cases in which it existed. Vomiting did not occur in any case in which the pain had other form than that of renal colic, but nausea was present at times in a few of the cases.

There was a rise of temperature in eight of the cases in which the kidney was extensively infected. In the rest of them it is not noted as having been present. A subnormal temperature is stated to have been present in five cases. The absence of an elevation of the temperature is one of the signs by which the condition may be distinguished from others with which it may sometimes be very readily confused. As a rule, also, even when there are severe attacks of renal colic there is not a corresponding degree of physical depression. The patient is often very white and looks faint, but almost never looks so seriously sick as does one with an acute intraabdominal inflammation such as appendicitis, for example.

Radiography.—In really expert hands radiography is a very certain diagnostic test of the presence or absence of renal or ureteral calculus, and should always be applied in any case in which the suspicion of renal calculus has arisen. In any but the hands of the best experts this test is unreliable.

The sources of error in radiography that were in its early days so frequently misleading, have been for the most part discovered and do not now confuse the diagnosis. It has become practically true that almost any calculus of any size and any chemical composition can be detected by radiography.

The chief sources of error in radiography are as follows: Phleboliths situated generally in the branches of the venous plexus that lies on the outer sides of the prostate and extends upward upon the neck of the bladder. Calcified glands in the neighborhood of the renal pelvis or ureter. Foreign bodies in the intestine and appendix. The latter are usually removed by thorough previous clearing out of the bowels. Calculi in the ureter are absolutely indistinguishable from phleboliths in many cases, and the ureteral catheter armed with a metal stylet serves to determine their true nature when it is used in connection with radiography by showing whether or not the shadows lie directly in the course of the ureter.

It is essential that the contents of the bowels shall be thoroughly evacuated before the radiograph is taken.

Other conditions which the ureteral catheter aids in distinguishing from renal calculus are displacements of the kidney, dilatations of the renal pelvis and malpositions of its outlet. These can usually be shown by injections of argyrol into the renal pelvis through a ureteral catheter before the radiograph is taken.

In the writer's series of patients there were forty which came to him for treatment before the x-ray was in use or before it could be relied upon for diagnostic purposes. In but two instances of the patients who have been submitted to this diagnostic test since the time of the greater perfection of radiography have there been calculi present which were not shown by the plates and in but one, so far as can be determined, was a calculus apparently shown by the plate when none was present. Three mistakes in 60 cases.

Cases simulating renal calculus.—In the series presented in this communication there were ten in which there were symptoms closely simulating renal calculus, but which were due to other conditions. These conditions were as follows:

Displaced kidney constricted by bands of adhesions in	2
Pressure of adhesions in a kidney not displaced in	1
Movable kidney not detected prior to operation	1
Moderate distension of renal pelvis and calcyces due to misplaced ureteral outlet from pelvis	1
Enlargement of kidney due to acute congestion	2
Constriction of ureter due to adhesions	2
No detectable cause in kidney for symptoms in	1
	10

In the larger number of cases of this sort there is some definite renal or ureteral condition to account for the production of the symptoms. Now and then no such condition is to be found and we are forced to fall back upon the rather weak diagnosis of nephralgia as an explanation of them.

In the small number of conditions noted in the ten cases of this class in the series, there is a noticeably large proportion in which the condition producing the symptoms was adhesions pressing on the kidney or the ureter.

Dangers of leaving calculus in the kidney.—It is true that in a certain proportion of cases the patients do not suffer any serious bodily harm because of calculus; some of them do not even have attacks of pain or sufficient hematuria to attract their attention and may go on for years or even all their lives without detriment to health or lessening of bodily activity. It is largely due to this fact that so many medical practitioners, especially in the past, have allowed their patients with this malady to live unrelieved of their calculi by surgical intervention and have still further permitted them to encounter the very grave dangers and even death because of the delay in resorting to surgical intervention until the kidneys have been infected and gravely compromised in their functional capability.

There is some excuse for this, of course, in the cases which are called latent calculus, that is to say those in which there are few or no symptoms or in which the patient may have had one or two attacks of renal colic long since or of hematuria and not have shown any sign of renal or ureteral calculus since that time, but the statement made many years ago by Mr. Morris, the English surgeon, cannot be too strongly endorsed or too strongly emphasized. It is this: "Renal calculus and still more ureteral calculus is always a menace to life."

That it does not always result in death or serious disability does not excuse too long delay in applying surgical treatment which is now, even in serious calculus conditions, attended by so large a measure of success and which in the cases of kidneys not yet infected is almost without operative mortality.

A striking example of the destruction to the kidney that may be worked by a renal calculus without giving any sign of its presence is that reported by Mr. Shields. In this case the patient had had but one or two attacks of moderate hematuria and slight renal pain fourteen years until one week before he came to the hospital, when he had marked hematuria and severe pain in one kidney. Radiography showed the presence of a very large stone in one of the kidneys. When it was removed by operation soon afterward it measured 10½ inches in circumference and five inches in its long axis. It had wholly destroyed all secreting substance of the kidney which was represented merely by a pyogenic membrane in which the stone lay. The opposite kidney in this instance happened, fortunately, to be normal and to have consequently been amply able to carry on the function of urinary secretion without detriment to the patient's health, which had not suffered in any respect from the presence of the calculus in the opposite kidney. He had been a laboring man and hard at work all the while in the fourteen years since the first evidence of calculus had appeared and had been entirely free from all signs of such trouble in the interval.

Another danger of leaving a calculus in the kidney is the invitation to infection that it always extends and that often takes place in consequence. This infection varies in degree from a mild pyelitis to extreme degrees of pyonephrosis and again to the formation of perinephritic abscess from inflammation of the perinephritic tissue and its infection or from perforation of the kidney or its pelvis. Again as the result of long standing irritation of the perinephritic tissue, even in the cases in which suppuration does not occur, there result greater or less dense masses of connective tissue which render far more difficult any operative procedure that may become necessary at some time during the course of the malady. Finally there is the very grave danger, especially in cases of bilateral calculus, of the occurrence of obstructive anuria due to the blocking of the ureteral canal of one side when the opposite kidney is functionally incapable or when the opposite kidney is absent, or from the simultaneous blocking of the ureters of both sides in the bilateral cases.

Calculus anuria.—One of the grave dangers attending renal calculus is that of having obstructive anuria occur through the calculus being passed into and becoming impacted in the ureter or ureters.

In the unilateral cases anuria is in the great majority of cases produced by the prevention of the urine from making its exit from the kidney, the second kidney being either absent or so seriously damaged that it cannot supply sufficient secretion to be of value in maintaining the life of the individual. In a small minority of the cases which will be referred to again later when speaking of the surgical treatment of these cases, this is not the case and there is a kidney on the opposite or unobstructed side which has a useful degree of functional capability if it can be restored to its previous activity. Whenever this is the case the suspension of that second kidney's function is due to reflex inhibition arising from the blocking of the ureter of its fellow organ.

In bilateral cases there is always in addition the chance that both ureters may become blocked at the same time.

MEDICAL TREATMENT.

Treatment of renal colic.—The treatment of renal colic consists chiefly in administering enough of an anodyne or anesthetic to lessen the pain so that it can be borne by the patient. It is, in the writer's experience, much better to do this by the combined use of ether and morphia than by the employment of morphia alone. The doses of morphia which are enough to control the pain of a severe attack of renal colic are likely to prove poisonous if the pain—as it so often does—suddenly ceases, whereas if ether is given to the point of securing primary anesthesia and at the height of the spasms of pain only, the dosage of morphia may be much reduced and neither the drug nor the anesthetic are harmful or dangerous.

Thus, one-sixth grain of morphia subcutaneously administered is usually sufficient when primary anesthesia is given in the worst times of pain of the crises of the attack, to make the latter tolerable. The writer has carried a patient through seventy-two hours of repeated renal colics, attending the passage of four calculi, with a sixth of a grain of morphia every ten or twelve hours and primary anesthesia with ether whenever it was required, and the patient suffered but very little pain during the entire time.

In addition to these measures, heat applied to the affected side is more or less beneficial as an aid to still the pain, and the patient should drink freely of water.

Treatment given to cause the expulsion of the stone.—There is but one medicine which the writer has found to be valuable in aiding the passage of renal calculus and it has proved of great benefit in too many of his cases to allow him to doubt its efficacy for this purpose. The drug referred to is *spirits of turpentine*, given in 10-minim doses, in gelatine capsules, thrice daily. In conjunction with this remedy the patient is put upon milk diet to which may be added once daily some fish and dry toast.

Each tumbler of milk should be diluted one-quarter part with Vals water, the milk should be swallowed slowly and should be slightly warmed. Under this regimen the following results were obtained in cases in which the calculi were small enough to pass through the ureter.

Cases in which turpentine was given	66
Calculus expelled in	51
Failures	7
Lost sight of, did not complete treatment	8
Percentage of success, about 87.0	66

In the seven cases in which the treatment failed to bring away the calculus the patients were subsequently operated upon. Turpentine should be given for six days, then omitted for two days and resumed for six days more, if required.

The theory with regard to the beneficial influence of turpentine in causing the expulsion of the calculus is that it dissolves the adhesive substance by which the calculus is often attached to some part of the interior of the kidney or its pelvis, and the stone being thus made free presently enters the ureteral orifice and when small enough to do so passes to the bladder. This was accomplished with far less pain as a rule than the patients felt who did not have turpentine under the same conditions.

Turpentine thus administered is, as was said, far more efficacious than any other internal remedy that the writer has hitherto tried or seen tried by others. The patient is directed to drink a large quantity of water during the treatment and is kept entirely quiet during each course of six days. The average length of time before the calculus passed in the successful cases was eleven days.

Surgical treatment.—When it is shown by radiography that a calculus is too large to pass through the ureter, it is a waste of time and sometimes a dangerous waste of it to delay the prompt performance of nephro- or ureterolithotomy. In less degree this is also true of cases in which the calculus is small enough to pass through the canal of the ureter. In the latter class of cases a reasonably long time should always be devoted to endeavoring to cause the spontaneous expulsion of the calculus by medical and palliative treatment. When, after treatment of that sort has been repeated several times, lasting perhaps from one to two months, with proper intervals between the courses of turpentine, rest, and the diet described, the patient should be advised to have the calculus removed. In cases of calculous anuria delay in performing the operations should not exceed twenty-four, or at most, thirty-six hours. This gives plenty of time to apply all palliative remedies that are likely to be of value and further delay always adds to the patient's danger.

SURGICAL OPERATIONS EMPLOYED.

Renal calculi. Nephrolithotomy in....	36	Deaths 2
Ureteral calculi. Ureterolithotomy in	8.	Deaths 0
Secondary nephrectomy	2.	Deaths 0
In cases simulating renal calculus....		
Various operations	10.	Deaths 1
	56	3
Nephrolithotomy in cases with infected kidneys	20.	Deaths 2
Nephrolithotomy in cases with non-infected kidneys	16.	Deaths 0
Ureterolithotomy with infected kidneys	2.	Deaths 0
Ureterolithotomy with non-infected kidneys	6.	Deaths 0

In the two fatal cases the patients had bilateral calculus. One of them had had anuria for three days and uremic symptoms for twenty-four hours. She also had perinephritic abscess of both sides. Simultaneously performed bilateral nephrolithotomy was done. The patient survived and the urinary secretion was resumed, but she succumbed, owing partly to uremia and partly to systemic sepsis.

In the second case the calculus was removed from one kidney only. Another calculus was in the opposite kidney. It had perforated the renal pelvis and the wall of the ascending colon and had created a large abscess in so doing. The patient's condition, when operated, was most critical. She died of shock at the end of twelve hours.

Two of the patients had fistula following nephrolithotomy and the kidney was in both cases extensively infected and pyonephrotic. Nephrectomy would have been done primarily in each of these cases, had the patients' condition not been so critical. It was done subsequently and both patients made good recoveries.

Operative methods employed.—In four cases the so-called paraperitoneal exposure of the kidney was made; in the remainder of the thirty-six nephrolithotomies the ordinary oblique lumbar

incision was used. In two of the ureterolithotomies the paraperitoneal exposure was used; in the other six the usual oblique lumbar incision was extended downward in front of the anterior superior spine of the ilium to a greater or less extent as was required to reach and extract the stone.

In all the ureterolithotomies the ureteral incision was closed and in all but two of them the outer wound was closed without drainage. In two drainage was employed and a temporary and short-lived leakage of urine took place in both, but the wounds soon healed.

Two only of the calculi were situated low down in the ureter. In both of these cases the paraperitoneal incision was used.

Cases of bilateral calculus.—There were six cases of bilateral calculus disease in the 36 in which nephrolithotomy was done. In three of these bilateral cases, simultaneously performed, bilateral nephrolithotomy was done. In the other three the calculus was removed from one kidney first, and in two the second one was taken from the kidney of the opposite side after an interval. The third patient died before the second operation could be done.

The surgical treatment of calculous anuria.—It has usually been stated that in cases of unilateral calculous anuria the nonobstructed kidney was either absent, or so far damaged by injury or disease as to be functionally useless. At the Congress of the International Association of Urology in Paris, in 1908, the writer demonstrated that this was not always the fact and cited 17 cases of *unilateral calculous anuria* in which the unobstructed kidney was found to be functionally capable in a useful or essential degree, and 13 cases of bilateral disease in which the ureters of both kidneys were obstructed by calculi at the same time and in which both kidneys contained a useful amount of secreting renal substance.

In at least thirty cases, therefore, both kidneys have been shown to possess useful or essentially-important-to-life secreting substance.

This demonstration, though it applies to but a small number of cases of calculous anuria, has an important bearing upon the question of surgical treatment.

The object of the latter should be to restore to the patient, with this condition, every bit of the capable renal function that he possesses, for he needs every bit of it if he is to be given the best chance of living.

The question arises: In what way can the surgeon best give him this chance? It is well established that in cases of calculous anuria the quickest and surest way of restoring the suspended urinary secretion is by laying open the obstructed kidney and, if the patient's condition permits, taking the calculus from the kidney or the ureter, as the case may be, but at any rate to incise the kidney.

Simultaneously-performed bilateral nephrolithotomy and unilateral nephrolithotomy in the treatment of renal calculus with anuria.—It has happened in a few cases that the surgeon has, in a case of unilateral obstruction, cut down by mistake upon the kidney that was not the seat of the calculus and that was not the obstructed organ and has found an absolutely useless kidney or that it was absent, which is, practically speaking, the same thing. What has he accomplished? Obviously nothing of benefit for the patient. He has merely added whatever the shock of the operation may be to the already dangerous condition of the sick man. Now let it be supposed that instead of a useless kidney he has found one that is more or less diseased but still capable of performing some degree—very likely a useful degree—of functional work, still, but in all probability not enough to support life by its own unaided efforts. What has he accomplished if he stops there in such a case? He has freed that organ of its suppressed function and given the chance for the resumption of its part of the total functional work of the two kidneys, but in all probability not enough of it to maintain life by itself. What can he do further? There is but one thing that can be done, which is to at once expose the opposite kidney, lay it open and remove the obstructing calculus from it. He may find that the second kidney is capable of carrying out efficiently the whole amount of the work of urinary secretion but in a certain proportion of the cases he would find that the second kidney operated upon would not have enough sound renal substance to do this by its work alone. But that there was a good prospect that the work of the still capable renal substance in *both kidneys* combined would be capable of maintaining the life of the individual. That this condition, just described, will not occur very often is undoubtedly true. That it will happen in some few cases, is seemingly also true, and all that the writer wishes to point out is that it will especially be likely to happen in those cases in which the first kidney exposed is found to have some, but not enough sound renal tissue to support life by its functional work alone and that when this is the fact the surgeon should at once cut down and remove the stone from the second kidney. In this way only can he set free or give every chance to have set free the total functional capacity of all the functionally capable renal substance possessed by the individual, whereas, if he limits his intervention to one kidney alone, he will not have done this. What has just been said applies to a small number of cases of unilateral calculus that have occurred and to such as will be found to be like them in the future.

What has just been described will be more often found true of the cases in which the disease exists on both sides. In the communication made to the International Urological Association, that has been referred to, the writer reported 12 cases of bilateral calculus in which both ureters were simultaneously blocked by calculi and in which both kidneys contained

secreting substance that was functionally capable in a useful degree. In three of these cases no operation was performed and all three patients died. In seven cases a unilateral operation was done and all the patients died. In two cases a simultaneous operation was done upon both kidneys and both patients recovered.

Two cases, one of which was included in the report referred to but which the writer has since published, seem to him of special interest in this connection. The surgeons in whose care these patients were, were Albarran and Hugh Cabot. The course of events was practically the same in both and was as follows: In Albarran's case, he performed nephrolithotomy on one side upon a patient who did not have anuria. Twenty-four days later, all having gone well in the interval, the ureter of the second kidney became obstructed by calculus and total anuria occurred. No operation was done upon this kidney and the patient died. In Cabot's, the same phenomena were seen except that the anuria occurred on the eighteenth day and that Cabot at once operated upon the second kidney, removed the calculus and his patient lived.

These two cases speak strongly for the occurrence of reflex anuria and emphasize also the importance of the value that simultaneous bilateral nephrolithotomy may have in certain cases of calculous disease affecting the two kidneys. They also show clearly the danger of leaving a calculus in one kidney when removing one from its fellow organ of the opposite side.

The writer urged at the meeting of the International Association in 1908, the view that there was no reason for leaving a calculus in one kidney when taking one from the organ of the opposite side, in any case of bilateral calculus whether the patient has anuria or not. He can see no danger in removing the stones at the same time from both kidneys and can, on the contrary, as he has just pointed out, see wherein there may be very serious danger in leaving a stone in the other kidney to be removed, at a subsequent operation. It has been objected to this view that there is the danger of greater shock attending the simultaneous performance of the two operations, and the further danger of producing anuria when it is not already present because of the operative injury done to the two kidneys at the same time. He is not unaware of the fact that a temporary suspension of the urinary secretion may follow extensive operative interference with one or both kidneys, but this may also occur in operations entirely unconnected with the kidneys and in a few instances when they are not done upon any part of the urinary tract. Furthermore, there is but a very small number of cases in which fatal anuria has followed operation upon either one or both kidneys as the result of the operative injury done to the organ, and still fewer—for but relatively few of them have been done on both kidneys at the same time—in which the simultaneously-performed bilateral operation has resulted in threatening or fatal anuria from the same cause.

Cases simulating renal calculus.—The conditions found by exploratory operations in these cases were as follows:

CASES.	NO.	DEATHS.
Movable kidney	1	0
Adhesions compressing some part of the kidney	3	1
Adhesions compressing the ureter	2	0
Acute congestion	2	0
Nothing found to explain symptoms	2	0
	10	1

Movable kidney not detectable before operation was found in one case and the patient was cured by nephopexy. Cases in which adhesions constricting some part of the kidney existed—once when the kidney was in its normal position and twice when it was fixed in an abnormal position—were treated by nephrectomy. Two patients recovered and were cured, the third one died of pneumonia on the thirteenth day after having done perfectly well up to the ninth day. In all the other cases the patients recovered and were cured.

No cause for the acute congestion was found in the two cases in which it occurred; both patients were relieved of symptoms.

The presence of adhesions constricting the ureter, and resulting in a dilatation above the point of narrowing as well as a decided deviation in the course of the canal, offered an explanation of the symptoms in two cases. The etiological factor which had given rise to the adhesions was not evident and could only be conjectured. In both of these cases there was some difficulty in freeing the ureter from the connective tissue which composed the adhesions, but in both it was accomplished completely and the patients were cured. One of them reported one year after the operation was done and had been perfectly well in the interval.

SUMMARY OF MEDICAL TREATMENT.

Manner of treatment.—For renal colic the combined use of ether inhalations and moderate doses of morphia. Heat to the affected side. An abundant supply of water to be drunk. Liquid or milk diet.

To aid in expulsion of calculus from the kidney the treatment far the most successful in the writer's experience is: Spts. turpentine in 10 minim doses in gelatine capsule t. i. d. Diet of milk, each tumbler diluted one-quarter part with Vals' water, milk to be slightly warmed and drunk slowly. Fish and dry toast may be taken once daily. Patient is to rest recumbent during the regimen and to take occasional hot sitz baths. Treatment to last six days consecutively, then after a two-days' interval it is repeated once or twice, if necessary. After one month or six weeks of this treatment at most, if the stone has not passed, it should be removed by surgical operation.

In every case in which the patients were freed from their calculi by medical treatment, cure was absolute and in twenty of them the patient's subsequent history was followed from three to twenty years subsequently. In but a very small number of these—six—was there any recurrence of the trouble. These patients got rid of their recurring-calculi under the same treatment as was employed in the first instance.

In seven of the cases treated medically there was failure to cause the calculus to pass. These patients were operated upon successfully later.

In 87% of the writer's cases thus treated, in which the calculus was small enough to pass through the ureter, it was spontaneously expelled, while the patients were under medical treatment.

SUMMARY OF SURGICAL TREATMENT.		DEATHS.	CURES.
Number of patients operated upon	56		
Nephrolithotomies	36	2	34
Subsequent nephrectomies	2	0	2
Ureterolithotomies	8	0	8
Nephrectomies in cases simulating renal calculus	3	1	1
Nephropexy in same class of case	1	0	1
Freeing ureter of adhesions	2	0	2
Splitting capsule—nephralgia	2	0	2
The same for acute congestion	2	0	2
	56	3	53

Operative mortality for total number is 5.3%

SOME RESULTS OF DISPENSARY WORK IN THE CONTROL OF TUBERCULOSIS.

BY CLEAVELAND FLOYD, M.D., BOSTON,

Director of Out-Patient Department, Boston Consumptives Hospital.

Clinical effort, which often goes by the name of "dispensary work" is rarely called upon to direct its attention to the control of any disease. Its work generally deals with a collection of individuals with many types of illness and requiring as many different methods to obtain relief. In taking a part in controlling tuberculosis, the dispensary may unify its efforts in combating one disease on well drawn lines.

The fact that the sanatorium has been in existence for years has firmly established it in its preëminent role in the treatment of incipient cases. The hospital for the isolation and care of those advanced in the disease, while of more recent growth, is now fully recognized as an essential factor in its suppression.

But with all sanatoria and hospitals, the problem is an individual one, and the underlying causes of the disease can receive but limited attention. The field of the dispensary lies largely between those efforts directed towards the cause of tuberculosis on the one hand, and its isolation on the other, and yet, among all agencies working toward the limitation of this disease, it has perhaps the least fixed position. Tuberculosis must largely, because of its existence in the home, be checked there in its course; the disease while still obscure must be detected, the services of the sanatorium or hospital obtained, where they are necessary and their work made productive of the greatest amount of good by means of prolonged supervision. If this is conceded to be the part that the dispensary is called upon to fulfill, a test of its efficiency may be obtained by the results that appear in the following direction:—

First, How many cases of tuberculosis have developed among those under clinical supervision during an observation period of several years?

Second, How many cases regarded primarily as negative have, in a period of months, been proven to be positively tuberculous?

Third, How many cases regarded as tuberculous have been followed through the course of the disease until an arrest has been well established or hospital care provided for them until death?

The thoroughness of the work of prevention, the accuracy of diagnosis and provision for those suffering with tuberculosis will thus be clearly shown. How far the dispensary has met these demands has never been fully studied, as far as I am aware.

Any clinic for tuberculosis should periodically put itself through such a test of efficiency in order that its routine may not become worn out and the individual case become lost sight of in the aggregate.

The work of the clinic of the Boston Consumptives' Hospital, which has now been carried on for about five years, has offered an opportunity to gather facts along these lines in Boston and I have made a statistical study of what has been accomplished among such patients as have presented themselves for treatment.

In this as in other clinics for tuberculosis all classes of patients complaining of pulmonary symptoms are received for treatment. Of necessity, therefore, in many instances, must cases of non-pulmonary disease be considered and examined into. There are also many instances of patients who have been exposed to tuberculosis who come for examination. The clinical material consequently at our disposal has consisted largely of three groups of cases:—

(*a*) Negative cases.
(*b*) Cases of non-pulmonary disease.
(*c*) Cases of pulmonary tuberculosis.

The duty of the clinic towards the well or negative case consists first of all of being sure that there is no question of health, and second, that the symptoms of the patient, or the surroundings that have given rise to suspicion, are improved. Too little thought is given to the healthy as they pass through the routine of examination, for it is just as important that they remain well as that others that are sick should be provided for. Often on account of conditions that threaten health a negative case will have to be continued under observation for a considerable period of time and this may run into years before all that should be done is accom-

plished. No tuberculosis dispensary is well balanced in the scope of its work unless at least one-third of the patients it reaches out for are proven to be negative cases.

The cases of non-pulmonary disease require little more than to be referred to a general medical clinic. In regard to the cases of pulmonary tuberculosis the dispensary has as its duty to make an accurate diagnosis, settle upon a suitable disposition in every case and provide supervision in every instance as long as it is required.

All the efforts of a clinic, no matter whether its work is general or specialized are to some degree negatived through the mass of clinical material that presents itself and the failure of the individual patient to sufficiently co-operate. It is not uncommon for a patient coming in for examination to give a fictitious name and address, in order that he may never be traced. Frequently a patient will change his address as often as once a month, or even a week, and in spite of all efforts he is soon lost track of. Many patients who have once reported for examination on account of pulmonary symptoms, and have been somewhat relieved by treatment will resent all later attempts at further inquiry into the state of their health.

The lack of exactness in the diagnosis of diseases of the chest, giving rise as it does to a confusion of opinion among physicians too frequently offers a loophole of escape to the patient from his worst fears, and often the truth as to his condition is never brought home to him and the value of the clinic in the case comes to an abrupt end.

The ready assurance which the arrested case of tuberculosis has in himself, feeling as he does that further trouble after leaving a sanatorium is impossible for him, is the cause of many relapses and the disappearance of many patients from the roll of the clinic.

The constant movement of patients to the surrounding towns and cities of Boston, especially our foreign born people who do not take kindly to institutional treatment, adds to the ineffectiveness of this type of work.

In any estimate of the results accomplished through a dispensary these difficulties must be considered. They will vary much in the extent to which they are an embarrassment in different sections of the country, and will depend to a considerable degree upon the support accorded by allied hospital and health departments. But even when co-operation has reached a high grade they will still be present.

Statistics to be of value must be based upon sufficiently large numbers to give a fair average and to afford anything like accurate conclusions. For this reason the results obtained in the first five thousand patients examined at our clinic beginning September, 1907, and continuing into the middle of the year 1909 have been made available. Since this latter date three years of observation and disposal of the patients have elapsed. While I fully realize that in some instances where the statement of the patient has had to be taken as to his condition, inaccuracies will creep in, nevertheless, I believe the figures obtained are sufficiently reliable to be of value.

Among some five thousand patients there were found to be as the result of their first examination, 2121 positive cases of pthisis, 1130 who were suspected of having the disease, and 1707 who were negative. Of the remaining 42 we have insufficient data. Of this total number 1315 were lost to the clinic through their giving an incorrect address, or through their moving away. They were divided as follows: 575 were considered negative when lost to the clinic, 382 were suspected cases and 358 had definite pulmonary tuberculosis.

In other words, about one-sixth of the positive cases were lost sight of during a period of observation varying according to the individual case from two to four years. It is only natural to expect that the group of negative cases lost should be by far the largest one, as in almost any clinic it is the custom to give less attention to this group than to those demanding active supervision. The group of suspected cases, as a result of continued study, gradually separates itself into positive and negative; generally the larger proportion being grouped with the latter. The apparent good health enjoyed by most of this class makes for little interest in a tuberculosis clinic, and once through the routine they frequently disappear or cannot be driven to return for further examination. Among 358 cases of phthisis who were lost from observation, 247 cases were never found upon home visitation and never subsequently reported at the clinic after the first clinical examination. In other words, these are the tuberculosis "carriers"; the indiscriminate spreaders of the disease. The man who suspects that he has phthisis and yet desires to hide it at the expense of the public will in all probability be increasingly in evidence as the supervision of cases through the local Board of Health becomes more efficient.

Whether the time will ever come when it will be necessary to establish observation wards in connection with our institutions for tuberculosis in order to detain such patients as seem likely to drift into this class will remain for the present an unsettled question.

That large group of cases which are constantly moving from place to place and thereby spreading infection with them, can be greatly decreased by immediate and close observation in their homes in order that their future movements may be determined, or by an ordinance preventing their removal till approved by the Board of Health. For those patients who move without the city limits and consequently escape the jurisdiction of the Health Board, either State supervision or a metropolitan plan of co-operation among tuberculosis clinics will in either case meet this need.

By these measures the floater and drifter having active tuberculosis in the community can be much more readily controlled and the work of the dispensary made productive of greater usefulness at one of its weakest points. There is a definite class of people seeking treatment in a dispensary that demand prompt measures if the end we seek for them is to be accomplished. Delay in giving relief or in providing hospital treatment quickly ends the usefulness of the clinic through dissatisfaction over what they think should be accomplished for them. Until this is more fully appreciated by those in charge of institutions caring for the consumptive a fairly large percentage of positive cases will continue to be placed among those lost sight of.

While the total number of cases who have been lost to the clinic appears large, making as it does about one-fifth of the number investigated, we must not forget that in any large city, with a rapidly shifting population, this will occur, and it is much more in evidence in larger cities like New York and Chicago than it is in Boston. With the firm establishment of a dispensary in any community through its securing a hold upon its patients there must in time be a marked reduction in the number of its cases who drop out of sight.

It occasionally happens that patients who have been found free from pulmonary disease on their first examination and of whom we have had no knowledge for some years, drift back to the clinic showing active tuberculosis. Responsibility for this condition most frequently lies with the individual. Nevertheless, if each person going through the routine of the clinic has the dangers of tuberculosis sufficiently impressed upon him, as well as the importance of proper living, this will rarely occur.

In nearly every instance where one of our patients has reported for examination there have been symptoms that gave concern as to the condition of the lungs or exposure to tuberculosis has taken place. On account of these facts, therefore, the aftermath of our negative cases is of some importance; 1707 such are included in our first five thousand. Of these, 604 have recently been examined and found well; 520 have reported themselves to be well or suffering from complaints other than tuberculosis. Of the remaining 635, 575 are included in the group of lost cases, and only 24 have developed pulmonary tuberculosis, or less than one per cent.

Fully two-thirds of these cases have been exposed to phthisis and these figures speak for the power of isolation and observation in checking this disease.

But the tests of how efficient a tuberculosis clinic and its work in the home may be, is also strikingly shown by the demonstration of how many cases which have been suspected of having the disease have subsequently developed it while under observation for a period of years. The large number of patients suffering from over work, anemia, debility and bronchitis are always open to the possibility of having tuberculosis. Furthermore, slight chest deformities and poor lung expansion frequently give rise to just enough signs to demand constant observation; 1130 patients presenting just such questionable evidence of phthisis were among our first five thousand cases. Of these 382 have disappeared and all trace of them has been lost, 748 have been successfully followed and 62 cases have developed phthisis. This number also includes those whose condition rapidly changed after their first examination and who were in a short time proven tuberculous.

One of the chief difficulties in any large clinic for tuberculosis is the trouble which arises in surely making the diagnosis of incipient phthisis from slight signs. This most frequently occurs in children, and unless every means of diagnosis is at hand many cases drift away, to the dissatisfaction of physicians and patient. To distinguish between physiological differences at the right apex and early tuberculosis is no easy matter. I have been much interested in following these cases of questionable right apical signs, who are often classed as questionable cases to see if in a relatively short space of time tuberculosis developed. Among a total of 1130 cases suspected of pulmonary tuberculosis, 624, or a little more than 50%, gave signs at the apex of the right lung. The others are almost equally divided between having questionable signs at the left apex and base. Almost without exception, in these cases there has been a disappearance of these signs, or where they have persisted, active tuberculosis has failed to develop. Where the right apex has shown questionable involvement, 62 of the number of cases that we have been able to trace have developed phthisis. It would seem from our observations in this series of patients that the lack of pulmonary lung expansion and chest development, together with the not infrequent condition of an old inactive apical process most commonly give rise to these signs.

In our work as carried on in the various districts of Boston, it has been our policy to examine families as complete units where tuberculosis had gained a foothold. The result of this effort has fully justified itself. Included in this series of cases there was a total of 1563 children. Of these 302 were found to have pulmonary tuberculosis, or about 20% of the total number, 386 were suspected of having the disease and 875 were negative cases. A history of exposure was obtained in 684 instances, the father being the focus of contagion in 464 cases and the mother in 278 cases. Only a very few cases occurred where both parents were found to be suffering with the disease.

In a study made some time previously in regard to the morbidity of tuberculosis in children as the result of family infection pulmonary signs were found in between thirty and forty

per cent. of the cases. In the present work, while only two-fifths of the total number of children came in close contact with the disease in the home yet twenty per cent. showed signs of phthisis.

About 1000 of these children came from families in which there were more than four children. This alone gives an idea of the opportunity for the propagation of the disease from direct contact.

As regards the outcome of these cases after a period of observation of sufficient length of time to be of some value in the determination of the immediate prognosis, only 40 cases of phthisis have developed where it was not detected on the first examination. These are included in the foregoing number of developed cases. The great majority of positive cases have been completely arrested and these children are for the most part attending school. It is evident, I think, that the work of prevention among children is one of great promise. The Preventorium has a large place in every community. The need in Boston is pressing if we are to obtain control of tuberculosis in the near future.

In order that the increasing good which is manifested by the isolation of cases suffering with phthsis may be realized to its fullest extent it is the ideal of every institution for tuberculosis to provide such isolation for every case within its wards as long as they are a danger to the community. As yet this is far from possible, both on account of the still inadequate number of beds, and also because of the refusal of many patients of the opportunity for hospital treatment when it is presented. It is important, however, to know as far as possible whether in the instances where death has occurred it was in an institution or not. My statistics show that among 600 cases a little less than 50% died in a hospital; the remainder were cared for by nurses in the homes of the patients. In almost this entire group, however, hospital treatment for varying periods of time during the illness occurred. Local sentiment and local conditions, depending largely upon the proximity of the hospital and its reputation among the sick will naturally make this state of affairs a variable one.

The more closely the hospital organization is in touch with its patients, socially as well as medically, the easier the solution of this difficulty will be. Where it is the policy, as in Boston, to utilize to the fullest possible extent existing sanatoria and hospitals in caring for patients and not to encourage treatment at home, the value of institutional care cannot but be realized in the community and the opportunities thus offered more completely utilized.

If the statistics here given demonstrated anything they would seem to show that a dispensary has a well defined and valuable place in the control of pulmonary tuberculosis. Its work cannot be measured in the terms of "cases cured" as can that of the sanatorium, but its usefulness will be almost entirely along the lines of diagnosis, isolation and prevention. The conclusion would seem justified, that in the absence of any specific remedy for pulmonary tuberculosis, its suppresion will be brought about by multiplication of those agencies at present working against it. Neither the sanatorium, the hospital, or the dispensary alone can make much headway, but working together as one unit they must in time fully justify their existence.

THE SACRIFICE TO ASKLEPIOS: A MIME OF HERONDAS.

BY ROBERT M. GREEN, A.B., M.D.

UPWARDS of some twenty years ago there was discovered at the British Museum, among a collection brought from the catacombs of Fayoum, beyond the pyramids, a mutilated Greek papyrus containing a fairly complete text of seven of the mimes of Herondas, with fragments of four others. This Herondas was an Alexandrine poet, thitherto known only from a few of his verses preserved by Stobaeus: Athenaeus quoted him twice; the lexicographer Zenobius mentioned him; and the younger Pliny, in a letter to Antoninus, praising the epigrams and iambi of his correspondent, declared them worthy of Herondas. The discovery in the British Museum served to establish the half conjectural poet in the ranks of literature as a younger contemporary of Theocritus, the greatest of the bucolics. He lived in the time of the early Ptolemies, under the reign of Philadelphus (Ptolemy II) and Euergetes. Some verses from the first mime, "The Pander," permit us to fix the date of the full development of his talent between 250 and 240 B. C.

The papyrus itself is in uncial chirography from the second or third Christian century. The text, though presenting some errors and lacunae, is on the whole in a satisfactory state of preservation. This priceless and unique document was first transcribed and edited by Kenyon in 1891. Another recension by Rutherford followed in the same year. Continental editions by Van Herwerden, Bücheler and Crusius were published in 1892. Reinach and Weil published French editions; Girard studied the relations of Herondas to Theocritus; Boisacq issued a French translation and critique. In Germany, Diels investigated the relations of Herondas with Alexandrine art. Among the Italians, Bonghi and Piccolomini published studies and essays in 1892; and in 1893 Setti made the first Italian translation of Herondas.

The mimes which were thus restored to the world from the original manuscript may be described as dramatic idyls,—brief sketches or scenes, with dialogue in iambic trimeter, half comic, half satirical, on topics drawn from the current life of the times. It is this which gives them their chief value, for they preserve at first

hand the manners and temper of an age that in the pre-Christian era is in many respects most startlingly like our own. The subjects are commonplace, sometimes *risqués,* but their treatment is delicate, and clever after the epigrammatic fashion that we are wont to associate with the nineteenth century. Herondas was hardly the Bernard Shaw of his age, but there is much that is Shavian in his genial satire.

Of the seven mimes preserved with tolerable completeness, one, the fourth, happens to be of peculiar interest to the medical profession, on account of its subject, "The Sacrifice to Asklepios." The scene is laid at the famous temple of the god in Kos, the island off the coast of Asia Minor where lived Theocritus, whose tradition Herondas continued, and where perhaps Herondas himself was born, though Magna Graecia and Sicily have equal claims to his nativity. The action is merely that indicated by the title, but it represents not only the ritual of the temple, but also the popular attitude of the time towards medicine and art. An English translation of this mime, however inadequate, seems justifiable, if only for the sake of recalling the conditions of our profession some two and twenty centuries ago.

The Sacrifice to Asklepios.

CHARACTERS.

Kokkale }
Kynno } ..... Two ladies.
Kydilla .....A servant.
Neokoros .....The guardian of the temple.

The scene passes in the famous temple of Asklepios at Kos.

Kokkale: Hail, divine Paean, who reignest over Tricca, and inhabitest sweet Kos and Epidaurus! Hail also to Koronis, who bore thee! Hail to thy father, Apollo! Hail to Hygieia, whom thou touchest with thy right hand, and to those whose revered altars are at hand, Panakea, Epion, and Jason! Hail to those healers of cruel maladies, Podalirios and Machaon, who of old destroyed the palace and city of Läomedon and to all the gods and goddesses that inhabit thy hearth, venerable Paean! Be propitious to us, and receive this cock, herald of domestic labors, which unto thee I sacrifice. This is to thee but a trifle, but our possession is little and hardly can one draw from it aught. But for that, we would have offered thee, with our whole heart, instead of a cock, a heifer or a sow full of fat, in payment for the maladies which thou hast healed, O King, extending over us thy beneficent hands.

Kynno: Kokkale, place the votive tablet at the right hand of Hygieia.

Kokkale: Oh, my dear Kynno, what beautiful statues! Who is the artist that wrought this marble? Who is it that dedicated it?

Kynno: The sons of Praxiteles; seest thou not this inscription at the base? And 't is Eutheës, son of Prexon, who offered it.

Kokkale: May Paean be favorable to them, to them and to Euthëes, for their fair works. See, my dear, this child who raises her head towards the apple. Would one not say that she will die, if she have it not? And this old man, Kynno! By the Fates! that goose, how the child strangles it! If the base were not a simple stone one would fancy that it is about to speak. Verily, a time will come when men will give life to stones. Stay, Kynno, dost thou see that statue of Batale, daughter of Myttes? how she holds herself on her limbs! Whoever hath not seen Batale herself, let him look upon this image, and he will not demand the reality.

Kynno: Follow me, my dear, and I will show thee as pretty a sight as ever thou hast seen. Kydilla, call me Neokoros. Am I not speaking to thee, who lookest open-eyed to right and left? Verily, she pays much heed to what I say! she stands there watching me with crab's eyes. Go, I say, call me Neokoros. Thou are but a dunce! No woman, priestess or profane, would find aught good to say of thee; everywhere and always thou plantest thyself like a stone. I take this god to witness, Kydilla, that it is not my fault if thou make me angry; I take him to witness, I say; the day is not far off when thou wilt rid thyself of this stupid dolt.

Kokkale: Kynno, dost thou believe that all is found ready as our heart desireth? She is a slave, and 't is said that idleness stops their ears.

Kynno: Day hardly appears, before she commits folly upon folly.

Kokkale (to the slave): Stay here, you!—The gate is open and the gallery accessible. Look, dear Kynno, what beautiful works. One would say that a new Athene had sculptured these marvels,—be it said without offense to the goddess. And this naked child, Kynno, if I prick him; will not the blood come? His flesh palpitates in the picture like a fountain of warm water; and this bar of silver, if Myellos or Pataekiskos, sons of Lamprion, saw it, would not the eyes start from their heads in the belief that it is really silver? And this bull, and his leader, and the woman who follows them, and this man with the hooked nose and the other with the snub, are they not all quite alive? If it were not unbecoming for a woman, I would utter cries; I fear lest the bull may do me harm, he frightens me so, Kynno, with his eye that looks me through and through.

Kynno: It is because they are truth itself, my dear, the works of Apelles the Ephesian, whatever may be their subject; and no one will say of him: "This succeeded, such another was a failure." He that should dare to think it, would be an impious, who would not recoil before an offence against the gods. Whoever can see him or see his works, without feeling respect for them, as is due, may he be hung by the heels in a fuller's workshop!

Neokoros: Ladies, your sacrifice has been well received and gives you happy presages. No one better than you has conciliated the favor of Paean. (He prays.) Io, io, Paean, mayst thou be propitious to them,—to them, to their husbands, and to their kindred. Io, io, Paean! So mote it be!

Kokkale: Yea, mighty god, so mote it be! And may we return soon, in good health, with our husbands and our children, to bring thee more noble offerings.

Kynno: Kokkale, do not forget to cut off the cock's thigh, and to give that to Neokoros, and without a word to go put the cake in the mouth of the serpent; moisten also the sacred cakes with wine; we will consume the rest at the hostelry of the temple. And for fear lest Neokoros forget to bring

us any, give us thyself some of the bread of health, for he must at the same time watch over the sacrifices; the bread of health is due us with the portion which reverts to us.

The purpose of this dramatic sketch was apparently as a contemporary satire on a religion whose observances had become empty forms, and on its feminine devotees whose interests were chiefly in the artistic treasures of the temple and, like the temple guardian, in the reversion which they were to receive from their own sacrifice. Therocritus, the master and older contemporary of Herondas, has a very similar passage in his "Syracusans," in which Praxinoas scolds her servant, and with Gorgo, at the temple of Adonis, goes into ecstasies of admiration over the objects of art, *bijouterie et vertu*, which are heaped up there. The same motive may be found also among certain plays of the earlier dramatists, notably in Sophron's "Women at the Isthmian Games," and in the Θεαροί of Epicharmes, where visitors to the temple at Delphi are overcome with wonder at the wealth and splendor of the temple treasure and decorations.

Perhaps the parallel is not altogether lacking in our own day, when patients are sometimes more eager to obtain the bread of health than to pay the adequate sacrifice and oblation demanded in return. Be that as it may, the vivid lines of Herondas serve not only to recreate for us the forms and scene of that old pagan worship of Asklepios, but to portray something of the unchanging human nature which we see today in hospital and office as it was then in the temple of our tutelar deity.

THE TREATMENT OF HYPOSPADIAS.

BY HOWARD A. LOTHROP, A.M., M.D., BOSTON,

Assistant Professor of Surgery, Harvard Medical School: Visiting Surgeon, Boston City Hospital.

HYPOSPADIAS is a congenital defect whereby a part of the floor of the urethra is deficient. This deficiency begins at the glans and, according to its extent, the cases are divided into three groups: (1) the glandular type, (2) the penile type, and (3) the scrotal type.

The glandular type is one in which the deficiency is opposite the glans penis. This is very common and is generally left untreated because no function is interfered with.

In the penile type a part of all the floor of the penile urethra may be wanting and the functional disturbance varies according to the location of the meatus. The nearer the meatus to the penoscrotal angle, the greater the disturbance of function, such as poor control of the stream during micturition, obstruction with dilatation of the urethra from a small meatus, and finally, in the severer cases, some penile deformity, which is due to a longitudinal band underneath the penis.

In the scrotal type, which, fortunately, is rare, the deformity is great and the functional disturbance serious. The penis is greatly curved and the glans is firmly held by the fibrous band to the region of the scrotum, so that coitus is impossible and the location of the meatus is such that the parts are irritated from frequent wetting with urine.

TREATMENT.

In that the glandular type causes no particular inconvenience or functional disturbance, restoration of the urethra is not often attempted, both because there is no pressing indication and because it is difficult to establish a canal through the glans penis. The scrotal type is so rare and its attempted relief is attended with so many difficulties, contra-indications and failures that it will not be considered further here.

There are various plastic operations for the treatment of the penile type of hypospadias. In several cases operated upon by the writer, the best results have been obtained by using a flap operation described by Thiersch in 1869 for the treatment of epispadias and adapted later by Anger for cases of hypospadias. This technic, modified slightly according to the exigencies of each case, has been used and satisfactory results obtained. More than ordinary care is required in the various steps of the operation. Instruments should be small and the flaps handled with delicate hooks and forceps so as to avoid unnecessary injury. Hemorrhage is not troublesome.

TO STRAIGHTEN THE PENIS.

This is accomplished by making one or two transverse incisions through the tissue below and between the corpora cavernosa, generally extending somewhat deeply into the latter. The penis is then extended so as to open the wounds and the opposite ends of the incisions are approximated and thus these wounds are closed longitudinally. Hemorrhage is easily controlled by sutures, preferably of fine silkworm gut or silver wire. Examination will determine whether the straightening operation will be necessary and about six months should elapse after this step before making a urethra, in order to allow for all contraction and to establish good circulation for the flaps which are to be made later.

THE FORMATION OF THE URETHRA.

Incisions are made so as to form two flaps, A and B, (Fig. 1), the former to be reflected over a catheter and the latter to be stretched over all the denuded area. A traction stitch may be passed through the glans and the penis held retracted on the abdomen. Flap A is made with its base 1-4 at the line of the urethra and should be about three-fourths of an inch wide. The incision 1-2 should include some of the tis-

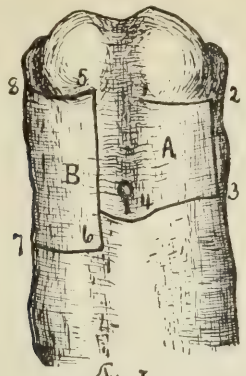


Fig. I

sue of the glans so as to make the new meatus reasonably near the end of the penis. The incision 3-4 should be carried proximal to the meatus and then across to meet incision 5-6. The flap should be as thick as the tissues will allow and should be dissected to the base line 1-4. The flap B is then formed by making incision 5-6 which is carried about one-half an inch proximal to the original meatus. The incisions 5-8 and 6-7 are carried around toward the dorsum of the penis so as to allow the formation of a flap which, eventually, can be stretched to incision 2-3. Occasionally the meatus will have to be enlarged, as was necessary in the case of a child of eight years (Fig. 1), because the opening was so small as to act as a stricture. Hence, a short ventral incision was made. Next, a small rubber catheter is inserted *into the bladder,* which is to remain seven to fourteen days according to circumstances, although it may have to be changed for one reason or another. In one case where the deficiency involved only a small portion of the penile urethra, a short tube included only the distal two inches of the

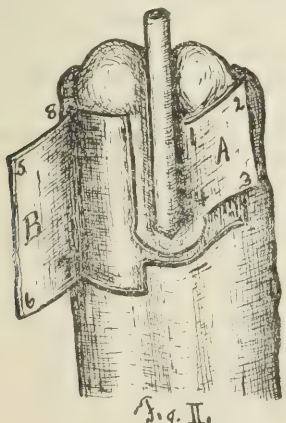


Fig. II.

penis and was easily retained by a stitch through the glans (Fig. 3). One subsequent minor operation was required to close a small fistula which persisted in the vicinity of the original meatus and finally a catheter had to be inserted into the bladder so as to keep the field of operation dry. Care is needed to retain the catheter. The urine is conducted through a tube to a bottle by the bedside. A little skin should be trimmed off the proximal edge 3-4 6-7 so as to make an even border. The stitches are next applied. Three or four mattress sutures of fine silkworm gut, fine wire, or horsehair, according to circumstances, are placed in such a way (Fig. 3) as to draw flap B towards the under side of the penis and also retain flap A folded over the catheter with its free border 2-3 in contact with incision 5-6 as illustrated. There will be no undue tension of the flaps if cut suffi-

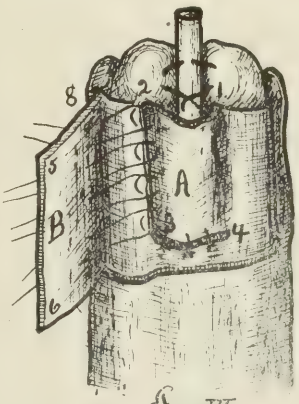


Fig. III.

ciently large. The skin around the proximal side of the meatus should be freed near the base of flap A (Fig. 2) and sutured to the reflected border 3-4 (Fig. 3). Finally, flap B is drawn across the wound and its borders sutured on three sides. Thus the flap B covers the line 3-4, so that 3-4 and 6-7 are not opposite each other. If the incision 1-2 is made in the substance of the glans and 5-8 is correspondingly distal, the new meatus will be sufficiently near the end of the penis. The operations devised for restoring

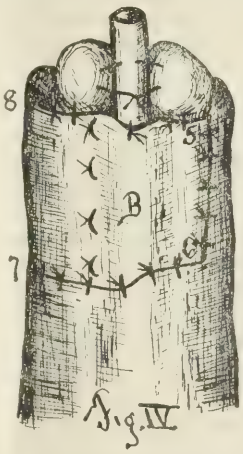


Fig. IV.



Fig. V.

the urethra through the glans penis are not very satisfactory and, if successful, a stricture is apt to develop. When the operation is completed the parts are protected by a sterile gauze dressing. A moderate amount of edema is to be ex-

pected but this subsides soon. The drying of the mucous membrane and the crusts which may obstruct at the new meatus are prevented by the application of boric acid ointment. Careful attention must be paid to the wound during the convalescence and the catheter must be kept in perfect order. The latter is borne even by small children without discomfort or risk of urinary infection and should be retained until the wound is healed.

Clinical Department.

A CASE OF PELLAGRA.*

BY WARREN H. SHERMAN, M.D., GRANITEVILLE, MASS.

The patient is a man 68 years old. He was born in England and came to this country 26 years ago. With the exception of four visits to his former home, he has always lived in Massachusetts. He has not been out of this state for nine years, and has never been farther south than New York. His occupation while in England was that of a farmer, but since he came to America he has always worked in a woolen mill, except for a short time 20 years ago when he worked as a farm hand. He has been a moderate user of tobacco and alcohol. The family history is negative. His wife is dead. There are five children, all living. He has always been healthy with the exception of several attacks of indigestion at intervals of from one to three years. Some time last March or April he began to have slight epigastric discomfort after eating, and to get tired easily. I was called on July 30, when he complained of constant pain in the epigastric and right hypochondriac regions, at times becoming severe. At this time he was constipated, which has alternated with diarrhea throughout the attack. He slept well, but during the day was more irritable than usual. His appetite was poor. About the 10th of August a dark erythema appeared on the back of his left hand, which extended from the wrist to the second joints of the fingers. After three or four days the same thing appeared on the back of the right hand, and on the face, the cheeks first, and gradually extended to chin, forehead, ears, nose and back of the neck.

By the time the eruption had extended thus far, there appeared scaly patches on the cheeks, and a little later on the hands. The scales were of a much darker color, which gave a brownish appearance to the parts affected. Bullae and vesicles appeared on the hands but not on the face. Later nearly all the epidermis exfoliated from the backs of the hands leaving them raw and sore. The backs of the fingers were affected to the tips but not at all on the palmar surface, there being a line of demarcation at the sides, where the fingers came in contact. There was no itching nor pain, the sensation being described as more of a burning feeling. The face did not become sore but did desquamate. He has had very severe stomatitis and salivation; some nausea but no vomiting. The tongue was coated at first but later became red and beefy. At one time he complained of difficulty in swallowing, and of a burning sensation in the throat and under the sternum. There has been more or less pain in the epigastrium throughout his illness but it has not been severe since the eruption appeared.

There were no hallucinations nor delusions, but there was a good deal of mental depression. His memory was somewhat impaired. He seemed dull and was slow in replying to questions. His voice was weak and he had a shuffling gait. The temperature has been normal; the pulse slightly accelerated; urine negative. He denied having eaten maize or any corn products. He has lost considerable weight.

At this time the hands have ceased to desquamate and have entirely healed, the new epidermis being rather darker in color than normal. The patient is feeling better, his voice is stronger and he walks better, but does not care to go out very much, and takes very little interest in affairs. There is some anesthesia of the skin since the eruption has disappeared.

* Read at a meeting of the Middlesex North District Medical Society, Nov., 1912.

PELLAGRA, WITH A REPORT OF CASES.*

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and

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IN his first work on insanity in 1883, Professor Spitzka[1] states: "Pellagrous insanity will not be discussed in this volume as it does not occur in America and is limited to such countries as Italy, where maize forms a staple article of diet and where the disease known as pellagra, attributed to living on spoiled maize, occurs in endemic form." In his first edition on Neurology and Psychiatry, Dr. Peterson[2] said that pellagra occurred eminently in poverty-stricken and desolate districts and was due presumably to the use of diseased and fermenting maize.

It will not be necessary to go further into the history of pellagra. Suffice it to say that this disease was not looked for in this country; that at least its presence as such was not recognized or else that it has been classed with other forms of disease either in reference to the skin, the intestinal tract or the nervous system.

In the United States the first cases of pellagra were reported by Dr. Gray of New York and Dr. Tyler[3] of Massachusetts in 1864. Nothing more was heard of the disease until 1902 when Dr. Sherwell[4] of Brooklyn, New York, reported two cases among Italian sailors soon after entering port. In 1907 it was again recognized by Drs. Merrill[5] and Babcock[6] of South Carolina and independently, at about the same time, by Dr. Searcy[7] of Alabama, so that in 1911 there were cases of pellagra diagnosed in the state of South Carolina alone, to the number of 2100. Notwithstanding, there still appears to be some doubt as to the presence of pellagra in some of the United States as only twenty-seven states have reported the probability of cases.

At the beginning of 1911 the number reported was 7000, though many writers believe this

* Read (in part) before Providence Medical Society, Apr 1, 1912.

number to represent only a small proportion of the cases actually in existence. The reasons for this contention are that the symptoms might have seemed nothing more than the result of a slight sunburn and indisposition and so never have reached the physician; that the physician may have been unable to recognize the conditions as such and that possibly the absence of a well defined system of reporting cases has had its effect.

It was supposed that the New England States were immune to the disease, but in the summer of 1910 several cases were reported from Rhode Island. Dr. Henry A. Jones, Physician to the State Institutions of Rhode Island, recognized the first case of pellagra in Rhode Island and shortly after, at the same institution, a second case was seen by him. Both were inmates of the State Almshouse. Soon, thereafter, a patient at the State Hospital for the Insane gave evidence of having the disease and before the fall of 1912, twenty-seven cases of pellagra had there been discovered. Therefore, the opinion that there are probably many more cases undiagnosed in various parts of the state seems well founded. At present one authority is rather emphatic in the statement that the majority of the people in the South are suffering from some form of corn-poisoning, some from merely gastric disturbances and others from an auto-intoxication which undoubtedly is due to a toxine from corn.

Although there is more or less uniformity in the symptoms constituting this disease, observers differ as to the prominence of these symptoms, due largely to special characteristics of the individual case and to some extent to the personal equation of the observer. Owing to an accompanying involvement of the cutaneous, the gastro-intestinal and the nervous system, the dermatologist, the gastro-enterologist and the neurologist, as well as the psychiatrist, claim the malady for his particular field. Since some form of mental aberration usually accompanies the disturbance, it is probably better known to the neurologist and the psychiatrist.

In that so little is really known about the disease process, an exposition of the same is hardly warranted at present. Tanzi,[8] the Italian psychiatrist, defines it as an endemic disease of remittent type, generally afebrile, which sooner or later becomes fatal and which is characterized by cachexia, gastric-intestinal, cutaneous, motor and psychical phenomena.

The etiology of the disease is unknown. Until recently practically all Italian writers accredited the maize hypothesis. Tanzi claiming to voice the opinion held in Italy, does not question the maize origin in his text-book published in 1909. He states that it is more prevalent where the people are poor and where corn is the chief article of diet and especially so after rainy seasons, since the corn has had little chance to ripen. His theory is that the causative agent is in some way connected with the growth of mould on the corn and in support thereof shows that several varieties of non-pathogenic bacilli which can be isolated from these moulds are identical with the bacilli found in the feces of the pellagrins. He does not regard the introduction of the bacilli into the body as necessary, but believes that the toxins produced by them when in the moulds are operative as soon as taken into the system. Furthermore, he cites Lombroso[9] as having extracted a substance of alkaloidal nature which he called Pellagrozeine, obtained by dissolving damaged corn in alcohol. Bass[10] of New Orleans after inoculating corn media with pellagrous excreta fed it to fowl, of which one developed a diarrhea and upon whose legs appeared an erythema. Many other theories have been advanced The ameba, protozoon, continued use of cotton-seed oil, a bite from a mosquito or the smiulium venestum (black fly) have been honored as causes. Today we are not much further advanced in the knowledge of the cause of pellagra than we were thirty years ago. During the last year and a half the writers have watched the development and course of seventeen cases with special reference to the nervous and mental symptoms as well as to ascertainable clinico-pathological facts. Symptomatologically cases may be classed as the acute fulminating type which terminates fatally in from two to six months and the chronic type with remission, the active symptoms of which become apparent in the spring and summer. The skin lesions are of two types, a simple erythema and the bullous formation.

The development of the disease has no definite course. The skin, the intestinal tract or nervous system may give first evidence of disease. No definite order of the disturbance seems thus far marked. There is very little variation in the appearance of the skin lesion, its subsequent course and clearing evincing the glove and stocking appearance of either erythema or bullous eruption. It grows to a livid hue, later exfoliation of which leaves the skin hard and fissured with gradual change to a smooth and shiny surface. The gastro-intestinal disturbances are always accompanied by a diarrhea with its usual secondary state of rapid and profuse loss of water from the bowels. Possibly the most prominent and variable reactions are those in the central nervous system. Pupillary disturbances are not constant but the deep reflexes show a change in every case so that most writers insist that the characteristic sign of the trouble is constancy of exaggerated reflexes. They offer practically no statement as to either subjective or objective sensory disturbances.

CLINICAL FINDINGS.

In the following cases the point of difference from other observers centers around the symptom complexes associated with the central nervous system. A short statement will be made of

the seventeen cases with an attempt to emphasize this point of difference.

CASE I. M. G., female, age 40, American. Admitted May 26, 1899; diagnosis, low grade imbecile. January, 1911, she developed diarrhea. In May following, skin trouble appeared. Physically there was tuberculosis of both lungs. The knee jerks were absent and she winced when pressed over the posterior tibial nerves. She was very weak.

CASE II. M. R., female, age 29, American. Admitted Oct. 31, 1901. Diagnosis dementia precox, paranoid form. In May, 1911, there appeared an erythematous eruption on her hands and forehead. Shortly afterwards a diarrhea set in. Physically there was tuberculosis of both lungs. Knee jerks were absent and she winced when the posterior tibial nerves were pressed.

CASE III. J. C., female, age 71, American. Admitted May 14, 1883. Diagnosis dementia precox, paranoid form. On July 7, 1911, skin lesions appeared with an associated profuse diarrhea. Her lungs were in healthy condition but knee jerks were absent. There were no hyperesthesias.

CASE IV. A. B., female, age 36, American. Admitted February 19, 1907. Diagnosis low grade imbecile. In January, 1911, the patient began to lose weight. The following March, diarrhea set in. In August there was a characteristic dermatitis. There was present tuberculosis of both lungs. Knee jerks were present but there were no sensory disturbances.

CASE V. K. B., female, age 38, Canadian. Second admission January, 1907. Diagnosis dementia precox paranoid form. In August, 1910, skin changes appeared. The patient complained of pains in her legs with a later development of ataxia. In October, 1910, attacks of profuse diarrhea set in. Physically her lungs were free. Her knee jerks were absent and there was a double foot drop with complaint of severe pains in her legs, whether pressure be great or whether it be only the bed linen.

CASE VI. L. R., female, age 38, Canadian. Admitted February, 1909. Diagnosis, dementia precox, paranoid form. In May, 1911, an erythematous lesion appeared on the hands and neck with an associative slight diarrhea. She made an apparent mental improvement during this stage. Physically there was no lung infection. Her knee jerks were absent but both legs were painful to touch.

CASE VII. M. B., female, age 50, Ireland. Third admission February, 1908. Diagnosis alcoholic hallucinosis. In August, 1910, an erythema appeared on the arms associated with a profuse diarrhea. During this stage, she became extremely excitable and complained of pains in her legs. Physically there was no lung impairment. Her knee jerks were absent and she was unable to walk, owing to an ataxia. Hyperesthesia of the lower extremities was evident.

CASE VIII. A. G., female, age 40, U. S. A. Admitted June, 1906. Diagnosis, dementia precox, paranoid form. In August, 1912, skin lesions appeared with only a slight diarrhea. Physically there was no evidence of tuberculosis. Her knee jerks were unequal, the right was absent and the left was diminished though sensation was undisturbed.

CASE IX. D. C., female, age 52, U. S. A. Admitted July 25, 1888. Diagnosis, dementia precox. In August, 1912, there began a diarrhea with accompanying skin lesions. Physically no evidence of tuberculosis. Her knee jerks were absent and she winced on pressure over the posterior tibial nerves. Later she developed general muscular twitchings and contractures, became markedly asthenic and soon thereafter died.

CASE X. M. C., female, age 64, Russia. Admitted December, 1907. Diagnosis, senile dementia. In July, 1911, the patient developed a severe diarrhea. In September following skin lesions appeared. Physically there was no lung infection. Her knee jerks were diminished and there was no sensory disturbance.

CASE XI. L. B., female, age 63, American. Admitted in 1887. Diagnosis, dementia precox. In August, 1909, there was a persistent diarrhea. The following winter saw improvement. In August, 1910, an erythematous eruption appeared on the hands, accompanied by diarrhea. The winter of 1910, saw further improvement. In July, 1911, the diarrheal stage was renewed and in August there were skin lesions. Physically there was no evidence of tuberculosis. Her knee jerks were diminished with no sensory disturbances.

CASE XII. G. A., female, age 39, American. Admitted January, 1908. Diagnosis, dementia precox, paranoid form. In May, 1911, an erythema on the hands appeared followed by a slight diarrhea. Physically there was tuberculosis of both lungs. Her knee jerks were diminished and there were no sensory disturbances.

CASE XIII. L. B., female, age 47, Canadian. Admitted February, 1912. In March patient developed gastro-intestinal disturbance with a diarrhea. In May a bullous eruption appeared on her arms and forehead. Physically there was no evidence of tuberculosis. Her knee jerks were diminished and there was no sensory disturbance.

CASE XIV. A. W. A., male, age 25, U. S. A. Admitted June 20, 1910. Diagnosis, dementia precox, hebephrenic form. In August, 1912, patient developed a dermatitis without any marked manifestations of gastro-intestinal disturbance. Physically no evidence of tuberculosis. His knee jerks were diminished and there was no evidence of sensory disturbance.

CASE XV. L. B., female, age 55, Canadian. Admitted March, 1911. Her mental condition was ungrouped. In April, 1911, a diarrhea set in. In June skin difficulty evinced itself. In September she developed convulsions. Physically there was no evidence of tuberculosis. Her knee jerks were exaggerated but finally ceased several weeks before death with the development of marked ataxia and pains along course of nerves.

CASE XVI. L. D., female, age 40, U. S. A. Admitted May 9, 1899. Diagnosis, manic depressive insanity, chronic excitement. In August, 1912, skin manifestation appeared with an accompanying diarrhea. Physically no evidence of tuberculosis. Knee jerks exaggerated but there was no pain on pressure over calves of legs.

Case XVII. C. M., male, age 48, English. Admitted July 21, 1912. Diagnosis, alcoholic hallcinosis. In July a dermatitis was present but there was no appreciable abnormality in bowel evacuations. Physically no evidence of tuberculosis. Knee jerks were active and no sensory disturbances.

In addition to these cases cited, there are ten others upon which no clinico-pathological examinations were made and which will be referred to only with reference to the mode of onset of condition and the accompanying neurological disturbance. Of these ten cases, five showed primarily skin lesions, whereas the others began with the diarrheal stage. The reflexes in six were absent and in four they were noted as being diminished. An examination of these reflexes prior to the development of the pellagrous syndrome showed three unmentioned, one diminished, one increased and five normal. The mental condition of these cases were four dementia precox, two manic-depressive insanity, two alcoholic dementia, one arteriosclerotic insanity and one senile dementia. It might be stated that in one of these cases, the patient improved mentally during the active dermato-diarrheal stage. One became very much disturbed during the intercurrence of the disease process and five grew progressively worse and death resulted.

PATHOLOGICAL FINDINGS.

Although the causative factor of this disease has not been determined there appears to be sufficient data present to indicate that the complex reaction is one due to a toxine or an infection which produces changes in the blood and spinal fluid. The disturbance is also accompanied by a non-systemic degeneration of the cerebrospinal axis. It therefore produces, on the one hand a more or less distinctive blood picture, and on the other hand a cellular and diffuse nerve fibre degeneration of the cerebrospinal axis.

An examination of the smears from the exudative dermatitis revealed masses of fat and coagulated serum, degenerated polynuclear leucocytes and a few normal red blood cells with shreds of tissue.

The urine examination showed nothing pathological except one case which presented an apparent chronic interstitial nephritis.

The feces of these cases during the diarrheal stage, were examined and showed neither occult blood nor urobilin. Smears showed mostly Gram positive bacilli and agar growths revealed pure streptococcus organisms in contradistinction to the analyses of several diarrheal stools made at the same time from cases not considered pellagrous, but of acute dysentery from which the Shiga bacillus was cultivated.

Of the seventeen cases, however, eight gave a positive Von Pirquet tuberculin skin reaction. (Chart No. I.)

The blood examination showed striking features in the variation of percentage of hemoglobin from 60 to 100%; there was an approximately normal red blood count. The white blood cells averaged more than 6000 in eight of the seventeen cases. In one case it was as low as 4600. The differential count showed a distinct increase in the mononuclear lymphocytes and a decrease in the polynuclear leucocytes. The highest polynuclear leucocyte count was only 73% and the lowest mononuclear lymphocytes count was 18%. The only exception to normal appearance, shape and size was one case in which there was a definite polychromatophilia. (Chart No. II.)

Nine out of the seventeen cases were submitted to lumbar puncture, and the spinal fluid was examined cytologically, chemically and for the complement deviation. The reaction was distinctly alkaline in five and neutral in four. In only one were there no pleocytes. The remaining eight showed a count of from two to nine small lymphocytes per cmm. The quantity of globulin content was ascertained by the Nonne-Appelt, the Noguchi and the Ross-Jones methods which showed no increase in any by methods I and II, and method III was positive in six out of nine cases. Each case evinced the presence of a reducing body. The complement deviation in all cases was negative in the spinal fluid and in two of the blood sera.

The remaining blood sera were omitted from examination. The blood sera of two cases not punctured were also negative. (Chart No. III.)

The inoculation of guinea-pigs with the serum of pellagrous cases has thus far produced no disturbance.

Of the entire group of cases, twenty-seven here referred to, eight have died. Of the eight, four have been autopsied. Two of the autopsies revealed tubercular conditions in both the lungs and the intestines The central nervous system was not examined.

There are few reports of clinical cases with necropsies in this country. Dr. Spiller[11] was the first to publish two cases with necropsies in which the larger cell of the cortical layers presented degeneration and the cell bodies evinced chromatolysis. There was also diffuse degeneration of the antero-lateral and posterior columns as well as a degenerated anterior horn cell. Battan considers the condition a dengeneration of posterior columns of root origin. Tanzi has described the condition in reference to the investigations of Tuczuk and Belaundo[12] as a combined systemic degeneration. Babes and Sion[13] describe the condition as a posterior degeneration of root origin differing from tabes dorsalis in that it presents less involvement of Lissaur's tract, but a decided affliction of Clarke's column.

In our series of cases L. B. and D. C. have died during the height of their disease process and came to autopsy presenting very interesting characteristics. L. B. will be referred to at some length, but since D. C. has recently died,

microscopical findings of the central nervous system will have to be deferred.

L. B. was a poorly nourished and poorly developed woman of advanced asthenic condition. Barring the unessential details, it may suffice to state that her thoracic viscera showed only a low-grade bronchopneumonia and a healed tubercle in the right upper lobe. The abdominal viscera showed only a passive hyperemia with a marked injection of the upper and lower intestines.

The examination of the cerebrospinal axis demonstrated no gross lesions. Sections from the brain showed the following: Paracentral area: There were regressive changes in the pia which was free from any infiltration; in the cortex the nerve cells stained diffusely and the largest pyramids showed incipient and well advanced axonal alterations viz. glassy swelling of the centres of the cells, destruction of the central stainable substance with preservation of the stainable bodies in the periphery of the cells and displacement of the nucleus toward one side. The neuroglia showed moderate progressive change with a definite increase in the satellite cells which occurred about the nerve cells or as independent clusters as well as along many of the blood vessels. There was also considerable pigment in the ground substance largely within the neuroglia cell bodies.

The other sections from the frontal and calcarine areas showed no additional changes. The section from the cerebellum showed perhaps, the Purkinge cells staining more diffusely and some of them showed a fairly typical axonal alteration.

The lumber cord section evinced the pia essentially normal but many of the ventral horn cells indicated a well marked axonal alteration and others showed only incipient axonal changes.

The cerebral arteries showed a moderate degree of atheromatous degeneration without infiltration of the intima.

To sum up: there appears to be several factors standing out prominently and distinctly of value. First, clinically fifteen out of the twenty-seven cases evinced absent knee jerks, eight evinced distinct evidence of peripheral polyneuritis even to the extent of foot drop and muscular atrophy; five cases had diminished knee jerks. Secondly, as in low toxic conditions as well as infections there is a distinct change from the normal blood picture which in this series of cases, and not unlike that seen by other observers, the differential blood count was one of a small mononucleosis. Thirdly, the cytological count in the spinal fluid although small, two to nine cells per cmm., appears to be of sufficient weight to indicate a chronic inflammatory process. Fourthly, the microscopic findings in the central nervous system are such as are comparable essentially to that rare disease known as "Central Neuritis," the nerve cells showing an infectious or febrile condition of essentially a parenchymatous reaction.

If, on the one hand pellagra is to be considered of a toxic or infectious etiology and showing central neuritic evidence; and on the other hand, is distinctly an afebrile condition of unknown bacteriology, is it not possible, or even probable for pellagra to produce neuritic symptoms of central as well as of peripheral origin, such as has been seen in the clinical exposition of these cases?

Thanks are due to Dr. Arthur H. Harrington, Superintendent of the State Hospital, for his kindness in allowing this work to be carried on, to Dr. C. I. Lambert, of New York City, who kindly assisted in the microscopical analyses of the central nervous system, and to the members of the staff of the hospital for their help in gathering data for this paper.

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CHART NO. I.

VON PIRQUET TUBERCULIN REACTION.

Name.	*Reaction.*
M. G.	x x x
M. R.	x x x
J. C.	x x
A. B.	x x x
K. B.	x x x
L. R.	x x x
M. B.	o o o
A. G.	Not ascertained
D. C.	Not ascertained
M. C.	x
L. B.	o o o
L. B.	Not ascertained
G. A.	x x x
A. W. A.	Not ascertained
L. B.	Not ascertained
L. D.	Not ascertained
C. M.	Not ascertained

CHART No. II.

BLOOD EXAMINATIONS.

NAME.	HB.%	R. B. C.	W. B. C.	CHARACTER.	DIFFERENTIAL.	ABNORMALITIES.
M. G.	90%	6,000,000	7200	Normal	Lympho. 21 Poly's 75 L. M. & T. 3.5 Eosin. .5	None
M. R.	100%	4,500,000	8000	Normal	Lympho. 40 Poly's 49 L. M. & T. 10 Eosin. 1	None
J. C.	70%	3,760,000	6200	Normal	Lympho. 34 Poly's 52 L. M. & T. 9 Eosin. 5	None
A. B.	60%	4,900,000	4600	Normal	Lympho. 41 Poly's 40 L. M. & T. 18 Eosin. 1	Poor color
K. B.	90%	6,230,000	5600	Normal	Lympho. 40 Poly's 54 L. M. & T. 5.3 Eosin. .7	None
L. R.	95%	5,540,000	5600	Normal	Lympho. 40 Poly's 54 L. M. & T. 5 Eosin. 1	None
M. B.	80%	6,240,000	6400	Normal	Lympho. 52 Poly's 40 L. M. & T. 7 Eosin. 1	None
A. G.	90%	4,900,000	5700	Normal	Lympho. 30 Poly's 60 L. M. & T. 8 Eosin. 2	None
D. C.	80%	5,340,000	6000	Normal	Lympho. 43 Poly's 52.6 L. M. & T. 3.3 Eosin. 1.1	None
M. G.	90%	5,800,000	6000	Normal	Lympho. 42 Poly's 48 L. M. & T. 10 Eosin. 0.0	None
L. B.	70%	4,800,000	7000	Normal	Lympho. 26 Poly's 65 L. M. & T. 8 Eosin. 1	None
L. B.	85%	4,800,000	7200	Normal	Lympho. 41.5 Poly's 49.5 L. M. & T. 5.5 Eosin. 3.5	None
G. A.	100%	5,750,000	5800	Normal	Lympho. 35 Poly's 60 L. M. & T. 4 Eosin. 1	None
A. W. A.	(Not ascertained)					
L. B.	80%	4,780,000	6000	Normal	Lympho. 18 Poly's 73 L. M. & T. 8 Eosin. 1	None
L. D.	90%	5,900,000	5400	Normal	Lympho. 26 Poly's 69 L. M. & T. 3.1 Eosin. 1.9	None
C. M.	(Not ascertained)					

CHART No. III.

SPINAL FLUID ANALYSES.

NAME.	COLOR.	REACTION.	CELLS PER CMM.	TYPE OF CELL.	CHEMICAL TESTS. NO. I.	NO. II.	NO. III.	REDUC. BODIES.	WASS. SP. FL.	WASS. BL.
M. G.	Clear	Neutral	5	Lympho.	Neg.	Neg.	x x	x x	Neg.	OX
M. R.	(Not ascertained)									
J. C.	Clear	Neutral	4	Lympho.	Neg.	Neg.	x x	x x	Neg.	OX
A. B.	(Not ascertained)									
K. B.	Clear	Alkaline	3	Lympho.	Neg.	Neg.	Neg.	x x	Neg.	Neg.
L. R.	Clear	Alkaline	2	Lympho.	Neg.	Neg.	Neg.	x x	Neg.	OX
M. B.	Clear	Alkaline	2	Lympho.	Neg.	Neg.	Neg.	x x	Neg.	OX
A. G.	(Not ascertained)									
D. C.	(Not ascertained)									Neg.
M. G.	Clear	Neutral	5	Lympho.	Neg.	Neg.	x x	x x	Neg.	OX
L. B.	Clear	Alkaline	2	Lympho.	Neg.	Neg.	x x	x x	Neg.	OX
L. B.	Clear	Neutral	9	Lympho.	Neg.	Neg.	x x	x x	Neg.	Neg.
G. A.	Clear	Alkaline	0	0	Neg.	Neg.	x x	x x	Neg.	OX
A. W. A.	(Not ascertained)									
L. B.	(Not ascertained)									Neg.
L. D.	(Not ascertained)									
C. M.	(Not ascertained)									

OX = Not determined.

Reports of Societies.

AMERICAN SURGICAL ASSOCIATION.

MEETING HELD IN MONTREAL, CANADA,

MAY 29, 30, 31, 1912.

(*Concluded from page 26.*)

ACUTE DIVERTICULITIS OF THE SIGMOID FLEXURE OF THE COLON.

BY CHARLES A. POWERS, M.D., DENVER, COLORADO.

The writer referred to the important papers on diverticulitis of the sigmoid presented at the 1907 meeting of the Association by W. J. Mayo and George E. Brewer, the former considering the affection from the standpoint of chronic thickening simulating carcinoma, the latter from that of left-sided suppuration simulating appendicitis. After considering subsequent articles by Telling, Anschütz, Hartwell and Cecil, Zengerle, Neupert, Chiari and others, the author reported in detail a typical case of gangrenous diverticulitis occurring in a very obese man of 49 years. The symptoms were those of an acute left-sided appendicitis, operation was done at an early hour, a gangrenous diverticulum the size of an olive being removed from the middle of the convex border of the sigmoid flexure, together with a considerable amount of adjacent gangrenous epiploic fat. Careful closure of the wound in the intestine, stab wound drainage through the left flank. A stormy period of two days was followed by a smooth course. On the 7th day the temperature and pulse had been normal for some days and the patient was apparently making an excellent recovery, when he suddenly succumbed to pulmonary embolism, death taking place one hour after the first thoracic symptom. Postmortem examination revealed a clean abdomen without peritonitis, the suture of the sigmoid being intact, and the intestine showing no appreciable narrowing at the seat of the affection.

RADICAL OPERATIONS FOR CANCER OF THE RECTUM AND RECTOSIGMOID.

BY WILLIAM J. MAYO, ROCHESTER, MINN.

Failure to remove carcinomata of the rectum by a block dissection and not any especially malignant character of the process itself, is responsible for the pessimism of the medical profession as regards the operative cure. Cancer of the rectum is a slow process and the lymphatics are involved late. All high-lying carcinomata of the rectum and terminal sigmoid should be classified in one group as rectosigmoid. These comprise the most frequent and most important of all rectal cancers. The true rectum lies between the third sacral vertebra and the levator ani muscle, and is a distinct organ. When this portion is involved in malignant disease it should be removed entire, as would a malignant process in any other organ. The terminal rectum or anal canal is involved in only about 6% of the cases; its lymphatics drain into the coccygeal, rectal and into the inguinal glands.

Radical operations on the rectum for malignant growths as a rule injure the muscles and nerves to so great an extent that rectal control is damaged or lost. In most cases a permanent colostomy through the left rectus muscle or a sacral anus gives good functional results and permits a wide dissection of the entire rectum with removal of the fat, fascial structures and lyphatic glands, and greatly diminishes the operative risks. Ninety per cent. of the operative deaths are due to sepsis, usually fecal leakage from attempts to conserve function. Preliminary exploration through the abdomen is necessary to avoid operating on patients with hopeless metastasis. This may be omitted in those who for any reason are poor surgical risks, to reduce hazard. In such cases the sacral operation is indicated.

THE TREATMENT OF FISTULA IN ANO WITH ESPECIAL REFERENCE TO THE WHITEHEAD OPERATION.

BY ARTHUR W. ELTING, M.D., ALBANY, N. Y.

It is important not only to cure the fistula but also to preserve a normal function of the rectum. The results of methods of operation hitherto proposed have been notoriously uncertain and unsatisfactory. Most fistulae in ano orignate in an infected hemorrhoid and while an internal opening cannot always be demonstrated, one usually exists, although it may be microscopical rather than macroscopical. It is this internal opening which determines the chronicity of the most fistulae. Probably not more than 10% of fistulae are tuberculous and most of these cases are associated with demonstrable pulmonary tuberculosis elsewhere in the body, usually in the lungs.

Two cardinal principles underlie the treatment of fistula in ano; first, the separation of the fistulous tract from the bowel, and second, the closure of the communication with the bowel and removal of the diseased rectal tissue. The operation proposed is the removal of the lower bowel to a point just above the level of the internal fistulous opening by the Whitehead method of operation, with thorough curettage of all the fistulous tracts. When no internal opening can be demonstrated, the bowel is removed at the line of insertion of the levator ani muscle, care always being taken to keep the dissection near the mucosa and to avoid all injury to the sphincters. The healthy skin and mucosa are approximated with interrupted silk sutures. This method has been employed without mortality in 105 consecutive cases, 96 of these were histologically non-tuberculous, and 9 were histologically tuberculous. In all the cases complete and permanent cure was obtained, with preservation of normal function in all but four, in all of whom, more or less destruction of one or both sphincters antedated the operation.

DISCUSSION.

Dr. John H. Gibbon, Philadelphia, in discussing Dr. Mayo's paper agreed with the author that a two-stage operation was the one to be preferred in cases of carcinoma of the rectum with the growth situated high. By doing a preliminary colostomy he had in two instances been able through his abdominal wound to diagnose metastasis in the liver, which occurs very early in young people, and which contra-indicates the performance of a radical operation. It is now his custom to perform a preliminary colostomy and then a few days later to remove the growth. In regard to Dr. Elting's paper he stated that he had derived great satisfaction recently from injecting the fistulous tracts of fistulae-in-ano with methylene blue, which greatly facilitates their dissection.

Dr. Frederic Kammerer, New York City, with references to cancer of the rectum and rectosigmoid stated that he considered it of the greatest advantage to allow the bowel to drain for two weeks, and to irrigate the lower intestine not only to diminish the sepsis but also to gain another point, which was that frequently after such drainage made possible by the establishment of a preliminary anus, the growths in the rectum not infrequently became smaller and different in appearance, and the latter operation became much more simple. He adheres to the establishment of a preliminary anus and the resection according to Kraske, after an experience with this method of about 70 cases.

Dr. W. L. Estes, South Bethlehem, in regard to Dr. Mayo's paper called attention to the fact that one was apt in dealing with these cases to lose sight of the type of carcinoma with which one had to deal, and stated in this connection that it was now generally conceded that the adenocarcinoma, as compared with other forms, has little tendency to recurrence. In his experience of 50 cases he had operated upon several supposedly hopeless cases in which the patients made most satisfactory recoveries. He agreed with Dr. Kammerer in that preliminary colostomy was frequently followed by a change in the appearance of the tumor, much of the size of which is due to inflammation, and in substantiation of this reported a case. He strongly advised that before attempting a radical operation in these cases a portion of the growth be excised and examined in order to ascertain the true malignancy of the type of tumor present.

Dr. Nathan Jacobson, Syracuse, reported a case of diverticulitis simulating in its symptoms left-sided appendicitis. He stated that in his experience the Kraske operation for cancer of the rectum and rectosigmoid had proved most successful and he had not yet come to the point of establishing a permanent colostomy opening with complete excision of the rectum.

Dr. Lewis L. McArthur, Chicago, reported a case of diverticulitis with unusual features. The patient had 16 years previously been operated on by another surgeon for a strangulated fermoral hernia and at the time the speaker operated a cord of omentum was found included in the femoral ring, and below this the lower portion of the sigmoid was so constricted that there was back pressure into the colon, making a condition recognized as a diverticular projection. There were over 200 diverticuli sticking out all over the sigmoid and descending colon. This patient recovered. With reference to Dr. Mayo's paper, he stated that in 1887 he recommended in cases of carcinoma of the rectum low down, in the female past the menopause, a resection of the posterior wall of the vagina for approach to the growth, then total excision of the lower part of the rectum, and suture between the upper angle of the vaginal wall and the rectal wall above, using the vaginal tract for an artificial anus. He at that time presented a patient so operated upon three years later in good condition.

Dr. Howard Lilienthal, New York City, said that in operating upon fistulae-in-ano he would hesitate to follow the radical method advocated by Dr. Elting, fearing that a stricture difficult to overcome might result, or a serious infection take place endangering the patient's life.

Dr. Emmet Rixford, San Francisco added two cases of acute diverticulitis to those referred to in Dr. Powers' paper, in one of which, preparatory to operation a dose of castor oil was administered; this evidently caused the tearing away of some adhesions, acute peritonitis set in, and the patient died.

Dr. Fred B. Lund, Boston, briefly reported two cases of diverticulitis. In regard to cancer of the rectum he considered the Kraske operation very satisfactory in obese males, and stated that wherever possible the abdomen should be opened and a

permanent artificial anus established. In thin females in good condition and with a non-obstructing carcinoma, he considered the abdominal operation, one-stage, to be safe.

DR. FRANCIS B. HARRINGTON, Boston, added another case of suppurative diverticulitis to those already mentioned. In this case four inches of sigmoid were resected with a very satisfactory result.

DR. KENNETH A. J. MACKENZIE, Portland, Oregon, objected to the resection of the mucosa in fistulae-in-ano from the view point that if done in the presence of an infection severe sepsis might result and primary union become impossible. The advantages of radical operation are to be found in tuberculous fistulae, for here the dangers of the ordinary operations are very serious, because they open up the granulomatous material lining the tract and allow dissemination of the tubercle bacilli.

THE EVOLUTION OF NEW BONE AND ITS RELATION TO THE REPRODUCTION OF JOINTS AFTER ANKYLOSIS.

BY JOHN B. MURPHY, CHICAGO, ILL.

The accurate appreciation of the embryology of bone is essential to a fuller understanding of the pathological processes and the reproductive power of bone. Ossification occurs in long bones through the division of the cartilage cell and the disturbance of the cartilage cell membrane from what is called the ossific centre. The osteoblasts then spread through all of the cartilage of the shaft, or better, the cartilage cells become transformed or displaced by osteal cells from one epiphysis to the other. This is what is known as cartilage ossification. The sencond type of ossificaton whch takes place in flat bones, and particularly the bones of the face, is an ossification in a white fibrous tissue. In the embyro we have the representation of the bones of the face in a white fibrous connective tissue; ossification starts in the centre or margin of this and spreads through all of the tissue. Ossification of white fibrous tissue takes the place pathologically in the continuation of the periosteum as represented in the white fibrous tissue of the capsule of joints, particularly of the hip joint. Ossification in white fibrous tissue takes place in the white fibrous strands of the muscle in myositis ossificans. Ossification can take place and does take place in blood clots that occur near a lacerated periosteum or near a fracture. This ossification is believed to be due to osteoblasts that have been carried by the blood stream from the fracture or from the lacerated periosteum as was advocated by Macewen. The degree of ossification is limited by the periosteum or may be limited by the covering of the end of a bone by any of the mesoblastic type of tissues. In other words, when a fracture occurs if the ends of the bone be covered with a fascia and muscle or a quantity of fat, no effort is made by the osteoblasts of the medulla the compact bony tissue, or the subperiosteal layer to reproduce bone across the gap. If, on the other hand, the gap between the ends of two bones is filled by a blood-clot and not by an organized connective tissue in fractures of the long bones, a large area, an inch, an inch and a half, or two inches may be spanned by the osteogenetic elements in their forces to reunite the bone. In fractures of the flat bones there is no such prodigious effort made to produce a union, they rarely span one-quarter or one-half inch in their effort at the reestablishment of union after fracture. This is noticeable in the mandible and in the trephining operations and fractures of the skull.

We can to advantage divide the osteogenetic elements of bone, or liken the osteogenetic elements of bone to that of a tree, the medulla representing the trunk and always carrying the greatest osteogenetic potency; the Haversian canals, canaliculi and lacunae representing the branches of the tree, always carrying osteoblasts on the walls of the Haversian vessels; and the leaves are represented by the subperiosteal osteogentic layer in which in youth there is an enormous osteogenetic potency, in middle age a mild degree, and in advanced age no osteogenetic power. The periosteum of the epiphysis has no subperiosteal osteogenetic potency or inductiveness. The fact that this has no bone producing power accounts for the absence of callus and osteomata on the side of joints following fractures of the epiphysis. It will therefore be seen in the regeneration of bone we must utilize either the osteoblasts of the medulla, the Haversian canals of the lacunae or the osteogenetic inductiveness of the subperiosteal zone. We can set it down as a fairly well established fact that in bone transplantation and bone grafting and bone reunions the following principles must be complied with:—

1. The periosteum fully detached from bone and (1) transplanted into a fatty or muscle-tissue bed in the same individual, if he be young, may produce a lasting bone deposit; (2) transplanted into another individual or animal of the same species and under the same conditions, it rarely, if ever, produces a permanent bone deposit; (3) transplanted into another species it never produces a permanent bone deposit.

2. Periosteal strips elevated at one end from the bone and attached at the other, if turned out into muscle or fat, reproduce regularly bone on their under surface for a greater portion of their entire length.

3. Transplanted into other individuals or animals or same species and contacting at one end with exposed or freshened bone it rarely produces permanent bone, even for a small extent at its basal attachment, and never produces bone for its full length.

4. Bone with its periosteum transplanted into muscle, fat, etc., in the same individual, and free from bony contact, practically always dies and is absorbed, except in the case of very young children or infants. Transplanted into another species it is always absorbed.

5. Bone transplanted without the periosteum into the muscle or cellular tissue always dies and is ultimately absorbed.

6. Bone with or without periosteum transplanted in the same individual and contracted with other living osteogenetic bone at one or both ends of the transplanted fragment always becomes united to the living fragments and acts as a scaffolding for the reproduction of new bone of the same size and shape as the transplanted fragments if asepsis is attained. This new bone increases to such size as is necessary to give the support required by Nature in the extremity in which it has been placed. It will scaffold the production of new bone even into the joint when it is surrounded by capsule, and tuberosities are produced in about the regular location, as in the normal anatomic conformation.

7. The transplanted fragment, no matter how large or how small, is always ultimately absorbed. The role it plays is to give mechanical support to the capillaries and blood vessels with their living

osteogenetic cells, as they advance from the living bone at both ends of the transplanted fragment into the Haversian canals, canaliculi and lacunae of the transplant. New lamellae are deposited around the new capillaries and these lamellae fit into and adjust themselves in the graft, so that the bony union is actually formed and mechanical support given long before the transplant is entirely absorbed and replaced by new bone. Ultimately, all of the transplant disappears as new lamellae are formed by the osteoblasts, and the graft lamellae are removed by the osteoclasts.

The practical application of bone transplantation is to the following conditions:—

A. To correct deformities resulting from defects of development, as aplasic extremital bones-radius, ulna, humerous, tibia, fibula and femur, and congenital saddle-nose, aplasis mandible, etc.

B. To reproduce union in ununited fractures.

C. To replace bone removed by destructive infections, osteomyelitis, tuberculosis, lues, etc.

D. To restore or supplant fragments dislodged or destroyed by fractures, as the head of the humerus, head of femur, shaft of tibia.

E. To replace bone removed for non-malignant neoplasms, cysts, myeloma, osteitis fibrosa, etc.

F. To replace bone removed for encapsulated malignant disease, giant-cell and chondral sarcoma, etc.

Dr. Murphy submitted a series of cases in which bone transplantation has been restored to to fulfill the requirements mentioned in all of these particular conditions. (For illustrations see J. A. M. A., Vol. LVIII, No. 15, pp. 1097, 1098, 1099, 1100).

ACUTE INFLAMMATION OF LONG BONES.

BY ROBERT G. Le CONTE, M.D., MINNEAPOLIS, MINN.

The paper consists of some features developed in the study of 80 cases of acute inflammation of long bones operated upon in the Pennsylvania Hospital. Attention is drawn to the fact that trauma still plays a considerable part in predisposing the disease, while the exciting cause is one of the organisms of suppuration, principally staphylococcus pyogenes aureus. He lays stress on the localization of the starting point of the lesion, whether it be in the cortex, the medullary cavity, the end of the bone, or the epiphysis, for successful treatment depends upon opening up the original focus at the primary operation. According to the treatment these 80 cases received he divides them in five groups, in the first three of which the original focus of the disease is more or less completely removed at the primary operation, and in the last two groups the primary focus was not opened at the first operation. The contrasting of these groups emphasizes clearly the necessity of a prompt operation, with adequate drainage of the primary focus of infection and the removal of all diseased bone at the primary operation, even if that removal entails a more or less complete resection or excision of the shaft. When the condition of the patient warrants it at the primary operation, such radical treatment greatly shortens the time of convalescence, prevents further destruction of bone, lessens the subsequent number of operations, and reduces the mortality.

SURGERY OF THE LONG BONES.

BY JAMES E. MOORE, M.D., MINNEAPOLIS, MINN.

The open treatment of fractures has an established place in surgery, but at present is being overdone. The Lane plate is the best device for fixing fragments through open wounds. The plates requiring removal have usually been very close to the surface. In no instance has the writer known disaster following the use of the plate. The plate cannot be used in compound fractures satisfactorily, because of the lowering of the resisting power of the tissues by the accident. The wound is sometimes healed over a plate after infection. The use of the bone splint taken from the patient's own person is doubtless our best resource in patients who have not good bone producing power. The greatest advance in surgery of the long bones in recent years is in treatment of fracture of the neck of the femur. Since using the two-way pull of Maxwell the writer has been as confident of securing bony union in fracture of the neck of the femur as in the shaft. Fracture of the neck of the femur is quite common in children, and very commonly neglected. Nonunion is the usual result after treatment by the older methods, but even then the case is not hopeless, for the fracture can be successfully treated through open wound. Notwithstanding the fact that osteomyelitis furnishes a large percentage of surgery of the long bones, the disease is very commonly neglected, so that the surgeon is called upon to operate for the relief of the results of the disease rather than for the disease itself. The use of the Moorhof bone wax following the removal of sequestrum is followed by brilliant results when the proper technique is observed.

END RESULT OF FRACTURES OF THE SHAFT OF THE FEMUR.

BY W. L. ESTES, M.D., SOUTH BETHLEHEM, PA.

An examination of 1869 cases of fractures in St. Luke's Hospital shows that 245 cases, or 13%, were fractures of the shaft of the femur.

A study of 760 tabulated cases of fractures of the shaft of the femur shows:—

1. That records of fracture cases are kept very incompletely and that it is quite impossible in the United States to obtain anything like full, accurate and reliable data of a large number of finished cases.
2. The largest number of cases of fracture of the shaft of the femur occurs in men between the ages of twenty (20) and fifty (50) years. Children under ten (10) years of age have the next largest number.
3. Working people furnish the largest number of cases, though data in regard to this point is not kept in the majority of cases.
4. Indirect violence produces by far the largest number of these fractures.
5. The middle third of the bone is most frequently broken, the lower and upper thirds are almost equally involved, of the reported cases.
6. Simple fractures far outnumber the compound and complicated ones.
7. Average shortening before reduction, 1.38 inch.
8. By far the most frequent method of treatment was by some form of Buck's extension.

9. An anesthetic was not used to assist reducing the fractures in the majority of reported cases.

10. The average weight used in extension was 14 lbs. (This is too little weight).

11. Not answered.

12. Average reported shortening of completed cases is ½ inch.

13. Average length of time in bed, 8.2 weeks.

14. Average length of time incapacitated, 2.7 months. (This is probably a mistake).

15. Average length of time crutches, canes or other aids in walking were used, 8 weeks.

16. Limp was present for some time in the large majority of cases.

17. A little less than 1-5 of the reported cases had inversion or eversion of the foot, or tilting of the pelvis from serious axial displacement.

18. A little more than 1-10 of the cases had excessive callus which produced some disturbance.

19. Nearly all the reported measurements taken were from the anterior superior spine of the ilium to the internal malleolus.

20. Disability estimated by

a Endurance
c Swelling
b Pain
} Present in about 1 case in 25 reported.
d Interference with joint function

21. Death rate of reported cases, 3.69%. (This is believed to be a mistake). Chief causes of death, a, pneumonia; b, shock and exhaustion; c, delirium tremens.

It seems to the writer that there is no reason from the study of this much larger number of cases to change the form of wording of the conclusions adopted by the Commission of the Pennsylvania State Medical Society in its report of last year and he offers these as his present deductions.

These incomplete reports, and even the comparatively large number of cases which have been tabulated, serve to indicate indubitably that this most important fracture and serious injury, in hospitals at least, does not receive the attention and care of the chief surgeons as a rule. Treatment is usually delegated to the interne staff whose experience and anatomical and mechanical knowledge are wholly inadequate to meet the indications in a great many of the cases, and whose lack of order and thoroughness make the records of the cases such unreliable data that it is very difficult for any one searching for the truth in the various phases of treatment to find what he wishes.

The first recommendation of the writer therefore, would be, and the first deduction from his work is, that teachers of surgery in medical schools, should give far more attention than they have done in the last decade or more to their own investigation of fractures, and to the teaching of this most important branch of surgery to the students who belong to their classes.

Second, while recognizing the fact that x-ray photographs may be most misleading, the writer believes, nevertheless, when taken by competent anatomists, who understand the importance of proper relative position of tube and limb, and the importance of taking more than one view of the fracture, these radiograms will furnish an indication for the proper reduction, and the mechanical appliances for the preservation of proper apposition, and that they will serve as a graphic record of the fracture itself.

These radiographs to be most valuable should be taken before reduction of the fracture, when it has been reduced, and has a fixed dressing, and finally, after union has taken place and the patient is able to be up and about.

In regard to the method of treatment the writer from the study of the cases finds that some form of traction is the method most commonly employed, and that the results after such treatment, in most cases, enables the patient to resume his occupation and function without serious detriment. Properly taken x-ray pictures, however, show absolute apposition and restoration of proper axis of the bone is very seldom accomplished.

Deaths from simple fractures of the femur are 3.69% of the cases; the reports show they occur almost wholly in cases of old age from shock and exhaustion or from pneumonia; in drinkers from delirium tremens; or from some operative interference. It is evident that the open method itself introduces into the treatment of these cases such a very marked element of danger that the writer cannot recommend the method for general use nor recognize it as a routine practice.

In selected cases where it is impracticable to restore the fragments to their proper position, and where mechanical means have failed within a reasonable time to produce proper restitution of the fragments, the open method may be employed, but then only by an experienced surgeon, one who habitually employs most thorough aseptic methods.

The writer is not prepared to recommend any one method of mechanical treatment. As in everything else, the method must be adapted to the case itself, and not the case to the method.

Some form of traction, such as Buck's extension, seems to be the preferable method of treatment. If Bardenheuer's suggestion of transverse traction over the ends of the fragments in order to overcome lateral displacements be added, it will greatly improve the results in many cases. Hamilton's apposition splints placed about the fracture at proper places will serve for this purpose in the majority of cases.

OPERATIVE TREATMENT OF FRACTURES.

BY JOHN B. WALKER, M.D., NEW YORK CITY.

In 109 there were only a few papers on this subject, while in 1912 the literature was full of references to operations. Numerous operations have now been performed by many members of the Association and as their experience has increased they have gradually operated earlier and more often because they have obtained better results. These facts show clearly the great increase in the amount of attention paid to securing better results after fractures. The surgeons have become convinced that the results must be improved. The public, since the advent of x-rays, have become better educated and are demanding shorter and more efficient treatment, a briefer period of disability with better functional results.

As the fractures of the femur are the ones which most frequently demand and finally come to operation, and also as they present the greatest difficulties at operation, the favorable results which can be obtained in these cases should carry corresponding weight in determining which is the best method of treatment in definite selected cases. In this series of 21 cases of fractures of the femur, operation was performed only after the best efforts of conservative treatment had failed. In every case before operation general anesthesia had been em-

ployed to assist the efforts in reduction, also suitable extension had been applied. Nevertheless, in every case there persisted over 2.5 cm. shortening. Axial rotation was present in all cases, together with angulation.

In operating the writer tries to scrupulously carry out every minute detail of Lane's technique for there is no province of surgery in which results depend more upon the mechanical skill and cleanliness of the operator. Under no circumstances whatever do the fingers ever enter the wound. After the strong plate has been most satisfactorily applied by snug screws to the shaft of the femur it would seem as if no motion were possible. If however, moderate strain be applied to the leg, some motion at the fracture can be appreciated. If this be continued the screws will become loosened and the fragments disarranged. For this reason no strain must be permitted. The plate must be considered only of value merely to approximate the fragments and not at all sufficient to hold them. For this purpose the whole reliance must be placed upon the solid external plaster cast, most accurately and carefully applied. If this does not succeed in absolutely imbolizing the fragments, the operation may fail.

There has been no mortality. In only one case was the plate removed and that was in one of the earlier cases when the operator was somewhat apprehensive, but when he cut down to the plate the screws were solid and it would have been unnecessary. Operations performed under the above indicated method have been followed by excellent results. If this is possible in the cases of old, long-standing difficult fractures of the femur, how much more easily and more quickly can it be done in recent cases, and with how much greater safety and surety of securing an earlier and better functional result? It now appears that sufficient evidence has been shown to definitely recommend operations for fractures of the femur in such cases as where reduction is inadequate. Adequate reduction requires that the ends remain in apposition without obvious angulation or axial rotation, and that the shortening be not greater than one-half inch. Further efforts to secure reduction by extension should not be continued after seven days, as it has been frequently demonstrated that where overriding could not be pulled down in that time, no benefit could be gained by longer traction.

DISCUSSION.

Dr. Charles L. Scudder, Boston, in discussing the papers in this symposium, called attention to the fact that in this country, at least, the operative treatment of fractures was being carried out very thoroughly in order to reach a conclusion with regard to its merits, but he did not think the non-operative treatment received its share of attention in our medical schools and among the profession and that it was therefore unfair to compare the results of the two methods. He believed that the ideal toward which all should strive would be that point where a surgeon on seeing a fracture could definitely make up his mind as to which method, the operative or the non-operative, would give the best results, and to proceed accordingly. He approves of the operative treatment in carefully selected cases, but believes many results obtained by it might also be obtained by the ideally carried out non-operative treatment in the ordinary cases.

Dr. Joseph Ransohoff, Cincinnati, emphasized the fact that about 70% of fractures are not treated by surgeons, but by the country practitioner, etc., and that it should be an aim of the Association to put means in such practitioners' hands to facilitate the reduction of fractures. For this purpose he proposed the use of a pair of common ice-tongs, which could be bought in any hardware store for a dollar and a half. These tongs can be driven into the lower end of a fractured femur without the use of an anesthetic, and extension up to forty pounds can be put on, which will usually prove sufficient for reduction. He had overcome the possibility of stiffness of the kneejoint resulting, by applying these tongs with the limb on a double-inclined plane.

Dr. John B. Roberts, Philadelphia, did not agree with Dr. Murphy in regard to the drainage of joints that a man who put in a drainage and had a resulting ankylosis was to blame for the ankylosis since ankylosis had developed in cases where there had been no drainage. With regard to fractures he saw no reason for so much stress being laid on shortening considering the great assymmetry existing in many uninjured legs. He believed the simplest and least complicated apparatus for reduction was the best. He reported two cases ending fatally after the operative treatment for fracture of the femur, and stated that well tried non-operative means in the great majority of cases would prove efficient, although admitting that under special circumstances the operative treatment may become necessary.

Dr. Thomas W. Huntington, San Francisco, believed as a rule, in the hands of competent and skilled surgeons, the operative treatment of fractures was safe. With regard to the introduction of foreign bodies in the treatment of compound fractures, he called attention to the fact that before treatment could be instituted in many cases there was an infection of the medullary cavity, and the introduction of such foreign bodies provided an inviting field for the extension of such infection along the medullary cavity with a resulting osteomyelitis and possibly either loss of a limb or the patient's life. He believed in pursuing the policy of allowing compound fractures to take their own course with as little interference as possible after apposition of fragments is obtained, until after the wound is healed and danger of osteomyelitis is passed. He reported one very successful case in which a portion of the fibula was transplanted into a defective tibia.

Dr. Maurice H. Richardson, Boston, laid stress upon a statement made by Dr. Estes to the effect that the operative treatment of fractures should *only* be performed by skilled men under the most favorable circumstances, and stated that he believed this to be the consensus of opinion throughout the Association.

Dr. Otto Kiliani. New Kork City, said that it should be impressed not only upon the profession but also upon the laity that excellent functional results could be obtained without an anatomically perfect alignment of bony structure. He would be extremely interested to hear the history of the patients whose fractures had been plated say ten years after operation, to see how many of these foreign bodies still remained in place.

Dr. Fred B. Lund, Boston, stated that in employing the operative method on old fracture cases there was the difficulty to be overcome presented by callus and adhesions, and that the majority of bad results were in such cases. He believed that in carefully selected cases this operative method was applicable to early fractures, particularly those of the long

bones, transverse fractures of the femur, certain oblique fractures of the tibia with much overlapping, fractures of the humerus where the ends do not come together, and fractures of both bones of the forearm, and referred to several extremely good results obtained. He considered that a patient was more comfortable when put in a plaster-of-Paris spica dressing than with a Buck's extension with which the adhesive plaster is so apt to slip. In reference to Dr. Moore's paper in which was mentioned the use of bone wax in the bone cavities resulting after the curetting of osteomyelitis, Dr. Lund said that he obtained most excellent results from lining the cavity with a skin graft.

DR. A. T. BRISTOW, Brooklyn, reported nine cases of fractures of the shaft of the femur operated upon during the last 18 months; each case healed by first intention and obtained an excellent result, and the patients ranged in age from 11 to 60 years. In every instance every conservative means known to the operator was tried before restoring to the more radical procedure, but where it was impossible by the older methods to get reduction, on cutting down on the fragments it was found that there was muscular or fascial tissue interposed between the ends of the fragments.

DR. GEORGE E. ARMSTRONG, Montreal, Canada, suggested a device which should always be tried in compound fractures in order to lock the fragments, and that was to notch the ends so that they would dovetail into each other; he had obtained excellent results by this procedure. He felt the importance of impressing upon students the absolute asepsis which must be obtained in the treatment of fractures by the open method even beyond that necessary in abdominal operations, and that this operative method should not be attempted if it was possible to lock the fragments without it.

DR. LEONARD FREEMAN, Denver, called attention to many points of advantage, in his estimation, in the use of the external bone clamps to the internal bone plate.

DR. CHARLES L. GIBSON, New York City said that he considered it was perfectly proper for Mr. Lane, with his marvellous technique, to operate on fractures, but that only one man in a thousand was so qualified, and therefore he endorsed the opinion that such work should be undertaken only by skilled surgeons.

DR. G. G. DAVIS, Philadelphia, said that not enough attention was paid to the methods of lateral traction or abduction in the reduction of fractures of the femur, and too much attention was given to Buck's extension, he having arrived at this opinion after seeing a large number of cases of ununited fractures in which the latter method had been employed.

DR. RICHARD H. HARTE, Philadelphia, gave as his opinion that many of the poor results obtained in simple fractures treated by the conservative methods today were due to the fact that the setting and reduction of these fractures in the large hospitals are as a rule relegated to the hospital intern, whose experience is not sufficient to warrant such responsibility being placed upon him. The attention of the chief, all too frequently, is only directed to fracture cases when they begin to do badly. He deplored the scant attention given at the present day in the medical schools to the teaching, both didactic and clinical, of this most important subject.

DR. FRANCIS J. SHEPHERD in speaking of the merits of the x-ray, also mentioned the fact that the laity at present considered it necessary to obtain, as had been said, almost a cabinet-maker's apposition of fragments, and that since the use of the x-ray it had been shown that this seldom was obtained. He considered it important to educate everybody to understand that it was the functional result and not the anatomical result toward which attention should be directed.

DR. JOHN H. GIBBON, Philadelphia, stated that he did not consider anesthesia in the reduction of bad cases as helpful as did many others, and emphasized the fact that one cannot jerk a fracture into place in five minutes, but that in many cases where the traction is allowed to extend over several days and there is a long and steady pull, the reduction may be easily accomplished; this applied particularly to fractures of the upper third of the femur and the surgical neck of the humerus. He also suggested that in fractures of the surgical neck of the humerus treated by abduction and Buck's extension, with the arm at right angles to the chest and the patient in bed, reduction could be safely accomplished.

DR. LEWIS L. MCARTHUR, Chicago, suggested the advisability in bad cases of reducing the fracture, if possible, then taking an x-ray picture and telling the patient that such was the best result to be obtained by mechanical methods, and allowing the patient the privilege of decidin, in case the position was not satisfactory, whether or not he desired operative interference, always explaining to him, however, that a functional result could be obtained without a perfect anatomic result.

THE CONSERVATIVE TREATMENT OF GIANT-CELL SARCOMA, WITH THE STUDY OF BONE TRANSPLANT.

BY JOSEPH C. BLOODGOOD, M.D., BALTIMORE, MD.

This study is based upon 52 cases; 26 from the author's own records, the remainder from the literature. It is a question whether the so-called giant-cell sarcoma should be included among sarcomas. He prefers the term "giant-cell tumor." Up to the present time he has been unable to find an authentic case in which this giant-cell tumor produced death by metastasis. The evidence so far demonstrates that amputation and, in many instances, resection in continuity, are unnecessary, or avoidable, surgery. He collected in this paper 11 cases cured by curetting, 1 cured by a second curetting, 3 recurrences after curetting cured by later resection, 1 recurrent curetting well after later amputation; 21 cases free from recurrence after primary resection; 1 recurrence after resection well after amputation; 14 cases subjected to primary amputation remaining well. In practically all of these amputation was avoidable.

Curetting should be the operation of choice in the first instance. It should be performed under an Esmarch bandage, the bone cavity disinfected with pure carbolic acid followed by alcohol; if the resulting cavity is large healing will be accelerated by filling the cavity with a piece of transplanted bone. After resection the wound should also be disinfected as after curetting; if possible the defect should be filled by a piece of bone taken from the shaft of the bone involved by splitting longitudinally the remaining uninvolved bone. If this is not feasible the tibia is the best bone from which to take the transplant.

DISCUSSION.

Dr. William B. Coley, New York City, disagreed with Dr. Bloodgood in the statement that giant-celled sarcoma never produced metastasis and gave a detailed history of a case proving this point, and from this experience concluded that there were certain cases of giant-celled sarcoma in which it was not safe to use conservative treatment and in which even the most radical treatment, amputation of the proximal joint, offered little or no chance of a cure. He briefly referred to 20 cases in which the clinical diagnosis of giant-cell sarcoma was confirmed by the miscroscope; 10 were of periosteal, 10 of central, origin. In 15 of the 20 cases the mixed toxins of erysipelas and bacillus prodigiosus were used before or after operation. In 10 cases amputation was performed. In 9 cases either no operation or a conservative one (curetting) was done; in 3 of the 9 cases the disease was too far advanced for the most radical operation, even a hip-joint amputation, and in one case, a subperiosteal sarcoma of the femur involving the lower third, metastasis had taken place. This patient is now well ten years after the toxin treatment was begun. In addition there had been 2 recent cases of sarcoma of the long bones in the hands of English surgeons in which the limb was saved by the use of the mixed toxins. He reported 21 cases, out of a personal series of 107 cases of sarcoma of the long bones, in which the patient lived and remained well more than three years after operation; he believed the value of the mixed toxins in many of these cases to be quite beyond question.

Dr. Emmet Rixford, San Francisco, referred to a case of giant-cell sarcoma of the lower end of the ulna treated by resection of the lower end of the bone, which had remained well without recurrence for 18 years.

Book Reviews.

A Manual of Chemistry. A Guide to Lectures and Laboratory Work for Beginners in Chemistry. A Text-book Specially Adapted for Students of Medicine, Pharmacy and Dentistry. By W. Simon, Ph.D., M.D., Professor of Chemistry in the College of Physicians and Surgeons, Baltimore, and in the Baltimore College of Dental Surgery; Emeritus Professor in the Maryland College of Pharmacy; and Daniel Base, Ph.D., Professor of Chemistry in the University of Maryland. New (10th) edition, enlarged and thoroughly revised. Octavo, 774 pages, with 82 engravings and 9 colored plates illustrating 64 of the most important chemical tests. Cloth, $3.00, net. Philadelphia and New York: Lea and Febiger. 1912.

It is with pleasure that we note the arrival of the new and tenth edition of this most meritorious work. It is now many years that those medical students who have been unable to take a complete course in inorganic and organic chemistry in the academic halls of the college or university in pursuit of the degrees of A.B. and B.S. have cut their chemical teeth, so to speak, on Simon's manual, and better material for this purpose could not be devised. The instructor at the beginning of the school year looks with dismay upon the task of grounding his utterly untrained students in the principles of chemistry which in most schools must be done within the year. A quiz-compend will not do nor will an abstruse volume on chemistry, and here is where he flies with delight to the volume of Simon as the greatest aid in his difficult task. In clear and concise language the authors impart the simple principles on which physical chemistry is based and which are so essentially important for the understanding of what follows; even if the student has had a good course in phyics at his fitting school this short review fixes the more important principles in mind and separates them from the greater mass of knowledge which has been acquired during the physical course. We may pass over the portion of the book devoted to the metals and analysis; it does not differ markedly from other chemistries. One might remark with justice that more metals are included than are strictly needed for an understanding of the chemistry of medicine, which thereby incumber the mind with an unnecessary burden, but it is much easier for an instructor to omit than insert, and apparently it is the object of the authors to make a well rounded whole of their work. For the portion of the book devoted to quantitative analysis, that part of chemistry so often neglected in the instruction of medical students, but so important, nothing but praise can be said. A lesser amount of space would have made it incomplete and more words would have been superfluous. But it is the section on organic chemistry which we read with the greatest pleasure because, outside of Bunge's effort to popularize organic chemistry for medical men, nothing has seemed more appropriate than the author's exposition of this subject. Accompanying it they have also given directions for simple experiments, illustrating the changes taking place and leading the beginner from the most simple to the more complicated manipulations. As to the wisdom of including the brief summary on physiological chemistry, there may be some question. It is not complete enough to meet the modern demands for the teaching of this subject and there will always be the temptation for instructors to impart and students to acquire this limited portion of biological chemistry and then smile complacently, as if they had exhausted the science. The illustrations are excellent and the colored plates showing the colors of the numerous reactions are admirable as far as they go but in many cases should have the concentration of the solutions used appended or those who try to imitate them in demonstration courses will fall into error without accurate knowledge of the strength of these solutions.

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MODERN SANITATION.

MANY erroneous ideas concerning infectious diseases have been dissipated in the last score of years, since clear-brained men, following the lead of Pasteur and Koch, have developed the twin sciences of bacteriology and prophylaxis. Indeed, there remains now only the fomites theory, that clothing, baggage, money and cargoes of vessels are ordinary or common means of infection. This theory is as old at least as the fourteenth century. It is dying now, but dying hard and is still capable of causing a great deal of inconvenience and occasionless popular hysteria. It has in the past militated against the successful management of outbreaks of infectious disease; and it has encouraged carelessness in determining the origin of these outbreaks, whereas the most careful and exhaustive investigation should be made to secure this information.

We know now that insects and vermin play a most important part as agents of infection in diseases formerly attributed to infected articles; such pests, and not rags and money, are generally the intermediaries in infection. It is the Anopheles mosquito, not bad air, which transmits malaria; the Stegomyia mosquito, and not marsh emanations, is responsible for yellow fever; typhoid, cholera, the dysenteries may be insect-borne. Another serious factor is the "carrier" (who may himself not have contracted the disease at all) of ingestion infections; this fact has been abundantly demonstrated as to typhoid fever and cholera and possibly "carriers" may be proved to be responsible for outbreaks of like infections, the origin of which has been attributed to other causes.

Dr. Alvah H. Doty, in the *North American Review* of November last, has well observed that with the facts we now possess regarding the true means by which infectious diseases are transmitted, every effort should be made to use this knowledge in the better protection of the public health. The health officer is not only enabled to deal with epidemics; he secures also more intelligent co-operation from the public in carrying out needed sanitary reforms.

The dread of contracting disease from the clothing or the money of others has been responsible for many unnecessary and unjust regulations. Well persons in a family where infectious disease exists are either quarantined by law or they remain voluntarily at home for fear they may transmit the disease to others; this often affects seriously those whose income is necessary for the family support. Except in some special instance, and under direction of health officials, such persons were far better out of the house. The patient should be carefully isolated or quarantined, only those in continual charge communicating with him; while the well members of the family should be carefully examined each day to find if they have contracted the disease. Only then are the latter a menace; their clothes are not the infective medium.

An important principle of modern disease prevention is to proceed with as little annoyance to the public as possible. To this end, where large numbers of persons are together, in factories and the like, there should be constant supervision over the former; an epidemic may thus be detected in its incipiency; fewer are then involved, the loss of life is diminished and the general well-being vouchsafed. Rejecting the fomites theory greatly strengthens the defense against infectious disease, since our attention is then turned to the real means by which infection occurs, and to the locality where it has originated. Our sanitarians hope that many infections may be absolutely obliterated from human experience. With the coöperation of the public, but not otherwise, this may be done; therefore each home should to this end constitute a sanitary unit. Great corporations having in their charge large bodies of people should have some form of organization within themselves for the improvement of sanitary methods to insure cleanliness, fresh air, pure

water and proper toilet arrangements. Careful and immediate inspection of premises, destruction of the discharge of the sufferers, cleanliness, fresh air and the like, with effective cooperation on the part of the public—such are the measures desirable in modern sanitation.

REFUSE DISPOSAL IN CITIES.

The Fried patent, a recent German invention for the disposal of city refuse, is considered the best of its kind now in use in Europe. [1]It has been operated at Fuerth, near Nuremberg (a city of half a million) and also at Barmen; it was last spring adopted for Berlin (now the cleanest city in all Europe); and in the United States is being considered by Pittsburg and by Los Angeles. It seems there is not an American city that should be without some such system; for our communities are often behindhand regarding their refuse disposal facilities.

The Fried system is an incinerating plant which disposes only of ash garbage and street sweepings; the valuable waste materials (rags, paper, bottles, tincans, leather, rubber goods, barrels, boxes, old furniture, etc.) should be a source of great municipal revenue. The city of Fuerth, in adopting this system, decided also to "destroy both the seed and the roots;" and so made compulsory the use of sanitary galvanized sheet iron garbage cans of uniform size, having slide covers with bolt locks. These were sold to householders (who were requested to keep them clean) at a low price by monthly payments of a few cents each if desired. The collecting wagons, electromobiles, carry four detachable receptacles, such having altogether a capacity of about nine cubic yards. The openings have sliding corners. The closed garbage can is inverted upon one of these, and by a slight movement the covers of both can and opening are slipped to one side, when the contents fall into the receptacle. The pulling back of the can replaces both covers. For not a single moment are the contents of the can exposed to the air. Eight openings on each side of the wagon enable several men to work simultaneously, so that it can be filled in less than an hour; when the wagon is driven to the destruction plant an empty wagon arrives to take its place, and the operating crew continues the collection without break or delay. At the destruction plant the receptacles are taken up by an electric crane to the furnace, when a trap door in the bottom is released and the contents fall directly upon the combustion grate. From the time the garbage can is set out for the collector until its contents are burned, the latter have been entirely out of sight and out of the possibility of human or animal contact; nor has there been dust, leakage or offensive odor.

All Fuerth's daily supply of garbage is burned in from twelve to sixteen hours; and the heat thus produced (one kilogram of steam for each kilogram of garbage) is transformed by the steam engines of the power plant into electric energy and turned into the distributing mains of the electric plant. In the furnace the combustion is so managed that there is neither odor, smoke nor dust from the stacks; there is no complaint in the neighborhood of its presence, nor any occasion to complain. The slag of the thoroughly incinerated garbage is a valuable substitute for concrete gravel and is made also into artificial stone, sidewalk surfaces and the like; chemical experts have pronounced this slag entirely sanitary and impervious to heat and water. Since there is plenty of demand for this material, any city can dispose of it at good prices or could use it to economic advantage in its own paving operations.

Fuerth, then, collects and disposes of its garbage and street sweepings by a method well-nigh perfect from beginning to end. Instead of costing anything it yields a revenue. The plant, erected for $25,000, yields now an annual profit of 10 per cent. on the cost of installation; and there seems no reason why every American city should not be just as dustless, odorless, flyless and wholesome as Fuerth or Berlin.

MEDICAL LECTURES FOR THE PUBLIC.

The course of free lectures on medical topics, offered by the Harvard Medical School, was announced in detail in last week's issue of the Journal.

We wish to congratulate the public, not only on the subjects chosen for the lectures, but also on the speakers, each of whom is specially qualified by training and experience to speak with authority on the matter assigned to him. Among the lecturers are men of maturity and prominence, as well as younger exponents of modern medical work, and we cannot but feel that their discourses will tend to promote the spirit of confidence between the public and the profession of medicine so desirable for all con-

[1] N. Y. *Times*, Dec. 8, 1912. (Copyright 1912, Sturgis I. Walton Co.)

cerned. It is well that the growing interest of the laity in things medical should be met in this way by reliable information offered freely and frankly, for it is by such means, chiefly, that we must hope to develop a universal and more intelligent coöperation in broad questions of public health, which our profession, unaided, can do little to advance.

MEDICAL NOTES.

CHOLERA IN MECCA.—Report from Odessa, Austria, through London, on Dec. 27, states that an epidemic of Asiatic cholera has broken out among the Mohammedan pilgrims now gathered at Mecca, Arabia, to the number of 10,000. During the previous four days, 1714 deaths from the disease are said to have occurred.

IMPRISONMENT OF A DENTIST.—Report from Tangier on Dec. 28, states that Mulay Hafid, former Sultan of Morocco, has recently cast his Spanish dentist, Dr. Cortes, into prison, because the latter demanded a settlement of his account for professional services rendered to the Sultan.

BUBONIC PLAGUE IN MANILA.—Report from Washington, D. C., on Dec. 23, states that 33 cases of bubonic plague have recently occurred at Manila, P. I. The outbreak is said to have been traced to a railroad employee who died of the disease on Oct. 20. The infection has been found among rats in the city, of whom about 20,000 have already been killed.

LONDON DEATH-RATES FOR NOVEMBER.—Statistics recently published show that the death-rate of London for November, 1912, was 15.5 per 1000 living. Among the several districts and boroughs, the highest rate was 26.8 in Shoreditch, one of the populous slums of the east side; and the lowest was 9.8, at Lewisham, a southern suburb.

BOSTON AND NEW ENGLAND.

HARVARD UNIVERSITY CATALOGUE.—The Harvard University Catalogue for 1912-13 has just been issued. The book is slightly larger than its predecessor, the gain in size being due in part to an increase in the number of students—the total being 5,224, as compared with 5,045 in 1911-12. The list of teachers has grown from 707 to 774; there has been a corresponding increase in the number of courses offered, and several new scholarships are announced, raising the total sum available for students in Harvard College from $50,000 in 1911-12 to $64,000 for the present year. The recently organized Graduate Schools of Applied Science are described for the first time in some detail and an announcement is made of a new deparment in the University, the Graduate School of Medicine. The table showing the geographical distribution of students, including 52 states and dependencies and 29 foreign countries, offers interesting evidence of the cosmopolitan character of the University.

ALLIED DENTAL SOCIETIES OF GREATER BOSTON.—A meeting and dinner of the Allied Dental Societies of Greater Boston, held in this city recently under the presidency of Dr. Eugene H. Smith, of the Harvard Dental School, was attended by about 250 members and guests. The principal speakers were Dr. A. C. Fones, of Bridgeport, Conn.; Dr. R. Ottolenqui, of New York; and Dr. N. A. Jenkins, of Dresden, Germany. Dr. Fones read a paper on "The Keystone of the Oral Hygiene Movement," in which he said:

"Over 80 per cent. of dental decay can be prevented by surface treatments at frequent intervals, but the dentists have not the time to do it. We must have help if we expect this great movement of oral hygiene ever to amount to anything, and it will succeed only when the dental nurse or prophylactic assistant is finally established in the dental offices throughout the country. Just as the surgeon needs the help of the medical nurse in preparing the patient for operation, so do we need a woman assistant to clean the surfaces of the teeth, to give us a clean field for examination or operation."

A resolution was adopted by the meeting in favor of the bill, to be presented before the next session of the General Court, for the licensing and registration of dental nurses.

NEW YORK.

DEATH NOT DUE TO STOVAINE.—The coroner's inquest in the case of Patrick Hart,* who died suddenly at the New York Polyclinic Hospital during the recent Surgical Convention in New York City, has been concluded and the report of the autopsy as presented by coroner's physician, Dr. Edgar T. Ray, showed that the patient was suffering from myocarditis, atheroma of the aorta, emphysema of the lungs, the liver large and fatty, chronic interstitial splenitis, chronic gastritis, chronic interstitial gastritis, chronic interstitial nephritis. The degenerative

* The patient referred to in an item on page 780 of the issue of the JOURNAL for Nov. 28, 1912.

changes showed the results of long continued alcoholic excesses. There was no indication of injury from the anesthetic and Dr. William S. Bainbridge was pronounced as perfectly justified in his procedure. The testimony of Dr. Bainbridge showed that he had performed over one thousand (1000) operations with spinal anesthesia and without a death due to the anesthetic.

Hospital For Ruptured and Crippled.—The new building of the Society for the Relief of the Ruptured and Crippled, which was formally opened on December 16, is one of the finest hospital structures in the city and very complete in its equipment. An unusual feature is the amount of outdoor space provided, as practically every ward and room where patients are cared for opens upon an extensive playground, and a large part of the sixth floor is arranged for outdoor treatment and recreation. The hospital moved to its present location from Lexington Avenue, the property there being desired by the New York Central Railroad in connection with its terminal improvements, and the large price which this commanded provided the means for purchasing the new site and erecting a much larger and more modernly arranged hospital building. This has five stories above the basement, with the exception of a wing at the northwest, which is two stories in height, but so designed that others may be added, making it correspond with the northeast wing. Over a portion of the main structure extends a sixth floor. The whole building is of the most approved fireproof construction, and the handsome exterior is of the Renaissance style of Northern Italy. With the opening of its new quarters the society expects to broaden the scope of its work, and it is hoped to establish a branch hospital in this country.

Current Literature.

Medical Record.

December 21, 1912.

1. Bushnell, G. E. *Marginal Sounds in the Diagnosis of Pulmonary Tuberculosis.*
2. Steiner, W. R. *The Mechanism of the Heart Beat, With a Consideration of Some of Its Functional Disturbances.*
3. *Ingalls, P. H. *Selection of Female Risks in Whom Hysterectomy and Ovariotomy Have Been Performed.*
4. Kakels, M. S. *Sacral Kidney Simulating Acute Appendicitis.*
5. Fowler, R. S. *The Post-Operative Treatment of Laparotomy with Complete Wound Closure.*
6. Naummack, C. E. *Mistakes in the Diagnosis of Typhoid Fever.*
7. London, J. *A New Gastroesophagoscope.*

3. Ingalls has made a study of the results of hysterectomy and ovariotomy from a life insurance standpoint. He believes that it is safe to accept women who have had uterus or ovary removed if no malignancy was expected or found and no complication revealed at the time of operation if sufficient time has elapsed—at least two years—to be sure that all nervous and physical disturbances due to the operation have entirely disappeared, and if the applicant is up to the required standard in all other respects. [L. D. C.]

New York Medical Journal.

December 21, 1912.

1. Fridenberg, P. *The Clinical Measurement of Defects in the Central Visual Field.*
2. Robinson, W. J. *A Unique Case of Artificially Induced Sterility.*
3. Solomon, M. *What Eugenics Does Not Mean.*
4. McGuire, E. R. *A New Operation for Decompression.*
5. Smith, P. *Psychoses Occurring in Twins.*
6. Brown, H. A. *The Monthly Incidence of Certain Diseases.*
7. Loughran, R. L. *The Radical Mastoid Operation.*
8. Duncan, C. H. *Autotherapy.*
9. Thatcher, P. B. and Hackney, E. J. *A New Tourniquet for Intravenous Work.*
10. Chipman, W. W. *The Problems of Obstetrical Practice.*
11. Cullen, T. S. *Carcinoma of the Uterus.*

The Journal of the American Medical Association.

December 21, 1912.

1. Bacon, C. S. *Pulmonary Tuberculosis as an Obstetric Complication.*
2. *Frazier, C. H. and Mills, C. K. *Intradural Root Anastomosis for the Relief of Paralysis of the Bladder and the Application of the Same Method in Other Paralytic Affections.*
3. Dunton, W. R., Jr. *Predementia Praecox.*
4. Cornell, W. B. *Cyanosis in Dementia Praecox.*
5. Frank, J. *Medical Education in South America.*
6. Neff, F. C. *A Series of Infants Fed on a High-Percentage Albumin Milk.*
7. *Cooley, T. B. *Relation of the Infant Welfare Movement to Pediatrics.*
8. Chapin, H. D. *The Properties, Uses and Indications of the Various Carbohydrates Used in Infant-Feeding.*
9. *Williams, T. A. *The Practical Import of Recent Work on Hysteria.*
10. Rovsing, T. *The Diagnosis of Tuberculosis of the Kidney in Very Early and Very Advanced Cases.*
11. *Whiteside, G. S. *The Use of Tuberculin in the Treatment of Surgical Urogenital Tuberculosis.*
12. *Fairchild, D. S. *Decapsulation of the Kidney.*
13. *Futcher, T. B. *Recent Advances in Our Knowledge Concerning the Causes of Glycosuria.*
14. Herbst, R. H. *The Surgical Treatment of Chronic Seminal Vesiculitis by Vasostomy (Belfield Operation).*
15. Yawger, N. S. *Paranoid Type of Insanity with Jacksonian Convulsions. Syphilitic Cerebral Pachymeningitis. The Microscopic Findings.*
16. Emerson, C. *Glycosuria among the Insane.*
17. Jones, W. W. *Two Cases of Acute Primary Cholecystitis Presenting Unusual Features.*
18. Cadwalader, W. B. *Unilateral Optic Atrophy and Contralateral Hemiplegia Consequent on Occlusion of the Cerebral Vessels.*
19. Gray, E. A. *Certain Physical Signs in Scoliosis of Lesser Degree.*
20. Kennedy, J. W. *Plea for Surgical Intervention in All Umbilical Herniae.*
21. Kahn, M. and Rosenbloom, J. *A Report of Some New Chemical Analyses of Urinary Calculi.*

22. BOWLES, F. H. *Coccidioidal Granuloma. Report of the Nineteenth Case in California.*
23. GOULD, G. M. *Acute Reflex Disorders Caused by the Cinematograph.*
24. KARPELES, S. R. *Irritation from Iodine and Mercury on the Skin.*
25. ROSENTHAL, M. *Chancre Developing Four Days After Salvarsan Injection.*
26. SITER, E. H. *Prostatectomy Knife.*

2. Frazier and Mills relate a most interesting case of intradural anastomosis of lower dorsal and sacral nerve roots with decidedly beneficial results. The article appears to open new possibilities in this field.

7. Cooley is rightly enthusiastic over the infant welfare movement in connection with pediatrics and shows in an interesting article how such a movement thoroughly carried out may lead to a great reduction in infant mortality, a better teaching of pediatrics, a more general recognition of this speciality and a tendency to broaden it greatly.

9. Williams' article on hysteria sets forth new and practical points in treatment.

11. Whiteside is a firm believer in the use of tuberculin as an adjunct in the treatment of urogenital tuberculosis, but suggests that success will not always result and that care should be used in dosage.

12. Fairchild gives the varying views of many workers on the value of decapsulation of the kidneys especially for eclampsia but does not form any definite conclusion as to its exact value. Opinions vary greatly; it is not universally condemned but a relatively small number express enthusiasm.

13. Futcher believes it must now be accepted that not only the pancreas but also the adrenals, thyroid, parathyroids and pituitary have a very important influence on carbohydrate metabolism and hence may be causes of diabetes mellitus. There is undoubtedly marked correlation of the internal secretions of the ductless glands. [E. H. R.]

ANNALS OF SURGERY.

SEPTEMBER, 1912.

1. *MCWILLIAMS, C. A. *A Discussion of Bone Transplantation and the Use of a Rib as a Graft.*
2. SCHAFFER, J. P. *An Unusual Sinus Frontalis.*
3. DENANCREDE, C. B. G. *Bilateral Congenital Fistulae of the Lower Lip.*
4. BOOTHBY, W. M. *Note on Intrathoracic Surgery: Divisions and Circular Suture of the Thoracic Aorta.*
5. *BOOTHBY, W. M. *Note on the Transplantation of Fresh Venous Segments.*
6. FRANK, L., AND BALDAUF, L. *The Results of Ligation of One Ureter.*
7. *MCKENTY, F. E. *On Appendix Tumor.*
8. *FOWLER, R. H. *Foreign Body Appendicitis.*
9. GUYOT, J. D. *The Relation of the Ileo-caecal Folds to Appendectomy.*
10. PHEMISTER, D. B. *Fractures of the Greater Tuberosity of the Humerus.*
11. COUES, W. P. *Separation of the Epiphyses of the First Metacarpal Bones.*
12. BALFOUR, D. C. *An Operating Room Mirror.*

1. McWilliams states the views of several authorities in regard to the way in which transplanted bone grows (Ollier, Barth, Axhausen, Macewen, Basch, Kirzen and Petrow, Vorchutz, Tonita and Murphy). He then presents two operations on human beings and a number on animals which are in accord with some of these views but at variance with others. Two months after an autoplastic graft (a section of rib devoid of periosteum but bored with holes so that nourishment might enter the interior of the bone) to repair a defect in a lower jaw after resection, the graft has united solidly at one end and shows "no sign of "any breaking down" seven weeks after inserting an autoplastic graft (similar to former) between transversalis and transversalis fascia to strengthen the repair of an inguinal hernia there has been no irritation and the graft is still demonstrable by x-ray. In animals he has observed in autoplastic grafts devoid of periosteum used to repair bone defects new osteoid tissue growing from the grafts. He believes that the periosteum has nothing to do with the formation of new bone except to guide the spread of osteoblasts from the original bone, thus giving definite form to the repair.

5. Boothby gains speed and accuracy in performing a double suture of a venous segment, as in attempting to transplant kidneys, by placing the stay sutures before division and removal of the segments. The ligated segment is grasped with smooth forceps on its top side near one of the ligatures. A nick is made close to the forceps. A stay suture is passed into the lumen of the vein just behind the forceps and is brought out through the nick. The second and third stay suture are placed and both brought out through the same nick. If the segment is to be inserted into another vein the other end of the segment is treated in similar manner except the stay sutures are placed from within outward. When the stays have been placed the division of the segment is completed.

7. McKenty records two cases of primary carcinoma of the appendix; both women, aged 30 and 26. He does not regard the fibrous tissue seen in such cases as the result of bacterial inflammation but as connective tissue proliferation coincident with the growth of the tumor comparable to the stroma of a scirrhus cancer. The consequent obliteration of the lumen of the appendix (always seen in such cases) may be responsible for the dormant nature of such tumors. Subsequent inflammation may in some instances stimulate their growth. In only one of eight cases which have occurred at the Royal Victoria Hospital in Montreal has there been coincident pulmonary tuberculosis. This is contrary to the view of Letulle and Weinberg.

8. Fowler's article is a thorough consideration of a surgical curiosity, the common domestic pin as a foreign body in the appendix. He records a case of his own and has collected 51 cases from the literature. These he analyses. In 22 cases the pins were encrusted. In 48 cases the appendix was perforated but in the majority there was no reason to ascribe the perforation directly to the presence of the pin. The point had transfixed the appendix in 21 cases and in a few cases the head was surrounded by a concretion and acted as a ball valve. The position of the pin in the appendix, the resultant or associated lesions of the appendix the incidence of peritonitis, appendicular abscess, sinus, bladder fistulae, liver abscess, and herniae are given. [T. W. H.]

OCTOBER 1912.

1. *ROVSING, T. *Tuberculosis of the Kidney.*
2. *CRAMP, W. C. *A Consideration of Gas Bacillus Infection with Special Reference to Treatment.*
3. *COBB, F. *Mediastinal and Pericardial Infections in Relation to Emergency Abdominal Surgery.*
4. WILLIAMS, E. M. *Trans-Duodenal Choledochotomy for Stone in the Ampulla of Vater.*
5. DOWD, C. N. *Acute Phlegmonous Inflammation of the Large Intestine.*
6. *FRAZIER, C. H. *The Recognition and Treatment of Lesions of the Right Iliac Fossa Other Than Appendicitis.*
7. ROSS, G. G. *A Study of Sprain-Fracture as an Essential to the Occurrence of Dislocation.*
8. DAVIS, G. G. *The Treatment of Intracapsular Fractures of the Hip.*
9. ASHHURST, A. P. C. *Treatment of Dislocation of the Head of the Radius Complicated by Fracture of the Ulna.*
10. GERSTER, J. C. A. *On Freeing of Fragments Preliminary to the Operative Reduction of Fracture of the Femur.*

1. Rovsing's communication is based upon a personal experience of 200 cases. He emphasizes the possibility of the absence of albuminuria and the necessity of microscopical and bacteriological examination of patients with pyuria. He has been able by the method of Forsell to demonstrate the tubercle bacillus in the urine of 80.7% of his cases. He points out the fallacy of depending upon segregators or upon cystoscopy without ureteral catheterization. He again calls attention to the possibility of toxic albuminuria of one kidney when the other is diseased with tuberculosis. In cases in which ureteral catheterization is impossible, he advocates double exploratory lumbar incision. This he has practiced in 30 cases without mortality and with the demonstration of unilateral disease in 24. He has given up modern kidney function tests as he has found them misleading both by positive and negative results. "Bladder tuberculosis is frequently cured spontaneously when the place where the tuberculosis originated is removed." After nephrectomy in cases with bladder involvement he waits some time for this possibility, performing cystoscopy every 14 days. If spontaneous healing does not occur, he institutes local bladder treatment with 6% carbolic acid. A cure is certain if the source of infection has been removed and if the disease is confined to the mucous coat of the bladder. As soon as unilateral renal tuberculosis is diagnosed, nephrectomy is indicated He has performed 145 nephrectomies for renal tuberculosis with a mortality of 4.8% ; the mortality for the last 131 cases has been 3.8%.

2. Cramp has studied 25 cases of gas bacillus infection from the Bellevue Hospital and all the reported cases in order to draw deductions regarding treatment. The gross mortality is 48%. Of 30 cases involving the extremities, treated conservatively with generous incisions and continuous or frequent irrigations or baths, the mortality was only 10%. Of 9 cases involving the trunk similarly treated, the mortality was only 11.1%. He advocates a smear on the first sign or symptom of infection (frequently pain out of all proportion to the trauma coming on 12-36 hours after injury and soon followed by a sudden rise of temperature) ; free opening of the wound and irrigation with weak peroxide of hydrogen; generous incisions, if the infection is extensive, to expose the whole field widely to the air; continuous bath or irrigation; and no bandaging which excludes air. Epitomies of the 25 Bellevue cases and a list of 65 references are given.

3. Cobb calls attention to the fact that certain mixed conditions in the mediastinum and pericardium can simulate intraperitoneal emergencies. An acute serous or seropurulent pericarditis, for example, engrafted upon a chronic obliterative mediastinitis, which has already caused some obstruction to the venous circulation of the liver, can give an acute abdominal picture exactly similar to visceral perforation high in the peritoneal cavity. An illustrative case is given in great detail with an autopsy report.

6. Recent analysis of the end results in appendectomy for chronic inflammation show that from 5 to 36% of the cases have not been benefited by the operation. Some of these failures have been due to an unrecognized Jackson's membrane, a Lane's kink, or a caecum mobile. Frazier considers the symptomatology and treatment of these conditions with illustrative personal cases. He recommends that the button-hole incision for chronic appendicitis be discarded. [T. W. H.]

SURGERY, GYNECOLOGY AND OBSTETRICS.

DECEMBER, 1912.

1. *MEYER, W. *Cancer of the Esophagus from the Standpoint of Inthrathoracic Surgery; A Report of Four Resections. Disinfection.*
2. BUCHANAN, J. J. *Circular Resection and Suture of the Axillary Artery for Transverse Laceration by Fracture-Dislocation of Anatomical Neck of the Humerus.*
3. STUMM, T. W. *Multiple Myeloma.*
4. *DAVIS, E. P. *A Method of Controlling Post-Partum Hemorrhage by Manual Compression of the Abdominal Aorta: Abdominal Section for Placenta Praevia.*
5. STONE, I. S. *Hypernephroma of the Kidney; Report of Three Cases.*
6. RABINOVITZ, M. *Myoma of the Cervix Uteri.*
7. HUFFMAN, O. V. *A Malformation of the Fallopian Tube.*
8. *WALTON, W. J. AND MEDALIA, L. S. *Hemolytic Streptococcus and Puerperal Septicemia; A Bacteriological Study of One Hundred and Three Labor Cases, with Reference to Prognosis, Prophylaxis and Specific Therapy.*
9. *MEDALIA, L. S. AND WALTON, W. J. *Opsonins and Vaccines in Puerperal Sepsis.*
10. SITER, E. H. *Results of Experiments on Kidneys with Especial Reference to Decapsulation and Establishment of Collateral Circulation.*
11. NORRIS, C. C. *Sterility in the Female without Marked Gross Pathology, and the Report of Thirty-five Cases.*

1. Meyer, in spite of four deaths on the table from attempts to remove cancer of the esophagus by the intrathoracic route, is sanguine over the possibilities of this operation and proposes to continue to employ it in suitable cases with the hope of better results in the future.

4. Davis has checked post-partum hemorrhage by pressure of the knuckles backward on the abdominal aorta with the hand inside the uterus.

8 and 9. Walton and Medalia make the following conclusions from their work on the streptococcus in puerperal infections. The streptococcus is the paramount cause of puerperal sepsis. There is probably a virulent and nonvirulent type, the latter often being formed in the vaginae of pregnant and in afebrile post-partum cases. The virulent type may be spoken of as hemolytic and the nonvirulent as nonhemolytic. These two types are not always distinctly separable clinically. Both types were found in the parturient canal before digital examination had been made. Nonhemolytic streptococci are twenty times as prevalent in the secretions of the pregnant as the hemolytic. Hemolysis, however, does not determine the question absolutely of virulence or nonvirulence of the streptococcus. Clinical symptoms alone are not sufficient to establish a diagnosis of puerperal septicemia. Bacteriological examination is also necessary. The finding of the streptococcus, hemolytic or nonhemolytic in febrile or afebrile cases would indicate the necessity of prompt isolation to prevent spread of infection in maternity hospitals. The finding of hemolytic streptococci in the blood is, according to most observers, tantamount to a fatal issue. Hemolytic or nonhemolytic streptococci causing morbidity are not necessarily of exogenous origin. The source may be lack of hygiene. The authors believe that the taking of the opsonic index is too delicate a test for routine work. Vaccine treatment is of value and worthy of further trial. [E. H. R.]

ARCHIV FÜR KLINISCHE CHIRURGIE.

VOLUME 99. PART 4.

34. *SCHEPELMANN, E. *Oil in Abdominal Surgery.*
35. DENK, W. *Clinical Experiences with Free Fascial Transplantation.*
36. PICHLER, H., AND OSER, E. G. *The Immediate Use of Plates after Resection of the Lower Jaw.*
37. *NOGUCHI, T. *The Distribution of Pathogenic Bacteria in the Skin, with Relation to Skin*

38. SALOMON, D. *Fractures of the Upper End of the Tibia.*
39. KAERGER, E. *The Application of Direct Venous Anesthesia by Means of the Smaller Subcutaneous Veins to Operations on the Hand and Foot.*
40. HAYWARD, E. *Three Hundred and Seventy-five Cases of Intravenous Anesthesia.*
41. EBERLE, D. *Practical Use of Local Anesthesia in the Hospital.*
42. MAGNUS, G. *Extension by the Use of Spikes.*
43. HAIM, E. *Appendicular Peritonitis from the Bacteriological Standpoint.*
44. GLASS, E. *Late Results of Removal of the Meniscus after Injury.*

34. Schepelmann found that the injection of oil and of oil containing camphor into the peritoneal cavity of rabbits had practically no beneficial influence on the course of a peritonitis induced later, save to retard by about 24 hours the fatal result. The addition of 25 per cent. of salimenthol to the oil, however, appears to check slightly the inflammatory process in the peritoneum.

37. Noguchi, in Ohrmori's clinic, studied the distribution of bacteria on the hand. He found that practically all the pathological bacteria were on the surface; that even an hour's scrubbing could not entirely free the sweat-glands and deeper layers of bacteria, but these remaining bacteria were saprophytes. The tips of the fingers and the neighborhood of the nails were the most difficult parts to clean.

[G. G. S.]

WIENER KLINISCHE WOCHENSCHRIFT.

No. 50. DECEMBER 12, 1912.

1. RÉVÉSZ, B. *Psychiatric Care on the Battle-field.*
2. OBERMEYER, F., et al. *Demonstration of Uric Acid in the Blood.*
3. BARDACH, H. *A New Possibility of Ligating Blood-vessels.*
4. FALTA, W., AND ZECHNER, L. *A Case of Gout Treated with Thorium.*
5. RUPPERT, L. *A Primary Endogastric Lymphosarcoma.*
6. PACH, H. *The Royal Budapest Society of Doctors.*

Correspondence.

PARIS LETTER.

ON MEDICAL PROGRESS.

(From Our Special Correspondent.)

Paris, Nov. 29, 1912.

I recently went over to the Odéon Theatre to see Molière's "Malade Imaginaire," which was being given in its original form, with the terminal ceremony of the conferring of the degree of doctor of medicine. The Odéon used to be a house of amusement buried in the remote confines of the Latin quarter, and in which the various classical French plays were represented by young débutants from the Conservatoire before sparse audiences of impecunious students. But a few years ago the well-known actor Antoine was appointed director of this government subventional house; and such has been the life and go that this talented man has been able to infuse into the theatre confided to his care, that at the present time he Odéon stands probably as the most interesting house of entertainment in Paris. Next to it can be placed the Opéra-Comique, which is also managed by a very able man, Albert Carré; the Grand Opéra has, however, descended to such a low level, under its present management, that it is just about fit for the society folk that enliven its representations with their small-talk while the Comédie Française has gone gradually but soundly to sleep under the auspices of the venerable Clarétie, who has presided over its destinies for the last thirty years.

It had been a long time since I had seen the "Malade Imaginaire," and I had never seen it given in its original shape, which makes an altogether different affair out of it. This play, written 250 years ago, is renowned in that it was Molière's last, he having been taken ill during the final degree-conferring scene at its fourth representation, dying an hour later. The Théâtre Français still has in its possession the fauteuil used by Molière during that scene, and in which he was taken ill. But in spite of the play's 250 years I was really struck with what might be termed its perpetual youth; humanity has not changed very much, at any rate from a medical point of view, since the latter part of the 17th century, doctors and patients still acting about in the same manner they then did. The usual elements of practice were there: Doctor Cure-all; the credulous patient, terrified over nothing, obedient when in that state, but disputing the bill when quieted in mind; and the confirmed non-believer. Listen to these sentences taken from the third scene of the third act, in which the credulous brother Argan discusses the medical question with the non-believer, Béralde:

B.: "The best proof of the excellence of your constitution is that you have not succumbed to all the drugs they have made you take."

A.: "Then you don't believe in the art of medicine?"

B.: "No, and I don't feel that the salvation of one's soul depends on believing in it. I look on it as one of the greatest follies of mankind, and I know of no more amusing or ridiculous comedy than that of one man undertaking to heal another. The springs of our machinery are mysteries, about which we understand nothing whatever. Physicians know the names of all diseases in Greek, can define them, and classify them; but when it comes to curing them, they know nothing at all. All the virtue of their art consists in giving you terms for reasons, and promises for facts."

A.: What then must a person do when ill?"

B.: "Nothing. Remain perfectly quiet. Nature of itself, if we give it a chance, gets itself quietly out of the trouble into which it has fallen. It is our anxiety, our impatience, that spoil everything; and nearly everyone dies of their remedies and not of their diseases."

Now I leave it to anyone,—could the question be better put today, two hundred and fifty years subsequently? We are very pleased with our exploits, talk complacently about scientific medicine, smile compassionately at the state of darkness in which even our immediate predecessors moved, and think that on the whole we are pretty fine fellows, in a medical way. Yet there are certain thoughts that at once occur to the mind that ought to make us more circumspect. We attempt to treat the sick with very much the same désinvolture that our confréres of Molière's day did,—although there are organs in the body of whose use our knowledge is so elementary as practically to amount to nothing, while those of which we have discovered, let us say the major functions, have still unquestionably minor ones of which we are wholly ignorant. The entire question of internal secretion is yet in its infancy, was practically unknown only a few years ago; and yet the men who taught us medicine, and for many of whom we entertained and still entertain the highest respect and esteem, went through their entire careers without this knowledge. Yet, a capable physician of mature experience, acquired from practice in one of the great cities of the world, told me a month ago that he considered that the entire future of medicine lay in the skillful administration of organic extracts! What then were our masters,—mere charlatans? Again, a very well-known writer at home has put it on record that in his opinion there are still as many diseases that we have not yet been able to detect as those that we

think we know! If this opinion is true, or only partially true, then all we medical men can do is to humble our heads and admit that we are a sorry crew, to attempt to take care of our fellow-beings under such condition as those I have just gone over. However, I suppose we shall go on stumbling along as best we can, striving slowly, very slowly, after light. That our rate of progression is deliberate is evident to the most obtuse; yet there *is* progress, and it is of one branch in which very distinct advance has been made during the last few years that I wish to speak today.

In no other part of the body has there been done such fundamentally good work during the last ten years as in medical disorders of the kidneys. Up to the commencement of our century the classification of renal complaints was a purely anatomo-pathological one, that was of little practical use to the physician; treatment was pretty much the same for all forms.—a milk diet; or the final period of the different varieties of nephritis was called uremia, or urine in the blood, as I take it. All of this has now been radically changed. The old equation: albumen in the urine = milk diet, when the albumen cannot be shown to have a surgical origin, has been altogether abandoned in favour of a more reasonable conception of the question, to the unspeakable relief of the practitioner, who now feels that he has at least some sort of a foot-hold in the matter, whereas he was formerly pretty badly at sea, and to the inestimable profit of the patient. This radical change began with Widal's researches in connection with chloride retention in nephritis, and has been carried on in the study of urea retention by the same author and by a body of other young French scientists, Castaigne, Achard, Jaral, Ambard, etc.; the matter has as yet only begun to be elucidated, but sufficient work has already been done to clear the way and to afford the practising physician definite lines to follow in dealing with these common and always serious disorders.

The kidney being looked on as a filtering organ it has been observed that it can either filter too freely, allow substances to pass that it ought to retain (albumen, for instance), or not freely enough; in the latter case there is retention, which, so far as is now known, takes one of two chief forms: chloride retention, or urea retention, the term urea being used for the nitrogen substances in general. These two retentions are called chloremia, and uremia, and careful note should be made of the fact that in the new classification uremia means urea-retention, and not the terminal stage of any nephritis, which is now called renal insufficiency.

Experience has shown that the cases are many in which albumen exists in the urine for years without any signs of retention, the kidneys otherwise filtering perfectly satisfactorily. Such patients merely require careful watching, and testing at stated intervals; but wide latitude can be allowed them in the matter of diet, to their great relief and profit. Sooner or later, however, retention of some sort makes its appearance, and then the course to be followed depends on what the retention is. The best defined and most typical form of retention, and at the same time the most amenable to treatment and the one in which the prognosis is most favorable, is chloremia. This is the "wet" form, that manifests itself by edema, either of the superficial cellular tissues, of the virtual cavities of the body, or of the interstitial tissues of the viscera; in the first instance we get localized edema, or anasarca; in the second liquid collections in the peritoneal or pleural cavities; and in the third hidden infiltration of the nobler organs, such as the brain, or lungs. As soon as the kidneys show inaptitude to let chloride of sodium pass through them in the usual manner, and this substance increases beyond its normal proportion in the blood, the latter gets rid of it at once by pouring it out into the most convenient cellular tissues, usually the subcutaneous ones. In these tissues chloride of sodium can only be tolerated if it is at a suitable degree of dilution; it therefore attracts to itself enough serum to attain this dilution-point, and this is the origin of renal edema. The pure chloride-retention case is apt to be an acute one, in which the treatment is self-indicated, the chloride-free diet, and in which the results are often very rapid and satisfactory. Since an acute case can often tolerate a heroic treatment, it is sometimes well to put such patients on mere water for a few days, perhaps with the addition of lactose; but when the edema is considerable, and there are reasons for suspecting that the system is in reality water-logged, it is more advisable to turn to a course of liquid-reduction and to put the patient on a salt-free regimen of solids.

These are, then, two main typical forms of Bright's disease: the albuminous, and the chloremic; we now come to a third, the uremic, or "dry" form, in which, when pure, there is no edema whatever, although in its terminal stage it is apt to be associated wih chloremia. As there are reasons for thinking that this form is not known to the generality of practitioners, and as its importance is very great, particularly as a safe basis for a prognosis, special attention is hereby called to it.

The careful studies carried out by Widal, Castaigne and the French school in this question have shown that, differing in this particular from chloride retention, urea and its congeners, when they begin to find themselves held back at the kidney filter, remain in the circulation, in the spinal fluid, or in the fluid poured out into the pleural pericardial or peritoneal cavities, and that its percentage is the same in these fluids as in the blood serum itself. Now experience has demonstrated that the extreme normal limits of this percentage are 0.15 to 0.50 per litre; anything over that is pathological and denotes urea-retention, of which the prognosis is far more serious than chloride-retention. Thus, it is now recognized that a percentage of from one-half to one gramme of urea per liter denotes a condition that is serious, but one in which the danger may still be remote; between one and two grammes it is not likely that the patient will live much more than a year; while over two grammes means that the patient will succumb in a relatively few months or weeks. Now the estimation of this percentage is a simple matter for any chemist, although a little beyond the ordinary physician. All that is necessary is to abstract about ten grammes of serum, either by wet-cupping venous puncture, tapping of a virtual cavity, or lumbar puncture, and send it to the nearest chemist, by mail if necessary; the rest is a mere question of hours. The reason why uremia is so much more grave than chloremia is that it is more of a chronic than an acute state and when once established shows little tendency toward recovery, and that it is not easily influenced by treatment. The diet is here also self-indicated, and can be summed up in the formula glyco-amylaceous. There is a wide range of substances of this sort, and a suitable diet for a uremic patient is more easily established and more readily followed than in chloremia, where the absence of salt is an obstacle not easy to overcome; but in spite of the advantages of the diet and the facility of diagnosis, uremia, when once definitely made, is always a serious matter, and the patient's relations should be duly warned that the outlook for the future is bad.

The fourth and last form of Bright's disease is the cardio-vascular one, which may exist by itself as has long been known, so that it does not seem necessary to refer to it in detail. While these four divisions, which now constitute the classification of medical nephritis, have been spoken of in their autonomous forms, in which each one stands by itself independently of the other three, it is of course evident that in clinical medicine they are more usually encountered in combination. But whether from the point of view of diagnosis, prognosis or treatment they afford the practitioner a tangible and rational basis to work on, and enable us to feel that at last some light has been thrown on this field of medicine which previously was conspicuous for its general obscurity. "S."

Miscellany.

APPOINTMENTS.

PENIKESE LEPER HOSPITAL.—*Dr. James A. Honeij*, of Cambridge, Mass., has been appointed assistant physician at the leper colony on Penikese Island.

ROBERT BENT BRIGHAM HOSPITAL.—*Dr. Charles H. Lawrence, Jr.*, has been appointed assistant physician; *Dr. Richard M. Miller*, assistant surgeon; and *Dr. Lloyd T. Brown*, assistant orthopedist.

UNITED STATES IMMIGRATION STATION.—*Dr. Albert J. Nute*, a native of East Boston, has been appointed assistant physician at the United States Immigration Station, Boston.

RECENT DEATHS.

DR. EVERT JAMES BERGEN, of Washington, Warren County, N. J., died from cardiac disease on December 22. He was sixty-six years old, and was graduated from the medical department of New York University in 1877.

THE REV. ALBERT CARRIER BUNN, M.D., late rector of St. Matthew's P. E. Church at Brooklyn Manor, Richmond Hill, Borough of Queens, New York City, died on December 24 at Asheville, N. C. He was born at Cape Vincent, Jefferson County, N. Y., and was educated at Hobart College, Geneva. He was graduated from the medical department of the University of Buffalo in 1867, and for a time practised medicine in New York State, first at Westford and then at Moris, Otsego County. Under appointment of the Protestant Episcopal Board of Missions, he served as a medical missionary from 1874 to 1879 at Wuchang, China, and while there established St. Peter's Hospital and the Elizabeth Bunn Memorial Hospital. He was the first medical missionary in the Yang-tse Valley District, in the interior of China. Returning to New York, Dr. Bunn studied for the Episcopal ministry, and was ordained to the priesthood in 1882.

DR. JAMES MUNROE DALY, who died in Dorchester last week, was born at Salisbury, Vt., on Dec. 23, 1829. He obtained his early education in the schools of that town and of Middlebury and Bristol, Vt. Coming to Boston in 1846, he studied dentistry in the office of Dr. John Sabine. Dr. Daly began the practise of his profession in this city in 1852, and pursued it continuously for sixty years. In 1870 he received his degree from the Boston Dental School. He was an incorporator and lifelong member of the Boston Dental Society. He is survived by his widow, and by two sons, who are both dentists.

DR. AMOS M. JACKSON, who died on Dec. 25 in Fall River, Mass., was born at Lee, Me., in 1840. After graduating from Waterville College in 1861, he enlisted in the Twenty-fourth Maine Volunteer Regiment of Infantry and served with that command throughout the Civil War. When mustered out in 1867 he was brevetted lieutenant-colonel for gallant and meritorious conduct. Subsequently he studied medicine at the Dartmouth Medical School, from which he received the degree of M.D. in 1873. He was mayor of Fall River in 1898-9. He is survived by one son, also a physician.

DR. WILBUR FISK LITCH, who died last week in Ardmere, Pa., was born in Eastham, Pa., in 1840. He was a graduate of the Jefferson Medical School, and served in a medical capacity throughout the Civil War. Subsequently he graduated also from the Pennsylvania College of Dentistry, of which he became dean in 1903. He was the author of numerous works on dental topics.

DR. EDWARD LEROY OATMAN, a prominent New York ophthalmologist, died from cardiac disease on December 26, at his home in Brooklyn. He was a native of Southbury, Conn., and fifty-nine years of age. Dr. Oatman was graduated from Bellevue Hospital Medical College in 1879, and at the time of his death was attending surgeon to the Manhattan Eye, Ear and Throat Hospital and the Brooklyn Eye and Ear Hospital, and consulting ophthalmic surgeon to the Nyack Hospital and St. Mary's Hospital, Waterbury, Conn.

DR. OMER PILLSBURY PORTER, recently president and councilor of the Middlesex North District Medical Society, died at his home in Lowell, Mass., on Dec. 7, 1912, aged 55 years.

DR. WILLIAM HENRY WATSON, who died on Jan. 1 in Utica, N. Y., was born at Providence, R. I., in 1829. He graduated from Brown University in 1852. He was a founder of the New York State Homeopathic Asylum for the Insane, at Middletown, N. Y.; from 1881 to 1904 a regent of the University of the State of New York; and a member of the advisory board on tuberculosis of the New York State Department of Health.

DR. NATHAN G. WARD, of Philadelphia, died last week at Elizabeth, N. J. He graduated in 1893 from Jefferson College Medical School, and was professor of laryngology and rhinology at Temple University. He was a member of the American Medical Association and of the Philadelphia State and County Medical Associations.

DR. JAMES CHARLES MCKENNA, who died of heart disease last week in Boston, received the degree of M.D. from the Harvard Medical School in 1898. He had practised his profession in this city since that time.

BOOKS AND PAMPHLETS RECEIVED.

Tuberculosis and the Schools by Arthur Tracy Cabot. Reprint.

RECORD OF MORTALITY.

FOR THE WEEK ENDING SATURDAY, DEC. 28, 1912.

CITIES.	Reported deaths in each.	Deaths under five years.	CITIES.	Reported deaths in each.	Deaths under five years.
New York	—	—	Pittsfield	13	5
Chicago	—	—	Waltham	3	1
Philadelphia	—	—	Brookline	7	—
St. Louis	—	—	Chicopee	7	4
Baltimore	—	—	Gloucester	7	1
Cleveland	—	—	Medford	1	—
Buffalo	—	—	North Adams	9	3
Pittsburgh	—	—	Northampton	12	1
Cincinnati	—	—	Beverly	3	—
Milwaukee	—	—	Revere	7	1
Washington	—	—	Leominster	5	1
Providence	—	—	Attleboro	15	4
Boston	224	57	Westfield	3	1
Worcester	54	6	Peabody	—	—
Fall River	34	13	Melrose	2	1
Lowell	50	18	Woburn	6	1
Cambridge	34	5	Newburyport	3	1
New Bedford	24	9	Gardner	6	—
Lynn	19	5	Marlboro	—	—
Springfield	30	6	Clinton	3	—
Lawrence	—	—	Milford	—	—
Somerville	21	2	Adams	2	1
Holyoke	17	6	Framingham	5	—
Brockton	2	1	Weymouth	—	—
Malden	—	—	Watertown	6	1
Haverhill	18	3	Southbridge	2	2
Salem	8	3	Plymouth	2	1
Newton	14	—	Webster	7	3
Fitchburg	7	2	Methuen	—	—
Taunton	15	3	Wakefield	1	—
Everett	4	2	Arlington	5	—
Quincy	—	—	Greenfield	—	—
Chelsea	15	2	Winthrop	4	—

Address.

ANTITOXIN ADMINISTRATION.*

BY WILLIAM H. PARK, M.D., NEW YORK.

I APPRECIATE very much your invitation to deliver this lecture. Harvard, I believe, has the credit of being the first institution to establish a thoroughly developed course in preventive medicine. The subject,—Antitoxin Administration,—was chosen for this lecture because it has both experimental and clinical points of interest.

The two diseases in which antitoxic serums are used are diphtheria and tetanus. The results obtained in the prevention of both infections have been equally brilliant; but as regards treatment, success has been decided in diphtheria alone. Before taking up the administration of antitoxin we will consider briefly a few statistics concerning diphtheria. With the introduction of antitoxin the number of deaths from diphtheria rapidly diminished, not only in one city, but in all cities. This reduction first was due to the lesser mortality in those attacked by this disease, but later the number of cases began to diminish. The extensive use of antitoxin in immunization undoubtedly was an important factor in this decrease in the number of cases.

I have here before me the chart which Dr. McCollom made in 1911 of diphtheria in New York and Boston. For some reason, the figures for Boston in earlier years given by him are somewhat different from those collected. Before the introduction of antitoxin, the old city of New York in each 100,000 of population had a few more deaths than Boston; but with the introduction of antitoxin, the improvement in New York was for two or three years more rapid than in Boston. In 1900, however, Boston overtook New York and since then has had a smaller mortality from diphtheria.

I think the explanation of these facts is, that New York started earlier to produce antitoxin for free distribution. In the fall of 1904, the New York *Herald* raised a fund of $8000 to provide free antitoxin, and this was turned over to the Department of Health. Thus, we were able to distribute free antitoxin in 1895, earlier than other cities. When Boston provided free antitoxin, New York lost this advantage.

During last year, the lowest mortality of both Boston and New York was attained, Boston having 18, and New York 28, per 100,000. For the first two months of 1912, the mortality in New York has been less than that of last year by 20%, so that if this rate continues, it will be only 22 per 100,000. When you remember that in 1893 and 1894 New York had an average of 150 deaths per 100,000, while last year it was only 28, and that this year if the remaining ten months are like the first two, it will be only 22, you see that there is reason for enthusiasm in our further efforts practically to eradicate this disease.

Let us today consider some of the methods of using antitoxin in the immunization against diphtheria and in the treatment of the disease.

The first experience I had with antitoxin was most illuminating. Dr. Biggs was in Europe when Behring and Roux gave the results of their investigations which demonstrated the value of antitoxin, and he cabled: "Diphtheria antitoxin is a success; begin to produce it," and so we purchased two goats and one horse and began. A few weeks later, Dr. Biggs returned, bringing with him what seemed to be a considerable quantity, but which some of you in Boston would give to a single patient. At the time there was an epidemic of diphtheria in the country branch of the New York Infant Asylum, where there were some 400 children under five years of age. For several weeks we had been trying, by cultures, to separate those infected from those who were not; but in spite of this, the disease spread and several new cases appeared every day. When the antitoxin was bought, I suggested that if they would allow us to immunize every child on one day, we would devote for this purpose about half our supply. The plan was accepted and we gave each child 300 units. No new cases developed for ten days and then only one. We immunized again all who had had access to the child, and there was now no case for three weeks, when one developed. We again immunized those in contact and after this there was not another case.

Last summer in the Insane Asylum on Ward's Island an epidemic started through a cook; she died of diphtheria twelve hours after she was known to have the disease. The infection had already spread, so that in the course of the next four days some forty cases developed. After consultation with the superintendent, Dr. Mabon, we decided to immunize immediately the 3000 people on the Island. This was done, and no other cases developed. These two instances demonstrate the possibilities of immunization. In New York City our medical inspectors immunize two people for each one treated.

It is now the common practice to have the children immunized in any family where diphtheria is found, and frequently the adults also. I am sure, that to the immunization, as much as to the treatment of actual cases, is due the fall in the mortality of New York City; so that, instead of an average of 150 only 28 out of 100,000 persons die. The immunization dose advised by the Health Department is 1000 units. This should be repeated in ten days if danger of infection still exists. The repetition is necessary because of the rapid elimination of antitoxin produced in one species, when put in another species of animal.

This is shown in a series of guinea-pigs, each of which received ten units of horse-produced

* Abstract from the Cutter Lecture on Preventive Medicine, delivered at the Harvard Medical School, March 13, 1912.

antitoxin; after seven days there was less than a half unit left, and at the end of 14 days, less than one-twentieth of a unit. On the other hand, the series of guinea-pigs which received 10 units of guinea-pig-produced antitoxin held the immunity much better. At the end of 14 days the animals still contained one unit

Another series of animals received 500 units of horse-produced antitoxin, instead of 10, and at the end of 14 days the guinea-pigs contained but one and one-half units. We thus see that a certain percentage of the antitoxin is destroyed daily, and that the larger the amount given, the larger the amount that remains at a specified time; so that although 300 units will protect a child for ten days, it is better to give 1000 units and thus protect it for from two to three weeks. The animals receiving 500 units had an appreciable trace of antitoxin up to three months. Taking into consideration both the cost and the duration of immunity, 1000 units has been selected as a suitable dose. On account of the difference in size this gives a longer average immunity in a child than in an adult.

The greater duration of immunity obtained in a recipient by the injection of antitoxin produced in the same species is one of the strongest proofs that it is actually a cell-product. This is the reason that passive immunity in man is of short duration. It would be otherwise if the serum came from man instead of the horse.

The possibility of producing active immunity has frequently been considered. Some four years ago, Dr. Smith published an article in the *Journal of Experimental Medicine*, suggesting that it might be practical to immunize the child with mixtures of toxin and antitoxin.

A series of guinea-pigs was given one injection of a toxin-antitoxin mixture, in which the animals received 80 per cent. of the amount of the toxin which a unit of antitoxin was capable of neutralizing sufficiently to prevent acute poisoning. Even with this mixture, 27½ per cent. of the animals finally died, and 12½ per cent. more became paralyzed. The active immunity produced developed slowly but lasted even longer than that produced by guinea-pig antitoxin. The difficulty with the practical application of this experiment is, that when we take a guinea-pig, or a child that has no natural antitoxin, we must approach the danger line in the amount of toxin used to obtain immunity, and we would hardly dare to do this in the case of the child. You may have noticed that active immunity has been produced in man by passing tampons of cotton soaked in toxin into the nose. It is, as described, a somewhat wearisome process, and it is desirable to use it only under exceptional circumstances.

One word about the administration of antitoxin internally. You are probably aware that during the first days of life an infant may absorb antitoxins through the bowels, and even in adult life a trace is absorbed. Of interest, therefore, is the fact that the colostrum contains very much more than the milk, and we have found the colostrum of women who have not had diphtheria to be antitoxic. We believe that infancy is protected from most of the common communicable diseases through this absorption from the colostrum during the first days of life, and that more protection is obtained in this way than through the antibodies passing through the membranes before birth.

To prevent tetanus, we give 1500 units instead of 1000, as in diphtheria, because the tetanus spores entering with the dirt or clothing may survive a long time, and it has been found that a certain number of cases of tetanus developed some 12 to 14 days after severe crushed wounds. When there is risk of the infection continuing in the wound we repeat the injection in 15 days. We have a repetition of immunity when we give the second dose, and can keep up the immunity just as long as desired by reinjecting at two-week intervals. The use of preventive doses has given brilliant results.

As to the treatment of diphtheria, the doses, and the method, I have here statements from a number of authorities. Dr. McCollom, who has had great experience in the successful treatment of diphtheria, states that laboratory investigations cannot help to determine the amount of antitoxin required for treatment, but that this must be decided by observation of results in actual cases. We find, however, that clinical observers differ markedly from each other. For instance, as you all know, here in Boston the tendency is, in light cases, to give from 6,000 to 10,000 units, repeating if improvement does not follow; in moderate cases 10,000 units repeated every six or eight hours; in bad cases from 20,000 units to 30,000 units, repeated every six to eight hours, until a total of 200,000 or 300,000, or even 400,000 units have been given. As to the method of injection, we find that the subcutaneous method is the rule, and the size of the individual is disregarded. In Philadelphia Royer states that in the Municipal Hospital it has been found that from one-half to one-third of these amounts suffice. Koplik, in New York, advises a maximum of 20,000 units. In Germany Baginsky gives a maximum of about 6000 units, and Feer of Heidelberg, 10,000. One of the best pediatrists in New York advises that we be guided by the size of the patient as well as by the severity of the case, and other equally good men give just the opposite advice. Hutinel, of Paris, regulates dose by age, and Ker of Edinburgh, by the intensity of the disease. We find, then, that the most experienced men differ widely as to the amount of the dose, and whether it is to be regulated by the extent of the process, the duration of the disease, or the size of the patient. They also differ on the method of inoculation.

I desire to add a few words concerning clinical observations, before taking up the laboratory results. I am going to impose upon you

by quoting from an article which I published in 1899.

"In June, 1899, we began to give alternate patients larger doses than their fellows, and during the months of August and September, 1900, at the Willard Parker Hospital, one-half the diphtheria patients received 1000 units, and the other half 2000 units. The whole amount was given in one dose on admission. The study of this series was very interesting: 93 diphtheria patients received into the wards during these two months had been discharged, or had died up to October 11. Of those receiving 1000 units, 16.6 per cent. died. (Of 7 intubations, 4 patients recovered; of 2 laryngeal cases not requiring intubation, both recovered.) Of those receiving 2000 units, 13.7 per cent. died. (Of 6 patients intubated, 4 recovered; of 4 laryngeal cases not requiring intubation, 4 patients recovered.)

Therefore, so far as the simple mortality figures indicate, we may say that no marked difference was noted between the 1000 and the 2000 units series.

If we examine the fatal cases we find that in the seven cases of the patients receiving 1000 units, there were two in which the outcome was not so good as we confidently expect when the patient is given sufficient antitoxin.

Patient No 1, for instance, admitted August 30, ten years old, had thick membrane on tonsils and uvula, and had lymph nodes of the neck considerably swollen; he was sick two days, the prognosis was given on admission as good; local improvement was very slow, and on the twelfth day the patient died of lesions due to diphtheria toxin.

Of the seven who died, out of the 51 receiving 2000 units, five seemed to be hopeless on admission. The two remaining did not do so well as might have been hoped from the data given on admission.

In summing up the results of the study of these 93 cases, I should say that the local condition in the moderately and markedly severe cases did not clear up so rapidly with 1000 as with 2000 units; and in two or three cases I believe death would have possibly been avoided by larger doses. I believe also that in several of the 2000 units cases, more rapid recovery would have been obtained by larger doses of from 3000 to 10,000 units.

At the hospital we have tried two other experiments worthy of record. In the first, we gave every alternate patient from 2000 to 6000 units, according to the severity of the disease. The other half received just double that amount. No marked difference in the course and final outcome of the two series was noted. In the second experiment, in order to test a new remedy, no antitoxin was given to one-half of the patients for six weeks. The results were so bad in a considerable number of those not receiving antitoxin, that all were put back on the antitoxin treatment. From these experiments and from observation of other cases, in both hospital and private practice, I was led to adopt the following dosage:

Very mild cases,	1,000 to 1,500 units for the first dose
Mod. severe cases,	2,000 to 3,000 units for the first dose
Very severe cases,	4,000 to 5,000 units for the first dose

Laryngeal patients, according to severity, were given 3000 to 5000 units. After 12 years' further experience, I am inclined to at least double these doses, in order to be on the safe side and cause more rapid recovery. The refining of the antitoxin has removed some of the tendency to cause rashes and has lessened the bulk of the dose, so that about the only objection to larger doses is the cost to the patient or to the city.

In New York City we have two hospitals in which diphtheria is treated. At the Willard Parker Hospital during 1911, 1408 patients had 10,000 units or less, and 140 had more than 10,000 units. Of the latter, 72 had 15,000, 58 had 20,000, and 10 had 25,000 units. The mortality, all cases included, was 17 per cent. The year before, 205 patients received over 10,000 units, and of these 112 received 15,000, and 87 were given 20,000. The mortality was 20.9 per cent. It is interesting to remember that in the year in which larger doses were more commonly given, the mortality, instead of being lower, was a little higher. This is undoubtedly purely accidental, but if the results had been reversed, it might have been considered as evidence of the value of the larger doses. In Kingston Avenue Hospital in Brooklyn, the patients given 10,000 units were 104 in number; 15,000, 41; 20,000, 116; 30,000, 116; 40,000, 62. Of the intubated patients only 8 were given 10,000, 9 received 15,000, 90 received 20,000, 7 received 25,000, and 18 were given 40,000. That is, the doses were almost double in the Brooklyn cases and the mortality was 23 per cent., against 17 per cent. in Manhattan. From all the observations one is impressed with the belief that amounts of antitoxin beyond 25,000 units in a child, and 50,000 in an adult, are absolutely unnecessary and useless; and that an initial dose of 10,000 in a child and 20,000 in an adult is probably sufficient for the whole course of the disease.

THE IMPORTANCE OF GIVING ALL THE REQUIRED ANTITOXIN PROMPTLY AND USUALLY IN A SINGLE DOSE.

Consider for a moment what we expect of antitoxin. We count upon the immediate neutralization of the poison that is circulating in the blood stream, and, soon afterwards, of that in the tissue-fluids. We also have reason to believe that in some degree the poison which by absorption has attached itself to the cells may be modified. You may have seen a recent article by Kraus, in which he states that cells that

have taken up toxin will give this up if they are placed in fluid—free of toxin; and that this occurs more freely if the fluid around them is antitoxic. If he is correct, we have reason for believing that we may remove from the cells part of the toxin which has recently been taken up. Our object, therefore, as quickly as possible, is to get enough antitoxin into the blood to neutralize any toxin present there, so that no further toxin is able to pass out to the tissue-cells. We must also press the antitoxin out into the tissue fluids, and here we remember that the protein antitoxin passes through the capillary walls much more slowly than do the water and salts. The blood of the adult has, moreover, much less antitoxin per cubic centimeter than the child which received the same dose.

On the charts one notes the fact of the slow absorption of antitoxin when given by subcutaneous injection, and that a child or an adult gains from a single injection a greater and greater accumulation in the blood during the first three or four days. The disappearance of the swelling after the injection indicates only the absorption of the water, but not the absorption of the antitoxic globulins and their entrance into the blood.

An infant, for instance, received one injection of 10,000 units of antitoxin. At the end of 12 hours the child had but 1½ units in each c.c. of blood; at the end of 24 hours, 2½ units; in 48 hours, 3½ units; and in 72 hours, 4½ units. The amount slowly increased until the end of the fifth day, when it reached its highest point. I think very few of us really appreciate that what we give subcutaneously as a single injection is being absorbed for days, and that the accumulation of antitoxin in the blood reaches its highest point from the second to the fifth day. In some patients, antitoxin formation goes on rapidly excited by the toxin produced in the diseased tissues, to add its amount to that given. In the chart of such a child we notice at first the usual slow absorption, which by the end of a day is but one-half a unit; suddenly, the antitoxin formation begins, and the child has by the end of the fifth day 60 units in each c.c. of blood, and at least 90 per cent. of this is due to its own production. This was the only child tested which made such a tremendous amount of antitoxin; most children produce comparatively little. In none of the children or adults tested does the blood anti-toxin-content reach its maximum until at least 48 hours; and in none does it drop appreciably until the fourth day. The important fact is, that what we give subcutaneously on the first day is rendering the body fluids more and more antitoxic until the third or fourth day.

WEIGHT AS A FACTOR IN INFLUENCING THE SIZE OF THE DOSE.

If we give two children, one of 40 pounds, and one of 80 pounds, a certain amount of antitoxin, the larger child will have approximately one-half as much antitoxin in each c.c. circulating in the blood as has the child of one-half the size. I think there can be no question that it is chiefly the concentration in the blood and not the total amount which measures the effect. We should recognize the fact that size is one of the important factors in deciding the dose of antitoxin.

As children are more susceptible to diphtheria and are in more danger, we must consider this element also, and give them more than their size would seem to warrant.

Of course, the actual cases will not follow exactly the theoretical amounts, but we find that they run fairly close except when the patients produce considerable antitoxin and thus have an excess.

THE ADVANTAGES OF THE SINGLE INJECTION IN ALL CASES, AND OF THE INTRAVENOUS METHOD IN BAD CASES.

These are the two things which I want to emphasize as possibly tending to a better treatment. The giving of larger doses than are necessary does no harm, except the expense to the city or patient; but an insufficient first dose, and in suitable cases the fact of not giving it intravenously, may be a serious mistake.

There is a great advantage in giving all in one injection, instead of in two to four injections. Two goats were used, one receiving 15,000 units subcutaneously in one injection and the other, four doses of 5,000 units each at intervals of about 8 hours. At the end of 18 hours, we have 12 units in each c.c. of the blood in the goat receiving 15,000 units, and have only 3½ units in the one receiving the divided doses, because only the first portion has had any possibility of being absorbed. It is only at the end of the third day that 20,000 units in divided doses equals in effect the single dose of 15,000 units; and during the first day we have had but one-third the effect. My opinion is that we should give in the first dose all that we think is required for the entire disease; and if we find it necessary to give a second dose, we have misjudged the amount necessary. I am certain that much of the good effect believed to be due to the second and the third doses has been due to the fact of the further absorption of the first dose. As already stated, we are practically eliminating at the Willard Parker Hospital in New York, the second dose, and the results seem as good as at Kingston Avenue Hospital, where the same size initial dose is repeated in later doses. We should keep in mind that we give a thousand times as much antitoxin as is required for the amount of toxin in a case. The great excess is for the purpose of pushing it out into the tissue fluids of the diseased parts and wherever toxin may have passed.

Before closing, I wish to speak of the intra-

venous injection, and to urge it not only in cases of malignant diphtheria but in all cases of tetanus. The difference, during the first day, in the amount of antitoxin in the blood when injected intravenously and when injected subcutaneously, is very great. At the end of six hours, one has with a suitable amount by the subcutaneous method two units, and by the intravenous method 20 units in each c.c. As the hours pass, the one diminishes and the other increases; but even at the end of 24 hours you have 12 units against six units. I feel certain that 5000 units given intravenously has as much effect as 20,000 given subcutaneously. Intravenous injections of refined antitoxin have been made by us in nearly 200 cases and have given no bad results. We have given a large number of children and adults other serums, intravenously, in large amounts, and in all our experience we have had only one patient who showed bad symptoms. In little children one must cut down on the vein, but with adults and larger children it is a very simple method. The serum must always be warmed to blood-heat before injecting. I think that in all cases of septic diphtheria one should give a dose intravenously; but in mild and early cases, it is sufficient to give it subcutaneously. Intramuscular injections are absorbed in about one-half of the time required by the subcutaneous ones, when the serum stays in the muscle-substance; but, in practice, it often escapes.

In tetanus, I have frequently seen the life-saving action of the intravenous injection. I believe it is almost criminal negligence not to give an intravenous injection at the first moment possible. Consider a case of tetanus in which, by the symptoms, you know the most important cells of the body are already affected; is it not foolishness to rely on a subcutaneous injection with its slow absorption? I have urged the surgeons in New York to keep antitoxin on hand, and at the very first sign of tetanus to inject intravenously about 20,000 units of antitoxin. If only a smaller amount is available that should be injected immediately and a larger amount later. Time is more important than quantity. In those cases of continuing rigidity, I confess I advise to go on giving smaller injections every 12 hours for several days, but the more I test the blood in these cases, the more doubtful I am as to the value of repeating the injections. At intervals of 24 hours they keep up the strength of antitoxin. I am sure that a large intravenous injection given within a few hours of the onset of symptoms will save a considerable percentage of patients who would otherwise die. The usual practice after first seeing the patient, is to wait 12 hours in order to be certain of the diagnosis, and then to call at the laboratory to get antitoxin; thus from 12 to 18 hours are wasted. We know that many animals treated within a few hours after the injection of tetanus toxin intravenously by large doses of antitoxin are saved and our experience at the bedside has proved the wisdom of large initial doses. Let us, therefore, combine laboratory results with bedside observations.

Original Articles.

THE IMPORTANCE OF VENEREAL DISEASE.*

BY JOHN H. CUNNINGHAM, JR., M.D., BOSTON.

The subject upon which I have been requested to speak is of far greater importance than is generally attributed to it by the medical profession and I am pleased to have this opportunity to speak about it. In this paper it is my desire to direct attention to the prevalence of venereal disease, especially gonorrhea, to emphasize its social and economic importance and to point out our duty as individuals in handling patients with these diseases.

While I have been requested to speak about the practical side of the care of gonorrheal patients, I cannot refrain at the outset from considering the subject of venereal diseases in general, that we may have a proper perspective in regard to this matter, the importance of which cannot be too strongly impressed upon us.

In the year 1902, at Brussels, there was held the International Congress for the Study and Prevention of Diseases Growing Out of the Social Evil. At this Congress there were men from all the civilized countries who recognized the necessity for acting in regard to the control of venereal diseases, the subject being considered from the moral as well as the medical standpoint. As a result of this Congress there was founded in New York City in 1905 the Society of Sanitary and Moral Prophylaxis. Since then many other branch societies have been established in this country. This society, fathered by Dr. Prince A. Morrow of New York, is a sane body of men who are in a position to get at facts, and is not a body of enthusiastic reformers. It is safe, therefore, to take their findings as a fair statement of the facts. In one of their reports the statement in regard to the prevalence of gonorrhea and syphilis is as follows: "In point of prevalence they vastly overshadow all other infectious diseases, both acute and chronic combined. It is a conservative estimate that fully one-eighth of all human diseases and suffering comes from this source. Moreover, the incidents of these diseases fall most heavily upon the young during the most active and productive period of life. It is a fact worthy of consideration that every year in this country 770,000 males reach the age of early maturity. It may be affirmed that under existing conditions at least 60 per cent., or over 450,000 of these young men will sometime during life become infected

* Read before the East Middlesex Branch, Massachusetts Medical Society, Nov. 21, 1912.

with venereal disease, if the experience of the past is to be accepted as a criterion of the future. Twenty per cent. of these infections will occur before their 22d year, fifty per cent. before their 25th year, and more than eighty per cent. before they pass their 30th year. These 450,000 infections, be it understood, represents the venereal morbidity incident to the male product of a single year. Each successive group of males who pass the 16th year furnishes its quota of victims, so that the total morbidity from this constantly accumulative growth forms an immense aggregate."

The surgeon-general's report for 1911 shows that in our navy there were 7721 men relieved from duty because of venereal disease. This report also states that 123,367 days of service were lost in consequence of these men being infected with venereal disease. In this list gonorrhea and its complications stand first, there being 5349 cases. There were 1409 cases of chancroid, and syphilis stands third in the list, there being 963 cases. This report states that the total enlisted strength of the navy was 56,721, which means that over 12 per cent. of the total force was infected during that year by venereal diseases. This is very significant when it is known that each man returning from leave is required to report to the surgeon and state whether or not he has had sexual intercourse. If so, prophylactic treatment for gonorrhea, syphilis and chancroids is given. Failure to comply with this rule is a punishable misdemeanor. Moreover, officers escape this rule, which makes the percentage of infected individuals still higher.

In our army, for the year 1910, the last report available, the total venereal ratio per thousand was 138, a little over 13 per cent.

Noeggerath (quoted by Morrow) estimates that out of every 1000 married men in New York, 810 have, or have had, gonorrhea, and a great majority of the wives of these men have been infected. While it is impossible to estimate accurately the percentage of individuals infected with gonorrhea, it remains without question that this disease is the most widespread of all diseases affecting the male population.

Morrow estimates that in the city of New York there are 200,000 syphilitics. Gerrish states that syphilis is one of the most common diseases and estimates its prevalence at about 10 per cent. and states that 80 per cent. of the cases in the acquired form occur between the ages of 19 and 35. Fournier in a recent article mentions a series of 30,000 innocent infections of syphilis.

In 1911 I made an attempt to determine the prevalence of venereal diseases in this community. The task I found to be an impossible one because the charity patients are scattered both in respect to the institutions and in respect to the departments in this institution. At the three large genito-urinary clinics in this city, one at the City Hospital, one at the Boston Dispensary and the third at the Massachusetts General Hospital, certain facts were obtained. In the genitourinary department of these three institutions in the year 1911 there were treated 2947 men for venereal disease. These figures do not in any way represent the number of male patients treated at these institutions for venereal diseases and their consequences, many being treated for syphilis in the skin department, some in the medical departments and others in the eye, ear, nose, throat and nerve departments. In the two hospitals, many were operated upon for conditions which were the result of venereal disease and others have been admitted to the medical side of the hospitals for conditions the origin of which was venereal. At the Boston City Hospital, the number of patients with venereal disease treated in the Gynecological Department was 886. If there was no gonorrhea this department would hardly be needed.

No estimate can be made of those with venereal disease who consult a physician privately, I find in the daily newspapers of Boston nine different advertisements which promise cure for venereal diseases. I am informed on good authority that these offices do a very large business, one office making over $50,000 and another over $35,000 yearly for many years. From this it may be seen that a large number of venereal patients pass through their hands. Naturally, we can obtain no data from this source. The fact that these advertisements guarantee to cure must play an important part in the propagation of venereal disease by disseminating a false sense of security.

It is the writer's belief that the interest in syphilis which has been stimulated by the new sero-reaction for the detection of the disease and the treatment of the disease by Ehrich's new drug is going to show a considerably higher percentage of syphilitic infections than before.

One cannot at this time refrain from referring to some of the fundamental facts which are responsible for the prevalence of venereal diseases. At the outset, public opinion based upon traditional usage and false modesty persists in regarding venereal disease as shameful and of immoral origin. Further, it avoids disseminating knowledge respecting their dangers. Facts must be admitted and it is folly to deny the existence of conditions simply because we object to them.

The facts should be known at least to the medical profession, which is not the case. Our instruction in venereal disease in most medical schools is insufficient,—moreover genito-urinary surgeons prefer to discuss less common diseases for various reasons, and therefore the general medical profession is not properly instructed in the commonest disease affecting our population.

Another most important feature of neglect is with our health departments. All other infectious and contagious diseases have received their attention and the results stand as a fitting tribute to their endeavors.

More complex and of greater importance is

the control of venereal disease. The infectious and contagious diseases which are now handled by health departments are diseases which all attempt to avoid. Not so with venereal diseases because they are associated with obedience to one of the strongest laws of Nature. I cannot help but feel, as I stated in a paper read before The Massachusetts Boards of Health Association that the responsibility for the control of these contagious diseases rightly belongs to our health departments and that they should take active measures to correct these evils and not continue to evade this important matter because it is a tremendous undertaking.

The effect of this prevalence of venereal disease is seen constantly by the medical profession. These diseases not only injure the individual physically, but mentally and morally. It may make its victim sterile. It is carried into the family, producing disease in the wife and may result in an impairment of the production of the offspring by sterility, or miscarriage. The children born of parents with venereal disease are often defective. These diseases may result in permanent invalidism of the child from the date of birth, or an inherited taint may be transmitted by it to future generations. Those with venereal disease are a menace to the health of the community because they spread the disease to the innocent and because a certain percentage must be supported by the state. That serious consequences result from infections of gonorrhea and syphilis, against which infections no organized precautions are taken, does not need to be exaggerated to emphasize the important rôle which these diseases play in the welfare of the individual and the community.

The report of the American Society of Sanitary and Moral Prophylaxis states that the effect of these diseases introduced into marriage are not measured alone by the danger to the life and health of the mother, but are still further manifest in the danger to the offspring. Fully 80 per cent. of the ophthalmia which blots out the eyes of babies, and 20 per cent. to 25 per cent. of all blindness is caused by gonococcus infection. Syphilis is the only disease which is transmitted to the offspring in full virulence. Its effect upon the product of conception is simply murderous. Sixty to 80 per cent. of all infected children die before being borne or come into the world with the mark of death upon them. Those that finally survive—one in four or five—are the subject of degenerated changes and organic defects which may be transmitted to a third degeneration.

Gonorrhea is seldom mentioned as a cause of death but while the mortality from this disease, *per se* is practically *nil,* the number of deaths indirectly from this cause is large. The extension of the disease to the seminal tract in the male, and to the genital organs of the female, and the ultimate migrations of the infecting organism to the bladder and possibly the kidneys, to the synovial joints, and the brain and heart, all may contribute indirectly, and in some cases directly to death. It is stated by Valentine that 80 per cent. of the women who die from diseases of the reproductive organs are killed by gonorrhea.

What is true of gonorrhea is also true of syphilis. This disease likewise kills indirectly by involving other structures. The lowered vitality, in consequence of a chronic disease such as syphilis, is responsible for a susceptibility toward other diseases which may result fatally.

The worst effects of gonorrhea and syphilis manifest themselves chiefly in producing lesions which result in physical impairment. Blindness and involvement of joints are a frequent sequence of gonorrhea, and paralysis and insanity commonly follow syphilis. Gerrish states that of all the blindness in this country 15 per cent. is traceable directly to gonorrhea and that from one-half to two-thirds of the cases of ophthalmia neonatorum are of gonorrheal origin. Valentine states that 80 per cent. of the blind in the charitable institutions, have lost their sight by gonorrheal infections during birth. The American Society of Sanitary and Moral Prophylaxis states that 80 per cent. of blindness in children is due to gonorrhea and 20 to 25 per cent. of all blindness is caused by this disease

Sever states gonorrhea is followed in over 10 per cent. of the cases by joint involvement usually monarticular in one-half of all cases, which may come on during any stage of the disease even when it has been latent for a long period of time. Foci existing in the prostate, seminal vesicles, uterus, tube and ovaries may light up at any time and cause joint symptoms.

In the second annual report of the Committee on Prophylaxis of Venereal Disease it is stated that in this country gonorrhea is responsible for 66 2-3 per cent. of sterile marriages, the condition of the male organ being responsible for one-third and those of the female for two-thirds. It is believed that more than 40 per cent. of the barrenness and childless marriages is due to gonorrhea produced by a stenosis somewhere in the male seminal apparatus. Benzla, who investigated the number of officers in the German Army who had had gonorrhea, found that 10½ per cent. of those who had the disease without epididymitis were childless, while of those who had unilateral epididymitis, 23.4 per cent. were childless, and of those with bilateral epididymitis 41.7 per cent. were childless. Leigeois found in 28 patients with double epididymitis that there was a complete absence of spermatozoa in 21. Neisser states that 50 per cent. of all involuntary childless marriages are due to gonorrhea of the female genital organs. Kehran found in 96 sterile marriages that 45 per cent. were due to gonorrheal infections of the female generative organs and 30 per cent. to absence of spermatozoa in the husband. Hagner states that he has found in unfruitful marriages that the husband is the sterile member in about one case in six.

Brothers states that he examined 72 husbands of childless women and found 50 who were responsible for the sterility. Chrolak places the percentage of sterility due to the effects of gonorrhea in the female at 40 per cent., Kammerer at 83 per cent., and Gruenwald at 53 per cent. Lier and Asch found 221 women out of 227 sterile from the same cause.

Abortion, the result of venereal disease, is common and exerts an important influence in connection with the depopulation. Morrow, in this connection, states that 42 per cent. of abortions and miscarriages are to be ascribed to syphilis. He states that the statistics of European observers show from this cause a mortality of 60 to 61 per cent. in private practice and 84 to 86 per cent. in public hospitals. Fournier mentions 90 women of the better class who have been infected with syphilis by their husbands, becoming pregnant in the first year of married life. Of these 50 per cent. miscarried, 38 gave birth to children who died soon after, and only two had children who survived. Williams attributes 73 per cent. of all abortions to be due to inflammations of the cervix and uterus. Noeggerath found that 19 women out of 53 who became pregnant in the course of gonorrheal infections, aborted. Fiuhinsholz notes 101 pregnancies occurring in women affected with gonorrhea, out of which there were 23 abortions and seven cases of premature labor. I have tried to obtain information relative to this from the maternity hospitals in this community but without satisfactory results.

That syphilis is responsible for a large percentage of the cases of hemiplegia, general paralysis and tabes, is generally recognized. Many authorities believe that general paralysis and tabes have no other etiological factor and their belief is substantiated by finding a positive Wassermann or Noguchi reaction in the blood of cerebrospinal fluid of all cases.

To determine the amount of insanity due to syphilis and the cost to this state of maintaining such cases, I made an investigation of the conditions in the various insane hospitals in the year 1909 and found that the total cost to the state per day of maintaining the inmates who are in these state institutions for unquestionable syphilis is $300.24, the total cost to the state during the year is $109,587.60. This percentage of syphilitic patients does not represent the number of inmates who are at these institutions for a remote effect of syphilis. The percentage of positively syphilitic patients was 3.75 per cent., while those with the remote effects of syphilis, such as general paralysis, tabes, etc., brought the percentage up to over 10 per cent., so that if we include these cases the cost to the state per year is in the vicinity of $300,000, and as a matter of fact is probably higher. Time prevents me from mentioning more than a few facts in connection with the economic importance of venereal disease. It is undoubtedly true that these diseases are constantly producing invalids who must be supported by the state. Children are being born of venereal parents, a certain percentage of whom are defective and must be cared for. The money for maintenance of institutions for these unfortunate individuals is raised for the most part by taxation. In an attempt to cure we are all contributing money which could be better invested in prevention. It is impossible to figure the cost to the state and to the cities in this state for the care of hospital, ambulatory, and house cases which apply to the numerous charities for treatment because of venereal infection. In syphilis and gonorrhea we have two of the most universal diseases, a proportion of one syphilitic to 100 of gonorrhea. These two diseases are exerting an important influence in the depopulation of the human race. A mortality of from 60 to 86 per cent. takes place among the offspring of syphilitics; sterile marriages result in about 50 per cent. of the cases where either parent has been affected with gonorrhea, are also in frequent abortions, which are facts of importance to all interested in genetics. These diseases result in chronic invalidism which impose a tax upon the community. The distressing feature from an economic standpoint is that millions of dollars are spent yearly in this country for the care of venereal patients and almost nothing spent in its prevention.

In view of the lack of combined effort to control the spread of venereal disease it becomes more an individual moral duty to make ourselves proficient in the recognition and care of venereal patients.

The general subject is so large that the following practical consideration will be confined to gonorrhea alone. What we desire to know is whether or not gonorrhea is curable; the means we have of deciding this matter; and what our attitude should be in regard to allowing patients who have been infected with the disease to marry.

It is not generally agreed as to what constitutes a cure of gonorrhea. The medical man who has little interest in the disease often dismisses his patients as cured with the disappearance of the discharge, and sometimes even before the discharge disappears entirely, assuming the appearance of a clear urine containing a few shreds sufficient reason for doing so. On the other hand, we have a group of men who assert that gonorrhea is a hopelessly incurable disease. Here then is a great divergence of opinion upon a most important matter. The conclusions which I personally hold in regard to this subject have grown out of a deep sense of appreciation of the distress which comes from error; and the great responsibility which we have in our decision of this question.

There is one fundamental rule. No case of gonorrhea is cured until the genito-urinary tract is freed of the last gonococcus. So long as a living organism remains anywhere in the tract, the patient is in danger of an outbreak of

the disease. There are cases of gonorrhea which get well in a remarkably short period of time with or without treatment. On the other hand there are patients with gonorrhea, well treated, who never get rid of the disease entirely. The explanation of this diverse course of the disease is, I believe, due chiefly to the structures involved by the organism, yet there is much regarding the bacterial fauna of the urethra which we do not as yet understand,—moreover, recent investigations have shown that there are several different strains of the gonococcus in relation to virulence and the recent investigations in regard to immunity have shown a varying degree of individual resistance, which facts may contribute to our understanding of the varying course of the disease.

The infections involving only the mucous membrane of the anterior urethra has the most favorable outcome. When, however, the infection penetrates the lacuna magna, the glands of Letré, and extends back into the deep urethra, involving Cowper's gland and its ducts, the prostate, uterus masculinus, the ejaculatory ducts and ampulla of the vas, the seminal vesicles, the vas deferens or the epididymis, or when the disease extends into the urinary apparatus, as it occasionally does, involving the bladder, ureters and the kidneys, then the prognosis regarding a cure is less favorable and in some instances absolutely bad.

The situation is briefly this: A patient who applies for treatment for an anterior urethral infection of short standing, who responds to treatment and who in due course of time has no discharge and a clear urine with a few shreds, and who after a few months of normal living has no return of symptoms, is usually cured. These shreds, however, may arise from follicles or patches in the anterior urethra which harbor the gonococcus. If one employs due care, these shreds should be examined at least five different times for the organism, both by teasing them apart, staining and examining with the microscope and also by cultures. I personally never discharge these anterior cases with shreds without their being examined at least five times, and also examining the anterior urethra with the endoscope. If infected follicles or patches remain in the urethra they are treated until they entirely disappear. Also these anterior cases are never discharged as cured even when the urine is clear, with or without shreds, until the prostatic secretion is examined for pathological elements or organisms for at least three times. In many instances, when the symptoms and signs are referable only to the anterior urethra we have found the gonococcus and the products of inflammation in the prostatic secretion many times, and we will not discharge these cases as cured until there are at least three negative findings at intervals of a fortnight apart. These cases, however, are the simple ones.

The difficult cases are those in which the acute symptoms disappear, but there remains a drop of purulent or sero-purulent discharge at the meatus in the morning or a sealing together of the lips retaining some inflammatory product in the urethra, or the slight muco-purulent moisture which persists at all times. These cases, often of months and possibly of years' duration, are the cases which tax the patient and the physician who has not the knowledge or facilities to determine the location of the pathological lesion, and who is therefore unable to institute appropriate treatment. Even in the hands of those most skilled, these cases improve slowly as a rule.

The important point in connection with these cases is to locate the lesions from which the secretion arises. Briefly stated, the procedure is as follows: A microscopic examination is made of the secretion from the meatus, which examination may reveal organisms and cells which will give some clue to its origin. The gross and microscopic examination of the urine passed into several glasses may form the character of its transparency and the type of shreds and microscopic findings be of help in this connection. The physical examination of the urinary tract will often disclose important information. Strictures or deep infiltrated follicles may be felt by palpation of the urethra. A slightly enlarged Cowper's gland harboring a chronic inflammation may also be detected by this means. Palpation of the testicle, epididymitis and cord is of importance. The prostate and seminal vesicles should be palpated with reference to equality of size, shape, surface, consistency, and tenderness. The secretion from these two organs should be collected in a clean glass dish held at the meatus during the massage of the prostate and vesicles and examined microscopically for the products of inflammation and organisms. Here I would like to speak of a great fallacy common in the profession. Their knowledge of the condition of the prostate usually depends solely upon palpation of the organs. The prostate like the kidney is a secretory organ, and we should no more pass an opinion upon the condition of the prostate simply by palpation than we should by palpation of the kidneys. The prostate secretion should be examined microscopically as carefully as is the urine before any knowledge of the condition of the gland can be positive. The massage of the prostate and vesicles should always be done with bladder containing urine; the vesicles will contain material from these structures which should be subjected to centrifugalization and microscopic examination. This material will often contain organisms when all other secretions have been negative.

The anterior urethra should be endoscoped to determine the presence or absence of lesions. According to the findings of the already mentioned procedures it may or may not be necessary to endoscope the deep urethra to learn the condition of the mucous membrane, the pros-

tatic ducts, the uterus masculinus and the verumontanum. It is realized that these procedures are employed only by experts, but I desire to point out the fact that it is necessary to learn the location of the lesion in order to treat the patient properly and also to emphasize the uselessness of continuing to treat these cases by anterior injections, which is so commonly done. There is one helpful thing which I can state in connection with these patients with a small amount of persistent discharge. The greatest number have the lesion located in the follicles of the prostate, and if by the theory of chance the only lesions are here located, benefit will be obtained by regular and properly performed massage of the prostate and injecting urinary antiseptics into the deep urethra. If we are to proceed on this theory of chance, as many must do, it is of great importance to render the anterior urethra clean by injection of an antiseptic solution, such as permanganate, before passing the prostatic syringe into the deep urethra, for if lesions exist in the anterior urethra the deeper structures may be infected by carrying the product of inflammation backward by the prostatic syringe.

Time prevents me from more than mentioning a few facts in connection with gonorrheal infection in the female. As all know, the gonorrheal process in the female usually starts in the urethra, where it is often controlled by treatment without further extension, yet in an investigation of this matter which we have carried on in the past year, we have found that in 84 patients with symptons or reasons to believe that they had been infected with gonorrhea the organism recovered in the urethra in 35. We found also, however, that in these 35 positive urethral cases the organism was present in the vagina and cervix as well. Of the remaining number not positive in the urethra, there were two positive in the vagina and cervix.

When the infection reaches the cervix, the organism may be arrested in the cervical glands giving rise to endo-cervicitis, the organism frequently not being recoverable or demonstrable in smears, yet the individual occasionally infecting others. When the extension of the process reaches the uterus and Fallopian tubes, exacerbations of acute symptoms, often of serious consequences, are common, and the patient cannot be free from the disease except by surgical interference.

As a practical matter, I would suggest that in examining the females, the smear be taken from the urethra, the patient not having passed water for at least an hour, or longer; that smears be taken from the vagina, and from the cervix by means of introducing a platinum loop of short distance into the canal.

The subject of treatment is so extensive that it is impossible to more than make passing hints as we consider the matter of whether or not gonorrhea is curable, which is the subject now under consideration. Briefly stated, the cases of simple anterior gonorrhea are curable. When the prostate, seminal vesicles and other adjacent deep structures are involved the cure may be obtained by diligent and expert treatment. In some instances, however, a cure can never be brought about. When these deeper structures are once infected, recurrences of the symptoms with the organisms are not uncommon, and we have records of such patients who have had recurrences after a period of many years of quiescence. In one patient we have demonstrated the gonococcus in the epididymus following an infection eight years previous. This patient had repeated recurrent attacks of epididymitis for which epididymotomy was performed, at which time the organism was recovered. Hagner, who introduced this operative procedure, has demonstrated the gonococcus in the epididymus many times, often after an infection of years' standing.

It becomes necessary now to decide what we are to do to determine whether or not the individual male patient is free from the disease or not. Our procedure is as follows. Examination of any secretion at the meatus. The prostate and seminal vesicles are examined by rectal palpation and massage is performed with a full bladder. If the patient has no urine in the bladder it is filled with sterile water or salt solution. The material obtained from the prostate and vesicles is subjected to microscopic examination for the product of inflammation and the gonococcus. The fluid in the bladder is then passed and collected and will contain bits of material not expressed from the meatus by massage. This fluid is centrifugalized and examined both with and without staining. Before the patient can be considered cured, the examination must be negative at intervals of a fortnight for five successive examinations, the patient meanwhile leading his customary life; drinking alcoholic liquors, if it is his custom or intention to do so later, and if he contemplates marriage, it is suggested that he may have sexual intercourse with a condom. In other words, he is instructed to lead the sort of life that he desires to lead in the future. If, after five consecutive fortnightly examinations the findings are negative, he is instructed to report for another test in one month. I feel that by this degree of care we have done all that it is possible to do in deciding this matter, and even then the responsibility of the future must be borne by the patient, with the statement that we have done all that we can do to decide the matter; that the evidence is in favor of a cure but that a recurrence will never take place cannot be promised.

I find that the great majority of patients who have had any inflammation of the genito-urinary tract usually carry shreds in the urine for many years and if these shreds contain no organisms, as previously mentioned, they may be disregarded. Yet in discharging a patient with

shreds, it is always impressed upon him that he should pass his water before intercourse and that his wife should use an antiseptic douche immediately following a sexual act. It is also suggested, especially if a patient has had no sexual intercourse during the period of tests, that he wear a condom for six months after massage and then return for another examination. The wearing of a condom in any questionable case is the safest procedure, for if recurrences are to take place no harm will have been done. There is a test upon which much investigation is now going on known as the "complement-fixation test" for the diagnosis of gonococcic infection. This test consists in the examination of serum of patients who have been infected with the disease, and promises much in the decision of whether or not chronic discharges from the urinary tract are due to the gonococcus or other causes. A positive reaction of this test is regarded by the laboratory investigator as an indication of living gonococci somewhere in the body. Considering, however, the high percentage of positive results obtained in clinically cured cases after many years' freedom of symptoms, the results at present can hardly be taken as a means of making a positive decision in regard to marriage. This work may, however, as time goes on, prove of much value in this important matter.

In closing, I hope that I have impressed the facts that venereal diseases are extremely prevalent; that the attempts to control it are neglected; that we have therefore a certain moral duty in connection with it; and that we should use our influence wherever possible to have our Boards of Health aid us in deciding the matter of cure by a willingness to make bacteriological reports of secretions, if in no other way.

Society of American Bacteriologists.—The meeting held in New York, December 31, 1912, and January 1 and 2, 1913, was one of the most successful the Society has ever had, both in general interest, as evidenced by the large attendance at each session, and in the importance of the papers presented. The following officers were elected: President, Prof. C. E. A. Winslow, American Musuem of Natural History, New York City; Vice-President, Prof. Charles E. Marshall, Massachusetts Agricultural College, Amherst, Massachusetts; Secretary Treasurer, Dr. A. Parker Hitchens, Glenolden, Pennsylvania; Council, W. J. MacNeal, L. F. Rettger, D. H. Bergey, H. A. Harding; Delegate to Council of American Association for the Advancement of Science, Prof. S. E. Prescott.

THE RELATION OF ACCIDENT AND INJURY TO PULMONARY TUBERCULOSIS FROM A MEDICO-LEGAL POINT OF VIEW.

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One of the commonest questions that our courts have to decide is that based on personal injuries and their effects, immediate or remote. The remote effects may be directly connected with the injury itself, such as nerve paralysis following a wound, or they may be due to the development of some other disease or pathological condition which might, and often does occur, quite independent of any preceding injury, and which may, or may not have arisen because of the preceding injury or its debilitating effects. Tuberculosis is one of the diseases which often occurs in this way. While it is well known that tuberculous infection is the rule rather than otherwise, it is equally well known that it may strike down a person apparently in the best of health. In the majority of cases, however, some cause which makes for a lowered bodily resistance can be found, be this an inherited weak constitution, poor living conditions, a dangerous trade, or some previous illness or accident. One often sees examples of this reported after the autumn football season in the daily papers, according to which some player is said to have developed consumption as a result of injuries received on the football field. More and more often, suits are brought to court in which the question must be decided as to whether pulmonary tuberculosis, developing after some injury, was a direct result of this injury or not. In view of the frequency of questions of this nature, we have ventured to discuss this subject, illustrating it with cases in some of which one of us (J. B. H.) has been directly connected.

The superintendent of the North Reading Sanatorium, Dr. Carl C. MacCorison, in looking over the histories of patients at that institution, approximately 175, found 6, in whose own minds at least, a previous injury had led to the subsequent lung affection. These cases are in brief:

Case 1. F. C. This patient was examined at the Massachusetts General Hospital in June, 1910, as a matter of routine, and was told that his lungs were in perfect condition. He was in good health at the time and continued so until February 12, 1911, when, in a fight, he was hit on the chest, fell forward and was unconscious from the blow and the fall. A week later glands in the neck swelled rapidly, and in March, 1911, pulmonary tuberculosis was found in his lungs.

In this case there seems no reason to doubt that the pulmonary and glandular tuberculosis developed as a result of this patient's injury.

CASE 2. A. C. This patient, now 29 years old, in the spring of 1893, when ten years of age, fell off a wagon and broke his left shoulder blade and collar bone. The bones did not knit well, and a second operation was necessary. He was confined to bed for three months and could do no work for one year. In 1899, at the age of 16, he was sick all spring and summer with a suspicious illness and was fed on eggs, milk, etc., but the doctor did not call this tuberculosis until two years ago.

In this instance the time between the injury and the development of tuberculosis seems far too long and the chain of evidence too incomplete to justify the conclusion that the consumption resulted from the previous injury.

CASE 3. E. S. This patient at the age of 14 years, broke his collar bone playing football. Good health followed until he was 21 when he had what was called typhoid fever. In July, 1912, he was examined and found to have consumption.

Here again, although the patient seems to feel that his original injury had something to do with his present condition, there is not sufficient evidence to justify any such conclusion.

CASE 4. J. McD. In 1893 this man was thrown off the running-board of a car and dislocated his left shoulder. He was sick one month. He remained in good health until ten years later when tuberculosis developed.

CASE 5. B. P. This patient, when a young boy, fell off a roof and injured himself about the chest. Tuberculosis developed ten years later.

CASE 6. M. L. In 1905 he fell forty feet while painting and injured himself most severely. Six years later he developed consumption.

In these last three cases there is no evidence to show any connection between the injury and the later development of tuberculosis.

Cases of tuberculosis following chest injuries are not uncommon. In such cases the train of events is usually so clear as to leave no doubt as to the part played by the injury as the direct or proximate cause of the subsequent tuberculosis. So far as the question of recovery of legal damages is concerned, it is immaterial whether the injury has led to a definite infection with tuberculosis or has awakened an old latent process. Thiem reports the case of a mason who fell and fractured his skull. On examination at this time his lungs were found to be normal. He recovered from the injury, but during convalescence developed a pleurisy which turned out to be tuberculous. The same author reports the case of another man who was struck in the side by a heavy box. Six months later he had a hemorrhage and developed consumption. The following case is a striking example of pulmonary tuberculosis developing after a chest injury.

CASE 7. S. P. H., officer Metropolitan Park Police. Prior to October, 1908, this man was in excellent health; in fact, he had never had any serious sickness in his life up to that date and was in appearance one of the strongest men physically in the entire force. In October, 1908, while doing duty on a motor cycle in the Middlesex Fells District, he met with an accident in endeavoring to avoid collision with a small boy. He lost control of his motor cycle, was twisted round and round on the highway several times and hurt his right side severely. Another officer arrived shortly, stopped the engine and helped him up. He began coughing immediately and raised some blood and continued that night and the next day to raise blood. His right side pained him for a long time, and he never really felt as well as before the accident. From the date of the accident up to March, 1909, his general symptoms were a slight cough, occasionally raising blood, and constant loss of weight and strength. He was not obliged, however, to give up duty until March, 1909, when he stayed at home for one week and consulted a physician, who treated him from time to time during the period from March, 1909, to August 20, 1909, but told him that he did not have tuberculosis. Between August 20 and August 30, however, he was examined by three specialists, who reported that he had tuberculosis of the right lung, which disease began to develop rapidly from that time. On September 3, 1909, he went to the Rutland State Sanatorium for treatment, remained there eight months, returning to duty May 1, 1910. He worked in the station at Middlesex Fells until May 30, when he was taken sick and confined to his bed, and on June 27, 1910, he applied for a pension. During this last sickness he was advised by physicians to go to Colorado. This he did. The condidition and progress of his disease is such that it is not expected now that he will live very long.

The Metropolitan Park Commission asked one of the writers (J. B. H.) to decide as to whether or not this man should receive a pension on the basis that his present condition as a consumptive was directly due to the original accident which occurred while he was on duty as an officer. In view of the fact that previous medical examination and testimony of others had shown that he was not suffering from any disease of his lungs or elsewhere, but rather that he was an exceptionally strong and healthy individual, it seemed clear that his present sickness was directly due to the accident and that he should receive a pension on this account. This opinion was given to the Board and a pension granted accordingly.

The second class of cases, when the injury is not to the chest itself, but to another part of the body, offers problems far more difficult of solution. The following case is a striking example of this:

Case 8. J. L. Age, 22; female; married. Previous to the accident this patient had been examined numerous times in the course of minor illnesses by her family physician and was found to have perfectly sound lungs. In September, 1909, while leaving an elevated car her hand was jammed in the sliding door and severely crushed. The patient was immediately taken to the Boston City Hospital where it was found that a miscarriage had taken place. After careful treatment for this at the hospital she returned home; flowed off and on for two months and did not regain the usual health and vigor which she had enjoyed prior to the accident. She was under the constant care of her family physician and given good medical treatment. Four months later, in January, 1910, she developed a cough and in March, 1910, was found to have pulmonary tuberculosis and was sent to one of the State Sanatoria. The process in her lungs still remained active, and in December, 1911, at her last examination, bacilli were still present in the sputum.

One of us (J. B. H.), who had been called in consultation in this case, testified at the trial that in his opinion the pulmonary tuberculosis was directly connected with the original accident. The jury awarded damages to the patient, and later the Supreme Court affirmed this verdict.

Recently the Supreme Court of Minnesota* gave damages for the death of a man from pulmonary tuberculosis who had suffered a severe accident eight months prior to his death. He was then 43 years old, in perfect health according to a good medical evidence, weighed 188 pounds and was a big, robust man. He received a severe head injury with considerable shock and concussion, as a result of which he was confined to the hospital for one month. He continued to lose steadily in health and strength and soon developed consumption, from which he died eight months later. The defense argued that pulmonary tuberculosis often attacks men of robust health and kills them. The Court, however, believed that the evidence was sufficient to sustain a finding that the injuries suffered were the proximate cause of this man's death; he further stated that, although these questions are often obscured by technical learning, they are usually questions of fact for the jury, to be solved by the exercise of good common sense in the consideration of the evidence in each particular case.

In a somewhat similar instance in which a man developed valvular cardiac disease, subsequent to an open wound of his leg and the accompanying sepsis, the judge instructed the jury that the test of the relation of cause and effect was not whether the condition ensuing after an accident was a common, ordinary one, but whether it does not sometimes follow, and, as a matter of common knowledge and experience may be expected sometimes, probably in rare cases, to follow such an injury. This ruling was later approved by the Supreme Court and the man was awarded damages.*

Chief Justice Knowlton states the difficulty in these cases thus: "The question is often difficult to decide whether an unusual condition is the active, efficient, and proximate cause of a subsequent event, or is only a producer of conditions which open the door to another cause which directly and actively produces the result."† No definite ruling can be laid down according to which these cases can be decided. They are bound to occur frequently, and in the case of pulmonary tuberculosis, more and more frequently, as the public gains knowledge in regard to this disease. A physician, when called to give evidence, or to decide any such instance, should carefully weigh the facts and decide accordingly.

* Healy vs. Hoye (Minn. 132, N. W. R. 208).

* McGanahan v. N. H., N. H. & H. R. R., 174, Mass., 211.

† Daniels v. N. Y., N. H. & H. R. R., 183, Mass., 393.

Clinical Department.

CHRONIC FOCAL SUPPURATION OF THE HEAD WITH GENERAL SYMPTOMS, ESPECIALLY IN ADULTS.*

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This paper and the following cases are presented for your consideration, with no claim that any new theory is being advanced, but because the author believes that such infections are constantly being observed by every practitioner in medicine in whatever department, and that the results lead to invalidism and often death if not detected.

The clinical picture may be that of chronic arthritis, peri- or endocarditis, adenitis, tuberculosis, nephritis, pleurisy, erysipelas, myalgias, indigestion, neuralgia, skin manifestations, general sepsis, etc., but the focal infection or portal of entry of the invading organism is becoming more definitely known by confirmatory observations from many investigators.

During the last decade and particularly during the last two years, many observers have reported cases of acute infection with involvement of the serous membranes, where the invading organism obtained entrance by way of the lymphatics of the throat, notably Waldeyer's ring, which includes the faucial, lingual and pharyngeal tonsils as well as the follicles in the pillars and pharyngeal wall, among whom are Libman, Apolant, Kretz, Gerhard, Holmes, Perigord, Dock, Hanot, Hedaeus, Jessen, Richardieu, Lermoyez, Metzner, Mayer, Rosenberg, Leyden, Morse, Jeppel, Kraske, Mayer, Trumbull, Joal, Fraenkel, Heubner, Bahrdt, Babes, Stephanides, Finger, Halstead, Loeb, Thompson, Rosenheim and others.

* Read before the York County Medical Society at North Berwick, Maine, October 10, 1912.

These cases have for the most part occurred under puberty, with the symptoms active and apparent as an acute follicular tonsillitis, with the attendant fever, pain and circumscribed white patches, indicative of such local process.

The following cases differ, first, in that they are for the most part chronic infections. Second, the clinical manifestations are those of a general disease. Third, they may primarily or secondarily have their atrium in Waldeyer's ring. Fourth, they occur in adults. Fifth, they are manifest as acute exacerbations of a chronic process with slowly progressive physical incapacity extending over a term of years; during this time they may or may not endanger life. Sixth, the active invading organism as observed by Dwyer and Gijnoux, Davis, Lemoine and others, is usually some form of streptococcus either alone or associated with a variety of other bacilli. In all cases the path of infection is by way of the lymphatics.

In the first case to be reported the portal of entry was through the tonsil. Here the lymphatic vessels drain into the superficial cervical glands, first at the angle of the jaw and then beneath the sternomastoid muscle into the deeper chain. Quoting from Halstead, the anastomosis is so free of the lymphatics of the vessels and glands in the neck, that any and almost all of them, superficial and deep, anterior and posterior, may become invaded and involved in the infection that has reached out from the tonsil. Absorption takes place into the tonsillar substance through the intercellular spaces of the epithelial lining of the exposed surfaces and of the crypts. The bacilli then enter the lymphoid tissue of the tonsil, where they are likely to be destroyed by the leucocytes, unless this tissue, through local disease or constitutional debility, be unable to overcome the invader. The healthy tonsil is then probably a protection against the deeper invasion of the pathogenic microorganisms which infest the mouth. When, however, the tonsil becomes diseased, as evidenced by hypertrophy and enlargements, or the crypts become filled with cheesy concretions, showing a diseased condition of the mucous membrane lining the crypts, the tonsil invites invasion of pathogenic germs, and instead of being a barrier, becomes an aid to their absorption into the deeper glandular structures.

CASE I. 1912. March 29. Dr. O. C. S. D. 56 years old. Physician. Born in Maine.

Family History.—Mother alive and well at 84. One brother and one sister well. Father died of angina pectoris at 74. One sister died at 26 of acute rheumatism. One brother killed by accident.

Past History.—Rheumatic fever at 12 years. Pneumonia at 13 or 14. Grippe at 38. Some digestive disturbance while abroad at 39, gas pressure, no colic or jaundice. Otitis media followed cold and sore throat at 50. Eighteen months ago patient had muscular pains and lameness following a hard cold. Had more cold and was in bed with pain and lameness similar to present in muscles. (Does not remember about throat or jaundice.) Bed two weeks.

Present History.—Had follicular tonsillitis Christmas week and felt a little below par till the middle of January, 1912. January 15 felt a little prostrated and January 17 felt so sick that he went to bed. Had sore throat, pain in the muscles and a day or two later was jaundiced. Temperature up to 102° and had some fever for two weeks. Jaundice cleared up. Pain was in the muscles of his legs, arms and chest and required opiates once or twice a day. Hurt to take a long breath. Face not puffy. After two weeks pain and soreness slowly abated and patient sat up in a chair. Throat sore while in bed. Some cheesy material was expressed from tonsils. Had more pain whenever the throat was sore. Four weeks ago had throat examined and pronounced negative so far as general symptoms were concerned. Yesterday throat felt a little sore. Has been getting slowly better, but muscles are stiff and weak. Gets out of chair with difficulty and cannot dress himself alone. Has pain in shoulders on lying down. No dyspnea. Appetite good. No cough. Ankles swell slightly at times. (Wife says for years he has had mild attacks of something similar to this attack.) No nocturia until lately.

Habits.—Bowels fairly regular. Takes a little soda phos. Tea, one or two cups. Tobacco, none. Alcohol, none. Diet: Breakfast, grape fruit, two eggs, dry toast, one cup coffee. Dinner: Chops, small potato, two vegetables, two baked apples and occasionally a little custard, cup of coffee. Supper: Fish, prunes, bread or potato, one cup tea. Water, seven glasses besides tea or coffee.

Pulse 96. Blood pressure, systolic 150. Diastolic 120. Mitral regurgitant murmur with slight dilatation.

March 29, 1912.—Patient was first seen by the writer. Physical condition poor and walks like a case with lumbago: stooping, with muscles of back held rigid. Patient could not take his coat off alone and is very weak.

History confirmed as above. Nasopharynx normal. Mucous membrane not injected. Sinuses negative. Left ear shows e. f. f. o. m. s. Pharynx and mucous membrane of tonsils normal. Cryptic disease however was present on careful examination, and a half teaspoonful of clear pus was expressed from the left tonsil, showing an enclosed abscess. Right tonsil contained cheesy detritus.

Treatment.—Operation with complete enucleation of the tonsils was recommended. Patient had urgent business that he felt required his return home first, so that the crypts were freely opened with Leland knives and washed out with the hope that he might escape another acute attack until arrangements could be made for him to enter the hospital. He was also advised to use an alkaline gargle combined wtih peroxide. On his return home he had an acute exacerbation, so that it was May 3, before both tonsils were enucleated under ether at 38 Newbury Street. Muscular atrophy was present in the shoulders and upper arm, requiring massage, and the patient was sent into the suburbs to take gradual exercise.

May 1.—B. C. 4,260,000. H. 68%. Weight 147½ pounds. Nineteen days later, May 22, B. C. 5,040,000. H. 82%. Weight 156½ pounds. Left arm muscles very good after exercise. Right less improved. Appetite good. Walks two to three miles a day. Is some lame after exercise but feels well.

Dressed fully this A. M. alone for the first time since January. Jaundice has cleared up.

October 1.—Patient has resumed his practice and now takes long drives without fatigue. Considers himself well.

So far as any one can judge, this patient would have been a hopeless invalid in another six to twelve months.

Case II. Oct. 30 1911. F. S. T., born in England, 44 years old, single. Occupation, butler.

Past History.—Ten years ago a spur was removed from his right nose. On the third day there was pain in the right ear, followed by discharge. Twenty-four hours later pain in the left ear, for which he consulted his aurist, who succeeded in preventing suppuration. One month later the patient noticed considerable throat irritation accompanied by cough for which he consulted a well known lung specialist who examined the sputum for T.B. with negative result, but thought that he detected a small area of consolidation in the apex of the left lung and advised that he spend the winter in California, which he did. During the next six months the patient lost 10 pounds and had a distressing cough, especially in the morning. With warm weather his condition improved, but recurred in the early fall. Sputum was again examined and found negative. Physical signs in the chest remained the same and he returned again to California. On returning east in the spring, he improved during the summer and had a return of his symptoms in the fall. Examination by the same specialist with the same results. This time he went to Colorado and returned east in the spring unimproved. The succeeding years showed a steady increase in the cough, which was accompanied by thick tenacious sputum, often followed by retching. This was marked at night and early morning and patient was twenty pounds below weight. There were frequent exacerbations with a slight rise of temperature which were thought to be grippe. There was vertigo on stooping and asthmatic breathing with buzzing tinnitus in the right ear. With the exacerbations there was throat irritation, for which he was frequently treated. Patient normally weighed 180 pounds, but he was now emaciated, shoulders stooping, face flushed, breathing asthmatic with muscular weakness and a persistent cough. Following one of these attacks he was seen for the first time by the writer who obtained the above history.

Local examination of the nasopharynx showed a slight purulent discharge between the right middle turbinate and outer nasal wall. Septum deflected to the right in upper third. Left ethmoid bulla enlarged and turbinal shrunken. Postnasal discharge passes down right side of pharynx through Rosenmueller's fossa, accounting for the condition of the right ear. Bad taste in the mouth in the morning. No local tenderness or headaches. Right antrum dark by transillumination.

Treatment.—A trocar was passed into the right antrum and a large quantity of foetid purulent discharge was removed. Patient was sent to a private hospital but during the night developed a temperature of 101° with persistent cough which he said was similar to previous attacks. There were mucous râles over both lungs and pain in the left chest. Operation was delayed a week and four sputum examinations were made by his physician with negative results. He also thought that there was trouble in his left lung.

November 17.—A radical operation on the antrum through the canine fossa was performed and the whole antrum was found lined with a thick pyogenic membrane, which was removed and the cavity packed. The cough immediately stopped. The patient regained his normal weight and has remained well. The pain in the left chest also disappeared.

An analysis of the above case shows an acute infection ten years ago following the removal of a spur from the right nose. This caused an acute otitis media on the right, and then on the left side. It is also probable that the right antrum was involved at the same time, accompanied by a post nasal purulent discharge, which caused his cough and the frequent acute exacerbations were attended by fever, pain in the chest and systemic involvement which had extended over this long interval.

Case III. Nov. 4, 1911. Mrs. G. W. A., 34 years old, American, married, two children.

Past History.—Patient well nourished, 140 pounds. Has had measles, whooping cough and scarlet fever. Tonsillitis every winter, (cryptic). Grippe three times. Abscess in the right ear one year ago with slight discharge since of a few drops. Occipital headaches accompanied by many nervous symptoms, dyspepsia, vertigo and sensitive areas over the scalp have been present for a year during which time she has been under the care of her family physician.

Examination.—Chronic suppuration of the right ear, very slight in amount. No external discharge. Adhesion of the margin of a large posterior perforation to the promontory. Through the perforation some cheesy looking material could be seen coming from the attic and on being teased a large cholesteatomatous mass was removed. The nasal septum was deflected to the right and a horizontal ridge extended through the inferior meatus. There was a postnasal discharge and cryptic tonsillar disease.

It was explained to the patient that the condition of the ear probably accounted for her headaches, vertigo and dyspepsia and that they were dangerous symptoms, and a radical mastoid operation was advised. This was performed under ether anesthesia and on removing the cortex and entering the middle ear the tegmen was found perforated and the dura exposed. The ear had probably discharged longer than the patient thought. A skin graft was introduced on the seventh day. Her recovery was uneventful and her symptoms disappeared.

This history is one very commonly obtained by aurists in which a slight discharge from the ear is considered of no importance by the patient and often times by the physician until suddenly serious symptoms portend invasion of the meninges or sinus thrombosis, and where the patient is treated for headache, indigestion or vertigo on general principles.

Any moisture from the ear must result in granulations, blocking free drainage, followed by the danger of pressure necrosis and exposure of the dura. This may go on without active

symptoms, until suddenly the patient's life is in danger.

CASE IV. Aug. 12, 1912. H. M., 43 years old, married. German descent. Wholesale clothier. Was referred by Dr. A., who gave me the following history. First seen by Dr. A. June 26, 1912, referred to him by an orthopedist.

Family History.—Father died of pneumonia at 59; duration, 10 days Mother died at 61. Shock, lived five years after with hemiplegia and aphasia. Three brothers, two sisters. Two brothers died at about 50 years. One from shock. The other had some spinal trouble, accompanied by severe pain in the head and back. Duration two to four years. Three sisters dead. One died at about fifteen from heart failure. Two others died at about fifty, apparently from cancer. One paternal uncle was said to have had gouty rheumatism. Two of his brothers are said to have had similar gouty attacks.

Past History.—When patient was twenty years old, he was treated for syphilis by Dr. U. Had a local sore and had had gonorrhea before. Does not remember any secondary lesions. Treated three years until discharged. Knows of no sequelae. First attack of gout was a year or two before or after his specific disease. Does not remember which. At that time it was all in the joint of his left big toe. Was free from attacks for fifteen years; then had recurrence and attacks have been more frequent of late. Had orchitis. Abscess opened near rectum. Seventeen years ago was in New York and was laid up four months. Fourteen years ago something was removed from inside of the eye. Has been operated for gall-stones and appendicitis.

Examination.—Patient 5 feet 11½ inches. Weight 185¼ pounds. Pulse 84, regular and rhythm good. Heart and lungs negative. Blood pressure 150. D. 90. Abdomen negative. Pupils react sluggishly, but O. K. Knee jerks normal. No tophi in ears. Mucous membrane of mouth and throat normal. High arch and peculiar formation of palate. Eyes tend to converge. Patient says they were always so. Right elbow has been effected but shows nothing definite. Chief trouble was in the tip of the ulna process. Both big toe joints are swollen and stiff. Right looks red. Exostoses (or tophi) on back of both os calces. Wears plates. Habits steady since marriage 13 years ago. Smokes six to seven cigars a day. Uses moderate amount of alcohol. Coffee twice daily. General health good. Bowels regular. Sleeps well. Urine examined several times with negative results. For past five years the trouble with his feet has been almost constant. At first it was confined to the big toe joints, which were red, swollen and very angry. Later it has effected other joints of his feet and also the right elbow. Has two or three severe attacks a year with other more moderate attacks. Last severe attack was three weeks ago and his feet were much swollen and painful. Was under the care of an orthopedist one and one-half years and fitted to plates. July 23 had a slight attack and Dr. A. notes that it is a question whether this was gout or an effection from the throat, affecting the most susceptible joints. Has been on treatment and a purin-free diet which was continued. July 30 had an uncomfortable week.

Aug. 5 had pain and swelling in left wrist and hand, which were red and swollen. Does not know whether he had a focal infection; awoke with severe pain.

Aug. 13 was seen by the writer and in addition to the above history the patient recalled that he had had a peritonsillar abscess on the right side thirteen years ago. Since that time he has had the above gouty attacks and during the last year there has been much muscular soreness with increasing frequency; also days in which he felt dozy, languid and depressed. His joint attacks were becoming more frequent and he was often laid up for from one to three weeks.

Examination.—After close questioning he remembered that his muscular soreness and joints attacks were preceded by slight sore throat, but not marked. Nares negative. Mucous membrane, pharynx and tonsils, normal in appearance. Tonsils enlarged but do not project beyond the pillars. No cryptic disease found or history of follicular tonsillitis. After repeated examinations a deep abscess was found in the right tonsil with a small opening from which was expressed one-half teaspoonful of clear pus. The right ear shows the effects of an old abscess. Tonsillar enucleation recommended.

August 21.—Tonsils removed under ether. This was followed by a pronounced reaction with swelling of hands and right foot and slight discharge from right ear. Tonsils covered with a heavy exudate. Patient was much prostrated and lay with his hands supported on a pillow. The pain and muscular soreness was pronounced. He was confined to the hospital and his house for three weeks.

September 17.—Patient had an attack in his hands and feet without involving the big toes; more transient and pain less severe.

December 28.—Patient has not been entirely free from pain in his right knee and instep since the operation, but has had no pain in the toe joints. No muscular soreness. Has been to his business daily for two months. Has regained his normal weight and feels better than for some time.

It is too early to draw definite conclusions. The case may be one of combined gout and infectious arthritis. But it is reasonable to suppose that so much free pus was a factor in the etiology of the myalgia and arthritis in many of his attacks and was probably a sequel of his peritonsillar abscess thirteen years before. The abscess was situated deeply so that there were no surface indications of chronic congestion but the toxic material was thrown directly into the lymphatics of the neck.

CASE V. Oct. 10, 1907. E. W., 10 years old. Goes to school. Irish American. Referred by Dr. E.

Past History.—Measles. Scarlet fever. Frequent attacks of cryptic tonsillitis. During the last two years has had dyspnea following the acute attacks and for a year has been out of school most of the time. Would begin to gain when she would have a slight sore throat, followed by shortness of breath and weakness which would confine her to the house for from one to two weeks. Her attacks were becoming more frequent.

Family History.—Negative.

Examination.—Physical condition poor. Color bad, round shouldered and she comes up stairs slowly on account of difficult breathing. Nares negative. Vault clear. Tonsils enlarged and show cryptic disease, especially the left. Cervical adenitis on both sides. Has seen two throat specialists who refused to operate on account of her general condi-

tion. Lungs negative. Urine normal. Fifteen pounds below weight. Heart enlarged with a mitral systolic murmur. Anemic. Digestion poor.

Treatment.—It was explained to her parents that she would probably die if nothing was done and that the throat infection was so clearly connected with the endocardial exacerbations, that removal of her tonsils might help her, but operation was not urged. It was consented to and under ether anesthesia both tonsils were removed as rapidly as possible. Bleeding was not profuse and the convalescence was normal. Six months later Dr. E. reported that she had gained fifteen pounds, was having no dyspnea and was symptomatically well.

Case VI. May 5, 1909. A. H., single, female. Domestic. Born in Ireland. Age 26 years.

Family History.—Grippe four months ago slightly. Indigestion. Measles at nine years. Catarrh for five years since coming to this country. Head colds often. Sneezes and has anterior discharges with odor and loss of sense of smell. Is 20 pounds below weight. Easily tired and finds difficulty in retaining her position on account of the odor from the nose. Four years ago history of right pleurisy for a week. Cheeks frequently flushed and feel hot. Digestion poor. Menses normal. Has cough especially in the A. M with expectoration and the general appearance of tubercular disease.

Family History.—Father died at 74 of apoplexy Mother died at 54 of tumor. Two brothers and three sisters well. Mother and one sister had goitre.

Examination.—Nares covered on both sides with a thick crust, that can be removed en masse with nasal forceps, showing underneath a foetid purulent discharge over the entire outer wall. Both turbinates showed chronic suppurative ethmoiditis present. The pharyngeal wall looked glazed and both sphenoids showed bare bone.

March 21, 1910.—Report from the Boston Consumptives' Home showed lungs negative. No T.B. in sputum and no reaction to the tuberculin test.

Treatment.—Both ethmoid labyrinths were exenterated and the anterior wall of the sphenoids removed.

This was one of my early cases of ozena and it was nearly a year before the patient was cured. She has now regained her normal weight, has no odor or discharge, and uses no nasal wash. Indigestion, hectic cough and malaise have disappeared and she has been free from symptoms for a year.

Case VII. Feb. 13, 1910. G. C. S., female, married. American. 53 years old. Born in Maine.

Past History.—Diphtheria at 12 years. Ptomaine poisoning 20 years ago. Follicular tonsillitis often. Has days in which she feels drowsy with disinclination to attend to her household duties and slight sore throat with white spots.

Family History.—Negative.

Three weeks ago while in the country she noticed a swelling in the right neck under the jaw. The swelling varies, apparently goes down and then reappears. With the disappearance of the swelling, the mouth seems to have increased secretion. Feels fuller on the right side (inside the throat), but no pain. Has been examined by three surgeons, who all agreed that there was obstruction in Wharton's duct or within the submaxillary gland and recommended an external operation.

Examination.—Nares and vault of pharnyx normal. Sinuses negative. Two crypts in the right tonsil contain cheesy detritus. On the lateral wall on the right side of the pharynx, fine radiating red lines pass from one large lymph follicle, which is enlarged for an inch downward, and from which free pus can be expressed. Right Wharton's duct normal. Right submaxillary gland very large and hard.

Treatment.—Pharyngeal follicle was opened on a grooved director downward to its base. Surface curetted and touched with 95% carbolic acid. Five days later all swelling had disappeared from the submaxillary gland.

This case shows the importance of examining the lymphoid tissue in the follicles as well as the larger glands as possible portals of infection and explains many cases of acute exacerbations of arthritic disease where the tonsils have been removed, and where the patient still complains of sore throat.

Case VIII.—Sept. 12, 1901. C. N. S., female, 53 years old. Married. Born in Maine.

Consulted the writer for a subacute attack of erysipelas of the left side of the face. October 2, there was a second attack of the same side and subacute in character. There was a history of left supra-orbital pain at intervals during the preceding two years, becoming more frequent.

Examination.—Right nares negative. Left showed a polypus between the left middle turbinate and outer wall. Myxomatous tissue around the naso-frontal duct and some crusting obstructed the drainage. Patient admitted having used her finger to remove the crusts.

Treatment.—Polyp removed and myxomatous tissue about the duct. Drainage improved. No recurrence during the last eleven years.

Prof. W. H. Welch in a communication to Dr. C. R. Holmes of Cincinnati in 1907 says that in his opinion streptococcus erysipelatis cannot be distinguished by any properties, morphologic, cultural, or pathogenic from streptococcus pyogenes and practically all authorities in bacteriology consider the two identical. It has been a well known fact clinically that in the absence of any obvious source of free pus from the ear, sinuses or throat in so-called ideopathic or medical erysipelas of the face, that a source of infection is often found in some erosion of the nares, more often on the septum, where the crust can be infected by the finger of the patient.

CONCLUSIONS.

Every infection must have some portal of entry. Bacteria do not invade normal mucous surfaces.

The path of infection, being by way of the lymphatics, it is obvious that we should examine carefully the glands and lymph follicles through or from which the infection must come; also the teeth and sinuses of the head. This is more important in adults than in early life in the case of the tonsillar tissue as its resistance is low-

ered from the fact, that if not the seat of a chronic hyperplasia it would long ago have disappeared. Also the blind closure of the crypts lends itself readily to the formation of enclosed abscesses during the process of retrograde metamorphesis, when its resistance to infection is lessened. A small amount of tonsil tissue entirely concealed behind the anterior pillar and when seen innocent in appearance may be but the shell of such an abscess. On the other hand, it may lie deep in the space between the superior constrictor and the tonsil with only a small sinus tract communicating with the surface, so that the focal reaction is only manifest in the deep cervical lymphatics and pus may not be detected without grasping the glandular tissue with strong forceps.

The nasopharynx, now recognized as the beginning of the respiratory tract from peculiarities due to developmental processes or from injuries and its relation to the activity, as well as retrograde changes in the large lymphoid masses in the vault of the pharynx, and fauces, and from the large number of bacteria which it harbors, which may become pathogenic, is being found more often than formerly supposed to be the foci of many obscure general systemic conditions.

FRACTURE OF THE FIFTH METATARSAL BONE BY INVERSION OF THE FOOT.

BY WM. PEARCE COUES, M.D., BOSTON.

ROBERT JONES[1] in 1902 was the first surgeon to recognize and describe this injury. Until his personal case and others reported by him were described, fracture of this metatarsal by indirect violence was supposed impossible.

Cotton and Sylvester[2] and Cotton[3] added to our knowledge of this subject by reported cases in this JOURNAL in 1902 and 1906, six cases in all.

Cases have since been reported and the fracture is now given special reference in most modern surgeries. At the same time the fracture is little known generally, often unrecognized and even unheard of by surgeons not paying special attention to fractures, so that an additional case seems of interest to report.

Mrs. R. D., 50 years, weight 167 pounds, was seen August 2, 1912. The history, which is typical of this injury, was as follows:—

While walking in some meadow land this morning the left foot slipped in a slight hollow. The foot was inverted, and the patient for a brief period bore the weight of her body on the inverted foot. There was immediate pain and disability, though not extreme. The patient walked with difficulty. Examination that afternoon showed the following:—

A well developed and nourished, rather stout woman. The dorsum of the left foot is slightly swollen, but the swelling does not extend to the malleoli. There is no synovitis demonstrable, and no ecchymosis. Examination of the tibia and fibula regions show nothing abnormal. Weight bearing on the injured foot is possible but extremely painful. Palpation over the base of the fifth metatarsal bone is very painful. No crepitus or abnormal mobility found. Foot partially immobilized temporarily, and rested in pillow splint. The x-ray showed a fracture of the base of the fifth metatarsal, almost transverse, with no displacement. Foot put up in plaster. Crutches. August 22, plaster removed. Slight callus only. Crepitus plainly felt for the first time. Uneventful recovery from injury.

Mechanism of the Fracture.—The foot is inverted with the heel off the ground, as pointed out by Jones. The body weight is momentarily supported by the foot in its cross diameter, bringing a great cross strain on the lowest or fifth metatarsal bone.

Importance of the Recognition of the Fracture.—The manner of the accident, precisely that of most sprains, will lead to that diagnosis, particularly if there is nothing found in the tibia or fibula regions. Careful examination of the metatarsal regions should be made. Exquisite pain on only moderate pressure upon the base of the fifth metatarsal is pathognomonic of the injury. The treatment calls for no unusual methods. The diagnosis of the injury from sprained ankle is the important point.

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BRAIN TUMOR. OPERATION. AUTOPSY FINDINGS.

BY E. D. BOND, M.D., AND A. H. PEABODY, M.D.,

Danvers State Hospital Contributions, No. xxvi.

TWO CASES.

IN the records of the one hundred autopsies just completed at the Danvers State Hospital, 1501-1600, appear two cases of cerebral tumor upon whom operations were done at Boston hospitals. One a glioma, one a melanotic sarcoma, they illustrate difficulties of localization and present an interesting contrast in accompanying mental states.

AUTOPSY 1588. Married woman, white, age 42. At 39 she had three operations for the removal of a small tumor "just under the right scapula." The pathologist's report on the material from the last operation at the Massachusetts General Hospital was "Rapidly growing carcinoma." At 41 a hard irregular lump was removed from the margin of the right breast. Surgical diagnosis, "Melanotic sarcoma"; pathologist's report, "Tuberculosis or cancer." Examination of the left breast at this time disclosed a soft, fluctuant, movable tumor.

Seven months after this last operation she began to suffer from severe headaches, impairment of eyesight, slight nausea. Twelve months after, she entered the Massachusetts General Hospital showing

choked discs, paresis of the left seventh nerve, eyes prominent, pupils normal, absent knee-jerk on the right, Babinski on left. After a week a decompression operation was done, the lower Rolandic area right being exposed. The brain was under great pressure, and bulged through the opening, but otherwise nothing abnormal was found. Some relief of symptoms followed operation, but eleven days later paralysis of the left arm and leg appeared. Becoming delirious, she was transferred to this hospital about seven weeks after operation. Here ex-

Microscopical examination of the nodule under Nissl's stain showed large cells in alveolar formation; the nuclei were large with mitotic figures. Some of the cells contained a deep brown pigment, and scattered through the area was a small amount of pale brown pigment not confined to the cells. Surrounding the alveoli appeared an intense proliferation of glia.

The small "hemorrhagic areas" showed often no hemorrhage but groups of the large pigmented cells shown in Fig. 1.

RACTURE OF FIFTH METATARSAL BONE.—COUES.



Fracture of fifth metatarsal by inversion of foot. Patient of 50. Aug. 2, 1912.

Autopsy was permitted on the head only.

Post-mortem the left pupil measured 7.5 x 6 mm., with the long diameter horizontal. The right pupil was almost round, and 7 mm. in diameter.

Immediately below the area of decompression, in the right post-frontal and parietal region, was a large area of softening. In the left frontal III was a firm nodule 1 cm. in diameter, and scattered throughout white and gray matter were "hemorrhagic areas," over a hundred in number, and varying from 1 mm. to 4 cm. in diameter. The larger of these were soft and filled with clotted blood; the smaller were firm.

Examination here showed a left hemiplegia, sluggishly reacting pupils, the left knee-jerk greater than the right, a left ankle clonus and variable Babinski reaction, complete astereognosis of left hand. The ophthalmoscope showed absence of the disc outline on the left, and a less cloudy disc right. Wassermann reaction on the blood was negative. He was restless, had frequent involuntary crying spells and changed often from a state of clear orientation to one of confusion.

Death followed a severe general convulsion on Nov. 2. On autopsy a tumor mass, microscopically glioma, began in the right precentral convolution

ered from the fact, that if not the seat of a chronic hyperplasia it would long ago have disappeared. Also the blind closure of the crypts lends itself readily to the formation of enclosed abscesses during the process of retrograde metamorphesis, when its resistance to infection is lessened. A small amount of tonsil tissue entirely concealed behind the anterior pillar and when seen innocent in appearance may be but the shell of such an abscess. On the other hand,

Mrs. K. D., 50 years, weight 161 pounds, was seen August 2, 1912. The history, which is typical of this injury, was as follows:—

While walking in some meadow land this morning the left foot slipped in a slight hollow. The foot was inverted, and the patient for a brief period bore the weight of her body on the inverted foot. There was immediate pain and disability, though not extreme. The patient walked with difficulty. Examination that afternoon showed the following:—

A well developed and nourished, rather stout woman. The dorsum of the left foot is slightly swollen, but the swelling does not extend to the malleoli. There is no synovitis demonstrable, and no ecchymosis. Examination of the tibia and fibula regions show nothing abnormal. Weight bearing on the injured foot is possible but extremely painful. Palpation over the base of the fifth metatarsal bone is very painful. No crepitus or abnormal mobility found. Foot partially immobilized temporarily, and rested in pillow splint. The x-ray showed a fracture of the base of the fifth metatarsal, almost transverse, with no displacement. Foot put up in plaster. Crutches. August 22, plaster removed. Slight callus only. Crepitus plainly felt for the first time.

At 39 she had three operations for the removal of a small tumor "just under the right scapula." The pathologist's report on the material from the last operation at the Massachusetts General Hospital was "Rapidly growing carcinoma." At 41 a hard irregular lump was removed from the margin of the right breast. Surgical diagnosis, "Melanotic sarcoma"; pathologist's report, "Tuberculosis or cancer." Examination of the left breast at this time disclosed a soft, fluctuant, movable tumor.

Seven months after this last operation she began to suffer from severe headaches, impairment of eyesight, slight nausea. Twelve months after, she entered the Massachusetts General Hospital showing

choked discs, paresis of the left seventh nerve, eyes prominent, pupils normal, absent knee-jerk on the right, Babinski on left. After a week a decompression operation was done, the lower Rolandic area right being exposed. The brain was under great pressure, and bulged through the opening, but otherwise nothing abnormal was found. Some relief of symptoms followed operation, but eleven days later paralysis of the left arm and leg appeared. Becoming delirious, she was transferred to this hospital about seven weeks after operation. Here examination showed a left hemiplegia, sluggishly reacting pupils, the left knee-jerk greater than the right, a left ankle clonus and variable Babinski reaction, complete astereognosis of left hand. The ophthalmoscope showed absence of the disc outline on the left, and a less cloudy disc right. Wassermann reaction on the blood was negative. He was restless, had frequent involuntary crying spells and changed often from a state of clear orientation to one of confusion.

Death followed a severe general convulsion on Nov. 2. On autopsy a tumor mass, microscopically glioma, began in the right precentral convolution

Autopsy was permitted on the head only.

Post-mortem the left pupil measured 7.5 x 6 mm., with the long diameter horizontal. The right pupil was almost round, and 7 mm. in diameter.

Immediately below the area of decompression, in the right post-frontal and parietal region, was a large area of softening. In the left frontal III was a firm nodule 1 cm. in diameter, and scattered throughout white and gray matter were "hemorrhagic areas," over a hundred in number, and varying from 1 mm. to 4 cm. in diameter. The larger of these were soft and filled with clotted blood; the smaller were firm.

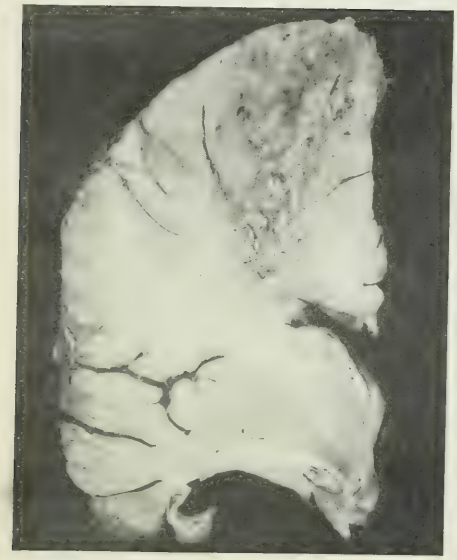
Microscopical examination of the nodule under Nissl's stain showed large cells in alveolar formation; the nuclei were large with mitotic figures. Some of the cells contained a deep brown pigment, and scattered through the area was a small amount of pale brown pigment not confined to the cells. Surrounding the alveoli appeared an intense proliferation of glia.

The small "hemorrhagic areas" showed often no hemorrhage but groups of the large pigmented cells shown in Fig. 1.

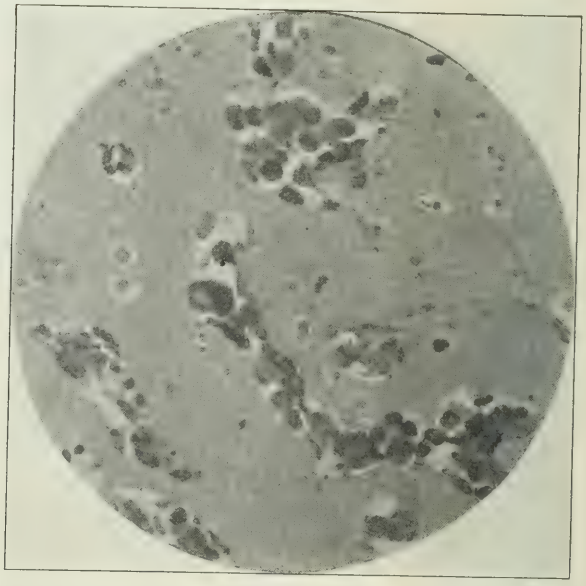
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no ecchymosis. Examination of the tibia and fibula regions show nothing abnormal. Weight bearing on the injured foot is possible but extremely painful. Palpation over the base of the fifth metatarsal bone is very painful. No crepitus or abnormal mobility found. Foot partially immobilized temporarily, and rested in pillow splint. The x-ray showed a fracture of the base of the fifth metatarsal, almost transverse, with no displacement. Foot put up in plaster. Crutches. August 22, plaster removed. Slight callus only. Crepitus plainly felt for the first time.

BRAIN TUMOR.—BOND AND PEABODY.



1520. Glioma.



1588. Cells of melanotic sarcoma in brain. Zeiss 4 mm. Projektionsoc. No. 2.

seen August 2, 1912. The history, which is typical of this injury, was as follows:—

While walking in some meadow land this morning the left foot slipped in a slight hollow. The foot was inverted, and the patient for a brief period bore the weight of her body on the inverted foot. There was immediate pain and disability, though not extreme. The patient walked with difficulty. Examination that afternoon showed the following:—

A well developed and nourished, rather stout woman. The dorsum of the left foot is slightly swollen, but the swelling does not extend to the malleoli. There is no synovitis demonstrable, and

At 39 she had three operations for the removal of a small tumor "just under the right scapula." The pathologist's report on the material from the last operation at the Massachusetts General Hospital was "Rapidly growing carcinoma." At 41 a hard irregular lump was removed from the margin of the right breast. Surgical diagnosis, "Melanotic sarcoma"; pathologist's report, "Tuberculosis or cancer." Examination of the left breast at this time disclosed a soft, fluctuant, movable tumor.

Seven months after this last operation she began to suffer from severe headaches, impairment of eyesight, slight nausea. Twelve months after, she entered the Massachusetts General Hospital showing

choked discs, paresis of the left seventh nerve, eyes prominent, pupils normal, absent knee-jerk on the right, Babinski on left. After a week a decompression operation was done, the lower Rolandic area right being exposed. The brain was under great pressure, and bulged through the opening, but otherwise nothing abnormal was found. Some relief of symptoms followed operation, but eleven days later paralysis of the left arm and leg appeared. Becoming delirious, she was transferred to this hospital about seven weeks after operation. Here examination showed hemiplegia, R. hemianopia, absent knee jerks, Wassermann negative in blood and in cerebro-spinal fluid, which was under great pressure.

For the first time the mental symptoms were discovered and grouped, and found to form a curious prelude and accompaniment to the physical appearance.

At 34, five years before the first (skin) tumor was noticed, she was "excited for three or four days, threatened to jump through a window, but talked rationally." She said that something drew her toward the window, but that she "resisted the temptation of her own accord." At 36 she told her husband that she couldn't keep away from the sink where the carving knife was and felt like cutting her throat. At this time she began to feel drowsy, a symptom which continued for the next six years.

At 39 the patient claimed that "a greenhead had bitten her on the back." At the place she indicated in this way the skin tumor was found and excised. From this time to the decompression operation, a period of about two years, which included the three operations on the skin, the later breast operation, many visits to hospitals and doctors, no mental symptoms were noticed by the husband and family, or the attending physicians, except the continuing tendency to drowsiness. A week before the decompression, at the worst of her suffering, the examiner's note is "intelligent," "no evidence of aphasia." Nine days after the operation, but after much morphia, she expressed delirious ideas; "thought she was out on a balcony" (a reminiscence of her suicidal impulses of eight years before?), then became comatose. During the next month she recognized her husband on his visits, but rambled incoherently in her talk to him. On her last day at the General Hospital she was "depressed, confused, poorly oriented"; "I've got myself in so much trouble I'd better keep still; everything's all burned up."

At this hospital she varied between coherent and irrelevant conversation, was roughly oriented, was able to give a good history, apparently had auditory hallucinations, speech defect, was blue, showed judgment defect, but no delusion formation.

Two months after admission she died suddenly. Autopsy was permitted on the head only.

Post-mortem the left pupil measured 7.5 x 6 mm., with the long diameter horizontal. The right pupil was almost round, and 7 mm. in diameter.

Immediately below the area of decompression, in the right post-frontal and parietal region, was a large area of softening. In the left frontal III was a firm nodule 1 cm. in diameter, and scattered throughout white and gray matter were "hemorrhagic areas," over a hundred in number, and varying from 1 mm. to 4 cm. in diameter. The larger of these were soft and filled with clotted blood; the smaller were firm.

Microscopical examination of the nodule under Nissl's stain showed large cells in alveolar formation; the nuclei were large with mitotic figures. Some of the cells contained a deep brown pigment, and scattered through the area was a small amount of pale brown pigment not confined to the cells. Surrounding the alveoli appeared an intense proliferation of glia.

The small "hemorrhagic areas" showed often no hemorrhage but groups of the large pigmented cells shown in Fig. 1.

In this case we hazard no guess as to the connection between the later developing brain tumor and the excitement and suicidal tendencies which came five and three years before the discovery of even the growth on the skin, the drowsiness continuing for six years, the statement that a "greenhead had bitten her in the back." As to the origin of the brain growths, it is interesting that two naevi were observed on the patient's feet. We infer that a similar mole began an abnormal growth near the scapula, sending metastases to the breast and probably to other organs, from which sources the brain was reached.

Autopsy 1520. A man of 57, white, a sailor. At 47 his vision became poor, and at 50 diplopia appeared.

June 1, 1911, while pulling in a fish-net, he saw a bright object over his left shoulder moving backward, and followed it with his eyes, turning his head to the left; then became unconscious. On June 7 two similar fits occurred in two hours.

On June 15 he went to the Marine Hospital at Chelsea and remained there until Oct. 2. On the day of admission nothing abnormal was found on physical examination. June 21 he had three fits, and July 8 a visual aura without unconsciousness.

On July 17 came a clonic spasm of the left arm, which later became paralyzed. After some hours there followed paralysis of the left leg. The next day showed these paralyses continuing and a slight involvement of the left face, no sensory disturbance, active knee-jerks, no Babinski. On the 19th blood-pressure was 128, pupils showed nothing abnormal, there was no choked disc. A clonic spasm of the right arm was observed.

Operation on the 20th, exploratory. After entrance over the mid-Rolandic region right through thick, dense bone, a tense but apparently normal brain was disclosed.

After operation there was little physical change, but confusion, hallucinations, and increasing noisiness made necessary his transfer to this hospital on October 2.

Examination here showed a left hemiplegia, sluggishly reacting pupils, the left knee-jerk greater than the right, a left ankle clonus and variable Babinski reaction, complete astereognosis of left hand. The ophthalmoscope showed absence of the disc outline on the left, and a less cloudy disc right. Wassermann reaction on the blood was negative. He was restless, had frequent involuntary crying spells and changed often from a state of clear orientation to one of confusion.

Death followed a severe general convulsion on Nov. 2. On autopsy a tumor mass, microscopically glioma, began in the right precentral convolution

at the top of the Rolandic area and extended forward in the first frontal convolution for 5 cm., ending about 4 cm. from the tip of the frontal lobe. On cross-section it spread out fanlike from the ventricle to the cortex, 2.5 cm. in its greatest width, involving the cortex from the longitudinal fissure to the second frontal convolution. (Fig. 2.)

In this case the fact that the left arm became paralyzed before the left leg was of no help in localizing the lesion *on the surface,* but was a consequence of conditions concealed deep in the brain.

Medical Progress.

REPORT ON PEDIATRICS.

PERTUSSIS.—EDEMA IN THE GASTRO-INTESTINAL DISTURBANCES OF INFANCY.—POLIOMYELITIS.

BY THOMAS MORGAN ROTCH, M.D., AND CHARLES HUNTER DUNN, M.D.

PERTUSSIS.

In a former report[1] the advances in our knowledge of the bacteriology of whooping cough, and the evidence in favor of the bacillus of Bordet and Gengou as the cause have been presented. This bacillus has been generally accepted as the probable cause, the evidence resting on its being found only in cases of pertussis, on its constant presence in the earlier stages of the disease, and on the demonstration in the blood of convalescent patients of antibodies specific for this organism. Evidence based on the transmission of the disease to animals is somewhat contradictory, some observers (Klemenko, Fraenkel) claiming to have produced paroxysmal cough in animals, while others (Wollstein) have failed to obtain this result. The chief obstacle to further advance and to the completion of the chain of proof necessary to assign the etiologic rôle with certainty to the Bordet and Gengou bacillus has been the lack of any definite or characteristic anatomic lesion in this disease. It is probable that the infrequency of cases of deaths from uncomplicated whooping cough, and the extreme delicacy of the tissues of the respiratory tract have been responsible for the inability of observers to find an histologic lesion.

The finding of such a lesion, apparently characteristic of whooping cough, has recently been reported by Mallory and Horner.[2] They studied the trachea and lungs from three fatal cases of whooping cough. They found masses of minute bacteria between the cilia of many of the cells lining the trachea and bronchi. These bacteria frequently occurred in such large numbers as to push apart the cilia covering a single cell. The lesion did not appear to be uniformly distributed throughout the lungs. The micro-organism was a minute ovoid bacillus, and is strongly suggestive of the bacillus discovered in the sputum by Bordet and Gengou.

Mallory and Horner conclude that the toxin secreted by these bacilli must be mild, as the injury produced appeared slight. No necrosis of the cells was observed; at most, only a gradual destruction of the cilia, which is doubtful, as this might be an easily produced artefact. The tissue reaction was slight, although there were evidences of a slight to moderate inflammatory reaction. They believe that the action of the bacilli on the respiratory tract is largely mechanical. The organisms in such large numbers must interfere seriously with normal ciliary action, and thus with removal of secretion of mucus and of inhaled particles; at the same time the production and absorption of a mild toxin is shown in several ways,—by the exudation of leucocytes, by certain changes in the lymph nodules, by the production of the well-recognized lymphocytosis of whooping cough, and by the production of a specific antibody in the blood. It now remains to be proved whether the bacillus discovered by Bordet and Gengou will produce this same mechanical effect or lesion in animals.

The recognition of the Bordet and Gengou bacillus as the probable cause of pertussis has led to the preparation of a vaccine made from this organism and to their trial in cases of whooping cough. The reports from the observers who have used the vaccine are still inconclusive as to its final value, but all agree that it should be given a wider trial.

Zahorsky[3] reports 40 cases of whooping cough treated in private practice. He concludes that it is in general a very helpful therapeutic resource. He observed that in many cases a "negative phase" followed the injection, in which the symptoms appeared to be aggravated. This stage with a moderate dose, 30 million, lasted about 24 hours, but after a large dose, 100 million, may last two to four days. After this period of aggravation occurred a period in which great improvement is observed, which is sometimes so striking as to appear quite remarkable. In about one-fourth of all his cases no effect whatever could be observed, and there were a number of cases in which the effect was doubtful.

Zahorsky believes that the effect of the vaccine is uncertain, and may do harm in cases complicated with bronchitis or pneumonia. His best results were obtained with doses of 30 to 50 million bacteria. He believes the injection should not be repeated too frequently and that the interval should not be less than three days when moderate doses (10 to 20 million) are used, and not less than five days with larger doses. In not a single case in which the vaccine was used did any secondary infectious process appear, freedom from complications appearing to be one of the favorable effects of the treatment. He was unable to produce immunity by vaccine treatment of cases exposed to whooping cough. His best effects were observed when the

vaccine was given at the height of the disease. He did not observe any shortening of the course of the disease, and believes it doubtful if the use of the vaccine hastens permanent immunity.

Graham[4] reports on the use of the pertussis vaccine in 24 cases. He differs from Zahorsky, in believing that the course of the disease is shortened, and that the improvement almost always continues steadily after the injections have been discontinued. The opinions of others, not physicians, coming in contact with the patient were strong in favor of the remedy, both as to its diminishing the severity and number of the paroxysms, and as to its shortening the course of the disease. He observed benefit in 17 out of the 24 cases, or about 71 per cent. He believes the dose should be over 40 million, and does not mention observing any negative phase.

Ladd[5] reports on a series of cases treated by vaccine therapy in the out-patient clinics. No harmful effects were produced. No other treatment was given than the vaccine. In general, it appeared from the statements of the mothers that after these injections the severity and number of the paroxysms diminished. All the children recovered without complications on an average in five weeks after beginning treatment. He believes there is nothing conclusive in his series, but that the vaccine is worthy of a further trial.

EDEMA IN THE GASTRO-INTESTINAL DISTURBANCES OF INFANCY.

Comby[6] presents a very interesting review on the subject of the general edema so frequently observed in infancy in the course of chronic gastro-intestinal disorders. These edemas in some cases may be ascribed to a lesion of the kidneys, heart, or lungs. In other cases they have been ascribed to retention of salts, particularly chloride of sodium, and this has been the usual explanation of these edemas (Meyer). That retention of chloride may cause edema was shown by Comby, who produced edema in an infant by giving a very salty vegetable broth, which disappeared when the salt was suppressed. Comby, however, does not believe this to be the sole or even the commonest cause of these edemas, and that it cannot explain certain cases recently reported by Hume.[7]. In Hume's cases there was edema but no retention of chloride of sodium before the salt was given, and he gave a great quantity of salt without producing an increase of the edema. If these edemas cannot be explained on the ground either of a heart or kidney lesion, or of retained salts, their cause must be sought elsewhere.

In two of Hume's cases there was at autopsy a striking lesion of the adrenals, consisting in a sclerosis of the medullary substance accompanied by a degeneration of the cortical cells. Both children clinically had shown marked improvement under treatment with subcutaneous injections of adrenalin chloride, and the comparison between the course of these cases, and those not so treated convinced Hume that the adrenals play an important etiologic rôle in these edemas. Comby agrees with Hume in attributing these lesions of the adrenals to toxins absorbed from the gastro-intestinal canal. The lesions, through functional disturbances of the adrenals, lead to a reduction of blood-pressure with peripheral cyanosis and edema.

We believe that this is a plausible hypothesis, but that it is not necessary in all cases to suppose a lesion of the adrenals to be a necessary condition in the occurrence of these edemas. That they are of toxic origin, and that the toxins are absorbed from the gastro-intestinal canal is extremely probable, in fact, there is no other satisfactory explanation for their occurrence. It is probable that the toxins in certain cases may affect the adrenals, but it seems to us equally probable that those cases, also fairly common, in which there is a demonstrable lesion of the kidneys, may also be attributed to toxin absorption. Moreover, it seems equally probable that toxins absorbed from the gastro-intestinal canal may affect the nervous system in such a way as to cause a vaso-motor paralysis. The good therapeutic effects of adrenalin can just as well be explained on this hypothesis.

POLIOMYELITIS.

Experimental research has been prosecuted with vigor during the past year, resulting in several contributions of importance to our knowledge of this disease. Flexner has made a number of interesting contributions to our knowledge of the nature and properties of this filterable virus. It is highly resistant to drying, light, and chemical action. In dust it survives weeks and months, and has been detected in one instance in the sweepings of a room occupied by a patient suffering from the disease.

The point which is at present attracting the greatest interest is the question of the routes of invasion of the virus, and the mode of spreading the infection. The most recent experimental evidence on this point appears to be somewhat contradictory. The virus had been demonstrated in the nasopharyngeal mucosa and tonsils of monkeys and human beings infected with the disease, and Flexner had expressed the view that the nasal mucous membrane is the site both of ingress and of egress of the virus of poliomyelitis in man, but until recently all had reported negative attempts to demonstrate the virus in the secretions of the nasopharynx and intestines. Such a demonstration is necessary, if we are to accept the view that the virus is eliminated through the mucous membrane, and disseminated in coughing and speaking through the means of active and passive carriers. The demonstration of the virus in the secretions of healthy persons would complete the evidence in favor of this mode of infection.

Recently this has been accomplished by Kling, Wernstedt, and Pettersson.[8] In their paper they showed the infectiousness of the secretions of the nasopharynx and intestines of persons who had died of poliomyelitis. Flexner and Clark[9] also have shown by experiment that the intestinal discharges are a source of infection. In a recent meeting at Washington, at which the entire morning session of two of the sections of the International Congress on Hygiene and Demography was devoted to poliomyelitis Dr. Pettersson presented a summary of the more recent investigations of Kling, Wernstedt and himself. They have demonstrated that the virus of poliomyelitis exists in the nasopharyngeal and intestinal secretions of persons in the acute stage of the disease, of convalescents, of persons suffering from clinically obscure infections of poliomyelitis and of apparently healthy persons in the vicinity of poliomyelitis patients. The last is perhaps the most important finding. "Virus carriers" were found in six families. These results of Kling, Wernstedt and Pettersson are strongly confirmatory of Flexner's views, and would seem to justify the conclusion that the infection is disseminated by transfer of the virus directly from person to person, "virus carriers" and abortive cases accounting to a large extent for the spread of the disease.

Great doubt has been thrown upon the justification for this conclusion by the results of the observations recently reported by Rosenau, on the possible agency of the stable fly, *Stomoxys calcitrans,* as a transmitter of the disease, which have been published in the monthly Bulletin of the State Board of Health of Massachusetts for September, 1912.[10] The paper represents the remarks made by Dr. Rosenau in a discussion at the recent Washington Congress of a paper by Dr. Mark W. Richardson, on "The Occurrence of Infantile Paralysis in Massachusetts, 1907-1912." Rosenau says that the investigators of the State Board of Health started with a probable prejudice in favor of direct transmission from person to person. Rosenau, Sheppard and Amoss injected 18 monkeys with buccal and nasal secretions from the persons suffering from poliomyelitis, from convalescents, and from persons suspected of acting as carriers, with negative results. Various American workers, among them Strauss of New York, have been unable to find the virus where it should be under the "contagious" theory. Richardson and many other observers have brought out the fact that poliomyelitis does not behave like a contagious disease, showing little or no tendency to spread in crowded districts, schools, and institutions, where we should expect to find spreading of a disease transmitted by contact through secretions of the mouth and nose. On the contrary, the disease, in Massachusetts, was more prevalent in sparsely settled country districts. The analogy of the virus of poliomyelitis with that of rabies, a wound infection, and the experience with yellow fever, influenced Rosenau and his fellow workers to turn to another mode of infection.

The work consisted in exposing monkeys infected in the usual way during all stages of the disease to the bites of the *Stomoxys calcitrans.* Healthy monkeys were then exposed to the bites of the same flies. Of the 12 healthy monkeys so exposed, indications of the disease were obtained in 6, in 3 in a virulent form.

These results are of most striking importance. The demonstration that poliomyelitis can be transmitted from monkey to monkey by the bite of the stable fly opens up great possibilities in the future control of epidemics. It remains of course to be proven whether the disease can be transmitted to human beings in the same way. There is strong evidence in favor of both views as to the mode of infection in poliomyelitis. At present the question as to whether the disease is directly contagious, whether a biting fly is a necessary factor in its transmission, or whether it may be conveyed in more than one way, must remain an open one.

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Reports of Societies.

AMERICAN NEUROLOGICAL ASSOCIATION.

THIRTY-EIGHTH ANNUAL MEETING, HELD AT BOSTON, MASS., MAY 30 TO JUNE 1, 1912.

Owing to the illness of the President, Dr. William Norton Bullard, Boston, the Vice-president, Dr. E. W. Taylor, Boston, presided during the meeting.

NOTE ON THE EXAMINATION OF THE CEREBRO-SPINAL FLUID FOR ARSENIC FOLLOWING THE ADMINISTRATION OF SALVARSAN.

DR. CARL D. CAMP, Ann Arbor, Mich.: The cerebro-spinal fluid was withdrawn by lumbar puncture, following the administration of 0.6 gram of salvarsan by intravenous injection, and examined for arsenic in the laboratory of Dr. Victor C. Vaughan. The interval between the salvarsan injection and the lumbar puncture varied from 15 minutes to 40 hours in the 17 observations that were made. Cases of tabes, paresis, cerebro-spinal syphilis, secondary and tertiary syphilis not affecting the nerv-

ous system were utilized in this research. In only one case was there any trace of arsenic and in that case (3 hour interval) the patient was also being intensively treated with mercury and the trace was too small to make sure of its identity. Another case with the same interval showed no trace of arsenic. Arsenic does not appear in the cerebrospinal fluid as ordinarily administered, by intravenous injection, unless the dose is so large or so often repeated that there is danger of causing meningoencephalitis.

DISCUSSION.

Dr. Joseph Collins, New York: Two years ago I began to treat cases of nervous syphilis with salvarsan and in that time have treated 137 cases. There have been cures some of which have lasted 18 months which could not have been accomplished by anything else. Among these have been cases of brain syphilis, meningo-encephalitis, vascular syphilis, tabes, syphilitic bulbar palsy, cases of syphilitic clineurasthenia occurring in the wife or husband of patients who have had tabes or general paresis.

Dr. B. Sachs, New York: I have published one experience referring to 80 cases and since that time my experience has been doubled. I believe that no remedy that we have ever exhibited or employed in syphilis of the central nervous system has helped us in like degree as salvarsan has. I can not see that the presence or absence of arsenic in the cerebro-spinal fluid would affect very much the question as to whether salvarsan ultimately benefits parasyphilitic or metasyphilitic changes in the nervous system. That it does bring about changes and affect the syphilitic virus as it circulates in the body there is no doubt. Both in private and hospital practice I have followed this matter closely and as a result I have never gone beyond 0.4 intravenously. This dose can be repeated after two or three or four weeks and it is much safer to give a small dose frequently repeated than to give a larger one.

Dr. F. X. Dercum, Philadelphia: In my experience the use of salvarsan in nervous syphilis depends upon the duration of the symptoms. The majority of paretics have not been benefited. As regards tabetics I have not seen any remarkable improvement. There has been cessation of tabetic pains and improvement in the way. One case was injected over a year ago by the intravenous method and pains are still absent. I always follow the salvarsan by mercurial inunctions just as vigorously as if salvarsan had not been used. One acts upon the germ and the other on the tissues. If we do not give the patient both, he does not receive the maximum benefit.

Dr. Philip Coombs Knapp, Boston: I can corroborate what Drs. Dercum and Sachs have said of salvarsan. I have not seen any disastrous results from it and certainly there can be no question of the beneficial effect.

Dr. Carl D. Camp, Ann Arbor: I did not intend to bring up any question of the efficiency of salvarsan in these cases. Of course it comes up incidentally. If the effect of salvarsan is due to its antiseptic germicidal effect, then arsenic or something which represents it should be present in the central nervous system. My own experience as to beneficial results has not been so favorable. The Argyll-Robertson pupils have not disappeared, there was no return of the reflexes, though the patients have in many cases lost their subjective symptoms.

CLINICAL CONFIRMATION OF THE HYPOTHESIS THAT DISORDERED STATES IN THE PARENTS PRODUCE DEFECTIVE OFFSPRING.

Drs. S. D. W. Ludlum, and E. P. Corson White, Philadelphia: From an examination of 600 defective children we conclude that changes in the chemico-physical environment of the developing ovum produces defective children. In all arrests, retarded or defective developments, all environmental factors should be most carefully eliminated before the especial defect should be stated as hereditary. Often, through defective nutrition or other untoward conditions of nurture, the organism is not able to perfect itself in all its parts, not from any germinal defect, but simply because it was not sufficiently nurtured, or because it was poisoned or otherwise injured as shown especially in children born during famine, children of lead workers, etc. Statistics which exclude environment, as diseases or metabolic changes, etc., in the mother or father, are faulty, because, along with organic inheritance, there must be the stimulus of an external developmental environment which supplies the stimulus without which hereditary potentials cannot be expressed. There is at least as much evidence for the retarding of the development of the ovum by untoward circumstances in the environment as there is for hereditary defect. The reason why statistics show such a low per cent. of syphilis or tuberculosis in defective children is because the majority of openly infected children die before their mental defect is definitely demonstrable and it is only those arising from parents with changed metabolism or low grade infection that persist.

DISCUSSION.

Dr. Philip Coombs Knapp, Boston: It is exceedingly rare that we can get an absolutely accurate history of the mother's condition during the period of pregnancy, but even without that it is often possible in these forms of disease, as those of more strictly degenerative character where heredity has been most often invoked, to obtain information as to the mother's condition during pregnancy which certainly must have a marked influence upon the development of the child. Such, for example, as acute infection during the period of pregnancy which will certainly be explanatory of various degenerative mental and physical conditions in later life.

AN EXAMINATION OF THE DUCTLESS GLANDS IN EIGHT CASES OF DEMENTIA PRECOX.

Dr. F. X. Dercum and Dr. A. G. Ellis, Philadelphia: Our studies were prompted by the view that in dementia precox we have to do with autointoxication. It is only relatively late in the disease that cases of dementia precox show quantitative mental loss, the striking early feature being confusion. In these cases the negative clinical history with regard to infections and intoxications from without points to the conclusion that the toxins are produced within the body. That the ductless glands should be involved in this process of intoxication is extremely probable. That the glands of internal secretion are also closely inter-related to each other, is another fact of prime importance. This relationship is no longer a matter of theory

and of speculation but must be regarded as established. We have reason to believe that the organism in dementia precox is one which unfolds or evolves imperfectly and irregularly and that at the time when adolescence takes place, the response on the part of the ductless glands is imperfect. During the last four years there have been studied clinically in the Insane Department of the Philadelphia General Hospital a large number of cases in reference to the ductless glands. Of these cases, 8 have come to autopsy. Cases 1, 3 and 5 suffered apparently from hebephrenia; 2 and 4 from catatonic, the 6th was catatonic at times, the 7th and 8th while classifiable with hebephrenia, were distinctly paranoid. All of these cases died of tuberculosis. In the cases of dementia precox, the thyroid gland was studied in 8 cases, the hypophysis in 8, the adrenals in 8, the parathyroids in 5, the carotids in 6, the thymus in 1, and of the other glands, the testicles were studied in 1, the pancreas in 8, the spleen in 7, the liver in 8 and the kidneys in 8. One of the most notable points in the ductless gland findings is the underweight of the thyroid in 7 of the 8 cases. In addition 3 of them showed abnormalities in the colloid, quantitative or qualitative, and 4 decided regressive changes in the acinar epithelial cells. In the hypophyses there is less colloid than is usually found in a series of these glands. There was in all probability a disturbance in these cases of what Sajous has called the "adrenal system," *i.e.* of the chain made up of the pituitary, the thyroid and the adrenals. As far as the thyroid gland was concerned, the changes are to be explained in terms of inadequacy. Now Sajous has pointed out that in tuberculosis there is an inadequacy of this adrenal system and the thought naturally occurs that these eight patients suffered from dementia precox for the same reason that they suffered from tuberculosis. It is rather a remarkable fact that the almost universal cause of death in dementia precox is tuberculosis, and, if feebleness of resistance to the tubercle bacillus is due to the inadequacy of the adrenal system, we have reason to infer that this inadequacy preexisted and that it is one of the factors in the make-up of dementia precox.

DISCUSSION.

DR. M. ALLEN STARR, New York: About 15 years ago I was exceedingly interested in the study of cases of cretinism and particularly of myxoedema. It so happened that there came into my office within one week a case of myxoedema in a young woman about 18 and two cases that we would now classify as dementia precox. The striking resemblance in the mental characteristics of these three individuals led me to place these three cases as maldevelopment on thyroid. The people are still under my observation. While there has not been a development of very great genius, yet these young women are perfectly able to live with their families, able to go about ordinary occupations and are fairly good members of society; whereas without that line of treatment they would long since have been confined to an asylum. On the basis of these I have put almost every case of dementia precox that I have seen on thyroid treatment. In a good many of them it has done no good, but it has been of decided benefit in a certain number of cases and I am quite convinced with Dr. Dercum that treatment along this line either of the thyroid or pituitary gland, in a good many cases of dementia precox is decidedly beneficial.

DR. B. ONUF, New York: I have found on the whole that manic-depressive form of insanity is quite responsive to thyroid treatment, as there is a quite distinct effect upon the psycho in the direction of elation. On the contrary, in the dementia precox cases there is a peculiar irresponsiveness to the thyroid treatment.

DR. D. J. MCCARTHY, Philadelphia: In 500 autopsies at the Phipps Institute of patients dying with tuberculosis the thyroid was carefully examined and showed extensive lesions in a large percentage of cases. In this study of Dr. Dercum's great caution should be used on account of these lesions.

MYASTHENIA GRAVIS.

DR. M. ALLEN STARR, New York: I have gathered 250 cases of myasthenia gravis for purposes of analysis. Of these 142 were females and 109 males. The youngest case on record was 2 years and 9 months old, the oldest 72. The age of greatest frequency is between 20 and 30. It is true that the cranial nerves are chiefly affected. Thus ptosis or double vision has been recorded as the first symptom in 40 per cent. of cases. The difficulty in speech is more commonly due to paralysis of the tongue or lips. Difficulty in swallowing has been recorded in 8½ per cent. of the cases. A striking point of contrast between true bulbar palsy and myasthenia gravis is that diplopia and ptosis are present in the former and in true bulbar palsy double vision is very rare. The predominant symptom is weakness in the limbs; easy fatigue on exertion and recovery of power on rest. Enlargement of the thymus gland has been observed in 28 per cent. Its absence in 72 per cent. seems to show that it is not essential to the development of the disease. The pathology of the disease is obscure, but it has been shown that creatinine is diminished in the excretions about 80 per cent. In the large majority of cases death occurred in six months. That the disease is an extremely serious one is shown by a large percentage of fatal terminations within a year of the onset. It is important to differentiate from diphtheritic paralysis and acute poliomyelitis of the acute bulbar type. The use of thyroid, pituitary and parathyroid gland seems to have been very universal in the past ten years, but so far results of this treatment have not been successful. Strychnine and calcium lactate have been used in some cases with benefit..

DISCUSSION.

DR. WILLIAM G. SPILLER, Philadelphia: Cases of myasthenia gravis, with recovery are sufficiently rare to make them worthy of record. Therefore I will relate the following: A middle-aged lawyer had marked symptoms. There was difficulty in swallowing fluids and ocular palsies. In dressing he would put on his trousers and find it a great effort to put on his coat and vest. He commenced his meal and after a few minutes would be unable to continue it. This was five years ago. I had a letter from him in the last two weeks. He had just returned from a journey of 2000 miles and has been able to continue his cases in court with even more ability than before the disease occurred. Calcium lactate is no doubt of value in treatment. I think the avoidance of every form of fatigue, the wearing of smoked

glasses for the house and more deeply smoked ones for the street are essential in treatment.

Dr. Pearce Bailey, New York: The most characteristic manifestation of myasthenia gravis is its periodicity. Such collections as Dr. Starr has made are very timely, but at the same time, in view of the periodicity, I think there is a danger in the crowding together of so many cases of giving myasthenia gravis a place which it does not deserve. There are so many varying types of the disease. I doubt whether anyone could distinguish between relapsing third nerve palsy and myasthenia gravis. Possibly myasthenia gravis is only a symptom-complex which comes up in organic nervous diseases and as a result of certain intoxications. If we can assume that the ductless glands are the basis of the disease, then the variation of the symptoms might be explained by whatever caused disturbance of their functions and the determination of the type by the particular biological alterations of the muscular system.

Dr. Charles K. Mills, Philadelphia: I have seen quite a considerable number of cases of what I believed to be true myasthenia gravis and have published some of them. I have seen cases in which apparent recovery had lasted ten years or more. In my experience diseases, which had been supposed to be myasthenia gravis, had really been hysteria, disseminated sclerosis, forms of cerebro-spinal syphilis and rarely cases of post-infectious paralysis and one or two cases of what were supposed to be poliomyelitis, or poliocephalitis inferior or superior. Treatment in my experience has been rest, with precautions, and the rather increasing use of nux vomica or strychnine.

Dr. George A. Waterman, Boston: Myasthenia gravis is not a disease of the nervous system. All its clinical phenomena point to toxemia. I can point an analogy between myasthenia gravis and that other disease of the glands characterized by persistent thymus and tremendous over-development of lymphatic structures. There is distinct analogy between lymphocytism with sudden death and relaxation and palsy of muscles due to myasthenia gravis.

Dr. N. E. Brill, New York: I think it worth while to give consideration to choking of the lymphatic spaces. We have in myasthenia gravis a condition of the muscles which prevents rapid deterioration. This is closely related to what we find existing in normal fatigue. If the normal muscle be stimulated and the products of metalbolism are prevented from being carried off, very quickly this state of fatigue sets in, so that further contractions are impossible.

Dr. Starr, in closing: I wish to protest against Dr. Bailey's supposition that this is a condition that may arise under any circumstances and that it does not present a typical assemblage of symptoms forming a disease. We have here a clinical syndrome that is perfectly characteristic and cannot be mistaken for anything else.

ACUTE BULBAR PALSY FOLLOWING IN THE WAKE OF MUMPS. A CONTRIBUTION TO THE LITERATURE OF POLIOMYELITIS.

Dr. Joseph Collins and Dr. Robert C. Armour, New York: A boy, 11 years old complained 8 days after the onset of a mild attack of mumps, of dizziness, headache and malaise. The next day he staggered on attempting to walk and had partial paralysis of the left face. He developed rapidly dyspnea and died on the third day of the illness. Section through the oblongata, pons and crura showed a severe inflammatory round cell infiltration most pronounced at the superior level of the olivary bodies diminishing in intensity in both directions from this level. The round cells appear similar to those seen in poliomyelitis. There are a few cells resembling polyblasts. The greater number of cells are lymphocytes. The ganglion cells show all stages of chromatolysis.

DISCUSSION.

Dr. Israel Strauss, New York: It seems to me that this case of Dr. Collins, interesting as it is, is simply a case of poliomyelitis coming on in an individual who happened to have had an infectious parotitis.

Dr. B. Sachs, New York: Without wishing to criticize the interpretation of the case at all. I think it would be perfectly safe to speak of a case of this sort as a case of infectious polioencephalitis and leave the question as to whether it is really identical with a poliomyelitis unsettled for the present.

Dr. N. E. Brill, New York: The parotid glands are peculiarly involved in general septic conditions and it is possible that the inflammation of these parotid glands was the beginning of a general infectious process secondary perhaps to a middle ear disease inasmuch as Dr. Collins says that the tympanic cavity was filled with a serous effusion.

CEREBELLO-TEGMENTAL LESION FROM OCCLUSION OF BRANCHES OF THE SUPERIOR CEREBELLAR ARTERY.

Dr. Charles K. Mills, Philadelphia: In this paper I present a more complete record of a case published by me as a preliminary report on a new symptom-complex in the Journal of Nervous and Mental Diseases, Vol. 39, No. 2, February, 1912. The paper embodies investigations into the literature of the organic basis of emotional expression, a study of the functions of certain tegmental tracts, histological investigations by means of serial sections and a study of the distribution of the superior and posterior inferior cerebellar arteries. The microscopical investigation was made by Dr. W. G. Spiller and the study of arterial distribution by Drs. S. D. Ludlum and E. M. Williams. My conclusions are mainly based upon his study of the literature of the subject and on the complete investigation of the particular case which forms the basis of the article. Other unreported cases are, however, included. The persisting symptom-complex in this case for four years from the time of the original attack until the death of the patient was ataxia in the left upper and the left lower extremity, complete right-sided deafness, loss of the senses of pain, extreme heat and extreme cold and impaired tactile discrimination, on the right half of the body, with preservation on both sides of light touch and the senses of deep pressure and of position, passive movement and stereognosis; the retention, everywhere of voluntary movement and complete paralysis of emotional expression in the right side of the face. The brain on close inspection of the naked eye showed a marked depression in the cerebellum above the dentatum, and this body as well as the tissues above it were much atrophied. The vessels on the upper surface of the left cerebellar lobe were much smaller than on the right. Many

of the branches of the superior cerebellar artery were occluded. These occlusions were especially those of the branches of the ventral part of the corpus dentatum and the adjacent part of the superior cerebellar peduncle. The cerebellar nuclei in the neighborhood of the left corpus dentatum were equally affected. At least the upper two-thirds of the left superior cerebellar peduncle was degenerated, as a consequence of which the right nucleus ruber was at least one-third smaller than the left, but it apparently contained a full number of the nerve cells. The left mesencephalic root of the fifth nerve and the left lateral lemniscus were much degenerated. The whole process was evidenly syphilitic as shown by much round cell infiltration in the pia. As the result of the study of the supply of the anterior superior and the posterior inferior cerebellar arteries it was found that the anterior superior supplies a considerable portion of the border of the pons and middle peduncle and the anterior lateral portion of the cerebellar cortex. The infiltration from stain extended into and included a portion of the superior cerebellar peduncle on its way from the dentate nucleus, and the anterior lateral portion of the dentatum itself. The black stain of the inferior cerebellar infiltrated an area of considerably less size. This included about the posterior one-third of the cortex of the cerebellar lobe and the vermis and the posterior and postero-medium portions of the dentate nucleus. In addition to the above supplies, many minute black points or dots were found throughout the lateral tegmentum in the most caudal portion of the pons, showing the possibility that this artery in addition to its supply to the oblongata also reaches forward to some of the pontine tracts in the region of the medium lemniscus. More lateral of this the supply seemed to be that of the anterior superior. After reviewing the hypophysis of von Bechterew, Lewandowsky and others, I submit my own views of the interior mechanism of emotional expression. These include the predication of an emotional motor zone, especially developed in the right frontal lobe, anterior to the precentral convolution, this being connected by way of the anterior capsule and lenticula with the nucleus rubber and the ventral pontile nuclei, the afferent portion of the mechanism being by way of the dorsal pontile nuclei, special tracts in the tegmentum to the thalamus, tracts from the thalamus to the parietal lobe and thence to the frontal emotive zone, reënforcement taking place for coördination and muscular tone from the cerebellum by way of the superior cerebellar peduncle. The histological study of the chief case of the paper affords some new light upon the afferent lemniscal tracts?

DISCUSSION.

DR. JAMES J. PUTNAM, Boston: I recently saw in consultation a case very much like the one reported. This condition is sufficienly rare to make it valuable to collect such cases. I have seen only two similar cases.

DR. THEODORE DILLER, Pittsburgh: I would like to refresh Dr. Mills' memory in regard to a girl, about 14 years of age, whom Dr. Mills and I examined two years ago. She had symptoms indicative of a brain tumor and had one symptom which was especially marked, that is, very distinct hemiataxia. An operation was done over the cerebellum on the side which seemed to be implicated and nothing was found, but the death of the patient some little time later showed a tumor of considerable size almost in the region which Dr. Mills has indicated as present in his case, namely, involving the dentate nucleus and superior peduncles. The red nucleus seemed to be entirely intact.

(To be continued.)

Book Review.

A Treatise on Pellagra. For the General Practitioner. By EDWARD JENNER WOOD, S.B., M.D. With 38 illustrations in the text. New York and London: D. Appleton and Company. 1912.

With the appearance, recognition, and study of pellagra in the United States, books on this important disease have been published in this country for the first time in English. The present volume is the fourth which has appeared within two years in this growing series by American authors, its predecessors being first Lavinder's and Babcock's translation of Marie's French monograph (reviewed in the issue of the JOURNAL for Feb. 23, 1911, Vol. clxiv, p. 274); second, Niles's treatise (reviewed in the issue of the JOURNAL for May 30, 1912, Vol. clxvi, p. 822); and third, that by Roberts (reviewed in the issue of the JOURNAL for Nov. 21, 1912, Vol. clxvii, p. 738). Of these, the first is chiefly historic and descriptive, and, though meritorious and useful, cannot properly be classed as an original English composition. The second advocates particularly the toxic theory of the etiology of pellagra; the third maintains the infective theory of its causation.

Dr. Wood also is a believer in the infectious etiology of pellagra. His work took its inception five years ago in a translation of Tuczek's "Anatomische und pathologische Studien über die Pellagra." In its present form it aims "to present an abstract of the literature on the subject for those unfamiliar with foreign languages." It is, however, in no sense a paraphrase or compilation, but an original production based not only on the work of others but on extensive personal study and experience. Approximately a third of the book is devoted to the history and etiologic theories of the disease; a half to its symptomatology, clinical description, and diagnosis; and a sixth to its prognosis, prophylaxis, and treatment. In all cases, the problems of pellagra are considered primarily from the point of view of the practitioner. The illustrations, though not many, are excellent and well chosen. The book is a worthy addition to the series in which American medicine is making its contribution to the study, explanation, and prevention of this ancient disease appearing in a new field.

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THE COMPLETE ERADICATION OF TYPHOID FEVER.

If there is any one disease which is completely and absolutely preventable, it would seem that typhoid fever should lay claim to being that disease. We know almost to a nicety the way and manner of its transmission. Time and again we have completely eradicated it from a given spot. The army manoeuvers on the Mexican border were as great an object lesson to sanitarians as to political disturbers. Given a certain area, the money, and the men, and typhoid fever can be entirely kept out. Once in a given area it can be surely vanquished. Yet, notwithstanding these known facts, typhoid fever is at the present time distributed throughout the civilized world.

The reason for this is to be found in the fact that no whole country, no large united political entity, has as yet set itself seriously to the task of complete eradication. Preventive work has been almost entirely local. In the United States it has been confined chiefly to the personnel of the Army and Navy and locally to cities and towns. The all important problem of getting rid of rural typhoid has not yet been seriously attacked. No real typhoid eradication can be accomplished until all the plague spots are attacked simultaneously and systematically. Until the possibility of the exogenous case is removed, the danger of the starting of an epidemic in perfectly typhoid-free communities will be ever present. Therefore the most important part of the problem consists in the elimination of the factors which transmit typhoid infection between urban districts and from rural to urban communities.

According to Dr. Allen W. Freeman, in a paper read before the International Congress of Hygiene and Demography at Washington last September, these transmission factors are chiefly as follows: From country to town—1, persons; carriers, temporary or permanent; persons in the incubative period of the disease, and persons actually sick with typhoid fever; 2, foods and drinks, including water, dairy products, garden truck, fruits, shell fish, and possibly other foods. From town to country or between rural communities—1, persons infected in the cities or towns and incoming carriers; 2, foods of various kinds; 3, night soil and manure carried out of cities for fertilizing purposes; 4, stream pollution; 5, railway trains.[1]

Although several of these factors are already controlled by efficient means, the neglect of others renders the complete banishment of the disease impossible. If a careful, comprehensive, detailed campaign against typhoid fever could be conducted by an efficient organization, national in scope, there is every reason to believe that its epidemic appearance could be entirely prevented. With every community thus freed from the danger of exogenous infection, the attack upon the occasional case arising within the city limits could be carried on with the assurance of quick success, and the reduction of the disease to almost the vanishing point throughout the nation confidently predicted.

[1] The Intercarriage of Typhoid Infection between Urban and Rural Communities. Allen W. Freeman, Assistant State Health Commissioner, Richmond, Virginia. Transactions of the International Congress on Hygiene and Demography, September, 1912.

THE GREATER HEALTHFULNESS OF RURAL DISTRICTS.

The sanitary advantages of country districts over cities are impressively set forth by Dr. Frederick L. Hoffman, the statistician of the Prudential Life Insurance Company.[1] It would seem that in the North Atlantic States (upon which Hoffman bases his observations) the only causes of death more common in the rural districts are typhoid, malaria, influenza, dysentery, apoplexy, paralysis, disease of the heart and peritonitis. Some of these are terminal affections, and result from a larger proportion of old people among the country population. The most serious difference is the higher mortality from influenza, "which is partly due to needless exposure." Dysenteries in the coun-

[1] Rural Health and Welfare. America's Land and Irrigation Exposition, November, 1912.

try are, perhaps, due to neglect. On the other hand, the diseases more rife in the cities are cancer, alcoholism, meningitis, bronchitis, broncho-pneumonia, lobar (and unqualified) pneumonia, diarrhea and enteritis, cirrhosis of the liver, appendicitis, Bright's disease and nephritis, and death from violence. Hoffman concludes that in the registration area of the United States (which excludes, however, most of the rural sections of the Western and Southern states) the mortality rate from all causes combined, and from practically all the important causes, is much less in the rural districts than in the cities.

The superior longevity and lesser disease liability of the agricultural class is convincingly set forth in the report (quoted by Hoffman) of the Registrar-General for England and Wales: The death rates are not only below the standard for all occupied and retired males; they are also generally below the rates among all males in the selected healthful districts (except among farmers and their laborers above sixty-five years). Within the main working period of life the comparative mortality figure for the agricultural class is 40 per cent. below the average for occupied and retired males; and the mortality from alcoholism and liver diseases, from phthisis and respiratory diseases is less than one-half, and from Bright's disease about one-half the standard. From all other causes except influenza (from which the mortality is normal), the death rates are also below the average.

MEDICAL NOTES.

A BRITISH CENTENARIAN.—Mrs. Mary Besant, who died on Nov. 25, 1912, at Clevedon, Somersetshire, England, is said to have been born at Walton-in-Gordano, in the same county, on Aug. 8, 1811, the date of her baptism being attested in the local parish register.

CARTWRIGHT LECTURES.—Professor Ludwig Aschoff, of the University of Freiberg in Breslau, Germany, has accepted an invitation to deliver the Cartwright lectures of the Alumni Association of the College of Physicians and Surgeons, New York, between March 15 and 20, 1913. The exact date and subjects of the lectures will be announced later.

BRÉANT PRIZE.—The most important prize offered by the French Academy of Sciences is the Bréant prize of 100,000 francs for the discovery of a cure for Asiatic cholera. The Academy has already awarded from the income of this fund prizes of 2500 francs each to Dr. Carlos J. Finlay and Dr. Aristides Agramonte of Havana, Cuba, for their work in demonstrating the rôle of the *Stegomyia* mosquito in the transmission of yellow fever.

COCAINE HABIT IN PARIS.—Report from Paris on Dec. 28 describes the rapid growth of the cocaine habit among all classes of society in that city. The drug is distributed largely in cafés, where a surreptitious and illicit traffic in it is maintained. Some of the more wealthy *habitués* are alleged to pay as much as 40 francs a gram for cocaine, submitting to this extortion from dealers who threaten to expose them and cut off their supply. The police are said to be engaged in a vigorous effort to suppress such clandestine sales.

SMALLPOX IN THE SOUTH.—Report from Washington, D. C., on Dec. 27 states that a considerable outbreak of smallpox has recently occurred along the boundary line between West Virginia and Maryland. Dr. B. S. Warren, detailed from Washington to investigate the situation, is said to have reported 11 cases in the vicinity of Martinsburg, W. Va., 11 cases at Cumberland and one at Lonaconing, Md., and 8 cases at Piedmont, W. Va. In all places strict measures have been taken to suppress the infection, whose source of origin has not as yet been determined.

COMPARATIVE CASUALTIES FROM RAILROAD TRAUMA.—The annual report of the Interstate Commerce Commission, published at Washington, D. C., on Dec. 16, shows the total number of casualties from railroad accidents during the past year to be 180,123, of whom 169,538 were injured, and 10,580 killed, an increase of 189 killed and 19,379 injured over the previous year. Last year, in comparison, on the railroads of Germany, Austria, Russia, and France only 394 persons were killed and 2494 injured.

FOUR CENTENARIANS.—Miss Ellen Horgan, a New York shopgirl, who died of bronchitis in that city on Dec. 25, is alleged to have been born in 1808.

Charles Cauley, who died on Dec. 25, at Copper, Tex., is said to have been born in 1803 in Ireland. Until within two months he had been actively engaged in his work as a farmer.

Carsamus Paige, who died on Jan. 2 at Joliet, Ill., is said to have been born in 1807. From his boyhood he sold newspapers in the streets, and continued at his work until within a few days of his death.

Mrs. Elizabeth Thompson, a negress, who died recently at Paterson, N, J., is alleged to have been born in 1797. Her husband is said to have lived to the age of 109. She is survived by 21 of her 22 children, and by 50 elderly grandchildren.

Comparative Rates of Infant Mortality.—Statistics recently published at Washington, D. C., by the Children's Bureau, indicate that about 300,000 infants under one year of age die annually in the United States, corresponding to a rate of about 125 per 1000 born. The lowest known rate of infant mortality in a civilized country whose registration figures are reliable is 68 per 1000 in New Zealand. In New York City the rate is 160 per 1000.

BOSTON AND NEW ENGLAND.

Boston District Homeopathic Medical Society.—At the annual meeting of the Boston District Society of the Massachusetts Homeopathic Medical Association, held in Boston last week, Dr. Stephen H. Blodgett was elected president; Dr. E. W. Smith, treasurer; Dr. William A. Ham, secretary; and Dr. Conrad Wesselhoeft, assistant secretary, for the ensuing year.

Opening of New Marlborough Hospital.—The new Marlborough (Mass.) General Hospital, which was described in the issue of the Journal for Dec. 19, was opened on Jan. 1 to receive patients.

Typhoid Fever in Spencer.—Report from Spencer, Mass., states that on Jan. 1 three new cases of typhoid fever were discovered in that town, making a total of twelve since the first of December. The source of this minor local epidemic has not as yet been definitely ascertained.

Measles in Lancaster.—Report from Lancaster, Mass., on Jan. 5, states that measles is at present epidemic in that town, where 82 cases have occurred since the beginning of the year.

Uncinariasis at Leominster.—Report from Fitchburg, Mass., on Jan. 8, states that in the neighboring town of Leominster a case of uncinariasis has been recently discovered in the person of a young Italian girl, an immigrant who came to this country only six months ago.

Two Centenarians.—Mrs. Mary Nideau, who died on Dec. 19 in Hampden, near Bangor, Me., is said to have been born at St. Francis, Me., in April, 1808. She was thrice married, but had no surviving descendants. Her health was vigorous until shortly before her death.

Mrs. Mary Ann Peterson, who died on Dec. 29, at New London, Conn., is said to have been born in that city on Aug. 22, 1807.

Revere Death-Rate.—The death-rate in Revere, Mass., in 1912, was only 9.58 per 1000 of population, the lowest in the history of the town. In 1910 the rate was 10.16.

Boston Vital Statistics.—The death-rate in Boston for the first week of 1913 was 18.51 per 1000 of population, a relatively high figure. During the corresponding week of 1912 the rate was only 15.06. For the entire year of 1912 the death-rate was 16.2, including non-residents, and 14.2 exclusive of non-residents; as against 17.1 and 15.12, respectively, in 1911. The number of deaths from diphtheria, scarlet-fever, pulmonary tuberculosis, and typhoid fever in 1912 showed a marked decrease. The number of deaths from measles, however, was 104, as against only 74 in 1911. The number of births in 1912 was 18,034, as compared with 17,967 in 1911; but owing to the considerable growth of the city in population, the birth-rate for 1912 was only 25 per 1000. The death-rate of infants under one year of age was only 120 per 1000 births in 1912, and 125 per 1000 in 1911.

Recent Bequests in Medical Charity.—The will of the late Mrs. Thomas J. Allen, of Dorchester, who died on Dec. 11, was filed last week for probate. It contains bequests of $5000 each to the Massachusetts General Hospital, the Massachusetts Charitable Eye and Ear Infirmary, the Children's Hospital, Boston, the Home for Incurables, Dorchester, and the New England Hospital for Women and Children, Roxbury, and of $3000 to the Boston Dispensary.

The will of the late Martha H. Brooks, which was filed last week at Brookline, Mass., provides

that one-third of the residue of her estate shall be divided equally between the Massachusetts Charitable Eye and Ear Infirmary, the Boston Instructive District Nursing Association, and the Massachusetts Homeopathic Hospital.

The will of the late Rufus Larcom, of Beverly, Mass., contains a bequest of $500 to the Beverly Hospital.

The will of the late Miss Blanche Shimmin, of Boston, who died in this city on Dec. 22, contains among many public bequests, one of $500 to the Boston Instructive District Nursing Association.

The will of the late Joseph N. Smith of Lynn, Mass., who died in Boston on Dec. 20, was filed on Dec. 27 at the Salem (Mass.) Probate Court. Among many charitable bequests it contains legacies of $10,000 to the Lynn Hospital and $5000 each to the Home for Little Wanderers and the Home for Incurables, Boston.

NEW YORK.

ASSOCIATION FOR THE BLIND.—At the annual meeting of the New York Association for the Blind, the president, Dr. John H. Finley, president of the College of the City of New York, reported that the last year had witnessed great strides in the prevention of blindness and in the methods of caring for blind persons. As an illustration of the latter he mentioned that the Association had fitted ten men to tune pianos in the public schools. He spoke of the opening of the new summer home for the blind at Cornwall, on the Hudson, the gift of Mrs. Emma L. Hardy, as the greatest individual achievement of the society, and said that last summer nearly 150 persons of this class were enabled to take their vacations there.

DIPHTHERIA IN BROOKLYN.—There has been an unusual number of cases of diphtheria in Brooklyn this month. Up to December 18, 350 cases had been reported to the Health Department, and 30 deaths had occurred. The disease appears to have been most prevalent in the Eastern District of the borough, and three of the deaths were among children belonging to a single class in one of the public schools of that section.

REGISTRATION OF BIRTHS.—Health Commissioner Lederle has issued a circular to the physicians and midwives of the city in which he calls attention to the fact that the returns of births during the eleven months of this year have fallen considerably below the figures of the same period of last year, and expresses the opinion that this shortage is due almost entirely to the negligence of some physicians and midwives, who have disregarded the requirement of the law to file a certificate of birth within ten days of its occurrence, and who have been undeterred in their violation of this by the large number (312) of physicians and midwives who were fined during the year 1911. He then goes on to state that he has now decided to excuse all derelictions in this respect that have occurred this year, on condition that all returns of births which have not been filed during the year be sent in before January 1, 1913. On the other hand, he intends, on and after the first of January, 1913, to prosecute every violation of the law in regard to the reporting of births. Thus far in 1912, nearly 130,000 births have been reported in the city, and he hopes to have the strong co-operation of the medical profession in the efforts of the Health Department to obtain a full registration of births in the future.

FREE ANTITYPHOID INOCULATION.—After January 1, the City Health Department will be prepared to inoculate with antityphoid serum all persons desiring this procedure. This was determined upon at a meeting of the Board of Health on December 10 and announced to the public in Bulletin 132, dated December 18; in which it is stated that immunization against typhoid fever has now passed beyond the experimental stage and has become established as a prophylactic measure of proved efficiency. Especially will it be urged for the members of every family in which a case of typhoid occurs. A circular of information regarding the immunization has been issued and a copy has been or will be sent to every physician in the city.

ILLEGAL MANUFACTURE OF OLEOMARGARINE.—An alleged "moonshine" oleomargarine plant, in an isolated farmhouse near the hamlet of Latham, ten miles from Albany, was raided on December 20, by agents of the Federal Government and the State Department of Agriculture. 1,000 pounds of white oleomargarine and over 700 pounds of the article colored in imitation of butter were seized, and James Upritchard, the man in charge, and his assistant arrested. Upritchard, it is stated, has confessed to have been engaged for the past six months in manufactur-

ing colored oleomargarine, which was disposed of in Schenectady and Albany as dairy butter.

Anti-Tuberculosis Work.—That New York, in company with other States, is actively engaged in combating tuberculosis is shown by the fact that, in addition to the work in this direction being carried on by the State at large, at least twenty-six counties have now established, or taken steps to provide, special hospitals for the care of those suffering from the disease. Recently the Clinton County board of supervisors voted unanimously to construct a tuberculosis hospital and appointed a committee to procure a site; a fact which is particularly encouraging for the reason that Clinton is a rural country, rather sparsely populated, and with an assessed valuation of but $9,753,733. The Montgomery County supervisors have let the contracts for such a hospital in the town of Amsterdam, on a site purchased at a cost of $9,000, and Oswego and Otsego are among the other counties which have lately arranged for the construction of hospitals.

Medico-Legal Society.—At the annual meeting of the Medico-Legal Society, held on December 20, a review of the Rice murder case was a feature of the exercises, and the secretary, Clark Bell, narrated the efforts of the organization to secure the release of Albert T. Patrick, who the facts collected by it showed to have been convicted on faulty evidence. Dr. Thomas D. Crothers of Hartford, Conn., was re-elected president, and Clark Bell of New York, recording secretary of the society.

Current Literature.

Medical Record.

December 28, 1912.

1. Jones, S. F. *Osteitis Deformans (Paget's Disease). Report of One Case with Radiographs.*
2. Gilmour, A. J. *Report of a Case of Lupus Erythematosus Disseminatus.*
3. Pedersen, V. C. *Adenomatous Hyperplasia of the Prostate Gland. Operation and Possibly Consequent Chronic Suppurative Nephritis with Calculi in Kidney, Ureters and Bladder.*
4. *Walker, H. D. *The Production of Malignant Tumors from the Parasites of the Earthworm.*
5. Fowler, R. H. *Cervical Adenitis in Children.*
6. Baldwin, J. F. *Artificial Vagina by Intestinal Transplantation.*

4. Walker believes that he has found the origin and cause of cancer, the manner of its production, and the method by which it may be prevented. He has produced tumors in animals by feeding or injecting them with parasites from earthworms. If there were no earthworms, there would be no cancer, he says. He claims that the parasites pass out through the orifices in the skin of the worm on to the leaf of a cabbage, celery or lettuce plant, which may be ingested and thus infect a human being. The writer has cut up earthworms in a little water and succeeded in demonstrating amoeboid cancer organisms in the filtrate. [L. D. C.]

New York Medical Journal.

December 28, 1912.

1. Ruggles, E. W. *Salvarsan versus Mercury.*
2. Newmayer, S. W. *Municipal Supervision of Maternity.*
3. Walsh, J. J. *Women in the Medical World.*
4. Stucky, J. A. *Progressive Deafness.*
5. Waters, B. H. *Adequate Hospital Control.*
6. Gomfertz, L. M. *Confidential Communications between Patient and Physician.*
7. Bradner, F. W. *A Ruptured Ectopic Gestation Sac.*
8. Greenberg, G. *A New Operating Urethroscope.*

The Journal of the American Medical Association.

December 28, 1912.

1. *Cabot, R. C. *Diagnostic Pitfalls Identified During a Study of Three Thousand Autopsies.*
2. Stevens, A. R. *Pathologic Lesions of the Kidney Associated with Double Ureters. Report of a Case of Hypernephroma.*
3. *Smith, D. T. *An Overlooked Function of Bartholin's and Cowper's Glands.*
4. Parke, T. D., and Edmondson, J. H. *Effect on Later Development of Severe and Prolonged Illness in Infancy.*
5. Dennett, R. H. *The Caloric Requirements of Bottle-Fed Infants.*
6. Weisenberg, T. H. *Moving Picture Illustrations in Medicine; with Special Reference to Nervous and Mental Diseases.*
7. *Langhorst, H. F. *Possible Transmission of Poliomyelitis Through the Dog.*
8. Simpson, W. L. *A New Tonsil-Snare.*
9. Layman, D. W. *A Compressed-Air Ointment Applicator and Distributor.*
10. Sluder, G. *An Adenoid Curet.*

1. Cabot's paper on the diagnostic pitfalls identified in the study of three thousand autopsies is of very practical value. The article is concise and readably presented in short, clear-cut statements. Among the frequent and well recognized pitfalls he recognizes the following: Acute gastritis is a rare disease in adults; appendicitis or gall stones is the correct diagnosis in most cases. Chronic indigestion is usually a mistaken diagnosis, the actual condition being peptic ulcer pulmonary tuberculosis, constipation or cancer of the colon. Bronchitis usually proves to be phthisis, bronchiectasis or bronchopneumonia. Asthenia after middle life is usually symptomatic of cardiac or renal disease. Unresolved pneumonia often turns out to be interlobar empyema. Malaria is often given as a diagnosis in cases of phthisis, hepatic syphilis, hepatic abscess, and urinary infections. Rheumatism is the most dangerous of all diagnoses to make; it may prove at autopsy to be aortic aneurysm, cancer of the pleura, tabes, osteomyelitis, spondylitis deformans, bone tuberculosis, syphilitic periostitis, lead poisoning, morphine habit, alcoholic neuritis, or gonorrheal infection. Cystitis is practically always a symptom and not a disease; secondary to stricture, prostate, or renal tuberculosis. The failures represent the success and failure ratio of certain methods rather than of certain men. Acute uremia was never found to be a correct diagnosis; other well recognized causes of death were found at autopsy.

3. Smith believes that a second function of Bartholin's and Cowper's glands is the secretion of a fresh amount of mucus to replace that washed away by micturition and thus to protect the mucous membrane.

7. Langhorst believes that dogs, especially in country districts, are frequent carriers of the virus, and instances two cases in which this seems true.

[E. H. R.]

JANUARY 4, 1913.

1. DEAVER, J. B. *Pancreatic Lymphangitis and Chronic Pancreatitis.*
2. LEAVITT, F. E. *Moderate Degrees of Pelvic Contraction and Their Obstetric Problems.*
3. NESBITT, C. T. *The Control of Typhoid Infection.*
4. MONTGOMERY, D. W. *Unusual Exposure to Light Followed by Seborrheic Keratosis.*
5. JONES, H. A. *The Treatment of Dysentery Cases in State Institutions.*
6. *RANDALL, A. *The Etiology of Unilateral Renal Hematuria.*
7. *CUNNINGHAM, J. H. *The Influence of the Operation of Resection of the Kidney on the Function of the Organ. A Report of Experimental Work on Rabbits.*
8. *CABOT, H. *The Diagnosis and Indications for Operation in Early Hydronephrosis.*
9. DRAPER, J. W., AND BRAASCH, W. F. *The Function of the Ureterovesical Valve. An Experimental Study of the Feasibility of Ureteral Meatotomy in Human Beings.*
10. EISENSTAEDT, J. S. *Three Cases of Family Dystrophy of the Hair and Nails.*
11. PARKES, C. H. *A Simple Method of Introducing the Purse-String Suture for Covering the Stump of the Appendix.*
12. RANDOLPH, B. M. *Sarcoma of Left Frontal Lobe of Brain Without Definite Symptoms Until Shortly Before Death.*
13. ZIEGLER, C. E. *The Elimination of the Midwife.*
14. DEEKS, W. E. *Treatment of Dysentery Due to Infection with Entamoeba Histolytica.*
15. LAVINDER, C. H. *A Note on the Cultivation of Malarial Plasmodia After the Method of Bass and Jones.*
16. BURR, C. W. *Paralysis Agitans in Negroes.*
17. TRAVER, A. H. *Hemophilia Treated by Human Blood Serum.*
18. BRADLEY, H. C., AND BUNTA, E. *The Ruhemann Uricometer for Uric Acid Estimation.*

6. Randall believes that in a majority of cases of unilateral hematuria, nephritis with its concomitant congestion plays the leading rôle. In other cases the bleeding is from varicosities in the pelvis, secondary to congestion resulting from extrinsic conditions. In whatever case, there is renal congestion, and this is best relieved by nephrotomy.

7. Cunningham has found experimentally on rabbits that, following the operation of kidney resection and closing of the kidney wound entirely there results a temporary arrest of the kidney function; that performing the same operation and draining the kidney pelvis, not closing the kidney wound entirely, does not cause a suppression of kidney function in the same degree. Rubber tube drainage is freer than by gauze.

8. Cabot's paper on hydronephrosis is better read than reviewed. It is well illustrated by cases in point, and is of particular value in that it deals with the symptoms and signs at the very onset of the disease.

[E. H. R.]

THE LANCET.

DECEMBER 14, 1912.

1. *WRIGHT, T. E., MORGAN, W. P., COLEBROOK, L., AND DODGSON, R. M. *Observations on the Pharmacotherapy of Pneumococcus Infections. (To be concluded.)*
2. *LAKE, R. *Aural Vertigo (Non-Suppurative); a Clinical and Therapeutic Study.*
3. *LILLINGSTON, C. *Further Observations on the Pneumothorax Treatment of Phthisis.*
4. LUCAS, C. *A Case of Complete Eradication of Extensive Recurrent Cancer Affecting Both Breasts and Axillae; Death Fifteen Years Later from Heart Disease and Dropsy, at the Age of Eighty-two.*
5. ALLES, E. C. *Mucocele of the Anterior Ethmoidal Cells.*
6. MACKINTOSH, A. H. G. *A Case of Acute Nasal Catarrh, Due to a Gram-Negative Bacillus Resembling the Distemper Group of Organisms.*
7. WHITFIELD, A. *A Method of Rapidly Exterminating Pediculi Capitis.*

1. This is a detailed scientific and statistical study of the therapy of pneumococcus infections, which deals largely with opsonic determination and other strictly laboratory methods.

2. Chronic progressive middle ear deafness and arteriosclerosis are the most frequent causes of aural vertigo. Operative treatment is justified and is usually successful in these cases; treatment by drugs can give great relief in some instances.

3. Lillington reports 18 patients with advanced or moderately advanced phthisis treated with artificial pneumothorax for periods ranging from six months to three and one-half years. In 13 cases the disease is arrested or undergoing arrest.

[J. B. H.]

BRITISH MEDICAL JOURNAL.

DECEMBER 14, 1912.

1. *SIMON, R. M. *A Post-Graduate Lecture on Cardiolysis.*
2. *ROSS, E. H. *An Intracellular Parasite Developing into Spirochaetes.*
3. *JENNINGS, E. *The Parasites Recently Found in Syphilis.*
4. *MOOLGAVKAR, S. R. *On Certain Bodies Found in Syphilitic Lesions Demonstrated by the Jelly Method.*
5. HENRY, H. *The "Infective Granule" as the Initial Phase in the Life-History of a Haemogregarine.*
6. KINGHORN, A., AND YORKE, W. *On the Influence of Meteorological Conditions on the Development of Trypanosoma Rhodesiense in Glossina Morsitans.*
7. HOBHOUSE, E. *Salvarsan in Pernicious Anemia.*

REPORT TO THE SCIENCE COMMITTEE OF THE BRITISH MEDICAL ASSOCIATION.

8. DOUGLAS, J. S. C. *The Cytology of the Blood in Passive Immunity.*

1. Simon gives the details of a patient on whom he performed cardiolysis with marked benefit. In this case there was no organic valvular disease, but adhesions between heart and pericardium, and pericardium and pleura. He discusses the subject of cardiolysis in general, reports the work of others, and considers those cases in which this operation has proved to be of benefit.

2. Ross describes an intracellular parasite of guinea-pigs developing into spirochaetes, shown by the jelly method of *in vitro* staining. This discovery led him to investigate syphilitic sores and ulcers in humans, 143 cases in all, and in every one he has demonstrated this same organism. He discusses the history of the parasite of syphilis, the technic of the jelly method, and its value as a means of diagnosis.

3, 4. These are short articles describing the same organism and the methods of detecting it as given above.

[J. B. H.]

THE INDIAN MEDICAL GAZETTE.

DECEMBER, 1912.

1. *HAMILTON, A. F. *Surgery at the David Sassoon Hospital, Poona.*
2. ROGERS, L. *The Present Position of the Permanganate Treatment of Snake-Bite.*
3. *STEICHEN, A. *The Radio-Activity of Some Wells and Thermal Springs in the Bombay Presidency and in the Baroda.*
4. FRASER, G. C. *The Influence of the Monsoon on the Incidence of Eclampsia.*
5. KHAN, M. H. *The Diagnosis of Sand-fly Fever and Its Differentiation from Malaria.*
6. JUKES, A. M. *Preliminary Notes on Some Cases of Spirillar Fever in the Darjeeling District.*
7. LOCK, H. *A Case of Conservative Surgery.*
8. KNOWLES, R. *A Case of Plague—Abdominal Type.*
9. PHIPSON, E. S. *A Case of Enteric Fever in a Sepoy, Ending Fatally on the 77th Day.*
10. NAPIER, A. H. *A Case of Cerebro-Spinal Meningitis.*

1. Hamilton tabulates the statistics of 1048 major operations illustrating comprehensively the surgery of the Deccan.

3. Steichen presents analyses of the radio-activity of the waters of thermal springs from nine regions in southern India. [R. M. G.]

MÜNCHENER MEDIZINISCHE WOCHENSCHRIFT.

No. 47. NOVEMBER 19, 1912.

1. *PERTHES, G. *Conduction-anesthesia by aid of Electric Stimulation.*
2. *WILMS. *Results of Perineal Prostatectomy by My Method with Lateral Incision.*
3. WARBURG, O. *Studies of Oxydation in Cells.*
4. MORO, E. *The Neutral-red Reaction of Milk.*
5. HOFFMANN, M. *Disease of the Optic Nerves in Diabetics.*
6. *LANGER, H. *Protective Effect of Repeated Doses of Water by Mouth against Anaphylaxis.*
7. FISCHER, H. *Simple Spectroscopic Detection of Hemibilirubin in Pathological Urine.*
8. z. VERTH, M. *Fundamentals of General Naval Surgery.*
9. v. LINDEN. *Further Test of Chemotherapy for Tuberculosis.*
10. HERXHEIMER, K. *Cure of a Case of Sarcoma of the Skin by Means of Thorium-x.*
11. LEWIN, L. *A Method of Artificial Breathing for Those Apparently Dead or Asphyxiated.*
12. DREYFUS, G. L. *Methods of Examining Cerebro-Spinal Fluids in Syphilis.*
13. ZUCKERKANDL, O. *Shaggy Tumors of the Bladder Obstructing the Outflow of Urine.*

1. The writer describes a method of localizing the nerve to be anesthetized by means of a very mild electric current passed through the canula when in place for injection of the anesthetic. The electric current will cause twitching of muscles only when the canula comes directly in contact with the nerve itself, and the amount used is too mild to produce pain. Hence the method is a help toward precision in employment of the anesthetic.

2. Wilms reports final results on 31 cases of prostatectomy by his method with lateral perineal incision. He claims the following advantages for the method: That the functional results as to micturition are excellent; that the sexual function is not disturbed; and that after-care is simplified.

6. The experiments of Langer in the production of anaphylaxis in guinea-pigs and its treatment by repeated small injections of salt solution are of interest because those that received the salt recovered more often than did those not receiving it. The writer advocates further trial of this procedure. He injected the salt by mouth in the period of developing hypersensitization. [G. C. S.]

No. 48. NOVEMBER 26, 1912.

1. *WEIDENREICH, F. *The Thymus of the Adult As a Source of Granulated and Ungranulated Leucocytes.*
2. *SCHRIDDE, H. *Diagnosis of Status Thymolymphaticus.*
3. *HENCK, W. *Treatment of Skin Diseases with Human Serum.*
4. EMMERICH, R. *Rational Treatment of Asiatic Cholera.*
5. JACOB, L. *A Contribution on Paratyphoid.*
6. ZAHN, F. *Workman's Insurance in Germany: Its Social-hygienic and Social-political Significance.*
7. NEUMAYER, V. L. *Attempt at Improving the Effect of Salvarsan.*
8. SANDROCK, W. *A Fatal Case of Severe Electric Burn.*
9. SCHAAL. *Enterospasmus Verminosus.*
10. KOEPPE. *A Swab for the Ear.*
11. SCHUBART. *Seven Cases of Psychic Disorder Cured After Gynecological Operations.*

1. Weidenreich brings forward new observations on the thymus gland which seem to show that its cortex is a source of leucocytes of various kinds. Not alone lymphocytes of the small type, but neutrophytic leucocytes and eosinophiles originate there in considerable numbers. These differentiated types were observed in process of division as well as in every stage of development from the simpler forms. These observations strike a blow at the generally accepted belief that granulated leucocytes can originate only in the marrow, and the writer further states that they can be produced from typical small lymphocytes, as well as from the larger variety.

2. As a clinical sign of status lymphaticus, the writer brings forward his observation that the skin of the tongue is thickened in all cases. Enlargement of lymphatic glands and of tonsils is not always present, and although the blood may show a lymphocytosis, little is known of it. The observations are based on autopsy material.

3. Henck reports encouraging results from the use of normal human serum injected intravenously for certain obstinate skin affections, *e.g.* chronic urticaria, *Strophulus infantum* and *Pruritus senilis.* [G. C. S.]

No. 49. DECEMBER 3, 1912.

1. AUTENRIETH, W., AND FUNK, A. *Calorimetric Tests: The Renal Test of Rowntree and Geraghty; Estimation of Rhodan in the Saliva and of Iodin in the Urine. (To be concluded.)*
2. ISELIN, H. *Injury to the Skin by Röntgen-light After Deep Treatments. Cumulative Effect. (To be concluded.)*
3. FLÖRDSEN, H. *Contribution on Direct Transfusion of Blood.*
4. *ZABEL, B. *Diagnosis of Bronchial Glands.*
5. HUBER, J. C. *Irritating Effects Observed in the Living Human Intestines of Asians.*
6. KOLB, K. *Intestinal Symptoms in Basedow's Disease and Diagnostic Difficulties.*
7. DEPPE, L. *Spontaneous Cure of Appendicitis.*
8. DESSAUER, F., AND KÜPFERLE, L. *The Motion of the Heart Shown by Röntgen-rays.*
9. SCHOTTELINS, M. *Tablets of Chlorcresol: "Trotan."*
10. KALL, K. *Treatment of Scabies with Salicylnicotin-soap Tar.*
11. PICK, J. *Statistical Contribution on the Etiology, Pathology and Treatment of Dysbosia Angiosclerotica.*

12. BAMBERGER. *Complete Gangrene of the Breast Associated with Puerperal Sepsis.*
13. STERNBERG, W. *Dietetic Treatment in Cooking.*

4. Zabel reports the results of his experience in treating a variety of signs and symptoms which may be found with enlargement of the bronchial glands. His work was done on children of a variety of ages and also on adults. The work cannot be summarized satisfactorily in a few words, but he emphasizes the point that auscultation of the spine by d'Espine's method proved more reliable than any other sign. He puts next in importance Koranze's percussion of the spine. [G. C. S.]

WIENER KLINISCHE WOCHENSCHRIFT.

No. 51. DECEMBER 19, 1912.

1. *JAKLIN. *Germ Prophylaxis in Surgery.*
2. JÜRGENS, A. *The Skleroma Question in Russia.*
3. KOLLERT, V. *The Scaphoid Shoulder-Blade and Its Clinical Significance in the Prognosis of Duration of Life.*
4. KÜHNELT, E. *A New Method for the Administration of Larger Emanation Doses.*
5. ZOGRAFLDES, A. *Contribution to the Treatment of External Furunculous Otitis.*
6. DONATH, J. *The Nucleic Acid Treatment of Progressive Paralysis.*
7. WILMS. *The Publications of Zuckerkandl on Wilms' Prostatectomy.*

1. Jaklin believes that the germs ordinarily existing in the outer world possess as a rule no virulence, and are, therefore, not dangerous to wounds. Only by the passage of germs through a septic wound or organism, do they become virulent. The ideal and simplest prophylaxis against infection is complete separation between septic and aseptic surgery. [R. M. G.]

Correspondence.

THE ORIGIN OF LIFE: A REJOINDER.

Cambridge, Mass., Dec. 13, 1912.

Mr. Editor: I am moved by certain practical considerations to join most heartily in Dr. Putnam's earnest and timely protest, in your issue of November 14, against the materialistic spirit so forcibly exhibited in Dr. Schaefer' presidential address, delivered recently at Dundee. Yet, sincere as is my concurrence in his defence of a vitalistic principle, I feel that his inference from the premise of its existence should not be accepted without certain mental reservations.

Prof. Schaefer's brilliant exposition of the attitude of science toward the origin, nature and maintenance of life may well be taken as a powerful effort, based upon recent experimentation, to stem the tide of reaction now running so strongly against the materialistic conception of the universe so long dominating all scientific thought. But since this reaction is tending to emancipate the present generation from the hard and narrowing positivist dogmas, we may take heart to wait patiently until the physiological chemist shall have produced the homunculus, which, though not his immediate aim, is clearly his ultimate hope.

While watching closely the further developments of laboratory work and rejoicing in the successes of its adepts, we must keep our minds, as Dr. Putnam urges, in a critical attitude towards their inferences, but not without that self-criticism which shall prevent our being carried too fast and too far by the wave of idealism.

As sober-minded doctors we may yet be deeply interested in the theory of an all-pervading and creative energy according to Ostwald, Herz and others, and in the higher physics as expounded by Gustave Le Bon in his "Evolution of Matter"; or we may even accept mind as something separable from the molecular forces of our brain cells. But as practical men we should still keep our feet on the earth and guard our heads from the mists of transcendentalism. There is far too much at stake if we declare "the investigation of nature 'to be a journey of discovery into our own thoughts and feelings,' or that physics can come completely to its rights only through metaphysics." With all possible concessions to the eternal values offered by the idealistic side of world wisdom, and fully conscious "that we do not understand the world we live in by simply decomposing it into its physical and psychical elements" and, I may add, by synthetically re-distributing these elements, we are hardly warranted, as yet, in seeking explanations of natural phenomena in purely speculative philosophy.

If physics can come to its own *only* through metaphysics how much more should this be predicated of the biological sciences, of which "physic" claims to be one and, as we should hold, the foremost, in its practical application. At the bottom of them all lies the great unknown *bios* through which we are endeavoring to penetrate, by the methods of science, first of all, and *then* with the aid of hypothesis. If we put this latter first, or give it undue weight while pursuing experimental research and seeking greater exactness by even more accurate observation, shall we not be again opening wide that door through which have entered into medicine from the beginning, all manner of hypothetical systems invariably leading to both mysticism and dogmatism? The history of medicine warns us of the curse that would inevitably follow.

Again, however freely we may admit that "the 'laws' of nature, discovered by us, must owe their existence and value for us to the action and existence of our minds," is it not going too far on the journey of discovery through our thoughts and feelings to declare them to be "expressions of, and existing for us *only* on the background of our minds"? Without our minds they would remain undiscovered, but nevertheless continue to exist as uniformities in nature. For the present we must still look upon them as objects outside of ourselves, as sequences of phenomena observable by us, rather than evolved out of our inner consciousness. Without what we have come to call "laws" the accumulation of facts, however great and exact, of course, would not be science, but the laws must rest on the facts themselves, not be super-imposed upon them by our minds.

There is little danger that the great mass of the profession will lose much sleep from pondering these somewhat abstruse questions, although it was said—I do not remember by which of the ancients—that the physician who is also a philosopher is godlike; and it is certain that Dr. Putnam's protest was prompted by that divine spark within us all, unless quenched by hereditary or acquired depravity, from which all wisdom springs. Nevertheless, let us beware

> Lest that divine philosophy
> Shall push beyond its mark and be
> Procuress to the lords of hell.

As yet our science must be securely founded on an empirical and inductive basis while our aspirations should be dictated by idealism.

WALTER WESSELHOEFT, M.D.

PHYSICS AND METAPHYSICS: A FURTHER REJOINDER.

Boston, December 28, 1912.

Mr. Editor: I have taken great pleasure in reading the manuscript of Dr. Walter Wesselhoeft's courteous and liberal response to my letter entitled "The Origin of Life,"—the more so that the writer's reference to points of agreement in certain essential respects leads me to believe that we should eventually come to agree in all respects. Nevertheless, there are likewise differences on which I wish to comment, since the whole matter appears to me not of trivial, but

of fundamental interest. These differences relate especially, as Dr. Wesselhoeft says at once, to the question of the practical, or as Dr. James would say, "pragmatic" bearings of the views at stake.

The fear is expressed that a renewal of the emphasis on metaphysis (so long, and, as I think, so unjustly, a despised science) might plunge us back into the wordy discussions of mediaeval times, to the detriment of our scientific attitude, which has been won at such high cost of time and effort. If I believed for a moment that this would be the case I should heartily sympathize with Dr. Wesselhoeft's objections; for I, like him, am enlisted, heart and soul, in the cause of exact science. But I decline to believe that because there have been days, even as late as the early part of the last century, when a weak-kneed science was willing to seek aid of one or an other sort from a somewhat sentimental philosophical tendency ("philosophy of nature," etc), therefore this danger threatens us to-day.

Must we, then, shrink from the very shadow of this danger, so far as to give our adherence to a fallacious theory of the universe, or, on the other hand, so far as to plume ourselves, like the Titans, on being so sturdily 'self-made', so secure in our discovery of our earthly genesis, content with the knowledge that comes through our well furnished laboratories of science, that we can afford to neglect all other sources of information about our origin and destiny, even those through which alone we can hope to raise ethics above the level of a pure arrangement of convenience, and to secure a scientific standing for religions? I know that Dr. Wesselhoeft does not echo these sentiments, but there is abundant reason to think that something like them is widely felt among us, and they are the logical outcome of the movement that culminated in the congress of the Monists, in Germany, a year and a half ago, in whose councils the able and high-minded Professor Ostwald, to whom Dr. Wesselhoeft refers, together with our own justly admired Professor Loeb, were prominent. Professor Karl Pearson, is likewise to be counted on that side, for he, too, announces boldly in his Grammar of Science, which has long been accepted as a peculiarly fair and uncontrovertible statement of the attitude and just claims of natural science, that conclusions as to the ultimate nature of the universe and mind must be made, if at all, not through logic and philosophy but through investigations conducted in accordance with the laws of chemistry and physics.

It does not alter the situation that Professor Ostwald, in his well-known book on Philosophy of Natural Processes, as well as in his Ingersoll Lecture on Immortality, substitutes *energies* for *atoms*, and thus admits or asserts an immaterial basis for phenomena usually described in terms of matter. This represents, indeed, a conscientious attempt to bring mental phenomena into the field with physical phenomena without doing injustice to the former. But this attempt is made, not on the basis of an acceptance of the doctrine which I hold and which I suspect Dr. Wesselhoeft holds, in common with Professor Royce and great numbers of other able thinkers, namely, that the key to the final secrets of the physical world is to be discovered only through the study of the mental world, but, on the contrary, on the reverse basis. And the fact remains that he, [like Loeb—who derives tropisms from simple chemical processes, and consciousness from tropisms] practically denies that mind, or, in broader terms, the self-active energy of which 'mind' is the highest expression—or self-renewing energy which obeys laws broader than those of physics,—lies at the foundation of the universe. If this conclusion were really to be accepted, the bloom of life for many of us would be lost, and I, for one, am entirely ready at any time, to break a lance in favor of the opposite belief.

Dr. Wesselhoeft points at the real storm-center of this controversy in criticizing as vague and practically unmeaning, my proposition that "physics can come completely to its rights only through metaphysics." The physical laws he says, "without our minds (they) would remain undiscovered, but nevertheless continue to exist as uniformities in nature." Of course, in one sense this is true; but not in the usually accepted sense,—not in the sense, namely, which Kant had in mind when he laid down his doctrine of the "Ding an sich" as independent of its conscious recognition, a doctrine fully refuted, later, it would seem, by Hegel. Dr. Wesselhoeft seems to be of the same mind with Kant when he speaks of our discovering the laws of nature, which he says, must have been previously in existence, and only waiting for us to find them. But is this true? If the laws of nature were really already made, and simply waiting for us to find them, then these laws must, of course, be taken as an expression of the fundamental nature of the universe. But if that were so we should have to believe in a universe [of mental as well as of physical aspects] all parts of which are to be assumed as bound together in the same absolute sense that the different physical forces are assumed to be bound together by the law of the conservation of energy. In such a universe, no growth in a creative sense, could possibly occur and a 'belief' in it would be a delusion and a snare. As much energy as there is in the world there would always have been. For, by the very definition of this law, as no energy can escape so none can be called into existence. The world would be like a kaleidoscope, in which changes appear to occur but are really brought about only through shuffling around the same old elements. The laws of physics and chemistry, and of a biology built on chemistry and physics, are laws of absolute relativity, for on absolute relativity natural science rests its claim to recognition. Iron chains are substituted for free will and if we try to get rid of the vitalistic horror of one such chain we can do so only by the subterfuge of adding a million more, which leaves us really no better off. If we try to deal with [or 'get outside' of] the problem of space and time, we must, if we would be logical, agree to do this not by inquiring into their *nature* but by wearily adding new portions of space and time, in the vain hope that at last we may reach their limits.

If we would escape from this sort of relativity which, as I have said, it is the glory of natural science to have established on a firm footing, we can do so only by admitting the doctrine that the processes of the universe are processes whose very nature it is to be self-renewing or self-active, or, if one will, "vital." In other words, we must admit that the ultimate type of world-process has to be sought not in mechanical phenomena but in the phenomena of which the workings of the mind and will afford the best example. We regard ourselves as 'persons,' but unless we are willing to agree that the rest of the universe is not personal at all but is a mechanical arrangement containing just so much energy, coming no one knows whence, no part of which can ever die and no part ever be born, we must believe that it is, to all intents and purposes, wholly personal. For no scientific man can really accept a dualistic system [although it is equally true that we must for convenience sake continue to use dualistic terms] and the Monistic Congress in Berlin had the merit that it endorsed a monism even though a materialistic one.

It will, of course, be urged that this claim of a personalistic universe represents an absurd 'hypothesis',—the attempt to escape from one dilemma by substituting another in its place. I cannot give, in this short space, the refutation of this statement, nor can I state the tenets of the systems of 'constructive idealism' which show in what sense the word 'personalistic' is to be taken. Any one who seriously wishes to inform himself on this subject can do so by consulting such books as the late Dr. W. T. Harris' "Logic of Hegel," or the late Professor Bowne's admirable book on "Personalism," or McTaggart's "Studies in Hegelian Cosmology," or Professor Royce's "The World and the Individual." These books show that metaphysics, instead of being "Procuress to the

Lords of Hell," or a hypothesis in any objectionable sense, is a true 'science' to a degree that few persons appreciate, and with claims to exactness, which, if of a different sort from those made for chemistry and physics, are at bottom more sound, because they are based on a close study of the nature of the thinking processes themselves, without which processes no conclusions can be arrived at of any sort. The fact is that the attempt to build a universe on the lines of natural science, that is, to admit nothing as real and valid but the things of which, in ordinary parlance, our senses or our physical measurements give us evidence, yet which we assume to have been logically antecedent to every form of vital or mental reality, is an utterly illogical procedure. It is an attempt to set up golden calves, and tin images of the gods, and then worship them, as primitive peoples have done since time began, *as if they were* gods.

What I meant by saying that physics can come to its right only through metaphysics, is that no science can be truly itself unless it is willing to limit itself to its proper place, and to recognize its true relation to other sciences. The frog burst because he tried to be the ox; and so the law of the conservation of energy is bound to go to pieces the moment that those who framed or who uphold it, in obedience to certain definite and limited needs, cease to recognize that it was made by man and for man's convenience, and that it does not expresse a big enough principle to account either for the will and the ideals and the vital energy of its human creator, nor for his obligations to the vital principle in him which is bigger than he, and which relates him, as a responsible, self-active person, to the self-active principle of personality which pervades the universe and without which the universe would be unthinkable, and if unthinkable, unendurable. JAMES J. PUTNAM, M.D.

Miscellany.

SOCIETY NOTICES.

BOSTON MEDICAL LIBRARY in conjunction with the SUFFOLK DISTRICT MEDICAL SOCIETY: Medical Section meeting at the Boston Medical Library on Wednesday, January 22, 1913, at 8.15 P. M.

1. 'Clinical Studies of Acidity of the Urine with Remarks on Fisher's Theory of Nephritis," by Dr. W. W. Palmer.

2. "Measured Feeding for Older Children"; (with an exhibit of specimens), by Dr. Wm. R. P. Emerson.

Discussions by Drs. J. L. Morse, E. E. Locke, L. J. Henderson, and L. H. Newburg.

GEO. C. SHATTUCK, *Secretary*,
205 Beacon Street.

ESSEX SOUTH DISTRICT MEDICAL SOCIETY.—The third regular meeting of the Essex South District Medical Society will be held at the Essex House, Salem, January 16, 1913, at 7 P. M.

Dr. John T. Bottomley, of Boston, who was unable to attend the previous meeting as arranged, will be the guest of the evening and will talk on the "Significance of Jaundice." DR. H. E. SEARS, *Pres.*
DR. H. P. BENNETT, *Sec'y.*

THE NEW ENGLAND HOSPITAL MEDICAL SOCIETY.

The annual meeting of the New England Hospital Medical Society will be held at Hotel Vendome, Jan. 16, at 6 P. M. There will be a dinner served at 6.30, followed by toasts.

Election of officers.

MARGARET L. NOYES, *Secretary.*

RECENT DEATHS.

DR. GEORGE LOUIS FARRELL, Mayor of Malden, Mass., and a Fellow of The Massachusetts Medical Society, died of pneumonia at his home on Jan. 1, 1913, aged 46 years. He received the degree of M.D. in 1895 from the Jefferson Medical School, Philadelphia.

DR. WILLIAM E. GREENE, who died on Jan. 5 at Little Rock, Ark., was born in 1844. He was a former president of the American Institute of Homeopathy and of the Southern Homeopathic Association.

DR. WILLIAM WARNER HOPPIN, who died on Jan. 3 in New York City, was born at Providence, R. I., in 1838. He graduated from Brown University in 1861, and began the study of medicine at the New York College of Physicians and Surgeons from which he received the degree of M.D. in 1864. During this period he served for a time in the Union Army as an assistant-surgeon. At the close of the Civil War, he entered the Columbia Law School, from which he graduated in 1869, and immediately began the practice of law, which he thereafter pursued for the remainder of his life. From 1877 to '91 he was a trustee of the College of Physicians and Surgeons, and a member of the board of governors of the Woman's Hospital, New York. He was also one of the governors of the New York Hospital. He was author of many addresses and papers. He is survived by his widow, by two daughters, and by three sons.

DR. FRANKLIN G. HUMISTON, of East Jaffrey, N. H., who died in Boston last week, was born at Candor, N. Y., in 1856. After graduating from Dartmouth College, he obtained the degree of M.D. in 1886 from the University of Pennsylvania, and since that time had practised his profession in East Jaffrey. He is survived by his widow, by four daughters, and by two sons.

APPOINTMENTS.

ST. ELIZABETH'S HOSPITAL.—At the annual meeting of the trustees, on Jan. 3, *Dr. John R. Slattery* was elected associate physician-in-chief and superintendent of the hospital.

THE CARNEY HOSPITAL.—*Dr. Edward Marwick Plummer* has been appointed surgeon-in-chief of the recently consolidated oto-laryngologic department, with *Drs. John T. Sullivan, Timothy J. Shanahan,* and *Dana W. Drury* as surgeons, and *Drs. John L. Lougee, D. Campbell Smythe, William J. Sheehan,* and *Frederick A. Bogan* as assistant surgeons.

RECORD OF MORTALITY.

FOR THE WEEK ENDING SATURDAY, JAN. 4, 1913.

CITIES.	Reported deaths in each.	Deaths under five years.	CITIES.	Reported deaths in each.	Deaths under five years.
New York	—	—	Pittsfield	11	3
Chicago	781	210	Waltham	4	—
Philadelphia	—	—	Brookline	6	—
St. Louis	—	—	Chicopee	10	4
Baltimore	—	—	Gloucester	7	1
Cleveland	—	—	Medford	5	—
Buffalo	—	—	North Adams	6	—
Pittsburgh	—	—	Northampton	6	—
Cincinnati	—	—	Beverly	6	—
Milwaukee	—	—	Revere	5	1
Washington	—	—	Leominster	—	—
Providence	—	—	Attleboro	9	2
Boston	261	55	Westfield	11	2
Worcester	52	12	Peabody	—	
Fall River	42	16	Melrose	3	2
Lowell	32	6	Woburn	10	2
Cambridge	24	8	Newburyport	5	—
New Bedford	32	10	Gardner	3	—
Lynn	32	9	Marlboro	6	2
Springfield	25	4	Clinton	2	—
Lawrence	—	—	Milford	—	—
Somerville	24	7	Adams	—	—
Holyoke	26	10	Framingham	—	—
Brockton	10	1	Weymouth	-	—
Malden	14	3	Watertown	2	—
Haverhill	22	6	Southbridge	1	—
Salem	12	5	Plymouth	—	—
Newton	20	4	Webster	8	—
Fitchburg	—	—	Methuen	—	—
Taunton	13	1	Wakefield	—	—
Everett	8	1	Arlington	—	—
Quincy	—	—	Greenfield	—	—
Chelsea	18	3	Winthrop	7	—

Original Articles.

THE WORK OF THE MASSACHUSETTS STATE BOARD OF HEALTH IN THE INVESTIGATION OF INFANTILE PARALYSIS.*

BY ROBERT W. LOVETT, M.D., BOSTON.

In the year 1907 there occurred in New York City the most extensive epidemic of infantile paralysis of modern times. This epidemic was made the subject of an investigation by a committee of physicians representing various medical societies, and their results were later published.[1] In the fall of 1907 it became evident in Massachusetts that there were more cases occurring in the state than in previous years, and it was decided by the Massachusetts State Board of Health that an investigation into the distribution and characteristics of the disease as it appeared in the state over a period of years might be of value. In February, 1908, circular letters were sent out by the Board to every physician in Massachusetts—some 6,000 in all—asking if in the year 1907 they had seen in their practice any cases of acute febrile disturbance in young children, followed by paralysis. To the physicians replying in the affirmative, blanks, following in general those of the New York committee, were sent to be filled out, and the reports of 234 cases were received and analyzed.

These cases were distributed throughout the state in a general way corresponding to the density of population, although certain foci of increased incidence of the disease occurred in different parts of the state, such as Pittsfield and the valley of the Merrimac River. The environment and history of each case was recorded as far as possible, and it was announced that the Board would continue the investigation on the same lines in the following year. The data, along with a resumé of the subject, were published in the summer of 1908.[2]

In 1908[3] the investigation was carried on along the same lines as in 1907. As at that time we had no direct proof that the disease was infectious, an attempt was made to investigate the stools of children sick with the disease on the ground that perhaps some especial bacteria might be found in the stools. Prof. Theobald Smith, pathologist to the Board, conducted this research, which proved negative, and was abandoned in 1909, after Flexner's demonstration that the disease was an infectious one.

In 1907 there occurred only 136 cases, and half of these occurred as an epidemic in Franklin County. The distribution of the cases was different from that of 1907, and communities affected one year apparently were comparatively immune the following year. The epidemic of 69 cases in Franklin County in 1907, just spoken of, was carefully studied by Dr. H. C. Emerson of Springfield,[3] at that time one of the medical inspectors of the Board, and in his conclusions he stated that the disease was evidently infectious, and at the most, mildly contagious. He also presented to the Board his conclusion that the disease was probably transmitted by insects, but this part of his paper was suppressed on the ground that the evidence was insufficient.

In 1909 the investigation showed 923 cases occurring in Massachusetts. Up to this year the work of collecting data had been done by mail by the clerical force of the Board, the blanks being filled out by the practitioners, but with the very marked increase in the cases, it seemed advisable to obtain more data and to secure them on the spot for the sake of uniformity, by a special investigator, and Mr. P. A. E. Sheppard, at that time a senior student in the Harvard Medical School, was engaged by the Board for this work, and continued in its employ until the autumn of 1912. It was his duty to visit as many cases as possible during or soon after the attack, and to fill out a blank embodying the information required.

In order to secure the best advice from various points of view in formulating the inquiry, four gentlemen were asked to serve as an Advisory Committee to the Secretary of the Board, Dr. M. W. Richardson, and to the writer who represented the Board in the investigation. These were Dr. Theobald Smith, Professor of Comparative Pathology; Dr. M. J. Rosenau, Professor of Preventive Medicine and Hygiene; Dr. J. H. Wright, Pathologist to the Massachusetts General Hospital and Assistant Professor of Pathology; and Dr. John Lovett Morse, Associate Professor of Pediatrics in the Harvard Medical School, and this Advisory Committee has continued to give its time and advice in the inquiry without compensation up to the present time, meeting as often as appeared necessary.

In November, 1909, the disease was made a notifiable one in Massachusetts, placing it in the category with scarlet fever, diphtheria and similar diseases. The attitude of the board in the matter at this time was expressed in the report for 1909, as follows: "It is only proper to state that in the present state of our knowledge no one can say which data are relevant and which are not. It is possible that some data which now seem of no importance may be of assistance to some future investigator."

In November, 1909,[4] came the demonstration of Flexner and Lewis, that the disease was infectious, was due to a filterable virus, and could be produced in monkeys.

The routine data for 1909 were presented without conclusions, and were published as in former years.[5] In the official publication[6] of the Board covering 1909 were included (1) the general report for 1909; (2) an analysis of an epidemic of 82 cases in Berkshire County by Dr. L. A. Jones, Health Inspector of the Board for that district; (3) an article on the treatment of infantile paralysis by the Orthopedic Depart-

* Presented by invitation before the Academy of Arts and Sciences, Boston, January 8, 1913.

ment of the Harvard Medical School, previously published elsewhere,[7] and (4) a paper on the diagnosis in the early and prodromal stages by W. P. Lucas, work done from the Proctor Fund of the Harvard Medical School.[8]

Up to and including the year 1909, the investigation had been carried on from the regular appropriation of the Board, but in January, 1910, the legislature was asked to appropriate $5,000 for the continuation and extension of the study, now becoming more expensive. This money was voted without question and without opposition. In February, 1910, another investigator, Dr. J. P. Hennelly, a recent graduate of the Harvard Medical School, was detailed to the investigation of cases.

In 1910 there were reported in the state 845 cases, and a large epidemic of 148 cases occurred in Springfield, and another of 89 cases in Fall River. The publication for 1910 contained (1) the routine report of the disease for the year[9]; (2) a careful study of the Fall River epidemic by Dr. Hennelly[10]; (3) an extended analysis of the Springfield epidemic by Dr. Sheppard[10]; (4) an article by Rosenau, Sheppard and Amoss dealing with an unsuccessful attempt to produce the disease in monkeys by inoculation with the nasal, pharyngeal and buccal secretion of 18 human cases[9]; and (5) an investigation[9] by Dr. May, a veterinary surgeon, who made at the request of the Board an inquiry into the occurrence in Massachusetts in 1910 of paralysis in the lower animals and fowls. Many cases of such paralysis were found, and the report was of interest, but seemed to throw no especial light on the relation of such paralysis to the human disease. In this year, as in previous ones, the Board bought paralyzed animals wherever obtainable, and sent them to Prof. Theobald Smith for investigation.

In 1911 the legislature was asked for $10,000 for the extension of the inquiry, especially necessitated by the increasing size of the yearly publication and for other reasons to be spoken of. This amount was granted without opposition or delay.

Before passing to our analysis of the data collected in the four years ending in 1910, a brief resumé of the routine work for 1911 should be given. In that year 260 cases were reported, and certain work, not yet published, was done as to the possible relation of the disease to Herpes zoster.

In April, 1911, Dr. B. E. Wood of Boston, an orthopedic surgeon of experience, was requested to examine and report to the Board upon the condition then of the 234 cases paralyzed in 1907. He reported complete or functional recovery in 25 per cent. of these.[11]

In December, 1911, Dr. W. P. Lucas and Dr. R. B. Osgood of Boston, undertook an inquiry to ascertain whether an immunity to various bacterial infections artificially produced in monkeys, produced also immunity to the virus of infantile paralysis. The experiments seemed to show that in the Rhesus monkey such immunity afforded no demonstrable protection to the virus of infantile paralysis.[12]

A study of the blood in 13 acute cases of the disease was made in 1911 and reported to the Board by Hammond and Sheppard.[13]

We had now been at work for four years along definite and more or less unvarying lines, the collection of data covering points presumably of interest, and it seemed as if four years of such data was a sufficient number from which to draw conclusions, and that future work had better be formulated after a careful study of these conclusions and on the lines indicated by them, because the indefinite continuance of field work seemed to offer little promise of bringing out new facts. The data were therefore analyzed by Dr. Richardson and the writer.[14]

It was found that from 1907 to 1910 inclusive there had been reported to the board 2138 cases, and on the whole there seemed to be a two-year periodicity when limited localities were considered. In each of the years and taking all four together it was evidently an affection relatively more prevalent in the smaller cities and towns than in the larger, the average population in the 25 places where the disease was most prevalent being about 5000, and in the 25 where it was least prevalent being 52,000. This was not the case with scarlet fever analyzed as a control, which was relatively as prevalent in the same years in the larger cities and towns as in the smaller.

Bearing still further on the fact that infantile paralysis is essentially a rural disease, the number of domestic animals in proportion to the population was investigated in the 25 cities and towns where the disease was most prevalent and in the 25 where it was least prevalent. In those where the disease was least prevalent there was one cow to 84 inhabitants; where most prevalent one cow to 11 inhabitants; where least prevalent one horse to 32; where most prevalent one to 14. As to swine, there was one to 287 inhabitants where least prevalent; one to 60 where most. An investigation as to poultry showed one fowl to 22 inhabitants in the least affected regions; one fowl to 1.75 inhabitants in the most affected. Both analyses thus clearly brought out a fact established elsewhere,—that the disease was by preference rural rather than urban.

The seasonal occurrence was as usual, the disease reaching its height in either July, August or September in the various years, but never quite disappearing even in winter. The investigation of age, sex and mortality added nothing to the facts known. In the study of the environment of the patients in these four years there was no marked predilection of the disease for any especial floor in the house, and the age of the house, the sanitary condition and the degree of dampness seemed to be about the average in the community. The investigation as to the nearness of the house to the railroad track

showed nothing of apparent importance. An attempt was made to study the rôle of dust as a possible agent of the disease, and what was classed as an excessive amount was recorded in 36 per cent. of cases carefully studied. The amount of rainfall was also studied, which showed that the largest number of cases did not occur in the driest years.

The question of the possible transfer of the disease by insects and vermin had been tabulated from the first, and "flies" were naturally reported as present in 90 per cent. of cases and mosquitoes in over 40 per cent., but the information was not collected by an expert, and seemed to be too general to be of value.

The sickness, paralysis or death of domestic animals in infected families, was carefully recorded in connection with the cases and independently by Dr. May, but we could not feel that the number reported was necessarily larger than might have occurred in non-infected families, and the collection of control figures seemed hardly worth while, especially as Prof. Theobald Smith had inoculated monkeys with filtered emulsions of the cords of 12 such animals, the results of which were negative, and had been furnished with a fund raised by private subscription for an inquiry into animal paralysis and its possible bearing on the disease.

The patients affected were studied as to swimming, accidents and exposure just before the attack, as to previous diet and health, as to diseases prevalent in the town at the time, all of which seemed to show little of importance and to warrant no especial conclusions. The rest of the figures related to the clinical features of the attack, which had no apparent bearing on the etiology.

We found what appeared to be evidences of transmission by direct personal contact in 13 per cent. of cases carefully studied, and in 7 per cent. of the families more than one case occurred. Still, the evidence in favor of a contagious disease was not quite satisfactory, for institutions for children were practically immune, and in the one or two instances of disease in such institutions it did not spread, nor did it spread in schools or where children were crowded together. The distribution in general was erratic, isolated cases occurred, and the incubation was variable when it could be determined. Moreover, the attempts of Rosenau, Amoss and Sheppard, and of Strauss of New York, to transmit the disease by nasal and mouth secretions from persons in the acute stage of the disease had proved negative.

These data were then presented to our Advisory Board, and discussed with them. Considering all the facts, our attention was naturally turned to insects as a possible means of transmission. We had spoken of our suspicions in this direction in the 1909 report, and in the 1910 report expressed our belief that such an investigation to be of value must be made by an expert entomologist. After the study of the data spoken of, it was decided to make such an investigation, and in the summer of 1911 Mr. Charles T. Brues, Instructor in Economic Entomology in Harvard University, was secured by the Board to go with the investigator, Dr. Sheppard, to see the acute cases and to report to the Board as to the prevalence of especial insects, especially biting insects, in these localities.

Between July 30, and September 26, 1911, the houses of 88 patients in 17 cities and towns were visited, and the stable fly was found in the environment in practically every case investigated. This and the mosquito were the only biting insects found constantly present. It seemed that if either of these insects were responsible it probably was the stable fiy, as, if it were the mosquito, the disease would be more widespread, and would attack adults as well as children; whereas the fly would be more likely to bite children than adults, and the seasonal distribution was rather more like that of the fly than of the mosquito.[15]

Prof. Rosenau was then requested on behalf of the Board to undertake the experiment of transmitting the disease from monkey to monkey by means of the stable fly, and with Mr. Brues reported at the Congress of Hygiene in Washington on September 26, 1912,[16] that inoculated monkeys had been bitten by stable flies, and that of 12 healthy monkeys subsequently bitten by the same flies six showed indications of the disease. This was subsequently confirmed by independent experiments of Anderson and Frost.[17]

The sequence was then as follows: (1) the routine collection of data for four years, with the publication of these data at the close of each year without theorizing; (2) an analysis and study of these data at the end of four years; (3) deductions from these data; (4) new lines of observation founded on these deductions, leading to (5) Rosenau's investigations and discovery.

If I have dwelt somewhat insistently on the part played by the State Board of Health in this matter, somewhat more than may have seemed wholly necessary, it has been because I am anxious to lay stress on the fact that this combined work between a public health board and the scientific men of a university medical school seems to offer possibilities of much use in the development of preventive medicine. To speak of this desirable combination as a theoretical matter is one thing; to point to a practical achievement brought about by this team work is another.

In the investigation of a public health problem of this sort most medical schools have neither the funds, the clinical material, nor the clerical force necessary for a long continued investigation. On the other hand, the public health boards do not as a rule have scientists of the first rank who are free to work on the purely scientific side of such problems. The

public health boards, however, have immense clinical material, for they are in touch with a large number of physicians and they have machinery for the assembling of desirable data.

Our own experience in the latter respect bears directly on the question. We have found the medical profession of the state interested, in sympathy with our efforts, and most helpful in every way almost without exception. The families of the cases investigated have given us every possible assistance, and have welcomed the inquiry. The legislature has been most liberal, and has granted us in all $20,000 in three separate years, without question. With a profession interested and sympathetic, a public ready to help, and a legislature ready to back such work financially, the Massachusetts experience points to the advisability of such concerted investigation and research between public health boards and the scientific departments of medical schools.

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SHOCK. A REVIEW OF THE THEORIES AND EXPERIMENTAL DATA TO DATE.

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THE phenomenon known as shock was a condition recognized by careful observers as early as 1568, when Clowes, and later in 1719, Weismann, spoke of it as a condition probably caused by the presence of a foreign body in the wound or blood. A little later than this the condition was attributed to a disturbed molecular condition in the tissue.

From a purely historical point of view the literature devoted to shock may be divided into three periods:

(1) From 1795, when the word was first used as we now use it, down to the beginning of the era of experimentation in 1876.

(2) The period from 1870 to 1885, devoted to careful experimental investigation, and

(3) From the re-opening of the question by Crile in 1889, to the present time.

From 1885 to 1889 practically no papers, others than purely casuistic ones, appeared on the subject.

Nearly half a century before Crile's work, Keen, Mitchell and Moorehouse advanced the theory of vasomotor exhaustion, and experimental work by Fischer in 1870 seemed to confirm this theory, *i.e.* of a vasomotor paralysis with flooding of the splanchnic veins and contraction of the peripheral vascular system. This was the recognized phenomena but no adequate explanation of its physiology was at hand.

Brown-Sequard believed the condition to be one of central anemia due to persistent contraction of the capillaries throughout the vasomotor centers.

Moulin: A reflex paralysis in the strictest sense of the word; a reflex inhibition, probably affecting all the functions of the nervous system and not being limited to the heart and blood vessels only.

Boise: Hyperirritation of the entire sympathetic system with resulting stimulation of vasomotor nerves, contraction of arterioles and spasmodic heart action.

Kinneman emphasizes the rôle of a fall in temperature as the principal causative factor in shock, and as a result of extensive animal experimentation, finds that shock must not be considered as due to the lowering or exhausting of any one bodily function, but as a composite condition embracing an interference with normal height of the blood-pressure, interference with the respiratory act and a marked fall in body temperature. Of these, as shock progresses, the most uniform and progressive factor is the fall in temperature. Dogs, after shock, were immersed in a bath of saline at body temperature, and others in a bath of higher temperature. These experiments showed (*a*) that a sufficient fall in body temperature can cause a decrease in respiratory rate and a marked fall in blood-pressure, which in itself constitutes a shock; (*b*) conversely, a limiting of the fall of temperature limits the fall in pressure and prevents a fall in respiration. (*c*) On the other hand, a rise in temperature causes a rise in blood pressure and respiratory rate, reduced by shock, with the result of a gradual annihilation of all symptoms. Thus, of the three factors, temperature commands first place by its power of production, of limitation and amelioration of the composite condition—shock.

As the problem stands today there are several contradictory theories pretty well based on rather extensive experimental evidence. It is to the proper interpretation of this accumulated experimental data that we must look for the physiologic cause rather than to the theory or opinion of any one worker. It is interesting, and at the same time puzzling, to note that each observer is equally sure that he has discovered, through experimentation, the fundamental or chief underlying factor. Thus Crile maintains that vasomotor exhaustion is the primary cause. Boise states that cardiac exhaustion is the prime factor, whereas Howell believes that both cardiac

and vascular changes are at fault; Kinneman (as quoted above) stands for a disturbance of thermogenetic functions; Henderson for the reduction of carbon dioxid content of the blood and tissues (acapnia). Meltzer from experimental evidence, disagrees with Crile, stating that instead of vasomotor exhaustion there is reflex inhibition of the activity of the vasomotor center of the cord. In regard to this particular question it is very probable that personal equation plays a large rôle and that what Meltzer calls the initial symptoms or rapid onset, Crile does not recognize till fully developed shock is evident, (the slow onset).

What is exactly meant by shock is also hard to define. The word represents an intricate symptom-complex and should not be understood to stand for a specific clinical actuality. For this reason we can see how divergent certain views as to its underlying factors may be.

It seems best here to give a synopsis of the work of these men who have recently gone most thoroughly into this subject and then later to correlate these results as far as possible. I shall reserve Crile's work till last as his is the most extensive and seems to bring the subject more nearly up to date.

If we think of shock as a condition induced by fear, exposure, infections or trauma, in which there is exhaustion of nerve cells, principally those of the vasomotor centers but also, probably to a much less extent, of other centers in the medulla, such as respiratory and cardiac, and consequently lowered vasomotor tone and cardiac and respiratory depression of so even a degree as often to result in death, we have before us the general picture, the physiologic cause of which these experimental evidences are trying to discover.

Malcolm of London, dealing with the problem from a purely clinical point of view, believes that if vasomotor exhaustion is present, then the innervation of small peripherical arterioles, being cut off from central control, must be relaxed. This should result in an over-filling of the peripherical vessels; but as a matter of fact, all clinical evidence speaks against such over-filling. The body surface is cold and pale, the mucous membrane anemic, incisions made during shock are almost bloodless. Crile answers this objection by stating that the state of relaxation of peripheral blood-pressure is perfectly consistent with such a condition as the blood has already flowed *through* the dilated arterioles and has collected in the deep veins where it is demonstrable at death.

Bartlett shows that the effect of removal of blood from the body in hemorrhage is not identical with that accompanying a fall of blood-pressure due to trauma. It would seem that the vasoconstriction following bleeding indicates an automatic protective mechanism which is not evident in pure shock. This author believes, with Crile, that the decreased blood-pressure following trauma is due to decreased vasomotor tone, but does not state whether he considers this a complete exhaustion or not.

Leibig and Lyon, however, working only on vagi by electrical stimulation prove that vasomotor exhaustion does *not* occur in shock but rather vasoconstriction. This work is limited to this one class of experiments and does not prove alike for all kinds of surgical trauma and shock.

Brown ascribes the difference between the sudden shock, often seen on the operating table, and the shock of more insidious onset, seen hours later, as follows: The shock noticed during operation is due to the combined effect of the anesthetic in lowering the blood-pressure and the temporary exhaustion of the vasomotor centre by repeated stimulation of the partially narcotized nerve cells together with hemorrhage of varying degree, still further lowering blood-pressure and vagus inhibition of the heart. The later phase of shock depends on exhaustion of the food supply stored up in the vasomotor cells. Owing to the fullness of the circulation through the centers due to the depressed blood pressure, consequent on the exhaustion, no further supply of food is taken up and a vicious circle is set up, causing further exhaustion and shock. This theory has a definite experimental and clinical basis and furthermore seems resasonable.

We now come to a more recent and more radical and widely different view of the underlying principles of shock, but one also well established by experimental evidence—that of Henderson.

This author believes that the underlying cause is insufficiency of the carbon dioxid content of the blood. The tension of this gas in the circulation is the normal stimulus of the respiratory centre, and consequently is regulated automatically in a healthy individual under normal conditions. If, however, the rate of respiration be markedly increased the over-ventilation of the lungs causes an increased inspiration of oxygen resulting in a condition of over-oxygenation of the blood with diminished carbon dioxid or—acapnia. The respiratory centre is thus robbed of its normal stimulus and spontaneous respiration ceases, although the heart continues to beat (apnea). The sensitiveness of the respiratory centre for carbon dioxid varies. If this sensitiveness is acute and the acapnia is mild in degree a vigorous circulation will permit vital processes to continue long enough for the re-accumulation of sufficient carbon dioxid in the blood to restore spontaneous respiration. If, however, the acapnia is intense, apnea continues and death takes place from oxygen starvation of the heart. With acapnia there comes dilatation of the splanchnic veins and a fall in blood pressure. The tonicity of the walls of the blood vessels is in direct proportion to the carbon dioxid content of the blood. Henderson quotes Crile to show that in his (Crile's) experimental

work it was necessary to resort to artificial respiration in order to keep the animal alive long enough to procure the evidence of the vasomotor origin of shock. He, therefore, concludes that the respiratory failure is the primary change in shock and that the other phenomena are of secondary origin.

Henderson advocates the use of oxygen and carbon dioxid 20 to 1 by inhalation in treatment of shock, even by intra-tracheal insufflation if necessary or rebreathing with a paper bag to renew the stimulating effect of Co_2.

(N. B. This has been recently tried with success and reported by Cotton in three cases, when shock seemed to be due to excessive respiration; one a sobbing, hysterical woman.)

If apnea is prolonged, asphyxial acidosis develops. If the acapnia is not too intense these products of incomplete tissue combustion induce isolated gasps, followed by Cheyne-Stokes breathing and prevent immediate death. After intense bodily suffering failure of respiration is the usual form of death. It is only when the pain is sufficiently continuous to prevent apnea that the slower process of failure of circulation develops.

It seems to the writer that Henderson's theory is sound as far as it goes, his work convincing and his reasoning logical, but that he does not include, in regarding deficiency of carbon dioxid, all the features of shock or the fundamentals present at the very onset of the condition.

Shock is a complex condition, not a definite symptom, but a symptom-complex, dependent on more than one causative factor.

Because of the length of time over which he has carried his experimental work and the thoroughness and extent of his researches, Crile's work seems more than any other to deserve attention and recognition, and because he has built up a well founded line of treatment based on his experimental work it seems consistent that more reliance should be put on his theories and observations and results than on those doing only fragmentary work on separate phases of this complex problem.

It is well known that severe infection, hemorrhage, exhaustion from physical exertion, exophthalmic goitre, surgical trauma and overwhelming emotion are the common predisposing causes of surgical death. An operation that would present virtually no risk in the uncomplicated stage may readily prove fatal in any of these handicapped cases. The question to determine, therefore, is, "What are the factors in the technic of a surgical operation that may further impair the brain cells and thus turn the balance to a fatal termination?"

In shock, the essential phenomenon is a diminution of blood-pressure. This must be due to the exhaustion of the cardiac muscle, cardiac centre, blood vessels or vasomotor center. Experiment shows that it is not the cardiac muscle or its controlling nervous mechanism that is at fault but a loss of peripheral resistance. Fatigue of blood vessels can be excluded also experimentally. It, therefore, must be the vasomotor *centre* which suffers injury and causes reflexly the symptoms characteristic of shock.

Quoting from a large series of experiments carried out on dogs under ether anesthesia, and under varying conditions of temperature, etc., it was found that (1) the duration of an operation alone was a potent factor in the production of shock. (2) Animals may be killed from continuous anesthesia alone, though this anesthetic be carefully administered over a long period. (3) There is strong evidence that chloroform, even barring accidents, is a more potent factor in destroying the animal than ether. (4) Exposure to air is a great factor in producing shock, reducing body temperature and causing drying of tissues. This is strikingly observed in case of the peritoneum, pleura and brain, and affects particularly the vasomotor mechanism. Exposure causes first a hyperexcitability, which is soon followed by non-excitability. Exposure of the peritoneum causes splanchnic vascular dilatation and also affects respiration unfavorably. (5) The element of time in all abdominal operations was unmistakable. There is sufficient evidence at hand to establish at least a high degree of probability that the shock in operations on the splanchnic area is largely caused by disturbance of the *local* splanchnic vasomotor mechanism.

The experiments of Mall show that the splanchnic nerves are vein-nerves and control this large splanchnic vascular area. Every experiment in this area gave evidence of the dilatation of the vesels controlled by these nerves and the decline of blood pressure occurring pari parsu with this dilatation.

The great shock caused by injuries to the male genital organs is probably due largely to vasomotor dilatation of the splanchnic area. It is safe to say that the "excluded splanchnic circulation" experiments only prove the splanchnic vasomotor factor plays but a part even in such injuries as involve its own area alone; there is no evidence tending to show that in operations in areas of the body other than the splanchnic and genito-urinary tract, that the splanchnic factor plays a special part, probably not much more of a part than in every other area of like vascular capacity. Experiments in which this area was not involved did not show a condition of vascular distension in this area different from that of other areas.

The output of the heart is in direct ratio to the pressure of the vena cava, and not at all to the height of the aortic pressure. The nervous pressure then determines the heart's output. In the condition of profound shock the accelerated cardiac action is taken as evidence of the effort of the regulating centers to recover the lost blood-pressure, but the vasoconstrictor or pres-

sor mechanism is not active; it is probably paralyzed or seriously impaired. The splendid action of the heart under these conditions, on infusion of salt solution proves it to be well capable of further action. It is evident that the heart's action is the last of the great vital functions to fail. Post mortem appearances show the large venous trunks full, sometimes enormously engorged, the arteries empty, the veins of the splanchnic area not more distended than those of the somatic, unless the experiment had included some procedure in the splanchnic area. In a general way, it may be stated that in the organs and tissues, such as intestines, the experiments on which produced a primary fall in blood-pressure, shock was induced earlier than such tissues and organs as the extremities, which produced a primary rise in blood pressure. Gross tissue resistance proved to be a very fair index to resistance.

After shock has been fairly induced reflexes are never so acute, vasomotor actions were sluggish and ineffectual and when blood-pressure declined it was, as a rule, slowly or never regained.

Extensive experimentation shows, therefore, that in shock the essential factors to be considered are trauma, the anesthetic, a primary rise with a following fall in blood-pressure, decrease in body temperature and vasomotor inhibition, paralysis and then exhaustion. In addition to these physiologic changes more recent experimental work of Crile and his associates have shown another, and perhaps entirely unlooked for, physiologic and pathologic process to take place in the presence of shock. I refer to the recent work showing extensive cytologic changes in the brain, as a result of trauma, fear, infection, etc. Animals were overtransfused so that the factor of anemia of the brain was wholly excluded during the application of the shock producing trauma. In every instance, morphologic changes in the cells of all parts of the brain were found, especially in the cortex and cerebellum. It required more trauma to produce equal changes in animals protected against low blood-pressure than in those whose blood-pressure gradually declined during the experiment. The structural changes include changes in the absolute size of the cells, in the size relation of the nucleus, plasma, surrounding membrane of the cell, nucleus and the general contour of the cell. As to gross size, the increase varies from slight to even eight times the normal, the nucleus becomes relatively larger, the limiting membranes may be even ruptured, causing distortion of the cell. In extreme shock the cell completely loses its contour and presents the appearance of a disorganized mass of protoplasm.

At first, in shock, there may be increase in the reaction to Nissl stain, but later, as shock increases, the reaction becomes less and in the final stages there is little or no stain reaction. Even in cases of fatal shock, however, not all of the cells are thus altered. On morphologic grounds, when the nucleus, nucleolus and the cell body become so broken down as to have an undifferentiated mass of protoplasm, the cell is almost certainly dead and will never regenerate, *i.e.* the brain cell is finally deprived of its discharging nervous energy and becomes exhausted just as exhaustion follows too prolonged muscular exertion. To use a vulgar word, the cell literally and figuratively becomes "busted." The gravity of a given case is well indicated by the percentage of cells that are thus damaged. It has been shown, likewise, that the cells of the brain in various diseases also experience the same changes as the one found in shock. A nerve cell that has been impaired by overwork, anemia, infection, drug poisoning, or Graves' disease, obeys the same general law of change. Therefore the changes that are seen in the brain cells are not in the least specific for any etiologic factor, for they appear to be common to all of the above named conditions so far studied.

These studies only serve to further illustrate more forcibly how complex a state shock is and how many factors enter into its physiology. These cytologic changes would rationally explain many of the post-operative neurasthenic states so often seen.

Crile goes further and states that there is strong negative evidence that traumatic impulses are not excluded by ether anesthesia from the part of the brain that is apparently asleep. For if this factor of fear be excluded and if, in addition, the traumatic impulses are prevented from reaching the brain by cocaine, then, despite the intensity or duration of the trauma, within the zone so blocked, there are found no morphologic changes in the brain cells. If, on the other hand, no blocking was used, cell changes are everywhere present. Therefore, although ether anesthesia produces unconsciousness, it apparently protects none of the brain cells against exhaustion from the trauma of the surgical procedure. Ether is, so to speak, but a veneer that covers the deeper suffering of the patient (or patient's brain cells).

Crile believes that ether alone is one of the determining factors in the production of shock. In a series of parallel experiments on animals with ether and with nitrous oxid it was found that the damage to brain cells under ether was four times greater than under nitrous oxid.

Having reviewed the factors on which Crile believes shock is based, we are now in a position to consider the logic of his solution of the problem of treatment. It seems to me it is an extremely logical and reasonable line of deduction. Some of it is old, but a great deal is certainly new and advanced, well-founded on experimental work and extremely efficient from a practical point. He adds practically nothing new to our routine of treatment in cases in which shock has already developed, *i.e.*, heat, rest, morphia, intravenous infusion, bandaging

of extremities, elevation of the foot of the bed and transfusion. He believes that intravenous infusion is of prime importance because it causes, in the first place, an increase in the venous pressure in the vena cava and consequently the output of the heart is at once increased, the amplitude of the strokes lengthened, the chambers being full, the contractions become more forcible and blood-pressure begins to rise. The combination of small, frequently repeated hypodermic injections of strychnia together with saline infusion produces a more constant pressure than ether alone. Over-stimulation is followed by greater depression, hence large doses of strychnia are absolutely contraindicated, for such doses produce vasomotor paralysis and shock the same as trauma does. It is as reasonable to treat shock with large doses of strychnia as to treat strychnine poisoning with trauma. No justification can be found, experimentally, for the use of alcohol, nitroglycerin or anylnitrite as stimulants. As regards alcohol, in not a single instance was there a sustained improvement in the blood-pressure or respiration. On the contrary, the most constant and marked effect on the blood-pressure was a decline. The final breakdown was more sudden with drugs than in control animals. Adrenalin, however, administered cautiously and continuously, with a limited amount of saline, proved the best stimulant, in addition to external pressure by Crile's rubber suit or bandaging of extremities.

The great advance made by Crile in the treatment of shock has been in elaborating a logical *prophylaxis*. This we are in a position to study and to use clearly his reasons for.

It is an unpleasant thought that although our patient is unconscious from general anesthesia, yet the nerve impulses inaugurated by operative injury of the nerves reach the brain and produce harmful changes there which are the precursors of shock. It is clear that if general anesthesia cannot prevent the damage done to the brain in the course of operation some means must be devised to prevent this damage. It is known that cocaine, in addition to its ability to block sensory impulses, also blocks impulses that cause the response of the entire nervous system, under general anesthesia. If we combine, therefore, a local with a general anesthetic and avoid fear previous to operation, by the use of sufficiently large doses of morphia to bring the patient to the operation in a quiet, contented frame of mind, it matters not how poor the risk or how extensive the operation, the nervous system is protected and the immediate operative risk is eliminated.

The elimination of the factor of fear is an extremely important one and can be entirely accomplished only by the most careful co-operation on the part of the nursing and operating staff. The patient should be told of all the preparations to safeguard his welfare before, during and after operation; his room should be quiet and free from outside disturbances.

Fear is stronger than will, but under morphine a mental state is produced in which one is neither brave nor a coward, because this drug destroys the associational power of the brain and the patient is left in a quiet state of mental and physical repose.

If we can, therefore, prevent fear and obtain an innocuous substitute for ether, and block harmful nerve impulses from the brain, we have a condition best described by the word *anoci-association*, that is one in which the patient is both mentally and physically protected from nocuous impulses or influences.

(The difference between anoci-association and anesthesia is as follows: Although inhalation anesthesia confers the beneficent loss of consciousness and protects from pain, it does not prevent the nerve impulses from reaching and fatiguing the brain cells and hence does not prevent shock or the train of later nervous impairments so common following shock, *i.e.* neurasthenic post-operative states.)

The *prophylaxis*, therefore, which is to produce a state of *anoci-association* consists first in gaining the confidence of the patient, reassurance of a favorable outcome, the generous enough use of morphia before operation to produce a state of mental relaxation and content, nitrous oxid and oxygen anesthesia, nerve-blocking by cocaine or novocaine, great care to prevent loss of body heat, injury to tissues handled, and trauma to any but the immediate site of operation, speed reasonable to safety and a similar anocuous after-care. Crile, in abdominal operations, uses the quinine and urea hydrochlorate injected into the peritoneal edge before sewing up. The anesthesia produced locally by this drug lasts for 24 to 48 hours and protects the patient almost entirely from the wound pain, as it is the pulling of peritoneum, which is the greatest factor in the causation of the post-operative wound pain.

During the past year the author has had the opportunity to personally follow the results of Crile's prophylactic treatment in a large number of cases treated in this way by Dr. Hugh Cabot, for whom he gave ether, and in several cases of his own. I was immediately struck with the fact that patients required about a third less ether (given by the drop method) than when not treated by anoci-association. The ether was also taken more easily. Nausea and vomiting were absent in a great many cases and slight in others. One patient of my own, who had been operated on (laparotomy) four times before and was well familiar with the post-operative discomforts, told me that "the absence of the apprehension of pain—and the absolute lack of backache and wound pain were the most striking things to him." He was very much surprised at the success of the method and in two subsequent laparotomies has had no fear

or dread and has had a very comfortable time.

No sepsis has resulted from the use of the urea compound as far as I know. Patients distinctly neurasthenic are the type of case in which the most noticeable results are obtained. It certainly is most gratifying to witness such absolute post-operative comfort. The surprise to the patient is even greater than to the surgeon. I cannot say enough in praise of this whole procedure, as I feel sure it adds a strong element of safety in any surgical operation—especially operations in the abdominal cavity and gives the patient a sense of comfort not obtainable in any other way.

Before closing this paper, it is necessary to give a summary of some recent work done in England by Gray and Parson. These authors worked along the same line as Crile, especially on blood-pressure. They divide shock into three stages:

(1) Stage of stimulation or pressor stage, which is characterized by a rise in blood-pressure.

(2) Stage of depression or depressor stage, characterized by a gradual fall in blood-pressure, and

(3) Stage of equilibrium, when the active, abnormal, afferent impulses are in abeyance.

These authors believe that one of the most important factors in the production of shock is the region of the body which is attacked. To each tissue, organ, structure or operation a certain "shock value" may be ascribed. Consequently shock values vary directly with the relation of pressor to depressor fibers in the nerve supply of a part. In general, those parts which are physiologically most active contain the largest proportion of depressor fibers in their nerve supply and show the highest shock value. These authors made extensive observations on humans and supplemented them by like operations on dogs. The literature is very extensive and full and abundantly illustrated by charts of blood-pressure. They definitely and emphatically state that the most careful histologic examination of the brains and spinal cords of shocked animals failed to reveal any changes in the motor cells as described by Crile and Dolly. In the spinal cords they found no cystolytic changes at all. The cerebral cortex showed very little change and the Purkinje's cells showed no striking alterations. They conclude that there is no fatigue in shock of nerve centers to be detected histologically. Sensory cells, however, show some slight damages which, however, are not constant. The authors conclude that shock cannot be accurately defined, for the term does not express a state or condition, but rather a mechanism, which establishes, first, a defense of the organism against the harmful effects of injury and next, the protection of the vital centers from a degree of exhaustion from which they could not recover, *i.e.* shock is the reaction of the central nervous system to exaggerated or abnormal afferent impulses. The study of shock means the study of pathological vasomotor reflexes regarded as a symptom of the activity of the central nervous system. These authors believe that they have shown that a low blood-pressure is not an essential accompaniment of the clinical picture of shock. They, however, advise the methods of Crile for treating shock, with the exception of strychnia, which they believe *is* indicated before, during and after the operation involving shock. It seems evident from a careful survey of their work that their strong opposition to the findings of Crile is not well founded as they admit that there *were* some changes in the brain cells and that a degree of exhaustion of the nervous centers from which they could not recover is a possibility. They, therefore, admit two factors which, however, they were unable to prove experimentally.

A summary of the evidence in regard to the causative factors in the complex condition of shock may be stated somewhat as follows:

Shock is a condition of lowered vital resistance produced by varying factors, such as fear, injury or infection, of varying degrees. It is not possible to determine in a given case what physiologic function is first disturbed or what the exact sequence of pathologic changes are, but it does involve in its progress disturbance of the respiratory centre followed by disturbance of the oxygen-carbon dioxid equilibrium, lowering of body heat and depression of vasomotor tone resulting in a final paralysis or exhaustion of vasomotor activity, failure of respiration, cardiac failure and death.

Its treatment is based on a recognition of *all* of these factors. No one factor gives adequate explanation of the phenomenon.

THE CONTROL OF OPHTHALMIA NEONATORUM IN MASSACHUSETTS WITH SUGGESTIONS FOR THE IMPROVEMENT OF EXISTING CONDITIONS.*

BY FREDERICK E. CHENEY, M.D., BOSTON.

This paper is primarily concerned with the laws for the control of ophthalmia neonatorum in Massachusetts, the work which is being done in connection with these laws and with certain suggestions whereby, it seems to me, these laws may be still further improved. The necessity of such control is naturally more apparent to the oculist who is continually seeing babies incurably blind from this disease than it is to the other members of the profession who see these cases only occasionally or not at all. For an oculist to read a paper of this nature before a society composed principally of men in general practise, might under certain circumstances be regarded as a so-called "delicate situation." I believe,

* Read at a meeting of The New England Ophthalmological Society, Nov. 12, 1912, and at the semi-annual meeting of the Essex North District Medical Society, Jan. 1, 1913.

however, that the large body of our profession, men high-minded and sincere in their endeavor to do everything possible for the best good of the patient, recognize the justice and necessity of such laws. State medical laws like laws in general are directed against the small offending minority. The vast majority can be counted upon to "run straight" independent of control.

We know that blindness as a result of ophthalmia neonatorum is of the rarest occurrence if the disease is properly cared for and treated from the beginning. We also know that ophthalmia neonatorum is accountable for at least 20 per cent. of the cases of blindness in young children at the present time. For years the oculist has presented papers, at frequent intervals, advising the use of prophylactics and appropriate treatment, and the symptoms of the disease have been made so prominent that a failure in its recognition must be regarded as inexcusable neglect and not as justifiable ignorance. It has gradually become apparent that a more aggressive campaign than the writing of such papers must be undertaken if great good is to result. The recent vigorous work of the American Medical Association, of various local societies and organizations, and the passage of laws by many states within the last few years in an effort to limit the deplorable consequences of this disease, have undoubtedly accomplished much good and it is to be expected that the results will become more pronounced and prominent in the near future.

In 1905, action was taken by the Massachusetts Legislature in an effort to control ophthalmia neonatorum, and the law as it now stands, I will quote in full:

Sec. 49 (as amended by chap. 269, acts of 1910) . . . "Should one or both eyes of an infant become inflamed, swollen and red, and show an unnatural discharge at any time within two weeks after its birth, it shall be the duty of the nurse, relative or other attendant having charge of such infant to report in writing within six hours thereafter, to the board of health of the city or town in which the parents of the infant reside, the fact that such inflammation, swelling and redness of the eyes and unnatural discharge exist. On receipt of such report, or of notice of the same symptoms given by a physician as provided by the following section, the board of health shall take such immediate action as it may deem necessary in order that blindness may be prevented. Whoever violates the provisions of this section shall be punished by a fine of not more than one hundred dollars . . ."

Sec. 50 (as amended by Chap. 480, Acts of 1907) . . . "If one or both eyes of an infant whom, or whose mother, he (a physician) is called to visit become inflamed, swollen and red, and show an unnatural discharge within two weeks after the birth of such infant, he shall immediately give notice thereof in writing over his own signature to the selectmen or board of health of the town; and if he refuses or neglects to give such notice, he shall forfeit not less than fifty nor more than two hundred dollars for each offence."

(Chapter 458, Acts of 1910.) "Sec. 1. The State board of health shall furnish, free of cost, to physicians registered under the laws of the Commonwealth such prophylactic remedy as it may deem best for the prevention of ophthalmia neonatorum.

"Sec. 2. To carry out the provisions of this act there may be expended annually from the treasury of the Commonwealth a sum not exceeding twenty-five hundred dollars."

A law passed by the last Legislature (1912) that aims to impress still more emphatically upon the medical profession the importance of reporting these cases promptly empowers the Secretary of State to place on the State birth return blanks an explanation of the ophthalmia neonatorum reporting law. As a result of this new law, therefore, all birth return blanks have printed at the top in red ink the following:

"Redness, swelling and unnatural discharge from one or both of the infant's eyes within two weeks after birth must be reported immediately to the board of health."—Chapt. 251, Acts of 1905. As the present law "Relative to the Reports and Records of Births" in this State—requires that "physicians and midwives shall within forty-eight hours after the birth of every child in cases of which they were in charge, mail or deliver to the clerk or register of the city or town in which the birth occurred, a notice stating the date and place of birth," etc., this Ophthalmia Neonatorum Reporting law is placed prominently before every physician who delivers a child within forty-eight hours of the birth, that is, of course, if the "report of births" law is universally complied with.

A measure adopted by the Boston Board of Health that should accomplish much good is a "special notice to parents to prevent blindness in children." It is sent to the parents on the receipt of the birth notice from the attending physician or midwife. This notice printed in English, Italian, or whatever nationality of the parents the birth returns may indicate, is as follows: "Should one or both eyes of an infant become inflamed, swollen and red and show an unnatural discharge at any time within two weeks after its birth, it shall be the duty of the nurse, relatives or other attendant having charge of such infant *to report in writing within six hours thereafter*, the fact that such inflammation, swelling and redness of the eyes, and unnatural discharge exists, to the Board of Health." Mr. Henry Copley Greene has suggested that this notice might be still more effective if the danger of blindness from the inflammation was made prominent and I fully agree with him. I also believe that a similar notice should be sent out by every board of health in the state upon receipt of birth notices and that a law requiring this would be an extremely valuable measure.

The question of prophylactics will be referred to later but it may be said here that while such remedies are not required by law of the Massachusetts physician, the State Board of Charities requires their use in all licensed lying-in hospitals: "either the one per cent. solution of nitrate of silver furnished to physicians by the State Board of Health or of a similar preparation having the approval of said Board." Every licensee is also required "to report within six hours to the State Board of Health the discharge from his lying-in hospital and the destination of any infant whose eyes are inflamed, swollen and red and show an unnatural discharge."

The midwife-practice is always a difficult one to deal with in connection with ophthalmia neonatorum and the printed notice sent out by the Commission for the Blind to all midwives whose names they are able to obtain is certainly to be commended. This notice states in a simple, direct way the contagiousness of "babies' sore eyes," the danger of resulting blindness, the fact that such cases must be reported at once to the Board of Health and the fine of $100, that is imposed if such cases are not promptly reported. It is also advised that the midwife ask some doctor or the Board of Health to provide them with the one per cent. silver solution, tells them how to cleanse the baby's eyelids at birth and how to apply the nitrate of silver.

Dr. Mark W. Richardson, Secretary of the State Board of Health and Mr. Henry Copley Greene, Field Agent for the Conservation of Vision of the Massachusetts Commission for the Blind, have kindly written me in regard to prosecutions for failure to carry out the reporting law. While there have been no prosecutions by the State Board, the Boston Board of Health, beginning October 8, 1910, have brought nine physicians and two midwives to court. There have also been prosecutions of physicians by the Massachusetts Society for the Prevention of Cruelty to Children. The value of such prosecutions is indicated by the fact that the number of reported cases of ophthalmia neonatorum has been greatly increased since that first prosecution was made. The State Board of Health has twice sent the physicians of the state a solution of nitrate of silver (one per cent.) as a prophylactic and, in compliance to the law is prepared to furnish prophylactic remedies free of cost to all the physicians registered under the laws of the Commonwealth. Especially to be commended are the circulars accompanying the remedy which briefly refer to the serious nature of the disease as a cause of blindness, the importance of routine preventive treatment and of the doctors being notified at once if the eyes become inflamed. Also the advice as to placing the child in the hands of an oculist when possible and the desirability of sending cases to the Massachusetts Charitable Eye and Ear Infirmary or a similar institution. The printed state laws are included in this circular so that no reasonable excuse should exist for failure in reporting these cases when they are met with.

In 1910, at the suggestion of the Massachusetts Commission for the Blind, the Research Department of the Boston School of Social Workers investigated the question of ophthalmia neonatorum in ten cities of Massachusetts. This work was largely done by Mr. Henry Copley Greene, Miss Ethel W. Chase and Miss Gerna Saville. The conditions found to exist are most admirably presented by Mr. Greene in his monograph: "Ophthalmia Neonatorum in Ten Massachusetts Cities." A brief reference to this paper will help to make apparent the deplorable condition of affairs in 1909. It is certainly probable that these conditions have improved in a measure since this investigation. There can be no doubt, however, that much still remains to be accomplished if we are properly to control this disease. In these ten cities, Boston not included, there were in 1909, 147 cases of ophthalmia neonatorum known to have occurred. It is probable that these figures do not represent the entire number. Of these 147 cases the treatment was investigated in 104 with the following results:

"Thirty-two were treated in hospitals, 11 by oculists without the aid of any nurse, 14 by district nurses working under oculists or general physicians, 45 by obstetricians, 1 at a city farm and 1 unknown. Private physicians attending births were not only responsible for 85 per cent. of the above severe cases, but they also endeavored to cure 43 per cent. . . . Out of 61 registered physicians in eight of these cities, each of whom was confronted at least once during 1909 by a case of ophthalmia neonatorum, 39, or over 64 per cent., neither asked at any time for expert help nor yet transferred these cases to any hospital but invariably tried their inexpert hands at restraining the disease which they had failed to prevent. Their methods and results are as follows: If the parents could and would pay enough, these 39 treated the baby at home. If the parents could or would not pay sufficiently, these 39 only treated the baby when brought to the office. In one way or the other, they treated 44 gonorrheal or probably gonorrheal cases; and they saved on an average nearly one baby's eyes apiece. But the sight of nine babies they did not save and of these nine they lost by death, three. For these 39 physicians the best that can be said is that they reaped the result of their own laxity in 20 per cent. of their eye cases; or in other words, they failed to prevent blindness in every fifth case."

As a comparison with the above results in ophthalmia neonatorum treated by the general practitioner, let us take the results of those treated by the oculist. Among 116 babies treated in the same year (1909) at the Massachusetts Charitable Eye and Ear Infirmary, only six became blind and *all of these* were brought to the Infirmary after ulceration of the cornea was well established. Furthermore, it may said that if

these six patients had received appropriate treatment and care from the beginning, it is not probable that blindness would have resulted in a single case. Yet, of these cases of ophthalmia neonatorum treated by the general practitioner one case in five became blind. These babies were not in out-of-the-way, country places, but might have been placed under the care of a competent oculist with very little effort on the part of the physician.

Ophthalmia neonatorum is most emphatically a disease for the oculist to treat and it is regretable that placing these unfortunate babies under the care of a competent oculist is so often delayed. It is still more regretable that in most of these cases no legitimate excuse for the delay exists. It is unnecessary to say that the very large proportion of men in general practice will not treat ophthalmia neonatorum unless they are forced to it by circumstances over which they have no control. The question may naturally be asked why are general practitioners not qualified to treat ophthalmia neonatorum? It is easily recognized and it is a seemingly simple matter to keep the eyes clean and to apply some one of the various silver salts suggested by the oculist. My answer to this question is that I believe that the general physician with but a limited experience in treating diseases of the eye will rarely recognize an *early involvement of the cornea* if it takes place. The swollen and engorged lids and conjunctiva, the purulent discharge, the crying, struggling baby are all against his recognizing the beginning of corneal ulceration. It will often escape his attention until the ulcer has so seriously involved the cornea that the child is rendered partially or completely blind in consequence. The rapidity with which an ulcer of the cornea may develop, assume grave proportions and demand immediate expert treatment to save the sight is not generally appreciated. The following case will serve to illustrate this point as well as the successful outcome that may sometimes be obtained as a result of prompt, operative interference. The patient was a poorly developed marasmic child under treatment at the Massachusetts Charitable Eye and Ear Infirmary during my 1909 service. The conjunctival inflammation was about well, there was practically no discharge and we were expecting to send the child home within a few days. When seen by me one Saturday, both corneae were perfectly clear. I did not see the child on Sunday, but it was examined by one of my assistants during the morning, who reported no corneal involvement. When I examined the baby Monday morning, twenty-four hours later, I found at the lower inner quadrant of the cornea a nearly circular ulcer of about two millimeters in diameter, extending in depth nearly to Descmet's membrane and surrounded by a wide area of infiltration. The sudden development of this ulcer and its evident tendency to rapid progress convinced me that prompt action was imperative if the eye were to be saved, and I at once did Saemish's operation. In spite of the child's poor general condition, the recovery was rapid and uninterrupted. At the end of eight days the ulcer had almost entirely healed and the infiltration had cleared except in the area of actually broken-down tissue. There was an anterior synachia but no incarceration of the iris, and the pupillary area of the cornea being uninvolved, an eye with good useful vision was to be expected. This ulcer was probably of traumatic origin, and of the importance of trauma as a causative agent in these cases, I shall have more to say presently. It is of interest to note as an indication of the child's poor general condition and want of resistance that a few days later an abscess suddenly developed in the left ischio-rectal fossa.

Up to the present time, laws have been passed by twenty-five states aiming in a varying degree to control this disease. The laws of Massachusetts already quoted are probably as good as any and better than most of the state laws. It is an interesting fact that in none of these state laws does the word oculist appear. Cases must be reported "to the selectmen or Board of Health of the town" or the infant shall be "immediately placed in charge of a legally qualified practitioner of medicine," etc. It might, of course, be assumed that the selectmen and boards of health would, when possible, place these cases under the care of an oculist, but so far as can be judged, the law is not generally so construed. Mr. Greene writes me that the New Bedford Board of Health pays an oculist to treat practically every serious case. But this strongly-to-be-commended practice is probably exceptional. I am informed that our State Board of Health outside of Boston, through its District Medical Health Inspectors, follows up every reported case and advises with the local boards of health as to the proper treatment. What percent of these reported cases are placed under the care of an oculist, however, I am unable to say. If we are to control this disease, if these babies are to receive proper treatment, if the percent of blindness is to be greatly reduced, we must, I believe, have laws requiring that all cases of ophthalmia neonatorum be placed under the care or at least the supervision of an oculist within a certain time after the symptoms of the disease are first noted. In certain states this may not be practicable for the reason that the country is thinly settled and oculists are not easily obtainable. In this state, however, no such reason exists. We are a thickly settled community and well supplied with competent oculists, not only in the large cities but in most towns of eight or ten thousand inhabitants. That occasionally it would be impossible for some reason to comply with this law is, of course, probable, but such cases would be exceptional and the law could be so modified that a legitimate reason would free the practitioner from the legal consequences. It is also important that printed regulations as to the recognition of the disease, the immediate care

and protection of the eyes, the laws relating to the placing of the child under the care of an oculist (if such a law can be passed), be *forced* upon the medical profession, nurses and midwives at frequent intervals. Our State Board of Health and Commission for the Blind are, as we know, doing much good work in this direction. It seems to me important, however, that such instructions should be sent out frequently and for a long period of time. We all know from personal experience that the busy medical man will often "pigeon-hole" pamphlet literature for the want of time to read it and it is quickly forgotten. If, however, such literature were sent out regularly at three- or even six-months' intervals for the next ten years, its frequent repetition must, of necessity, make an impression. In this connection, I wish to make certain suggestions that I have not seen in the pamphlets of instruction and that seem to me important. Admitting the advisability of ophthalmia neonatorum patients being placed under the care of an oculist, there will still be periods of a day or two in many cases where the general practitioner must be responsible for the baby's eyes. Too much emphasis cannot be placed upon the fact, in presenting this subject to physicians and nurses that the prevention of corneal ulceration is the primary end and aim in the treatment of this disease. Aside from treating the conjunctival inflammation, there are certain other important measures for the prevention of corneal involvement that are not so generally recognized and consequently more often neglected. That a certain number of corneal ulcerations in this disease are often of traumatic origin is, of course, well known, but I am inclined to believe that trauma is accountable for a very much larger proportion of such cases than is generally supposed. The rapidity with which an ulcer may develop and become a dangerous condition is well emphasized in the case I have already reported. That this trauma is frequently inflicted by the babe itself, seems to me probable. In support of this conclusion, we have the facts: (1) that the lower, most exposed area of the cornea is oftenest first involved; (2) that a child will naturally carry its hands to an inflamed eye, and (3) that many new-born babes have fingernails of good growth and well adapted for producing a corneal abrasion. In a new-born babe with a discharging eye, one of the first cares, therefore, should be to eliminate this possibility. It may be accomplished by placing a firm binder around the child, extending from the neck to below the waist, fastened in the back and covering in the hands and arms. As an additional precaution, the fingernails should be closely cut so that if the child "breaks away," as they sometimes will, the chances of corneal injury may be minimized. Another occasional cause of trauma is probably the fingernails of those caring for the child. The carefully-trimmed, pointed, well-kept fingernail is not the fingernail to be worn by the doctor or the nurse having to do with diseases of the eye and this applies most emphatically to a disease like ophthalmia neonatorum where the corneal resistance is not only often lessened but the eye bathed in a copious, purulent discharge. Fingernails as short as possible should be the rule for all concerned in the care of this disease. The nurse or attendant must also be cautioned against touching the cornea when removing the discharge from the lids, of not trying to wipe the eye out, that is, passing cotton or anything else between the lids, and against using too great force in dropping solutions into the eye. It is, of course, of the greatest importance to keep the lids from sticking together by the use of some simple ointment like vaseline applied to the lid-borders often enough to make sure of a perfectly free drainage from the conjunctival sac.

I wish now to refer briefly to the preventive remedies that may be employed in this disease. The advisability of passing laws requiring the use of prophylactics in all new-born babes has, of course, been seriously considered. If such laws could be enforced, if the remedies were properly prepared, of proper strength and if intelligently used, there would be few cases of ophthalmia neonatorum. There are, undoubtedly, a large number of intelligent medical men, men who could be counted upon to place a case of this disease under the care of an oculist at the earliest possible moment, whom it would, nevertheless, be difficult to convince that prophylactic treatment is necessary or advisable among the so-called better classes of their patients where ophthalmia neonatorum is so rarely met with. It is among the poorer classes, in our larger cities especially, the poor who are likewise ignorant, careless and unclean, that this disease is especially liable to occur. They neglect themselves and are often under the care of midwives and medical men who are incompetent and also negligent. I doubt very much if such a law could be enforced with any degree of success if it existed at the present time and under present conditions. The State law requiring that prophylactic remedies be furnished free is a movement in the right direction, however, and if these remedies can be sent to all practitioners at regular intervals, the importance of their use will gradually become impressed upon the profession and will become more general. There is, naturally, some difference of opinion among oculists as to whether nitrate of silver or one of the more recently introduced silver salts is best adapted for use among the general profession. In a previous paper[1] I have already expressed my preference for one of the newer silver salts. In the first place, a non-irritating solution like argyrol (25% sol.) will, I believe, if recommended, be much more generally used than the nitrate of silver for the simple reason that it is non-irritating. The very name—nitrate of silver—has come to suggest an irritant and caustic. A one

[1] "The Newer Silver Salts as Compared with Silver Nitrate in the Treatment of Ophthalmia Neonatorum," Frederick E. Cheney, M.D. Boston Med. and Surg. Jour., March 4, 1909.

or two percent. solution is not, of course, caustic, and no serious results following the instillation of one or two drops into the eye should be looked for. It is, however, an irritant and may cause a catarrhal inflammation of greater or less intensity. Many men who have had little experience in the treatment of diseases of the eye will hesitate to drop into the apparently healthy eye of a new-born babe a solution that he knows to be an irritant and that may give rise to a conjunctivitis. I am convinced from long experience in the use of a 25% solution of argyrol that it is a valuable remedy in the treatment of ophthalmia neonatorum and it should prove an equally valuable remedy, if properly and *freshly* prepared, in its prevention. The fact that it is non-irritating will, I believe, make it a remedy much more acceptable to the general practitioner and its general recommendation should result in a more universal prophylaxis than can be hoped for in advising the use of a recognized irritant like silver nitrate. The comparative prophylactic value of these two remedies is a question which must, of necessity, be under discussion for some time to come. In this connection, the statistics presented by Mr. Sydney Stephenson in his Middlemore Prize Essay[2] may be again quoted together with a brief analysis made by me in the previous paper already referred to:

THE PERCENTAGE OF OPHTHALMIA NEONATORUM DEVELOPING AFTER THE USE OF:

	PERCENT.	CASES.
Silver nitrate, 2% solution	0.703	76,452
Silver nitrate, weaker than 2% solution	0.423	36,132
Argyrol	0.25	6,984
Protargol	0.027	7,383

"The superior value of argyrol and protargol is certainly suggested by these statistics although the fact cannot be ignored that the number of cases in which nitrate of silver has been used greatly exceeds those of the newer silver salts.

"A point worthy of consideration and remarked upon by Mr. Stephenson is that the results are considerably better where nitrate of silver weaker than a two per cent. solution was used than in the series where the solution was two per cent. As a reasonable explanation of this point, I would suggest the following: If silver nitrate causes an inflammation, the conditions are much more favorable for the development of ophthalmia neonatorum, if any gonococci remain undestroyed, than they would be if an inflammation were not present. If silver nitrate is to be used, therefore, a weaker, less irritating solution than a two per cent. is, as these statistics suggest, to be preferred. It is also to be noted that the per cent. of the ophthalmia neonatorum is much smaller in the series of cases treated with protargol than with argyrol. Accurate comparisons cannot be formed as to the comparative value of the two remedies from these statistics, however, for the reason that while protargol was generally used in a 10 per cent. or 20 per cent. solution, the strength of argyrol is not given in the larger proportion of cases and in 1334 (the only cases where the strength is given) was but four per cent."

In conclusion it may be said that the work being done in Massachusetts by the various State organizations and allied workers is worthy of the sincerest approval and appreciation of the medical profession and the community. I believe, however, that still more might be accomplished if certain suggestions made in this paper, and which I will briefly restate could be adopted.

1. The sending of a "special notice to parents to prevent blindness in children,"—similar to the notice sent out by the Boston Board of Health,—by every board of health in the state upon the receipt of birth notices. A law requiring the sending out of such a notice would be an extremely valuable measure.

2. A law requiring all cases of ophthalmia neonatorum to be placed under the care of an oculist or at least the supervision of an oculist within a certain time after the symptoms of the disease are first noticed.

3. Printed matter, as to the recognition of the disease, immediate care and protection of the eyes, laws relating to the disease. etc. (the information now furnished by the state organizations with some addition) sent to all doctors, nurses, and midwives, at regular and frequent intervals, and over a long period of time. And,

4. I may add that while the use of a one per cent. solution of nitrate of silver cannot be regarded as objectionable, a more universal prophylaxis against this disease would probably result if the use of a non-irritating remedy like argyrol (25% sol.) were more generally recommended and encouraged.

[2] "Ophthalmia Neonatorum with Especial Reference to Its Causation and Prevention," Sydney Stephenson, M.B., C.M. The Middlemore Prize Essay for 1907.

TYPHUS FEVER (BRILL'S DISEASE) AT THE MASSACHUSETTS GENERAL HOSPITAL IN TEN YEARS (OCT. 1, 1902 TO OCT. 1, 1912).

BY ROGER I. LEE, M.D., BOSTON,

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BRILL,[1], [2], [3], [4], of New York, in 1898 first described 17 cases of a disease of unknown origin, simulating typhoid fever. From 1896 to Dec. 1, 1910, he was able to collect 255 cases of this fever, which was generally known as Brill's Disease. Louria[5] of Brooklyn, Ziegel[6] of New York, Lewis[7] of Philadelphia and Patek[8] of Milwaukee have also reported cases of this disease. The disease occurred usually in Russian immigrants. Only two of Brill's cases occurred in the same house. It did not seem to be highly infectious. All epidemiologic studies were fruitless. The characteristics of the disease were sudden onset, often with a chill, a continued fever of 12 to 14 days' duration, with termination by crisis or rapid lysis. On the fifth or sixth day a charac-

teristic rash appears, described by Brill as follows: "The eruption on the fifth or sixth day is profuse but discrete, consisting of a maculopapular rash, dull red in color, erythematous in character; the spots are irregular in outline, though occasionally ovoid, 2 to 4 mm. in diameter." "Under pressure a spot may be caused to fade, but it cannot be obliterated." "The eruption is sometimes distinctly hemorrhagic." "It appears on the trunk and extremities, even rarely on palms and soles." "It is never as profuse as measles, sometimes even being scanty." "It is permanent until the end of the disease and does not appear in crops, but develops and reaches its full efflorescence within 24 hours after the first spot appears." There is usually a leucocytosis of 9,000 to 11,000. Cultural and agglutination tests are consistently negative. Headache, fever and malaise are the prominent symptoms. Convalescence is rapid.

The reported cases of Brill's disease showed only one death, reported by Brill. The autopsy showed only congestion and cloudy swelling. Cultural and histological examinations were negative.

In 1911 Freidman[9] of New York, who had been in active practice in Western Russia for six years and had seen typhus fever, concluded that Brill's symptom complex was identical clinically with mild and moderately severe cases of typhus fever.

In the meantime some officers[10], [11] of the Public Health and Marine Hospital Service were investigating tabardillo or Mexican typhus fever. They had shown that the typhus fever of Mexico was transmitted by the louse. Similar results had been reported by Nicolle, Comte and Conseil[12] in regard to the transmission of typhus fever of Europe from monkey to monkey by the body louse. Those familiar with Mexican typhus fever were much impressed with the resemblance between Brill's disease and the Mexican typhus fever. It remained for Anderson and Goldberger[13] in 1912 to establish the identity of the so-called Brill's disease and typhus fever by immunity experiments in monkeys.

Brill[14] in 1912 was not convinced of the identity of the so-called Brill's disease, European typhus fever and Mexican typhus fever, but the evidence in favor of this identity seems reasonably conclusive.

The unexpected presence of a disease with such historical importance in the old world and in the early history of the United States as typhus fever, is of great interest. Typhus fever has always been regarded as a very dread and infectious disease. Small epidemics of typhus fever were recognized in San Francisco in 1897 and in Baltimore in 1901. Earlier outbreaks were reported in New York as late as 1892 and in Philadelphia in 1883. The fact was apparently overlooked in the alarm over scattered epidemics in the United States that mild and sporadic cases which did not seem to be very infectious had long been recognized in Europe.[15]

While cases have been reported in New York, Brooklyn, Philadelphia and Milwaukee, there has been no attempt, as far as I know, to determine if typhus fever has been present in the sporadic form in Boston. Consequently, the medical records of the Massachusetts General Hospital were subjected to a critical review for the ten years, Oct. 1, 1902, to Oct. 1, 1912. All cases clinically diagnosed as typhoid fever and all cases of fever without definite etiology were studied. There were 1,404 cases of continued fever with a presumable duration of more than seven days in which the diagnosis was either typhoid fever or some unexplained fever.

TYPHOID FEVER.

Of the cases studied, 1,306, or 93 per cent., were shown to be typhoid fever, either by the Widal reaction or the recovery of the typhoid bacillus from the patient. Blood cultures were not taken in the early cases but were positive in 203 cases. The Widal often appeared late in this series of cases and in one case was present only after three and one-half weeks of normal temperature. It is of a good deal of interest that 15 cases showed a persistently negative Widal reaction during their hospital residence, but gave the typhoid bacillus in culture from the blood. There were 29 cases, not included as proven cases of typhoid fever, but diagnosed as such, which showed a persistently negative Widal. In some of the cases blood cultures were taken and were negative. These cases ran a course typical of typhoid fever. Some of these cases may have been typhoid fever with a late Widal, others may belong to the para-typhoid group. At any rate, these cases might well be classified with the typhoid group.

PARA-TYPHOID FEVER.

There were 15 cases of para-typhoid fever. The diagnosis was made by blood culture in 9 and by the agglutination test in 8. It is noteworthy that the blood of only two of the cases with a positive culture agglutinated one of the three stock para-typhoid cultures. It is reasonable to suppose that some of the cases with a course like typhoid fever, which gave a negative Widal and in which blood cultures were not taken, may have been cases of para-typhoid fever. Hultgen[16] of Chicago found 28 per cent. of 32 cases of typhoid-like fevers to be para-typhoid. In the cases from the literature, however, the average relation of para-typhoid to typhoid fever was 1 to 15. In this series it is 1 to 86.

There were 2 cases of general colon infection and one case of alkaligenes infection.

TYPHUS FEVER.

There were 28 cases which corresponded fairly well to Brill's description of the disease which commonly bears his name and which is now believed to be a mild form of typhus fever.

Blood cultures were taken and were negative in 13 of these cases. Twenty-seven of the 28 cases gave a persistently negative Widal throughout their hospital stay. One case, after three injections of typhoid vaccine and after four negative Widals, developed a positive Widal late in convalescence. In 16 cases agglutination reactions with two or more strains of para-typhoid bacilli were performed and were constantly negative.

Years. The cases were scattered over the years 1903 to 1912.

TABLE I.

1903, 2 cases	1908, 1 case
1904, 4 cases	1909, 1 case
1905, 1 case	1910, 3 cases
1906, 2 cases	1911, 7 cases
1907, 5 cases	1912, 2 cases

Months. As in typhoid fever, the cases are distributed through the year, but 17 of the 28 cases occurred in the four months, June to September.

TABLE II.

Jan., 2 cases	July, 2 cases
Feb., 0 cases	Aug., 3 cases
Mar., 1 case	Sept., 7 cases
Apr., 1 case	Oct., 2 cases
May, 1 case	Nov., 3 cases
June, 5 cases	Dec., 1 case

Sex. The disease was equally divided in men and women.

Age. Twenty-one of the 28, or 75 per cent., occurred between the ages of 21 and 40.

TABLE III.

1 to 10 years, 1 case	31 to 40 years, 9 cases
11 to 20 years, 2 cases	41 to 50 years, 3 cases
21 to 30 years, 12 cases	Unknown age, 1 case

Nativity. As in Brill's series, 62 per cent. were in persons born in Russia. Only 3 of the 28 cases were born in America.

TABLE IV.

Russia, 18 cases	Poland, 2 cases
Ireland, 3 cases	Germany, 1 case
United States, 3 cases	Austria, 1 case

The study of the residences of these cases showed no cases in the same house and only two cases in the same street. The houses were scattered through Boston and the suburbs. They were all in the so-called tenement districts. While a large number of the patients were employed in some work on clothing, it is to be remembered that the Russian Jews, who comprise 62 per cent. of the cases, are very largely employed in the clothing industry. As in Brill's cases, the records do not show any constant infection with lice.

Onset. The onset was sudden in 22 cases with a definite chill in 5 cases and chilliness in 8 cases. The onset was gradual in 5 and unknown in 1 case.

TABLE V.

Sudden, 22 cases	Gradual, 5 cases
Chill, 5 cases	Unknown, 1 case
Chilliness, 8 cases	

Duration. The duration varied from 7 to 19 days, with one case unknown. Twenty-one of the 28 cases had a duration of 9 to 13 days, inclusive.

TABLE VI.

7 days, 1 case	13 days, 2 cases
8 days, 2 cases	14 days, 1 case
9 days, 8 cases	16 days, 1 case
11 days, 6 cases	19 days, 1 case
12 days, 5 cases	Unknown, 1 case

Termination. The termination was more or less abrupt in every case. There was a crisis in 15 cases, rapid lysis in 9 cases and a lysis of not longer than 72 hours in 4 cases. There were no deaths, relapses or complications in this series.

TABLE VII.

Crisis, 15 cases	Lysis, 4 cases
Rapid lysis, 9 cases	

Rash. A rash was present in every case and its extent is seen in table 8. The records usually speak of the rash as rose-spots, but there is often a note that the rash is very profuse for typhoid or that it does not seem like the usual rose-spots of typhoid fever. In 2 cases the skin condition was described as very puzzling and the skin consultant considered a drug eruption or syphilis.

TABLE VIII.

Scanty, 7 cases	Extensive, 8 cases
Abundant, 13 cases	

Spleen. The spleen was palpable in 10 and not palpable in 18 cases.

Leucocytes. The leucocyte count varied between 4,100 and 23,000, but 17 out of the 28 cases showed a white count of over 10,000.

TABLE IX.

Lowes, 4,100	10 to 15,000, 9 cases
Highest, 23,000	15 to 20,000, 7 cases
Under 500, 3 cases	Over 20,000, 1 case
5 to 10,000, 8 cases	

Clinical Diagnoses. The clinical diagnosis which stands on the record was either Brill's disease or typhus fever in 6 cases, all in the last two years. It is rather striking that before the acceptance of Brill's disease as a separate entity, this disease was as a rule regarded as distinct from typhoid fever. In only 4 of the 28 cases was typhoid fever definitely diagnosed in the record. Of the 22 cases not diagnosed as typhus fever or Brill's disease, 13 were not definitely diagnosed and 5 more were recorded as grippe or influenza.

TABLE X.

Brill's or Typhus, 6 cases	Influenza, 4 cases
Typhoid, 4 cases	Pneumonia, 1 case
Typhoid?, 4 cases	Grippe, 1 case
Fever, cause?	Brill's? or typhoid?, 1 case
Acute infection } 7 cases.	
Febricula	

The following case of typhus fever is typical of the series and is reported in detail:

Hospital No. 184070, West Medical. A housewife of 47, born in Russia, living in Cambridge for 10 years, entered, July 28, 1912, the service of Dr. R. C. Cabot, under my charge. She has been in this country for 10 years.

Family and *Past Histories.*—Negative.

Present Illness.—On July 18 had a chill. She has been in bed since with fever and headache, which steadily increased up to the time of entrance on July 28. Anorexia, constipation, no nose-bleeds.

Physical Examination.—She was fat, pupils and reflexes were negative; visceral examination was negative. "Over the trunk, both front and back, and somewhat over the arms are many level, or slightly raised macules, circular; the edges of some are sharply defined, of others diffuse. Some are pinkish, others red; some disappear slightly on pressure, others do not." The spleen is not felt. T. 102, P. 100, R. 20. Whites, 17,000. Blood cultures showed no growth. Widal reaction persistently negative. Cultures from the stool on Endo's media negative. Urine negative. Sharp lysis on July 30. The temperature was normal on July 31 and thereafter. Convalescence was rapid and uneventful. The rash disappeared soon after the temperature became normal. She was discharged well 10 days after entrance.

UNCLASSIFIED CASES.

In this study there were, in addition, 23 cases of unclassified fever. Of these, 3 showed considerable similarity to the typhoid group and might perhaps be classified clinically as typhoid or para-typhoid fever. There were four cases of continued fever which did not resemble typhoid fever or typhus fever in their course and which cannot be classified.

There were 16 cases, which ran a course, fairly typical of typhus fever, with sudden onset, rapid lysis or crisis and with a duration of 9 to 17 days. In all of these 16 cases the rash was either extremely scanty or absent. All had negative agglutination tests for the typhoid and para-typhoid bacilli and the blood cultures were negative when taken. Typhoid or para-typhoid cannot definitely be excluded as one finds occasionally in this series true typhoid fever with seemingly sudden onset and more rarely with termination by crisis or lysis. It has been already shown in this study that the Widal reaction may be absent during the hospital residence of a true case of typhoid fever. Moreover, the diagnosis of para-typhoid fever can often be made only by positive blood cultures.

The leucocyte count in these 16 cases showed 7 cases below 9,000, 9 cases above 9,000 and 5 cases over 14,000. In a small percentage of cases, the count in typhoid fever is over 10,000. Excluding cases in children, in the absence of any obvious complication, the highest count in this series of typhoid fever is 13,000. In these unclassified cases it is of considerable interest that a little over 43 per cent. were born in Russia, thus resembling somewhat the statistics of the cases of typhus fever in which 62 per cent. were born in Russia. One case was born in Italy, 2 in Ireland and 6 in the United States. It is possible that some or all of these cases are typhus fever without a rash. But, while typhus fever does occur without a rash, the diagnosis in sporadic cases is rarely justifiable. As long as the etiologic agent of typhus fever is unknown, there will of necessity be confusion in differentiating by clinical means typical cases of typhus fever from other fevers. These 16 cases may be typhus fever without a rash, may belong to the typhoid and para-typhoid group, or, may be another unrecognized fever.

SUMMARY.

In the past ten years typhus fever in a mild and sporadic form has constantly been present in Boston and its vicinity as seen by the records of the Massachusetts General Hospital. It occurs, according to the Massachusetts General Hospital statistics, in about the ratio of one case of typhus fever to 47 cases of typhoid fever. As the diagnosis has to be made upon clinical signs only, it is possible that there are other cases in this series which cannot now be definitely diagnosticated. There occurred in the hospital series another group of cases which roughly simulated typhus fever in everything but the presence of the rash, which cannot now be classified. The clinical course and laboratory findings in typhus fever are so distinctive that there is little trouble in making the diagnosis in typical cases.

This study throws no light upon the epidemiology of typhus fever, except that the occurrence of the disease in persons of Russian nativity strongly suggests that the disease was originally imported from Russia.

This study also emphasizes the importance of blood cultures, inasmuch as there were cases of typhoid fever with a negative Widal in which the positive diagnosis was only made by blood cultures. Moreover, the diagnosis of para-typhoid fever in this series was made possible by blood cultures alone in the majority of instances.

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TABLE OF TWENTY-EIGHT CASES DIAGNOSED AS TYPHUS FEVER SHOWING A SACHUSETTS GENERAL HOSPITAL FOR THE PERIOD

	REFERENCES.	SEX.	AGE.	NATIVITY.	YEARS IN U. S.	RESIDENCE.	OCCUPATIONS.	MONTH.	YEAR.	ONSET.
1.	576-164	F.	28	Russia	?	North End Boston	Housewife	Jan.	1903	Sudden Chill
2.	585-18	M.	30	Poland	?	Roxbury	Salesman	June	1903	Sudden
3.	604-50	F.	25	Ireland	?	S. Boston	Wife	June	1904	Sudden Chilliness
4.	604-60	F.	48	Russia	?	West End Boston	Wife	June	1904	Gradual
5.	611-140	F.	22	Russia	?	North End Boston	Shirtwaist-maker	Sept.	1904	Sudden
6.	613-160	M.	21	Poland	?	Chelsea	Teamster on laundry wagon	Sept.	1904	Sudden No chill
7.	626-164	F.	25	Russia	9	West End Boston	Housewife	Sept.	1905	Sudden Chilliness
8.	641-58	F.	19	Russia	1	Chelsea	Shirt-maker	Apr.	1906	Sudden No chill
9.	648-159	F.	22	Russia	5	West End Boston	Seamstress	Aug.	1906	Sudden
10.	675-147	M.	25	Russia	1	West End Boston	Tailor	June	1907	Sudden? Chill?
11.	679-239	F.	37	Ireland	?	Brookline	Cook	Sept.	1907	Gradual Chilliness
12.	681-31	M.	27	Russia	?	Cambridge	Harness-maker	Sept.	1907	Sudden Chilliness
13.	654-9	F.	34	Russia	?	South End Boston	Tailoress	Oct.	1907	Gradual
14.	687-55	M.	6	U. S.	6	West End Boston	School	Nov.	1907	Sudden
15.	713-125	M.	34	Russia	7	West End Boston	Shirt-maker	Nov.	1908	Sudden No chill
16.	738-207	F.	18	U. S.	18	E. Boston	Stenographer	Sept.	1909	Sudden Chilliness
17.	756-113	M.	30	U. S.	30	West End Boston	Waiter	Mar.	1910	Gradual
18.	771-17	F.	25	Russia	1	Roxbury	Wife	July	1910	Sudden Chilly
19.	768-295	M.	22	Russia	?	West End Boston	Lawyer	Aug.	1910	Sudden Chilliness
20.	782-127	M.	39	Austria	11	Malden	Salesman	Jan.	1911	Sudden
21.	792-223	M.	40	Ireland	16	Arlington	Brakemen	June	1911	Gradual
22.	811-217	M.	28	Russia	?	Winthrop	Peddler, clothes	Aug.	1911	Sudden No chill
23.	804-49	M.	41	Germany	10	Roxbury	Salesman	Sept.	1911	Sudden Chill
24.	806-29	M.	33	Russia	?	Norwood	Junk dealer	Oct.	1911	Sudden Chill
25.	808-109	F.	24	Russia	?	West End Boston	Housewife	Nov.	1911	Sudden
26.	810-199	M.	39	Russia	?	Roxbury	Peddler	Dec.	1911	Sudden Chill
27.	W. M. 182922	F.	33	Russia	?	Chelsea	Housewife	May	1912	Sudden Chilliness
28.	W. M. 184070	F.	47	Russia	10	Cambridge	Housewife	July	1912	Sudden Chill

* x = Spleen palpable, 0 = Spleen not felt.
° x = Positive, 0 = Negative, — = Not done.
§ Case with a positive Widal in convalescence after the injection of typhoid vaccine.

PERSISTENTLY NEGATIVE WIDAL, TAKEN FROM THE RECORDS OF THE MAS- OCT. 1, 1902, TO OCT. 1, 1912, BY DR. ROGER I. LEE.

TERMINATION.	DURATION.	WHITES.	RASH.	*SPLEEN.	CLINICAL DIAGNOSIS.	° WIDAL.	° BLOOD CULTURE.	° PARA-TYPHOID AGGLUTINATION.
Sharp lysis	12 days	6,300	Abundant	0	Grippe	0	—	—
Crisis	11 days	12,000	Few	x	Influenza	0	—	—
Crisis	11 days	9,000	Abundant	x	Typhoid?	0	—	—
Crisis	16 days	15,600	Few	0	Typhoid?	0	—	—
Lysis	9 days	10,000	Few	0	Influenza	0	—	0
Crisis	12 days	9,000	Extensive	x	Typhoid fever	§000x	—	—
Sharp lysis	11 days	15,000	Few	0	Typhoid?	0	—	—
Lysis	9 days	9,500	Abundant	0	Fever cause =?	0	—	0
Crisis	12 days	12,400	Few	0	Influenza	0	—	—
Crisis	? days	18,000	Abundant	0	Typhoid fever	0	—	0
Crisis	9 days	4,100	Abundant	x	Typhoid fever	0	—	0
Crisis and Pseudo-crisis	8 days	4,600	Abundant	x	Typhoid?	0	—	0
Lysis	9 days	9,200	Extensive	x	Typhoid fever	0	—	—
Sharp lysis	8 days	19,000	Abundant	0	Pneumonia?	0	—	—
Crisis	12 days	6,000	Abundant	x	Fever cause =?	0	0	0
Crisis	9 days	4,600	Extensive	0	Acute infection	0	—	—
Sharp lysis	11 days	11,000	Abundant	0	Influenza	0	0	0
Lysis	7 days	15,000	Abundant	0	Acute infection	0	0	—
Crisis	13 days	13,000	Extensive	0	Typhoid? Brill's?	0	0	0
Crisis	11 days	12,000	Abundant	0	Acute infection	0	0	0
Crisis	19 days	16,000	Extensive	0	Acute infection	0	0	0
Rapid lysis	9 days	10,000	Few	x	Fever cause =?	0	0	—
Rapid lysis	12 days	12,000	Abundant	0	Brill's disease	0	0	0
Rapid lysis	11 days	13,500	Abundant	0	Brill's disease	0	0	0
Crisis	9 days	7,000	Abundant	0	Brill's disease	0	0	0
Sharp lysis	14 days	9,500	Few	x	Brill's disease	0	0	0
Crisis	9 days	23,000	Abundant	x	Brill's disease	0	0	0
Sharp lysis	13 days	17,000	Extensive	0	Typhus fever	0	0	0

AN ANATOMIC EXPLANATION OF MANY OF THE CASES OF WEAK OR PAINFUL BACKS, AS WELL AS OF MANY OF THE LEG PARALYSES.

BY JOEL E. GOLDTHWAIT, M.D., BOSTON.

In the two articles which have been published by the writer upon the sacro iliac joints,[1] and in the article upon the lumbo sacral joint,[2] as well as the articles upon hypertrophic arthritis of the spine[3] and the rheumatoid diseases, mention has been made of conditions which frequently lead to pain or weakness referred to the back, as well as at times to much pain, numbness, or complete paralysis of the legs and buttocks.

The justification for the present communication lies in the fact that with a larger experience and a greater understanding of the anatomic formation of the body, not only is it evident that these conditions exist, but that some of the peculiarities which have been described in these articles are much more common than was originally supposed, and that the combination of some of these conditions explains symptoms which had formerly not been understood and consequently made relief difficult or uncertain. It is the hope that this communication may serve to explain some of the features not before understood, and also to correlate the knowledge contained in these previously mentioned papers, so that the confusion which may result from the treatment of a single feature without its commonly associated other features, may be removed.

PELVIC JOINT OR SACRO ILIAC LESIONS.

That disease, strain, or weakness of the joints of the pelvic girdle, with at times displacement of the bones, especially at the sacro iliac juncture, takes place, there can be no question. (Figs. 1 and 2.) That such conditions are common, the knowledge of the anatomic formation of the part should make understandable. The flat surfaces of the articulation with their vertical or oblique axes show that there can be but little support from the bones themselves, and that their stability must depend upon the soft structures, the muscles and ligaments. Of these, the muscles are, of course, of chief importance, since without their aid the ligaments cannot for long retain their tone.

That patients can usually be relieved by supports, such as belts, straps, braces, and exercises, in case the bones are not misplaced, there is also no question. That this same class, in case the bones are misplaced, find relief after the bones have been replaced by belts, straps, braces, and exercises, is equally certain. There are a certain number of these cases, however, which have not been relieved by such methods of treatment, and the reason for this has not been understood until recently. In the study of the proper relationship of the parts as affected by good and bad poise,[4] a better understanding of the function of the pelvic joints, together with the appreciation that their stability is almost wholly dependent upon the tone of the muscles (which can only be maintained by proper poise), has made it possible many times to correct postures of strain and to restore muscle balance so that normal instead of harmful function could result. Even with this knowledge, however, certain cases of backache in which undoubted sacro iliac strain existed were formerly not satisfactorily relieved. With an understanding of the lumbo sacral joint with its many peculiarities and the frequent resulting unnatural strain to the sacro iliac joints, many of the cases of sacro iliac disturbance not controlled by the usual treatment become understandable, and since the lumbo sacral joint is so much concerned with the sacro iliac joint function, its special peculiarities must be considered at this time.

LUMBO SACRAL ARTICULATION.

Transverse Processes.—In the article entitled, "The Lumbo-Sacral Articulation. An Explanation of Many Cases of Lumbago, Sciatica, and Paraplegia,"[5] attention was called to the fact that at times the transverse processes upon the last lumbar vertebra are broader than normal, and that occasionally they are articulated with the top of the sacrum. It was appreciated at that time that this peculiarity might lead to strain or undue leverage upon the lumbo sacral joint, but it was not appreciated at that time the extent to which this leverage might strain or injure the sacro iliac joint, nor was it appreciated that many times the transverse processes of the last lumbar vertebra are so long and broad that they not only articulate with or press against the top of the sacrum, but that they also press against or articulate with the wing of the ilium, with resulting weakness of the sacro iliac point. It is by appreciating this that the confused symptoms of lumbo sacral and sacro iliac joint lesions can be understood.

In that article the fact that these peculiarities in the form of the last lumbar transverse process exist was mentioned, but the great frequency of such formation was not at that time appreciated. In the further study of a considerable number of patients and a large number of spines the variation in the shape and size of these parts is shown to be so great as to be a matter of much surprise.

The variation from the normal (Fig. 3) is not only very common, but the special peculiarity of shape of the processes also varies. It may simply be somewhat larger in all its dimensions (Fig. 4) and be of little importance except

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Fig. 1—Note the twist in the whole pelvis, the separation of the ilium from the sacrum on the right side, with the marked elevation of the ilium on that side. Marked inclination of the spine as the result of tip of the sacrum.



Fig. 2—The marked distortion in the shape of the pelvis, the separation between the sacrum and ilium upon the right side, with the elevation of the ilium upon that side; the spine of the ischium on the right side showing inside the pelvic line much more conspicuously than on the left.



Fig. 3—Practically normal spine with slender transverse processes. A female pelvis.



Fig. 4—Short, thick transverse processes on the last lumbar vertebra, the sacrum set well between the wings of the ilia. A crescentic-shaped articular process on the left side (a.) between the fourth and fifth vertebrae, and a flat articular process on the right side (b.) at the same level.



Fig. 5



Fig. 8—A lumbo sacral transverse articulation on the left side with a short thick transverse process on the right, with undoubtedly a bursa between the sacrum and process upon that side. The articular processes at the lumbo sacral and between the fourth and fifth lumbar of the flat type, the crescentic type showing in the articulations above.

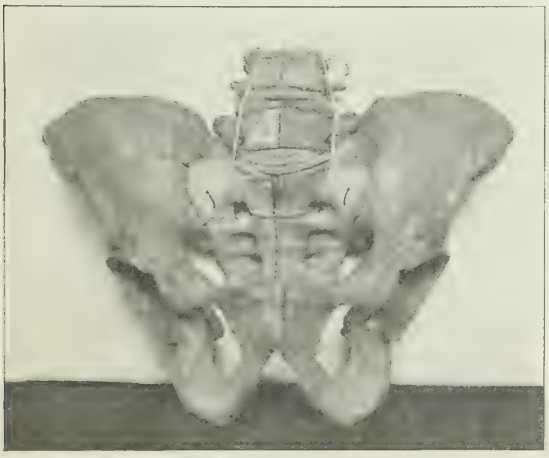


Fig. 6

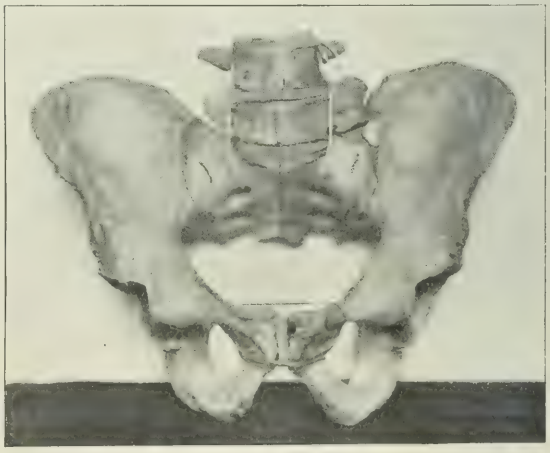


Fig. 9—The lumbo-sacral transverse articulation upon the right side; also an articulation of the tip of the transverse process with the wing of the ilium. Note the hypertrophic arthritic deposit just below the angle of the transverse process as the result of continued strain.

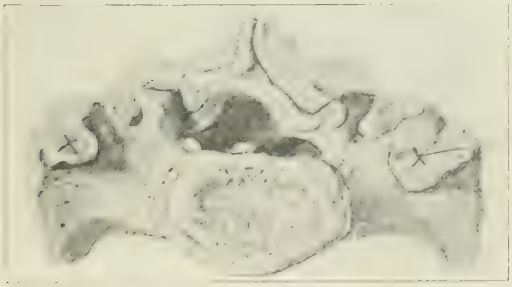


Fig. 7—Showing the articular surface upon the top of the sacrum at the sides with which the transverse process of the vertebra above articulated.

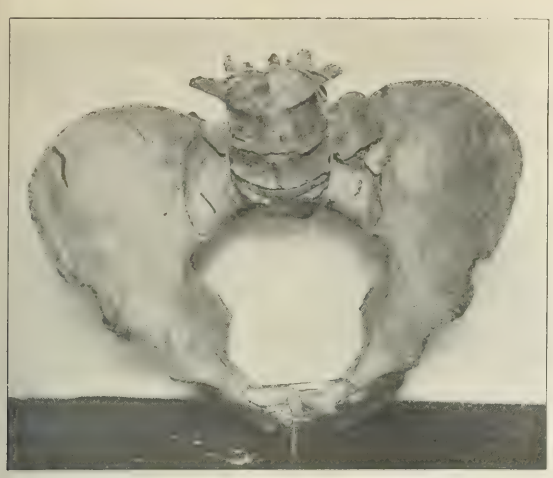


Fig. 10—Another view of same pelvis as Fig. 9, showing the articulation of the transverse process with the ilium more perfectly.



Fig. 12—The complete fusion of the last lumbar vertebra with the sacrum. The articular processes are of the crescentic type, except, possibly, the one on the right at the junction of the sacrum with the spine.



Fig. 11—Fusion of the transverse process of the last lumbar with the sacrum on the left side, with the forked and broad transverse process on the left in the vertebra above, with a short, broad, non-fused transverse process on the last lumbar vertebra on the right side, with a long, slender transverse process on the right side of the vertebra above. The ilium on the left side is larger than on the right. The articular processes are of the flat type in all the joints shown.



Fig. 13—The broad, fin-shaped transverse process on the last lumbar vertebra, with a similar type, less marked, in the vertebra above. The flat articular processes at both the lumbo sacral and the articulation between the fourth and fifth vertebrae, with the crescentic articulations above.



Fig. 14—Partial fusion of the last lumbar vertebra with the sacrum. Complete fusion of the sacrum with the ilium, with fusion of the transverse process of the last lumbar vertebra with the crest of the ilium.



Fig. 17—Showing the crescentic type of articular process upon the right side, the flat type upon the left.

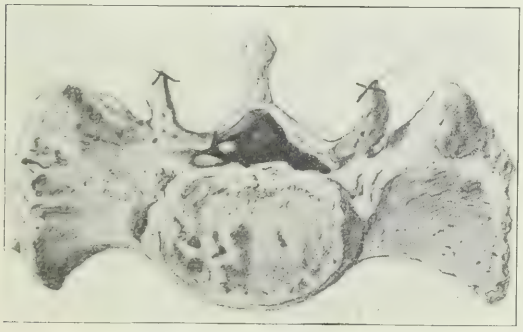


Fig. 15—Showing the crescentic type of articular process.

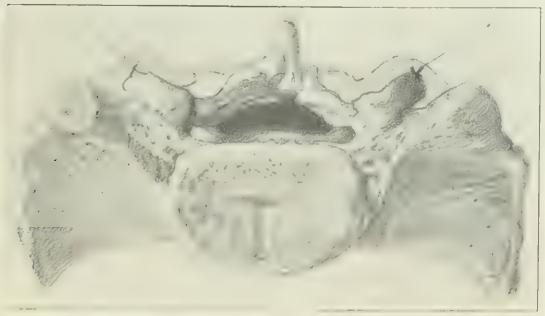


Fig. 16—Showing the flat type of articular process.



Fig. 18—The short thick transverse processes on the last lumbar vertebra, with the flat articular processes on the right side (a.) of the lumbo sacral joint, the joint between the fourth and fifth vertebrae, and between the third and fourth vertebrae, the crescentic articulation showing in all the articulations on the left side.

as the body is bent to the side, at which times the process impinges against the top of the sacrum much more easily than normal, and if carried far enough serves as the fulcrum for straining the lumbo sacral joint. It may be still larger, but evenly and bilaterally enlarged, so that not only does the process impinge against the top of the sacrum in side bending, but in drooping the body (Fig. 5) the increased lordosis results in the crowding of the processes against the top of the sacrum. In such posture, since the transverse and articular processes are behind the body of the vertebra, the weight of the individual must, to a greater or less extent, be taken off the body of the vertebra and thrown upon the transverse processes and the tip of the articular processes. With the transverse process, if this is long continued, a bursa forms between the tip of the process and the sacrum, and when once developed is capable of all of the phenomena of inflammaton with resulting symptoms, as exists in bursae in any other part of the body. In Fig. 6 when freshly dissected a complete bursa existed at this point on both sides. This was exhibited as a wet specimen at the meeting of our association held in Cincinnati last year.

LUMBO SACRAL TRANSVERSE ARTICULATION.

Not only are these types common, but it is also a common thing to have the peculiar formation carried further and a true articulation exist between the tip of the transverse process and the top of the sacrum. This articulation is so frequent and is so distinct that it must be reckoned with in the treatment of joint conditions, and the name *"lumbo sacral transverse articulation"* was given to it by the late Professor Thomas Dwight, this representing one of the last things of an anatomic nature performed by him before his death.

The lumbo sacral transverse articulation may exist upon both sides (Fig. 7) or upon only one (Fig. 8), but if it exists upon both sides the two sides are rarely the same, one side being usually larger than the other. In Fig. 8 the articulation exists upon one side, while a bursa was present between the tip of the transverse process and the top of the sacrum upon the other side.

In Figs. 9 and 10 not only is the articulation between the transverse process and the sacrum evident, but the articulation of the tip of the process with the ilium is shown, and the evidence of the resulting continued strain upon the sacro iliac joint which such a mechanical formation would represent is shown by the hypertrophic arthritic process which has formed in the anterior ligament of the sacro iliac joint upon that side. Even where the true lumbo sacral transverse articulation does not exist, but where simply the bursa is present the increased strain of the sacro iliac joints which, with the necessary limitation of the low spinal motions, must result, is at least suggested by a similar hypertrophic arthritic change in the anterior ligament of the sacro iliac joint in Fig. 6.

The next stage of anatomic peculiarity of the transverse process at the lumbo sacral junction apparently represents the fusion of the transverse process with the sacrum. This may exist only upon one side (Fig. 11), or may represent a complete fusion of the bones (Fig. 12), and the part which represents the upper part of this fusion may be the upper sacral vertebra, which has been partially lumbalized, or the last lumbar vertebra, which has become sacralized. This special feature has been admirably described by Böhm. (Stuttgart, 1907. F. Enke.)

In the broadening of the transverse process the development seems to follow definitely the direction of the lumbo sacral ligament or the ilio lumbar ligament or both. The result of this is shown in the common formation of these peculiar processes resembling in outline the tail fin of the fish (Figs. 13 and 8 and 3). In the hypertrophic arthritis which frequently leads to the fusion of these bones, as well as of the sacro iliac joints (Fig. 14), the osseous deposit takes place first along these ligaments.

In the consideration of the relations of the transverse process of the last lumbar vertebra it should be remembered that at times the wings of the ilia are so high or the sacrum is placed so low that the transverse process next above the last may also press against the ilium in lateral motion, with resulting symptoms, and not only this but the formation may be such that the processes of the two vertebrae may be involved upon one side, while only one may be involved upon the other (Fig. 11).

ARTICULAR PROCESSES.

That which has thus far been said in regard to the lumbo sacral articulations has had to do chiefly with the transverse processes, but in any consideration of this region the formation of and effect of motion or posture upon the articular processes is of much importance. If, for instance, the body is drooped so that there is an increase of the lumbar curve, the weight is received in part upon the tip of the articular processes, with the effect that if long continued a new articular facet at the top of the articular process of the lower bone is formed, while at the base of this process, in the curve where the articular process joins the lamina, a new articular surface forms as the result of the articular process of the vertebra above being crowded downward on to this point. Such a facet may naturally form, not simply at the lumbo sacral joint, but in any of the lumbar articulations, since in the lordosis which is peculiar to such posture the pressure is relieved from the anterior part of the spine, the vertebral bodies, and is thrown upon the posterior parts. Such a new

articular facet is shown in the specimens which are passed about.

With the understanding of such conditions, the variation in the shape of the articular processes, as was mentioned in the previous article upon "The Lumbo Sacral Articulation," must be remembered. With the later study not only have these variations been confirmed, but the crescentic type (Fig. 15) and the flat type (Fig. 16) with the blending of the two, one side showing the crescentic form, while the other side shows the flat type (Fig. 17), are not only shown to exist at the lumbo sacral junction, but also at the vertebral articulations higher up (Figs. 18, 4, 8, and 13). The effect which such peculiarity of formation must have upon the stability or the motions of the spine must be readily apparent. With the one sided crescentic articulation, naturally, in bending to that side the stability of the opposite joint being less, is naturally easily strained. Also with such differences in the formation of the articular processes it is readily apparent that, if at the same time the transverse processes are broad, in side bending the lumbo sacral joint must be less stable, so that strain of this joint, especially in bending to the side of the crescentic articulation, is much more easily produced than normal. The localized painful points along the sides of the lumbar spine with the irregular limitation of motion is often to be explained by this.

The significance which such anatomic features must have in the production of symptoms and in connection with treatment and prognosis must be apparent.

PAIN, NUMBNESS, OR PARALYSIS IN THE LEG.

Of the local symptoms little need be said in such a gathering as this except to call attention to the anatomic features which easily explain many of the points of local tenderness as well as the irregular or peculiar limitations in the spinal motions. The referred symptoms, however, may not be so obvious, and are briefly considered. That complete paraplegia involving not only the legs but the bladder and bowel may occur as the result of strain or displacement of the last vertebra upon the sacrum or as the result of the dislocation backward of the intervertebral disc, there is no question, as this has been fully demonstrated in the study of several cases. This was so fully described in the previous article upon the lumbo sacral articulation that further statement at this time is not necessary. Less extreme conditions of paralysis or disturbance of sensation in the leg are, of course, much more common and find their explanation in the anatomic formation described above. With the increased width of the transverse processes or with the crowding of the articular processes together, the space in which the nerve root leaves the spine or the space, in which the lumbo sacral cord lies as it passes under the transverse process and over the sacrum to join the sacral plexus, must be narrowed. This at times is enough to simply irritate the nerve, causing pain referred to the leg at the distribution of the nerve, while at other times the constriction is enough to cause paralysis or numbness through this same distribution. Naturally the muscles supplied by other nerves are not involved in such cases. That this condition of paralysis is not rare shown by the fact that since this condition has been understood, several cases of localized paralysis of the thigh and buttock have been seen, with relief brought about by changing the poise so that the compression of the nerve could not take place. With such general and anatomic knowledge it is usually possible to determine, especially if the x-ray is used, the anatomic diagnosis.

TREATMENT.

It is not the purpose of this paper to enter extensively into all that is concerned in treatment, since that was not the intent of the paper, and since once the anatomic conditions are appreciated the principles of treatment would be apparent to men trained as are the members of this Association. Nothing more is attempted here than to emphasize a few special points which might not at first be thought to be apparent.

With the simple sacro iliac strains or displacements there is no need of repeating what has already been written, but if the sacro iliac joint is involved as part of a lumbo sacral malformation it is obvious that treatment directed to the sacro iliac joint alone will not bring relief. In such a case not only must the sacro iliac joint be supported, but at the same time the body must be so poised that there is the least possible irritation at the lumbo sacral joint, as well as the least possible pressure of the transverse process against the sacrum and ilium. To relieve this pressure of the transverse process, since it is increased by drooping the body and increasing the normal lordosis, it will be lessened by anything that holds the body fully erect or which flattens the back. For this reason pain in the lumbo sacral or lumbo sacral transverse articulation is usually relieved by simple recumbency upon the back, although a sacro iliac joint pain may be increased by this same position.

If the condition is purely a lumbo sacral lesion, naturally the most important element in the treatment consists in so changing the poise of the body that there will be the least unnatural pressure at the joint. Usually the anatomic peculiarity, if present, has existed since birth, and the symptoms have come on late in life simply because of undesirable postures, which have been acquired. Recognizing this, it is usually possible to relieve the symptoms, although the potential of trouble remains, to become active again in case of accident or careless habits of carriage. With the sacro iliac joint lesions naturally the elements of poise are equally import-

ant, but unless other elements are present the permanence of the improvement is more certain.

In such a paper the pathologic conditions which many times are responsible for backache are not considered, since there is little new for the writer to add to that which has already been written upon these features. The anatomic elements had not, however, to his knowledge, been fully described before and hence their mention here seemed justified.

My indebtedness is here expressed to Dr. Percy Brown for his skill in securing the radiographs here presented.

Reports of Societies.

AMERICAN NEUROLOGICAL ASSOCIATION.

Thirty-eighth Annual Meeting, Held at Boston, Mass., May 30 to June 1, 1912.

(*Continued from page 98.*)

TABES DORSALIS: THE EXHAUSTION THEORY OF ITS PATHOGENESIS WITH EXPERIMENTAL EVIDENCE.

Dr. Colin K. Russel, Montreal, Canada: The pathogenesis of tabes dorsalis is admittedly unsatisfactory. In tabes there is probably a slowly acting toxine which influences cell metabolism in a deleterious manner so that the building-up process is relatively insufficient and the cell becomes exhausted. The cells which are most constantly active, and which we would expect to be affected first, are those cells which maintain the tone and position of the muscles, especially those muscles which are most frequently called into activity. The distal parts of the neurone wither or atrophy and thus the peculiar anatomical-pathological condition of the fibres in the posterior columns may be accounted for. The practical absence of any lesion in the posterior ganglia is also explicable. The reaction of the pupils to light, being far more frequent and active than that to accommodation, produces an exhaustion of the neurones subserving that function giving rise to the well-known Agryll-Robertson pupil. Clinically this theory explains also the fact that men are more frequently affected than women and why the natives of tropical countries are practically immune to the disease. The lightning and girdle pains are probably due to a definite syphilitic process in the spinal meninges as is shown among other things by their alleviation after salvarsan treatment. Following up this theory the writer has been able to produce the Argyll-Robertson pupil in rabbits which had first been inoculated with the spirochaeta pallida, by subjecting them to alternating light and darkness, by means of a miniature revolving light house. Control rabbits which had not been inoculated did not develop any abnormality of the pupil although placed under the same conditions, and rabbits which had been inoculated but had not been subjected to the light stimulation also remained normal.

DISCUSSION.

Dr. B. Sachs, New York: I have tried ever since Edinger first formulated his theory to reconcile the facts with the theories or the theories with the facts, but cannot say that I have adopted the theory as anything more than an interesting theory. It has not proved particularly helpful in the explanation of the morbid processes. It seems easy enough to explain a number of the morbid symptoms on the basis of the theory, but, on the other hand, there are a number of cases that we all see in which just the opposite course occurs to what one would expect if the theory were true.

Dr. Joseph Collins, New York: I am in a position today to say that a case has come under my observation in which the Argyll-Robertson pupil existed according to the opinion of three competent trained neurologists and that it disappeared after active salvarsan therapy. If Dr. Russel's very ingenious explanation, or rather his explanation of the Argyll-Robertson pupil based on this ingenious experiment which he has carried out, is true, and I see no reason why it should not be considered to be so, then it is likely that and the other cardinal symptoms of the disease may be relieved if attacked sufficiently early by appropriate therapy. These observations support the contention that tabes is in reality a meningitis which is an expression of a syphilosis.

Dr. Hugh T. Patrick, Chicago, Ill.: I have not been able to find facts in my practice to support Edinger's theory. On the contrary, I have been inclined to think that such patients as pursue an occupation making a particularly strong call upon one set of extremities are apt to suffer in that side less. I have in mind a painter of pictures, who was and always has been, very sluggish in regard to general exercise, who became exceedingly ataxic in his legs, but painted his pictures exceedingly well.

Dr. F. W. Langdon, Cincinnati, O.: Dr. Russel has given an extremely valuable contribution to what we might term rational pathology of tabes. Some 15 years ago in a paper upon this subject I alluded quite emphatically to the biological reason for the preponderance of tabes in the lower extremities in man. Man has for a comparatively few generations been walking on his hind legs, so to speak, and these are the neurones, as Dr. Russel has pointed out, that have no rest. The muscle sense is continually acting even in the sitting position and more so in standing. Some years later, when Edinger's exhaustion theory was promulgated, I called attention to not only the upright position as putting this constant strain, but also the enormous demand on sensory light reflex of the pupil.

Dr. Russel, in closing: I have found a great many patients who have not done well on the Fraenkel treatment. In these cases it has practically always turned out that in their enthusiasm to get well they have overstepped the limit and done too much and they have exhausted themselves rather than reeducated themselves. The only way to prevent this is to take the pulse as an indication as to when the patient is becoming exhausted. In every case that I have had experience with where this has been done the patients have become re-educated.

SOME ATYPICAL FORMS OF TABES AND PARESIS CONSIDERED IN THE LIGHT OF SERODIAGNOSIS.

Dr. C. Eugene Riggs, St. Paul, Minn.: I report four irregular cases of tabes and one of general paralysis. In none of these were the classical, clinical symptoms of tabes or paresis present. Kneejerks and Argyll-Robertson phenomenon were wanting in all the tabetics. Lightning pains present in two; lymphocytosis in only two cases. The blood

serum gave two negative Wassermanns; the same was true of cerebrospinal fluid. The globulin reaction was positive twice. In the case of paresis the mental symptoms resembled the depressive phase of manic-depressive insanity rather than paresis. All four reactions almost invariably present in paresis (Nonne) were positive. After dementia seemed imminent, but the patient made an apparent recovery; most probably a remission.

DISCUSSION.

DR. E. D. FISHER, New York: Sero diagnosis is of great value. In the psychopathic wards in Bellevue Hospital, New York, the diagnosis of general paresis is often very difficult to make from a clinical standpoint when combined with syphilis and there is a history of alcoholism. It may take several months of observations, before a positive diagnosis can be made. It is in just such atypical cases as Dr. Riggs has said, that this method of examination is so important.

DR. COLIN K. RUSSEL, Montreal, Canada: The Wassermann reaction, in my experience, has not been altogether satisfactory. I have been led to place very little dependence upon the Noguchi globulin reaction. I place more confidence in the lymphocyte test and am guided in the administration of salvarsan by the findings of this.

INDUCED PARALYSIS. ITS THERAPEUTIC APPLICATION IN A CASE OF TIC.

DR. SIDNEY I. SCHWAB, St. Louis, Mo.: Injection of alcohol in the nerve produces acute paralysis. After a number of months there occurs slow progressive return of function due to regeneration of nerves temporarily blocked or excluded from activity. Concerning the theory of tic movement the psycho-genetic origin must be removed. Notwithstanding there are certain cases that are absolutely untouched by any of the well-known methods now in use. It is for this class of cases that the procedures described here were devised. The tic movement is so embedded in the patient's consciousness that it makes him unable to carry on his work. The man to whom I refer was a man of minor intelligence who worked in a bristle factory. He had to tie the bristles in bunches ten hours a day for ten years steadily. The tic movements consist of extention of the fingers and thumb, the arm is then thrown clear from the body and grasped with the right hand. Among other forms of treatment the Rolandio area was exposed in 1908 but nothing was found. On the 21st of October, 1909, injection was made into the spinal accessory, median and ulnar nerves with 80 per cent. alcohol. This produced flaccid paralysis. In May, 1910, the first return in voluntary muscular power was noted. It seems reasonable to assume that the tic movement will not return even though function should return.

DISCUSSION.

DR. HUGH T. PATRICK, Chicago: I am very glad indeed to have Dr. Schwab's favorable report. Believing as I do that tic and spasm are so totally distinct and separate I have never had the courage to inject tic for the reason that tic, if stopped in one place, is very apt to come on in another as all the patient's own devices for stopping it show.

DR. L. PIERCE CLARK, New York: Two or three years ago I saw a case of tic of the neck and advised the surgeon not to do any operation, but he went ahead and did the alcohol injection and, singularly enough, got good results. I believe that these ties are to be judged as mental factors. One should not concern himself with the particular kind of movements as the whole individual needs training for giving the proper degree of mental balance.

PRELIMINARY REPORT UPON A HITHERTO UNDESCRIBED TYPE OF FAMILIAL PALSY.

DR. L. PIERCE CLARK, New York: I report in detail nine members of a fraternity of 19 individuals of four generations who presented life-long attacks of motor disability or palsy resembling family periodic palsy. My cases can be differentiated from the latter affection in that the disability attacks were unattended by electrical or deep reflex alterations and in that the cranial nerves and some involuntary muscles showed loss of movement. There was an inherent muscular defect akin to pseudo-muscular dystrophy in some of the members of the third and fourth generation and severa acetonuria in several children of the fourth generation, the same followed by death in one child. All the individuals afflicted with disability attacks were females except the great-grandfather, with whom the disease apparently originated. One girl of four, of the fourth generation, who has just developed the disease also suffered severe acidosis, being the first member to show an association of the two diseases in the same individual. The disability attacks in the several members of the different fraternities occur at irregular intervals of days, weeks or months. The attacks are indifferently mild and severe, occur more or less abruptly and affect the finer voluntary movements in the lower extremities chiefly.

THE ETIOLOGICAL RELATION OF SYPHILIS TO ARAN-DUCHENNE MUSCULAR ATROPHY.

DR. WILLIAM G. SPILLER, Philadelphia: Comparatively few writers have considered syphilis in the etiology of the various forms of spinal muscular atrophy, and the evidence offered by those who have done so has not been generally accepted. The writer has reexamined for evidence of syphilis 10 cases with necropsy, embracing typical clinical types of amyotrophic lateral sclerosis, lateral sclerosis and progressive spinal muscular atrophy and has found some lymphocytic infiltration of the pia in most of the cases. He has recently studied two cases of cerebro-spinal syphilis and one case of tabes with typical Aran-Duchenne atrophy, *i.e.* atrophy confined to the hands and forearms, and one of each of these types was with necropsy and microscopical examination. In these two cases marked degeneration of the cells of the anterior horns was found. If syphilis of the nervous system be suspected, lymphocytic infiltration of the pia should be present in a considerable number of cases, as it is found frequently in tabes. It is not pathognomonic. In some cases thickening of the blood vessels should be expected, but not so frequently as lymphocytic infiltration. Lymphocytosis of the cerebro-spinal fluid is important as an evidence of syhpilis.

DISCUSSION.

DR. D. J. MCCARTHY, Philadelphia: Without some other evidence we ought not to adopt the view proposed by Dr. Spiller.

DR. M. ALLEN STARR, New York: Erb's statement in regard to the syphilitic causation of loco-

motor ataxia was substantiated by showing definitely that the percentage of locomotor ataxia in those who had syphilis was far greater than the percentage in other disease. If Dr. Spiller's statements are to be accepted, he should show that a large percentage of patients suffering from amyotrophic lateral sclerosis are the subjects of syphilis. I can recall perfectly well three cases treated for some years for amyotrophic lateral sclerosis in all of whom a history of syphilis was obtained.

Dr. E. E. Southardt, Boston: I am inclined to think that one should not assert lues on the basis of leukocytosis. It is well known that anterior poliomyelitis shows lymphocytosis in a particular characteristic way. Tuberculosis of the meninges shows it. I have seen cases of pneumococcal meningitis which showed monoculear infiltration. We might wake up some day suddenly to find that many things called syphilitic are not syphilitic.

Dr. Israel Strauss, New York: I think that what Dr. Southard has said is true. We find leukocytic infiltration in tuberculosis and in other conditions of the nervous system. It is the method by which the nervous system reacts to infectious states in the acute or subacute types. In the chronic states we do not know of anything in the present state of our knowledge which gives us the lymphocytic infiltration which syphilis does.

Dr. Joseph Collins, New York: I venture to suggest that this paper that Dr. Spiller has presented is an extremely important one and will mark a very distinctive period in our interpretation of spinal cord disease. There can be no doubt that what Dr. Southard has said is true, but it does not invalidate the importance of Dr. Spiller's claim and contention. It will permit us now to make investigation of our cases clinically, to demonstrate a syphilitic disorder. For instance, we will not be justified in allowing any case of asymotrophic lateral sclerosis to go through our hands without repeated investigations as to whether or not the syphilitic poison exists in the system, and it seems to me that that is the great application to our problem of the contribution that Dr. Spiller has made.

Dr. Spiller, in closing: Of course I do not expect to have my views accepted in large part. It would not have been worth while to present the paper if I had expected that. I emphasize that I did not say that every case of amyotrophic lateral sclerosis or chronic bulbar palsy is syphilitic. I wished only to call attention to the possibility of syphilis occurring in a number of such cases and feel that I am justified in reporting a study.

(To be continued.)

Book Review.

Diseases of Children. A Practical Treatise on Diagnosis and Treatment for the Use of Students and Practitioners of Medicine. By Benjamin Knox Rachford, Professor of Diseases of Children, Ohio-Miami Medical College, Department of Medicine of the University of Cincinnati; Pediatrician to the Cincinnati Hospital, Good Samaritan Hospital and Jewish Hospital; ex-President of the American Pediatric Society and Member of the Association of American Physicians. New York and London: D. Appleton and Company. 1912.

This text-book, of nearly eight hundred pages, is one of the very best of those dealing with this subject, not only in English, but in any language. It represents the best in American Pediatrics, and is written from the American rather than from the foreign point of view. It is impossible, in a work of this size, to analyze the different portions in detail, especially when they are so uniformly good as they are in this instance. The author's views as to infant feeding are safe, sane and reasonable, as are his views as to treatment in general. It gives us great pleasure to recommend the work most highly.

The Principles of Human Physiology. By Ernest Henry Starling, M.D. (London), F.R.C.P., F. R. S., Jodrell Professor of Physiology in University College, London. Octavo, 1423 pages, with 564 illustrations, some in color. Philadelphia and New York: Lea and Febiger. 1912.

In this book Professor Starling has made a valuable contribution to the general literature of Physiology. By permitting himself a wider scope than does the usual writer of text-books of Physiology for medical students, he has been able to include much interesting matter not ordinarily found in such text-books. Particularly does this appear in his discussion of the less well-known phases of the subject. Here he presents the most recent advances with sufficient detail to satisfy the requirements of the reader to whom these phases are new, and in a manner both interesting and instructive.

In a section headed General Physiology the author deals concisely with certain facts of physics and chemistry essential to a clear understanding of physiology, but not included in the college courses in these subjects usually taken by medical students. Such chapter headings as "The Mechanism of Organic Synthesis," "The Energy of Molecules in Solution," "The Properties of Colloids," indicate both the scope and the value of this section.

Special stress is laid throughout the work on the relation of the facts described to clinical conditions, the object being to impress the reader with the importance of physiological knowledge as a basis for rational therapeutics.

The book is not intended for beginners in physiology. To profit most largely from its use the elements of the subject should have been previously studied. To the advanced student, or to the practitioner, however, it will be found a valuable work of reference.

A feature which commends itself is the subdivision of the book into a great many short chapters. This arrangement facilitates that use of the book for reference which is likely to prove its chief function.

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A MUNICIPAL TUBERCULOSIS SANATORIUM.

IN the latest *Monthly Bulletin* of the New York City Health Department Dr. H. M. Biggs, general medical officer of the department, gives an interesting and instructive account of the municipal tuberculosis sanatorium at Otisville, Orange County. The growth of the institution, Dr. Biggs states, has been somewhat slower than would, perhaps, be desired by some, owing to a variety of causes, although it now has over 500 patients. On opening this sanatorium an entirely novel proposition had to be met. He had long felt that the solution of the problem of providing institutional care for the tuberculous poor of New York must be found in some method different from any which had up to that time been adopted. So vast was the number of cases to be provided for that it was believed that the financial authorities would not otherwise feel justified in making the necessary appropriations. He felt also that the methods followed in tuberculosis sanatoria at that time were not fitted for the class of patients for which this institution was designed. It was therefore determined to establish one where the original expenditure for the housing of patients should be as small as was consistent with their physical well-being and where the administration was as largely as possible through the labor of the patients. Dr. Biggs believed that such an institution was not only feasible and desirable, but that it would remove the ground for frequent criticism of tuberculosis sanatoria, that the treatment by long-continued rest (which, in his judgment, had been carried to too great length) often returns patients with arrested disease, but physically unprepared to resume any useful manual occupation. This plan of treatment also inculcates so firmly a belief in the necessity of rest, and so carefully fosters the life of complete idleness, that the patients are often unhappy and discontented when compelled to return to work to earn their livelihood. The success attending its efforts in the line indicated has, he says, demonstrated the correctness of the attitude taken by the Health Department. An institution has been developed which differs in many important particulars from any existing sanatorium and, in the opinion of those most competent to judge, comes nearer the solution of the problem of the institutional care of the tuberculous poor than has been found anywhere else.

The Otisville Sanatorium was opened, with six patients, in July, 1906, after nearly ten years of effort spent in obtaining the necessary authorization from the Legislature and the required appropriations from the municipal authorities and in finding a suitable site. When the agitation for the establishment of such an institution was begun, almost fifteen years ago, it should be remembered, the general attitude towards the tuberculosis problem was quite different from that existing today, so that the difficulties encountered were numerous and the progress slow. The sanatorium, which is near a station on the Erie Railroad, 76 miles from New York, is located on the southeastern slope of the Shawangunk Mountains, and the grounds comprise between 1,300 and 1,400 acres. When it was started nothing definite was known of the climatic conditions prevailing at Otisville, or of the amount of exposure which the class of patients to be treated would bear without harm and with only beneficial results. It was, therefore, decided to test carefully various types of simple frame structures, to determine what best suited the needs of an institution of the proposed type, rather than to lay out a comprehensive scheme in advance. The construction work has, for the most part, been done by mechanics under the supervision of employees of the Health Department, and the sanatorium was, and is, in several important respects, an experimental institution. A characteristic feature of its administration is its insistence on practically continuous outdoor treatment. This is carried so far that, out of the more than 500 patients, not more than 25 can, under any possibility, be placed within four walls. Experience has shown that cases in the second and third stages of the

disease, taken in the middle of winter from stuffy, hot tenements to Otisville, and immediately made to live out of doors day and night, are not affected unfavorably, even when the atmospheric temperature is zero. On the contrary, only good has followed the procedure. During the first week or two the patients may complain somewhat of the cold, but after that they become accustomed to it and begin to realize the beneficial effect of the cold, fresh air. It has been found that the symptoms of pulmonary disease,—cough, expectoration and fever,—as a rule rapidly disappear, even in cases in which the disease is progressive. It is to be noted that, since the opening of the institution, there has never been a death in it from acute respiratory disease or from any other acute affection; nor has there ever been a case of contagious disease. As there is no "indoors" except the infirmary, there is no discussion as to whether patients not assigned to this will or will not sleep out of doors. It has been shown here that, with the body protected by warm clothing, no amount of exposure to cold does any harm, even in the case of young children. The Otisville plant is self-contained, producing to a large extent its own milk (from a model dairy), fresh vegetables, farm products, and ice; it supplies its own water, bakes its own bread, disposes of its sewage, and has its own electric plant. Accommodations are also provided for the vaccine stables and the autotoxin stables and laboratory of the Health Department and for housing employees connected with these.

It is the belief of the sanitary authorities that, eventually, at least 1,500 patients can and should be provided for at this place, in at least six separate units situated at different points on the property Originally, it was intended that the institution, like other tuberculosis sanatoria of that time, should care only for cases of incipient disease, but experience has shown that there were many reasons for changing this view. Among these were: That in a large majority of the cases occurring among the poor the disease when recognized is no longer incipient; that the really incipient cases often have so few symptoms that individuals will not consent then to stop work and go to an institution; that the cases in the second stage of the disease often do quite as well as the incipient cases; and that even well-advanced, third-stage cases often show surprising improvement after a few months at the sanatorium. So strongly has the necessity been felt for providing at Otisville for the more advanced cases which are not willing to enter a city hospital that it is purposed, during the coming year, in addition to the erection of several more pavilions for women and children, to build an infirmary with 100 beds, especially designed for these patients. If, after two or three months, such cases do not show marked improvement, they can then be transferred to one of the hospitals in the city, where they will then be willing to go. In accordance with the principles mentioned, every patient admitted to the sanatorium is expected to do a certain amount of useful work. On admission, the patient undergoes a rest treatment of some sixteen to twenty-one days, during which careful watch is kept of his temperature and of his reaction towards exercise. If his temperature is normal and his general condition satisfactory, on the eighth day he begins to take a measured walk, under supervision, twice a day, and, depending upon his tolerance for this form of exercise, the length and time of the walk are gradually increased until finally he walks for one hour twice daily. He is then transferred to the sanatorium proper, and assigned to work suited to his physical condition. The different occupations are classified into light, medium and heavy, and the assignment of patients is re-arranged weekly. Experience has shown that it is of the utmost importance that the patients should remain in the institution longer than the minimum period of three months, in order to make their improvement of lasting benefit; but, with the class of patients treated here, such a length of stay is often impossible because of financial distress at home. In such instances, it has been the policy of the administration to give some patients, who are competent and able to work, a small wage, after they have remained three or four months, and keep them employed as patient helpers. The full-paid, non-patient employees of the sanatorium, including seven hospital physicians, number only forty-one, and a large proportion of these were formerly patients. In addition, however, the administration is charged with the service of one physician, who is on duty mainly at the Hospital Admission Bureau, three ministers of religion, who visit the institution on each Sabbath, and one dentist, who also makes weekly visits. The nursing required at the sanatorium is performed mainly by nurses specially trained there. There are but four fully paid graduate nurses, and the others are either not paid at all

or receive but a small salary during their period of training. Many of the graduates from this training school have secured positions as trained attendants in other sanatoria. All patients accepted for admission are required to supply themselves with a complete outfit of clothing and other personal articles. The inmates are given a generous, wholesome diet, but superalimentation is not encouraged; extra diets being given only to those who show persistent loss of weight. The article includes the requirements for admission, the institutional routine, specimen dietaries, the disposal of sputum, and a description of the buildings, and it is stated that recently, since it has been felt that the type of construction adapted for the purpose has been fairly well established, the department has begun to construct the buildings of hollow tile and cement. Tables are then given summarizing the more important facts concerning the patients treated, and others showing the weather record at Otisville for four years, the good results obtained being considered in a large measure attributable to the favorable climatic conditions.

PRACTICAL EUGENICS.

For many years past there has been an ever-increasing interest taken in the subject of racial betterment through the practice of eugenics. So far the chief practical results born as a result of the eugenic campaign have been educational in character. Taken by and large, the thoughtful people of today are decidedly less prone to rush blindly into matrimony than were the same class some ten or fifteen years ago. Although there is as much falling in love and giving in marriage as ever, the tendency to fall in love with the right partner is on the increase. By careful study of the subject, the educated classes are becoming conversant with the general principles which underlie the successful breeding of the mentally fit, and it begins to look as though an intelligent sexual instinct would eventually be evolved among the men and women who comprise the educated walks of life. In this country it is not an exaggeration to say that these constitute the majority. It is, therefore, entirely within the bounds of reason to take an optimistic outlook upon the subject of racial betterment simply because the people are being gradually educated in the manner by which such betterment can be accomplished. But when looked at from the purely practical standpoint it is evident that education alone cannot be counted upon to entirely solve the problem. So far as the already existing persons of good family stock are concerned, the science of eugenics has already accomplished a great deal. These normal people from normal stock are voluntarily going to do all in their power to keep their stock up to the family standard. No legislation is necessary to keep such persons from contracting violently uneugenic alliances. But when it comes to a consideration of the families of already tainted stock, the question assumes another aspect. It seems that part of the mental unfitness of the mentally unfit consists in a deficient power of sexual control and an innate tendency to mate with their own kind. How to eliminate this class of people without violating all principles of inherent individual rights is the grave practical problem which confronts us. Undoubtedly, insanity and feeble-mindedness would be reduced to almost the vanishing point within a few generations if those having these mental taints could be kept from mating by segregation during the reproductive period. Davenport has estimated that if such a plan could be carried out the state could be relieved within a period of fifteen or twenty years of the burden of further increasing its institutions, and that in thirty years most of its properties especially acquired to accommodate all the seriously defective could be sold.[1] The theoretical possibility of such a happy outcome has been admitted by practically all students of the subject, but the practical application of such methods has generally been considered as impossible under our present social conditions. In the current issue of the *Training School* there is an article by Professor Johnstone of the Vineland, New Jersey, School for Backward and Mentally Deficient Children,[2] which appears to contain within it the germ of a plan which might easily grow into a practical scheme for the ultimate elimination of the defective stocks. By utilizing the laws already in existence and combining the public and private institutions and the classes for backward children in the public schools all into one general network, he outlines a plan that on the face of it looks both practical and economical. It must be understood that New Jersey has a law in force for

[1] Davenport, Charles Benedict: Heredity in Relation to Eugenics, p. 259.

[2] Johnstone, E. R.: A Plan to Take Care of the Defectives of New Jersey. The Training School. November-December, 1912.

the reporting of the feeble-minded that is so framed that it is entirely possible for every person of this class to be known to the proper state authorities. With this fundamental difficulty already provided for, Johnstone proposes that: (1) All feeble-minded children under the age of puberty should be sent to the special classes in the public schools. This is in accordance with the demonstrated fact that until the child becomes sexually or otherwise dangerous to the community he can safely be left at large, and in the meanwhile the expense of housing, clothing and feeding remains with the parents. (2) In the large cities he suggests that there be founded special municipal institutions for the feeble-minded between the ages of 12 and 20. Children from the special classes he proposes to advance to the institutions at the proper age. Here the expense must be borne by the municipality, the parents contributing what they are able and the state assisting, as it does in the county care of the insane. The feeble-minded between 12 and 20 who come from the rural districts can be looked after at the institution at Vineland. (3) Those who are 21 years or over can be cared for by the state at the two custodial institutions which it already has in operation for this class, and the transfers should be made directly from the institutions for children to the state institutions for adults. (4) Finally, all the *idiots,* that is, those whose personal habits are unclean, and who need special care and attention, but who are beyond the possibility of useful training, should be sent either to one of the institutions for adults or looked after in the county almshouses.

There are, perhaps, but few states in the Union which have already in existence so many of the units necessary for the completion of such a plan as that outlined by Johnstone for the state of New Jersey. On the other hand, there are but few, if any, which do not already make some provision for this class of unfortunates, and it would seem that a very little concerted action on the part of those interested might easily result in the formulation of an equally practical procedure for every state in the Union. In the meantime we will await with interest the outcome of Professor Johnstone's plan for New Jersey. So far as we are aware, it is the first definite practical plan for the prevention of propagation of the unfit which does not do violence to the principles of the inherent right of the individual to such happiness as he is capable of enjoying without detriment to the community at large, and which at the same time could be put in operation without any revolutionary changes in already existing political and social conditions.

THE BALKAN SITUATION.

The peace negotiations at London between the representatives of Turkey and of the Balkan allies are apparently at a deadlock. Despite repeated conferences, satisfactory terms cannot be reached with relation to the surrender of Adrianople and its adjacent territory, and to the disposal of the Aegean Islands. Indeed the negotiations have now been practically suspended, though not broken off; and unless some mode of agreement is reached or suggested, or unless mediation by the European Powers is adopted as an alternative, it seems likely that in the near future there will be a resumption of hostilities.

Meantime, though the armistice has been generally observed everywhere except by the Greeks and at the siege of Adrianople, the need of medical relief among the combatants remains as pressing as ever. Asiatic cholera and typhoid fever continue their ravages in both armies, and among the non-combatants as well. The Bulgarian government has recently asked for the services of 70 Russian and Czech physicians to take the places of native physicians who are at the front. The Greeks have undertaken the hospital and sanitary administration of Salonica, which they have captured. Elsewhere the Red Cross of various nations continues its beneficent work. A further appeal for funds was issued on Jan. 12 by the American Red Cross International Relief Board, as follows:

"Our people do not generally know that during our war with Spain the Red Cross Societies of Europe sent contributions to the American Red Cross to aid in the care of our sick and wounded men. Today, tens of thousands of sick and wounded soldiers in the Balkans appeal to us for help. The International Red Cross Committee at Geneva and each of the societies of Turkey, Bulgaria, Servia, Greece and Montenegro have asked our aid. The European societies are sending doctors, nurses and hospital supplies. We are too far away to do this, but we can send money to purchase the needed hospital supplies. Let us give generously, both for humanity's sake and to show our gratitude for what was done for us."

The total of Massachusetts subscriptions to this fund now amounts to $7,063.43.

MEDICAL NOTES.

DIPHTHERIA AND SCARLET-FEVER IN CHICAGO.—Report from Chicago on Jan. 7 states that diphtheria and scarlet-fever are epidemic in that city, there being on that date 450 cases of the former and 2100 of the latter disease.

A TALL WOMAN.—Report from Quincy, Ill., states that Miss Ella Ewing, of Gorin, Mo., who died on Jan. 10, was 8 feet and 3 inches in height, and is believed to have been one of the tallest women in the world.

SEIZURE OF OPIUM IN SAN FRANCISCO.—Report from San Francisco states that on January 8, two United States customs inspectors discovered and seized 135 tins of opium, valued at $9,400, aboard the Pacific mail steamer *China,* which recently dropped anchor in that port. The opium was confiscated and will be destroyed.

A BRITISH CENTENARIAN.—Mrs. Ann Lacy, of Ramsgate, England, is said to have been born on December 29, 1812, and on the recent celebration of her supposed centennial anniversary, received a congratulatory message from the King.

THE SHORTEST WAY WITH LEPERS.—Report from Shanghai, China, on January 10, states that by order of the provincial authorities of Nanking, in the province of Kwang-si, 39 lepers of that city were recently put to death by shooting, and their bodies burned and buried. Their only crime was their disease. This drastic Oriental procedure is one method of eliminating undesirable infections from the body politic.

DOMICILIARY DISTRIBUTION OF TUBERCULOSIS IN PARIS.—In a recently published report to the prefect of the department of the Seine, the chief of the Paris bureau of hygiene describes the researches of his bureau into the house distribution of tuberculosis and cancer in that city. These investigations now cover a period of 18 years, during which 169,705 persons in Paris have died of pulmonary tuberculosis. Of these, 9,371 were in 1911, of whom 2,523 were in houses which are considered confirmed foci of the disease. The eradication of these houses, and of similar domiciliary foci of cancer, and their replacement by new buildings of more hygienic character and construction, is the aim of the bureau, and is slowly being accomplished.

AN HISTORICAL MEDICAL EXHIBITION IN LONDON.—For the first time in 21 years the International Medical Congress will meet in London in the summer of 1913, and, in this connection, an exhibition of rare and curious objects relating to medicine, chemistry, pharmacy and the allied sciences is being organized by Mr. Henry S. Wellcome. The response to the appeal for loans has been most successful, with the result that probably one of the most interesting collections of historical medical objects ever gathered together will be on exhibition during the meeting of the Congress.

Among other interesting sections is one including the medical deities of savage, barbaric and other primitive peoples. Through the kindness of friends, specimens of these have been forwarded from all parts of the globe, but there are still many gaps to be filled, and those who possess such objects, and would be willing to loan them, should communicate with the Secretary of the Exhibition, whose address is given below.

Amulets, talismans and charms connected with the art of healing will also form another prominent feature, and any loans of this description would be welcomed.

In the section of surgery, an endeavor will be made to trace the evolution and development of the chief instruments in use at the present day, and it is desired to accumulate specimens of instruments used in every part of the world by both savage and civilized peoples.

In pharmacy and in botany special exhibits are projected, which will include models of ancient pharmacies, laboratories and curious relics of the practice of alchemy in early times. Specimens of ancient and unusual materia medica from all parts of the world will also be exhibited.

A complete, illustrated syllabus will be forwarded to anyone interested on application to The Secretary, 54a Wigmore Street, London, W. England.

BOSTON AND NEW ENGLAND.

BOSTON MORTALITY STATISTICS.—The total number of deaths reported to the Board of Health for the week ending Saturday noon, January 11, 1913, is 278, against 229 the corresponding week last year, showing an increase

of 49 deaths, and making the death rate for the week 19.71. Of this number, 148 were males and 130 were females; 273 were white and 5 colored; 165 were born in the United States, 99 in foreign countries, and 14 unknown; 59 were of American parentage, 179 of foreign parentage, and 40 unknown. The number of cases and deaths from infectious diseases reported this week is as follows: Diphtheria, 41 cases and 2 deaths; scarlatina, 53 cases and 5 deaths; typhoid fever, 7 cases and 0 deaths; measles, 161 cases and 5 deaths; tuberculosis, 58 cases and 29 deaths; smallpox, 0 cases and 0 deaths. The deaths from pneumonia were 49, whooping cough 4, heart disease 36, bronchitis 3. There were 15 deaths from violent causes. The number of children who died under one year was 51; the number under five years, 71. The number of persons who died over sixty years of age was 76. The deaths in hospitals and public institutions were 128.

Cases of infectious diseases reported to the Boston Board of Health for the week ending January 14, 1913, are: Diphtheria, 41; scarlatina, 38; typhoid fever, 10; measles, 128; smallpox, 0; tuberculosis, 51.

The death rate of the reported deaths for the week was 19.29.

Scarlet Fever at Amherst.—Report from Amherst, Mass., on Jan. 17, states that an outbreak of scarlet-fever is in progress among the students at the Massachusetts Agricultural College in that town. Twenty-one cases of the disease have thus far been reported and placed under quarantine. One of these patients died on January 19.

Typhoid Fever in Chelsea.—Between January 12 and 17, 18 cases of typhoid fever were reported in Chelsea, Mass. All the cases have been traced to the milk supply of a single dealer in that city.

Smallpox in Lynn.—Two cases of smallpox were reported last week in Lynn, Mass. Both have been traced to exposure to a smallpox patient who recently escaped from the Lynn Hospital.

Mass. General Hospital Training School.—At the annual graduation exercises of the Massachusetts General Hospital Training-School, held in Boston on Tuesday evening of last week, January 14, the principal address was delivered by Prof. C. E. A. Winslow, of Columbia University, on Public Health. Diplomas were awarded by Dr. Henry P. Walcott, of Cambridge, Mass., to a class of 50 pupil nurses.

Robert Bent Brigham Hospital.—At a recent meeting of the corporation of the Robert Bent Brigham Hospital, Dr. Ernest W. Cushing, Dr. Robert B. Dixon, and Dr. Joel E. Goldthwait were elected directors of the institution.

Needs of the South Department.—The trustees of the Boston City Hospital have recently sent to the municipal authorities a third communication pointing out the present prevalence of diphtheria and scarlet-fever in this city, the inadequacy of the provision at the South Department of the Hospital for the care of these cases, and the consequent urgent need of appropriations for the enlargement of its equipment. The sum originally asked by the trustees was $297,000 to provide for a new ward, increasing the capacity of the South Department. With proper room for only 250, this department is now accommodating over 350 patients.

A Prolific Centenarian.—In the issue of the Journal for November 28, 1912, we noted with pleasure the celebration of the supposed centennial anniversary of Mrs. John Urquhart, of South Weymouth, Mass, who is said to have been born in New Brunswick on November 8, 1812, one of a family of six children. It is with regret that we now learn of the death of Mrs. Urquhart on January 8, 1913. Her activities were preserved nearly to the last. She is survived by 9 of her 14 children, by 34 elderly grandchildren, by 17 great-grandchildren, and by two great-great-grandchildren.

Hartford Medical Society.—At the annual meeting of the Hartford (Conn.) Medical Society on January 6, Dr. Charles D. Alton was elected president, Dr. Everett J. McKnight, vice-president; Dr. John Carter Rowley, secretary; Dr. Arthur H. Griswold, assistant secretary, and Dr. Philip D. Bunce, treasurer for the ensuing year.

Needs of Massachusetts Babies' Hospital.—The recently published annual report of the Massachusetts Babies' Hospital, Jamaica Plain, describes the work of this institution and points out its need of more funds to enable the continuance of this work and its legitimate exten-

sion. This need is further emphasized as follows in a resent letter to the daily press from the president of the board of directors:

"The Massachusetts Babies' Hospital (a society combining hospital care with placing at board infants whose parents are temporarily unable to care for them), is unable to meet increased demands, owing to lack of funds. At present we are obliged to turn away babies which need our care. The hospital is now in charge of Dr. Henry I. Bowditch, of the Harvard Medical School faculty. The consulting physicians are Dr. John Lovett Morse and Dr. Fritz B. Talbot.

"In addition to larger income from donations we need to increase the endowment fund which is too small for such an important institution.

"This work must be generously supported. It constitutes a very large share of the work which is being done for children in Boston.

"There are many ways in which volunteer helpers can be of service. Those who wish to offer their services can apply to Miss Alice M. Cheney, general secretary. The annual report will be gladly sent to any address upon application to the office, 43 Hawkins Street.

"Donations large or small, from $1 up, will be gratefully received and may be sent to Walter Hunnewell, Jr., treasurer, 19 Congress Street, Boston."

A Medical Bequest.—The will of the late Anna M. Healy, of Quincy, Mass., contains a bequest of $2000 to the Free Home for Consumptives, Dorchester.

NEW YORK.

Mortality Statistics.—With the onset of winter there has naturally been some increase in the mortality of the city. While this is fairly general in the more common causes of death, the increase is most marked in pneumonia and organic heart diseases. Still, the death-rate for the month of December (14.21) was slightly lower than in December, 1911, (14.58), and makes a very good showing for this season of the year. Among the diseases in which there was an augmented fatality were the following: The weekly average of deaths from measles increased from 3 in November to 6 in December; the weekly average from scarlet-fever, from 5.25 to 7.5; from whooping-cough, from 3 to 4; from diphtheria and croup, from 21.75 to 25.5; from influenza, from 4.25 to 8; from pulmonary tuberculosis, from 147.5 to 160.25; from pneumonia, from 94.75 to 138.25; from bronchopneumonia, from 74.5 to 94.5; from cancer, from 84.25 to 85.75; from apoplexy and softening of the brain, from 21.5 to 24; from organic heart diseases, from 164.25 to 194.25; from appendicitis and typhilitis, from 9 to 10.5; from cirrhosis of the liver, from 18.75 to 20.5; and from Bright's disease and acute nephritis, from 116.75 to 124.5. Among the diseases in which there was a diminished mortality were the following: The weekly average of deaths from typhoid fever declined from 10.5 to 7.75; from epidemic cerebrospinal meningitis, from 3.25 to 2; from tuberculous cerebrospinal meningitis, from 10.5 to 8.25; from acute bronchitis, from 15.5 to 13.75; from diarrheal diseases under five years of age, from 42.75 to 27.75; and from hernia and intestinal obstruction, from 10.75 to 9.75. For the first time for many months there was one death from smallpox.

Babies' Welfare Association.—A summary of the work of the Babies' Welfare Association shows that during the year 1912 the number of deaths in infants one year old and under in the city was 14,289, as against 15,053 in 1911; a saving of 6 per cent. That this result was not entirely due to favorable weather and other general conditions is shown by the fact that the reduction of mortality was three times greater in New York City than in the rest of the State.

Reception to Countess of Aberdeen.—In recognition of her labors for the suppression of tuberculosis in Ireland, the directors of the Tuberculosis Preventorium for Children at Farmingdale, N. J., tendered a reception to the Countess of Aberdeen, wife of the Lord-Lieutenant of Ireland, at the New York Academy of Medicine on January 9, and among those who made addresses on this occasion were Controller Prendergast and Dr. H. M. Biggs, general medical officer of the Health Department.

Mortality from Preventable Disease.—After a study of the vital statistics of the State, Governor Sulzer has arrived at the conclusion that the mortality from the various preventable diseases ought to be materially reduced, and with this end in view he has appointed a special commission with broad powers to investigate and recommend measures for the improvement of present conditions. Dr. H. M. Biggs, general medical officer of the New York City Health Department, has been made chairman of this commission, and Homer Folks, secretary of the State Charities Aid Association, secretary, and

other members of the commission are Drs. Edward H. Baldwin of Saranac Lake, John C. Otis of Poughkeepsie, and W. E. Milbank of Albany. One of the first duties of the commission will be to select a well-equipped sanitarian for the important position of State Commissioner of Health, to succeed Dr. Eugene H. Porter, whose term expired on January 1.

Bequests in Medical Charity.—Of $20,000 left to charities by the will of the late Miss Florence Phillips of New York, $5,000 each is bequeathed to the Montefiore Home and Hospital for Chronic Invalids and the State Charities Aid Association.

Under the will of the late Gustave Mehringer of New York the sum of $2,584 is left to a number of institutions, including the Mount Sinai Hospital, the Sydenham Hospital, and the Montefiore Home and Hospital for Chronic Invalids.

Bureau of Information.—A Bureau of Information has been opened at the New York Academy of Medicine, under the direction of "The Society for the Advancement of Clinical Study in New York."

The object of this bureau is to furnish to visitors to New York, and the local profession, information on medical subjects, so as to make use of the large clinical opportunities that are always here, and which heretofore have not been readily available.

The Medical Profession of New York and Brooklyn is requested to furnish the bureau with information regarding such of their clinical work which they are willing any physician should visit. Surgeons are requested to send regularly each day, as early as possible, a list of the operations they have arranged for the following day. The Academy of Medicine, telephone, Bryant 974, is available for this purpose, or the mail may be used whenever there is sufficient time. An attendant in charge of the Bureau will be at the Academy daily after nine o'clock, for the express purpose of receiving all information, and promptly posting the same on the special bulletin board which has been installed. The attendant is ready to give every assistance in furnishing information.

Subscribers to "The Society for the Advancement of Clinical Study in New York" may arrange with the attendant to be notified when any special work in which they are interested is posted.

Any information as to autopsies, laboratory demonstrations, lectures, medical clinics, and operations is desired.

The Bureau is supported by funds furnished by "The Society for the Advancement of Clinical Study in New York" and the medical profession is urgently requested to lend their aid by joining the Society. For particulars apply to the attendant of the Bureau.

Needs of New York University.—Dr. Elmer Ellsworth Brown, chancellor of New York University, in his annual report to the university council, asks for $6,000,000 for the present needs of the institution; which is $1,000,000 less than President Butler, in his annual report, recently asked for those of Columbia University. Of this amount, Chancellor Brown states, $3,000,000 is required for the medical department (University and Bellevue Hospital Medical College), for endowment and the equipment of the university hospital. Other items among the needs mentioned are a new building for the Veterinary College and a gymnasium on the campus at University Heights.

Fund for Nassau Hospital.—The president of Nassau Hospital, at Mineola, Long Island, announces that, as a result of a recent twelve-day campaign in Nassau County, a little over $75,000 was raised for the hospital. At the same time he states that at the close of the campaign those who had been engaged in conducting it voted unanimously to continue their work, the feeling being generally expressed that, with a little additional effort, the full $100,000 hoped for could be secured.

Appointment of Dr. Von Hofman.—The board of regents of the University of the State of New York has appointed as secretary of the State Board of Medical Examiners Dr. Otto Von Hofman, of the teaching staff of the medical department of Columbia University, to succeed Dr. Maurice J. Lewi, who recently resigned after having served for more than twenty years in that position.

Death-Rate for 1912.—Health Commissioner Lederle reports that the general death-rate in the city for 1912 was the lowest ever recorded for a year—14.11. The infant death-rate was also the lowest on record. The following were among the decreases noted: Diphtheria

and croup, 48 per cent.; scarlet-fever, 38 per cent.; typhoid fever, 34 per cent.; measles, 30 per cent.; pulmonary tuberculosis, 17 per cent. The number of births reported was 135,625; which is 1,083 more than in 1911, though, taking into account the increase in population, the birth-rate, 26.22, is the lowest since 1906.

COST OF FIGHTING TUBERCULOSIS.—The statistics for the year 1912 collected by the National Association for the Study and Prevention of Tuberculosis show that of the estimated $19,000,000 spent in the United States in the campaign against tuberculosis, the State of New York has furnished $5,162,316. Of this amount, the public expenditures aggregated $3,805,556, and the private expenditures, $1,356,760.

MORTALITY FROM VEHICULAR TRAUMA.—The report of the National Highways Protective Society for the year 1912 shows that in the streets of New York City 532 persons were killed by vehicular traffic, of whom 230 were children. Of the total number, 221, including 103 children, were killed by automobiles, an increase of 79 over the mortality from this cause in 1911. It is stated that only one of these fatalities was attributable to taxicabs, all the rest being caused by private cars. In the State, outside of New York City, accidents on the streets and highways resulted in the death of 234 persons, of whom 127 were killed by automobiles; and there was an increase of 38 per cent. in the fatalities from these vehicles. A gratifying decrease, from 31 in 1911 to 1912, is noted in the deaths at crossings on the Long Island Railroad; a result due to the elimination of grade crossings and greater care on the part of railway emloyees.

TYPHOID MARY AGAIN.—It is reported that Mary Mullen, the celebrated typhoid carrier, familiar to the public as "Typhoid Mary," has dropped the suit for $50,000 damages which she brought against the New York Health Department for isolating her for three years and making it impossible for her to get employment as a cook.

HARVEY LECTURE.—The lecture in the current series before the Harvey Society announced for Saturday of last week, Jan. 18, on "The Prevention of Typhoid Fever," has been postponed on account of the illness of the lecturer, Major Russell.

Current Literature.

MEDICAL RECORD.

JANUARY 4, 1913.

1. DANA, C. L. *Mental Tests.*
2. BRANNAN, J. W. *Some Experiences with Anti-Typhoid Inoculation.*
3. *BROWN, J. S. *Conservative Treatment of Tuberculous Glands of the Neck, Based Upon Their Pathology.*
4. AUSTIN, C. K. *Recent Progress in Medical Renal Disorders.*
5. RUECK, G. A. *A Fatal Case of Gonococcus Septicemia.*
6. BUCKLIN, C. A. *Comparison of Internal and External Urethrotomies for Tight Strictures of the Male.*

3. Brown speaks favorably of his experience with conservative treatment of tuberculous cervical adenitis, *i.e.* along the lines of physiological surgery, rather than the so-called radical methods. Scrofula, he says, is tubercuolsis of the patient, not merely of the glands. Complete extirpation of the disease is impossible and nature tends to cure if given opportunity. The glands have an important protective function, and should not be carelessly sacrificed. In a great majority of the cases the removal of the caseous masses by a proper technic is all the local surgery needed. The enzymes of yeast seem to be of benefit. [L. D. C.]

NEW YORK MEDICAL JOURNAL.

JANUARY 4, 1913.

1. DANA, C. L. *The Doctor's Future.*
2. BRISTOW, A. T. *National Medical Insurance As Affecting the Future of the Doctor.*
3. BOLDT, H. J. *Cancer of the Uterus.*
4. GORDON, A. *A Contribution to the Study of Aphasia.*
5. WHITALL, J. D. *An Unusual Indication for Caesarean Section.*
6. PROESCHER, F. *The Etiology of Rabies.*
7. *CLOWES, C. H. A., AND BUSCH, F. C. *Treatment of Hemorrhage by Means of Precipitated Blood Sera.*
8. KAEMPFER, L. G. *Suspension Laryngoscopy.*
9. SHOEMAKER, H. *Infected Knee Joint.*
10. WAGNER, J. *A Cheap and Efficient Electric Headlight.*
11. LAKE, R. *Vertigo: A Clinical and Therapeutic Study.*

7. Clowes reports 21 cases in which precipitated blood serum, prepared by him, was used in the treatment of hemorrhage. The method of preparation employed consisted in precipitating fresh serum by means of an excess of a mixture of acetone and ether, and filtering under pressure to remove the precipitant. He believes that serum precipitated by means of such a mixture is as effective as fresh serum, if not superior to it. Precipitated serum is freely soluble and possesses the advantage over fluid serum of being sterile, always available, and retaining indefinitely its capacity to stimulate coagulation of the blood. The product obtained from horse serum gives more satisfactory results than that obtainable from the sera of other animals. [L. D. C.]

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

JANUARY 11, 1913.

1. *REYNOLDS, E. *The Theory and Practice of the Treatment of Sterility in Women.*
2. v. NOORDEN, C. *Intoxication Proceeding from the Intestine, Especially Polyneuritis.*
3. KNOX, H. A. *The Moron and the Study of Alien Defectives.*
4. KNIGHT, C. P. *The Detection of the Mentally Defective Among Immigrants.*
5. NICHOLS, H. J., AND HOUGH, W. H. *Demonstration of Spirochaeta Pallida in the Cerebrospinal Fluid from a Patient with Nervous Relapse Following the Use of Salvarsan.*
6. LOWSLEY, O. S. *The Human Prostate Gland at Birth, with a Brief Reference to Its Fetal Development.*
7. KRETSCHMER, H. L. *A Case of Bilateral Urinary Lithiasis.*
8. SUTTON, R. L. *The Occasional Clinical Resemblance of Blastomycosis and Syphilis to Sporotrichosis.*
9. *CROTTI, A. *The Roentgen Ray in Intrathoracic Goiter and Thymus Hyperplasia.*
10. BLECH, G. M. *A Combined Bed and Emergency Cot.*
11. COLE, C. L. *Early Operation for Perforation in Typhoid.*
12. PARRISH, R. C. *Longitudinal Fracture of the Lower Extremity of the Radius.*
13. GLOGAU, O. *Othygroma Nephriticum. A Hitherto Undescribed Disease of the Ear-Lobe.*

1. Reynolds in a very interesting and well stated paper on sterility advances the theory that a too acid vaginal secretion or a thick tenacious cervical secretion may prevent the entrance of spermatozoa into the uterus and hence prevent pregnancy. The article deals interestingly with this condition of the tube and ovaries as causes of sterility and what can be expected from treatment.

9. Crotti believes that x-ray examination must become a part of the routine in goiter work. It is of the utmost necessity in intrathoracic goiter. As a thymus hyperplasia is liable to be a complication in any kind of goiter, especially in hyperthyroidism, and as this complication may prove fatal, the x-ray should be employed in every goiter case. When the diagnosis of thymus hyperplasia complicates a goitrous condition the operation should be postponed and x-ray treatment applied until a marked diminution of the gland is obtained. [E. H. R.]

THE LANCET.

DECEMBER 21, 1912.

1. *WRIGHT, A. E., MORGAN, W. P., COLEBROOK, L., AND DODGSON, R. W. *Observations on the Pharmacotherapy of Pneumococcus Infections.*
2. *LANE, W. A. *Chronic Intestinal Stasis.*
3. OPENSHAW, T. H., AND ROTH, P. B. *The Treatment of Pott's Disease, with an Analysis of 116 Cases.*
4. PATERSON, H. T. *Is Gastric Ulcer a Frequent Precursor of Cancer?*
5. *SINGER, C. *On the Secretory Activity of the Stomach in Chronic Appendicitis with Gastric Symptoms, with an Appendix Containing Clinical Descriptions of 19 Cases.*
6. *ROBERTS, J. L. *Early Signs of Mediastinal Tumors.*
7. LOVELL, A. G. H. *The Vaccine Treatment of Hay Fever.*
8. SIBLEY, W. K. *Abnormal Tuft of Hair and Plica Neuropathica.*

1. Wright in the second part of his paper upon pneumococcus infections, describes his results with Morgenroth's drug, which is claimed to have such remarkably beneficial effects upon pneumonia. His own results fail to confirm this view, and tend to show that this drug, *acthylhydrocupreinhydrochlorate*, is not only not of any benefit, but dangerous.

2. Lane in a characteristic article describes the great benefits sure to result in chronic intestinal stasis from various short circuiting operations. These he describes in some detail.

5. Singer concludes as follows from his observations on the relation between chronic appendicitis and certain gastric symptoms: 1. Chronic appendicitis is frequently associated with gastric symptoms. 2. When this occurs, a gastric or duodenal ulcer may or may not be present, but in all cases analysis of the gastric contents shows marked abnormalities in the way of hypo-secretion. 3. These abnormalities can best be explained as due to toxic substances which act both on the stomach and on the appendix. 4. Removal of the appendix does not always relieve or improve the symptoms.

6. Roberts describes a few cases of mediastinal tumors and analyzes the prominent symptoms. The most important of these he believes to be venous obstruction, respiratory obstruction, pressure upon nerves, pain, and pericarditis. [J. B. H.]

DECEMBER 28, 1912.

1. MALINS, E. *A Short Review of Obstetrics and Gynecology.*
2. *DAVIES, H. M. *A Note Upon the Complete Removal of Pleural Effusions by the Regulation of Intrathoracic Pressure During Aspiration (Oxygen Replacement).*
3. CHANDLER, F. G. *A Case of Empyema in an Infant Aged Five Weeks, with Operation and Recovery.*
4. MORTON, W. C. *Is Anatomical Description Sufficiently Constructive?*

2. Davies describes his method by means of which he is able to bring about complete removal of a chest fluid, by replacing the effusion with oxygen. He maintains intrathoracic pressure by this means, and in cases where there has been collapse of the lung, which refuses to expand under ordinary measures by means of the oxygen, as it is gradually absorbed, he is able to bring about marked re-expansion. He gives the details of technic and several illustrative cases. [J. B. H.]

BRITISH MEDICAL JOURNAL.

DECEMBER 21, 1912.

1. *MACKENZIE, J. *Some Manifestations of a Healthy Heart in the Young Frequently Taken As Indications for Treatment.*
2. LEWIS, T. *Absorptions Upon the Acoustic Phenomena in Mitral Stenosis.*
3. *ROOD, F. *Regional Anesthesia.*
4. *FALCONER, J. L. *Case of Stokes-Adams' Disease.*
5. PHILLIPS, J. G. P. *Nervous and Mental Symptoms in a Case of Addison's Disease.*
6. SOMERVILLE, W. F. *High-Frequency Currents in Trigeminal Neuralgia.*

1. Mackenzie calls attention to certain cardiac abnormalities quite consistent with perfect health, but frequently mistaken for evidence of grave cardiac disease. Chief among these is irregularity in the heart's action. He discusses these irregularities and gives tracings, and then briefly considers the best means of estimating the heart's real strength and functioning power.

3. Rood describes his method of producing anesthesia confined to certain regions by means of

strong solutions of novocain introduced in small amounts around the nerve trunks which supply the part to be operated on, at some part of their course which is anatomically accessible. This method has certain manifest advantages over local infiltration methods of producing anesthesia. Bone, muscle, fascia, skin, are all rendered anesthetic; no edema is caused; anesthesia lasts for several hours. He describes details of technic in using this method in various parts of the body, and tabulates a series of 164 cases. An accurate knowledge of anatomy is necessary. [J. B. H.]

DECEMBER 28, 1912.

1. *EWART, W. *The Pre-Operative Diagnosis of Appendicitis. Demonstration of a New Method of Dorsal Examination.*
2. THORNE, M. *Theories with Regard to Secondary Growths in Carcinoma of the Breast.*
3. GREEN, L. B. *Foreign Body in the Abdominal Cavity.*

1. Ewart in an elaborate paper describes the possibilities of dorsal percussion over the "resonant sacral and iliac surfaces," and the utilization of these areas in diagnosing appendicitis. He supports his theory with many illustrative cases. His remarks are of interest, but it is extremely doubtful if the methods he describes will be accepted as of value in the diagnosis of acute abdominal conditions. [J. B. H.]

WIENER KLINISCHE WOCHENSCHRIFT.

NO. 52. DECEMBER 26, 1912.

1. *BÁRÁNY, R. *Localization in the Cortex of the Cerebellar Hemispheres of Man.*
2. STIEFLER, G. *A Case of Primary Symmetrical Brachial Plexus Neuritis as a Symptom of Late Syphilis.*
3. ZOGRAFIDES, A. *Chronic Hypertrophic Catarrh of the Lingual Tonsil.*
4. HATIEGAN, J., AND DÖRI, B. *The Clinical Comparison of the Ewald-Boas and of the Mintz Test Breakfast.*

1. Bárány believes that there is a very definite localization in the human cerebellar cortex. The coordinative centers for the extremities are found in the superior and inferior semilunar and in the biventral lobules of the corresponding sides. The author describes other centers which he considers that he has located clinically and experimentally. He points out also the important fact that tubercle may develop latently in the substance of the cerebellum, as in the motor region, in the internal capsule, and in the pores, and may run its course without showing any definite signs. [R. M. G.]

ZEITSCHRIFT FÜR KLINISCHE MEDIZIN.

BAND 75. HEFT 5 AND 6.

1. PELLITZER, H. *Types of Regeneration and Degeneration of the Blood in Anemia.*
2. GOLDSCHMIDT, H. *Measurement of Intensity of Heart Sounds.*
3. GEORGOPOULOS, M. *Relation of Parathyroid Glands to Chromaffin System.*
4. CENZEN, F. *Glycuronic Acid Excretion in Man.*
5. NEMENOW, M. *Treatment of Leukemia by X-ray.*
6. FREY, W. *Two Fatal Cases of Mushroom Poisoning.*
7. MOSLER, E. *Physiological Arrhythmia.*
8. *STIERLIN, E. *X-ray Diagnosis of Ulcerative Colitis.*
9. *ROTKY, H. *Permeability of the Meninges to Chemical Substances.*
10. *HIRSCHFELD, H., AND JACOBY, M. *Transmitted Leukemia of Fowl and Its Relation to Tuberculosis.*
11. *POPOFF, P. M. *Aortitis and Fever.*

8. Stierlin was able correctly to diagnosticate and localize a chronic ulcer of the ascending colon by x-ray. He first fed the patient with 30 grams of bismuth suspended in water, and after 7 hours obtained a picture which showed the ulcer with distinct dark edges and light centre. In order to localize it more accurately, he filled the large intestine with a strong solution of barium and later gave a bismuth pap mixture (30 gms. Bi. to 200 gms. bread); 14 hours after the administration of the former and 7 hours after the latter, he obtained a picture which showed in pale but distinct outline the rectum and descending colon, from the Bi. injection, and the ascending colon standing out dark and prominent, this time with the ulcer a jet black. The ulcer was verified in position and description post mortem.

9. Rotky concludes that the meninges allow chemical substances to pass into the spinal fluid by purely physical means (filtration, diffusion, etc.). He finds that few things will pass through even if the meninges be diseased, as in tubercular meningitis and tabes. For example, salicylate of sodium, diuretin, pyramidon, bile coloring matter, mercury and iodine were never found even after prolonged and excessive administration, whereas urotropine and uranin appear in one or two hours, regularly. Bromine for the most part is not thus found, but once appeared after prolonged use.

10. Tuberculosis and leukemia in fowl have no relation, say the authors in contradiction to other workers. They have repeatedly produced tuberculosis by inoculation without getting leukemia. On the other hand, a filtrate of organs (liver, spleen and bone marrow) from a case of leukemia will, if introduced intravenously cause leukemia, and further, the response does not appear to depend greatly upon the amount of filterable virus introduced.

11. Popoff thinks that fever of low grade is a frequent accompaniment of aortitis, and gives three case histories to illustrate. That aortitis, in 9 cases out of 10, is syphilitic in origin is his belief. In any case of inexplicable, long-continued, low grade fever of the tubercular type, with temperature just below normal in the morning and just above normal at night, aortitis should be considered and carefully looked for. [J. B. A.]

REVUE DE CHIRURGIE.

DECEMBER, 1912.

1. *LERICHE, R., AND COTTE, G. *Emergency Cholecystectomy in the Acute Calculous Cholecystitides.*
2. *JOHANSSON, S. *Contribution to the Study of Biliary Perihepatitis with Biliary Extravasation into the Peritoneum without Perforation of the Biliary Apparatus.*
3. NEY, E. *The Rôle of the Veins in the Collateral Arterial Circulation.*
4. *CHALIER, A., AND BONNET, P. *Primary Melanotic Tumors of the Rectum.* (To be continued.)

1. The authors report seven cases of immediate surgical intervention, with cholecystectomy, for acute calculous cholecystitis.

2. In this translated article, is reported a case of cholecystectomy, with drainage, for perihepatitis due to biliary effusion into the peritoneum without demonstrable macroscopic perforation of the gall-bladder or of the biliary ducts. Four similar cases, collected from the literature, are presented.

4. In this continued article the authors report, from Jaboulay's clinic at Lyons, a case of melanosarcoma of the rectum, with multiple metastases, and collect 63 similar cases from the literature.

[R. M. G.]

BULLETTINO DELLE SCIENZE MEDICHE.

AUGUST, 1912.

*DALLA FAVERA, G. B. *The Serodiagnosis of Syphilis by Means of the Conglutination Reaction (Karvonen's Method).*
AVONI, A. *Myo-Adenoma of the Broad Ligament.*
MARCHESINI, O. *"Consecutive Fever" in Scarlatina.*

1. From a clinical comparison of the Karvonen onglutination method, as a modification and simplification of Wassermann's original reaction, the author oncludes that it has a notable diagnostic value in the erodiagnosis of syphilis. Its technical difficulties are ttle, if any, less than those of the Wassermann est; in secondary and tertiary syphilis, with active anifestations, it gives equally good results; but it is ore sensitive in cases of initial syphiloma, in latent yphilis, and in parasyphilitic affections. Nevertheess Karvonen's method has certain inconveniences ot presented by the Wassermann reaction; for which eason the author believes that it will not replace the Vassermann test as a routine, but should be retained s a valuable diagnostic complement and auxiliary in oubtful cases. [R. M. G.]

SEPTEMBER, 1912.

MARTELLI, D. *Contribution to the Study of Multiple Primary Sarcomata of the Bone-Marrow.*
*STRETTI, G. *Lumbar Puncture in Cranio-Encephalic Traumatisms.*

2. Stretti reports 46 cases in which lumbar punure was done as a diagnostic and therapeutic measre in cranio-cerebral trauma. He discusses its techic and value, and presents an excellent bibliography f 29 titles on the subject. [R. M. G.]

OCTOBER, 1912.

CONDULMER, P., AND CALCATERRA, W. *Dry Iodosaline Inhalations, by Körting's System, in 46 Pupils of the Elementary Schools of Bologna Affected with Diverse Lymphatic Manifestations.*
*ROCCHI, G. *Immune Reactions in Surgical Diagnosis.*

2. Rocchi reports from his personal clinical experince that the Bordet and Gengou reaction is of negave or uncertain value in the diagnosis of tubercosis and malignant disease, of some use in the diagosis of echinococcus, and valuable in the diagnosis f syphilis; that the meiostagmin reaction is of little dvantage in surgical diagnosis; and that the epihanin reaction is of possible value with a technical mplification which he proposes. He presents an adirable alphabetic bibliography on each of the three sts. [R. M. G.]

NOVEMBER, 1912.

BOSCHI, E. *In Memory of Luigi Mazzotti.*
*FORNI, G. *Contribution to the Study of Plastic Linitis.*

2. Forni reports completely a case of this rare ondition, with an alphabetic bibliography of 126 titles n the subject. [R. M. G.]

Obituary.

EDWARD CURTIS, M.D.

DR. EDWARD CURTIS, one of the most distinuished physicians of New York, died on Nov. 8, 1912, in the seventy-sixth year of his age. He ame of an old and prominent New England family, and was born in Providence, R. I. Among his ancestors were two presidents of Harvard, Samuel and Joseph Willard, and his father was the late George Curtis, who was president of the Continental Bank of New York and a vice-president of the New York Chamber of Commerce. One of his brothers was the eminent George William Curtis, and another brother, also distinguished, is Dr. John Green Curtis, now emeritus professor of physiology in the College of Physicians and Surgeons, New York, the medical department of Columbia University. Dr. Curtis was graduated with high honors from Harvard in 1859, and the following year commenced his medical studies in the school just named. These were interrupted, however, by the outbreak of the Civil War, early in which he entered the Federal Army as an officer on the staff of the Surgeon General. Later he resumed his professional education in the medical department of the University of Pennsylvania, from which he was graduated in 1864. The following year he was chosen, despite his youth, to assist Dr. Woodward, of the Surgeon General's office, in making the autopsy on the body of President Lincoln. At this time he held an appointment in the microscopical department of the Army Medical Museum in Washington, and the results of his work there in developing the art of microphotography gained a worldwide celebrity for that institution. He was also among the first to make astronomical photographs through the telescope, and in 1869 was appointed on the commission from the U. S. Naval Observatory to observe and report upon the total eclipse of the sun. In 1870 he resigned from the medical staff of the Army to take up private practice in New York, and in 1874 was appointed professor of materia medica and therapeutics in the College of Physicians and Surgeons, a position which he held until 1886, when he was made professor emeritus. Among the other positions which he occupied at various times were microscopist to the Manhattan Eye, Ear and Throat Hospital, surgeon to the New York Eye and Ear Infirmary, president of the New York Ophthalmological Society, and honorary microscopist to the New York City Health Department. In addition, he served, most of the time with the late Dr. Edward W. Lambert, as medical director of the Equitable Life Assurance Company from 1876 to 1904, when he retired on account of ill health. Among the published writings of Dr. Curtis, besides various papers in medical and other scientific periodicals, were "A Manual of General Medical Technology," "Nature and Health," and a number of articles in Wood's "Reference Handbook of the Medical Sciences," and Johnson's "Universal Cyclopaedia." He is survived by his widow, who was Miss Augusta Stacey of Chester, Penn., two sons, and three daughters.

Miscellany.

CENTENNIAL MEMORIAL OF DR. JAMES MARION SIMS.

ON January 25, 1813, in Lancaster District, South Carolina, was born James Marion Sims, later to be known as one of the earliest and most famous of American gynecologists. His life and professional achievements are too familiar to readers of the JOURNAL to require repetition. The occasion of the centennial anniversary of his birth has not been marked by any important commemoration; but his name and his discoveries will live forever in medical history. Dr. Sims died on November 13, 1883, and his obituary notice was published in the issue of the JOURNAL for November 22 of that year (Vol. cix, p. 501). In conclusion, this notice says of him: "His kindness of heart, his uprightness of character, his geniality, his boundless generosity, and his personal magnetism, made him universally beloved and esteemed; and of scarcely any other American can it be said, with equal truth, that he created a new era in medicine." On November 25, 1884, a bronze bust of Dr. Sims was presented to the Boston Medical Library by an anonymous donor; and at the meeting held on that date to accept it, Dr. Oliver Wendell Holmes said: "Dr. Sims stands upon record as one of those benefactors of the race whose contributions to human welfare. . . will carry his name to posterity on the list of those who have deserved the grateful remembrance of all mankind."

MODERN IDEALS FOR BOARDS OF HEALTH.

AT the annual meeting of the Massachusetts Civic League, held recently in Boston, Professor William T. Sedgwick, of the Massachusetts Institute of Technology, delivered an address on "Modern Sanitation and Modern Ideals for Boards of Health," in which he undertook to formulate and explain the standards of the present day for public health work.

"The older sanitation consisted largely of precept, while the new sanitation consists of practice no less than theory, requiring change of habit no less than change of heart. New activities and new ideals have risen for Boards of Health. In the past Boards had been too political, too ready to drift, too unwilling to dictate or even to lead. The public is eager to be led toward better living, better homes, beter food, better water, better milk, cleaner streets, more wholesome workshops and better heating, lighting and ventilation. Hence it has come to pass that the time is ripe for better Boards of Health, which shall lead and not merely follow—boards which shall have courage and hold up high standards.

"Massachusetts has long led with her State Board of Health, and the Civic League can perhaps do no more useful work than to urge upon the people that the time has now come to organize far better local Boards, to be composed of better material, better officered and better equipped. The call to public health was never greater, the profession never nobler or more attractive than today. The medical profession is alive to the opportunity. The engineering profession is ready to lend its aid. Nurses abound, eager and willing to work for the public health. Dozens of young sanitarians would gladly enter the new field if they felt sure of a welcome and reasonable tenure of office."

COMMITTEE REPORT OF THE AMERICAN SANITORIUM ASSOCIATION.

The Committee on the subject of "The Minimum Clinical Laboratory Examinations Suitable for Tuberculosis Sanatoria" begs to submit the following report:

Your Committee has endeavored to consider the question from the standpoint of the one man institution and to indicate only that work which is to their minds essential.

As regards sputum examination, we would recommend the following:

Examinations to be made on admission and on discharge, and at least at three-month intervals during residence.

Examination tbc.; smear method, two smears from different parts of specimen; stain Ziehl; Niellson; fuchsin; acid; alcohol. Microscope, three minutes to a slide. If negative, repeat on second and third day, using anti-formin method; and if still negative once a week for at least three weeks, and for a longer period if possible.

As regards urine:—

On admission morning urine to be tested for albumen by heat and by nitric acid. If positive, 24 hour specimen tested with Esbach's albumenometer.

Sugar test; Fehling's reagent; quantitative if sugar be present. Microscopic examination for casts; stain smear for tbc. in suspected cases.

No future urinalysis needed in normal cases unless complications arise.

Pleural exudates and abscess pus; smear stain for tbc.

Blood: No routine examination recommended.

In cases presenting complication, the laboratory should be prepared to:—

Analyze stomach content after test breakfast.

Take cultures from fauces or tonsils for suspected diphtheria.

Make leucocyte count in suspected appendicitis, etc.

Examine for malarial plasmodia.

Examine for suspected leukemia.

Arrangement should be made with the nearest available laboratory for animal inoculation

when needed; Wassermann test; Widal test; pathological sections and all special work requiring considerable time and apparatus, as inoculation of pigs with suspected sputa.

It is the opinion of your Committee that the head of a sanatorium, with a small medical staff will be able to get the most value from his work if he limits his laboratory routine in all uncomplicated cases to the simple examination stated.

(Signed)

Walter C. Klotz, *Chairman*,
Edward R. Baldwin,
David R. Lyman.

Correspondence.

THE NOSE AS AN AVENUE OF INFECTION.

January 4, 1913.

Mr. Editor: I am glad to note that in continuing the presentation of the subject of "Mechanics of Percussis" you state again my own observation that "Inoculation was found to be unfailingly and most easily induced by slow injection through the nose."

Your truly,
Edmund D. Spear, M.D.

INVESTIGATION OF THE ALIMENTARY TRACT BY RÖNTGEN RAYS.

Buffalo, N. Y., Dec. 17, 1912.

Mr. Editor: Referring to Dr. Percy Brown's excellent article on Alimentary Aberrations: The Röntgen Rays as a Factor in their Diagnosis, in your issue of Dec. 12, 1912, allow me a few words regarding the history of this method.

So far as I can learn, the very first demonstration that the stomach —and hence other organs—could be located by the shadow of a harmless substance introduced within the organ, was by Roux of Paris in 1896, using bismuth. Previously, Turck of Chicago (recently of New York) had reported the localization of the stomach by opaque sounds. During the winter of 1896-7, I was at work on the same problem, using capsules containing reduced iron and also emulsions or rather watery suspensions of bismuth subcarbonate. Quite early in the winter, I demonstrated the capsules in the mouth fluoroscopically. In the spring, at a meeting in the Dental Department of the University of Buffalo, I attempted to get a radiogram of such capsules within the stomach but failed or rather, in the light of modern experience, was not sufficiently optimistic about a streak obtained on the plate, as I looked for a distinct shadow. Early in July, 1897, working with a better machine, and going back to the fluoroscope, both the iron tablet capsule and the bismuth suspension gave satisfactory results in a series of about a dozen cases. The capsule, especially, showed gastric peristalsis, the shadow appearing and disappearing, thus explaining the previous relative failure of radioscopy. My work was first reported in print, in *Medicine* (Chicago, now defunct) in Feb., 1898. In the same month, Boas and Dorn reported the same method in a foreign journal, all of us working independently.

These were, of course, crude beginnings but they rapidly led to observations, becoming more and more critical, as larger and larger numbers devoted themselves to the study. Without, in any way, belittling the magnificent work of Rieder, Dr. Brown's statement, "Some sporadic observations, by means of the bismuth method had been attempted prior to 1904, but it remained for Rieder of Munich to demonstrate what could really be done," does not do justice to the facts. In Buffalo, at least, and probably for every American city, the bismuth method was in almost routine use for four years before this time. The 1905 meeting of the American Gastro-enterologic Association was held April 24 and 25, the papers obviously having been in preparation for months in advance. Cannon presented a paper on Recent Advances, touching on various x-ray investigations, dating back several years but not mentioning Rieder. X-ray methods are mentioned by several others in the transactions, casually, as routine procedures, without any impetus from Rieder. In 1904, brief mention is made of x-rays in the differential diagnosis between gastric ulcer and gall-stones and, in 1903, Turck mentions x-ray examinations of gastric peristalsis in dogs.

In addition, the discussion of the safe dose of bismuth, and the danger of impure preparations, ascribes undue credit to Rieder for the matter had already been threshed out with reference to the therapeutics of gastric ulcer, etc.

As already implied, it is not the purpose of the writer to depreciate the well deserved reputation of Rieder but to point out that the x-rays have been studied by a large number of men, that the perfection of instruments and of technic and the acquisition of experience, have been gradual, and that it is unjust to single out any one man to the disparagement of others.

Truly yours,
A. L. Benedict, M.D.

SURGICAL NEEDS OF FOREIGN MISSIONS.

Mr. Editor: The American Board of Commissioners for Foreign Missions is carrying on a most extensive medical work in Turkey, India, China, Africa and the Islands of the sea. We have about fifty thoroughly equipped physicians in charge of this work who treated last year nearly 400,000 patients in the hospitals and dispensaries connected with their work. Nearly every one of the hospitals is in such an isolated position with relation to other modern medical facilities that the physician or physicians in charge are compelled to be experts in almost every department of medicine and surgery, and every surgeon must have himself all the instruments required for the performance of the operations which he must undertake.

As an illustration of the operations performed, a statement just received from the physician in charge of a hospital at Cesarea, in Asia Minor, reports in ten months, 91 abdominal operations, and over 800 other operations performed by himself. In a report just received also, from Northern Syria, Turkey, covering a period of nine months, the operations performed were 666, 209 of which were eye cases, 21 for urinary calculi, 61 bone cases, and 65 abdominal; in the period named, 5492 patients were seen, with 394 patients in the hospital.

John C. Berry, M.D., of Worcester, Mass., a member of our administrative board, has suggested to me that many physicians have serviceable surgical instruments in their possession which they are not using and will undoubtedly never use again, in view of their being displaced by something more modern. Such instruments would be of immeasurable value to these physicians who are out beyond the frontiers of civilization, striving under most hampering conditions to meet the medical and surgical needs of people who otherwise would have no modern aid whatever.

Any such instruments given to the American Board of Commissioners for Foreign Missions would be forwarded to these physicians where the need is greatest and would at once be put into great service. They may be sent to John G. Hosmer, 14 Beacon Street, Boston, Mass.: to Edward Lincoln Smith, D.D., Fourth Avenue and 22d Street, New York; to A. N. Hitchcock, D.D., 19 South La Salle Street, Chicago, Ill.; or to H. M. Tenney, D.D., Mechanics Bank

Building, San Francisco, Cal. If we could know the name and address of the donor we would be glad indeed to report the disposal of the instruments, and, if desired, put the donor into correspondence with the physician who receives them.

JAMES L. BARTON.

January 10, 1913.

SOCIETY NOTICES.

NEW ENGLAND PEDIATRIC SOCIETY.—The twenty-fourth meeting of the New England Pediatric Society will be held at the Boston Medical Library at 8.15 P. M., on Saturday, January 25, 1913.

The following papers will be read:

1. (*a*) A Case of Blood Cyst of the Chest Wall in a Child. (*b*) Non-Union of the Clavicle in a Child. A case with a lesson and x-ray photograph. Dr. William P. Coues.

2. Infantile Beriberi in the Philippines. Dr. Donald Gregg.

3. Differential Diagnosis of Tubercular Joints in Childhood. Dr. E. G. Brackett.

Light refreshments will be served after the meeting.

JAMES S. STONE, *President.*
FRITZ B. TALBOT, *Secretary.*

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.—The annual meeting of the Society will be held in Sprague Hall, Medical Library Building, on Monday, January 27, at 8.15 P. M.

MEMORIAL TO DR. ARTHUR TRACY CABOT.
DR. HENRY P. WALCOTT,
DR. PAUL THORNDIKE,
DR. JOHN B. HAWES, 2nd.

The annual business meeting will be held at 9 P. M.

Members of the Suffolk District Medical Society are cordially invited to attend.

ROBERT M. GREEN, M.D., *Secretary.*
78 Marlborough Street.

THE NORFOLK DISTRICT MEDICAL SOCIETY.—A regular meeting of the Society will be held at Masonic Temple, 171 Warren Street, Roxbury, Tuesday, January 28, at 8 o'clock .

Telephone, Roxbury 22753.

Business. Communications: "Some Biological and Bacterial Problems Pertaining to Intestinal Bacteria," Theobald Smith, M.D.

Refreshments after the meeting.

BRADFORD KENT, M.D., *Secretary.*
798 Blue Hill Ave., Dorchester.

NEW ENGLAND BRANCH OF THE AMERICAN UROLOGICAL ASSOCIATION.—A meeting of the Society will be held at the Boston Medical Library on Tuesday, January 28, 1913, at 8.15 P. M.

1. Presentation of patients, specimens, instruments, and case reports.

2. Paper: "Carcinoma of the Prostate," Dr. J. T. Geraghty, of Baltimore.

Discussion, Drs. F. S. Watson, P. Thorndike, E. L. Keyes, Jr., N. Y., H. Cabot and others.

DR. R. F. O'NEIL, *Secretary,*
379 Beacon St., Boston.

RECENT DEATHS.

DR. JAMES E. BOTHFELD, who died on Jan. 12 at Newton, Mass., was born in New York City on Oct. 14, 1865. He graduated from Boston University Medical School in 1887. After practising for a time in Concord, N. H., he settled in New York, where he remained until 1895, when he removed to Newton. He was surgeon to the Newton Hospital, a member of the American Institute of Homeopathy and of the Massachusetts Homeopathic Medical Society. He is survived by his widow and by one daughter.

DR. MORTIMER HALL CLARKE, who died on Jan. 1 in Auburndale, Mass., was born at Newburyport Mass., in 1860, the son of a physician. He received the degree of A.B. from Harvard College in 188 and that of M.D. from Boston University in 1888. After serving as house officer at a hospital in Brooklyn N. Y., he settled at Auburndale, where he remained actively engaged in the practice of his profession until his death. He was a member of the Massachusetts Surgical and Gynecological Society and of the Boston Homeopathic Medical Society. He is survived by his widow.

DR. EWEN MCINTYRE, who died of pneumonia on Jan. 9, in New York City, was born at Johnstown Fulton County, N. Y., in 1825. He graduated from the New York College of Pharmacy in 1847, of which in later life he was for many years president as well as of the American Pharmaceutical Association. He is survived by his widow, by five daughters and by four sons.

RESIGNATION.

DR. BURDETT L. ARMS has recently resigned as director of the bacteriological laboratory of the Boston Board of Health.

APPOINTMENT.

DR. WILLARD D. BIGELOW has been recently appointed a member of the Board of Food and Drug Inspection of the United States Department of Agriculture.

BOOKS AND PAMPHLETS RECEIVED.

Yale Review, Vol. II, No. 2. Sugar at a Glance, by Truman G. Palmer, Washington, D. C. 1912.

RECORD OF MORTALITY.

FOR THE WEEK ENDING SATURDAY, JAN. 11, 1913.

CITIES.	Reported deaths in each.	Deaths under five years.	CITIES.	Reported deaths in each.	Deaths under five years.
NewYork	—	—	Pittsfield	14	4
Chicago	—	—	Waltham	12	1
Philadelphia	—	—	Brookline	8	1
St. Louis	—	—	Chicopee	9	2
Baltimore	—	—	Gloucester	7	—
Cleveland	—	—	Medford	7	1
Buffalo	—	—	North Adams	6	2
Pittsburgh	—	—	Northampton	9	1
Cincinnati	—	—	Beverly	7	—
Milwaukee	—	—	Revere	7	2
Washington	—	—	Leominster	4	2
Providence	—	—	Attleboro	3	—
Boston	278	71	Westfield	6	1
Worcester	51	12	Peabody	—	—
Fall River	47	26	Melrose	3	1
Lowell	32	7	Woburn	7	2
Cambridge	36	8	Newburyport	2	1
New Bedford	33	13	Gardner	5	1
Lynn	17	—	Marlboro	6	1
Springfield	31	6	Clinton	5	1
Lawrence	—	—	Milford	—	—
Somerville	20	3	Adams	5	3
Holyoke	18	7	Framingham	—	—
Brockton	13	2	Weymouth	—	—
Malden	—	—	Watertown	—	—
Haverhill	14	2	Southbridge	3	3
Salem	16	4	Plymouth	—	—
Newton	12	2	Webster	5	—
Fitchburg	9	4	Methuen	—	—
Taunton	14	4	Wakefield	—	—
Everett	12	—	Arlington	—	—
Quincy	—	—	Greenfield	5	2
Chelsea	15	4	Winthrop	5	1

Original Articles.

A CONSIDERATION OF SEVENTY-SIX OPERATIONS IN WHICH LANE BONE PLATES WERE USED.

BY WILLARD BARTLETT, A.M., M.D., ST. LOUIS, MO.

No procedure in all surgery appears more convincing at the operating table than does the Lane method of treating fractures, especially in the hands of its expert author. However, its actual value can be established only by a study of end results.

In these 76 patients the following bones were broken: clavicle, 7; humerus, 17; radius, 1; radius and ulna, 3; ulna, 4; femur, 17; tibia 15; tibia and fibula, 9; fibula alone, 3.

I have been able to trace just half of these patients for periods ranging from two to twenty-nine months after operation, and since I shall be very frank about their histories it is only fair to the method to state that the other 38 are known to have left the hospital alive and most of them in better shape than when they entered. Many walked out in full health, without dressing, splint or crutch, but some were removed in the original cast and dressing at the end of one or more weeks. Since I know that complications are possible during an indefinite period, I prefer to consider none of those of whom I can give no accurate details since they left the hospital.

Among the 38 which have been traced, there were 22 simple, and 16 compound fractures. Of the latter, 12 were fresh or granulating when the plate was introduced; while 4 were suppurating at the time of operation.

Of these 38 patients, 13 are known to have had their plates removed. Four plates had to be taken out in simple fractures and 9 in compound.

Seven of these 38 results are considered failures by me, and since we frequently learn more from our failures than from our successes, the details of these will be given in their entirety.

UNSATISFACTORY RESULTS.

Case 1. M. M., female, aged 50, was admitted September 12, 1910. History: drinks beer and whiskey, at times to excess, syphilis, positive and tertiary stage evident as shown by nasal deformity.

Patient gave a history of suffering for the past fourteen weeks from a non-union of a fracture of the left femur at the junction of the upper and middle thirds.

September 13th the bone was squared off and a six-screw Lane plate was applied.

The first few days of the patient's convalescence were uneventful until the nurse found her intoxicated, and several days later she developed an attack of delirium tremens, the entire occurrence taking place in a large ward. She took no care of her limb, the cast becoming saturated with urine and discharges. Some ten days after the operation she ran a slight temperature, and on cutting a window into the cast we found that the wound was infected, the cast having been thoroughly saturated with discharges. The patient died on September 28th of septicemia.

This patient was badly chosen and should not have been subjected to operation at all.

Case 2. L. B., male, aged 48, was admitted December 16, 1910. History of falling on the left shoulder on December 14th, two days previous to admittance, while in an intoxicated condition.

December 18th, under ether anesthesia, a four-screw Lane plate was applied to a very oblique fracture. A silver wire was slipped beneath the clavicle and adjusted in such a manner as to hold the plate and the fragments of bone in perfect position.

The patient was returned to the division and he complained of pain in the right chest shortly afterward. On the 26th at 2.30 P. M., eight days after the operation, the patient died of a cardiac failure, secondary to pneumonia. Examination showed the wound to be healing by first intention.

This man's life was lost in an attempt to restore the integrity of a bone which was of very little use to him at best. I now use a local anaesthetic for the clavicle.

Case 3. M. K., age 36, male, laborer, entered January 30, 1911, having been run over by a train. Had compound fracture of the right leg. Both bones being broken, the tibia very obliquely, causing the lower half of the leg and foot to dangle.

After thorough cleansing of the wound, a four-screw heavy Lane plate was applied. The ends had been squared off so that the fragments would approximate well. Infection, however, was severe and much sloughing took place. The third week after plating, plate became loose and was removed on February 20th.

May 1911 patient still in hospital receiving dressings. Had severe secondary hemorrhage.

It must be admitted that the plate did no good at all in this case.

Case 4. T. G., male, age 22, entered August 16, 1911. He had been unloading logs from a railroad flat-car when one had become accidentally detached and rolled across his thigh causing a compound fracture of the femur.

A six-screw Lane plate was applied and the soft parts tightly sutured. The plaster cast was not opened for five weeks when the evidence of a mild infection was found. The patient's family physician thrust a probe into the depths of the wound and serious trouble commenced. When I saw him again on November 24th, he was pale, emaciated and septic. After removing his plate and instituting thorough drainage, he remained several weeks in the hospital and was discharged with a firm union and satisfactory physical condition.

November 1, 1912 he reports himself as being in fairly good condition although depending somewhat for support upon one crutch.

This man is no better off than if I had never operated upon him.

Case 5. H. R., male, age 8, was admitted February 6, 1912. He had been run over by a street car a few hours before I saw him and was discovered to have a fracture about the middle of the tibia, both fragments presenting widely through an extensive laceration of the soft parts.

A six-screw Lane plate was immediately applied and the parts accurately approximated. The child immediately developed an extremely high temperature and died three days later of what was supposed to have been cerebral fat embolism, although this is not definitely known since no autopsy was permitted.

I naturally blame myself in this instance for doing anything at all while the patient was depressed by the immediate effects of a street-car injury.

CASE 6. O. G., male, age 20, was admitted February 23, 1912. He had just been struck by a railroad train and presented a compound fracture of the left radius and ulna.

Through his accidental wound a four-screw Lane plate was applied to the radius. The wound was packed and free drainage thus instituted.

On account of circulatory disturbances and gangrene, the arm had to be amputated one week later. The screws were found to be holding firmly at the time.

My short operation, done under a local anesthetic, apparently had no influence in determining the result in this case. I call it a failure because it was of no ultimate avail.

CASE 7. L. W., male, age 40, operated upon March 9, 1912. He had a compound fracture low in the shaft of the tibia which had been plated unsuccessfully. When I saw him the wound was full of pus and the first bone plate was sticking out. I applied a second one and found the lower fragment so lacking in cortex that screws would not hold well in it, hence a heavy silver wire was wrapped around it and the lower end of the plate. Suppuration continued and at the patient's urgent request the foot was amputated by another surgeon a few weeks later.

In this instance my operation did no harm, apparently, but it did no good, hence it is classed as a failure.

My mortality in this work has been 3.9 per cent. It can, however, not properly be credited to the method, as such, but rather to the operation, I fear. In future I shall abstain from general anesthetics when merely a functional result is contemplated in a chronic alcoholic, and forego bone work until primary shock is past. An observance of these considerations in the past would have left me a clean score as far as mortality in 76 cases is concerned.

Now follows an abbreviated description of the 31 cases which I trust I may consider successes. In the light of present experience I cannot say positively that operation was necessary in every instance, but at least all of the patients are well at the present time or were greatly improved when last heard from.

CASE 8. M. B., female, age 38. Eight months ago the leg was fractured about four inches above the knee, and skiagraph showed the bone to be overlapping about two inches and set at an angle of 30 degrees. The patient is unable to put her weight on it.

June 6, 1910, I screwed a plate on the outer side of the bone and applied a plaster cast after squaring off both ends.

September 1, 1910, the union was perfectly solid and she bore part of her weight on it, but being very heavy feared to walk without a crutch.

May 15, 1911, she walked without a support for a short distance without discomfort. After prolonged use of the leg she was likely to experience pain next day. It was referable to the site of an old injury. This became so annoying that on February 28, 1912, I had to remove the plate, one end of which was sticking into surrounding muscles. Since this second operation she has been entirely free from discomfort and walks without any support about her house, but on the street uses a crutch or cane, she being an extremely heavy woman. It may be said that she is greatly improved; when I first saw her, she was confined to bed and unable to swing the foot with the rest of the leg.

CASE 9. W. C., age 18, male, machinist, was admitted September 30, 1910, suffering with a fracture of practically all the ribs on the left side, fracture of both bones of the forearm about the middle, fracture of the left humerus about the musculospiral groove an a fracture of the right femur with a dislocation of the knee-joint.

October 7, the muscolospiral nerve did not respond to faradic current; very slight lateral movement of fingers present. Röntgen-ray at that time showed a transverse fracture of the left humerus of radius and ulna at lower one-sixth and a second fracture of ulna at upper two-thirds of bone.

November 15, 1910, the musculospiral nerve was found and traced up to the musculospiral groove on the back of the left humerus. It failed to react to electrical stimulants, while the triceps muscle responded. The excessive callous around the musculospiral groove was removed with the aid of a chisel, and a portion of the fascia sewed beneath the musculospiral nerve so that the nerve did not come directly in contact with the bone at the point where the callous had been chiseled away.

We applied a four-screw Lane plate, after removing callous and making groove for the plate. Approximation was perfect.

May 30, 1911, patient was seen, examination showing a complete regeneration of the musculospiral nerve, all fractures firmly united, function perfect, there being only slight impairment in supination of the forearm. In all, this was a very bad case with a beautiful result.

CASE 10. J. M., age 30, male, laborer, admitted October 7, 1910, with a history of falling off a clay car. Fracture of tibia and fibula about the junction of lower and middle thirds.

October 11, 1910, a four-screw Lane plate was applied so that two screws were in each fragment.

The cast was removed on November 7, 1910 and he was discharged November 12, 1910, having made an uneventful recovery.

On May 23, 1911, he returned. There was no edema, perfect scar, alignment of the bone perfect, no shortening or deformity; had attended the St. Louis University Clinic, where a surgeon had removed the plate. He complains of slight pain at the time of writing.

CASE 11. J. D., age 56, male, teamster, was admitted October 30, 1910. A plating operation had been performed November 3, 1909, by another practitioner.

November 22, 1910, the patient having a musculo-

spiral paralysis, Dr. Schwab recommended inspection of the musculospiral region, which was done, and the plate found to crush the lower portion of the nerve against the bone. The nerve failed to show conductively to electrical stimulants, and degenerated end was cut away; neurorrhaphy was then carried out. Plate was replaced.

The patient left the hospital and was seen May 27, 1911. The alignment of the humerus was good; there was no waist drop, although the grip was still weak. The result was far better than had been expected.

Case 12. A. B., age 32, male, teamster, entered the hospital November 8, 1910. Gave a history of having had his leg crushed by a grate falling on it.

Skiagraph revealed a transverse fracture of the tibia with about 1¼ inch over-lapping.

November 10, 1910. The lower fragment of the tibia was well exposed, showing a marked protruding upward and forward and an over-riding of the upper fragment for a considerable distance, probably 1¼ inch, with the soft tissues interposed between the fragments. A six-screw Lane plate was applied.

On November 25, 1910, he was discharged from the hospital. On May 23, 1911, patient called. The result was found to be ideal, no shortening, no deformity. The alignment of the tibia was good. Pain practically absent. Referred to the City Hospital for X-ray, which showed perfect alignment.

Case 13. P. H., age, 51, male, printer, admitted November 11, 1910. History of sustaining injury by falling. Skiagraph revealed a fracture of the internal malleolus of the tibia and a fracture of the fibula, the fibula being fractured about 1½ inches above the ankle-joint.

On November 15, 1910, an incision was made over the lower end of the fibula and a four-screw Lane plate applied. This plate extended down to a level with the ankle-joint.

To date, May 1911, there has been no trouble with the plate.

Case 14. E. S., age 30. Six days before seen, this young man was thrown from a wagon and broke both bones of the lower arm about 5 inches below the elbow.

November 4, 1910, a plate with four screws was put on each bone, sewed everything tight and put him in a plaster cast.

December 21, 1910, the cast was removed and everything found in perfect shape.

June 1, 1911, strength same as in other arm, but rotation slightly impaired. Patient said he had not tried to overcome this as directed; little finger felt "dead" and there were occasionally slight pains in the region of the fracture.

November 10, 1912, finds the arm perfect in every respect, excepting a slight impairment of rotation.

Case 15. L. K., age 39, male, driver, admitted November 14, 1910. History was that milk-wagon turned over on his leg.

November 22, 1910, skiagraph revealed a fracture of the tibia and fibula, the tibia being fractured obliquely and in very poor position. There was a portion of the fibula about 1¼ inches long, broken out, in this way giving three fragments.

After the fragments had been approximated a triangular chip which had been displaced was put back into place and a heavy four-screw Lane plate was applied to the tibia. An incision was then made over the lower end of the fibula on the outer surface, 3½ inches long, and the bone exposed. The bone, which had been fractured in such a way that three fragments presented, was plated with a four-screw Lane plate after the fragments had been adjusted.

June 2, 1911, we saw patient, who works in a dairy. He was pitching a sixty-pound tub of butter on a truck with ease. No pain, faint swelling at 5 P. M., after having worked all day. Alignment was perfet; beautiful result; x-ray confirmatory.

On account of an acute inflammatory reaction in the vicinity of the plate, this was removed on August 9, 1912. I heard from him on November 10, 1912 and was delighted to find that he is in every particular as well as before his leg was broken.

Case 16. A. K., female, age 9, was admitted November 19, 1910, with history of falling off a porch, eight feet to the ground. Sustained a compound fracture of the right ulna in the lower third of the forearm. The bone was protruding through the wound and it was reduced at once.

October 25, the fracture was exposed bluntly, thus avoiding any injury to the ulnar nerve. The fragments were well exposed, brought into apposition and a small sized, four-screw Lane plate was applied.

The patient was discharged October 30, 1910, the wound having healed by first intention.

On May 23, 1911, the child called to see one of us. The scar was in good condition; result ideal, there being no pain. The union of the ulna was perfect. She was referred to the City Hospital for the last skiagraph which shows perfect alignment.

She writes under date of November 10, 1912 that her arm is perfectly useful but that she occasionally experiences slight discomfort in it.

Case 17. J. D., age 50, male, carpenter, admitted November 21, 1910. Skiagraph revealed a fracture of the left femur at the junction of the lower and middle thirds. Bone fragments exposed, revealing a spiral fracture at the junction of the lower and middle thirds. The ends of the bone were approximated and a six-screw Lane plate applied.

February 4, 1911, the patient was discharged, having made an uneventful recovery. Result satisfactory. We saw him on June 3, 1911, and on June 11. He reported no pain, and that he was walking and working.

Case 18. F. G., age 54, male, was admitted November 26, 1910, giving a history of having his arm caught in a saw, and as a result presented a compound fracture of the ulna at junction of the upper with the middle three-fourths of the bone. The common origin of the flexor tendons had been partly severed and just above the wrist there was an injury to the bone on the ulnar side, the ulnar artery having been severed along with the ulner nerve and several tendons of the flexor sublimis digitorum. The hand was very dirty. The patient was at once taken to the operating room, where, under a general ether anesthesia, the wounds of the wrist were explored. The ends of the ulnar nerve were found and approximately with through-and-through sutures antero-posteriorly, and another through-and-through suture laterally to prevent lateral displacement. Several sutures of very fine linen thread then put through the nerve sheath, thereby keeping it in good position. The ulnar artery was ligated. The proxi-

mal ends of the tendons were then sutured to the distal extremities. A four-screw Lane plate was then inserted on the ulna through the original wound. The cut muscles were loosely approximated, the upper wound being closed in such a way as to take careful regard for spontaneous drainage. There was practically no infection around the wrist wound. Some superficial sloughing was present in the upper wound, but the plate remained intact.

He was discharged December 18, to the out-patient department.

On May 26, 1911, he called to see one of us and examination revealed the following; slight contractures of ring, middle and little fingers, anesthesia to pin pricks of the entire little finger, wrist function perfect. The wound had entirely healed.

CASE 19. W. H., age 48, farmer. On October 21, 1910, fracture of left tibia and fibula. No union on account of bone splints being wedged between the fractured ends. As seen at operation December 10, 1910, about one inch of over-riding. There was slight callous at the point of contact. The fibula was solid, hence nothing was done to it. I put on a plate with six screws and got everything in good line without difficulty.

April 10, 1911, patient said that he had been working some, and that he had no pain in leg.

CASE 20. J. P., age 21, male, laborer, entered January 16, 1911. He had sustained a compound fracture of the tibia oblique in nature, with a tilting of the lower fragment.

January 25 the wound was enlarged downward for one inch. Fascia and periosteum pushed aside and fracture exposed. Ends of fragments grasped with bone forceps. Approximation made. Cloths removed from between the ends and a four-screw Lane plate applied to the anterior surface of the tibia close to the anterior border. Interrupted silkworm-gut sutures used for the skin, drain left at site of wound. Dressing and cast applied. After removal of cast, Cabot splint was applied. One screw worked loose and was removed.

Patient was discharged to the out-clinic department, May 20, 1911. Plate removed; end result good.

CASE 21. P. S., age 45, male, teamster, admitted January 20, 1911, giving a history of having been knocked from his wagon by a train. He entered the hospital suffering from a compound fracture of the right leg in the middle third. The skiagraph revealed a spiral fracture with a slight comminution, overlapping of about 1¼ inches.

January 31 a four-screw Lant plate was applied. He was discharged on February 15, having made an uneventful recovery.

April 20, he came in complaining of pain over the tibia. There was redness, some slight edema, some swelling. The union seemed to be softened. A second skiagraph was taken, revealing some dropping backward of the lower fragment, and this had caused the two screws in the upper to pull loose. There was slight rarefaction of the bone. The plate was removed on April 29. Healing by first intention took place.

November, 1912, leg in perfect condition.

CASE 22. A. S., age 44, farmer. November 27, 1910, fracture of right fibula and tibia.

January 13, 1911, tibia was found to be non-united. January 25 operation. I put on a plate with three holes in either end. March 4 the cast was removed; wound well healed.

April 26, patient reported he was getting along well; could walk without support. May 5, patient had been doing some work (general farm work) without experiencing any fatigue. Generally speaking, he was in first-class condition.

November 10, 1912, a card was received from this patient in which he expresses himself as being well in every particular.

CASE 23. C. E., age 26, laborer, accident occurred on January 30, 1911. The leg was caught between the elevator and the wall, snapping the femur. Skiagraph taken the day of admittance shows fracture between lower and middle third of femur.

February 2, a Lane femur plate was screwed on without great difficulty. Plaster cast was applied, including hip and lower leg. Save a slight skin infection, wound healed perfectly. The patient was up on crutches in seven weeks.

June 4, the patient was again working with no perceptible limp.

Reports leg as being in perfect condition on November 10, 1912.

CASE 24. T. B., age 29, carpenter, while working on a chimney fell thirty feet, striking the elbow against a block of wood. The olecranon process was broken completely off, transversely.

Operation, February 1, 1911. The olecranon was readily brought back into position and fixed with a Lane plate. At the end of five weeks patient left hospital with function of elbow practically perfect. The patient could easily comb his hair and use this arm just as well as the uninjured arm. Pronation and supination were normal so far as could be told.

November 10, 1912, find this patient with one arm as good as the other.

CASE 25. B. N., age 25, male, laborer. This patient was admitted February 5, 1911, with a history of having fallen on his right leg. Three attempts at reduction had been made under anesthesia without obtaining a satisfactory one. Skiagraph revealed an oblique fracture of the tibia and fibula, the fibula being broken in three places.

February 21, a spiral fracture of the tibia with overlapping of about one inch was found, and it was only after considerable difficulty, much traction, the removal of granulations, the snipping off of the end of the bone, and the removal of several spiculae that the reduction could be accomplished. A four-screw Lane plate was then applied. Overriding in the fibula was about the same as in the tibia. There was this difference, however: a third fragment was attached only at the bottom with periosteum, and with some difficulty a four-srew Lane plate was applied so as to include the upper and lower fragments, the third being held in position by a silkworm-gut suture thrown around the bone and the plate.

On May 24 the patient returned for examination. There was no pain but occasional slight swelling around the ankle after walking. The alignment of the bone was very good. For the past two months, the patient had been carrying trunks weighing 200 pounds. He gave a history of having a trunk fall on his leg and stated that even this failed to injure or break it again. According to his statement, six weeks after the injury he was carrying trunks weighing 200 pounds.

Case 26. C. P., age 23. This young man was blasting out stumps when he was struck by one about five inches above the knee. The femur broke almost square off and a portion was left sticking through the skin. On February 16, 1911, after excising the wound a plate with four screws was put in each end. Healed by first intention and the patient was out of the hospital in two weeks with his cast intact.

May 15, made no complaint except of a swelling of the lower leg when it was down too long at a time.

Case 27. S. M., male, age 12. This boy fell from a wagon three days ago and sustained a "V" shaped fracture a little above the middle of the femur. There is about two inches overlapping.

Today, August 8, 1911, I applied a four-screw Lane plate. November 1, 1912, finds him attending school and getting around like other children without any attention being attracted by the injured leg.

Case 28. B. M., male, age 42, fell through an elevator shaft and fractured left femur in the middle third. A six-screw Lane plate was applied on September 5, 1911, four days after the injury. He was taken home in a plaster cast about one week later, this being removed after seven weeks. It revealed a perfectly healed wound. I did not see him again until November 10, 1912, when he called upon me. He said that he had been at work practically ever since his cast was removed and had never experienced any trouble from the injured leg.

Case 29. M. Y., male, age 30, entered the hospital September 10, 1911, and gave a history of an old compound fracture which had been wired five weeks previously. He had an open, suppurating wound from which the bone protruded. We enlarged the wound somewhat, mopped out the pus and applied a six-screw Lane plate after taking out the silver wire, then packed the defect. There was not much reaction. The plate was removed three months later and the union found to be firm.

June 1, 1912. He walked without support and complained of no pain. The result was surprisingly good in view of the local condition.

Case 30. A. F. female, age 60, entered hospital on Nov. 8, 1911, with a history of having fallen down a flight of stairs four days previously. Skiagram showed the olecranon to be broken off transversely at base. Next day it was attached to the shaft by a small four-screw Lane plate. Healing was uninterrupted. A heavy cast was left on about seven weeks and in consequence of carrying the same she experienced a good deal of discomfort around the shoulder.

November 1, 1912, finds the elbow in perfect condition, but still some atrophy and disability around the shoulder.

Case 31. E. P., male, age 36, had sustained a fracture of the left humerus, three years before I saw him. When he entered the hospital on January 8, 1912, he had a perfect flail joint at the site of injury, being able to move the lower fragment in any direction to an angle of about 45 degrees. The next day I squared off the bones and applied a small six-screw Lane plate. Healing took place in the usual manner and on October 1, 1912, he was able to do his customary work as a teamster; the humerus being perfectly rigid although for the sake of safety a leather cuff is still worn.

Case 32. J. McK., male, age 33, fell from a wagon and the wheel passed over the upper part of left arm on January 22, 1912. One month later I saw him with a suppurating compound fracture of the left humerus, about the junction of the upper with the middle third.

On February 23 I enlarged the opening and applied a four-screw Lane plate and packed the wound. On March 25 he left the hospital and on May 7 had a firm union. A few weeks later the plate was removed. On November 10, 1912, he reports the arm in perfect condition.

Case 33. M. D., female, age 65, fell on icy pavement several days ago and broke both bones of the lower arm.

On March 2, 1912, I enlarged the wound in the soft parts over the ulna, mopped out the pus, trimmed off the bones and applied a small four-screw Lane plate. The wound was packed and a plaster cast applied.

June 1, the ulna was solid and the wound still draining. The fractured radius to which nothing had been done was still ununited.

Case 34. P. S., male, age 8, was run over by a wagon eight days before I saw him.

March 9, 1912, the humerus was found fractured diagonally across about four inches below the shoulder joint. The tendon of the biceps muscle was withdrawn from between the ends of bone and a four-screw Lane plate applied

April 18 the cast was removed and union found to be perfect.

November 10, 1912, he writes me that one arm is just as good as the other.

Case 35. S. P., male, age 11, was trying to climb into a moving wagon when he thrust his leg through the spokes of a hind wheel and tore the epiphysis off the lower end of the femur. This occurred April 7, 1912. The next day a small three-screw plate was used and the epiphysis accurately restored to its proper position. The wound was then packed and continued to drain profusely until October 15 when x-ray showed the alignment perfect, the plate holding tight but a large portion of the lower end of the femur above the break necrotic. Around this area there was so much cortical thickness it was possible to remove the plate and the sequestrum without refracturing the bone.

On November 15 the boy is still in a cast but gets around on crutches. We have no doubt but that he will ultimately get a perfect leg.

Case 36. C. M., male, age 42, fell from a building and fractured his femur. The fracture line is oblique with 1½ inch shortening, the fragments being crossed at an angle of about 25 degrees. The injury happened five days ago.

Today, May, 11, 1912, with considerable difficulty the fragments were lined up and a six-screw Lane plate applied.

November 12 he writes me that the leg is in perfect condition.

Case 37. L. L., male, age 11, was run over by an automobile on March 17, 1912. The same day I found a granulating open wound with a fractured tibia showing. This was enlarged slightly and a four-screw Lane plate applied.

On May 23 the boy walked without support. He

had a small suppurating sinus but a solid union and perfect alignment as shown by the x-ray. A few weeks later the plate was removed and the sinus promptly healed.

Under date of November 10, this year, he writes me that his leg is in perfect condition.

CASE 38. C. H., male, age 24, bridgeworker, fell thirty-five feet on September 26, 1912, and sustained a compound fracture of both bones of both lower legs. The right tibia was broken oliquely, to it Codavilla's extension was applied; between thirty and thirty-five pounds tension being used. The fracture of the left tibia was apparently square across, the bone ends were in plain view and on September 28, a small four-screw Lane plate was applied.

November 15, the patient is in a wheel-chair with a light cast on both lower legs. The wounds are healed, excepting for a small sinus leading down to the bone plate. X-ray shows almost perfect alignment on both sides, both tibiae are apparently solid, there being slight over-riding of the right or unplated side.

The average time elapsed between the operation and the final report, which I am able to offer in these cases, is ten months. I have followed 1 of them twenty-nine months; 3, twenty-four-months; 1, twenty-two months; 1, twenty-one months; 2, fifteen months; 1, fourteen months; 1, twelve months; 2, nine months; 3, eight months; 5, seven months; 6, six months; 1, five months; 2, four months; 3, three months, and 1, two months.

Extended mention must be made of Case 15. It will be noted that he made an ideal recovery after having had both tibia and fibula plated and worked almost two years without trouble of any kind. Then the picture changed; one morning he awoke with the injured ankle and lower leg greatly swollen, red and sensitive. X-ray examination showed practically nothing abnormal; ideal position of the fragments was evident. His plates were immediately removed, with negative bacteriologic findings. He was up and around in about two weeks and has been working without discomfort now for nearly two months. This case shows that we do not yet know just what to promise our patients as to the ultimate outcome of such operations. One is no longer justified in predicting that any plate is going to remain indefinitely in place without giving trouble.

In four cases, 7, 29, 32 and 33, a plate was imbedded in a suppurating wound. It will be admitted that there was no chance for success in the one where practically no cortical substance was at hand for a screw hold, but it speaks well for the future of such cases that I have had three successful results in my only three favorable cases. These patients developed no serious reaction after the operation, which I believe is due, in part, to the fact that the wounds were flooded with tincture of iodin as soon as the conservative dissection was completed and packed with gauze after the plate had been applied.

Several causes have conspired to decrease the relative importance of the knowledge and teaching of fractures as it existed a generation ago, when in the hands of certain men a very creditable per cent. of good results were obtained, if satisfactory function of the part is to be regarded as a measure of success. With the added information which is gained by the use of the x-ray, it seems only reasonable that more should be accomplished at the present time in a conservative way than ever before. Still time-tried diagnostic methods are neglected since its introduction.

The aseptic open method also has simplified the problems of diagnosis and treatment, tending at the same time to make one less painstaking than formerly.

It must be admitted, too, that the enormous recent increase in the extent of our general surgical horizon has led to the fact that few, if any, of our students are taught fractures with the same degree of accuracy as formerly. However, lack of such knowledge is not to be taken as an argument for open treatment.

INDICATIONS FOR OPEN TREATMENT.

(While this paper concerns itself primarily with the use of the Lane plate, still the term "open operation" when used hereafter is not meant to apply to this device alone, since there are localities, as for instance the patella, which are, in my opinion, better treated by other open, local methods, viz. simple reposition, wiring, nails, etc.)

No general statement will ever cover all cases, since special considerations are bound to influence treatment of certain individuals. One thing is sure, that is, in spite of the most satisfactory advances of recent years, hardly any operative procedure is wholly without risk; hence I feel that we must, before subjecting any bone case to operation, show very definitely why we are assuming even the moderate operative risk here involved.

So much for a positive contraindication, now for relative considerations. It has been urged that anatomical perfection is of vast importance, but this must be modified, it seems to me, to apply only under certain considerations. As a matter of course a big callous or deformity on an exposed bone, especially in a female, is a matter of importance and to be avoided by all means.

Extreme shortening of a long bone is not to be treated lightly, but can be met otherwise than by plate, etc. Indeed it may not be out of place to recall, in passing, that anatomical perfection is frequently at variance with complete functional utility and that the two terms must not be regarded as synonymous.

Many authors, the writer of this article among them, have in their enthusiasm for open treatment, urged as a reason for its use the likelihood

of soft tissues getting between the ends of bones and thus preventing union. I am confident that this is one of the many traditions which have been handed down from nobody knows whom and repeated in a somewhat thoughtless way. In more than one hundred open operations for fracture I have been impressed that the soft tissues very frequently are found between the fragments. Now if this occurs in the patients who are operated upon, does it not also occur with corresponding frequency in those who are the subjects of conservative treatment? But we know that a far greater majority of bones which are treated by closed methods unite solidly. If these two premises are admitted, the only logical conclusion is that the bugaboo of soft part interposition has been greatly exaggerated.

The only indication for operation which stands out prominently above all the others is, to my thinking, *a functional defect,* either proven in an old case or predicted with a reasonable degree of assurance in a recent one.

It may, with propriety, be asked how we are going to predict a functional need in a fresh case. Of course this can only be done within certain limits, which no doubt will vary greatly in individual cases. I can, perhaps, illustrate the point by reference to a single instance.

A powerful young laboring man entered the hospital with a compound transverse fracture of the patella. The skin had been sewn up in the dispensary and there was less than 2 cm. displacement of the fragments.

It has been somewhat difficult to formulate a rule for operating upon these cases, and in this instance having functional disability as our guide, we allowed him to rest in a splint for ten days, at the end of which time he was wholly unable to use his quadriceps extensor sufficiently well to lift the foot off the bed. This was not due to any inhibition resulting from pain, hence we concluded that there was sufficient damage to the ligamentous structures in front of the knee-joint to interfere seriously with the pull of the quadriceps on the tibia. Operation was immediately undertaken and extensive lateral tears in the capsular ligaments discovered on both sides of the patella.

There is not much difficulty in predicting functional impairment when a fracture near a joint results in a deep seated and dislocated fragment too short to handle. The obvious result of a large callous in such a situation is limitation of movement.

As a matter of course the patient's occupation influences our choice of a therapeutic procedure. A plasterer or fresco painter must reach above his head and in consequence needs a better clavicle than do the rest of us. A professional pianist must have arms which are above reproach as far as function is concerned. The same can be said of the legs of professional dancers, etc.

In addition to the above general statements on function, it may be said that an open operation is thought desirable in our hospital

(1) When a leg case must be gotten out of bed early.

(2) In old cases of non-union or *extreme* mal-union.

(3) It is, of course, desirable in all fresh widely open fractures if shock be past.

(4) In chronically infected cases in which the bones lie bare. All compound wounds, whether suppurating or not, are to be packed and allowed to granulate. Generally speaking, the patient must always be a good surgical risk.

Every surgeon who has had personal experience in the use of Lane's bone plates appreciates that, in the treatment of recent fractures, no open operation is justified unless ideal approximation is to be obtained. This means that all the fragments must dove-tail perfectly.

Great difficulty is often experienced in perfectly lining up two main portions of a broken long bone. A few millimeters tend almost invariably to prevent the axes of both from coinciding. To meet this need two instruments have been described by me, one in *Annals of Surgery,* January, 1912, entitled "Clamp for Lining Up Fractured Long Bones."

There are a number of advantages which especially characterize it:

(1) It is open above, so that the fracture line may be seen at all times.

(2) It holds the plate firmly on the bone, and supports the whole while the screws are being driven.

(3) It is easy to place in position, since each half is applied or removed separately.

(4) It consists of four inclined planes, so disposed that fragments of any shape or size are driven to a common axial centre.

It seemed important at the same time to devise a traction instrument, as traction secured through manual efforts proved both insufficient and uncertain. A picture of this is printed in the *Journal of the American Medical Association,* October 21, 1911. It consists of a long screw and triangular frame almost two feet in length, which is bolted to the foot of the operating table in a horizontal position, if the fracture be one involving a bone of the leg. By turning the screw any amount of tractive force can be secured through a cord attached to the patient's foot. For a fracture near the ankle, two towels are looped around the foot and the screw attached to each. But if the fracture be high enough a very convenient way of getting traction is to fasten a screw eye to the heel of an ordinary high shoe, and attach the cord to this.

Lane urges and practices, as is well known, an asepsis which must be more rigid than any which has been used heretofore in general surgical work. He says, no one has a right to attempt operations for fracture who is not prepared to prevent any exposure of the skin; to keep his hands from ever coming in contact with

the tissues or with those portions of the instruments which do come in contact with the tissues; nor are needles, sutures or ligatures to be handled with other than sterile instruments at any time. Rubber gloves cannot be trusted to come in contact with tissues, blades of instruments, needles or threads, because of the possible contact with other things or of a minute hole in the glove.

I may add that all but my first case were manipulated so. No one who has taken the trouble to master this technic seems to think there is anything very difficult about it.

In the paper which I read before the meeting of the American Medical Association in Los Angeles, last year, I gave my conclusions on a series of experiments intended to determine the force needed to dislodge thirty-four screws, half of them infected, from the long pipe bones of dogs, at intervals varying from one hour to seventy-one days. My conclusions were, that it requires but 41 7-9 pounds to dislodge an infected No. 3 screw from a dog bone, with a cortex of 2 mm. On the other hand, a pull of more than 95 pounds was required to draw the average clean screw of No. 3 gauge from bones of about 2 mm. cortex. The corresponding human bones have a much thicker cortex; moreover, No. 5 and No. 7 screws are used, which are much larger in every dimension, to say nothing of the fact that as many as ten of them are embedded at one time. It does not require much mental effort to picture the great amount of force needed to tear such a plate out of an aseptic wound when freshly applied, provided only it has been correctly applied, that is, by means of a drill the size of the screw-barrel with the screw threaded to its head. In the experiments here described the screws were not observed under actual working conditions, since there was no pull or other external force acting on them during the healing process, as is the case when a Lane plate is used in the human being. I believe, too, that most surgeons consider the usefulness of the plate about over when a snug splint has been applied externally.

The primary object of a paper read at the 1911 meeting of the American Medical Association was to determine what happens when plates are screwed to fractured dog bones and the animals are allowed full freedom, without splint, or bandage.

Eight of my fifteen dogs in which a bone plate was used thus died as a result of the operation. One was an ether death, but the other seven were lost as a result of wound infection, if we can include one which mysteriously disappeared and on which I have no definite data. This extremely high mortality has, of course, very little bearing on the situation as it confronts the human being, since it is impossible to keep splints and dressings on dogs' legs, to say nothing of the fact that they run about and bite out the skin stitches.

In no instance was a screw or plate found, at remote autopsy, to be directly in contact with the bone, there being always much intervening granulation tissue or fibrous connective tissue around the screws and plate. Hence, one cannot properly say that a screw does or does not hold in a bony socket. In the course of time bone in contact with metal disappears. In spite of this, as shown by my experiments, screws do hold remarkably well, even in infected wounds in many instances.

The results of my clinical and laboratory work incline me to the belief that extreme discrimination will be the rule in choosing our future subjects for open fracture operations.

I must say that I am doing a smaller per cent. of this work now than at any time since a visit to Mr. Lane's clinic stirred my enthusiasm some two and one-half years ago. However, certain carefully selected simple fractures must be operated upon and it is my conviction that a great majority of such can be more accurately approximated by the Lane plate than by any other device now at our command.

UNILATERAL HEMATURIA IN CHRONIC NEPHRITIS.*

BY P. E. TRUESDALE, M.D., FALL RIVER, MASS.

CASE 1. P. A., female, aged 70 years, married. With the exception of a small healed area of tuberculosis in the right lung, there was nothing of importance in the family or previous history of the patient.

In Oct., 1909, she noticed blood in the urine. From that date until the time that she entered the Highland Hospital in May, 1910, hematuria was almost constantly present. Other symptoms were those which usually accompany a secondary anemia. In January, 1910, ureteral catheterization disclosed a right-sided hematuria; examination of the urine was negative except for the presence of blood.

Among other things employed in the medical treatment were fresh human blood serum and rabbit serum. After injecting the rabbit serum there followed a period of three days when the urine remained clear, a respite which may or may not have been influenced by the serum. With this possible exception no form of medical treatment employed had any apparent worthy effect on the hematuria.

In May, 1910, seven months after the onset, the patient's hemoglobin was reduced to 50 per cent., and in her general condition there was evidence of exhaustion from a prolonged and severe secondary anemia. The urine from the right kidney now resembled blood slightly diluted with water. The specimen from the left kidney contained an occasional hyaline and fine granular cast, otherwise it was normal. Examinations of the sediments for organisms including the tubercle bacilli proved negative. A fruitless search was also made for tumor cells.

Nephrectomy was done May 27, 1910. Dr. Annie C. Macrae examined the kidney and reported as follows: Specimen, a right kidney 10 cm. by 4 cm. and weighed 113 gms. The capsule stripped off easily leaving a smooth but blood-shot surface.

* See plate opposite page 164.

On section the surface presented a dark reddish color especially marked at one pole; at this place the blood vessels of the pyramids were defined as bright red lines. The cortex was ¾ cm. thick and was diffusely reddened. The branches of the renal artery were sclerosed. Microscopical examination showed a marked cloudy swelling of the parenchyma. The glomeruli appeared larger than normal and showed an increase of the connective tissue of the capillary tufts and in some of them patches of hyaline change. There were also foci of increased connective tissue between the tubules, more marked around the glomeruli. Enlarged blood vessels were numerous and in the pyramids were multiple small hemorrhages. The arteries showed thickening of the intima, also thickening and degeneration of the media. Sections stained with Sudan 111 showed fatty degenerations of many tubules. Sections stained with iodine for fatty degeneration were negative. The pathological process was restricted to one pole. Sections from several other parts of the kidney showed almost normal renal parenchyma.

Diagnosis: chronic interstitial nephritis. Fatty degeneration. Arteriosclerosis.

There was no recurrence of the hematuria and the patient's condition improved steadily. She remained well for about a year. On July 24, 1911, she died after a short illness from uremic symptoms.

The onset of the hematuria in this case was insidious and without assignable cause. The hemorrhage was unilateral, persisted for seven months, and was not controlled by medical treatment. The urine from the affected kidney examined twice failed to show any evidence of chronic nephritis. While an occasional hyaline and granular cast were found in the urine from the left kidney, none was found after a careful examination of the sediment from the urine from the right kidney. At operation there was nothing in the gross appearance of the kidney to explain the hemorrhage. Nephrectomy was done as the operation involving the least risk and affording the best chance of immediate relief.

Case 2. W. L., aged 52 years, male, married. Mother died from phthisis. Occupation a moulder, and for 30 years has handled plumbago, which is a form of lead dust. For the past few years he had complained of indigestion in a mild form, consisting of epigastric distress with eructation of gas coming on soon after meals. These symptoms improved after he left the foundry. He had never experienced attacks of colic, vomiting and headache nor had he ever had wrist-drop. Except for his present illness he claims to have always been well. He is 5 ft. 11 in. in height and weighs 140 pounds. His weight before the onset of present illness was 164 pounds. For about a year he has had nocturia, getting up two to four times. Hematuria came on without any apparent cause in April, 1911. For two weeks there was an abundant loss of blood. He gave up work complaining of a dragging discomfort in the lumbar region and a marked loss of strength. Thereafter the amount of blood in the urine varied, but it always had a smoky appearance. Medical treatment failed to control the hematuria.

On August 22, 1911, he entered the Highland Hospital. His appearance was anemic and decrepit. The temporal arteries were plainly visible and a trifle indurated. Heart and lungs were negative. No lead line. The liver was normal in size and the kidneys were not palpably enlarged. Urine, 24-hour amount, 60 oz. Sp. gr. 1012. Albumin, a trace. No sugar. Sediment contained hyaline and granular casts. Ureters were catheterized. The specimen from the right kidney contained blood in large quantity. Urine from the left kidney contained a large trace of albumin, no blood, great number of casts, hyaline, granular and epithelial.

X-ray examination showed no evidence of stone. No tubercule bacilli or tumor cells were found.

On account of the condition of the left kidney it seemed best to temporize with a view to doing nephrotomy if the hematuria persisted. For three days after ureteral catherization there was an abundant hematuria after which it gradually subsided, and had entirely disappeared at the end of a week. Accordingly, the patient was allowed to leave the hospital. On Nov. 29, 1912, he returned giving the following story: In Dec., 1911, three months after leaving the hospital, his weight returned to 164 pounds, and his general health had greatly improved. There was a respite of six months, the hematuria returning in March and persisting for seven months. He observed that the amount of blood in the urine was greatest during the hottest days, and especially upon days when the humidity was high. The 24-hour amount of urine is now approximately 90 oz. Sp. gr. 1015. Albumin, slightest possible trace. The sediment contains an occasional hyaline and granular cast. No blood. The patient is engaged at present in an out-of-door occupation as a gardener; has gained rapidly since the hematuria stopped in October and weighs 155 pounds.

Until the onset of the hematuria in April, 1911, this patient had not consulted a physician, so that no knowledge of the urine was available prior to that time. The hematuria was the first symptom which led to the discovery of his chronic nephritis. It persisted for many months through the hot season and stopped coincidentally with ureteral catheterization, recurring in the spring of 1912. This second attack of hematuria incapacitated the patient by its continuous presence until the following October when it stopped spontaneously. During the periods of hematuria from the right kidney, the pathological process in the left kidney was aggravated, evidenced by the presence of an increase in the amount of albumin and the number of casts. Upon cessation of the hematuria the amount of albumin and number of casts diminished.

The subsequent course of this case will be followed with interest.

Not until 1897 was the term "essential hematuria" explained by the lesions found in chronic interstitial nephritis. Keersmaker was the first to call attention to this symptom in relation to cause and effect. He did nephrectomy for abundant unilateral hematuria. The kidney examined microscopically showed lesions of chronic interstitial nephritis, whereupon Keersmaker insisted that many of the cases of so called essential hematuria, if carefully examined, would probably show the same lesion.

Albarran followed a year later with an essay

supporting the findings of Keersmaker and contending further that in nearly all cases of essential hematuria some lesion could be found to account for the hematuria. A hemorrhagic kidney removed by Nicolich was examined and found negative. Albarran sought the specimen and with Motz examined many sections from different parts of the organ, finding typical lesions of chronic nephritis which had been overlooked in a more superficial examination. He discredits the terms "essential" or "idiopathic" renal hematuria, and emphasizes the great frequency and importance of recognizing chronic nephritis as a cause of hemorrhage in the cases previously reported as essential hematuria.

Klemperer, Schede, Senator and others adhered firmly to the theory of essential hematuria, hemaphilia and angeio neurotic renal hematuria. They based their conclusions on their personal observations and the cases already reported. Fowler recently recorded a case similar to many cited by the above authors. The patient was a colored laborer aged 26. For one month he had a persistent and abundant unilateral hematuria. Nephrectomy was done. A large number of sections was made from different parts of the kidney without finding any adequate cause for the hematuria. Fowler places this case in the class with many others in literature, "hematuria with cause unknown."

F. Legueu and Malherbe presented a report of their investigations before the Congress on Urology in 1899. They stated that they had found an anatomic interpretation of all the cases thus far reported, and for any conclusions to possess authoritative value they should be based on a minute examination of the entire kidney.

Graff and Gaudiani arrived at the same conclusions: that a localized nephritis always existed to account for the hemorrhage. Kotzenberg recorded four cases of hematuria showing incontestable lesions of chronic nephritis. He, too, states that histological examination does not yield these results unless the greatest care is exercised by the examiner, who should make sections from divers parts of the kidney.

Fowler, of Washington, made interesting and valuable comments on the literature up to 1905, reporting a case under his own observation, from the results of which he summarized as follows:

(1) The onset of the hematuria was spontaneous and without apparent cause. It was not associated with any other urinary disturbance.

(2) The hemorrhage was profuse and continuous. It had persisted for four years in spite of repeated attempts by various means to control it.

(3) The hematuria was unilateral.

(4) Repeated examination of the urine failed to show any evidence of nephritis. The presence of albumin in the urine was accounted for by the blood present. No casts were ever found. There was never an interval when the urine was free from blood.

(5) On exploring the kidney it appeared normal except for the markedly granular appearance of the surface. Nothing was found microscopically to explain the hemorrhage. The operation was followed by an immediate cessation of the hematuria. Convalescence was rapid. The patient's general condition improved.

(6) Histological examination of the kidney showed a chronic interstitial nephritis of a moderately severe grade, in which the hemorrhagic tendency was well marked.

In a recent personal communication from Dr. Fowler I have learned that the present condition of the patient reported above is excellent. He is at work daily and has had no recurrence of the hematuria. Examination of the urine shows an occasional cast and slight albuminuria, elements which were present in the urine from the remaining kidney at the time of operation. Fowler stated in his article that numerous observers have drawn attention to the fact that hematuria may be the first and only sign of renal sclerosis occurring sometime years before other symptoms make their appearance, that the diagnosis of hematuria due to chronic interstitial nephritis prior to that time had been made only in a comparatively small number of cases for the obvious reason that only during the previous few years was chronic nephritis recognized as a cause of abundant hematuria. Until then the diagnosis had been made and confirmed at operation by those only who had the largest experience with this class of cases.

Hamonic reported five cases in which hematuria occurred as the first symptom years before the true nature of the kidney lesion was manifest. The first case was that of a man aged 42 years who had several attacks of hematuria during a period of two months. Except for the blood the urine was normal. For five years this patient was under observation being treated at intervals for minor complaints. During this time repeated examinations of the urine showed nothing abnormal. Suddenly there was an explosion of acute parenchymatous nephritis accompanied by other attacks of hematuria.

Albarran divided the nephritic hematurias into three clinical groups, as follows:

(1) The hematuria appears along with other unmistakable symptoms of nephritis.

(2) The hematuria precedes the evolution of nephritis, possibly for years. After a longer or shorter period other signs of nephritis appear.

(3) Hematuria is the only symptom. It is spontaneous, without apparent cause and is not modified by exercise or repose. The patient goes about her work as if nothing were wrong for days, months or years.

Barringer recently made a study of 73 cases of the hematurias of nephritis. In his classification he considered that a large proportion

were of mild toxic nephritis, another small proportion infectious nephritis, also another small percentage of typical toxic nephritis. Finally, an indefinite number of cases of pelvic conditions, variously named varicose veins of the papilla, pyelitis cystica, metaplasia of the renal pelvis, etc., giving rise to unilateral hematuria. In a large proportion of cases these pathological conditions of the kidney pelvis or papilla he considered to have been caused or accompanied by a nephritis toxic or infectious.

There were 11 cases in this total of 73 which were between the ages of 50 and 70 years, yet no case of the chronic interstitial type was recorded, which is evidence that the condition is not only rare, but occasionally must escape the observation of both surgeon and pathologist.

Occurring as it does in the degenerative period of life the hematuria of chronic interstitial nephritis is not easily differentiated from that due to a beginning neoplasm, especially when the examination reveals the kidney normal to palpation and a urine negative except for the presence of blood.

The first step in the diagnosis should be to obtain ureteral specimens in order to determine the affected kidney as well as the efficiency of the other kidney. Careful examination should be made for tubercle bacilli and tumor cells. A guinea-pig test should also be carried out if no great risk is involved in waiting.

Should the patient be under observation for a period of one, two or more months without a perceptible enlargement of the affected kidney, hypernephroma, if not all forms of new growths, may be reasonably ruled out. An x-ray examination should be made for calculus.

Having eliminated neoplasm, tuberculosis and calculus there remain the nephritides of infectious origin, which can be eliminated by the absence of the products of infection, except such cases of chronic nephritis, as in Chute's classification, which were of infectious origin but had become non-infectious at the time of hemorrhage.

Exceptionally one finds cases of varices of the papilla similar to that reported by Whitney. Kilcher has reported cases of this type. There are several more in the literature, and the condition is generally admitted to be difficult, if not impossible to recognize.

The hematuria of chronic interstitial nephritis comes on insidiously, is spontaneous, unilateral, usually continuous, but may be intermittent. It may persist for weeks, months, or years. For a period of many months the general health of case 1 was not greatly impaired. The secondary anemia was slowly progressive, yet the patient went about as usual up to the time she entered the hospital.

Exploratory operation is the final step to clear up the diagnosis. If inspection of the kidney does not show any gross lesion, nephrotomy may or may not expose the hemorrhagic area. The chance of missing the affected tissue may be realized when one reads the report of a case by Albarran. At operation he found the kidney enlarged and congested. He incised it widely into the pelvis. No stone, tuberculosis, or neoplasm was found, and the kidney tissue appeared normal. On more careful examination, however, a small grayish nodule the size of a millet seed was seen at the base of one of the pyramids. This was removed, and on histological examination showed chronic interstitial nephritis. Albarran calls attention to the fact that had the kidney been opened up less widely, or had the incision passed a few millimeters to one side, this small focus of disease would have been missed entirely. It is fair to assume that a surgeon of less experience and ability would not achieve success in similar cases.

While cessation of the hemorrhage has followed nephrotomy, manipulation of the affected kidney or even ureteral catherization, recurrence of the hematuria frequently follows any operative procedure which does not excise the hemorrhagic tissue of the kidney. Nephrectomy affords immediate relief, and, in the experience of most surgeons, is accompanied by less risk. In Barringer's series of 73 cases the direct mortality from nephrectomy was less than from nephrotomy. Nephrectomy and nephrotomy appear to have an equal number of advocates. The choice of operation must necessarily vary, not only according to the findings in the laboratory and at the operating table, but also according to the experience and judgment of the operator.

The danger from suppression of urine after nephrectomy should be carefully considered. This is more likely to follow the operation when the pathological lesion is small and a large amount of normal renal parenchyma has been removed. The risk involved in suddenly increasing the work of one kidney is generally well recognized. While this can be minimized by splitting the capsule of the remaining kidney, many operators appreciating the danger of anuria, prefer to do nephrotomy. Unless the hematuria is abundant and the constitutional symptoms marked, sufficient time may be occupied in medical treatment to furnish opportunity for a careful study of the functional capacity of the other kidney.

In Case 2 the left kidney showed the influence of extra work during the period of hemorrhage from the right kidney by the presence of albumin and a large number of casts. Any further tax upon its capacity would probably have produced serious symptoms.

The investigations thus far seem to indicate that hematuria as an early sign of unilateral chronic nephritis is more common than is generally supposed, and the removal of the kidney under these circumstances affords an opportunity for the study of this disease in the period of its earliest manifestation.

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STUDIES IN SPEECH DISORDER.*

No. 1.

NEGLECT LISPING: CASE AND TREATMENT.

FROM THE VOICE CLINIC, OUT-PATIENT SERVICE, PSYCHOPATHIC HOSPITAL, BOSTON.

BY WALTER B. SWIFT, M.D., BOSTON,

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THE title of my paper was quite misquoted on the postal announcing this meeting. There it said "Neglected Lisping," when I merely intended to demonstrate a case of neglect lisping. True it is, it might well be called neglected lisping, especially here in Boston, for we all know that speech defects, from apasia down to merely the simple sigmatism, are all persistently neglected in our clinics. When a bad stutterer appears no help is offered; when an extreme lisper—like the one to be presented to you tonight—comes along, it is passed by unassisted; when any individual burdened with a severe speech defect is as much crippled as one with anterior poliomyelitis, appendicitis, or a copiously odoriferous Riggs' disease. And sometimes even more crippled, because a good frank speech defect cuts a person out of three enviable spheres of activity—school, social intercourse, and later in life, out of a job. Few diseases—cutting out bedridden types—cut one's life out of so much. Therefore, all these types of speech defect are well worthy of treatment, for they put the children back into school, give the speechless, isolated hermits companions again, and older cases give the worthy boy an occupation. It has therefore been thought wise to open, in connection with the out-patient service of the new Psychopathic Hospital in Boston a Voice Clinic. As this voice clinic develops, it is the idea of the directory of the Psychopathic Hospital to accord to it the proper space, instruments, and library facilities. As matters stand, enough space is available; the instruments for everyday diagnostic work have been installed and a beginning has already been made at a small library concerning speech disorder. This is not a new venture in the medical world. Berlin University has a voice clinic, with a professor at the head of it furnishing the material for three courses of lectures in the Medical School. In Bonn is another large clinic. In New York an assistant in Psychiatry heads a speech defect out-patient department in the Vanderbilt Clinic.

The subject, then, of this demonstration is neglect lisping. Lisping itself is the inability, through failure in perception or in execution, to enunciate clearly. There are many forms, all requiring separate and appropriate treatment according to the diagnosis, each of course improving in varying degrees as the appropriate treatment is given. There is organic lisping, which may be illustrated by the "th" used in place of "s" when the tongue is tied. Then there is the rarer form of neurotic lisping, whose etiology and forms are too complicated to enter into in the space of this short paper. Then there is neglect lisping in almost innumerable forms, one of which I present to you tonight. This little girl came under my care at the voice clinic some six weeks ago. At that time her enunciation was so markedly indistinct, her teachers could not understand her; no child could talk with her, and only her parents could intelligibly interpret her sayings. She was discharged from school, was alone, without playmates,—an endured but hopeless burden upon her parents. When she first came to the voice clinic she said the familiar poem, "Mary had a little lamb," about as follows:—

"ar a a il am,
I ee a i a o
Ewy air ar e
Er a a ua u o"

A careful study of this will show that almost every consonant in the whole verse is omitted. In her whole conversation it was the same. No wonder no one understood!

In the course of about three weeks' treatment, she could say the first verse of "Mary had a little lamb" and put every consonant in correctly. The treatment consisted in a dramatically enforced attention upon the expression of the consonants individually; this enforced attention was elicited by compelling the patient to pound her arm down with a quick, forced movement at the utterance of each word of the poem. Through the elements of slowness, timing and interval, the result was secured. The slowness gave time for the coming word concept to get duly crystallized in consciousness before utterance; the timing enabled the utterance of the word emphasized to come simultaneously with enforced mechanical emphasis (which latter enhanced the former); and the interval let past concepts vanish from consciousness, rested

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the centers of expression, and thus furnished a bit of reserve strength or held back momentum for the next utterance of expression to follow.

As I said, after some weeks of this procedure —two or three visits for instruction and daily practice at home—she came back to the voice clinic one day able to say the first verse of "Mary had a little lamb" as clearly as anyone.

Before I summarize this case, someone may be interested to hear the history and physical examination.

Girl, age 8. Home. Chief complaint—indistinct enunciation.

Present Illness.—Consists of a markedly indistinct speech, but when attention is forced upon what she should say then the utterances are more clean cut. Mother says she says "do" for "go" and "tume" for "come"; but she says these correctly when asked to in school before others or when she tries hard at home. Voice is worse after a long crying spell. Otherwise negative. Same rare mild headache.

Past History.—The present voice defect the mother says existed from the first. Voice unchanged after the first two attacks of German measles at age of 5 and 6. But following the third attack of German measles at 7 she had pertussis and coughed from December to June and following this her voice was worse. Could say hardly a word clearly for some six months afterwards. Winter of 1911-12 had tonsillitis and following that her voice was worse again, almost as bad as before. After a severe meningitis at age of 5 voice was somewhat better.

Physical Examination.—Appearance of an adenoid breather. But can breathe with mouth shut. Both adenoids and both tonsils enlarged. September 3, 1912, operated for adenoids.

Eyes.—Pupils react to light and distance. Movements are all normal, but movements are accompanied by a sort of uncontrolled sudden movement occasionally. No nystagmus.

Reflexes.—In arms not obtained; no Jacobsohn. Knee jerks negative. Plantars normal. No internal condylar reflex. According to Binet tests she ranks as 6 years. (Dr. Anderson.) Otherwise examination negative. Vocal—Variable omitting and interchange of consonants.

Diagnosis.—Neglect lisping.

The etiology here may need a word of comment, but cannot be discussed exhaustively in this short paper. Meningitis, feeble-mindedness and adenoids are the factors in the background. Against the meningitis as having any strong causative influence is the fact that her voice improved thereafter. As for the feeble-mindedness, there is in the first place only the faintest touch of it, if any (*i.e.* incurred by other factors); and secondly, it may be true that the inattention that accompanies to such a marked degree cases of feeble-mindedness could be an inattention that kept her from clear enunciation. That, I grant, is plausible. But the next etiological factor seems not only the plausible but probable one. That is the adenoids. I maintain they were the causa causarum—if we need more than one. Adenoids kept the child backward; hence the apparent feeble-mindedness (which shows an atypical inattention at best), and by offering a persistent obstacle to utterance, enforced the habit of neglect lisping. At any rate, enough showed in my physiological examination to prove the cortex held the concepts of the consonants, that ear sensory tracts and receiving nerve cells passed along normally all presented concepts, and enforced expressional methods proved their clear utterance plainly within the range of possibilities, and results of treatment have borne out that original prognosis.

Permit me at this point to thank Dr. E. E. Southard, director of the Psychopathic Hospital, for his kind permission to demonstrate this case from the voice clinic of its out-patient department. It is, I believe, the first case demonstrated from that hospital.

Summary of Case.—Girl of 8, after a severe meningitis and diagnosis of feeble-mindedness, is operated upon for adenoids and tonsils, and given exercises to improve her speech defect—known as neglect lisping—by a method of enforced mechanical attention and in a few weeks can say a poem distinctly. Treated at the voice clinic of the Psychopathic Hospital, Boston.

CLINICAL STUDIES ON FEEDING IN INFANTILE MALNUTRITION.*

BY CHARLES HUNTER DUNN, M.D., BOSTON,

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The occurrence in artificially fed infants of more or less extreme degrees of malnutrition has been the chief stimulus to the continued study of the problem of infant feeding. The difficulties attending the treatment of the so-called chronic feeding cases are well known to every one in the practice of pediatrics, and have remained unsolved in spite of all the research which has been devoted to the problem, which research has chiefly resulted in demonstrating the extreme complexity of the etiologic factors involved. Although almost every specific investigation has revealed facts in regard to the infantile digestion and metabolism of practical value, yet one obstacle to advance on the practical side has been the tendency toward too extensive an application of the practical suggestion revealed by each demonstrated scientific fact. This tendency has led pediatrists to regard the successive new suggestions as new methods of feeding of transcendent value, superseding older ones of equally sound, scientific bases. Even with the recognition that each new method suggested by research should be regarded as a new resource or weapon, of value only in certain cases, it is difficult not to be over-impressed by the latest research, and not to lose sight of the

* Read before the New England Pediatric Society, November 2, 1912.

problem as a whole. It is a curious fact that each new feeding resource is always successful in its published statistics.

It was early recognized that a fundamental cause of the difficulties of the feeding problem was the unsuitability of the various food elements to the varying, but always undeveloped, powers and requirements of different babies, and the earliest efforts at milk modification were directed toward varying the relative percentages of the food elements of fat, lactose and proteid in milk mixtures. Attention was next directed to the relatively high percentage of the insoluble casein in cows' milk, and the chief difficulties of the feeding problem were for a time attributed to this cause. The influence of the starch in cereal diluents, and of various alkalies, upon casein digestion was investigated, adding new resources of undoubted value in certain cases. The alteration of the relative percentages of soluble proteid and casein by the use of whey, the next advance, gave us the resource known as the split proteid. Attention was next turned to the injuries apparently caused by fat, and the high caloric value of this offending element led to the extensive study of caloric requirements. Next the sugar, at first supposedly innocuous, fell under suspicion, and the demonstration of sugar injuries furnished the resource of varying the carbohydrate by the substitution of other sugars such as maltose. Studies of the possible rôle of bacteria in intestinal disorders gave us the resource of milk ripened with the lactic acid bacillus as an anti-bacterial treatment. The latest studies assign the chief injurious rôles to the fat and lactose, and the effort to get rid of the lactose completely has given us the latest resource, the use of precipitated casein as practiced by Finkelstein.

The present status of the problem presents itself in the form of a mass of conflicting evidence. The theories of Finkelstein conflict absolutely, not only with the earlier evidence of the difficulties of digesting casein and the harmlessness of lactose, but also with the later evidence of the etiologic rôle of bacteria. There is no doubt that each of these resources is based on an actual truth, and that each truth is one aspect of the problem; that each resource has its indications and contraindications in individual cases. The difficulty lies in making a choice among them. In the face of the conflicting evidence it is difficult for any one who cannot laboriously follow all the published pediatric literature on this subject, to judge of the relative value of the weapons at his disposal, or of their relative indications.

One trouble lies in the fact that our knowledge of causes, while still very imperfect, has nevertheless run ahead of our means of clinical diagnois. If we know that some cases are caused by irritation from undigested casein, and should be treated by splitting the proteid, by starch, or by alkalies, how can we recognize such cases? If we recognize the fact that fat and lactose can cause injuries to metabolism, and that such cases should be treated by reducing the fat, substituting maltose for the lactose, and increasing the casein, what are the clinical indications? If we recognize that other cases are caused by bacteria, fermenting the carbohydrate or putrifying the proteid in the intestinal canal, and that such cases should be treated by giving lactic acid bacilli, or varying the proteid or carbohydrate in the food, are our means of diagnosis adequate? A few bacterial infections, such as the dysenteric and gas bacillus, can be recognized by more or less laborious laboratory methods; but other cases remain in which bacteria obviously play the etiologic rôle.

The purpose of the present paper is to present evidence, in the first place as to the relative value of certain feeding resources, and in the second place as to the clinical indications. This evidence is based on the clinical study of a series of cases of severe malnutrition treated at the Infants' Hospital during my services in October for four years. Nothing new of scientific value is presented, but rather a review of the practical application of what those engaged in research have offered. The cases are all of severe malnutrition. The October service presents many cases of this description, for when the Hospital opens in October, many of the worst cases which have been treated in the Out Patient Department during the summer, and others left over from the closing of the Floating Hospital, are admitted to the wards. We call them the "end of the summer" cases.

The method of study is, after dividing the cases into the categories of successes or failures, and into certain well defined clinical types, to study the foods used and the results. The cases regarded as successful are those which gained weight consistently or which finally began to gain with relief of symptoms. The failures are those which did not gain. All the cases are clinically of a chronic type. I have divided them into four types. First, a type in which vomiting was the only or chief symptom, called the gastric. Second, a type in which blood and mucus in the stools was the chief symptom, called the infectious. Third, a type in which the undigested movements was the chief symptom, the stools being normal except for the presence of curds or undigested masses, called the indigestion type. Fourth, a type in which the occurrence of loose, green stools was the chief symptom, called for convenience the "fermental." It must be remembered that all these terms are adopted merely for convenience to describe clinical types, and that they have no reference whatever to etiology. In particular, the term fermental has no reference to the question of fermentation of carbohydrate or putrefaction of proteid, nor to the question of bacterial fermentation or injury to metabolism. It does not even mean that there is necessarily any fermentation at all, but is used merely to describe a clinical type.

A word must be said as to the feeding methods. The "eiweiss milch," described by Finkelstein, was not used, for several reasons. In the first place, I believe that the essentials of the Finkelstein treatment consist in a high casein with diminished fat and lactose, and in the use of precipitated casein. It seems to me that the eiweiss milch is unnecessarily deficient in carbohydrate, and if maltose can be substituted for lactose to advantage, this should be done. The chief objection to its use is that it cannot give evidence in favor of or against the theories of Finkelstein, because while the theory disregards the rôle of bacteria, the buttermilk used in the preparation of eiweiss milch is a proven weapon against bacteria, and hence good results from eiweiss milch, instead of supporting the theory, may be attributed to the antibacterial action of the buttermilk. I desired to obtain evidence as to etiology, by using buttermilk and precipitated casein separately. The lactic acid milk used was fat-free milk ripened with lactic acid bacilli, the bacilli being left alive, and had, approximately a formula of 0 fat, less than 4.50 lactose and 3.75 proteid.

The gastric type numbered only 10 cases; 7 were successful; 3 failed to gain; the failures all died. In them low fat and casein in the form of split proteid was the only resource tried. Of the successful cases, 3 showed intolerance of fat, and did best on a total proteid, and 4 showed intolerance of casein and did best on a split proteid. One of these did well only when lime water was added in excess. In two cases precipitated casein was tried with 0 fat, 6 maltose, precipitated casein, without success.

The cases are too few to permit the drawing of any positive conclusions. I believe, however, that in cases in which vomiting is the chief symptom, there is no indication for precipitated casein; that some cases are actually due to casein, and others to fat. Change of sugar was not tried in the failures. I believe that this form is best treated either by cutting out the fat, or by the split proteid, or by combining these two resources, and that a large amount of casein is only required when it is essential to increase caloric value in cases of pure fat intolerance. Lime water in excess should be tried in casein intolerance.

Of the second type, the infectious, there was only one among the chronic cases. It proved to be a gas bacillus infection, and responded to the specific treatment with lactic acid bacilli.

There were only 9 cases of the "indigestion" type among the babies having severe malnutrition, of which 7 were successful and 2 were not relieved. Of the 7 successful cases, 2 showed intolerance of fat, but gained on fat-free food with either split or total proteid. Excess of fat was found in the stools. Three cases were just the opposite, failed on total proteid, were symptomatically relieved on split proteid, but only gained well when fat was increased; casein curds were found in the stools. The remaining two successful cases were exceptions. One of them failed to gain on split proteid, but would only gain on a moderate fat and high casein. Excessive fat was found in the stools. The other case was clinically of the indigestion type, and was started on whey. The baby lost weight, and the movements became green and foul. It improved immediately on lactic acid milk, and gained later on 2% fat, 6% lactose, 2% proteid. It cannot be determined what was the original trouble in this case. The whey may have caused increased development of harmful bacteria, the intestine later being disinfected by the lactic acid milk, or it may have been a case of lactose intolerance, aggravated by whey, and relieved by the low lactose in the buttermilk.

Of the two failures, in only one split proteid was tried, and a very low fat was not tried. It was probably a case of fat intolerance, although the stools were not examined. The other was absolutely resistant. Split proteid, low fat, maltose, precipitated casein, and lactic acid milk were all tried without success. It was possibly severe fat and casein intolerance, as the movements were always undigested, never green or foul. They were not examined micro-chemically.

The conclusions which I draw from these cases must not be regarded as in any way positively warranted, but only as my personal impression, to be used as a working basis. I believe the majority of cases of this clinically indigestion type of malnutrition are due to a simple intolerance of fat or casein, and that the undigested fat or casein act simply as irritants, and produce malnutrition simply through deficiency of absorbed nourishment. I can see no evidence, in this type of case, of any more far reaching food injuries exerting a toxic influence on metabolism, except in the case which failed to gain on split proteid, but gained on total proteid with fat. This case behaved like those of the next to be described, and shows that the clinical diagnosis of this type still rests on an insecure basis. The cause in this indigestion type is equally likely to be fat or casein; if the former, a low fat and high proteid is the proper treatment; if the latter, a split proteid. There are probably cases of severe intolerance of both fat and casein, which can only be successfully treated by breast milk. The examination of the stools for fat or casein is a means of diagnosis of the greatest possible value in this type of case, enabling the physician to direct the treatment properly from the start. This type of chronic intestinal indigestion is much more common in actual practice than the present series would indicate, the relatively small number of cases in this series being due to the fact that it does not so frequently lead to a high degree of malnutrition as the type next to be described.

The cases of the fermental type, with green, loose, often foul movements, often with vomiting as an additional symptom, were the most numerous in the series. They numbered 40 cases, of which 12 were failures and 28 were success-

ful. It is interesting to note that the number of failures was greatest in the first year, 1909, when the failures numbered 7 out of 10 cases. In 1910 they numbered 1 out of 7 cases, in 1911 4 out of 11 cases, and in 1912 there was no failure among 13 cases. While the diminution in the number of failures may easily be due to variation of the severity of the cases in the different years, yet the cases this year seemed on admission to be of about the average severity, and I cannot help thinking that the small number of failures this year was due partly to a progressive clarifying of our ideas on this subject, derived both from the experiences of the investigation, and from the latest literature. For example, in only one of the 12 cases of failure were both measures tried which were adopted as the routine in 1912, namely, with no fat, maltose, and high proteid. In this one case the patient appeared to improve with lactic acid milk, but died within three days. Two other cases died too soon after admission to permit the trying of any measure other than lactic acid milk. In one case there was improvement with 0 fat, maltose and precipitated casein, but the baby died soon after an increase was made in the fat. In the remaining cases split proteid was used, with very bad results. In some of them lactic acid milk failed, but none of them were thoroughly tried out.

The successful cases may, with a few exceptions be divided into two classes, as they reacted favorably to one of two forms of treatment. The first class includes those cases which improved under a food consisting of a low fat and high casein; they numbered 13. The second class includes those cases which improved under lactic acid milk; they numbered 13. The third class includes exceptions, and number 2. Of the exceptions, both did well on split proteid from the start, one on an ordinary mixture, and one with absent fat, becoming worse when fat was increased. These are the only cases of this type which did well on split proteid. Split proteid was tried in 22 other cases without success. Of the cases which did well on lactic acid milk, in 5 the treatment with 0 fat, maltose and high casein was tried first without success. In 8 cases, all occurring in previous years, this measure was not tried. Of the cases which did well on low fat and high casein, in 3 the treatment with lactic acid milk was tried first without success; in 10 this was not tried. The routine in the years previous to 1912 was to begin with split proteid or ordinary mixtures, and to pass to lactic acid milk in case of failure.

In 1912 a more definite routine was adopted. The cases were started on low fat, maltose, and precipitated casein, and were changed to lactic acid milk if they failed to improve. If the movements improved without gain, fat was added and tried before changing to lactic acid milk. If they gained weight, the precipitated casein was changed to total proteid, keeping the same percentage, with a view to determining if this change worked injury. Finally the maltose was changed to lactose, for a similar purpose. My idea was to test the importance of fat, and the relative values of precipitated casein and total proteid, and of maltose and lactose, in these cases. I will not go into the actual figures of this investigation, but will give the conclusions.

I conclude in the first place that neither ordinary modifications of fat, lactose, and proteid, nor the split proteid are adapted to the first treatment of this type of case. I believe that there are two methods of treatment most likely to be successful; in some cases very low or absent fat, maltose, and high casein, will solve the problem, and in others, lactic acid milk. There is evidence that in many cases these two procedures are not interchangeable, but specific for the particular case, but there is no conclusive evidence that many cases which did well on one method might not have done equally well on the other. This will be the subject of a future investigation. Certainly some cases require one specific method.

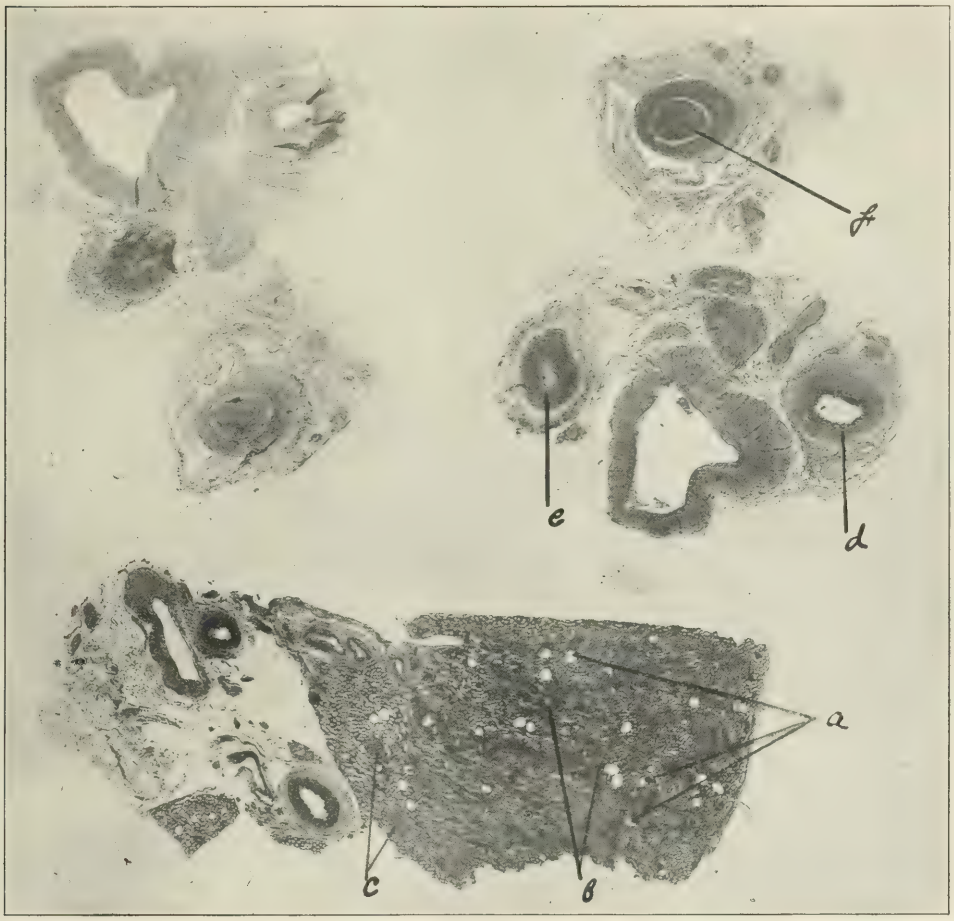
As to the possibility of recognizing at the start which cases require a particular method of treatment, the evidence of this series of cases is entirely negative. The two classes of cases were precisely alike clinically; I could find no evidence of a difference in the clinical pictures. I believe it is impossible to distinguish them with any certainty in chronic cases. I know of no more pressing need than that of enlarging our knowledge of etiology, and methods of diagnosis in these cases. In the meanwhile I believe the routine of treatment adopted at the Infants' Hospital last month is the best I have found for these cases; trying first a fat-free food, with maltose and high casein, adding fat if the movements improve, but the babies fail to gain, and changing to lactic acid milk if they do badly.

Next, as to the value of precipitated casein as compared with total proteid. All but one of my cases did equally well when the same percentage of casein was substituted for precipitated casein. In one case only was there evidence of any advantage in favor of precipitated casein. In the few cases last year where total proteid was tried first, there was no improvement on changing to precipitated casein. The only possible advantage in using precipitated casein is that it enables us to reduce the percentages of lactose and the amount of salts, possible harmful factors. While it did not appear in my series that the amount of lactose (about 2.75%) necessarily added in obtaining 2% total proteid was harmful, when combined with 3.25% maltose to give 6% carbohydrate, yet it is conceivable that there might exist cases of lactose intolerance so severe that even this small amount of lactose could not be borne. I believe such cases are probably very rare, if they exist. Possibly the maltose counteracts the harmful action of the lactose. In general I can see no indication for precipitated casein except as a last resort in very obstinate cases.

The results are very different as regards the relative merits of lactose and maltose in these cases. While in quite a number of the cases the babies did equally well on lactose, in the majority of cases the babies became distinctly worse when lactose was substituted for maltose

injuries are more obscure. I believe that even if we are unable to agree to the full classification of the gastro-intestinal diseases on the basis of food injuries to metabolism, we owe to Finkelstein and his followers a great debt for calling our attention to the probability that the food

UNILATERAL HEMATURIA—TRUESDALE.



(*a*) Atrophied glomeruli.
(*b*) Increase of interstitial tissue.
(*c*) Free blood in the renal tissue.
(*d*, *e*, *f*) Proliferative arteritis leading in *e* and *f* to occlusion of the lumina.

by such methods as simple reduction, split proteid, starch, alkalies, etc., etc. The examination of the stools is the important diagnostic test in this class of cases. The second class of food

pelvis, normal pregnancy, O. L. A. position and labor at term. She was seen about two hours after labor began, at which time she was having good pains and the head was already well engaged.

* Read before the New England Pediatric Society, Nov 2, 1912.

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this change worked injury. Finally the maltose was changed to lactose, for a similar purpose. My idea was to test the importance of fat, and the relative values of precipitated casein and total proteid, and of maltose and lactose, in these

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The results are very different as regards the relative merits of lactose and maltose in these cases. While in quite a number of the cases the babies did equally well on lactose, in the majority of cases the babies became distinctly worse when lactose was substituted for maltose. The movements became green and they began to lose weight. I believe, therefore, that maltose should be used in these cases.

In regard to the fat, in no case was it increased above 2%. In one or two cases this measure was followed by distinctly bad results, but not in any of the 1912 cases. On the other hand, there were a number of cases which, while the movements improved, failed to gain until the fat was increased. I believe, therefore, that it is best to begin with a fat-free food, and to add fat if there is not a satisfactory rate of gain.

In cases on lactic acid milk which improve but do not gain, I have been accustomed to change to an ordinary modification of adequate caloric value, on the theory that after the lactic milk alters the bacterial contents of the intestines, the babies can take an ordinary food. These cases have generally done well, but it is a question whether it is not preferable first to add fat to the lactic acid milk.

The review of the calories taken by the babies in this series which did well is very interesting in connection with the question of minimum caloric requirements. While some cases would only gain when the caloric value of the food was increased, in the majority there appeared to be no relation whatever between the weight and caloric needs. Twenty out of the 28 successful cases gained weight on less than 100 calories per kilo.

Finally, I want to present some considerations bearing on the theories of the etiology of these cases of severe malnutrition. I believe that in the classification of the gastro-intestinal diseases, in the light of the most modern researches and theories, the old distinction between gastric and intestinal will have to be discarded, and that the gastro-intestinal canal must be regarded as a whole, and in close connection with the whole mechanism of nutrition and metabolism The causes of disturbance appear to be divided into two main etiologic agents, food and bacteria. The food injuries may be caused by any one of the three food elements, fat, carbohydrate, and proteid, and probably also by deficiencies or abnormalities in the salts. The food elements appear to exercise their unfavorable influence in two ways. The first is by simple failure to be digested and consequent irritation, leading to vomiting, diarrhea with undigested movements and failure of absorption. In those cases the fat and casein are most at fault, and the treatment is to deal with them by such methods as simple reduction, split proteid, starch, alkalies, etc., etc. The examination of the stools is the important diagnostic test in this class of cases. The second class of food injuries are more obscure. I believe that even if we are unable to agree to the full classification of the gastro-intestinal diseases on the basis of food injuries to metabolism, we owe to Finkelstein and his followers a great debt for calling our attention to the probability that the food elements can and do act injuriously against the whole metabolism in a way more complex and obscure than simple indigestion. These cases cannot yet be diagnosed with certainty clinically. We know they exist, and, in chronic malnutrition, present usually the symptoms of green, irritating movements, often with vomiting. They cannot be distinguished from bacterial types. We know that the food elements chiefly concerned are the salts, fat and lactose, and that the casein is most harmless in this class of cases. They can best be treated by low fat and lactose and high casein, as described specifically above.

The bacterial cases still present a very complex problem. I believe that the old distinction between infecting parasite and fermenting saprophyte can conveniently be discarded, in so far as classification is concerned. We know that the dysentery bacillus, while it infects the tissues, has many of the properties of the putrefying saprophytes. It is better to consider this group of cases simply as caused by bacteria —bacterial. We have been able to separate of certain definite infections, such as dysentery and gas bacillus, and have found appropriate lines of treatment. There remains a large group of cases of which we have the only evidence that they are caused by bacteria in their reaction to certain treatment. We know little about the varieties, properties, action, and pathogenicity of these organisms. Studies such as those of Kendall on the reaction of bacteria to certain carbohydrates and proteid media have not yet led to any very practical results. The chronic cases at least cannot be diagnosed clinically. They appear to resemble the food injuries to metabolism in the clinical picture presented. I believe the best treatment we have for these cases is lactic acid milk.

Clinical Department.

INTRAVENTRICULAR HEMORRHAGE OF THE NEW BORN.*

BY ALEXANDER C. EASTMAN, M.D., SPRINGFIELD, MASS.

The following case was seen in consultation with Dr. C. H. Porter, to whom I am indebted for much of the history and report of autopsy.

HISTORY OF LABOR.

Mrs. C.—Primipara with moderately contracted pelvis, normal pregnancy, O. L. A. position and labor at term. She was seen about two hours after labor began, at which time she was having good pains and the head was already well engaged.

* Read before the New England Pediatric Society, Nov 2, 1912.

After eight hours the os was fully dilated, and the head soon completed descent to the pelvic floor. Here progress ceased; there was no advance for two hours with good pains. Examination showed a normal O. L. A. position, rotation completed, good flexion and great moulding. Forceps were applied, but nothing accomplished, even by very firm traction. The head was evidently impacted at the plane of pelvic contraction. Since the position and so forth was normal, choice lay between pubiotomy, forcible forceps delivery, and embryotomy. Instruments for pubiotomy not being obtainable, it therefore seemed justifiable to apply as great force as would be safe to the mother in another attempt at delivery, rather than kill the child outright. Forceps were applied again and with more than usual force the child was delivered. There was no material injury, save a unilateral tear of cervix and a superficial tear of perineum. The mother made a good recovery and is in good condition six months later.

HISTORY OF CASE.

For about five minutes after birth the child made only slight spasmodic efforts to breath and at the end of that time breathing was established by mouth to mouth insufflation. The child weighed seven pounds and two ounces, was normal in appearance, and the marks of pressure on the head from forceps were not very extensive. The first notable symptom (excepting the delay in breathing) was a marked course tremor or spasm of the lower lip and jaw with each cry. This symptom continued throughout life. The next day there was a slight twitching of hands and arms, and on the third day a tonic flexion of the thighs on the trunk was noticed together with marked rigidity of the elbow. At this time the breast milk was established and the child began to regurgitate all of its feedings. Temperature was normal, castor oil, 1 dram, was given in the forenoon, the breast milk was stopped and a formula of F1, S6, and P.3 was given.

I saw the child the next day or the fourth day after birth. At that time the fontanelle was flat and soft. The eyes were normal, there was some twitching of the hands and a tremor of the jaw when the child cried. There was moderate rigidity and flexion of the arms and thighs. The reflexes were difficult to obtain because of the rigidity. The twitching was not as marked as on the previous day. The throat, heart and lungs were normal. The abdomen was tender but not distended. The temperature was normal and the weight 5lbs. and 15 ounces. Oil had been repeated that morning and a good result obtained which was greenish yellow with curds and mucus. . The food was still regurgitated.

From the history and general symptoms a diagnosis of probable, small cerebral hemorrhage was made, although there was no distention of fontanelle and the eyes were normal. Because of lack of localized symptoms it seemed best to continue observation, and as the regurgitation was continuous whey was advised for nourishment. He continued to regurgitate the whey and on the next day he was given half-hour feedings, 1 dram of 2 per cent. fat in a whey mixture. This he retained and the weight increased to 6 lbs. or one ounce gain. At the same time his temperature went up to 102 at 2 P. M., but was 101 at 6 P. M. This dropped further to 99.8 by the next morning and the feedings were continued and retained. There was noticed now for the first time a slight tenseness of the anterior fontanelle. The next two days his condition remained about the same. Temperature about 99, slight distention of fontanelle and constant contraction of arms and legs with spasm of lower jaw and irregular twitching of hands.

His weight continued at 6 lbs. and one or two ounces, for two or three days. I saw him again on the ninth day. He was then having three breast feedings and the remainder whey formula, with an occasional regurgitation of food which quite frequently was projectile. The circumference of the head at this time was 14½ inches; fontanelle was distended; the veins of the head becoming prominent and the general appearance was of a moderate hydrocephalus. The possibility of an acquired hydrocephalus was then considered, but as the prognosis seemed absolutely bad lumbar puncture was postponed.

From that time until the day of his death, which was on the seventeenth day, there was a gradual increase of symptoms. The temperature gradually reaching 104, the weight diminishing to 5 lbs. 6 ounces, the food kept down much of the time until the last two days when everything was regurgitated. Bulging of the fontanelle steadily increased and the sutures separated until at the time of death the head presented the appearance of a typical extreme hydrocephalus. Tonic spasm of the arms and legs continued including opisthotonos and a day or two before death there were short general tonic convulsions, also the chronic twitchings of hands and jaw continued as at first. The pupils remained normal.

AUTOPSY.

Lumbar puncture gave a moderate amount of dark fluid blood. On opening the skull, considerable free dark fluid blood escaped from between the dura and pia. The convexity of the brain was clean, there were no clots but the veins were intensely engorged. Both lateral ventricles were filled with moderate sized blood clots.

The size of the blood clots was not sufficient to cause the extreme enlargement of the head, and this must have been due partly to the free blood between the dura and pia. In other words, we had a cerebral hemorrhage into the lateral ventricles, but the whole condition presented a combined external and internal hemotocephalus.

TOXICITY OF BILE WITH THE REPORT OF AN UNUSUAL CASE.

BY W. E. LADD, M.D., BOSTON.

THE question of the effect upon the individual of bile liberted into the peritoneal cavity is one that is frequently arising in surgery of and diseases of the gall bladder. For example, in cases of suppurative cholecystitis with perforation, it is a question which is the more important factor in the sickness of the patient,—the toxemia of the bile in the peritoneal cavity, or the bacterial toxemia from the infected gall bladder. With a view to clearing up the pathology of the effect of bile in the peritoneal cavity, Bunting and Brown[1] did some experimental

work on rabbits. Their experiments indicated that bile in the peritoneal cavity had a very toxic effect, and that between .25 and .50 c.c. per kilogram was a fatal dose. The rabbits in which .50 c.c. of bile per kilogram were injected into the peritoneal cavity, died within 24 hours. They believed that death was due to the direct action of bile upon the myocardium. They found also that the bile produced necrosis of every type of tissue with which it came in contact. Fat necrosis was constant and was usually associated with hemorrhagic necrosis of the pancreas. They also found evidence of the toxic action of the bile being powerful in the remote tissues, as the heart, kidneys and blood cells. Their experiments were largely done by making an abdominal incision under aseptic precautions and either incising the gall bladder or aspirating the bile through a needle.

The following case, occurring in the general surgical service of the Children's Hospital, presented conditions very similar to those produced experimentally by Bunting and Brown.

Case. Caroline C., 4 years, 11 months.

Entered Surgical Service, Children's Hospital, July 31, 1912.

Family History.—Father, mother and two other children living and well.

Past History.—Scarlet fever one year ago; otherwise not remarkable.

Present Illness.—Fourteen days ago child was playing horse on a railroad tie suspended on two saw horses. She fell off onto the ground on her back and the tie fell across her abdomen. Her mother put her to bed and said that she complained of considerable pain in the left side of her abdomen and chest. The pain came on spasmodically and between the attacks the child appeared comparatively well. In fact, a week after the accident she was seen by a physician who, after a physical examination, thought that nothing was the matter with her. She has had some vomiting daily, and the mother thinks the bowels have moved only three times in 14 days.

Physical Examination.—Fairly developed and nourished child. Pupils equal and react to light and distance. Tongue presents heavy white coating. Throat normal. Heart normal. Lungs resonant throughout; no rales. Abdomen soft; no involuntary spasm; no distension; slight general tenderness. Extremities normal. Pulse 110. Temperature 100. White count 20,000.

August 1, 1912.—Seen in consultation by Dr. J. L. Morse, who suggested existence of some inflammatory condition in upper abdomen as result of injury (possibly perihepatitis) and recommended observation for the present.

August 8, 1912.—Child's general condition does not seem so good. Abdominal examination shows slight distension and dullness in either flank, with more spasm in the upper abdomen. Temperature 102.5 Exploratory operation decided on.

August 9, 1912.—Median incision between xyphoid and umbilicus. The omentum was found adherent to peritoneum. On opening the peritoneal cavity a large amount of biliary fluid escaped. The lesser peritoneal cavity was found bulging. This was opened and a large amount of biliary fluid sponged out. Culture taken. When the lesser peritoneal cavity was sponged dry, a small triangular tear was found in the lesser peritoneum, just to the left of the hepatic artery and close to the liver, and making a rent in a bile duct, probably the left hepatic. It was considered impracticable to suture the duct on account of its small size, and a cigarette drain was therefore introduced into the rent to stimulate granulation tissue and to drain the cavity. The abdomen was closed in layers to the drain.

The culture taken at time of operation proved sterile.

Subsequent to operation the patient drained bile copiously for 10 days, when it began to diminish in amount. The stitches were removed and a small wick inserted just through the abdominal wound in place of the drain.

The child was sent home on the thirteenth day following operation.

A small sinus remained for some time, but eventually closed.

The child was seen seven or eight weeks after the operation and presented a firm abdominal scar and was apparently perfectly well.

It is interesting to note that in this patient, upon whom I operated, though there was probably more bile in proportion liberated in the peritoneal cavity than in the experimental rabbits of Bunting and Brown, the toxic effect was considerably less. The rabbits died in 24 hours, with a comparatively small dose of bile; the child remained for three weeks with a comparatively large dose of bile and only became moderately sick. The rabbits showed necrosis of every type of tissue that the bile came in contact with; and showed fat necrosis usually associated with hemorrhagic necrosis of the pancreas.

So far as I could see at operation, the bile caused no lesions in the human abdomen except adhesions beween the omentum and peritoneum.

Frothingham and Minot[2] have published a preliminary note on the effect of bovine bile in rabbits, in which they failed to find the marked pathological changes reported by Bunting and Brown, which suggests that the effect of bovine bile more closely resembles that of human bile. Whatever the effect of animal bile in the abdominal cavity of animals, it seems clear from the case reported above that a large quantity of bile may escape into the peritoneal cavity of the human being without causing a fatal result or marked necrosis of tissue, though it may cause considerable sickness and general toxemia, associated with irritation, vomiting and spasmodic attacks of pain.

[1] Jour. Exp. Med., Nov. 1, 1911, p. 445.
[2] Jour. Med. Research, Sept., 1912, p. 79.

Honorary Degree for Dr. Osler.—The honorary degree of D.C.L. has been conferred by Durham University, England, on Dr. Sir William Osler, regius professor of medicine at Oxford.

Reports of Societies.

NEW ENGLAND PEDIATRIC SOCIETY.

Meeting of November 2, 1912.

James M. Jackson, M.D., President; Fritz B. Talbot, M.D., Secretary.

Dr. Walter B. Swift read a paper on

LISPING—CASE AND TREATMENT.*

DISCUSSION.

Dr. Fritz B. Talbot, Dr. Swift's paper: We are very glad to hear that someone is taking an interest in these lisping children, because a great many of them come to our clinics and up to date nothing has been done for them; it is encouraging to feel that we can now send them to some one who will give them the proper attention and training.

Dr. Swift: The case shown tonight was under treatment for about ten days before showing any improvement, after which time the improvement was rapid. The hardest thing at first is to get the interest of the child. In this little girl no other treatment was received excepting what I gave her. Our clinic at the Psychopathic Hospital is the only one in the city. You may be interested to know, those of you who are new to the subject, that there is a very large clinic for speech defects in Berlin, with a professor at the head, one in Bonn, and one in New York, so that this specialty and the training of individuals to take care of such cases is by no means an untried thing. There are one or two points still I think perhaps might be brought out. In the effort to induce expression of various sorts, there are two methods in the world of dramatic art or elocution,—one is the psychological method, which aims to get results by presenting objects of thought; another is a school which aims to get dramatic expression through the assuming of attitudes, the external, mechanical method. Of course with those two methods of expression, whether one or the other should be used, depends on the natural makeup of the child. In this little girl I could get no response whatever from requests to form sentences, everything being run together, but with the method of external emphasis the words were brought out clearly, which shows that the understanding and the psychological side and so on were all intact and there was merely an inhibition of its expression. Most of these cases take a great deal of study and investigation; many of them take an extensive psychoanalysis to find out the background, and thus they become very interesting studies. I want at this point to express my thanks to Dr. Southard for permission to study this case and to present it here this evening.

Dr. Charles Hunter Dunn read a paper on

CLINICAL STUDIES ON FEEDING IN INFANTILE MALNUTRITION.†

DISCUSSION.

Dr. J. L. Morse: There is so much to be said I hardly know where to begin, and I am afraid I shall not know where to stop. In the first place, I want to say that I agree with practically everything that Dr. Dunn has said. A good deal of this ground that Dr. Dunn has been over in October I have gone over in the spring months at the Infants' Hospital in the same way, and some of you may remember a paper I read at a meeting of the American Pediatric Society, in which I came to somewhat the same conclusions. My experience agrees with his in that we never get good results from precipitated casein or buttermilk when there is vomiting. I have learned in the last two or three years to be very much afraid of whey and whey mixtures in the type of case which has green, irritating stools. On the chances these babies do badly if they get a split proteid. I do not mean to say, however, that whey is not a most useful resource in cases of indigestion not of the fermental type. My experience has been a good deal like Dr. Dunn's in comparing the precipitated casein with total proteids. I have done exactly the same things, have put the babies on to precipitated casein and then changed them over to total proteids and vice versa, and found as he has that it seemed to make very little difference. There is one point to be remembered, however, in comparing precipitated casein with total proteids and that is in the precipitated casein we have largely gotten rid of the salts, while in the total proteids they are there. It is probable that the salts are a source of danger or the cause of the trouble in some of these cases. As to the gain on less than 100 calories per kilo. In that connection, of course, we have always to remember that many of these babies are pretty thoroughly dried out and we are very likely to get a considerable initial gain from the storing up of water in tissues and that this gain will persist if the baby does well. Then I have also found that babies will hold their weight on about 75 calories per kilo and that many of them will for a time gain pretty steadily on less than 100 calories per kilo. I had one baby at the Infants' Hospital last spring that gained steadily for several weeks on 50 calories per kilo. It seems to me, too, that Dr. Dunn has given Finkelstein and his school just about the appreciation which they deserve, that is for opening up a very large field to us, and also in showing that their method of feeding with straight eiweiss milch is not suitable for all cases.

Dr. F. B. Talbot: I agree in the main with what Dr. Dunn and Dr. Morse have said. I did not hear Dr. Dunn use the words "irritating, green stools" as Dr. Morse used them, and it seems to me that the fact whether the stools irritated or not is one of the most important factors we have in deciding whether carbohydrate is digested or not. Starch, which is a polysaccharide is first split by the digestive juices into the disaccharide and later into maltose, in which form it is absorbed into the blood. If the digestion is abnormal the splitting of the maltose can be carried on further into acetic or lactic acid. If the acids are strong enough they irritate the buttocks. Information as to whether the buttocks are irritated or not is important because in my experience the digestion always improves in such cases when the sugar was diminished. Another factor was omitted in the description of the relation between precipitated casein and a comparison of the total proteids. It is a well known fact that if the relative proportions of the fat and the proteids are varied, the reaction of the stool may change accordingly.

* See Journal, page 160.
† See Journal, page 161.

When the reaction of the stool changes from acid to alkaline the stool changes from a rather loose to a formed and sometimes a constipated stool; in other words, if Dr. Kendall is right, the putrefactive bacteria have gotten a foothold and have replaced the fermentative bacteria. I noticed on several of the charts that there was such a change and I wondered whether it was not the change of the relative proportions of the fat and sugar that improved the digestion rather than the precipitated casein or total protein. Many babies have gained on less than 100 calories per kilo of body weight. Last spring I had an opportunity to determine exactly how much carbon dioxide was excreted by nearly normal babies, and in Dr. Benedict's laboratory we found that the amount excreted depended on muscular activity. Practically all the estimations of the caloric needs of babies have been obtained from the carbon dioxide excretion alone without taking into consideration the oxygen consumption. In a normal baby the carbon dioxide excretion can increase 50% when an absolutely quiet baby cries lustily, and I think that the activity of the baby can explain many of the results that are not explained as Dr. Morse explained them, by the gain in weight being due to the increased water. I believe that this may explain a very large number of cases in which the baby is so weak that it does not move enough to use up the energy which is given in the food and that such a baby does not need so much food as an active, lusty baby that is crying a great deal and exercising itself by waving its arms and kicking.

Dr. Dunn in closing: In all these cases every effort was made to exclude those with syphilis and tetanus; even cases with otitis media were excluded. The first line of treatment was to use 3.50% casein instead of 2%. This is as high as I went. I used only 2% casein which would have been increased if any case had not done well. The ones which did badly and were changed to lactic acid milk became so much worse on the Finkelstein feeding that it was evident that there was a bacterial infection and they responded immediately to lactic acid milk. I think that there certainly seemed to be a distinct strategic difference between the two types of cases which responded to the lactic acid milk and to treatment with high casein and low fat, but no clinical difference.

A CASE OF ABNORMAL PHYSICAL AND SEXUAL DEVELOPMENT IN AN INFANT OF TWO YEARS, PROBABLY DUE TO TUMOR OF THE PINEAL GLAND.

By John Lovett Morse, A. M., M. D.

ABSTRACT.

A boy, 23 months old, normal in size and shape at birth, began to grow very rapidly at six months. Voice became harsh at 16 months. Seen at 23 months. General development that of a child of 4½ years; development of bones that of a child of 6½ years; mentality about that of 16 or 18 months. Voice hoarse. Much pubic hair and a little hair in axillae. Penis and testicles very large. Wassermann and Von Pirquet tests negative. X-ray showed no enlargement of sella turcica.

Condition almost certainly due to new growth of either pineal gland or the adrenals. Difficult to distinguish between them because of similarity of the symptoms of the two conditions. His sex strongly in favor of a tumor of the pineal gland; his age is consistent with either; retarded mental development somewhat in favor of an adrenal tumor. Weight of evidence a little in favor of a tumor of pineal gland.

Dr. Alexander C. Eastman read a paper on

INTERVENTRICULAR HEMORRHAGE OF THE NEW BORN.*

AMERICAN NEUROLOGICAL ASSOCIATION.

Thirty-eighth Annual Meeting, Held at Boston, Mass., May 30 to June 1, 1912.

(*Concluded from page 133.*)

ACUTE INFECTIOUS TRANSVERSE MYELITIS WITH COMPLETE RECOVERY DUE TO THE VIRUS OF POLIOMYELITIS.

Dr. B. Sachs, New York: The patient, a young girl of 18, presented all the symptoms of a complete acute transverse myelitis. A number of unusual symptoms and the marked tendency to improvement early led to the suspicion that the case was clinically not unlike one of acute poliomyelitis anterior. This suspicion was confirmed by the strictest laboratory proof.

DISCUSSION.

Dr. Theodore Diller, Pittsburg, Pa.: I have seen astonishing recovery in one case of the Landry type in which there was complete paralysis of both arms and in a second case in which there was a transverse myelitis of unknown origin which was not syphilitc in character. I refer to these two cases because they indicate that in the most desperate cases recovery will sometimes occur.

Dr. Graeme M. Hammond, New York: In an epidemic which occurred in Princeton University, five young men were taken ill within two or three days. Four of these were undoubtedly cases of poliomyelitis. The fifth one was a case of transverse myelitis. He has not recovered yet, but is recovering. It is a typical case of transverse myelitis occurring in poliomyelitis.

MOTION PICTURES OF NERVOUS AND MENTAL DISEASES.

Dr. T. H. Weisenburg, Philadelphia, Pa.: The use of moving pictures in medicine is of comparatively recent origin, but their use for illustration of scientific subjects is slowly developing and teaching institutions are equipping themselves to utilize them. The pictures offer great advantages for teaching medical students as the teacher has at his command illustrations of certain diseases and the student pays more attention to what he sees when illustrated in this manner than when seeing the patient. Also by the photographs it is possible to detect certain phenomena which cannot be seen by the naked eye. It is my purpose to show everything that it is possible to show in the realm of

* See Journal, page 165.

nervous and mental symptomatology. It is interesting also that the cases of patients who have since died can be reported and their ailments shown as they suffered in life.

NEUROLOGICAL ECONOMICS SYMPOSIUM.

DR. CHARLES L. DANA, New York: Neurology is a very important branch of medicine and should have for its end not only the teaching of the individual but of the community. For the past year I have been chairman of a committee which has been organizing several sub-committees and has done considerable work which it is not ready to report on yet. Of the special activities in which I have been interested one has been that of expert testimony. A year ago we passed a series of resolutions in which we tried to formulate certain rules regarding the conduct of experts and expressed certain hopes regarding the reforming of legal procedures. We wanted to establish a minimum neurological qualification of experts. We wanted the payment of experts made by or through the courts and wanted abolition of the contingent fee. The movement we have initiated has made progress and should be continued.

INDUSTRIAL OCCUPATIONAL NEUROSES.

DR. M. ALLEN STARR, New York: There are many dangers from accident in mines from exposure to dust in various factories and from exposure to poisonous fumes. The subject of particular interest to the neurologists is the effects of poisoning by lead, phosphorus, mercury and arsenic. These are employed in a large number of industries, there being 130 industries in which lead enters as a factor and in which workmen are exposed to lead poisoning. There are dangers of plumbism in the manufacture of pottery. In England this has led to the passage of laws for preventing the employment of women in this trade, reducing the percentage of lead in the glaze to 5 per cent. and enforcing methods of cleanliness and ventilation in factories. I favor the passage of laws regulating industries by the various State Legislatures and believe there is need of education among operatives employed in dangerous trades. This education should be given by the employers by means of notices posted in factories and distributed among the employees and by means of instruction given by the Labor Unions to their members. I also believe that if such information were given to manufacturers and their attention called to the importance to the health of their employees many needed reforms would be voluntarily carried through by them.

DISCUSSION.

DR. CHARLES L. DANA, New York: There are some particular things which we as individuals may say in regard to the matter. We come in contact a great deal with occupation neuroses. For example, the occupation neuroses, the cramps, neuritis, neuralgias, make up about 1 per cent. of the material in my dispensary. It is along these lines that we as neurologists can do a good deal of work. Then another thing that bears upon this question is the importance of domestic, social and industrial conditions in connection with the development of psychoneuroses. By the help of social workers and by prying into the environmental and working conditions of the dispensary patients I have found that the industrial conditions are extraordinarily important in the development of these psychoneuroses.

DR. M. ALLEN STARR, New York: If every man in this room would take the pains to have in his clinic a card catalog introduced by which every disease that comes in that is referable to an occupation shall be tabulated, at the end of two to five years we will have a mass of statistics that will be of great interest and use to us in working on this subject. Our information is indefinite at the present time.

SOCIAL WORK IN CONNECTION WITH NEUROLOGICAL DISPENSARIES.

DR. JAMES J. PUTNAM, Boston: The general object and character of the social service work at the Massachusetts General Hospital are now so well-known that it is unnecessary to dwell upon that aspect of the subject. The plan has been, as regards that part of the work which relates to neurological cases, to spend a considerable amount of time over a small number of persons rather than a little time over a larger number. Two paid workers are now employed, one receiving $1000 the other $720 a year. In addition, an expert psychologist has given a considerable part of his time to working among chosen cases and studying the mental condition of boys sent from the Juvenile Court. The work of this gentleman has been a valuable addition and he has been remunerated to a certain extent from a special fund. The department has no organic connection with the hospital, but it is hoped that the improvement in standards of work will eventually make itself felt even in the routine work of the hospital. Besides going about among patients and making friends with them, and studying the personal condition of their lives, this department has carried on an occupation class where girls and women are taught pottery work. In general terms it may be said that the chief element of success in our work has been the devotion and intelligence of the social workers.

SOCIAL SERVICE AND SOCIAL RESEARCH IN NEUROLOGICAL HOSPITALS AND DISPENSARIES.

DR. JOSEPH COLLINS, New York: The sick person who goes to a public hospital or dispensary should be so handled that this shall not prove to be the first step toward loss of voluntary independence. There should be an actual inspection from a social standpoint of the attitude of each patient toward the payment of fees in order that it shall not be easier for him to assume a more dependent attitude toward the institution than it is toward a private patient, nor easier to cheat the dispensary by fraudulent representations than to cheat the private physician. This relation of the patient to the institution should be under continuous inspection during the entire time of his connection with it. In judging the results of the patient's contact with the institution a criterion should be established by which an estimate can be made of the adjustment of the individual to life in terms of occupation. The new social situation arising from the recognition of the residential status of the patient contains opportunities for social instruction that should be fully utilized. It is vitally important to know what effect the costly process of curing disease is going to have on the future social relations of the individual. Science and common sense both agree that the indi-

dual must be defined in terms of his ability to ıt forth effort in economical ways toward well ıosen aims. A sound sociology, on a sound psychogical basis will insist upon studying an individual ıffering from disease and resident in a hospital not ıly in terms of his native energy but of his natural acquired tendencies in expending them. When ıis observation is carried on in connection with tual occupation a situation is created which is vorable for educational purposes and which should utilized through persuasion, argument or actual monstration.

DISCUSSION.

Dr. Charles L. Dana, New York: My experiıce is that no neurological clinic is complete or ın be really effective to do good work without havg a social service connected with it. Everyone ho has tried it will realize that fact. It was not ways possible to have one.

Dr. Morton Prince, Boston: A social service is ıe of the most important connected with the neulogical clinic. After an experience of a great any years I have been impressed more and more ith the necessity of some means of looking after ıe patient not only while he is in the hospital but ter he leaves. A large proportion of the patients ho come to the clinic are afflicted with functional isease of one kind or another, which comes in a rge extent from the inability of the patient to dapt himself to environment.

ETARDATION AND CONSTITUTIONAL INFERIORITY IN CONNECTION WITH EDUCATION AND CRIME.

Dr. Hugh T. Patrick, Chicago, Ill.: Dr. Healy as been working with old offenders in the Juvenile ourts of Chicago for about two years. His study f these criminals has been intensive. He goes as ır as possible into the questions of heredity and ıvironment, including social influences, family inuences and everything possible. He makes a medi-al examination and he makes to the extent of his ɔility and time allowed a psychological examinaon. He has made a tentative classification for ıe based on 800 cases. The largest single causative ıctor of delinquency recognizable by study of the ıdividual offender is mental defect. They belong ı the class of individuals concerning which society eeds the assistance and advice of physicians. Soiety needs this advice while these offenders are ɔung because a very potential factor in the crimıal is the crime habit. It is a tremendous force ı criminology and this develops young. One point hich Dr. Healy shows in figures and in a perectly definite way is that a good many of these ases are criminals; they are repeated and chronic ffenders because the condition has not been recogized and consequently the child has not been propɔly directed. That this work of Dr. Healy's has een appreciated is shown by the fact that at the ieeting of the Board in my office the Judge of the uvenile Court said that he did not know what he ould do without Dr. Healy's assistance in his court s these questions are constantly coming up and he ould not care to take the responsibility of deciding iem. An effort is being made to get a man to do imilar work in the court for adult criminals and ıe money has been provided to pay for such work ut we have been unable to find a man to undertake . Dr. Healy also greatly desires an assistant.

PRESENTATION OF BRAIN SPECIMENS EXHIBITING LESIONS OF SPECIAL INTEREST FOR LOCALIZATION OF APHASIC DISORDERS.

Dr. La Salle Archambault, Albany, N. Y.: I present a practical demonstration of the lesions found in two cases carefully observed clinically. In the first case there is complete destruction of the posterior third of the left inferior frontal convolution in a right-handed subject who never presented any evidence of aphasia. In the second case an old apoplectic scar occupies the anterior portion of the left middle frontal convolution and a relatively recent hemorrhagic focus destroys the posterior two-thirds of the left tenticular nucleus, but the left inferior frontal convolution is intact. The patient, who was right-handed presented well marked, though not absolute, motor aphasia.

EPILEPSY IN THE ADULT.

Dr. Edward Fisher, New York: For a long time I have been interested in epilepsy in the adult, especially senile epilepsy. Epilepsy frequently occurs in young adults without any previous history of seizures. In these cases there is no arteriosclerotic basis as there is in the central form. They differ also entirely from the class of epileptics which have their origin in the early life. One of the principal causes of epilepsy in the young adult is syphilis. Not that we get necessarily all the symptoms of syphilitic endarteritis or of paresis. although at times there is difficulty in making a differential diagnosis between these conditions and general paresis. I refer more to the type of young people of 20 to 25 who are actively engaged in some occupation as students or some excessive occupation in their lives perhaps where the special senses are called upon, especially where there is associated a great deal of anxiety. In the adult cases we do not notice the mental deterioration which is observed in childhood. They are as clear mentally after the attack and resume their vocation with the same mental grasp as before. They do not give either the facial appearance of the epileptic. I would therefore in getting at the pathology of these cases not look upon toxines or over strain as the basic cause, simply looking at it as an exciting cause. There must be some fundamental weakness or instability back of the condition. These cases are not easy of treatment, they require rest, but do not respond better to treatment than the other forms of epilepsy.

ARTERIOSCLEROSIS PROBABLY NOT AN IMPORTANT FACTOR IN THE ETIOLOGY OF PROGNOSIS OF INVOLUTION PSYCHOSES.

Dr. G. L. Walton, Boston, Mass.: Arteriosclerosis without gross cerebral lesion should not be too readily accepted as cause of symptoms. The writer has examined with reference to clinical evidence of this condition 100 cases of marked involution psychosis, choosing the depressed phase of manic-depressive insanity commonly classed as involutional, often with agitation, with self-accusation and with somatic delusions. The same number of control cases has been studied for comparison. The result has shown no greater prevalence of palpable arteries, high blood pressure, apoplectiform attacks or other evidence of arteriosclerosis among the psychoses than among the control cases of the same age and condition. Until, therefore, definite

evidence is forthcoming beyond the fact that post-mortem examination sometimes reveals cerebral arteriosclerosis, no reason appears for assuming its presence, or for regarding it, when found, as other than a coincidence. Furthermore, so large a proportion of these cases fell in the chronic and hopeless class as to render it doubtful if arteriosclerosis should be regarded as having an important bearing on the prognosis.

THE NEUROLOGICAL DISTURBANCES OF ALZHEIMER'S DISEASE.

DR. ALBERT M. BARRETT, Ann Arbor, Mich.: A woman at the age of 33 developed a progressive spastic atrophic paralysis, involving the head, trunk and extremities. This was accompanied by profound mental deterioration. Death occurred after two years. The pathological findings were those of marked cerebral atrophy with secondary cord degenerations, the histological process in the brain being the intracellular neuro-fibril degenerations and plaque formation of Alzheimer's disease. The case is unique in the early age of occurrence of this disease and in the severity of the neurological disturbances.

DISCUSSION.

DR. HENRY M. COTTON, Trenton, New Jersey: I think Dr. Barrett's communication not only extremely interesting but extremely important from the standpoint of histology. We have heard this morning that perhaps histology still has a place in psychiatry. Dr. Barrett's paper shows that it not only has a place, but a very important place. This disease of Alzheimer's, is an important complex and this case is interesting because of the careful clinical analysis of the symptoms and the neurological examination showing not only the classical findings, but the cord degeneration as well. We should emphasize in a broader sense the progress of the pathological histology as shown by this case.

DR. JOSEPH COLLINS, New York: I rise principally to congratulate Dr. Barrett on the model way in which his case has been studied and reported. It is really a great pleasure to see a recent acquisition to the Society handle a subject in the masterly way in which this has been done by Dr. Barrett.

THE METASTASIS OF HYPERNEPHROMA IN THE NERVOUS SYSTEM; JACKSONIAN EPILEPSY CAUSED BY SUCH LESION.

DR. JOSEPH COLLINS AND DR. R. G. ARMOUR, New York: A man 45 years old who had been in good health developed typical Jacksonian epilepsy, displaying itself by twitching of the left thumb and index finger, paresthesia of the left hand and forearm and followed on five occasions by loss of consciousness and generalized convulsions. Gradually there developed loss of power and of dexterity in the left upper extremity and to a slight degree in the entire left half of the body. The only definite physical signs were loss of sense of position in the left hand and fingers and absence of the left plantar reflex. There was an inconstant astereognesis of the left hand, and a mild increase of the tendon jerks of the left half of the body. A week before his death a slow rhythmical tremor of the left thumb and index finger consisting of adductor movements about one per second developed. When the abdominal cavity was opened a large whitish tumor was found in the right flank, invading the upper pole of the kidney and showing microscopically the structure of adrenal tissue. There was metastasis to various organs including the brain, but in the brain all suggestion of adrenal tissue was lost.

CASE OF CONFUSIONAL PSYCHOSIS FOLLOWING HYSTERECTOMY.

DR. RICHARD DEWEY, Wauwatosa, Wis.: Patient of 47, after showing climacteric changes and anemia, underwent curettage in August, 1909, then found to have multiple uterine fibromyoma (which produced marked autosuggestion of cancer). September, 1909, vaginal hysterectomy. No post-operative physical complications but mental state abnormal. Refused food largely and after 14 days, totally. Mechanical feeding became necessary and has remained so for two and one-half years. Delirium continuing at the hospital, transfer to sanitarium four months after operation. At this time completely disoriented as to time and place; constant visual and auditory hallucinations and persecutory ideas. Disregard of all evacuations. Numerous brief periods of partial or complete lucidity—the longest, three hours. Frequent motor agitation, but no voluntary or purposive movement. Will not walk or stand, though strong and well-nourished. Indicanuria present at times. Lucid periods often complete as to memory and logical power. Voluntary attention extremely weak. Mental state (during lucid period) seems normal except for this and the natural inability to grasp present situation and the retention of persecutory ideas. The therapy has consisted in thyroid feeding, continuous baths, sleeping porch. The patient is still in statu quo except that consciousness has widened somewhat.

DISCUSSION.

DR. F. W. LANGDON, Cincinnati, O.: Neurasthenics and psychasthenics are bad subjects and it would be better to postpone operations until the patient's resisting powers are on a higher plane or until she has passed through the impending crisis whatever it may be of an epochal character.

Book Reviews.

The Clinical Pathology of Syphilis and Parasyphilis, and Its Value for Diagnosis and Controlling Treatment. By HUGH WANSEY BAYLY, M.A., M.R.C.S., L.R.C.P., Pathologist to the London Lock Hospitals, Clinical Pathologist to the National Hospital for the Paralyzed and Epileptic, Assistant in the Bacteriological Department of St. George's Hospital. New York: William Wood and Company. 1912.

Many books are being published on this general subject, a matter which is by no means to be regretted. This addition to the list is a well-arranged, brief statement of our existing knowledge, written and published in such a form as to be readily useful for practitioners and students—the design for which it was written. The book is to be recommended.

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THE DEATH OF HENRY THE EIGHTH.

PERHAPS the death-beds of kings ought not to excite more interest, even to a physician, than those of their even-Christians. Yet, though they are killed by the same diseases, there is something in the circumstances of a monarch's demise which so emphasizes the contrast of his high estate in life with his dethronement in death as to give even the medical details of his illness a peculiar fascination.

One of the proudest and most magnificent, though not in all respects personally praiseworthy, of kings in history was Henry VIII of England. His marital experience has been a subject for interested comment and speculation by succeeding generations; and politically he exercised as important an influence on the course of civilization in England as did any of her sovereigns, not excepting even the great Elizabeth.

Henry VIII died on January 28, 1547. Some episodes from his medical history have been collected and published from time to time in the *British Medical Journal* (Vol. i, 1910, pp. 1303, 1365; Vol. ii, 1912, Aug. 31). Young, in his "Annals of the Barber Surgeons," states that Henry VIII suffered, for many years before his death, from a "sorre legge," for which he was treated by a "meane practizer at Maidstone," one Thomas Vicary, who in 1531 became sergeant-surgeon. Henry also had a fistula, for which he was treated in 1539 by Sir John Alyffe. Further details of his ailments during his life have not been recorded.

By 1546 it was evident to all about the court that Henry's death was at hand. "From a handsome, athletic man he had become a mass of loathesome infirmities. He was bloated in face, and so unwieldly in body that he could not pass through any ordinary door, and could be moved from one room to another only by the help of machinery and a number of attendants. His legs were swollen and ulcerated, the festering sores causing an unbearable stench. Towards the end he could neither walk nor stand." The exact diagnosis of Henry's case has not been officially determined. The clinical picture suggests a combination of lues and cardio-renal disease.

Accounts of Henry's death-scene are given by Lingard and by Froude; but the best is taken from Richard Davey's "The Nine Days' Queen," and may be quoted in part as follows:

"On the night of Wednesday, January 27th, 1547, Henry Tudor lay dying. . . The once puissant and magnificent Henry VIII, King of England, France, and Ireland, and Defender of the Faith, was now a mass of deformed flesh, eaten up and disfigured by a complication of disorders. So swollen were the miserable man's hands, arms, and legs, that he could move only with great pain, and then only with the aid of a mechanical contrivance. . . Though little over 56 years of age, the dying Monarch's hair had turned quite white, and his beard, formerly so well trimmed, had grown scant and straggling. His steel-gray eyes looked as small in proportion to the broad, bloated face as those set in the elephant's enormous mask, but they still retained their ophidian glitter. The dying king had been unusually irritable throughout the weary day. At times indeed he was delirious, but on the whole his mind remained fairly clear. At about six o'clock in the afternoon he awakened out of a deep sleep or lethargy and asked for a cup of white wine, which was given him. Presently he wandered again, the result, perhaps, of the draught of wine, and shouted, 'Monks, monks!'. . . Three times, too, and very distinctly, he cried out the name, 'Nan Boleyn.' After that he kept his eyes fixed on a certain spot near his bedside, where, it may be, his fancy showed him the menacing wraith of his murdered wife. This outburst of feverish excitement was followed by a lull, and presently the king grew calmer, and fell into a profound slumber. . . The physicians in attendance upon the king were Dr. Wendy and Dr. Owen, who had brought the Prince of Wales into the world, and who subsequently assisted at the deathbeds of Edward VI and Mary. With them was Dr. John Gale, the king's surgeon-in-ordinary, who had awaited upon Henry and his army when in France. . . Between seven and eight in the evening of 27th January, Sir Anthony Denny, who had been watching his master very closely, thought he perceived signs that the end was approaching.

Stooping over him, he whispered into the dying ear a message especially dreadful to one who, like Henry, held the mere mention of death in horror, warning him that his hour was very near. The king, although in great agony, evidently understood what Denny had said, and is reported to have answered that he would suffer no ecclesiastic near him but Cranmer, who was immediately sent for. . . Arriving about two o'clock in the morning, he found the king almost speechless, but in full possession of his faculties, and exhorted him, in a few words, to repent him of his sins. Henry pressed the churchman's hand, and muttering the significant words, 'All is lost!' immediately expired."

Whatever Henry's crimes,—and they were no doubt many,—it seems that the sufferings of his last illness must have been almost an adequate mundane punishment. Though he had, doubtless, the best medical care that his day afforded, it is to be feared that he lacked much that modern science might have done, at least to promote his comfort. It is perhaps not the least important reflection to be derived from a consideration of his end, that our world of today is not only a much better place to live in, but a much better place to die in than was pre-Elizabethan England.

NEW HEALTH DEPARTMENT OR PRESENT BUREAU?

THERE can be but one opinion among thinking men as to the desirability and even necessity of a unification and extension of all national agencies designed to conserve and promote the public health. Sentiment to this effect is markedly increasing among laity and physicians alike. While legislation effecting this highly desirable end is to be earnestly approved, there is a second question involved of almost equal importance. Shall there be created *de novo* a full-fledged Department of Health, headed by a secretary sitting in the President's cabinet, or shall all national health activities be taken over by the existing Public Health Service?

The motive of those who favor a new department must be found in one of two ideas, either they wish to create new offices for new office-holders, or they are actuated by an honest desire to further the interests of national health protection. The former motive is untenable from any standpoint. Granting then, the sincerity of the advocates of a new department, it would seem that their wiser course would be to support the more logical plan of extending the agencies already operating to maintain a high standard of public health. Many considerations strongly favor such a plan.

Founded by an act of Congress in 1798 as a bureau of the Treasury Department, this service was originally known as the Marine Hospital Service and had for its function the medical relief of American merchant seamen and the maintenance of marine hospitals for their care. It has kept this function for 114 years, but in addition many new and important functions have been added. In 1902 the name was changed to the Public Health and Marine Hospital Service, and again on August 13, 1912, Congress changed the name, this time to the more usable, Public Health Service. The catalogue of its activities for a year covers every phase of national health protection at home and abroad. The best health administration the Philippine Islands ever had, the quarantine of the Canal Zone, the hygiene of mines and prevention of mining accidents, the eradication of bubonic plague, yellow fever, malaria, typhoid and tuberculosis, a wide campaign against hookworm and pellagra, the oversight of public health work in Alaska, the study of means for decreasing disease among the American Indians,—these are but a few of the varied features of its diverse and fascinating activities.

The United States Public Health Service has now a splendidly trained and efficiently organized corps of picked men, chosen by the strictest of competitive examinations. Most of these men have grown up with the Service and have had an extensive and invaluable training in all branches of public health work. They know how to meet emergencies, how to handle and subdue sudden epidemics, and how to work effectively with local authorities and reconcile conflicting local interests. The pronouncements of the Service are recognized at home and abroad as authoritative. Its scientific work is widely known. Its name carries authority and influence. The Service has an efficient administrative organization, experienced in the work and in close touch with the medical and scientific progress of the world.

The excellent manner in which the Public Health Service has been conducted in the past, and the superior character of its work are the best guarantees for its future activity. Few proportionate advantages have been proposed for the creation of a new department to compensate for the additional expense, the clerical reorgan-

zation it would necessitate, and the lack of a public health experience and administration which are the possession of the present Public Health Service. To enlarge the functions of the present bureau would arouse very little genuine opposition, while it is evident that the creation of a new department meets and will meet with considerable opposition. Enlargement of the present bureau seems more feasible and would probably be more effective than a new department.

THE DOMESTIC WATER FILTER.

It is, of course, the duty of municipal governments to keep the water supplies for their inhabitants pure and germ-free, but this is oftentimes not done. So that in many communities householders do, or should do, what they can to eliminate the ingestion infections from their drinking waters. Boiling will render such water innocuous so far as typhoid, cholera and the dysenteries are concerned; though such a water, if it has been muddy, is likely to remain so. But there is no great harm in the latter phenomenon. A real objection, however, is that boiled water is "flat" and insipid, because it is reduced merely to H_2O, all the gases which aerate a water and make it pleasant to drink, being eliminated in the boiling. Nevertheless, in times of epidemic, and where no guaranteed system of reservoir filtration exists, the water for domestic purposes must be either boiled or passed through domestic filters of assured efficacy.

Most domestic filters are by no means ideal contrivances, and the most nearly perfect of them are but making the best of a bad state of things, and one that ought not to obtain in civilization. The small sand, animal-charcoal, wire cloth, filter paper, sponge and cotton devices, such as are screwed in the faucet and let much water pass rapidly through them, are not filters at all, but only strainers, and give a false sense of security; at the very least their filling must be renewed daily. Indeed, many household filters are worse than nothing at all, affording foci for germ development and furnishing oftentimes water much richer in bacterial content than before the alleged filtration; they strain the water and by thus removing some of the cruder, but for the most part, harmless impurities (Mud, iron-rust from tap water and visible sediment) make it look purer and more attractive. But they are not preventive against the ingestion infections. Small filters that allow a good stream of water to pass through are never fine enough to arrest bacteria; besides, there may be leaky joints, cracked tubes and the like—defects that will give freer water. The general principle will hold that a filter which works rapidly in proportion to its size, is not safe, Small filters that are effective will allow water to pass through drop by drop; however, a series of such filter tubes connected together will give a fair stream. Besides, a home storage reservoir can always be attached; but this must be kept carefully covered, because filtered water more readily absorbs unpleasant gases to which it may be exposed.

The most effective domestic filters are made of unglazed porcelain or baked infusorial earth or sand stone; but through them also, germs may in the course of time pass into the filtered water. The best filters are germ-proof for only a limited period. So the knotty question remains, how they are to be regularly tested in such manner as to insure their being always effective. Of course the citizen able and ready to pay the bacteriologist for weekly inspections of his filters and of the water passing through them has an easy solution; but the man with the moderate income has got to forego this luxury.

Among the best domestic filters are the Chamberland-Pasteur (a hollow candle of unglazed porcelain) and the Bergefeld (a cylinder of compressed silicious earth). In either case the water enters the metal enclosing the filter and is forced under pressure through the porous medium, where it afterward escapes (through the glazed nozzle outlet in the Pasteur and through the bent tube at the top of the filter in the Bergefeld). To clean these filters, the cylinder or the candle is removed, scrubbed or brushed, sterilized by boiling or baking, and then replaced. If this is done at least once a week fairly safe filtration can be assured. All domestic filters should be capable of easy disjointing for cleansing, and of tight readjustment. Even then there should be occasional inspection by an expert to insure safety.

PARENTAL CARE.

The rapid advance of the idea that the State ought to care for the physical, as well as for the mental, growth of its children, draws attenion to the discussion brought out by a paper on

"Medical Inspection of Schools," at the latest meeting of the Massachusetts Association of Boards of Health. That here is a very wide field for enthusiastic, competent physicians who are fond of children and interested in hygiene and in education, cannot be doubted. Primarily, perhaps, the school medical inspector will concern himself with communicable diseases. But in Massachusetts at least he must now go further. There are very many remediable physical defects among school-children. Hearing, vision, speech, breathing, posture, growth, walking, sitting, standing, teeth, lungs, heart, skin, nervous system or circulation may any of them be at fault. Some of these defects may be very serious. Skilled medical observers alone can detect them; but shall the State also assume the task of seeing that they are remedied?

To many this form of "paternalism" has seemed to be the natural, even the necessary result. But Boston's experience proves that the parents of her children are not yet ready to yield their prerogative, or, to put it more accurately, still appreciate their duty as parents.

Thus the records show, that while 65% of children examined in 1911 were defective in some physical way, only 30% showed defects in the examination of the following year, 1912; 54% of those found to have defective nasal breathing last year are relieved this year; 50% of the cervical glands, 40% of the defective teeth, and 42% of the hypertrophied tonsils, have been relieved. These are not complete figures, but are from a large enough group to point the lesson. If the State will furnish the medical examination and will then notify the parents of the physical needs of their children, these parents will, to a very large degree, attend to the matter. They are surely as anxious as any official board can be, that their children grow up strong physically as well as mentally.

For this reason the School Committee of Brookline has taken the position that its duty is fulfilled when it has provided for such a "physical examination" as is required by Massachusetts law, to enable them to report to parents physical defects which may properly be referred by them to their own family physician or dentist for treatment. More extensive, paternalistic care of school-children, at the public expense, such as has been proposed in some Massachusetts communities, seems an unwarrantable and injudicious assumption of authority and responsibility that belong properly in the family.

DR. STRONG AND THE HARVARD SCHOOL OF TROPICAL MEDICINE.

THE recent establishment by Harvard University of a chair of tropical medicine essentially fulfils the long-cherished project for a Harvard School of Tropical Medicine. For the past thirty years there has been a growing realization of the medical and economic importance of tropical diseases, and the discoveries of American investigators have played no small part in the development of that knowledge. Experience has shown that temperate climates are by no means immune to occasional invasions of these diseases, and it is by the schools and teachers of such regions that their study is chiefly pursued. The new professorship at the Harvard Medical School, therefore, marks the definite and formal establishment of such a focus for special research and progress.

Dr. Richard Pearson Strong, who has been chosen as the first incumbent of this chair, is a man in every way qualified for his post. As an army surgeon, and as professor of tropical medicine at Manila, he has had abundant opportunity to become expert in the knowledge and teaching of his special subject; and in his investigations of pneumonic plague, during the epidemic of that disease in Manchuria in 1910-11, he has amply demonstrated not only his scientific ability, but the personal qualities of heroism and fortitude which should characterize the true physician. As chief of the new department at Harvard, Dr. Strong will have facility and occasion both for teaching and for further important research, and will be welcomed with the cordial good-will, encouragement, and support of the medical profession in Boston and New England.

MEDICAL NOTES.

A CENTENARIAN BRIDE.—Report from Los Angense was issued to Mrs. Marcelina Elisalda, a widow of that city, who is alleged to be 105 years old. The intended groom is only 80. It is said that at the wedding the bride's granddaughter is to act as matron of honor.

A NEW MEDICAL KNIGHT.—In the recently published list of British New Year honors is the name of only one physician, Dr. R. W. Philip, upon whom the order of knighthood is conferred

n recognition of his work for the prevention of uberculosis.

GIFTS FOR UNIVERSITY OF CALIFORNIA HOSITAL.—Report from Berkeley, Cal., on Jan. 5, tates that gifts of $400,000 are now assured or the University of California, to build and quip new departments of the University Hosital in San Francisco.

BRITISH NATIONAL INSURANCE ACT.—It appears that the British Medical Association has een virtually worsted in its attempt to secure ore favorable terms for physicians under the Iational Insurance Act or to prevent the measre from going into effect. Official statements n English medical journals have not yet eached this country, but press reports indicate nat 10,000 physicians have already accepted ervice under the Act, and that 80% of the anels have been filled, the vacancies being hiefly in London and in Lancashire. This ould be sufficient to ensure the operation of ne scheme. As a result of the recommendations f the insurance comissioners, to whom were referred the protests and demands of the British Iedical Association, the compensation allowed o a physician has been increased to 6s, 6d. for ach patient; but even these terms are presumbly unsatisfactory to the Association, and to ll physicians except those who have accepted ositions under the Act. On Jan. 18, the Counil of the Association, by a vote of 115 to 35, reeased all physicians from any previous pledges ot to serve under the Act. This apparently onstitutes a virtual surrender to the governent. The dissenting minority consisted almost holly of London practitioners.

BOSTON AND NEW ENGLAND.

FINES FOR ILLEGAL FOOD SALES.—Report from ew Bedford, Mass., states that on Jan. 17 eighteen local storekeepers and restaurateurs were ned amounts aggregating $340 for the illegal ale of renovated butter and oleomargarine.

Before the Boston municipal court last week milk-dealing corporation was fined $60 for ffering for sale milk below the standard reuired by law.

BOSTON HOSPITAL CONCERTS.—The concerts of he Boston Hospital Music Fund for February re announced as follows: On Feb. 2, at the Boston City Hospital; on Feb. 9, at the Roxbury Home for Children and Aged People; on Feb. 16, at the Children's Hospital, Boston; on Feb. 19, at the Baptist Home, Cambridgeport; and on Feb. 23, at the Mt. Pleasant Home, Roxbury.

SCARLET-FEVER IN AMHERST.—Report from Amherst, Mass., states that on Jan. 20 a second student died of scarlet-fever, now epidemic at the Massachusetts Agricultural College. No new cases, however, have occurred.

OPIUM SEIZURES IN BOSTON.—During the six months from July to December, inclusive, 1912, over $20,000 worth of opium has been confiscated in Boston by customs officials, chiefly from Chinese illegally offering it for sale.

THE FALLACY OF FOOD FADS.—On Friday, January 17, Dr. Francis G. Benedict, the director of the Carnegie Nutrition Laboratory, Boston, gave a lecture at the Massachusetts College of Pharmacy on "Food Fads and Their Frailties."

BOSTON CONSUMPTIVES' HOSPITAL.—In a report recently submitted by Drs. Edwin A. Locke and Timothy J. Murphy to the trustees of the Boston Consumptives' Hospital, it appears that the percentage of third-stage cases in the hospital has decreased from 97% in 1910 to 82% in 1912.

"The total number of persons treated from July 7, 1908, to Jan. 31, 1912, was 1767, of whom 1120 were males and 647 females. During that period, 36 were admitted to the hospital as tubercular patients, but after a careful diagnosis it was found they were free from the disease.

"On Jan. 31, 1912, there were 160 in the first stage, 414 in the second stage and 1186 in the third stage, five with miliary tuberculosis and two with tuberculosis non-pulmonary.

"The number of patients living on Jan. 31, 1912, was 524. Up to that time 835 had died. Of the 835 who died, 87.41% were of the third stage, 8.02% of the second stage, and 1.2% of the first stage."

BOSTON MORTALITY STATISTICS.—The total number of deaths reported to the Board of Health for the week ending Saturday noon, Jan. 18, 1913, is 277, against 268 the corresponding week last year, showing an increase of 9 deaths, and making the death-rate for the week 19.64. Of this number, 156 were males and 121 were females; 269 were white and 8 colored; 159 were born in the United States, 109 in foreign countries, and 9 unknown; 59 were of American parentage, 176 of foreign parentage, and 42 unknown. The number of cases and death from infectious diseases reported this week is as follows: Diphtheria, 31 cases and 2 deaths; scar-

latina, 46 cases and 5 deaths; typhoid fever, 7 cases and 4 deaths; measles, 127 cases and 1 death; tuberculosis, 46 cases and 27 deaths; smallpox, 0 cases and 0 deaths. The deaths from pneumonia were 37, whooping cough 0, heart disease 46, bronchitis 6. There were 19 deaths from violent causes. The number of children who died under one year was 37; the number under five years 53. The number of persons who died over sixty years of age was 89. The deaths in hospitals and public institutions were 106.

Cases of infectious diseases reported to the Boston Board of Health for the week ending Jan. 21, 1913, are: Diphtheria, 36; scarlatina, 45; typhoid fever, 3; measles, 137; smallpox, 0; tuberculosis, 68.

The death-rate of the reported deaths for the week was 19.22.

NEW YORK.

HOSPITAL SATURDAY AND SUNDAY ASSOCIATION.—At the annual meeting of the Hospital Saturday and Sunday Association, held on Jan. 13, Robert Olyphant was re-elected president and Dr. Walter F. Chappell was one of four members elected to the board of trustees. The treasurer reported that up to the present, $45,228 had been received from the annual collection for hospitals, a substantial increase over the amount received at the corresponding date last year.

INCREASED QUARANTINE APPROPRIATION.—In his annual report, just submitted to the legislature, Dr. O'Connell, Health Officer of the Port of New York, asks for an increase of $1,877,780 in the appropriation for quarantine this year. This is designed to embrace a virtual renewal of the plants on Hoffman and Swinburne Islands, which are stated to be antiquated and inadequate, and an increase in the working staff at Quarantine, including a chief medical officer, at a salary of $5,000; a first assistant bacteriologist, at $2,500; and a second assistant bacteriologist, at $1,500. Dr. O'Connell points out that more than 58½% of all the imports, 37¼% of the exports, and 71¼% of the immigrants to this country pass through the port of New York, and adds that, with the opening of the Panama Canal, not only will the commerce of the port be materially increased, but New York will be brought into much closer contact with ports in the Orient and South America, which periodically are plague spots and reservoirs of communicable disease. The prosperity of the whole State, he contends, would be radically affected by any serious damage done to the commerce of its principal city.

PUBLIC HEALTH MEETINGS.—An interesting feature of the recent Conference of the Health Officers of the State of New York, which was held this year in Syracuse, was a series of public meetings, throughout the week, under the joint auspices of the State Health Department and the local Bureau of Health. On Monday the meeting was for wage-earners, with addresses by Commissioner Williams, State Department of Labor, and P. E. Illman, Secretary of Syracuse Associated Charities; Tuesday, for women, with addresses by Prof. C. W. Hargitt, on "Heredity and Eugenics," and Dr. E. H. Muncie, on "Girlhood, Wifehood, Motherhood"; Wednesday, general meeting, with addresses by Dr. A. W. Freeman, assistant commissioner of health, state of Virginia, on "The Interest of the Public in Public Health," and Dr. W. S. Magill, director of State laboratories, on "The Importance of the Public Care of Food Supplies"; Thursday, for women, with an address, illustrated by stereopticon, by Dr. H. L. K. Shaw, consulting pediatrician to the State Department of Health, on "Saving Babies"; Friday, for men, physicians and students at Syracuse University Medical School, with an illustrated lecture on "The Value of Vital Statistics"; for men, with an address by Dr. M. Cole, director of division of publicity and education, State Department of Health, on "Manhood and Virility." Throughout the week the State hygiene exhibit was displayed in the assembly hall of the municipal building, and twice daily motion pictures illustrating various phases of public health activity were shown. In addition, talks on "Personal Hygiene" and "Carriers of Disease" were given in the public schools on three afternoons of the week.

POPULAR MEDICAL LECTURES.—Through the courtesy of the Board of Education, a series of popular medical lectures is being given weekly (January to March, inclusive) at the Morris High School, under the auspices of the Medical Society of the Borough of the Bronx. The general subject on Jan. 14 was "The Prevention of Disease," when Dr. F. W. Loughran gave an

ustrated lecture on "Insects as Carriers of isease," and Dr. Thomas Darlington, the for-er president of the Health Department, spoke ı "The Prevention of Contagious Diseases"; ıd there was an attendance of over 600. On ın. 21 Dr. Abraham Jacobi spoke on "The aby's First Week," and Dr. G. R. Pisek on The Care of the Baby."

MEDICAL BEQUESTS.—Under the will of the late iss Greer of New York $110,000 is left to char-ıble and scientific institutions upon the termi-ıtion of certain trust funds. Of this amount e Mount Sinai Hospital is to receive $10,000 ıd the New York and Roosevelt Hospitals ,000 each.

Current Literature.

NEW YORK MEDICAL JOURNAL.

JANUARY 11, 1913.

. KOPLIK, H. *Spasm of the Pylorus and Congenital Pyloric Stenosis.*
. ROSENBERGER, R. C., AND TERRELL, T. C. *Amebiasis and the Results of Tests for the Determination of Occult Blood in the Feces.*
. KNAPP, W. I. *The Newer Teachings of the Diseases of the Alimentary Canal.*
. MCCASKEY, G. W. *Pernicious Anemia.*
. WOODRUFF, J. B. *Crotalin in the Treatment of Epilepsy and Nerve Disorders.*
. MACY, M. S. *Instruction in Child Hygiene.*
. SCHAEFFER, S. *Tuberculous Meningitis.*
. VON OEFELE, F. *Vanadium Selenium in Cancer.*
. *PRENDERGAST, J. F. *The Auscultatory Method of Blood-Pressure Readings.*
. MALLORY, F. B. *The Infectious Lesions of Blood Vessels.*

9. Prendergast points out that the factor which s caused the greatest discussion in blood-pressure easurement has always been the taking of the dias-lic pressure. To overcome this difficulty the writer vises the use of the auscultatory method, and he scribes the auscultoscope, an instrument which he s devised for this purpose. This instrument is sentially a Bowles stethoscope with the bell fitted to an arm band. The band is applied below the ff of the sphygmomanometer and with the dia-ragm directly over the brachial artery as it divides. ıe auscultoscope takes the place of the finger on the cial pulse. The first sound heard is the systolic essure, a clear thump or tap called the first phase. ıen follows a murmur (second phase), then a clear und (third phase), becoming dull (fourth phase), d then follows disappearance of all sound (fifth ase), which is the time to take the reading for the astolic pressure. [L. D. C.]

HE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

JANUARY 18, 1913.

. CHENEY, W. F. *The Diagnosis of Gall-Stone Lodged in the Common Duct.*
. SKILLERN, P. G., JR. *Anomalous Internal Carotid Artery and Its Clinical Significance in Operations on Tonsils.*
3. BOWES, L. M. *Persistent Hyaloid Artery.*
4. PRINCE, E. M. *Reports of Uterine Malformations.*
5. BARTLETT, C. J. *Family Pernicious Anemia. With Report of Cases.*
6. MARSHALL, G. M. *Correction of Nasal Deformities, Particularly External Lateral Deflections and Depressions With Obstructing Deviations of the Septum.*
7. PEDERSEN, V. C. *A Light-Carrier with Lens and a Rheostat for Urethroscopy.*
8. CURRIE, D. H., AND MCKEON, F. H. *History of a Typhoid Carrier.*
9. THOMAS, G. J. *An Apparatus for the Injection and Lavage of the Pelves of the Kidneys and the Ureters.*
10. *THOMAS, B. A. *The Results of Two Hundred Chromoureteroscopies Employing Indigocarmin as a Functional Kidney Test.*
11. *KROTOSYZNER, M., AND HARTMAN, G. W. *Practical Value of Blood-Cyroscopy for the Determination of Renal Function.*
12.* GERAGHTY, J. T. *A Study of the Accuracy of the Phenolsulphonephthalein Test for Renal Function.*
13. PUBLIC HEALTH, HOSPITAL AND BUDGET COMMITTEE OF THE NEW YORK ACADEMY OF MEDICINE. *Quarantine in the Maritime Cities of the United States.*
14. FLEXNER, S., CLARK, P, F., AND FRASER, F. R. *Epidemic Poliomyelitis. Fourteenth Note: Passive Human Carriage of the Virus of Poliomyelitis.*
15. LEWIS, P. A. *Double Infection with the Human and Bovine Types of Bacillus Tuberculosis.*

10. Thomas believes that chromo-ureteroscopy, based on the employment of indigocarmin, is the most valuable single test for renal sufficiency or insufficiency that we possess, because it is the most practical, affording the same diagnostic advantages as the functional tests dependent on bilateral synchronous ureteral catheterization, the technic and determination of which are tedious, complicated and consume much more time. Comparative observations of the onset and intensity of the color elimination have never failed to determine the functional sufficiency of the supposedly normal twin organ in view of operative intervention. It is of no value in movable kidney, in the presence of ureteral kink or hydronephrosis, pyelitis, essential hematuria, or early tuberculosis. It is of value in the differential diagnosis of hemorrhage and chronic interstitial nephritis from other types of the disease.

11. In the hands of a critical observer, cryoscopy of blood is a valuable test for the estimation of absolute or total renal function, especially when estimation of relative function through ureteral catheterization is not feasible.

12. Geraghty states that the phthalein test has now been employed in over 200 cases of nephritis of varying types, approximately 350 cases of urinary obstruction, mostly prostatic cases, in 150 cases of unilateral or bilateral disease in conjunction with ureteral catheterization, besides being used in over 1000 other cases as part of a routine examination. This added experience confirms entirely the earlier conclusions regarding the reliability and accuracy of the test. [E. H. R.]

THE AMERICAN JOURNAL OF THE MEDICAL SCIENCES.

DECEMBER, 1912.

1. GIBBON, J. H. *Partial Gastrectomy in a Case of Multiple Carcinoma of the Stomach.*
2. *RUDOLF, R. D., AND COLE, C. E. C. *The Effects of Medicinal Doses of Aconite Upon the Pulse Rate.*
3. *HARTZELL, M. B. *Lupus Erythematosus and Raynaud's Disease.*

4. *ELSBERG, C. A. *Some Features of the Gross Anatomy of the Spinal Cord and Nerve Roots, and Their Bearing on the Symptomatology and Surgical Treatment of Spinal Disease.*
5. *BOGGS, T. R., AND GUTHRIE, C. G. *Bence-Jones' Proteinuria: A Report of Four Cases, with Some Chemical and Biological Notes.*
6. *SCHWARTZ, H. J., AND MCNEIL, A. *Further Experiences with the Complement-Fixation Test in the Diagnosis of Gonococcus Infections of the Genitourinary Tract.*
7. *MORGAN, W. G. *Indicanuria.*
8. MCCARTHY, D. J., AND KARSNER, H. T. *Adenocarcinoma of the Thyroid, with Metastasis to the Cervical Glands and Pituitary: A Contribution to the Pathology of Abnormal Fat Formation.*
9. NEWMARK, L. *Softening of the Spinal Cord in a Syphilitic After an Injection of Salvarsan.*
10. *STEIN, R. *Banti's Disease and Allied Conditions.*
11. WILLIAMS, T. A. *Cases of Juvenile Psychasthenia: To Illustrate Successful Treatment.*
12. CRUCE, J. M. *The Incidence of Purpura in the Course of Pulmonary Tuberculosis.*

2. Rudolf and Cole have tested the action of preparations of aconite to determine their action in clinical cases. Difficulty was encountered in obtaining preparations that were not entirely inert, and even active preparations deteriorated markedly in the course of three months. Even with solutions of aconitine toxic to animals no constant effects were obtained from medicinal doses corresponding to those given for the B. P. tincture, from which fact it is concluded that the use of the drug in such doses is based on fallacy. Its use in massive doses is not here considered.

3. Hartzell reports 13 cases of lupus erythematosus also presenting symptoms of Raynaud's disease, supporting the view that the two conditions are due to a common cause.

4. Elsberg's article on the surgical anatomy of the spinal cord and nerve roots, while it does not lend itself readily to abstract, deserves the close attention of surgeons operating on the lower portions of the cord.

5. Boggs and Guthrie report careful studies of Bence-Jones' proteinuria in four cases, three of multiple myeloma and one of metastatic carcinoma. Except in the last case, the recognition of the Bence-Jones' body in the urine antedated any suspicion of the nature of the malady, the palpable bone tumors appearing only at a later time.

6. Schwartz and McNeil publish findings with the complement fixation test in gonococcus infections to supplement those contained in a previous article. They conclude that a positive reaction denotes the presence or recent activity in the body of a focus of living gonococci, and that a negative reaction is of considerable value as negative evidence. The reaction is of especial service in women on account of the difficulty of bacteriological diagnosis.

7. Morgan discusses a series of 148 cases showing indicanuria, among whom vertigo, headache, languor, drowsiness, depression, inability to concentrate the mind, restless sleep, easy fatigue, etc., as well as flatulence and fetid breath were prevalent. He lays stress upon the observation that mental strain seemed to him to be a factor in the etiology of the indicanuria, which readily disappeared when a vacation had effected a restoration of nerve tone without other treatment. A diet with reduced protein and irrigation of the colon are recommended.

10. Stein's article is an excellent discussion of a subject upon which there has been much dispute among authorities and much uncertainty of understanding among clinicians and pathologists. The condition, according to Banti, is a primary splenomegaly characterized histologically by hyperplasia both of the reticulum and of the lymphoid stroma, accompanied by (1) anemia, (2) cirrhosis of the liver, identical with Laenec's interlobular fibrous form, alway secondary to the splenomegaly, (3) ascites, (4) pr gressive hyposthenia, (5) not infrequently hemo rhages from the alimentary tract, sometimes feve The first stage is marked by splenomegaly and an mia alone, the second by the appearance of enlarg ment of the liver, and the third by ascites. Ban recommends removal of the spleen in the first or se ond stages as curative of an otherwise hopeless co dition. Stein accepts the disease as a definite clinic and pathological entity, opposing the view of Nauny that it is merely a cirrhosis of the liver with ear splenic enlargement, the theory that it is due thrombophlebitis of the portal and splenic veins, th possibility of its relation to cases of late congenit syphilis, with similar manifestations, and its identit with other forms of primary splenomegaly. He re ommends that cases clinically suggesting Banti's di ease be tested by the Wassermann reaction with provocative salvarsan injection, followed in positiv cases by antiluetic treatment. Splenectomy ha yielded excellent results, and in late cases might b combined with the Talma operation. [F. W. P

THE ARCHIVES OF INTERNAL MEDICINE.

DECEMBER, 1912.

1. *SMITHIES, F. *The Glycyltryptophan (Peptid Splitting Agent in Human Saliva.*
2. *CONNER, L. A. *A Contribution to the Symptom tology of Thrombophlebitis in Typhoid.*
3. *JACQUE, J. Q., AND WOODGATT, R. T. *The Pept lytic Power of Gastric Juice and Saliva, wit Special Reference to the Diagnosis.*
4. HESS, A. F. *The Relation of the Virulence of th Tubercle Bacillus to Its Persistence in the Ci culation.*
5. GOODRIDGE, F. G., AND FOSTER, N. B. *The Relatio of Uricolysis to Suboxidation.*
6. CUNNINGHAM, R. L. *The Scaphoid Scapula; Normal Variation in Man.*
7. LUCAS, W. S. *Erythemia, or Polycythemia, wit Chronic Cyanosis and Splenomegaly.*
8. COLE, H. N. *Verruca Peruviana and Its Compar tive Study in Man and the Ape.*

1. Smithies reports on clinical experiments mad by him in an effort to determine the existence of th peptid-splitting agent in saliva, the nature of th agent and the conditions under which it might b evidenced. He finds that reaction has little bearin on the power of saliva to split glycyltryptophan. Fre tryptophan is occasionally met with in saliva fro dirty or infected oral cavities. Conditions of healt seem to affect the reaction of saliva with some infl ence on the peptid hydrolyzing power. Power t hydrolyze glycyltryptophan is lost if saliva is heate above 75° C.; the optimum temperature for cleavag is about 37° C. The indefinite nature of any enzym renders its actual demonstration difficult. While th agent in saliva causing cleavage of glycyltryptopha has certain characteristics of an enzyme, the actio of normal or pathologic oral micro-organisms products of their growth is probably a considerab factor in such cleavage power.

2. Conner attempts to show that many of the ob secure late interruptions of the normal course of ty phoid fever—such as discomfort and stiffness in th limbs, tender toes, repeated chills, pulmonary an pleural symptoms—have a common underlying caus and that this cause is thrombophlebitis. This com plication of typhoid is more frequent than generall supposed, occurring in 10% to 15% of all cases. Ofte its course is latent for many days and the thrombot process is apt to be much more extensive and mor widely disseminated than the local symptoms woul suggest. Most of the pulmonary and pleural compl cations are due to embolism of branches of the pu monary artery, which in turn is due to a complicatin

nous thrombosis. The obscure, late, recurring ills are regularly associated with venous thrombosis and some of the chills are certainly related to e lodgment of pulmonary emboli. "Tender toes" ıy be due to irritation of the plantar nerves from riphlebitic inflammation in the sole of the foot or out the heel.

3. Jacque and Woodgatt made a clinical study of e peptolytic power of gastric juice and saliva, with ecial reference to the diagnosis of cancer. They d that saliva free from bacteria does not split cyltryptophan and normal gastric juice free from od, bile and bacteria has no peptolytic power. Pepytic action exhibited by saliva is usually due to filterable agents (bacteria). In 88% of developed ses, carcinomatous stomach contents show a pepytic power two to ten times the maximum seen in nign conditions. This is due only in part to bacria, and the detection or measurement of peptolytic wer in gastric juice is of considerable value in the agnosis of cancer. In testing for this it is imporıt to eliminate bacteria by passing the gastric juice rough an effective filter, with subsequent aseptic ecautions. [L. D. C.]

SURGERY, GYNECOLOGY AND OBSTETRICS.

JANUARY, 1913.

*PLUMMER, S. C. *Dystopic Kidney.*
DOEDERLEIN, T. O., AND HERZOG, M. *A New Type of Ectopic Gestation: Pregnancy in an Adenomyoma Uteri.*
MONTGOMERY, E. E. *Hernia Through the Pelvic Outlet.*
BARRETT, C. W. *Ovarian Tumors Complicating Pregnancy, Delivery and the Puerperium.*
KRETSCHMER, H. L. *Unilateral Kidney Hemorrhage, with Reference to So-Called Essential Hematuria.*
MCGUIRE, E. R. *Successful Removal of Over Eleven Feet of Small Intestine.*
MURLIN, J. R. *Some Observations on the Protein Metabolism of Normal Pregnancy and the Normal Puerperium.*
*BERRY, J. M. *The Classification of Arthritis.*
JONES, W. C. *Etiology, Pathology and Treatment of Ovarian Cysts in Relation to Child-Bearing, with Special Reference to Hemorrhage into the Cysts.*
WELLINGTON, J. R. *Meckel's Diverticulum; with Report of Four Cases.*
KEYES, E. L. *A Case of Carcinoma of the Bladder Controlled by the High Frequency Current.*
FORBES, A. M. *Clawfoot, and How to Relieve it.*
GALLOWAY, H. P. H. *Observations on Tendon Transplantation Operations.*
TAUSSIG, F. J. *The Technic of Tubal Sterilization.*
HERTZLER, A. E. *Immediate Closure in Perineal Prostatectomy.*
MASON, J. M., AND MASON, E. M. *A Tuberculous Cyst, Probably of Pancreatic Origin.*
BARTLETT, W. *A Self-Inverting Suture for the Appendix Stump.*
ADAIR, F. L. *An Umbilical Cord Clamp.*

1. Plummer describes dystopic kidney as a conıitally misplaced kidney which has never reached normal position. This is entirely different from ɔvable or floating kidney, an acquired condition. e two conditions differ in anatomy, clinical manitations and in indications for treatment. Dystopia ɔurs once in a thousand autopsies. According to ll, the vascular supply is abnormal in these kidys, because the kidney is abnormal, the supply apting itself to the location of the kidney, and nce being not the cause but the effect of renal dysɔia. The size is generally normal. The kidney ɔen rests on the sacral promontory. Two or more arteries or veins are generally present, but all sorts of anomalies may be found. In contradistinction to the movable kidney, the congenitally misplaced organ is more commonly the left. The adrenals do not accompany it in its distopic location. Accompanying abnormalities of the genitals are common. The symptoms are those of a misplaced viscus with pressure predominating. No operative interference is indicated unless the symptoms are very severe. Reimplantation is the best procedure when possible. Nephrectomy is indicated only when it is absolutely certain that the other kidney is normal.

4. Barrett is convinced that in ovarian tumors complicating pregnancy, induced abortion, with its 100% fatal mortality is unjustifiable, in that it offers no corresponding improvement in the condition of the mother. Early removal of the tumor, as soon as possible after its discovery, gives a high percentage of good results in both mother and child. Tapping or puncture of the tumor has a high mortality and should not be done unless the operator is prepared immediately to follow it by abdominal section.

5. Kretschmer believes that unilateral renal hematuria does not always mean unilateral disease, as only one side may be bleeding at the time of the examination. Absence of albumin in casts does not exclude the presence of nephritic changes. Cystoscopy and ureteral catheterization must be employed in every case to determine definitely the renal origin of the blood. Cultures from each kidney should be taken to exclude any infectious cause.

8. Berry shows how confusing previous classifications of the arthritides have been, and proposes a simplified classification based entirely on etiologic and anatomic standpoints, as follows: I. Traumatic: (a) traumatic arthritis, (b) traumatic osteoarthritis. This to include simple synovitis and villous arthritis, bony spurs, Heberden's nodes and proliferative conditions. II. Infections: (a) infectious arthritis, (b) infectious osteoarthritis. III. Trophic: (a) trophic arthritis, (b) trophic osteoarthritis. This to include Charcot-joint, gout, syringomyelia, etc. He bases his arguments on the work of Nichols and Richardson and of Jones and Goldthwait. [E. H. R.]

Obituary.

CHARLES STURTEVANT, M.D.

DR. CHARLES STURTEVANT, who died on January 19th in Hyde Park, Mass., was born at Wrentham, Mass., on July 23, 1839. He received the degree of M.D. from the Harvard Medical School in 1862, and immediately became a Fellow of The Massachusetts Medical Society. On Sept. 5, 1863, he enlisted in the United States Navy, and was commissioned an assistant surgeon. Throughout the remainder of the Civil War he served in this capacity successively aboard the ships *Calypso, Tacoma, Britannia,* and *Lillian,* taking part in the blockade at Appalachicola, Tampa Bay, Cedar Keys, and Charlotte Harbor, Florida. While attached to the Gulf blockading squadron, he also participated in the battle of Fort Fisher. He resigned his commission on Jan. 18, 1866. In 1870 he settled at Hyde Park, and in the same year was made coroner for that town and for Milton, Mass. He resigned from the Massachusetts Medical Society in 1875, and became a member of the Massachusetts Homeopathic Medical So-

ciety and of the Boston District Medical Society. He was also a founder and the first president of the Hyde Park Medical Club. Since 1877 he had been medical examiner of Norfolk County He is survived by two daughters.

Miscellany.

THE SELF-SUPPORT OF TUBERCULATES.

In an article in a recent issue of the *Survey*. Dr. Richard C. Cabot describes the value of work in the treatment of tuberculosis, especially as exemplified at the Arequipa Sanatorium in California, where by farming and the manufacture of pottery patients are able not only to pay for their care, but even sometimes to contribute to the support of their families or lay up funds for their own future.

"A sanatorium where patients can earn the cost of their maintenance, where they can sit at ease out of doors all the year round in one of the loveliest spots of beautiful California and make pottery so finished and exquisite that the demand for it exceeds the supply—that is what Dr. Philip King Brown has established at Arequipa, an hour by rail from San Francisco, near the little town of Fairfax, in Marin County.

"Patients do some work at other sanatoria. They work at Frimley in England, for instance, and at Endawood near Baltimore, but there they work for their health and earn nothing. They work at the Oakes' Home in Denver, at Rutland, Mass., and at Trudeau in the Adirondacks, but what they earn in these hospitals does not pay their bills.

"What is done at Arequipa is done, so far as I know, nowhere else in the world.

"The great curse of tuberculosis to all but the rich (in whom it is relatively rare) is not the physical suffering it entails, but the serious expense of so long and wearing an illness stretching over months and years and the ravage which long idleness makes in the patient's character. Despondency pulls down some patients as seriously as the disease itself. Restlessness drives others into every sort of vice and folly which sanatoria endeavor in many ways to conceal and control. To conquer these evils through work, and still more through the encouragement given patients by the money which they earn, is Dr. Brown's great achievement."

BABYLONIAN MYTHICAL ETIOLOGY OF TOOTHACHE.

A recent item in the Philadelphia *Ledger* publishes a translation from a Babylonian cuneiform hieroglyph, deciphered by Dr. F. C. Eiselen of Chicago, giving the following mythical explanation of the cause of toothache:

"Anu had created the heavens, the heavens created the earth, the earth created the rivers, the rivers created the canals, the canals created the marshes, the marshes created the worm. Then came the worm to weep before Shash. Before Ena came her tears.

"'What wilt thout give me for my food; what wilt thou give me to destroy?' and the answer is: 'I will give thee dried bones and scented wood.'

"'What are these dry bones to me, and scented wood? Let me drink among the teeth, and set me on the gum that I may devour the blood of the teeth and of the their gums destroy their strength.'"

The worm, to whom the origin of evil has been ascribed in all ages, may perhaps be accepted as a prophetic allegorical symbol of the bacillus which causes dental caries.

ANCIENT FRENCH FOOD LAWS.

The following edict, relative to the punishment of purveyors of impure food products, is reported to have been discovered by a Parisian antiquary in the archives of Puy-de-Dome.

"Whosoever shall have sold watered milk, in his mouth shall be set a tube, and into the said tube shall be poured the watered milk till the doctor or barber there present shall assert that the culprit cannot swallow more without being put in danger of his days. Whosoever shall have sold butter containing turnips, stones, or any other foreign substance shall be seized and attached in very curious manner to our pillory of Pontet.

"Then the said butter shall be placed on his head till the sun shall have melted it completely, and in the meantime the children and the meaner folk of the village shall insult him with such outrageous epithets as shall please them—subject to the respect of God and his majesty. Whosoever shall have sold evil or rotten eggs shall be seized by the body and exposed in our pillory of Pontet. The bad eggs shall be given to the children of the villages who shall by way of joyful diversion, throw them in the face of the culprit, so that all may be full of merriment and laughter."

Evidently pure food laws are not solely a product of this day and generation, though the mode of their administration has been somewhat modified with the lapse of time. Apparently such laws were needed also in England, for a British writer of the eighteenth century speaks as follows of food in London in his time:

"The bread I eat in London is a deleterious paste, mixed up with chalk, alum and bone ashes, insiped to the taste and destructive to the constitution. As to the greens, the Londoners are so mad as to boil them with brass half-pence in order to improve their color, and without this improvement in color they have no persona merit.

'Of fish I need say nothing in this hot ather, but that it comes 60, 70, four-score, and miles by land carriage, a circumstance suf- ent, without any comment, to turn a Dutch- n's stomach. This is not the season for oys- s, nevertheless, it may not be amiss to men- n that the right Colchester are kept in slime s, occasionally overflowed by the sea, and t the green color, so much admired by the uptuaries of this metropolis, is occasioned by vitriolic scum which rises on the surface of stagnant and stinking water.

'The milk itself should not pass unanalyzed, produce of faded cabbage leaves and sour ff, lowered with hot water, frothed with ised snails, carried through the streets in n pails, exposed to overflowings from mud ts, spatterings from coach wheels. . . .

'There is also the tallowy rancid mass called ter manufacured with candle-grease and kit- n-stuff; and their fresh eggs imported from ance and Scotland.

'If I would drink water, I must quaff the wkish contents of an open aqueduct, exposed all manner of defilement, or swallow that ich comes from the River Thames, impreg- ed with all the filth of London and West- ster, such as the drugs, minerals and poi- s used in mechanics and manufactures, en- ed with the putrifying carcasses of beasts l men.''

E MONTENEGRINS AND MEDICINE.

Reports from the field of the Balkan war e given evidence from time to time of the at physical vigor, hardihood and courage of Montenegrins. They are a sturdy pastoral ple who have to a large extent retained a mitive simplicity in their manner of life. ough perhaps not to be commended from a ilized point of view, their customs seem to e developed a race of superb development l endurance. Particularly characteristic is ir attitude towards medicine. As recently 1889, after visiting Montenegro, Hulme Bra- n wrote of the people:

'They take very little care of their children l only the sound and the strong grow up. after-life, too, they are extremely averse to itary precautions or medical treatment, and ick Montenegrin is almost synonymous with lead man. At least he at once gives himself and if he recovers looks upon it as a curious ak in nature's laws. . . . The few who re- tantly submit to surgery invariably refuse esthetics and converse with their friends, oking a cigarette while the surgeon is at rk.''

Correspondence.

EARLY ATTEMPTS AT TRANSFUSION.

Mr. Editor: Dr. Coues, in a recent issue of the Journal* brought to our attention what a French physician, Dr. Noir, considers an early attempt at transfusion of blood, antedating by two centuries the accepted period in which this procedure was first instituted as a method of cure.

This would be interesting if true, but it is most probably not true.

Dr. Noir got his supposed facts from reading a brilliant but flippant article by Emile Gebhardt, entitled "Moines et Papes." Gebhardt says that he in turn got his facts from Infessura—a chronicler of the times. I have looked up what Infessura really said about the matter. Infessura represents the Jewish physician as claiming that he wished to cure the dying Pope Innocent VIII by means of some young, human blood, but how this was to be used he failed to say. Infessura's words are as follows:

"Nam primo tres pueri decem annorum, e venis quorum Judaeus quidam medicus qui papam sanum reddi promiserat sanguinem extraxit, incontinenti mortui sunt. Dixerat nanique Judaeus illis se velle sanare pontificem, dummodo habere possit certam quantitatem sanguinis humani et quidem juvenis; quem propterea extrahi jussit a tribus pueris, quibus post flebetomiam unum ducatum quolibet donavit; et paulo post mertui sunt. Judaeus quidem aufugit, et papa sanatus non est."

Gregorovius in his "History of Rome," calls this story "a horrible fiction." Pastor in his "History of the Popes" says:

"If this account were true it would establish the fact that the Jews were in the habit of using human blood in medicine; but in the unprinted detailed despatches of the Mantuan agents I can find no mention of anything of the sort, nor yet in Valeri's reports. As these narrators minutely retail every drop of medicine that the Pope took, it is impossible that they should have omitted to mention a remedy so startling as this."

In looking up this matter, I find that Infessura had some personal grievance against this pope, and wrote some very caustic epigrams at his expense, and this fact ought not to be forgotten in weighing the value of his statements.

However, the meat of the matter is this,—that Infessura's story says nothing about transfusion, and the case might just as readily serve for an example of our modern vaccine therapy occurring four hundred years ago. Gregorovius, a Protestant, and a historian of the modern school, was probably right in setting down the whole story as a "horrible fiction."

Yours truly,

J. J. Mangan, M.D.

Lynn, Mass., Jan. 14, 1913.

* Vol. clxvii, No. 26. Dec. 26, 1912, p. 942.

TWO VALUABLE PAMPHLETS OF THE BOSTON ASSOCIATION FOR THE RELIEF AND CONTROL OF TUBERCULOSIS.

Boston, Jan. 9, 1913.

Mr. Editor: I wish to call your attention to the useful piece of educational work which has just been started by the Massachusetts State Board of Health.

Legally every case of tuberculosis in the State is required to be reported to the State Board of Health, and upon receipt of this information the State Board of Health sends to each tuberculous patient a copy of each of two pamphlets, "The Control of Tuberculosis" and "Directions for Living and Sleeping in the Open Air."

As the State Board of Health receives about 7000

reports of such cases, it can readily be seen that this is a very important piece of educational work. These two pamphlets have been very carefully prepared. The one on "The Control of Tuberculosis" by the Massachusetts State Board of Health, after a diligent study of all available literature on the subject, and "Directions for Living and Sleeping in the Open Air," a standard pamphlet prepared by the National Association for the Study and Prevention of Tuberculosis, and distributed throughout the United States. These two pamphlets are very simple and are not only useful to tuberculous patients, but to others who really desire to take steps to prevent themselves and their families from contracting the disease.

It seems to me this information should be given to the public as these pamphlets are available for distribution.

Yours very truly,

S. H. STONE, *Secretary.*

APPOINTMENT.

DR. HORACE PAINE STEVENS, of Cambridge, Mass., was appointed visiting surgeon to the Cambridge Hospital, on Jan. 15, 1913.

SOCIETY NOTICE.

MASSACHUSETTS MEDICO-LEGAL SOCIETY.—The spring meeting will be held in Sprague Hall, Medical Library, Boston, on Wednesday, February 5, 1913, at 2 o'clock.

The following papers will be read and discussed:

1. "The Casetti Fratricide," John C. Fraser, M.D., Medical Examiner, of East Weymouth.
2. "A Fourfold Murder Case," George W. Dow, M.D., Medical Examiner, of Lawrence.
3. "An Interesting Case," Timothy Leary, M.D., Medical Examiner, of Boston.

OLIVER H. HOWE, M.D., *Recording Secretary.*

Cohasset, January 27, 1913.

RECENT DEATHS.

DR. JOHN WINSLOW CHASE, who died on Jan. 18 in Dedham, Mass., was born at Epping, N. H., in 1840. Throughout the Civil War he served in the Union Army as a hospital steward, and in 1867 obtained the degree of M.D. from Maine Medical School. He immediately settled in Dedham, where he continued active in the practice of his profession until a short time before his death. He was for many years county physician of Norfolk County, town physician of Dedham, and a member of the local board of health. He was a Fellow of The Massachusetts Medical Society. He is survived by his widow and by two daughters.

DR. REUBEN F. DEARBORN, of Lynn, Mass., who died on Jan. 19, in London, Ont., was born at Andover, N. H., in 1850. He graduated from Dartmouth College in 1870, and in 1874 received the degree of M.D. from the College of Physicians and Surgeons of New York. He practised his profession successively in New York, Detroit, Boston, and since 1892 at Lynn. He is survived by one daughter and by one son.

DR. FRANK W. MEAD, of Washington, D. C., who died of pneumonia on Jan. 18 at Vineyard Haven, Mass., was born in 1838. He entered the government service in 1878, and was surgeon-in-charge of the United States Marine Hospital at Vineyard Haven.

DR. ERNEST PALMER, who died last week at Brooklyn, N. Y., was born in New York City in 1850. He received the degree of M.D. in 1879, from the New York College of Physicians and Surgeons. In 1894 he was appointed to the surgical staff of the Long Island College Hospital, a position which he retained until his death. He was also consulting surgeon to the King's County Hospital, to St. John's Hospital, and to the Jewish Hospital, of Brooklyn. He was a member of the King's County Medical Society, of the Brooklyn Pathological Society, and of the Associated Physicians of Long Island. He is survived by his widow and by one daughter.

DR. CLINTON STEVENSON, who died last week in New York City, was born in 1865. He was a graduate of the New York College of Physicians and Surgeons, and since 1902 had been a member of the staff of St. John's Hospital in Long Island City. He was surgeon major of the Eighth Coast Artillery, and a medical inspector in the New York department of health. He is survived by his widow, by one daughter, and by two sons.

DR. KERAN O'BRIEN of Brooklyn, N. Y., a graduate of the Long Island College Hospital in 1901, died on January 7. Dr. O'Brien was for a time physician on the school-ship Newport.

DR. ROBERT BRADLEY WELTON, who died in Brooklyn, N. Y., on Jan. 8, was born in 1843, and received the degree of M.D. from the Harvard Medical School in 1868. He had practised his profession in Brooklyn since 1874. He was a member of the American Medical Association, of the King's County Medical Society, and of the Brooklyn Medical Society. He is survived by his widow and by three sons.

BOOKS AND PAMPHLETS RECEIVED.

The Economic and Sociological Value to the State of Preventive Medicine by B. F. Rea, Jr., M.D. Reprint.

RECORD OF MORTALITY.

FOR THE WEEK ENDING SATURDAY, JAN. 18, 1913.

CITIES.	Reported deaths in each.	Deaths under five years.	CITIES.	Reported deaths in each.	Deaths under five years.
New York	—	—	Pittsfield	16	2
Chicago	—	—	Waltham	5	—
Philadelphia	—	—	Brookline	6	—
St. Louis	—	—	Chicopee	6	1
Baltimore	—	—	Gloucester	7	1
Cleveland	—	—	Medford	7	2
Buffalo	—	—	North Adams	8	3
Pittsburgh	—	—	Northampton	4	1
Cincinnati	—	—	Beverly	3	—
Milwaukee	—	—	Revere	4	1
Washington	—	—	Leominster	4	2
Providence	—	—	Attleboro	5	—
Boston	277	53	Westfield	8	3
Worcester	64	20	Peabody	—	—
Fall River	35	18	Melrose	9	1
Lowell	39	7	Woburn	4	1
Cambridge	26	4	Newburyport	5	1
New Bedford	40	19	Gardner	4	—
Lynn	18	4	Marlboro	4	—
Springfield	29	4	Clinton	2	—
Lawrence	—	—	Milford	—	—
Somerville	19	3	Adams	2	1
Holyoke	24	7	Framingham	—	—
Brockton	12	—	Weymouth	—	—
Malden	10	2	Watertown	2	1
Haverhill	9	1	Southbridge	2	—
Salem	8	1	Plymouth	—	—
Newton	15	—	Webster	3	—
Fitchburg	12	3	Methuen	—	—
Taunton	15	4	Wakefield	—	—
Everett	7	3	Arlington	1	—
Quincy	—	—	Greenfield	3	—
Chelsea	19	2	Winthrop	1	—

Address.

ON SOME FUNCTIONS OF THE FREE DISPENSARY.*

BY W. S. THAYER, M.D., HON. F.R.C.P.I., BALTIMORE, MD.

TWENTY-EIGHT years ago, I came for the first ime to this city—a rather thoughtless, aimless oy—to study with one who is well known to ost of you here today. After a year under the uidance of this man, I left, a serious-minded outh with ideals and aspirations and ambitions nd enthusiasm.

Anything that I may have accomplished in ife, anything that I may accomplish in the years hat remain before me, I owe and I shall owe to ny dear old master whose wisdom, whose learn-ng, whose lively and youthful interest in all hat is beautiful and good, whose optimism, vhose charity above all, have been to me a last-ng and a guiding inspiration.

To return to the town so closely associated vith the memories of this period can but be to ne a happy event.

It is also good to visit this institution which as, in these years, developed in so creditable nd distinguished a manner.

There could be no surer evidence of the wis-lom which guides the University than the con-truction of a dispensary for out-patients of such character that advice and treatment of the in-alid may properly be combined with the study nd investigation of disease.

To one, who, for over twenty-five years has een more or less closely connected with work in ut-patient departments of large hospitals, it has ften seemed that the public at large, as well as nuch of the medical public, was strangely ig-norant of the possibilities of the free dispensary. This is due, in great part, to the existence of so nany ill-equipped and ill-managed institutions, —largely to the fact that even in the best-equipped dispensaries the authorities have failed o realize the true importance of the opportuni-ies and responsibilities which lie before them.

A few days ago I heard Richard Cabot say hat the out-patient department is the most im-portant part of a hospital. I agree with him nost sincerely. It is that part of a hospital vhich reaches, or should reach most directly, the general public,—in its function of giving advice nd offering care to the sick, as well as its larger unction of instructing in methods of life and prophylaxis against disease. It is the one part of a hospital in which students of medicine are able to study those disorders, physical and men-tal, with which they are most likely to meet in general practice.

It should be an institution so equipped and conducted as to be a central point to which the physician practicing among the poor should be able to resort for consultation and advice with regard to difficult and complicated cases, and it should be the especial care of such an institution to maintain cordial and intimate relations with the physicians in its neighborhood.

These, I take it, are some of the main functions of an out-patient department. Now such functions as these can only be maintained by a dispensary which is in close connection with a well equipped institution of learning. It must, in the first place, have a considerable staff of senior and junior physicians; of senior physicians of distinction and reliability who, if not regularly in attendance, should be there at stated intervals for purposes of consultation and advice; and of junior physicians who are active and well equipped men, many of whom may be practicing physicians. It should further have student assistants for the purpose of history taking and record keeping. It should be well equipped with modern laboratories, — bacteriological, chemical, physical, if one may say so, with apparatus for x-ray examinations, for recording cardiac action and respiration, and with other instruments of precision. It should, if possible, have, in addition, a department of physiotherapy in which massage, electrical and hydrotherapeutical treatments may be given.

Few dispensaries are equipped with all these departments, especially with these latter departments, but their desirability, none will, I think, deny.

Now to such dispensaries or to the numerous good dispensaries in this country which aim at if they do not reach so great a degree of perfection,—to these dispensaries, what manner of people come? To what sort of individual are these advantages offered? The answer is simple. People come to a dispensary who are ill and in trouble, to seek advice and treatment. These people are of various classes. In the first place, the very poor, who ought not to be expected to pay for the services of a physician,—people so poor that no physician would wish to take their money. This is a large class which often contains, temporarily, individuals who, from outward appearances, might seem to be relatively well-to-do. We are a rather improvident people, and there are many of us who live very close to our incomes. We ought not to do this, it is true, but we do, and when the unexpected trouble comes, the free dispensary, disagreeable though it be, is our one resort. The occasional use of dispensaries by such patients is far more frequent than is generally imagined, and the motives which induce these individuals to make use of a public charity are commonly most creditable. Many a man in trouble sends his family, or goes himself to the free dispensary, although it may be most distasteful to him, rather than seek the services of a busy physician for which he knows he cannot pay.

But is such service to be regarded as wholly free? Do these people pay nothing in return for

* Address read on the occasion of the laying of the cornerstone of the new Medical College Dispensary Building at the University of Syracuse, December 14, 1912.

the attention which they receive? In some ill-conducted out-patient departments where no records are kept, where few examinations are made, where the patient, after a few questions, is handed a prescription and passed on,—the service, such as it is, may truly be regarded as entirely free. Such dispensaries are not a benefit to the community in which they exist.

In the properly conducted out-patient department, however, the advice and treatment given is far from free; the patient pays for the services which the dispensary can give him by allowing himself to be used as the subject of lectures and demonstrations to students and physicians. This, one may say, is not much. No, it is not a great hardship. But in another sense it means a great deal. It is often, indeed, usually, *very time taking*, and there are very few of the poor and ignorant who do not prefer to avoid the waste of time and the lengthy examination by seeking the services of a private physician when they can afford it.

Secondly, there are individuals able and willing to pay a small fee, who yet feel that the physicians in the regions in which they live do not give them the time, the care or the attention that is given them in the dispensary. They believe that the services which they obtain at the dispensary are more valuable than those for which they can afford to pay, and they are willing to offer themselves as the subjects of study or demonstration or lecture, and to sacrifice the necessary time for certain advantages which they conceive the dispensary offers, advantages otherwise out of their reach.

Thirdly, to the better dispensaries, especially to those connected with hospitals or universities, where well equipped men are in attendance, or where men of real eminence are to be found on special days,—it is not uncommon for physicians who practice among poor people of moderate means to bring their patient for assistance in diagnosis.

During much of the time that Dr. Osler was in Baltimore, he gave, three times a week, what he called diagnostic clinics before third-year students. In a large room, in the middle of the dispensary, adjoining the examining rooms, he saw several patients each day, before the class. Often these patients presented examples of the ordinary minor ailments, but if any case of especial interest was met with by the physician in attendance, it was set aside for Dr. Osler's clinic. Moreover, not infrequently, physicians practising among people of moderate means brought to this clinic cases of an unusual character. These patients, by their willingness to offer themselves as subjects for demonstration, obtained the advantages of a consultation with Dr. Osler which otherwise would have been impossible.

The opportunity afforded by a dispensary of the proper sort for occasional consultations of this nature is most valuable to the public, to the physician, and to the dispensary itself.

It is impossible for the busy consultant to see the poor in any other way, the advantages, therefore, to these people are obvious. The conscientious practitioner among the poor, who meets in his practice, an unusual instance of disease is well aware that a consultation with a colleague in the same position as himself, for which the patient can afford to pay, the consultation which under ordinary circumstances is sufficient, will in such a case, be of no real benefit. That under such circumstances as these, it is possible to obtain the advice of men with special experience and special clinical advantages, is a great blessing. The dispensary is equally benefited by the opportunity to study unusual and exceptional examples of disease.

The information to be gained from a variety of physical, chemical, bacteriological and serological methods of investigation of disease has become of great importance in late years. The methods of examination are, however, so complicated, so time-taking, and demand apparatus so expensive that the ordinary practitioner cannot possibly carry them out himself. Private laboratories and special students are required to pursue this work. But the expense associated with such examinations places this assistance beyond the reach of a large proportion of the public. The establishment of well-equipped laboratories in our departments of public health is, it is true, offering to the practitioner more and more opportunity to obtain information which is now, in many ways, really necessary.

But there is information which even these laboratories cannot afford, information which can only be obtained for a certain proportion of patients, by resorting to private laboratories or to a thoroughly equipped institution of learning.

It is, it seems to me, eminently fitting that a dispensary such as this which you are founding today should be able to offer such assistance to practicing physicians in connection with interesting and puzzling examples of disease, in return for the opportunity of studying and demonstrating the case. This, I have long felt to be an important function of a dispensary, unrecognized by many.

The dangers that the advantages offered by such institutions will be abused by individuals who are capable of employing their own physicians, and that real injustice may be done to the practitioner who depends for support upon small fees, are very slight. Of the properly conducted dispensary there is exceedingly little abuse. Where each patient is studied, where thorough examinations are made, where time is taken, where instruction is given, the loss of time which the dispensary visit involves is so great that only those patients come who cannot afford to pay for the services of a physician, excepting always a few intelligent individuals who come because they feel that they cannot obtain equally good attention at home.

Some of these patients there always are,—patients who while they can pay the fees demanded

by the doctors in their neighborhoods, yet feel that the services which they obtain from these men are inferior in value to those which the dispensary offers.

Is this a dispensary abuse? I think not. It is undeniable that in many of our cities, the class of individuals who practice among the very poor is not such as to inspire confidence in the intelligent man. Why not say so openly and frankly? We all know it. But this not always so. In the poorer sections of the city there are often a certain number of active young men who must begin life, at least, in a simple manner. Now if these young men are really well fitted, if they are earnest students and are able to make examinations and employ diagnostic methods such as are employed in dispensaries, the public in their neighborhood finds it out with astonishing rapidity and is more than glad to pay for their advice and attention, and avoid the necessity of going to a dispensary.

And one of the great duties of the dispensary is in equipping just such men as these, in offering the bright young graduate the opportunity to gain experience and training in return for the services which he gives as an assistant.

All large dispensaries need a considerable corps of assistants—active, intelligent men—many of whom must be young practitioners, and if the poor young man at the outset of his practice remembers that it is his duty to the public as well as to himself to attempt to remain a student as well as a practitioner, if he eagerly seeks and takes advantage of the opportunities to assist or study in properly conducted out-patient departments, he will soon find, in the majority of instances, that there is little difficulty in building up a practice among the poor who recognize quickly the man who uses dispensary methods.

Some years ago, I was appointed chairman of a committee to inquire into the question of Dispensary Abuse in the City of Baltimore. In order to obtain some idea as to the feeling of the profession on the subject, a number of letters were sent to men practicing among what might be called the dispensary class in different parts of the city, a few to physicians associated directly with large dispensaries, and a few to non-medical men known for their general interest in the subject, asking what, in their opinion, constituted the main abuse of dispensaries. The answers were most interesting. Scarcely two men agreed in their opinion as to what the main dispensary abuses were. Many of the answers, —I should say, most,—dealt with practices entirely foreign to any well-conducted university dispensary. Upon consideration of all these communications, it seemed to me that the abuses associated with the dispensaries connected with the several honestly conducted institutions of learning, were so slight as hardly to be worth consideration.

In one of these letters, an eminent physician who has given a great deal of attention to social problems, a man who is in the habit of writing with considerable vigor, says: "My views on dispensary abuse have never been winnowed and tried out by careful investigation of the subject, but so far I think the chief dispensary abuses are:

(1) The abuse of patients by careless doctors and externes.

(2) The abuse of opportunities by careless doctors and externes.

That any great harm comes from the free treatment of the folk who can pay, I doubt. The physicians to whom they would otherwise go are usually 'N.G.', and from the point of view:

(1) Of health.
(2) Of character.
(3) Of instruction in hygiene.

I believe the patient gets more by coming to a free dispensary even when he can pay. I doubt if his character suffers in the process, and as for the loss of money to the doctors, I do not regret it. I think it more than made good, from the point of view of the public good, which is the only point of view that we can take by the physical, psychical and educational good done by the dispensary, even for rich patients. I do not believe you can surely weed out the rich, either, by any spotting process."

I agree largely with the opinions expressed by my friend and I am convinced that the blessings offered to all branches of a community by a well ordered dispensary are enormous, that the abuses to which it may be subject, are trivial, that there is really no reason to believe that a properly conducted out-patient department is anything but an assistance to the right-minded physician who is practicing among the poor.

In any dispensary, however, constant care and attention is needed as to the personnel of the staff and as to the character of the work done. Especially important is the establishment of a social service department. The physician in private practice or the consultant knows well that the patient who demands most attention and who requires most time is not he who suffers from a grave or fatal disease,—it is the individual with complaints often termed trivial which depend upon the manner and condition of his life and surroundings. By allowing such a patient to tell his story, in seeking out the indirect cause of his unhappiness, lies the only hope of alleviating his suffering. How difficult the discovery often is! How simple the remedy! What tragedies may result if the conditions remain unchanged! And the patients with these secret sorrows, with these so-called trivial complaints, come to the dispensary and not to the hospital.

It is impossible in many instances, for the physician alone to reach the root of the matter. This is, however, admirably done by an efficient social service department—with visitors to look into home conditions,—to acquire the confidence of the patient—to complement the work of the physician.

The combination of medical research and in-

struction with the care of the sick in a free dispensary is important from many standpoints. Its advantages for the student and physician are self evident. Its advantages for the patient are, however, not always understood by the public. They are, nevertheless, very great—as great in the out-patient department as in the wards of the hospital. The presence of students of medicine, undergraduates, or post-graduates, is the greatest stimulus to the careful investigation of the individual case, and to study and research in general. The student as an assistant in the wards and in the out-patient department of a hospital is absolutely invaluable. No hospital which closes its wards to students can ever hope to compete in the quality of its work or in the care given to the patients with institutions in which ward instruction is given. I have known and served in hospitals of both classes, and I know whereof I speak. The same is true to even a greater extent in out-patient departments.

There is one point, however, which has not sufficiently been emphasized, and that is the therapeutic value to the patient himself of medical instruction. I rarely make a ward visit with the students or give a public clinic without the consciousness that what I am saying to the class is of material value to many of the patients. It is almost invariably true that advice given in public and explained at the same time to the student has considerably more force than when it is given directly to the patient. The suspicious, nervous invalid rarely doubts the sincerity of advice given thus in the presence of others, and many a time I have seen the patient induced to the urgent operation only after hearing the *pros* and *cons* considerately discussed before the class.

Especially valuable, often, is the combination of instruction with treatment of patients effected with various nervous diseases. One of the most fascinating and inspiring clinics that I know is the out-patient consulting hour of Professor Dejerine at the Salpetrière in Paris. Dejerine here combines his questions and advice to the patient with explanations, confidences and digressions directed more particularly to his audience, in a manner so informal and so sympathetic that one feels immediately that the significance of his words to the patients is appreciably greater than if the advice were given in private. And it is interesting to see how true a bond of sympathy is formed between these sufferers and the earnest men in the audience, with whom, perhaps, not a word is exchanged. The patient is interested in the fact that others are interested in her case. She is cheered, not only by the helpful words of the doctor, but by the sympathetic glances of the onlookers, and she is reassured by the remarks and comments made to this audience, in a confidential and intimate manner, in the discussion of her case. No one can doubt that in such a clinic as this the combination of instruction with treatment is beneficial to all concerned.

The prime essentials for an efficient dispensary are that it be a part of, or intimately associated with, an institution of learning, and that it should possess a proper equipment for the study and treatment of disease. It is with peculiar satisfaction that I learn that one floor of this building, the cornerstone of which has been laid today, is to be devoted to laboratories. Twenty-five years ago, what laboratory work was necessary in a dispensary, could be done by the clinical assistants themselves. Today, the story is very different, and it is difficult to imagine a dispensary, not associated with an institution of learning, which could afford the necessary equipment or guarantee a staff of a character suitable to carry on the scientific work of the institution.

What a wonderful field of study it is—the study of disease, offering as it does today, problems which demand excursions into all of the natural sciences, problems which offer to the mind of the student the fascination and charm which are attached to any scientific investigation, quickened by the added consciousness of the ends in view, the relief of human suffering, the increase of human efficiency, the prolongation of human life, the betterment of man!

Every hospital which opens its doors to the student of medicine, every university which gives of its resources material and moral, for the establishment of institutions such as that of which today you are laying the cornerstone, is contributing to these great ends.

Of the specific value of a well equipped university dispensary to the public, to the student, to the physician, to the community, I have already spoken, and coming from an institution which stands sorely in need of a building just such as that which you are now erecting, I offer you, not without a touch of, may I say, friendly envy, my cordial congratulations.

Original Articles.

THE CLOSURE OF OBSTINATE PERINEAL FISTULAE FOLLOWING OPERATION FOR STRICTURE OF URETHRA. THE PREVENTION OF THESE FISTULAE.

BY HOWARD A. LOTHROP, A.M., M.D., BOSTON,

Assistant Professor of Surgery, Harvard Medical School; Visiting Surgeon, Boston City Hospital.

As a general rule, it is essential to discover and remove the cause in treating lesions of a surgical nature, and unless that is done the effort will fail. This is particularly true of cases of obstinate perineal fistulae secondary to lesions of the prostate gland and urethra. Except in the rare cases where tuberculosis and carcinoma are present, the persisting cause is a mechanical one. Like any fluid, urine will follow the course

least resistance. Therefore, if there exists a ethra with incomplete wall, accompanied by ore or less distal obstruction, one cannot ex- ect the urine to follow the natural channel. ence, many perineal wounds are either very ow to heal or may remain open indefinitely.

In trying to ascertain the causes of these ob- inate and troublesome fistulae, let us consider me of the types of lesions which are followed this complication.

Group 1. *Cases of Urinary Extravasation.* hese are generally the result of stricture. here is a varying degree of local infiltration, e parts become infected, and the less resistant ssues become necrotic. Meanwhile, the patient ay become very toxic and his condition critical nless incisions are made or openings in the in appear spontaneously. If resolution should llow, a fistula would result and persist indefi- tely, because the underlying cause (stricture) ill persists. If, however, such a case of ex- avasation were operated upon simply by free cisions and nothing further done to relieve the ricture, owing perhaps to the serious toxic ndition, there would be the same chance of a ronic fistula as though the opening were spon- neous.

It frequently happens in this class of cases, ving to the distortion of parts and the slough- g, that no guide can be passed into the bladder d that in the effort to find the urethra it is tensively injured and perhaps destroyed for me distance or a considerable portion of it detracked by the catheter, if passed through e penile urethra into the bladder. Finally, e catheter may have been inserted into the adder only through the perineum and pros- tic urethra. These circumstances tend to tablish obstinate perineal drainage.

In dealing with these cases of urinary ex- avasation, the first indication is the establish- ent of free drainage from the tissues, particu- rly if the condition is critical, but, ultimately, course, the stricture, must be incised. This ould be done at the first operation if the con- tion of the patient warrants, provided the peration is not too prolonged and the effort not tended with too great difficulty or unnecessary jury to the urethra. The bladder should be ained in these cases, as in all others, by a theter which includes the whole urethra, and e opening in the perineum should serve to ain only the adjacent tissues.

Group 2. *Fistulae after Prostatectomy by e Perineal Route.* After prostatectomy by e perineal route, chronic and sometimes per- anent fistulae are not uncommon. In view of e frequent extensive destruction of the mem- anous and prostatic urethra and the neglect keep open the remaining portion of the an- rior urethra, it is surprising that the urine ds its way into the penile urethra as well as it es. In some cases careful operators are able remove the gland without material injury to e urethra but, as a rule, it is considerably torn. Many resort solely to perineal drainage and occasionally insert considerable packing into the wound and neglect the distal portion of the urethra which, of course, remains collapsed. After these drains are removed, the greater portion of the urine will escape through the wound, but will decrease gradually as the wound tends to close and the distal opening in the urethra remains patent. If granulations tend to obstruct the latter they offer resistance, and a fistula may persist.

If, on the other hand, the operation be performed with care so as to cause a minimum of urethral injury, and a catheter for bladder drainage be placed so as to include the whole urethra, and a light gauze packing be left in the wound and removed as soon as hemorrhage is arrested, then the conditions are most favorable for early and permanent wound closure. The soft parts close around the catheter, where the urethra may be deficient, and the approximated surfaces become glued together by granulation tissue. In many cases the wound may be nearly closed with large, mass, silkworm gut sutures and, by means of seepage for 36 to 48 hours, all exudate and fluids be promptly removed and thereby absorption prevented. The patient may be propped up in bed during this period. If there is no contra-indication, the catheter should remain in place at least one week.

Group 3. *Fistulae Following Operation for Stricture.* This complication not infrequently follows external urethrotomy, depending upon various circumstances. If we have to deal with a passable stricture, it is possible to obtain relief by intra-urethral methods, such as gradual dilation or internal urethrotomy, irrespective of whether the stricture is situated in the penile or membranous urethra. Internal urethrotomy is the accepted method of treating penile strictures, but is generally condemned for deep strictures because of the danger of infecting the perineal tissues, and this complication has occasionally proved serious. As a rule, however, internal treatment of the urethra is not followed by urinary extravasation or sepsis, even when the crude and now discarded method of divulsion of deep strictures was used. The usual method of treating deep passable strictures which do not yield to gradual dilatation is by external urethrotomy, and this is the only way if no guide can be passed. The resulting injury to the urethra will depend upon the care of the operator and upon the presence or absence of a guide and upon the subsequent tearing in introducing the catheter for drainage. Most surgeons insert the catheter through the whole urethra, but the wound variation is considerable as to the extent of incision or laceration of the urethra and perineal tissues and the amount of subsequent packing or closure of these tissues. Some remove the catheter very early and some keep the wound open with repeated, extensive packing. If a guide has been passed, the only

object of a perineal incision is to guard against infection; hence, all that is required is a small incision in the perineum down to the urethra, performed after the stricture has been cut with the Maisonneuve instrument and sounds passed to the desired size; if an external urethrotomy is done without a guide the perineal wound can be all but closed, and thus allow ample drainage. Later the wound could be opened easily if indicated. Hence, freshly incised tissues are approximated and heal quickly when held in apposition with mass sutures of silkworm gut, which should not be removed for at least a week. The catheter should remain this length of time also and repeatedly when removed there is little or no escape of urine through the nearly healed perineal wound in uncomplicated cases. The importance of leaving a minimum opening for drainage in clean cases and the proper retention of the catheter are essential for rapid and permanent healing. This is further demonstrated by the fact that success in plastic operations for cure of hypospadias depends upon wound closure and catheter retention until healed. Their tendency to fistula formation is well known by those who operate upon these obstinate cases. Prevention of recurrence of stricture will depend upon the faithfulness of the patient in attending to subsequent passing of sounds for an indefinite period.

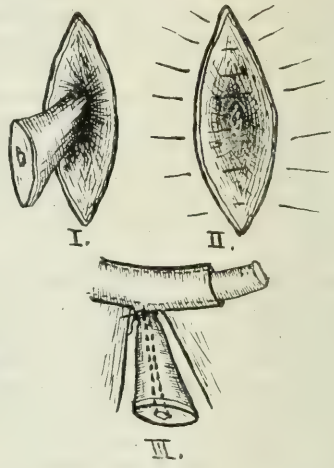
So much for factors which tend to produce perineal fistulae and for measures for prevention of the same.

Method of Relieving These Cases. As already mentioned, the fistula persists for mechanical reasons, the urine following the path of least resistance. If there is resistance to the stream anywhere in the urethra distal to the opening which leads to the perineum, the fistula will tend to persist and the granulations fail to close it. Hence, all distal strictures must be relieved by full sound dilatation. Sometimes the introduction of a catheter for permanent drainage of bladder for a couple of weeks may avail. If these simple measures fail, some sort of perineal operation must be resorted to. These fistulae have often been opened down to the urethra and curetted, caustics applied, and other means resorted to, only to be followed by failure.

Technic. Each case may present some special feature, but the following general technic has never failed of speedy relief in the hands of the writer.

The operation should be deferred until all acute signs have subsided and only the fistulous tract remains. A guide should be passed through the whole urethra into the bladder. If there is no tight stricture, a moderate sized, steel sound (French 24) should be selected so as to distend the urethra at the fistulous opening; otherwise, a small guide should be used. Any stricture in the penile urethra should next be divided with the Otis or Maisonneuve instrument. Any narrowing at or near the fistulous opening, which is usually in the membranous urethra, should next be divided internally and preferably with the Maisonneuve instrument. Then a steel sound, French 24, is passed and the patient put in the lithotomy position.

If no guide can be passed into the bladder, one should be introduced to the point of stricture, and the patient put in the above position. Next, the direction and length of the fistulous tract should be determined with a small probe. An oval incision is then made in the perineum around the opening of the fistula, leaving a margin of skin, one-third of an inch wide, around it. If needed, a little more room may be gained by making an incision in the antero-posterior direction at either end of the oval one, but this is not often the case. The next step is the careful dissection of the tract so as to excise it without opening it until the urethra is reached. Its wall should be kept reasonably thin, but should contain ample tissue so as not to break when the necessary traction is used. The dissecting will be chiefly through scar tissue. Frequent use of the probe will indicate the direction of the fistula or some sort of a guide may be left in the tract during the dissection. Stay sutures or some instrument should be used during the dissection for traction, and the dissection is nearly bloodless. The tract will vary from one to two inches in length. When the urethra has been reached a ligature of No. 1 chromicized catgut should be tied around the base of the tract, which is practically a tube, and the distal portion excised. Where it has been possible to insert a soft rubber catheter for permanent drainage prior to dissecting out the tract, this proves to be the best technic, because the catheter is as good a guide as the steel sound and, being already in position, there is no subsequent danger of injury after the parts have been dissected. Finally, the cut edges of the stump (tract) may



I. Fistulous tract dissected down to the urethra.
II. Tract excised and ligated at the urethra. Sutures placed.
III. Diagrammatic side-view showing tract dissected and ligated at the urethra which is distended with a steel sound.

e sutured with plain catgut. Then the walls of ıe incision are held in approximation with ıree or four interrupted, buried sutures of lain catgut. The edges of the skin, including ɔme of the deeper tissues, are sutured with silk-orm gut or silver wire *en masse* so as to close ıe perineal wound. Owing to the fact that the ıssection has been through scar tissue, there is ıt little chance for infection or infiltration. In ıin subjects, where the fistulous tract is short, erineal drainage is not indicated but, as a pre-ıution in certain cases, a very narrow strip of ıbber dam may be inserted for twenty-four ɔurs. The silkworm gut sutures should not be emoved for about ten days. The after-treatment ɔes not differ from that of any patient wearing catheter for bladder drainage. The perineal ound must be inspected daily and kept clean y lotions, wet dressings, or a little boric oint-ent, as each case may require. The catheter ıust be kept clean and in place for about ten ays. At the end of this time the wound should e about healed, but, if a few drops of urine ıould escape, this condition will persist only a ew days. As after any stricture operation, ɔunds should be continued in the usual way.

If no guide can be passed prior to beginning ıe perineal operation, the technic is a little ıore difficult in order not to wound the urethra nnecessarily, but the general procedure is the ame. A blunt guide should be passed to the ricture and the tract dissected down to the rethra and, instead of its being ligated at this me, it should be split open its full length, hen a probe and then a slightly curved, small irector may be passed into the urethra in either irection. In the groove of the director a small tis urethrotomy knife may be passed, dividing ıe stricture. After the passage of sounds the ıbber catheter is to be inserted, the tract gated and sutured and the wound closed as bove described.

The appended cases are examples of the two ɔnditions which may be met:

Case I. This man, 38 years old, and in good general health had been operated upon successfully eight ears before for stricture. In December, 1910, he ntered the Boston City Hospital. Examination ıowed the presence of an impassable, deep stricture nd a perineal fistula of about seven weeks' dura-ıon, through which all of his urine passed. He was perated upon by one of my colleagues who divided ıe stricture after enlarging the perineal wound and eeking the urethra with a guide. In so doing the rethra was opened for about two inches. The sinus ras curetted and the wound packed after a catheter ad been inserted through the whole urethra for ladder drainage. The catheter was removed in bout seven days after which sounds were passed. t was one month later before any urine was passed hrough the penis. At the end of three months here remained a perineal fistula through which ıost of the urine escaped, although a French 28 ɔund could be passed.

The above was the condition when I saw this pa-ient and the following operation was performed for the closure of the fistula. A small probe in the fistula came in contact with a steel sound previously passed, and the tract was about one inch long. With a Maisonneuve instrument several narrow places in the deep penile and membranous urethra were divided and then dilated to the size of a French 30 sound, and a soft rubber catheter, French 28, introduced with a stilette and left for permanent drainage. Patient was then put in the lithotomy position. Steps were carried out as given above in detail and briefly were as follows: Oval incision around the opening of the fistula leaving a narrow margin of skin a little enlargement of the wound antero-posteriorly, at either end of the oval incision, then a careful excision of the fistulous tract down to the urethra. The tract was then ligated with No. 1, chromicized catgut and excised, a strand of gut being left long to act as a drain. The wound was nearly closed with buried, plain catgut sutures and large mass sutures of silkworm gut for the skin and deeper tissues. Nothing but scar tissue was exposed by this dissection, which made a conical cavity narrowing at the urethra. The convalescence was uninterrupted. On the eighth day there was a slight leak of urine from the wound. Catheter removed on the eleventh day and the stitches on the fourteenth day, at which time a few drops of urine escaped through a small perineal opening. A French 28 sound was passed on the seventeenth day and every five days thereafter. On the twenty-third day following operation the perineal opening was closed and remained permanently so and patient was passing a normal stream. Pathological examination of the excised tract showed only scar tissue.

Case II. A man, 48 years old, operated upon six years ago for stricture. The perineal wound healed but one year later a local abscess formed and a discharging urinary fistula has since persisted. Examination shows a redundant scar in the center of which is a small opening leading to the urethra. He has also an impassable stricture and most of the urine passes through the fistula. He was operated upon April 12, 1912, at the Boston City Hospital. The technic differs from that used in the above case because no urethral guide could be passed. Briefly, it was as follows: A guide was passed down to a deep stricture. The fistulous tract was dissected out its full length and it was then split open anteriorly down to the urethra. A probe was passed into the bladder, then a small grooved director, on which an Otis urethrotomy knife was passed, thus cutting a moderate stricture proximal to the opening in the urethra. In a similar manner, a probe and then a director were passed into the penile urethra through the small fistulous opening, using care not to enlarge it, and the deep, penile stricture incised. A Maisonneuve instrument was easily passed and the knife used to ensure a full division of all strictures. The urethra was dilated with a French 30 sound and then a No. 28, soft rubber catheter introduced with a stilette. During all this manipulation great care was exercised not to injure the urethra unduly nor enlarge its fistulous opening. Finally, the base of the tract was ligated and excised, as in Case I, and the wound closed except for a strip of rubber tissue, one-eighth of an inch wide, which was removed on the second day. The catheter was removed on the fourteenth day. This wound healed by first intention, there being no escape of urine or exudate. It remained permanently closed and he passed a normal stream.

A NOTE ON A CIRCUMSCRIBED EPIDEMIC OF DIPHTHERIA.*

BY HERMAN M. ADLER, M.D., BOSTON.

ON May 8, 1911, there was admitted to the female reception ward (Ward A1) at the Danvers State Hospital a female patient (H. P., No. 16166) in a stuporous condition. The patient was restless, got out of bed frequently to wander about, occasionally would scream. Temperature, normal. Physically nothing unusual was noted, and a provisional diagnosis of dementia praecox, katatonic form, was made. Patient continued restless, delirious and unconscious. Temperature was taken once or twice more during the following few days and was found to be not over 99. On account of her disturbed condition, she was removed from the bed *a* in the main ward to bed *b* in the annex for two days and one night, May 12 to 14. On May 14 she was put back in bed *a*, where she died on May 15.

A postmortem examination was made (autopsy No. 1487). The pathological findings consisted of an acute adhesive pleuritis on the right side, an acute bronchitis, a thin gray membrane on the tonsils, and a small necrotic membranous patch on the laryngeal surface of the epiglottis. A smear from the latter showed slender bacilli with deeply staining ends. The culture from the same showed a typical Klebs-Loeffler bacillus, which was injected into two guinea-pigs, resulting in their death within 24 hours. A typical pure culture of Klebs-Loeffler bacillus was obtained from the guinea-pigs after death.

The day following the death of this patient one of the nurses who had attended her developed a severe sore throat with high temperature and a typical membrane, from which a pure culture of Klebs-Loeffler bacillus was obtained. The ward was placed under strict quarantine and every patient was examined for signs of diphtheria. A throat culture was taken from every patient who complained of a sore throat, and besides from each patient whose throat appeared unusually red. There are 19 beds in the annex, of which 17 were occupied on May 8, 2 being vacant. There were 40 patients in the main ward. The patients in the annex were all bed patients and the patients in the rooms off the main ward, as well as in a few of the beds in the ward itself, were bed patients. Nine patients slept in cots (dotted outline on plan), which were set up every evening.

On May 17, that is, two days after the diphtheria bacillus was found at autopsy, the nurse, Miss G., who had taken care of the patient, H. P., complained of a severe sore throat, which yielded a positive Klebs-Loeffler culture. The throats of all the patients in the ward and annex were inspected, and cultures were taken from those that appeared unduly red. Out of eight

* From the Laboratory of the Danvers State Hospital. No. 23 of the Danvers State Hospital Series.

	MAY 15	17	18	19	21	22	26	27	28	31	JUNE 1	2	3	5	6	8	9	14	16	18	19	20	21	23	26	27	JULY 30	5	29	AUG. 25	SEPT. 30
H. P.	D																														
Miss G.		x	x					0	x	x	0	x	x		x	0	0	0													
S. C.		x		D																											
M. E.			x			x	x		x				0	x			x					x			0		x		0	x	D
M. J.			x			x	0																x		0		x	D			
A. L.			x			x	0																								
P. N.			x			0																									
A. W.				x		x	x		x				x				x						x		0		x	D			
M. M.					x		0																								
M. P.					x		0																								
Miss S. R.																	x	x	0	x	x		x	x	x	0	0				
M. P.																					x	D									

NOTE.—x = positive culture. 0 = negative culture.

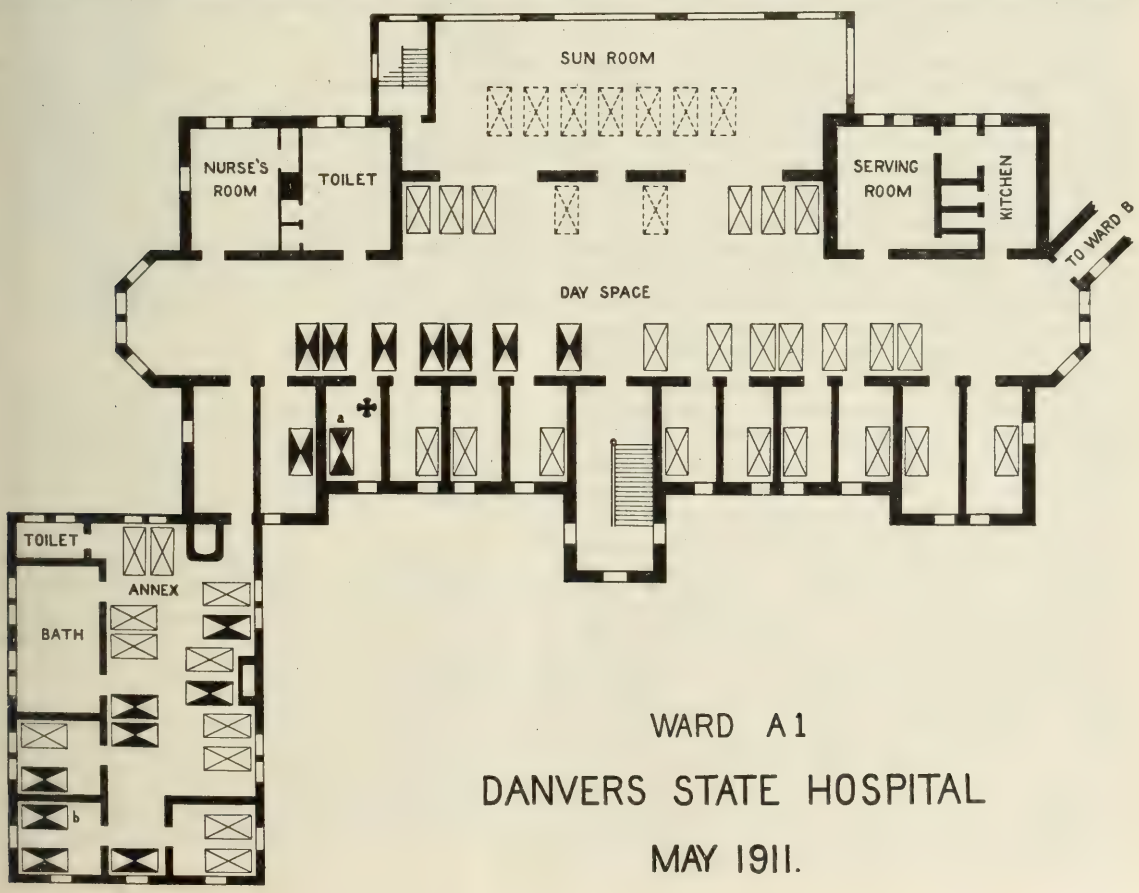
thus taken, five yielded the Klebs-Loeffler bacillus. The nurse alone was ill with diphtheria. On May 19 two throats fell under suspicion, of which one yielded a positive culture, the other, a nurse, was negative. On May 22 four patients were tested and two yielded positive cultures. There were thus eight cases from whom positive cultures had been obtained. Those that were not already in the annex were now moved there, and it was attempted to concentrate positive cultures there and to maintain a quarantine barrier between the annex and the rest of the ward in addition to the quarantine that was established between the entire ward and the rest of the institution.

In the course of the next few weeks the throats of practically all the patients in the ward were examined. No new cases were admitted. By May 26 five of the eight positive cases were negative on bacteriological examination. No further cases developed until June 9, when a nurse in the ward on the next floor above the quarantine ward developed acute diphtheria with positive throat cultures. She was isolated at once and no further cases were observed. On June 18 the last new positive culture was obtained from a moribund patient.

A noteworthy point about this epidemic is that the acute cases of diphtheria were limited to two nurses, and that in spite of the comparatively widespread presence of the Klebs-Loeffler bacillus in the ward, no case of clinical diphtheria developed among the patients. A comparison of the figures on the table will show that the two cases of clinical diphtheria, Miss G. and Miss S. R., lasted about 17 to 20 days each. The cases among the patients lasted only a few days each, with the exception of two who remained positive for weeks.

Although it is not improbable that the patient, H. P., who introduced the Klebs-Loeffler bacillus into the ward, died of the effects of the same, it would be hardly fair to state that she suffered from diphtheria. Just what the relation between this infection and her psychosis was, it is hard to say. With the known affinity of diphtheria toxin for the nervous system, it is likely, however, that some connection existed.

The patients that had positive cultures during this epidemic occupied the beds indicated on the plan by the black triangles. The exact movements of each patient could not be determined, so that the date at which the patients occupied the beds cannot be stated. But each bed marked with the two black triangles was slept in by a patient who had a positive culture, and all beds not so marked were occupied by patients who at no time during this epidemic had positive cultures from May 8. This means, in other words, (1) that we were dealing here with a contact infection, (2) that the bacillus was introduced by a patient not apparently suffering from diphtheria, (3) that at no time during the entire period of observation a case of diphtheria



developed among the patients, and yet (4) that this bacillus was the true diphtheria bacillus, capable of causing clinical diphtheria, as is evidenced by the fact that two nurses became thus infected. These findings are of particular interest in connection with the well-known occurrence of a diphtheroid bacillus, the *B. paralyticans* of Dr. Ford-Robertson. It is fair to assume that had the initial case been overlooked, as might easily have been done, even at autopsy, the first warning of the presence of a diphtheria bacillus in the hospital would have been the case of the nurse, Miss G. Considering the fact that only two nurses had positive cultures and were ill, it might well be considered that but for the accident of the illness of these two, the presence of the diphtheria bacillus in Ward A1 at Danvers in 1911 might not have been observed until weeks, possibly months, later. Meanwhile, the quarantine not being maintained, the organism would have been carried all over the institution, and in due course of time an epidemic would have broken out at various points of the institution, so that it would have been impossible to give any reasonable account for its introduction or distribution. Just why these insane patients did not develop clinical symptoms, and just what the relation of the presence of diphtheria bacilli in nose or throat to their physical health may be, remains still to be determined. It seems, however, probable from this experience that whatever the effects may be upon the insane, the reaction is not an acute one in the usual sense.

Since the presence of the diphtheria bacillus was not determined until after death in the initial case, diphtheria antitoxin had not been given. At the discovery of the presence of the diphtheria bacillus in the ward antitoxin was freely given, and each patient from whom a positive culture was obtained was given 6,000 units of antitoxin subcutaneously. In the two cases of prolonged positive culture that resembled carriers, antitoxin was repeated. The antitoxin had the usual beneficial effect in the cases of the two nurses, who rapidly defervesced. Whether the antitoxin was responsible for any improvement in the condition of the patients who received it, remains uncertain. There is little evidence, however, to suppose that the administration of antitoxin prevented clinical manifestation of diphtheria in these cases, if for no other reason, because of the characteristic appearance of disease in the two nurses.

During the winter of 1910 a widespread epidemic of diphtheria had occurred at the Danvers State Hospital. This was probably but a part of a rather general epidemic that included a number of towns in the vicinity of the hospital. It seems rather unlikely that the introduction of the Klebs-Loeffler bacillus at that time was brought about by a single individual. The fact that positive cultures were obtained from the throats of persons residing in a neighboring town, but who had no connection with the hospital, strengthens this belief. The broadcast dissemination of the diphtheria bacillus throughout the hospital and dependencies at the time when the first cases of clinical diphtheria were observed would make it appear probable that the contagion was introduced at various points simultaneously. However, it must be remembered that hospitals for the insane offer special facilities for the dissemination of bacteria, such as the diphtheria bacillus, and in view of the findings in this small epidemic, it would be unwise to exclude the possibility, at least, of the introduction of the original infection in 1910 by a single case. It is a belief of many that the diphtheria bacillus is ever present in the wards of hospitals for the insane, and that, if routine cultures were taken, the Klebs-Loeffler bacillus, or at least one morphologically and culturally identical with it, would be found in about as many cases as it has been in some of these so-called "epidemics." This was one of the questions raised at the time of the epidemic of 1910, which could not then be answered, although few who had observed the course of events at that time could doubt the significance of the positive cultures. The circumscribed epidemic, which is the subject of this communication and the frequently demonstrated possibility of rendering an entire ward free from positive diphtheria cultures are sufficient evidence that the presence of the diphtheria bacillus in the wards of a hospital for the insane is preventable. Furthermore, it is clear that the diphtheria bacillus may be introduced into an institution in the most insidious fashion, unless suitable precautions be taken, such as routine throat cultures on every patient on admission, careful pharyngeal and laryngeal examinations. And finally, the presence of the diphtheria bacillus in the wards of an institution for the insane is to be regarded as not only undesirable, but as distinctly harmful, in spite of the fact that the clinical manifestations referable to its presence are slight, if not often entirely absent.

SUMMARY.

1. A patient suffering with indefinite katatonic symptoms should be carefully examined for physical disease, even if the usual signs of acute disease, such as fever, pain, etc., are lacking.

2. A diphtheria bacillus may be causing active disturbance without local manifestations.

3. A true diphtheria bacillus may be introduced into the wards of an institution for the insane and spread without causing clinical diphtheria among the patients.

4. The diphtheria bacillus under these conditions maintains its virulence and is capable of causing clinical diphtheria.

5. The diphtheria bacillus does not as a rule cause typical clinical diphtheria in insane patients.

6. The attendants are liable to infection with true diphtheria, and often present the clinical picture of diphtheria although none of the patients in their charge are characteristically ill with the disease.

7. Diphtheria antitoxin should be freely used even in the absence of clinical diphtheria.

TUBERCULOSIS AND PUBLIC HEALTH IN SOUTH AFRICA.*

BY JAMES A. HONEIJ, M. D., BOSTON.

THE consideration of tuberculosis as it occurs in South Africa is of interest because of its several distinctive features.

(*a*) The difficulty of diagnosis in early stages among the natives and miners in the gold mines, due to other diseases, such as pneumonoconiosis, pneumonia and temporary congestion of the lungs, due largely to the mining occupation, rapid change in temperatures below and above the surface and to the large proportion of alcoholic subjects.

(*b*) The rapid course of the disease. Often natives succumb to tuberculosis within a few months.

(*c*) The common absence of cough and expectoration in all stages.

The general appearance of the native suffering from advanced tuberculosis is most noticeable and marked; there is no mistaking the disease. The temperature and pulse are not unusual. The cases among Europeans are no different from what we find here. Autopsy findings are instructive because of the prevalence of infection of the mesenteric glands; in this we may get a clue to the absence of cough and expectoration and to the rapid course of the disease. In a series of postmortem examinations reported from a native compound hospital a large number of cases of tuberculosis had the primary centre of infection in the abdomen, the mesenteric glands being apparently the starting point and the spleen the organ most often grossly affected. In eight postmortem examinations made by the government pathologist, in which the tubercle bacillus was demonstrated in the sputum before death, no tubercle bacillus was found in sections of the lung in four cases. In another series of 249 sputum examinations of east coast natives, 44 were positive; of the 44 cases, no less than 30 died in the hospital. This shows how acute the disease is. Although I saw no cases in which enlarged neck glands were prominent, it is stated that this is an exceedingly common form of tuberculosis.

* The following paper is the result of an investigation made some months ago on a trip to South Africa. A more or less general report on tuberculosis will appear in the January issue of the *Journal of the National Association for the Study and Prevention of Tuberculosis in America*. The Government of South Africa has appointed a commission to make inquiry regarding the prevalence of tuberculosis and its causes. Much attention has, therefore, been brought to bear on the subject, and the following article may be of some interest as written from a more or less critical point of view. For a further understanding of the question I would refer readers to the article appearing in the *National Association Journal* under the same heading as the present paper.

The next series of cases that are instructive are those of the Miners' Phthisis Commission. Under "Class 3" (purely arbitrary classification based on anticipated life period) 101 cases (Europeans) occur; all these cases were also infected with tuberculosis, proved by sputum examination; of 192 cases under "Class 4," 67% had the tubercle bacillus in their sputum. In the total group of miners' phthisis cases, "Classes 1 to 4," 30% were suffering from tuberculosis.

In considering these cases it might be well to compare them with the figures obtained among the granite workers at Quincy, Massachusetts (Gordon). Those dying from all causes, 46% was due to tuberculosis. The age period of greatest mortality was between 40 and 70 years; in Johannesburg the greatest mortality was between 30 and 40 years. Yet the occupations of the two are similar, except for the poorer air, etc. These figures present the seriousness of the disease among the miners in Johannesburg. The probable length of service, as stated to me by the head of one of the mining houses, was from 5 to 8 years. It was also sarcastically and cruelly stated, that the miner should have saved sufficiently during this period to leave the mine and do something else, so as not to die on their hands. In natives these figures must be fully 20% higher. From another series of 187 postmortem examinations reported, made on east coast natives (supposedly less affected than other natives) almost 34% of tuberculosis was found.

Since so many natives die from other causes before they die from tuberculosis, it would prove instructive to have autopsies made to ascertain the percentage that have tuberculosis and the probable influence it must have on the weak resistance the natives have to pneumonia. It is also not unlikely that a large proportion of the so-called rapid acute pulmonary cases of tuberculosis are largely secondary to intestinal infection, due to the bovine tubercle bacillus.

The greatest mortality in the mines is among the natives, which corresponds with the few figures obtainable from the Cape Colony. It is stated that from 30 to 50% of all deaths are due to tuberculosis. Among the colored it is about 40% greater than among the Europeans. The following figures obtained from the Public Health Department's Report for 1908, is interesting for comparison. The figures are the percentage of mortality per 1000 of population:—

Tuberculosis, ...	Whites 1.29	Colored 6.59
Pneumonia and bronchitis,	Whites 1.35	Colored 9.50

In phthisical resorts the rate among the white population is about 6 per 1000, while the colored population almost trebles that number. Other figures for 1908 show that of all deaths occurring in the chief towns of the Cape Colony, 20% among the colored and 10% among the Europeans were due to tuberculosis. Marais in "The Control and Eradication of Tuberculosis,"

states that among Europeans the mortality from tuberculosis in the Cape Colony has had a greater average during the last ten years than either England or Wales; while among the colored population, the averages are 5.9 per 1000 higher. Among the colored population more deaths occurred under the age of twenty years and over five years than during any other period of life. Among the Europeans mortality for age periods shows but slight difference after the age of five years. In New York State, the rate among Europeans is about 2 per 1000 and among the colored 5 per 1000, which is probably somewhat high.

Between the years 1906 and 1908, according to the medical officer's report for the Cape Colony, there has been an increase of 27% in cases of tuberculosis reported. Whether there has actually been an increase in the number of cases to that extent is questionable. From figures obtained in New York state and in Germany the disease is on the decrease. Should the government of South Africa become energetic it would be at least ten years before the disease would be under control, especially considering the sources of infection,—the gold mines of Johannesburg, an ignorant and filthy colored and native population, and the general unsanitary condition, almost without exception, existing throughout South Africa.

In regard to bovine tuberculosis, it can be said, considering that more care is exercised by the government over cattle than over human beings, that South Africa is fairly free from the disease. It occurs more in the Cape Colony than elsewhere, and may have some relation to the greater prevalence of tuberculosis among the population there than in the other states. The government veterinary reported that of 1,980,393 animals passing through the market at Johannesburg in two years, only 328 cases of tuberculosis were found, but of this number 252 cases accurred among pigs. And in this connection it is interesting to note that the greater number of pigs that are sold are kaffir (native) pigs, and, as has already been stated, tuberculosis is more prevalent among the natives. It would certainly seem that tuberculosis infection from natives is of tremendous seriousness. Among milch cows it has been calculated that tuberculosis exists in about 7% of all the cows of the Union. Considering that the cows are grazing in unrestricted land and under a clear, warm sun and good air during the greater part of the year, and are not in mixed herds or in close and dirty stables, 7% seems to be an unusually high figure. Afrikander cows, it is interesting to note, are practically free from the disease; this is also true of the South African born population.

The final consideration of tuberculosis is its relation to other diseases. Among the mine laborers, the principal associated diseases are:

1. Pneumonoconiosis.
2. Pneumonia, pleurisy, etc.
3. Bilharziosis.
4. Cerebro-spinal meningitis, etc.
5. Syphilis.

1. Pneumonoconiosis or miners' phthisis figures have already been given, but it may be well to enlarge somewhat on the subject. Although in all trades in which dust of any form is an important factor, as in the mines, lungs and air passages suffer and are irritated, the effect is a predisposition to any infection to which the worker may be subjected. But from the experience of the large factories of America, the presence of dust is by no means such a great factor, when a large percentage of possibility of infection is eliminated. The possibility of infection with the tubercle bacillus is increased in exact ratio to the lack of proper air and breathing conditions. If the newly employed miners are free from tuberculosis, no amount of dust will produce the disease among them, nor can they infect the older miners; but there is every possibility of these new miners becoming more speedily infected in the stopes and levels in irritating and dust-laden air, if the mines have been previously occupied by an infected miner in any of the three stages, or if they are associated in their work with an older miner infected with tuberculosis. The possibility of prevention is far more practicable under these conditions than that of cure.

There seems to be sufficient proof for assuming that the increase of tuberculosis is far greater among the miners from England (Cornwall, etc.) than among South African born. Tuberculosis is rife among the miners in England, whereas the presence of sun and more natural conditions must be of benefit to South African born miners.

It is highly probable that miners arriving from England are, in a certain percentage, in a tubercular condition before being employed in the Johannesburg mines, and must naturally add constantly to the danger of increasing the diseases among the miners already there.

For proof of this, it is important to know whether the miners dying from tuberculosis have had a long or short residence in the South African mines, what the duration of the disease has been, and how many years they have been employed as miners in any place.

It is important to know the death rate per 100 miners from tuberculosis, *i.e.* to estimate not the increase in the number of deaths, but the percentage increase per 100 miners. Nationality is important here, too, to estimate whether there is an increase in deaths from tuberculosis among South African born or among miners of some years' residence.

It may be shown by these and other observations, that mining itself is less of a factor in Africa than supposed, and that the increase of tuberculosis is due to

First, Infection due to carelessness and ignorance of miners in the second and third stages.

Second, Ignorance in home living, poor dwellings, want of advice.

Third, The rapid increase in the number of new miners who arrive in a phthisical condition.

Tuberculosis in its earliest stages can be detected by a trained physician, and a thorough examination of miners before being employed will aid in eliminating the disease, together with the regular examination of older miners who may show any of the many signs of tuberculosis. This may be brought to the attention of the miners, if notices giving the first symptoms are posted in conspicuous places throughout the mines.

Miners discovered with any of the symptoms and signs of tuberculosis, can be readily apportioned to different grades of work according to the stage of the disease and the physical condition they are in.

The x-ray (fluoroscopic examination) can be used not only for tubercular patients in questionable cases, but in diagnosing cases of bilharziosis with areas of calcification in the lungs, which may also have some relation to the later onset of tuberculosis.

2. The mortality at present is greatest from pneumonia, but whether pneumonia is superimposed on tuberculosis is, unfortunately, not ascertainable. The difficulty, as has been stated, in making a diagnosis between this disease and tuberculosis was demonstrated to me in a hospital for miners where two cases of tuberculosis were discovered among pneumonia patients in a pneumonia ward. Pleurisy need hardly be mentioned more than to say it frequently occurs, and whether tubercular or not, cannot be stated from my experience.

3. Bilharziosis is prevalent. Areas of calcification in the lungs are frequently found by autopsy and undoubtedly could be determined during life by x-ray examination. Just how close a relationship these cases bear to the later infection by the tubercle bacillus is still a matter for investigation. It certainly merits investigation, considering the almost universal infection among certain native tribes. I saw several cases also among Europeans, and just how common it is, is difficult to determine. Turner, in a report on pulmonary bilharziosis in South Africa, gives a series of 59 consecutive postmortem examinations showing the number of cases of lung infection with bilharzia. Of the first group of 33 dying of pulmonary complaints (17 tuberculosis, 13 pneumonia, 3 other respiratory diseases) the lungs contained bilharzia ova in 23 cases. Of the second group of 26 cases dying of other than respiratory diseases, the lungs in 14 were found to have the bilharzia ova present. It shows that the larger percentage of bilharzia ova were found in those dying from respiratory diseases and that the greater number of those dying of respiratory diseases were from tuberculosis. The opinion may be expressed then that the susceptibility of the native to chest diseases, tuberculosis and pneumonia, may be largely due to his previous infection with bilharzia.

4. Cerebro-spinal meningitis. This disease accounts for almost as many deaths in the mines as pneumonia. Whether the tuberculosis type of meningeal infection is common or is responsible for the majority of deaths, was impossible to determine. It undoubtedly plays an important rôle. In one ward in a compound hospital I saw twenty-three cases in all stages of the disease, but here I am pleased to recall the fact, that during my stay there Flexner's serum was used with marked success, and it was anticipated that the mortality from cerebro-spinal meningitis would be reduced by at least 60%. Regarding the sources of infection, I believe an investigation of the mines would be a promising field.

5. Syphilis. I have already stated how exceedingly prevalent this disease is amongst the natives and especially among the northern Transvaal tribes. Here in America the relationship between syphilis and tuberculosis among the negro race has often been the theme of discussion. In South Africa this relationship is accentuated. It is merely a constitutional condition, a predisposition or an anemia with lack of resistance when tuberculosis is superimposed. In regard to this question and all the questions I have brought forward, there is emphasized the need of scientific investigation.

What will be, therefore, the logical action of the government when the commission now investigating the prevalence of tuberculosis in South Africa, which is unquestionable, has made its report? It is a matter of regret that the commission did not contain one tuberculosis expert or a man trained in tuberculosis work. Perhaps it will not be out of place to present here the field of work which the South African government could profitably choose from or carry out.

In the first place, an expert, preferably from Holland or Germany, should be imported, a man fundamentally and thoroughly grounded in the morphology, pathology and bacteriology of the tubercle bacillus and tuberculosis, so as to first establish the work of the government. In the second place the appointment of a good working commission or board for administrative, medical, legal and constructive purposes. The following might then be considered:—

(*a*) The restriction of immigration and the total prohibition of persons suffering with tuberculosis in the second or third stage; the placing in sanatoria all those in the first stage.

(*b*) The positive control and later elimination of the centres of infection. The segregation at compounds, missions and locations, in new compounds, etc., of all cases of tuberculosis.

(*c*) The compulsory physical examination of all mine laborers and all natives applying for labor in towns, etc. The absolute demand for a "clean bill of health."

(*d*) The forbidding of natives in the employ of Europeans to lodge outside of the locations, compounds, etc.

(*e*) The proper hygienic location and construction of compounds, etc., and efficient sanitary supervision to prevent overcrowding of huts, dwellings, etc.

(*f*) The erection of hospitals and sanatoria for advanced cases and for all other tuberculosis patients.

(*g*) The establishment of dispensaries and visiting nurses for the collecting of early cases and the following home supervision and care.

(*h*) The examination of all school children and the removal of all infected children from school.

(*i*) The supervision of all working classes and their homes.

(*j*) Financial or other assistance for families where the main bread winner has been removed; and other aid to individuals with arrested or "cured" cases, such as employment on farms, etc.

(*k*) The proper supervision and handling of milk and the inspection of all milch cattle, etc.

(*l*) The energetic enforcement of all laws and regulations made regarding public health and tuberculosis.

(*m*) The creation of a health educational system to give proper instruction to officials, schools, institutions and the public, through lecture bureaus, pamphlets, newspapers, etc.

With Europe and America to learn from and with the proper spirit, there is no reason why South Africa should not go ahead, provided the government takes up its own responsibility and enforces the mine magnates to take up theirs. But she should also,

First, Keep politics out of all health matters.

Second, Undertake the proper modern sanitation of its towns and districts.

Third, Totally prohibit all Asiatics, etc., from a health point of view and handle the native question firmly.

Fourth, Secure earnest and good workers, scientifically trained for their campaign against tuberculosis.

South Africa has much to contend with, but she has nature in her favor and that is half the battle won. It is a large country but with a comparatively small population, a large agricultural area and sufficient financial means. The sun, the wonderful climate, the large expanse of country and a hardy people,—all should encourage the South Africans that their problem can be solved if they desire it so. She should rather give an ear to the callings of nature, than to the solutions advertised in the newspapers or given by the selfish mining organizations. We shall watch with a good deal of interest what the South African Government intends to do and how she does it.

ON THE NATURE OF THE FEELING OF UNREALITY.

BY J. W. COURTNEY, M.D., BOSTON.

MEDICAL admirers of Dante and Poe are wont to extol the wonderful *imaginative* powers of these writers and to marvel at their subtle portrayal of the tortures of the human soul, entirely unmindful of the fact that the *actualities* of every-day morbid psychology—even in an humble country practice—are as striking and impressive as anything within the pages of the "Inferno" or the "Tales of the Grotesque and the Arabesque."

A working knowledge of these actualities is, however, but slowly diffused through the rank and file of the profession, owing to the further fact that so many writers who treat of morbid psychology are led away from the practical into the realm of philosophic abstraction. In the present paper the endeavor will be made not to forget that the pathology of any disorder is always a matter of physiology gone wrong.

The existence of the unfortunate victim of the feeling of unreality is—as the case about to be cited will show—an inferno, to which even the most heartless would shudder to see their worst enemies condemned:—

A. G., a Russian Jewess, aged 25, married, consulted me in June, 1912. There has never been any actual insanity in the family. The father of the patient is well; the mother was under my care some years ago for a very severe trigeminal neuralgia; and an only brother, an adolescent, is the victim of the most extraordinary combination of phobias, obsessions, folies du doute and manias of various kinds.

The patient herself has always been more or less nosophobic, but had no special illness since childhood up to April 25, 1912, when she underwent a curettage after a miscarriage. Prior to this operation there had been severe uterine hemorrhage, and there has been very marked menorrhagia on several occasions since.

The loss of so much blood naturally produced a severe grade of anemia which was accompanied by cardiac palpitations, neuritic pains, twitching in various parts of the body and other physical symptoms. But what drove the patient to seek relief was the absolute torment of mind in which she passed her days. Her delay in coming was due to her suspicion that she was hopelessly unbalanced mentally and her dread of having suspicion turned into certainty by medical investigation.

Since the operation the whole world has seemed to her unreal and she feels as if her own body had been entirely transformed. She marvels at the fact that she has intelligence and memory and can carry on a conversation. From morning till night and form one month's end to the other she has to keep up an argument with herself to prove, even temporarily, to her satisfaction that it is *her* voice with which she talks, *her* hands with which she grasps things, *her* legs which carry her about. She compares herself in her lifeless state to a flower that has withered or, less poetically, to a tooth whose nerve is "dead." In her darkest moments she declares that she hasn't got a bit of feeling, that she is not

part of this world, that she can't feel food and an't tell when she has had enough.

The complete list of her complaints is a long one: Nothing means anything to her. When she bows o people on the cars or the street, it's as if they ere miles off. She is completely numb; nothing tirs her. It doesn't seem real to go home or to be ere (in my office). She can't realize that there re dates, hours or weather. It bothers her that his is a "truly" world, that we have to sit around n it and that things came into it—whence we do ot know. She is also troubled by the fact that here are other great parts to the world we don't now about and so many car lines we never take. he keeps reiterating that there is something radially dead all through her. Finally, to quote her wn words: "It seems to me as if all were darkness nd the end of the world near. It seems queer to ave to put on clothes. I don't bother to put on ood clothes. If I had my own way I would go round naked because nothing in me stirs me to he feeling that it is wrong. I have no feeling of hame, anger or joy. I never feel cross, tired or ungry. My heart doesn't beat. I used to feel it t night, but I don't now. I could keep my hand utstretched for hours and it would not feel tired. never feel sleepy. If a motor-car goes by when cross a street, nothing stirs me to get out of its vay—there is a numbness. It's just as if there ere a big black curtain . . ."

There is an obvious disjointedness in this relaion of symptoms, and the patient's language is inged with the hyperbole of despair; but with due llowance made for the latter fact, it is still perectly obvious that the hell of her mental torture s complete.

She is tall, extremely well developed and nourshed. Intellectually she is above the average young voman of her station in life. She walks and stands ormally. The pupils are equal, regular in outline nd prompt in their reaction to light and distance. The field of vision, both for form and color, is norhal. The other cranial nerve functions are normal. The heart area is normal and, in spite of the manifest anemia, there are no hemic murmurs. Sensibility in all forms is well preserved. There is no disturbance either of the deep or the superficial reflexes. Joint and posture sense are normal. In a word, the examination, from every standpoint, is practically negative.

Particular attention is here called to the fact hat sensibility in all forms is well preserved. This finding is not peculiar to the case in hand. The situation is the same in all cases of the sort, nd this fact has been seized upon and used as he foundation upon which theories upholding he purely *ideational* nature of the feeling of unreality are built.

Of these theories, with one exception, nothing will be said. That of Janet[1] is, however, so curious that it merits special attention. According to this observer, the uncanny feeling in question results from the loss of a special intellectual operation of the highest order; and in a preamble to the exploitation of this theory he says: "Anyone might suppose, at first sight, that syllogistic reasoning is a higher type of intellectual achievement than the recognition of the actual existence of a person or a flower, and yet I believe I can show that on this point common sense is in the wrong."

By the terms of his theory, the special intellectual operation of the highest order which conditions the feeling of reality of self and of the outside world is the "function of the real." He says: "The first form of this function of the real is the action which allows us to cope with external objects and to metamorphose reality. This voluntary action itself presents different degrees of difficulty. From the point of view of its object, it seems that it becomes more difficult when it is social, when it has to be brought into play, not only in the physical, but also in the social milieu in which we are thrown.

"It is also difficult when it is professional, that is to say, when it comes to the performance of the duties of a practical occupation which ought to achieve definite results, satisfy a critical clientèle and earn for us our daily bread. . .

"The last term of this function of the real, the one which probably resumes all that have preceded, is a mental operation unfortunately little known: the constitution of time, *the formation in the mind of the present moment.* Time is not given to the mind as a finished product; to demonstrate this fact one has only to study the illusions of children and of the sick on this point. . . The real present for us is an act or state of a certain complexity which we embrace in a single state of consciousness in spite of this complexity and in spite of its real duration, which may be more or less long. For people who are *distrait,* indifferent to reality, this present is prolonged and remains vague; for active minds which are always on the minute this present narrows down and becomes precise. There is a mental faculty for which one might coin the term *presentification,* which consists in rendering present a state of mind and a group of phenomena. . . "

A dispassionate analysis of the above psychologic abstraction brings one at once to the realization of the hazard one incurs in departing from the dictates of common sense when exploiting a theory. Denuded of its psychologic phraseology, the theory, as the present writer understands it, is very briefly this: That it requires the highest grade of intellectual activity to be able to realize that one is wide awake and thoroughly prepared at all times to cope successfully with the ever-changing vocational and social complexities of every-day life.

By the terms of such a theory one is warranted in assuming that when a child first refers to itself as "I" and expresses a recognition of some external object—a flower, for example—it has attained to a height of intellectual achievement impossible to surpass in after life. By these same terms the "man on the street" may be a greater intellectual giant than a paleontologist, and in like fashion, the society leader may outstrip the psychologist.

To even the least captious critic strong objections to such a theory at once present them-

selves. In the first place, the clinical psychologist is fully aware that to the victim of the feeling of unreality the present is by no means vague. The latter's trouble with regard to time, just as with regard to everything else, lies in the realm of feeling. As one of my patients very aptly put it: "I know perfectly well when it is twelve o'clock; but don't you know what it is to *feel* that it is noon? That's what I can't do."

There is an equally serious objection to the conception of the "function of the real" as a high intellectual attainment which conditions the response to social demands. By no argumentative subtlety can it be shown that the victim of the feeling of unreality, who is incapable of coping with life's social complexities in the broadest sense, is, in the slightest degree, intellectually defective. His failure to respond to the call to action results from the unequal struggle which is constantly going on between his intellect and his emotions, and in which, it is needless to say, the latter are always victorious. Hence, to state the obvious, the defect considered by Janet as a loss of the "function of the real" may also be traced to the realm of feeling, since emotion is but a higher form of feeling.* Similar objections to the Janet theory will be offered as this theme develops. At this juncture an inquiry into the feeling of *reality* seems pertinent.

The every-day expressions, "I feel like myself" or "I don't feel like myself" at once suggest a contrast between the totality of bodily sensations which constitute the *ego* of the moment and a standard norm of self-reality feeling. If this is granted, we must reasonably assume that this standard norm is probably formed in vigorous early life, when all forms of activity-consciousness are most vivid and also most coherent in their relations, and that it stands as an ever-constant complex against all the other contents of consciousness. This assumption is strongly substantiated by the fact that even early in adult life there still remains in consciousness, after the amputation of a limb, so complete and vivid a recollection of the sensori-motor possibilities with which it was endowed that, for a very long time, the lost member seems to continue to be a living and tangible part of the body.

With the above physiologic probabilities before us, we are in a position to undertake a practical consideration of the pathology of the phenomenon under consideration. Naturally, we may not speak of the feeling of unreality in terms of cellular or neuronic degeneration, but may consider it the result of a lack of vividness and coherency of relation in the primary sensory and sensorial elements which, in their totality, constitute the *ego*—the personality—of the individual.

* It is interesting to note in this connection that the so-called function of the real is often restored, for a time at least, by the ingestion of a certain amount of alcoholic stimulant—a rather curious peculiarity on the part of a high intellectual operation.

What proof have we in support of such a pathology? Janet and certain others would reject it on the ground that in their examinations of the victims of the feeling of unreality they fail, by tests of a sensory, sensorial and kinesthetic order, to find anything abnormal.

This objection seems to the writer altogether unwarranted, since it is absolutely impossible to judge of any complex *associative affect* by the primary sensational elements composing it. As a practical illustration of this impossibility one has only to attempt, by sensory, sensorial and kinesthetic tests, to get an idea of the feeling *flavor* which conditions a stroke in billiards, in which success—as Spencer[2] has pointed out—presupposes great exactness in the ratios among the combined muscular contractions, and in the adaptation of them all to the many combined impressions, the ratios among which have also exactly to be appreciated. In such an attempt the camel's hair brush, the esthesiometer and other similar implements would figure only as useless crudities.

In one of Janet's own observations the writer finds strong confirmation of the correctness of the views on pathology set forth above. Janet notes that subjects in whom the self-reality feeling is lost betray a certain disposition to "*neglect* agreeable or painful impressions." Now, if we examine into the nature of pleasures and pains, we find—as Spencer[3] has also pointed out—that while pleasures and pains are partly constituted of those local and conspicuous elements of feeling directly aroused by special stimuli, they are largely, if not mainly, composed of secondary elements of feeling aroused indirectly by *diffused stimulation of the nervous system.*

With this view of the nature of pleasures and pains before us, the so-called neglect of agreeable or painful impressions by the victim of the feeling of unreality becomes at once intelligible. Obviously, in his case there is lacking in the primary sensational elements the vividness and coherency of relation necessary for a diffused stimulation of the nervous system.

On precisely similar grounds we may explain the same individual's not uncommon complaint that *solid objects* look flat to him. We have only to consider by what a complex process of association a visual impression is transformed into a perception. The various distances, solidities, structures and so forth *appear* to be immediately given in the impression, but are really known by *inference* and severally imply many changes. These changes are practically synchronous with those constituting the impression itself, since the positions and natures of the objects are recognized *in the instant of perception.* So that beyond that complexity of a visual consciousness due to the many feelings and relations it concludes, there is a further complexity caused by the many *represented* feelings and relations, which are so closely united with the *presented* ones as seemingly to form with them *one consciousness.*

In the case of the victim of unreality we must nfer, then, that the visual impressions are so acking in vividness that they do not carry into onsciousness anything beyond the presenting at surface of the solid object seen. In other vords, a diffusion of the visual stimuli does not ake place; presentation and representation in onsciousness of these stimuli are lacking. And vithout this diffusion complete normal percep- ion is impossible.

To what, finally, may we attribute this lack of ividness and coherency of relation in the pri- nary sensational elements, which leads to the eeling of unreality? Its explanation is simple, f we bear in mind that the feeling in question s never a clinical entity, but for the most part onstitutes merely a single symptom of that ery complex *adynamic* state of the entire ner- ous system, which we term psychasthenia.

In this last named disorder there is, as every linician knows, a marked lack of tone in all the odily functions. Physical exertion produces rompt over-fatigue; the blood-pressure is below ormal; the secretions of the digestive glands re inadequate. . . in a word, the whole picture s, as already stated, one of adynamia. And into , on this basis, the feeling of unreality best fits.

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[1] Janet: His Obsessions at La Psychasthénie, Tome I, pp. 476 seq.
[2] Spencer: Principles of Psychology.
[3] Spencer: *Ibidem.*

Clinical Department.

REPORT OF TWO CASES OF TUBERCULOUS MESENTERIC GLANDS OF THE CECAL REGION.

BY CHARLES GREENE CUMSTON, M.D., BOSTON.

THE very interesting paper by Dr. David W. Parker on "Tuberculous Mesenteric Glands imulating Appendicitis," which appeared in he JOURNAL December 26, 1912, recalls two ases in children which were under the writer's bservation and present some points of interest:

The first case was that of a boy four years of age ho was referred to the writer for an operation for right congenital inguinal hernia by Dr. W. J. ohnstone of Boston. The patient's history was de- oid of any pathological data, other than the hernia hich had been present since birth. He was a well eveloped child, rather tall for his years, strong nd well built. Lungs and heart normal; no pal- able enlargement of the superficial lymphnodes. he hernia descended into the scrotum and could e easily reduced, the contents appeared to be in- estine only. Bowels regular.

Operation, July 7, 1907. Bassini operation. Af- er isolation of the sac, which was easily freed and ot thickened, it was opened with scissors near its eck when a light straw-colored fluid made its es- ape. It was so like urine that it was feared that a ladder diverticulum had been opened, but after enlarging the nick made in the sac, about two ounces escaped. The finger was then pushed into the abdominal cavity and a cluster of several lymphnodes, each about the size of a walnut, was detected in the region of the cecum. No tubercles could be felt over the peritoneal surface that could be explored by the finger and the internal surface of the sac presented nothing abnormal. The Bassini operation was then carried out and the wound closed.

The operative results were perfect and at no time did the temperature rise and the boy left the hospital in two weeks. At the present writing the child is in excellent health and the radical cure of the hernia perfect. The case is interesting from the fact that the tuberculous intraperitoneal process was cured by the exposure offered by the radical cure of the hernia and that it had no deleterious effect upon union by first intention. As it is now over five years since the operation was done it may be assumed that the tuberculous process is perfectly cured.

The second case was a little girl five years of age, seen with Dr. Wesley T. Lee of Winter Hill, Mass. She was not a strong-looking child, although it could not be said that she was delicate. Constipation had been troublesome for some months past. No thoracic symptoms. Appetite capricious. A day or two before seeing the patient she developed severe pain in the right iliac fossa, vomiting and elevation of temperature and pulse.

When seen, there was marked rigidity of the right rectus, the right leg was drawn up and the general condition was that of a patient suffering from an acute appendicitis. The writer saw her late in the evening and operation was done at six o'clock the following morning after the patient had passed a very bad night.

Operation, June 23, 1910. Incision in right semilunar line. On opening the peritoneum a little straw-colored fluid containing flakes of lymph escaped. The parietal peritoneum was highly congested but no tubercles were seen. The cecum and coils of small intestine, which were intensely hyperemic, were bound together by recent lymph exudate. After carefully separating them a large mass was brought to light in the shape of a large mesenteric lymphnode about the size of a walnut, surrounded by several other smaller ones varying in size from a cherry to an olive. The central and largest node was soft and almost fluctuating. The appendix was normal, but was not removed as it was deemed that time was of great importance owing to the poor condition of the patient. The lymphnode was not removed as we trusted to the curative effect of the exploratory incision and this was a wise decision as Dr. Lee informs me (Jan. 2, 1913) that the patient is now in perfect health. The abdomen was closed without drainage and the patient recovered uneventfully.

The after-treatment of these and similar pathologic processes should be followed up with a prolonged course of cod-liver oil, and I am old-fashioned enough to believe in the beneficial effects of iodine internally. I prescribe it, combined with tannin, as follows:

℞.

Iodine	1 gram.
Tannin	4 gram.
Syr. ratanhiae	50 gram.
Syr. sacchar	440 gram.

M.D.S. 1 to 2 teaspoonsful in water after meals.

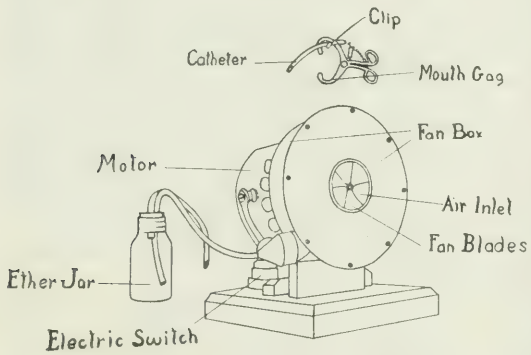
Naturally the hygienic treatment is of the greatest importance. I simply make these remarks relative to the medicinal treatment because it seems that the present-day surgeon completely overlooks this aspect of surgical cases.

New Instruments.

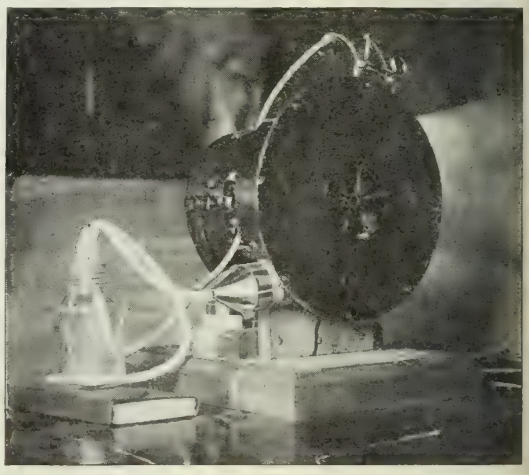
A NEW ETHER BLOWER.

BY S. J. BEACH, M.D., AUGUSTA, MAINE.

THERE has been in use on my service at the Augusta General Hospital for about six months, an apparatus which greatly increases the convenience of anesthesia by the vapor method. It was devised to relieve the etherizer from the manual labor necessary to pump a hand bulb or foot bellows, and to eliminate bulbs, chambers, and valves, the watching of which distract his attention from the patient.



The apparatus consists of a heavy electric fan motor mounted on a firm base. The blades of the fan are rectangular, about 4½ inches by 2 inches, set perpendicular to the plane of revolution. They are inclosed in a nicely fitted sheet metal case with a large inlet for air opposite the shaft and an outlet at the bottom ¼ of an inch in diameter, into which the blades sweep the air. When running, this fan delivers a current of air which is continuous without the necessity of an intermediate bulb or chamber, and is passed directly through a jar of warm ether, after the manner of the original Fillebrowne apparatus. From this it is carried by a tube attached to the mouth gag and terminating in a No. 20 soft rubber catheter. This is held to the mouth gag by a metal clip, through which the catheter slides. This arrangement of the gag, which was adopted at the suggestion of Dr. Richard H. Stubbs of the hospital staff, enables the operator to thrust the catheter nearer the fauces when very concentrated vapor is required, or to pull it out of the mouth entirely when more air is desired. If warm ether is preferred, a heater can be attached, though my experience coincides with the observation of Dr. Gwathmey and others, that the heated vapor is less efficient than that at room temperature. Although the fan is very easily controlled by an electric button, we find it simpler to allow it to run continuously and close off the current of ether when necessary by pinching the tube. Thus stopping the flow of the vapor does not in any way affect the motion of the fan, an advantage this blower has over the bellows type. For the same reason, it does away entirely with the difficulty of having the rubber tubes blow off from their connections when they become kinked or when some assistant steps on them. In fact, the entire apparatus is off the ground so that there are no wires or tubes on the floor to get caught or stepped on. I presume other dimensions adapted to any particular style of motor would work as well, but we find that this apparatus, made as described, keeps the average patient at just about the proper stage of anesthesia during an operation of any length. It works better if the entrance tube for the air into the bottle is not more than an inch and a half beneath the surface of the ether. It is hardly necessary to say that the water surrounding the ether must not be hot enough to make the ether boil.



The advantages of the apparatus are that it is entirely automatic and runs without any attention from the etherizer, who is thereby enabled to give all his attention to the patient; it is simple to construct, can be made by any machinist, and does not get out of order.

Reports of Societies.

AMERICAN ORTHOPEDIC ASSOCIATION.

THE TWENTY-SIXTH ANNUAL MEETING, HELD AT ATLANTIC CITY, N. J., MAY 30 AND 31 AND JUNE 1, 1912.

SUGGESTIONS FOR THE SECOND QUARTER OF THE CENTURY.

DR. VIRGIL P. GIBNEY, New York City: I wish first to call attention to the many diseases and deformities still unrelieved by orthopedic measures.

or instance, there has been a failure, thus far, to cure perfect cures in hip disease. Pott's disease the spine is also one of the diseases that is still ncured. This is true also of spastic contraction on ttle's disease, and of the more obstinate forms rotary lateral curvature of osseous origin. A cided advance has been made in the treatment rotary lateral curvature—scoliosis. Poliomyelitis, th its resulting deformities and disabilities, con-itutes another condition for which really very ttle has been accomplished in the way of cure.

ANATOMIC STUDY OF MANY OF THE CASES OF LAME OR WEAK BACK, AS WELL AS MANY OF THE LEG PARALYSES.

Dr. Joel E. Goldthwait, Boston: I have made a rther study of the sacro iliac joint, in relation to e elements involved in its stability, and of the mbo sacral and lower lumbar articulations, with more complete study of the lumbo sacral trans-rse articulation. The lumbo sacral, the lumbo cral transverse, and the sacro iliac joint bear a rtain relation to each other in the production of rain. The anatomic position of the lumbo sacral rd and the spinal nerve roots, with reference to e articular and transverse processes, is an expla-ation of leg pain and paralysis.

DISCUSSION.

Dr. J. T. Rugh, Philadelphia, Pa.: Is there any-ing in the previous histories of the cases, speci-ens of which have been shown, to show that they esented the group of symptoms that Dr. Gold-wait has outlined?

Dr. C. L. Starr, Toronto, Can.: I should like to ow whether there are not a series of these cases ich give absolutely no symptoms.

Dr. John Dunlop, Washington, D. C.: I had a tient that presented a lumbo sacral ossification on e side. There was no sign of a joint present, and e symptoms came on after a slight accident on e opposite side from this bony ankylosis.

Dr. Z. B. Adams, Boston, Mass.: In some pa-ents suspected of the presence of stone in the dney or ureter, we found a broad transverse pro-ss. It probably impinged on either the sacrum or um of that side.

Dr. Comptom Reilly, Baltimore, Md.: Are there er marked symptoms of nausea in these cases? had a patient who showed an x-ray where the ansverse process articulated with the sacrum and e iliac bone on that side. Some of her symptoms ere marked pain at the menstrual periods, nausea r a long time, and pain in her back and limbs.

Dr. P. W. Nathan, New York City: The spine resents the most variable organ in our body; and really is a transition organ, particularly in the wer portions of it, where we meet with most de-ded variations. Can Dr. Goldthwait show us that ese anomalies are merely subject to pathological nditions? Lesions of this kind, which compress e nerves of this region, would give distinct neuro-gical symptoms, which could be definitely diag-osed.

Dr. John Dunlop, Washington, D. C.: In the diographs I noticed that the spine, in relation to e pelvis, did not seem to be symmetrical; and I ould like to know what effect that would have on e studies with respect to the crest of the ilium and e top of the sacrum.

Dr. S. M. Cone, Baltimore, Md.: I worked on a case in the hospital, that had a temperature of 103°, with pain localized to the sacro iliac joint on one side. The x-ray showed an ossification on one side. I ordered a Wassermann test and a test for tuber-culosis. It was a question whether it was ordinary infectious osteomyelitis. I should like to know whether any acute infection, syphilis or tubercu-losis, could be an interpretation of some of these cases. The temperature continued for a week. Of course it is possible that some spinal affection is at the basis of the trouble.

Dr. A. H. Freiberg, Cincinnati, Ohio: I had a young woman referred to me because of an intense sciatica, associated with decided asymmetrical po-sition of the back. She had been pronounced as having all sorts of diseases. A careful x-ray plate showed lumbo sacral transverse process. It appeared to me that a bony overgrowth was probably responsi-ble for the pain. I undertook the removal of the bony process, which was a very difficult operation; but I succeeded in relieving the patient completely. I should like to ask whether there is a mechanical method of handling such patients, which would render such an operation as I performed unneces-sary.

Dr. H. P. Galloway, Winnipeg, Can.: I should like to put on record a similar case to that of Dr. Freiberg. The patient suffered from mild sciatica for a number of years. The x-ray showed a spur on the transverse process. I recommended removal and carried the operation out. She never had any symptoms of sciatica afterwards.

Dr. Goldthwait: The specimens were all taken from bodies that I had dissected. The x-rays are from my own clinic, and I can give you the histo-ries of them. Paraplegia seems to me a thing that must be reckoned with. Dr. Nathan spoke of the cases as being due to cauda equina pressure. Those that I showed are not simply the cauda equina but are the roots which make up the different plex-uses. Dr. Starr asked whether patients with this condition do not go about without showing sym-ptoms. I, myself, did not know that I had a pe-culiar formation of the transverse process of my last lumbar vertebra until last winter. With regard to treatment: Recognizing these symptoms as being due to acquired conditions on top of a congenital malformation, the problem is to restore the condi-tion to what it would be normally, or was in early life. You must balance the individual so that the processes are relieved of strain and irritation. If the pressure is all on one side and is distorting the spine, the patients can be relieved much less fre-quently, I think, than I supposed at first. Not only are the nerves low down at the lumbo sacral joint pressed upon, but also, by the processes' settling down, you may get a pressure on the nerve in the upper part of the lumbar spine. Dr. Reilly asked whether this condition will cause nausea or not. I do not know. Dr. Nathan asked as to my proof that these anomalies are pathological. I did not claim any more than that they are there. It is for you to decide whether they are important or not. A lumbo sacral joint is subject to all the diseases that any other joint is subject to.

SPONTANEOUS GANGRENE AND ALLIED CONDITIONS IN ORTHOPEDIC SURGERY.

Dr. W. G. Stern, Cleveland: Spontaneous gan-grene, Raynaud's disease, erythromelalgia, akro-

cyanosis, and intermittent claudication are allied conditions, and are probably due to similar causes. Of 14 cases here reported, only 5 were seen by the general surgeon, and that late in the progress of the disease, after gangrene had set in, for the purpose of amputation. Three of these cases were transferred by the orthopedist to the general surgical service. Ten of the 14 cases were referred to the orthopedist early in the progress of the disease, on account of pain and discomfort in the feet and legs upon walking—most of them under the impression that the condition was due to flat-foot. Seven cases had some degree of flat-foot, and several had been treated for the same with plates and exercises. One case had been held to be a sarcoma of the tarsus, while another was suspected of being a tuberculosis of the ankle joint.

DISCUSSION.

Dr. L. W. Ely, Denver, Col.: I should like to speak of the value of rest. Many years ago I had a case in an adult, who had lost one foot by amputation for gangrene, beginning above the toe and running to just above the knee. The other leg presented a well-marked case of intermittent claudication. The pulse was absent. It ceased about the middle of the leg. He had a well-marked phlebitis, and treatment was without effect. He was put on the flat of his back for six or eight months, and his symptoms all disappeared. He still has his leg and foot. Without rest, he would have lost the limb.

Dr. H. A. Wilson, Philadelphia, Pa.: I should like to ask Dr. Stern whether any of the cases gave a history of the onset's being a frost bite, with an exaggeration of the condition in the winter, and an amelioration in the summer. Those patients who apparently had exaggeration of the symptoms in the winter were relieved by applied warmth and complete rest; the circulation recovered, the gangrene disappeared, and there was an arrest in the condition, with a slight recurrence the following winter.

Dr. Z. B. Adams, Boston, Mass.: I wonder whether Dr. Stern examined his patients for the presence of a pylonidal sinus, which, from my observation of two cases, I should have expected to find.

Dr. C. F. Painter, Boston, Mass.: Until I learned to associate with this condition etiologically the presence of various toxic conditions connected with narcotics, I did not understand the etiology of these cases very well. There seem to be two points connected with them—the fact that they occur largely in people who are fundamentally of a weak or unstable nervous system, and in those who give a history of having used tobacco or some other toxic material to excess.

SYMPOSIUM ON SCOLIOSIS: THE TREATMENT OF STRUCTURAL SCOLIOSIS.

Dr. A. H. Freiberg, Cincinnati: Correction jackets for scoliosis have been in use intermittently for over a generation. They failed of their object chiefly for two reasons: first, because the muscle factor was ignored; and second, because the proper mechanical principles were not observed in making the correction. These principles are still ignored in many of the procedures that have lately been brought forward. The mechanics of correcting the torsion and the consequent chest deformity are a most important feature. The apparatus exhibited shows the application of these principles, but the possibility of maintaining the corrective effect has not yet been demonstrated.

THE TREATMENT OF SCOLIOSIS (FIXED TYPE) BY PLASTER, SUPPLEMENTED BY PNEUMATIC PRESSURE.

Dr. John Prenntiss Lord, Lincoln, Neb.: In the treatment of exaggerated scoliosis of the fixed type it has been my experience that frequent forced corrections under plaster have rendered the best net results. The pressure surfaces are greater in casts than in braces, and may, therefore, be made to exert a greater corrective force, and thereby maintain a maximum of efficiency.

To make them more sanitary, they have been fenestrated to the largest possible extent, especially over concavities in the chest. To avoid chest constriction and atrophy of the pectorals the cast has been cut out extensively to allow of free expansion of the upper chest over the upper lateral concave portion. The breasts of females are made free by ample fenestra. To supplement the efficiency of these casts and to add more pressure over the protruding ribs, use the air bags made from sections of the inner tubes of automobile tires. The valve stem of a bicycle tire is inserted in the edge of the flattened tube. The cut ends of these sections are cemented and vulcanized. Discarded tubes of good quality make admirable pneumatic cushions which are very durable. By these means a follow-up effect is secured. The French have also used the air bags.

A JACKET FOR THE TREATMENT OF SCOLIOSIS, WHICH PERMITS THE UTILIZATION OF THE RESPIRATION FOR CORRECTION BY WINDOWS AND BENDING, *i.e.* OVERCORRECTION, IN DIFFERENT DIRECTIONS, IN DIFFERENT SEGMENTS OF THE SPINE.

Dr. Michael Hoke, Atlanta, Ga.: I have tried to devise a joint permitting universal motion which, at the same time, would be of such construction that it could be locked securely in any position in which it is placed. It is merely a matter of ingenuity to apply a series of joints to the particular individual and the particular jacket in which one wants to use them. Of course I do not claim that this particular jacket is as effective as plaster, but there are times when circumstances arise preventing the use of plaster.

THE TREATMENT OF ROTO-LATERAL CURVATURE OF THE SPINE.

Dr. B. E. McKenzie, Toronto: There are two essentially different and opposed methods of treatment: one, forcibly corrective and restrictive; the other, forcibly correctve, developmental and educative. The former, while correcting the deformity, fails to improve function; the latter is effective in bettering both form and function.

A NEW SCOLIOSOMETER.

Dr. James K. Young, Philadelphia: I now present a new method of transferring the outline and tracing of scoliosis directly to tracing paper, a method that is simple, inexpensive and scientifically accurate.

ME MATERIAL TO BE USED IN PADDING PLASTER JACKETS.

Dr. C. F. Painter, Boston. This material is ed for the protection of the body from the pressure the plaster. The ordinary sheet-wadding that we l use is packed up with a gauze bandage, in order lessen the difficulties that one occasionally meets ith in the application of sheet-wadding, which nds to slip.

DISCUSSION.

Dr. Joel E. Goldthwait, Boston: The most em-rrassing question asked the chiefs of the different inics was regarding what they accomplished with ference to the rotation in this condition. I have en able to do very little with it. Abbott has own that by putting the patient in the position flexion, one relieves the locking of the articular ocesses and puts the spine in the position of great-t flexibility. It then becomes possible to unrotate e spine, so that correction can be made. If the oulders are dropped and the body bent to the side, e does not have a true rotation. If the shoulder raised and the same position maintained, the body the vertebra is rotated.

Dr. L. J. Porter, Chicago: I got, from my visit Abbott, the idea that we had been trying to cor-ct the deformity and had failed because, when we cked the spine, there was no possibility of rotating e vertebrae. The only possibility of correction in is position was in little children, whose ribs were soft that they could be twisted back into place. r. Abbott did in three or four months what I uld not do in years.

Dr. Clarence L. Starr, Toronto: In our jacket, rried over the shoulder, we had a paralysis of the m from the pressure. This paralysis came on ree weeks after the application of the jacket, hich was not tight. It came on just as does the dinary crutch palsy, and cleared up in five or six onths.

Dr. Prescott LeBreton, Buffalo: One point not uched upon, except by the last speaker, refers to hat might be the harmful effects of the treatment. here might be cases of lung trouble or of flexed terus, and I should like to know whether any harm ould come from that position.

Dr. F. E. Peckham, Providence: If such work ad been slowly led up to by previous work in that irection, and the medical mind had been prepared y a logical sequence of events for this ultimate sult, it would have all seemed easy and natural; ut the idea apparently flashed across Dr. Abbott's ind, and the trick was done. The result came rst, and the explanation afterwards.

Dr. C. D. Napier, Brooklyn: In following out e padding posteriorly over the kyphosis, and in ying to correct the rotation from posteriorly, I as disappointed in the result. More recently I ave tried to follow out the idea of padding ante-orly on the ribs. It makes a wonderful difference the amount of correction obtained.

Dr. H. Augustus Wilson, Philadelphia: I should ke these gentlemen who have seen Dr. Abbott and is work to tell us something about what is done as changing the shape of the bones. I feel that the sults stated here today are of a type to make us sk what will prevent the recurrence of the deform-y.

Dr. Porter: Dr. Wilson wants to know what is going to happen when the jacket is removed. The patient is put into another plaster jacket, like the first made, and kept there.

Dr. B. A. Twinch, Newark: As I understand Dr. Abbott's method, he applies over-correction, what we are all relying on in every other deformity except curvatures, in which we only correct. We do not think of just merely correcting bow-legs, but we over-correct them.

Dr. Z. B. Adams, Boston: When the vertebrae have swung around onto the side of the convexity in the back, in the dorsal region, and have become wedge-shaped, and when the ligaments on the side of the vertebrae have contracted, I do not see how Dr. Abbott can untwist these vertebrae and bring them around into position or over-position.

Dr. Carl Herman Bucholz, Boston: I want to report our present scheme of recording scoliosis. In order to make it uniform and get the patient in the same position, Dr. Osgood has constructed a frame, with cross pieces and padding, to hold the patient in the same position each time. It makes an unnatural position, but it can be taken each time. We use the stereoscopic photograph, which gives a beautiful view.

Dr. W. E. Blodgett, Detroit. I never understood before why the vertebrae rotate so in lateral curvature. The explanation is that the raising of the ribs on the convex side produces an increased distance between the costal attachments at the sternum and those at the vertebrae. Of course, as the power of the sternum is limited, there is a tendency to rotate the vertebrae in the way in which they rotate, so that there is this rotary deformity.

Dr. N. M. Shaffer, New York City: Some years ago I claimed that we should measure our deformities, just as the ophthalmologist measures the functions of the eye. Lateral curvature is a question of growth. I compared it to torticollis, in which we get the same kind of deformities in the cervical vertebrae that we get in the dorsal vertebrae in lateral curvature. I want also to place on record a new cause for lateral curvature. In one case of mine the lateral curvature was due to the fusion of the ninth and tenth and the tenth and eleventh ribs together, two inches from the vertebral column. The fusion was removed and the child has gone on nicely.

Dr. Walter Truslow, Brooklyn: The x-ray picture is the final court of appeal, but it is sometimes difficult to get the x-ray taken.

Dr. Adams: Fusion of the ribs, *per se*, does not cause scoliosis. In an examination of specimens in our museum at Boston, I found that there are some that show two ribs fused together with no scoliosis whatever.

Dr. R. T. Taylor, Baltimore: After the appearance of Dr. Abbott's article, without having suitable apparatus, we tried, by means of posture and strength, to correct the deformity. We had the patient stand with the left hand on the top of the table and the right on the leg of the table, and regulated the position according as the amount of curvature improved. The progress was much more rapid than what we had made previously.

Dr. Starr: In connection with the bending position and elevation of the arm, my colleague and I found that we made a marked change in the contour by putting a lift under the foot of the hip that was convex, thus tilting the pelvis.

(To be continued.)

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THE DEATH OF CHARLES THE SECOND.

ON February 6, 1685, died Charles the Second of England, the Merry Monarch

"Who never said a foolish thing
And never did a wise one."

Singularly enough there has been preserved a more complete account of the medical details of his final sickness than in the case of any other British sovereign prior to the nineteenth century. Our most compendious source of information on this subject is a book on "The Last Days of Charles II," written by a physician, Dr. Raymond Crawfurd, and published in 1909 at the Clarendon Press, Oxford. Dr. Crawfurd diligently compared all the documents bearing on the case, and his work presents an impartial and authoritative historic record.

Charles II had led an adventurous, dissipated and intemperate life, but apart from a chronic pleurisy, possibly of tuberculous origin, his health had been in the main good. In the fall of 1684, in the fifty-fourth year of his age, he suffered from a protracted attack of gout, due no doubt to his excesses in eating and drinking: but from this he completely recovered and was apparently restored to his usual health.

The evening of Sunday, Feb. 1, 1685, as Evelyn vividly records in his diary, Charles spent in riotous pleasure, surrounded by a brilliant galaxy of the favorites and gallants of his court. At eight o'clock the next morning, Candlemas Day, Feb. 2, the King "having just left his bed, was walking about quietly in his chamber, when he felt some unusual disturbance in his brain, which was soon followed by loss of speech and convulsions of some violence." He "fell back into the arms of Lord Ailesbury, who was standing close beside him." Edmund King, one of the royal physicians, who happened to be present, promptly bled the unconscious monarch of a pint of blood from a vein in the right arm, and summoned the other medical attendants, upon whose arrival a consultation was held. The following statement of the action resulting from their deliberations is taken from Dr. Crawfurd's translation of the contemporary official account of the King's illness, drawn up in Latin by Sir Charles Scarburgh, the senior consultant.

"They prescribed three cupping-glasses to be applied to his shoulders, to be quickly followed by scarification deep enough to effect a fuller and more vigorous revulsion, and in this manner about eight ounces of blood were withdrawn. Within a few moments after this, so as to free his stomach of all impurities, and by the same action to rid his whole nervous system of anything harmful to it, they administered an emetic. . . and as only a small part of this was taken, so that their endeavor might not be altogether frustrated, they added one drachm of white vitriol dissolved in compound paeony water. Soon afterwards they gave as well one drachm of two-blend pills, likewise dissolved in paeony water, and this so as to drain away the humours more speedily by his nether channels. Further, so as to accelerate the operation of that purgative, they supplemented it with an enema." After an hour, "they repeated the clyster, with the addition of 2 ounces of syrup of buckthorn, 4 ounces of emetic wine, and 2 drachms of rock salt; but as these were slow in operation, they made still another effort to attain the same end with yet more purgatives. Over and above this, so as to leave no stone unturned, blistering agents were applied all over his head, after his hair had been shaved."

As a result, or perhaps in spite, of this drastic therapeusis, the poor King in about two hours recovered consciousness. He was not left in peace, however. His physicians held repeated consultations, and continued to prescribe blisters, cathartics, emetics, purgatives, sneezing-powders, and venesection. This polypharmacy continued through Feb. 3; and it appears that his majesty evinced his Christianity in no more genuine fashion than in the serene and cheerful fortitude with which he endured these horrors of heroic medieval medication. On Feb. 4 the convulsions recurred. On Feb. 5, thinking that the King might perhaps have the intermittent

er, then prevalent in London, his physicians led Peruvian bark to his already formidable of medicines. Though his strength failed idly and the convulsions became more fre- nt, Charles retained complete consciousness, eived the last sacrament of the Church, and de his famous apology to his courtiers for the conscionable time he took in dying. On Fri- morning, Feb. 6, "he was seized with breath- ness; he was again bled and heart tonics re administered. At half past eight his ech began to fail"; and with the farewell in- ction, "Take care of poor Nell," he became conscious, "and shortly before noon he etly passed away."

At the autopsy, held on Feb. 7, the following ditions, as recorded in the protocol, were nd: "On the surface of the brain the veins l arteries were unduly full. All the cerebral tricles were filled with a kind of serous mat- and the substance of the brain itself was te soaked with similar fluid. On the right e the lungs and pleura were firmly adherent the chest wall. No fault whatever could be nd with the substance of the lungs, but they re charged with blood. The heart was large l firm, and quite free from malformation in ry part. In the depths of the belly there was hing unnatural, except that the liver was in- ed to be livid in colour, perhaps because of abundance of blood in it, with which the neys and spleen were also engorged."

n the absence of bacteriology, neither the tomic nor the clinical diagnosis of his disease positive. Both the pathology and the case tory, however, seem strongly to suggest that was in reality an acute meningitis, which lly killed the cleverest and most dissolute n who ever sat upon the English throne.

TRATRACHEAL INSUFFLATION IN ANESTHESIA.

THE practical value of experimental research connection with medical progress was excel- tly illustrated in the elaboration and develop- nt by Meltzer and Auer[1] of the method of ificial respiration by intratracheal insuffla- n. With a soft rubber catheter, air, under a ssure of about 15 mm. of mercury, is carried ectly to the bifurcation of the trachea. It re- rns from here between the catheter and the cheal walls to the exterior. For a human lt the most generally serviceable catheter is 3 F., although the exact size does not matter within wide limits. The air delivered thus at the bifurcation of the trachea and returning alongside the catheter, creates air currents in the bronchi which greatly facilitate diffusion through the alveoli of the lungs. Meltzer and Auer have demonstrated that efficient aeration can be maintained indefinitely by this method.

In two important fields this method met immediate recognition and has stood the test of experience. In accidents attended by stoppage of the respiratory function, such as electrical shock, drowning, etc., the older mechanical methods of artificial respiration were but meagerly satisfactory. The prone pressure method of Shafer was perhaps the best and with the least risk of fracturing ribs or rupturing the liver, gave fair aeration of the lungs. Intratracheal insufflation requires the use of a comparatively simple apparatus, but its results are so satisfactory that such an apparatus in portable form and with trained attendants might well be made an essential feature of still more emergency relief stations where succor may be required for victims of drowning, electrical shock, mining accidents, and others attended with suspended respiration.

The other great field of clinical usefulness for intratracheal insufflation is in the introduction and maintenance of surgical anesthesia in selected cases. Its particular advantages are for intrathoracic work, and for operations on the head, neck and oral cavity. Cotton and Boothby in the current issue of the *Annals of Surgery*[2] discuss the application of this method to surgical anesthesia. They point out that if the thorax is opened, the resistance to the outflow of air back along the catheter is sufficient to maintain moderate expansion of the lungs. From the surgical standpoint full expansion is undesirable, and in any case is unnecessary, and it may be dangerous as there is a risk of traumatic emphysema from over-distension. The authors recommend Meltzer's expedient in cases where, for any reason the patient seems under-oxygenated, of interrupting the current of air through the catheter for a few seconds and allowing the lungs to fully collapse. This, however, is only occasionally necessary.

After an intrathoracic operation, pneumothorax is obviated by the simple manoeuver of making gentle pressure on the trachea while the thorax is being closed, thus increasing the resistance to the outflow of air and expanding the lungs out full to the chest wall. It is important

to maintain a free outlet for the air through the mouth, as if the tongue drops back, for instance, it may cause sufficient resistance to the outflowing air to force it into the esophagus and stomach.

A more serious event is glottic spasm due to the irritation of the catheter in the larynx and resulting in the vocal cords constricting more or less tightly about the catheter and cutting off the egress of the air.

This results from incomplete anesthetization and is controlled by intermittently interrupting the air supply, causing the lungs to collapse fully each time, and by increasing the amount of ether vapor supplied. Cotton and Boothby declare it important to provide a mercury safety valve, by means of which the intrathoracic air pressure is prevented from exceeding 15 mm. of mercury. This avoids the danger of overdistending the lungs, if through glottic spasm or other reason, the egress of air is restricted.

In view of the ease of maintaining full aeration of the lungs by intratracheal insufflation, there is danger of over-oxygenation of the blood, resulting in a condition of acapnia or absence of carbon dioxide. This may easily produce a condition practically identical with surgical shock, if the teachings of Henderson[3] are to be accepted. It will be recalled that Henderson assigns the cause of shock to hemic acapnia, and to prevent this situation arising in intratracheal insufflation, the volume of air or combined gases should be just enough so that the patient will breathe or attempt to make respiratory movements in practically the normal manner.

Cotton and Boothby conclude that intratracheal insufflation is the only method that absolutely provides for sufficient aeration of the lungs, regardless of the respiratory movements of the patient, and that if properly administered and safeguarded, it can be rendered free from intrinsic danger. Consequently this method of administering anesthetics is indicated in operations which will interfere in any way with the ability of the patient to respire voluntarily. They consider that ether vapor with air, supplied by a foot pump, is most advantageous for general use, although at times nitrous oxide with oxygen and minimal quantities of ether may be preferable.

Cotton and Boothby furnish an interesting history of the development of the idea of intratracheal insufflation and include a good bibliography of the subject. The application of this method to anesthesia marks a distinct advance in the surgery of the respiratory tract and thorax, and renders obsolete the cumbersome and prohibitively expensive differential pressure chambers so recently elaborated. Careful clinical observation and animal experimentation are needed to work out the very best methods of use and to determine more definitely the clinical relation between acapnia, over-oxygenation in anesthesia and shock.

[1] Meltzer and Auer: Respiration without Respiratory Movements. Zeitschr. f. Phys., vol. xxiii, pp. 210 and 442. 1909.
Ibid.: Continuous Respiration without Respiratory Movements. Jour. Exp. Med., vol. xi, p. 622. 1909.
[2] Cotton, F. J., and Boothby, W. M.: Intratracheal Insufflation Anesthesia. Annals of Surgery. Jan., 1913, p. 43.
[3] Henderson, Yandell: Acapnia and Shock. (A series of articles with complete literature.) Am. Jour. of Phys. 1908-1911.

DIET KITCHENS.

THE fortieth annual report of the New York Diet Kitchen Association is most interesting, as will presently be manifest; and it is important by reason of the incentive to like activity which other communities will find in it. Mrs. Henry Villard, the president of this beneficent institution, observes that the record of its work during the two score years past would fill many volumes. It began at a time when, by reason of New York's increase in population, philanthropy had to redouble its efforts to save the lives of the poor suffering from such diseases (especially tuberculosis) as were fostered by the multiplication of unsanitary, sunless and dirty tenements; and it has since advanced steadily in accordance with modern methods of coping with such conditions, so unfortunate for the sufferers, and so dangerous for the community at large.

At first the kitchen of this Association furnished food cost-free to the sick poor, on the presentation of requisitions signed by dispensary doctors, who recognized that medication alone would not cure malnutrition. Beef tea was in great demand, as well as cereals and milk; but finally milk was deemed most necessary, wherefore the kitchens became centres for the distribution of the purest attainable milk, the high demands of the Department of Health being ever the standard. The difficulty of rendering aid only to those too poor to pay for the milk led the association to act upon medical advice and to charge six cents—the cost price of the milk per quart.

When the new world-wide propaganda against tuberculosis began, and when at about the same time the Health Department took steps to reduce infant mortality (which comes about so largely

reason of low grade milk) the poor came to ese diet kitchens in overwhelming numbers, t the sufferers from the diseases mentioned en represented (as they do also today) but ty per cent. of the Association's beneficiaries; d it is said that this is the only association nich ministers to all sick people, no matter nat may be the cause of their suffering. ghty charitable societies, who were co-operag with the Association, were then asked to prode the cost price of the milk used by such tients they sent to it as were too poor to pay en a small sum; and this request was for the ost part acceded to. Even so, however, there as a large deficit, which had to be met by apals to the public.

And yet milk distribution is the least of the ssociation's work; the salient feature even in e beginning, has been educational. The aim s ever been for prevention rather than cure. ne kitchen matrons have always visited the mes of the patients, in order to render every ssible help to them; besides, nurses have been ovided for the nine kitchens, thereby greatly ereasing the running expenses. In the sumer season the Health Department assigns to ese diet kitchens nurses for special work nong babies; but as their services are not given the winter the Association recognizes the oral obligation itself to carry on the work. or do its nurses care for babies alone; they ork for the betterment of every member of the mily. "Indeed," observes Mrs. Villard, "they e ministering angels in the neighborhood, are garded as such and appealed to on all occaons." They assist at the kitchen conferences, nen the babies are regularly examined and eighed, the formulae prescribed and prepared, d the mothers themselves taught how to modr the milk at home as well as in the kitchen. Expectant mothers keep well and are often le to nurse their babies because they are engthened by the Association's milk. And berculosis patients are taught the prophylaxis this disease, and the measures essential to its re. To such sufferers eggs are also either ven, or sold for a nominal sum.

During the past year 1,550,289 quarts of pure lk were dispensed below cost (for what is now ked no longer covers the increased cost price the milk); $76,619.86 were expended for the lk, the cost of it above receipts being 1,902.11. It cost $13,297.07 to maintain the ne milk kitchens (including salaries, rents, fuel, light, repairs, furniture and incidentals); the expenses in excess of receipts were $30,678.11. In the two summers past 2,310 babies were under the care of the nine stations, *with but twelve recorded deaths* from digestive disorders.

An instructive fact is that this Association is represented by its able superintendent, Miss M. L. Daniels, in the Babies' Welfare Association, a well-organized clearing house, having for its object the saving of infant life through the united help of all the various agencies at work for this purpose.

RECOMMENDATION FOR CHANGE IN IMMIGRATION LAW.

On November 16, 1912, a conference was held in New York City of social workers, alienists, and the most important scientific bodies in the the United States which deal with the prevention and treatment of insanity. Its purpose was to consider the most practical methods of excluding insane and mentally deficient immigrants.

The conference after careful deliberation unanimously recommended certain amendments to the present immigration law. It suggested that a penalty of at least $100.00 be attached to the importation by any steamship company of a case of insanity or mental defectiveness, which could have been recognized by competent examination before embarking. Also, commissioned officers of the United States Public Health Service should be detailed to vessels bringing immigrants to the United States, for the purpose of examining and observing the immigrants in transit, with particular reference to the detection of mental abnormalities. Another provision recomends that a sufficient number of medical officers, who have had special training in the detection of mental impairment, be stationed always at Ellis Island and other large ports, and that these officers shall at all times be provided with suitable facilities for their work, including the exclusive services of interpreters. It is urged that insane and mentally defective aliens who become public charges within five years, or gain admission to the country unlawfully shall be deported, unless their disability or disease is shown to depend on causes arising subsequent to landing. The final provision is for suitable care and attendance for cases under-

going deportation to insure humane and proper treatment.

The conference declared itself in favor of any measures which would make possible a medical examination of alien immigrants before foreign embarkation.

RENEWAL OF THE BALKAN WAR.

FOLLOWING the breaking off of peace negotiations in London, and the subsequent failure of Turkey to comply with the demands contained in the Balkan ultimatum, the armistice between the two parties was formally denounced by the allies on Jan. 30 at Constantinople. Meantime the situation has been further complicated by a partial political revolution among the Ottomans, in which the former Turkish commander-in-chief was killed, and which resulted in placing in power the Young Turks, who are bent on prosecuting the war more actively. On Monday of this week, Feb. 3, hostilities were officially resumed, though as yet there has been no serious fighting. The siege of Adrianople and of Tschatalja remains the first objective of the Bulgars.

With the renewal of war the need for medical relief becomes still more pressing. On Jan. 27 the Constantinople chapter of the American Red Cross Society sent to the national headquarters at Washington, D. C., an urgent appeal for further assistance. The sufferings of non-combatants are also acute.

"Seventy-five per cent. of the refugees are women and children. Worn out by their hardships, bereavements, exposure and starvation, many have died in the past two months, and unless these distressed people can be helped through the winter, the mortality among them will be appalling.

"Large sums must be immediately obtained from Europe and America if these people are not to starve."

The total sum thus far subscribed in Massachusetts for the Red Cross Fund now amounts to $8,002.89.

MEDICAL NOTES.

THE WELFARE OF INFANCY.—Their Majesties the King and Queen have graciously lent their patronage to the National Association for the Prevention of Infant Mortality and for the Welfare of Infancy. The foundation of this society is the outcome of a public meeting held last July at the Caxton Hall under the presidency of Mr. John Burns. It represents a triple alliance between the National Conferences on Infant Mortality, the National League for Physical Education and Improvement and its Department, the Association of Infant Consultations and Schools for Mothers, and the Women's National Health Association of Ireland.

Mr. John Burns is the president of the new Association, while Sir Thomas Barlow is the first chairman of its executive committee. The latter consists of 12 representatives of statutory administrative authorities, 12 medical officers of health, 12 members of the medical profession actively engaged in clinical practice, and 12 representatives of various societies actually engaged in carrying on work for the welfare of mothers and babies. It is confidently anticipated that local authorities and their medical officers of health will continue that active support and help in this great work which they have so readily given to the previous conferences. As an earnest of the important work the newly constituted society proposes to carry on, it has already arranged to hold in London a post-graduate course on the feeding and care of infants. This course, which fulfils a long-felt want, will be held in London from the 6th to 15th of January next.

The executive committee is now actively engaged in organizing an English-speaking Conference on Infant Mortality, which is to be held in London on August 4 and 5 next, a date which immediately precedes the International Medical Congress. In addition to expert authorities in England, delegates from the Overseas Dominions and America will take part in the Conference, and it has been decided to hold it in two sections so that the subjects included in the program may be dealt with both from the administrative and medical sides.

Further particulars with respect to the Association, membership in which is open to all who sympathize, or of the post-graduate course and the Conference may be obtained from Miss Halford, Secretary to the Association, 4 Tavistock Square, London, W. C.

FEDERATION OF STATE MEDICAL BOARDS.—The Federation of State Medical Boards will hold its annual meeting at the Congress Hotel, Chicago, on Monday, Feb. 25, 1913. Essayists, eminently qualified, will prepare papers upon the following subjects: "Is Universal Reciprocity to be Desired?", "Should Medical Boards Require One or More Years of College Work Preliminary to

Study of Medicine?", "Should One or More ars in a Hospital be Required for Admission the Examination for Medical Licensure?", ules and Regulations Governing Examina- ns for Medical Licensure," "Qualification of aminers," "What Fee Should be Required the Examination?", "Benefit of Having a gle Federation of State Medical Boards and thod of State Board Record Keeping," leans of Keeping Politics Out of State Board airs."

'hese topics are of practical and vital interest medical colleges, medical examining boards, profession at large and the public. Those tributing the papers on these subjects come h years of experience. An earnest and cor- l invitation to this meeting is extended to all nbers of State Medical Examining and Li- sing Boards, teachers in medical schools, col- es and universities, delegates to the Council Medical Education of the A. M. A., to the ociation of American Medical Colleges, and ll others interested in securing the best re- s in medical education and legislation.

'he officers of the Federation are: Arthur B. wn, M.D., President, New Orleans; George Matson, M.D., Secretary-Treasurer, Coumbus ate House), Ohio; James A. Duncan, M.D., irman Executive Committee, Toledo.

Morbidity Reports.—At the Tenth Annual ference of State and Territorial Health thorities with the United States Public Health vice, held in Washington, June 1, 1912, a olution was submitted by the Conference mmittee on Morbidity Reports and adopted the conference. The object of this resolution to furnish a means whereby sanitary horities might have current knowledge of the valence of disease and the occurrence of epi- ics.

'he resolution as adopted provides for the graphic report to the Surgeon General of the blic Health Service of the occurrence of cases certain diseases of special importance; also graphic reports of outbreaks and epidemics certain diseases, the telegrams in each in- ce to be followed by a report by mail. Pro- on is also made for monthly reports of no- ble diseases and for special reports of out- aks of smallpox in which fatal cases occur. lanks have been prepared for: (1) The re- ts to be mailed subsequent to the telegraphic ort of the occurrence of cholera, typhus fever, yellow fever, plague, and Rocky Mountain spotted (or tick) fever. (2) The regular monthly reports. (3) Reports of outbreaks of smallpox with fatal cases.

The telegraphic reports necessarily cannot be made on blanks, nor have blanks been prepared for the reports to be mailed subsequent to the telegraphic report of the occurrence in a locality of an unusual outbreak or sudden increase in the number of cases of smallpox, typhoid fever, scarlet fever, epidemic poliomyelitis, diphtheria, and epidemic cerebrospinal meningitis. These reports, therefore, are, for the present, to be made in letter form.

Appointment of Dr. Ross.—Major Sir Ronald Ross, F. R. S., who is at present professor of tropical sanitation at the University of Liverpool, has recently been appointed physician for tropical diseases to King's College Hospital, London, where he will assume his new duties next fall.

Dr. Minot on Modern Problems of Biology.—During the week of Dec. 16 to 21, Dr. Charles Sedgwick Minot, professor of comparative anatomy at the Harvard Medical School, delivered before the University of Jena, Germany, a series of six lectures on "Modern Problems of Biology." The special topics were: the new cell doctrine; cytomorphosis; the doctrine of immortality; the development of death; the determination of sex; and the conception of life, These lectures, which were in German, will shortly be published. Dr. Minot is at present serving as Harvard exchange professor at the University of Berlin.

BOSTON AND NEW ENGLAND.

Boston Mortality Statistics.—The total number of deaths reported to the Board of Health for the week ending Saturday noon, Jan. 25, 1913, is 230, against 233 the corresponding week last year, showing a decrease of 3 deaths, and making the death rate for the week 16.31. Of this number 128 were males and 102 were females; 225 were white and 5 colored; 137 were born in the United States, 89 in foreign countries, and 4 unknown; 42 were of American parentage, 149 of foreign parentage, and 39 unknown. The number of cases and deaths from infectious diseases reported this week is as follows: Diphtheria, 51 cases and 3 deaths; scarlatina, 40 cases and 2 deaths; typhoid fever,

3 cases and 0 deaths; measles, 155 cases and 0 deaths; tuberculosis, 61 cases and 17 deaths; smallpox, 0 cases and 0 deaths. The deaths from pneumonia were 39, whooping cough 1, heart disease 35, bronchitis 4. There were 17 deaths from violent causes. The number of children who died under one year was 49; the number under five years 56. The number of persons who died over sixty years of age was 68. The deaths in hospitals and public institutions were 97.

Cases of infectious diseases reported to the Boston Board of Health for the week ending Jan. 28, 1913, are: Diphtheria, 59; scarlatina, 40; typhoid fever, 6; measles, 176; smallpox, 1; tuberculosis, 61. The death-rate of the reported deaths for the week was 15.88.

NEW YORK.

NOTIFICATION OF VENEREAL DISEASE.—The action of the City Health Department in requiring the superintendents of all public institutions, and requesting all physicians in private practice, to report all cases of venereal disease coming under observation, together with the source of infection, if obtainable, is meeting with decided disfavor and opposition from the medical profession. At the last meeting of the Medical Association of the Greater City of New York resolutions were unanimously adopted declaring that this action is an undesirable and useless invasion of the most confidential relationship between physician and patient. The resolutions go on to say: "The mere compilation of statistics in venereal diseases is of no value, and the attempt to make it in this manner is a direct incentive to falsification and disobedience to the law. The measure is of value only as a step toward the relegation of these cases to the Board of Health, and its ultimate effect will be to promote self-medication and quackery." The resolutions also provide for the appointment of a committee to arrange suitable action in this matter, and report at the next meeting. In presenting these resolutions Dr. William S. Gottheil, one of the leading dermatologists of the city, made the statement that the Health Department had intended establishing stations in various localities where patients suffering from venereal diseases could receive free treatment, and had been prevented from doing this only by its failure to obtain an appropriation of $50,000 which it had asked for the purpose. Action, in the way of protest, similar to that by the Association is now being taken by other medical bodies.

AMERICAN MUSEUM OF SAFETY.—The annual exercises of the American Museum of Safety, with the award of four gold medals, were held on Jan. 23. The awards were as follows: The Scientific American medal, to the Draeger Oxygen Apparatus Company, for the pulmotor as a life-saving agency; the Travelers' Insurance Company medal, to the New York Edison Company, for persistent effort and success in minimizing the dangers of the electric power plant; the Louis Livingston Seaman medal, presented by Dr. L. L. Seaman of New York, to the National Cash Register Company, for achievement in securing factory hygiene and sanitation; the Rathenau medal, placed at the disposal of the museum by the Allgemeine Electricitaets Gesellschaft, Berlin, for annual reward, to Thomas A. Edison, for achievements in electrical devices to ensure the safety of the lives of workers in atmospheres charged with combustible gas. It was announced that a fifth gold medal had been founded by Mrs. E. H. Harriman, as a memorial to her husband, to be awarded anually to the steam railroad making the best record in accident prevention and industrial hygiene. The annual report of the president of the museum Arthur Williams, gave some account of the great progress made of late in the development of safety appliances, and among those who spoke were Andrew Carnegie and Dr. George F. Kunz chairman of the committee on plan and scope.

POSTPONED HARVEY LECTURE.—The postponed lecture by Major F. F. Russell on "The Prevention of Typhoid Fever" will take place on Feb 8, 1913, at the New York Academy of Medicine at 8.30 p. m.

NEW YORK NEUROLOGICAL SOCIETY.—Dr Smith Ely Jelliffe has been elected president of the New York Neurological Society for the year 1913.

MOUNT SINAI HOSPITAL.—Report on Jan. 2 states that already $650,000 have been raised towards the sum of $1,350,000, which it is estimated will be needed for the projected alteration and extension of the buildings of the Mount Sinai Hospital.

OCIETY FOR THE ADVANCEMENT OF CLINICAL DY.—A society for the advancement of clini- study has recently been organized in New k City, the purpose of which is to maintain a eau of information which will furnish to dent and visiting physicians definite infor- tion regarding the clinical facilities of the pitals and laboratories of the greater city. this purpose a bulletin board has been in- led at the Academy of Medicine, 19 West d Street, in charge of a special clerk, who l be on duty between the hours of nine and to answer all telephone inquiries. The bulle- board will consist of two sections, on one of ich will be posted, month by month, the regu- clinics, medical and surgical, and also lab- tory demonstrations, all of which are held at ted hours. The second section will include l announcements of daily operations and nonstrations of cases both medical and surgi- which as far as possible will be announced the day preceding their performance. It is ieved that these facilities will afford physi- ns who are interested in observing particular rations and operators or clinicians, an oppor- ity to obtain the desired end and with the st trouble. It is hoped that by this means large and unexcelled clinical facilities of w York City will be made more accessible to se who may desire to make use of them.

CONSERVATION OF HUMAN WEALTH.—A por- n of Governor Sulzer's first message, which s sent to the legislature on the day of his uguration, January 1, was devoted to some the methods for the conservation of what he ms "our human wealth." "We must try," he s, "to work out practical legislation that will ply to our social ideals and views of indus- al progress to secure for our men, women and ldren the greatest possible reserve of phys- l and mental force. I hold it to be self-evi- nt that no industry has the right to sacrifice man life for its profit, but that just as each dustry must reckon its cost of production the terial waste, so it should also count as a part the cost of production the human waste ich it employs. Many of our States have en- ted workmen's compensation or insurance vs. . . The workers themselves have not al- ys been able to secure such compensation for emselves. Particularly has this been true of men and children, in whom the State should e a special interest. To secure for those less accustomed to the competitive struggle the protection which other workers have won for themselves through organization, we should carefully consider the establishment of wage boards, with authority to fix a living wage for conditions of work, below which standards no industry should be allowed to continue its operations. Massachusetts has enacted such a law. Ohio recently adopted a constitutional amendment authorizing the legislature to do the same. For the welfare of the State child life must be protected. . . The work period must not be permitted to infringe on the formative and the maturing period. Compulsory educational laws and restrictions upon child labor properly enforced will secure to every child of the State its rightful heritage. . . Another type of legislation beneficial to the State, that aims to conserve human life and health, is that which requires the use of safety appliances and establishes safety standards. Human life is infinitely more valuable than the profit of material things. The State, for its own preservation, has the right to demand the use of safer and more hygienic methods, even if at greater cost of production to the employer. Occupational diseases should be studied, and the results of careful investigation embodied in laws to safeguard the health and the lives of the workers. Practical results of such legislation prove that these regulations are a good investment. . . Statistics prove that the welfare of the worker is indissolubly involved in permanent industrial progress. One of the most practical and permanent aids in conservation of human resources is the establishment of municipal museums of safety and government research and investigation, such as is carried on by the Federal Bureau of Mines. . . This study to safeguard the life, body and health of the worker is essential to true scientific and industrial progress."

HEALTH DEPARTMENT AT COLUMBIA UNIVERSITY.—In June, 1912, Dr. W. H. McCastline was appointed chief of the department of health and sanitation at Columbia University. The establishment of this department was in the nature of an experiment; and Dr. McCastline's first report, recently issued, seems to indicate that it has been a success. The aims of the department, outlined in the report, are as follows:

"First—To establish a basis of co-operation between the university and the hospitals and clinics of the city that stand ready to assist the

college in its effort to meet the emergencies arising within its jurisdiction.

"Second—To establish for the students a well appointed office on the campus where they may go for medical consultations and advice on all matters relative to health. These consultations are without charge to the students, making it possible for the men who are working their way through college to obtain as prompt and effective treatment as the men who can afford to consult their own physicians.

"Third—In order that the department may render the best services to the patients arrangements are being made by the university physician with specialists, to whom student patients may be referred, if necessary, for consultation or treatment.

"Fourth—The department will co-operate with the physicians of the neighborhood, assisting them in their problems with patients who are students at the university. Thus the practising physician has a means of obtaining facts regarding the life of his patient as a student. When he wishes to make recommendations affecting in any way his patient's routine life at college he may, if he wishes, first consult with the university physician to ascertain the feasibility of his proposed plan of treatment in relation to the adjustments which might be made within the college for the student's best interest. Many of our students are under the care of their home physicians, and it is the policy of this new department to co-operate as far as possible with the family physicians in such cases.

"Fifth—The department further aims to assist the students to preserve health by guarding against all conditions that might lead to disease or a lowered vitality and thus cut down mental and physical efficiency. In this connection a student board of health will be appointed by the health officer to consist of at least one representative from each of the schools and the dormitories. The duties of this student board will be to co-operate with the health officer of the university in solving the problems affecting the health of the community and to assist him in spreading prophylactic measures. The work that can be done by a representative student committee of this kind in bringing to light valuable information regarding conditions touching the students both on the campus and in the neighborhood is inestimable."

THE DISCONTINUANCE OF THE FREE ADMINISTRATION OF DIPHTHERIA ANTITOXIN BY THE DEPARTMENT OF HEALTH OF THE CITY OF NEW YORK.—The free adminstration of antitoxin in diphtheria, and the performance of intubation, by the inspectors of the Department of Health of the City of New York, was begun in 1895, the objects in view being not only the cure and prevention of the spread of the disease, but also the education of the medical profession and the general public. These ends have been accomplished. The death-rate of the disease in Manhattan and the Bronx has fallen from 15.9 per 10,000 of population in 1894 to 2.2 in 1912. In 1894 twenty-nine out of every one hundred cases reported, died. In 1912 less than nine cases out of every hundred died. Since 1895 almost 40,000 cases have been injected with antitoxin furnished by the Department of Health, and of these, less than 6% proved fatal. Finally, the records show that at the present day practically every case of diphtheria receives antitoxin.

On and after February 1, 1913, therefore, the present system of free administration by inspectors of the Department of Health, of diphtheria antitoxin and performance of intubation at the homes of the patients, at the request of attending physicians, will be discontinued. After that date, when it becomes necessary for the Department of Health to administer antitoxin or perform intubation in any case of diphtheria, the patient will be at once removed to one of the hospitals of the Department for further observation and treatment. Diphtheria antitoxin may still be obtained, free of charge, by physicians from supply stations at drug stores for use where payment for the same by the patient would be a hardship.

NEW YORK STATE DEATH-RATES.—Report from Albany, N. Y., on January 20, shows that the New York State death-rate for 1912 was only 14.6 per 1000, the lowest recorded in this state since statistics have been kept.

WARNING AGAINST LEAD POISONING.—So much lead poisoning has been found to exist among painters and lead workers in New York factories that the Department of Labor (of that State) has begun a vigorous campaign against plumbism, a disease which recent investigation by the federal government shows to be from 8 to 10 times as frequent in American as in European factories where the manufacture and use of lead is under strict governmental control. The Department is endeavoring to enlist the co-operation of employers and workers in lead at the same time that definite legal regulation of the industry is being proposed by the American Association for Labor Legislation as a necessary supplement to voluntary action. This regulation which comes in the form of the Association's unform bill, now being introduced in ev-

y state in which a legislature is at present sit-ng, calls for sufficient washing facilities, in-ructions to workmen by foreman and others, echanical methods of dust prevention and re-oval, and the prohibition of eating in work-oms. This promises to be a big national cam-ign for the prevention of lead poisoning.

The New York law already requires physi-ans and hospitals to report lead poisoning and e Department has just distributed to every inter's union and to all employers and hos-tals reporting cases of lead poisoning a 50,000 nglish edition of a card of "Information for orkmen," to be followed later by editions in her languages, stating that lead poisoning can prevented, that hoods and other mechanical eans are necessary to take away lead dust and mes, but that the workers themselves need take extraordinary precautions.

Current Literature.

Medical Record.

January 11, 1913.

Stein, J. B. *Jan Palfyn.*
Robbins, F. C. *Report of a Case of Pellagra.*
Greene, J. S. *Diseases of the Labyrinth, With Special Reference to the Methods of Examining the Labyrinth in the Continental Clinics.*
Beall, F. C. *Subcutaneous Rupture of the Kidney.*
*Shears, G. P. *A New Method of Treating the Toxemia of Pregnancy. Preliminary Communication.*
Grushlaw, I. *Report of a Case of Sinus Thrombosis; Operation; Recovery.*

5. Shears suggests suboxidation as the real cause the toxemia of pregnancy. The clinical symp-ms—dyspnea, headache, edema, convulsions—are rongly suggestive of lack of oxygen. Acting on this eory, the writer has been treating his toxemic cases the free use of oxygen with good results. The ygen was generally given by inhalation, but occa-onally subcutaneously. This treatment supplements t does not take the place of diet, catharsis, hydro-erapeusis, and other measures of proved value.
[L. D. C.]

January 18, 1913.

Chapin, H. D. *Some Problems of Nursing: A Plea for Grading.*
*Von Noorden, C. *Radium and Thorium-x Therapy.*
Bennett, A. B. *The Prognostic Value of the Rinne, Weber and Schwaback Tests.*
Neustaedter, M. *Observations of the Atypical Children in Dr. Groszman's School, from the Standpoint of the Neurologist.*
Greeley, H. *Beauty Doctoring.*
Coopernail, G. P. *Three Important "Dont's" in Bone Plating.*

2. Von Noorden writes an exhaustive paper on the erapeutic application of the radio-active elements, especially radium and thorium-x, in internal medicine. The most reliable and unobjectionable form of radio-active treatment is probably a combination of strong radio-active spring baths with emanatoria and drinking cure, and the conditions most amenable to such treatment are genuine uric acid gout, obstinate non-gouty arthrosis, myalgias and neuralgias, where chemical methods are out of place, sexual impotence, mild neurasthenia and nervous insomnia. Powerful thorium-x treatment is very promising, and its domain will be especially the diseases of the blood, leukemia and severe anemia. [L. D. C.]

New York Medical Journal.

January 18, 1913.

1. Babcock, W. W. *Superficial Metastatic Growths in the Diagnosis of Deep Seated Malignant Tumors.*
2. Vandegrift, G. W. *Edema of the Lids.*
3. Coates, G. M. *Bismuth Paste in the Ear and Nose.*
4. Mills, W. S. *An Hermaphrodite?*
5. Niles, G. M. *The Treatment of Pellagra.*
6. Ferguson, W. *Rhinology and Laryngology in General Practice.*
7. Pettit, R. *Incipient Tuberculosis of the Larynx.*
8. *Welch, J. E. *Normal Human Blood Serum in the Treatment of Hemorrhagic Diseases of Infants and Children.*
9. Shipman, E. W. *Eye Strain in Children.*
10. Greco, W. *The Origin of Medical Journalism.*

8. Welch reports two cases of hemorrhagic disease in the new born and one case in a child of seven, all three successfully treated by the subcutaneous administration of normal human blood serum. The latter as a therapeutic agent will probably always find its broadest field of application in such cases, in which it acts almost as a specific. [L. D. C.]

The Journal of the American Medical Association.

January 25, 1913.

1. Young, H. H. *A New Procedure (Punch Operation) for Small Prostatic Bars and Contracture of the Prostatic Orifice.*
2. Chetwood, C. H. *Contracture of the Neck of the Bladder.*
3. Harpster, C. M. *Prostatotomy by the Method of Goldschmidt.*
4. Deaver, J. B. *Impermeable Stricture of the Bulbo-membranous Urethra (Impermeable to the Passage of Instruments).*
5. *Beer, E. *The Relief of Intractable and Persistent Pain, Due to Metastases Pressing on Nerve Plexuses by Section of the Opposite Anterolateral Column of the Spinal Cord, Above the Entrance of the Involved Nerves.*
6. Auer, E. M. *Spastic Paraplegia with the Cutaneous Reflex of Defense Occurring in Pott's Disease.*
7. *Jennings, A. H., and King, W. V. *One of the Possible Factors in the Causation of Pellagra.*
8. Braasch, W. F. *Clinical Data on Malignant Renal Tumors.*
9. Manwaring, J. G. R. *Replacing Depressed Fractures of the Malar Bone.*
10. Leighton, A. P., Jr. *A Portable Combination Douche-Can and Sterilizer.*
11. Faught, F. A. *A New Instrument for Teaching the Auscultatory Blood-Pressure Technic.*
12. Fischer, L. *Infantile Scurvy in Which Swollen Joints Resembled Acute Articular Rheumatism.*

5. Beer advocates the section of the anteriolateral tract of the spinal cord for intractable pain of malignant growths affecting the cord instead of section of

posterior nerve roots. The former is the simpler procedure and does less damage, giving equal relief.

7. Jennings and King suggest that if pellagra is an insect-borne disease, which seems likely, transmission is very probable by the *Stomoxys Calcitrans*, or common biting stable-fly. [E. H. R.]

THE LANCET.

JANUARY 4, 1913.

1. *MARTIN, C. J. *Horace Dobell Lectures on Insect Porters of Bacterial Infection. Lecture I.*
2. HEMSTED, H., AND HORDER, T. J. *A Recovery from Infective Endocarditis (Streptococcal).*
3. EVANS, W. H. *Rupture of the Spleen and Liver; Operation; Recovery.*
4. FREW, R. S., AND GARROD, A. E. *Glycosuria in Tuberculous Meningitis.*
5. THOMSON, ST. C. *Removal Through the Mouth of a Tooth-Plate Impacted in the Esophagus for Two and a Half Years.*
6. *BARDSWELL, N. D. *Some Observations upon the Treatment of Pulmonary Tuberculosis with Small Doses of Tuberculin, the Dose Being Regulated by Frequent Estimations of the Opsonic Index.*
7. DUDGEON, L. S., MEEK, W. O., AND WEIR, H. B. *A Preliminary Inquiry as to the Value of the Complement Fixation Test in Tuberculosis.*
8. PRINGER, S. *Radical Operation for Malignant Disease of the Testis.*
9. CARGIN, H. M. *A Case of Diphtheritic Enteritis.*
10. HOLLIS, W. A. *Facial Crinkles and Emotional Grimace.*
11. WOOD-JONES, F. *The Ideal Lesion Produced by Hanging.*

1. Cf. *British Medical Journal*, January 4, 1913.

6. Bardswell as a result of treating a small number of cases of pulmonary tuberculosis (17) concludes that tuberculin had no effect one way or the other as regards immediate or ultimate results. [J. B. H.]

BRITISH MEDICAL JOURNAL.

JANUARY 4, 1913.

1. *MARTIN, C. J. *The Horace Dobell Lectures on Insect Porters of Bacterial Infections. Lecture I.*
2. MOYMHAN, B. *An Address on Gall Stones.*
3. DELÉPINE, S. *A Lecture Introductory to an Advanced Course on Tuberculosis.*
4. THOMAS, J. L. *The Cult of Iodine and the Dread of Skin.*
5. MCGUIRE, R. C. *Aberrant and Recurrent Osteomyelitis.*
6. SCOTT-CARMICHAEL, E. *Primary Sarcoma of Both Biceps Muscles.*
7. BOSE, C. *Cocaine Poisoning.*
8. PENFOLD, W. J. *An Experiment to Illustrate the Effect of Size of Population on the Rate of Selection of New Bacterial Races.*

1. In the first Dobell Lecture, Martin considers the house fly, its morphology, its relation to epidemics of typhoid fever and infantile diarrhea. There are numerous tables and charts. The subject is covered in a careful and thorough manner. There is an elaborate bibliography. [J. B. H.]

THE PRACTITIONER.

JANUARY, 1913.

SPECIAL TUBERCULOSIS NUMBER.

1. *ALLBUTT, T. C. *Introduction.*
2. *HORDER, J. J. *Bacteriology, Pathology and Research.*
3. *CARR, J. W. *The Ways in Which Tubercle Bacilli Enter and Spread in the Body.*
4. *LATHAM, A. *Diagnosis and the Principles of Treatment in the Early Stages.*
5. *LAWSON, D. *X-rays in Diagnosis.*
6. *POWELL, R. D. *General Treatment.*
7. *WALTERS, F. R. *Sanatorium Treatment and After Care.*
8. *BARDSWELL, N. D. *Home Treatment and Rules for Living.*
9. *PATERSON, M. *Treatment by Graduated Rest and Exercise.*
10. *WOOD, N. *Climatic Treatment.*
11. *WATSON, C. *Dietetic Treatment.*
12. *DIXON, W. E. *Use and Abuse of Drugs.*
13. *ALCENDOR, J. *Tuberculosis and Phosphorus Metabolism.*
14. *LILLINGSTON, C. *Pneumothorax Treatment.*
15. MERTHER, C. *Continuous Antiseptic Inhalation.*
16. COLEBROOK, L. *The Opsonic Method in Relation to Tuberculosis.*
17. *WILKINSON, W. C. *Tuberculin and Tuberculosis, with Special Reference to Dispensary Treatment.*
18. BENNETT, R. A. *Treatment at the Torquay Tuberculin Dispensary.*
19. *GOULD, A. P. *Surgical Treatment.*
20. DOVES, R. *Tuberculous Diseases of Bones and Joints.*
21. GAUVARN, H. J. *The Use of Plaster of Paris in the Mechanical Treatment of Tuberculous Disease of the Spine.*
22. BARTZNER, W. *The Trypsin Treatment of Surgical Tuberculosis.*
23. WATSON, C. G. *Surgical Tuberculosis of the Colon, Rectum, and Anal Canal.*
24. THOMPSON, T. *Tuberculosis of the Stomach and Intestines.*
25. *FENWICK, E. H. *Urinary and Genitourinary Tuberculosis.*
26. THOMSON, ST. C. *Tuberculosis of the Larynx.*
27. MILLIGAN, W. *Tuberculous Disease of the Ear.*
28. ORMOND, A. W. *The Eye in Relation to Tuberculosis.*
29. WHITING, A. J. *The Association of Tuberculosis with Disorders of the Nervous System.*
30. *PRITCHARD, E. *Tuberculosis in Children.*
31. *RAW, N. *The Treatment of Localized Tuberculous Infections.*
32. GORDON, W. *Rain-bearing Woods and the Prevalence of Tuberculosis.*
33. MOORE, J. *Tuberculosis in Ireland.*
34. ACLAND, T. D. *On the Education of the Public in Relation to the Prevention of Tuberculosis.*
35. GLAISTER, J. *Public Health and Tuberculosis, with Special Reference to the Housing Problem.*
36. PRIESTLEY, J. *Tuberculosis and Public Health, with Special Reference to "Sanatorium Benefit."*
37. LISTER, T. D. *Pulmonary Tuberculosis in Relation to Life Assurance.*

1. This number of the *Practitioner*, containing short, concise, up-to-date articles from the best English authorities, is a valuable contribution to the literature. Should the reader be able to do nothing more than to study Allbutt's introduction with comments on the other papers, he will from this alone gain valuable information.

2. This article covers the morphology of the tubercle bacillus, the sources of infection and modes of entrance, the factor of susceptibility, results of infection, isolation and recognition of the bacillus, and indirect methods of diagnosis, including the tuberculin tests.

3. Carr discusses the paths of infection and spread in the body. He believes an inherited lack of resistance to be a very real thing; also that bovine tuberculosis plays a very important part in childhood, and that no effort is too great to ensure a supply of pure milk. In countries where there is little or no milk

re is still a large amount of tuberculosis in child-d, showing that other methods of infection must be a great factor.

Latham gives an excellent article on diagnosis treatment. He emphasizes the question of expo-e to infection, former pleurisies, hemoptysis, re-ted febrile attacks, and undue fatigue as im-tant constitutional or local signs. Lung signs be very slight or absent. Dullness is rare in y cases. He discusses sputum examinations, the ie of x-rays and of tuberculin. His views on tment are sane. The paper is an excellent one.

Lawson's paper on x-ray diagnosis is illus-ed with excellent plates. He claims rather too h for the method (as do the majority of x-ray kers), and thereby detracts from the value of article.

Powell makes several statements in his paper treatment which in this country would be criti-d, especially regarding home treatment as suit-e for advanced consumptives. On the whole, he dly does justice to the sanatorium.

Walters, on the other hand, states the case of sanatorium very fairly and emphasizes the im-tance of after-care if the cure is to be at all per-nent.

Bardswell gives excellent advice on treatment general, but again is rather too lenient concerning tment at home under ordinary conditions.

Paterson briefly reviews his well known ideas auto-inoculation by graduated exercise, as carried at Frimley.

1. Watson discusses diet under the following dings: 1, General principles; 2, tuberculosis in es of impaired digestion; 3, diet suitable for *a*, l-to-do classes, and *b*, working classes; 4, prophy-ic treatment for children of tuberculous tendency. latter is of distinct value. The views here ex-ssed seem sane and sound.

2. Dixon has no use for hypophosphites, as they excreted by the kidneys unchanged.

3. Alcindor, on the other hand, claims that the eficial effects of hypophosphites are manifold and e, and "a distinct accession to modern methods."

4. Lillingston writes enthusiastically concerning ficial pneumothorax and urges its further use on able cases.

7. Wilkinson writes in his usual vein concerning erculin. His views are not sound or safe.

9. Gould's paper on surgical tuberculosis is ex-ent. Conservative surgery, as an adjunct to gen-l hygienic measures, and tuberculin, is what he ises. The paper is of great value.

5. Fenwick discusses tuberculosis of the genito-nary tract. The kidney is most liable to infection any part of this tract, although symptoms may en be referred to the bladder. If there is found a kened ureter, it means the kidney is affected. et of the disease may be of the vesical type, with quency of micturition, etc., or of the renal type, h localized pain in the loin. In a clear and con-manner he describes tuberculosis of other parts the genitourinary tract and treatment of such ditions. He does not speak so enthusiastically of lts obtained with tuberculin as do many Amer-n writers.

0. Pritchard furnishes one of the most valuable cles in this number, on tuberculosis in children. emphasizes the fact that tuberculosis is, after all, ue children's disease. He discusses the incidence the disease, up to 90% at the age of 14 years, compares it with mortality, high at birth, but reasing up to adolescence. His views on the im-tance of bronchial gland tuberculosis are sound clear; his remarks on diagnosis of this condition excellent. The article is made easy reading by fre-nt summaries, in concise and almost epigrammatic n. (It would be an excellent thing if every gen-l practitioner read and studied this valuable pa-—J. B. H.)

31. Raw, whose name has so long been connected with the treatment of surgical tuberculosis, and particularly tuberculous glands, writes enthusiastically on the value of tuberculin in the treatment of this condition. [J. B. H.]

Edinburgh Medical Journal.

1. *Turner, A. L., and Fraser, J. S. *Direct Laryngoscopy, Tracheo-Bronchoscopy and Esophagoscopy.*
2. Hutchison, R. *The Function of the Royal Medical Society in Medical Education.*
3. *Graham, J. M. *Primary Cancer of the Vermiform Appendix.*
4. Brock, A. J. *On Tumor Formation and Allied Pathological Processes.*
5. Simpson, J. W. *Incontinence of Urine in Children.*

1. This paper is a practical and concise description of this somewhat difficult operation. There are many excellent plates which greatly add to the value of the article.

3. Graham describes with plates one case of cancer of the appendix, and discusses at some length this question in general. [J. B. H.]

Münchener Medizinische Wochenschrift.

No. 50. December 10, 1912.

1. *Gerhardt, D. *The Crescendo-murmur of Mitral Stenosis.*
2. *Stierlin, E., and Schapiro, N. *Effect of Morphine, Opium and Pantopon on Movements of the Alimentary Canal in Man and Animals.*
3. Meyer-Betz. *The Normal Movements of the Large Intestines.*
4. Strauss, A. *Contribution on Chemotherapy of External Tuberculosis.*
5. Eskuchen, K. *Origin of Atrophy of the Optic Nerve in Oxycephalus.*
6. v. Brunn, M. *Sciatica in Accidental Injury.*
7. Kondoléon, E. *Surgical Treatment of the Edema of Elephantiasis by a New Method of Lymph Drainage.*
8. Oehler, R. *Harmfulness of Distilled Water.*
9. Harnack, E. *The Arsenical Springs at Durkheim.*
10. Dienst, A. *A Simple Method for Differentiating Between Ascites and Soft Ovarian Cyst.*
11. Frank. *A Typical Street Railway Injury.*
12. Zink. *Experiments with Mesbé.*
13. v. Borosini, A. *A Universal Truss.*
14. Winckel, M. *The Chemical Action of Carbenzyme.*
15. Hansen. *Absence of the Appendix.*
16. Mathes, P. *Psychiatry in Gynecology.*
17. Borchers, E. *Technic of Chlorethyl-narcosis.*
18. Antenrieth, W., and Funk, A. *Colorimetric. Tests: The Renal Test of Rowntree and Geraghty; Estimation of Rhodan in the Saliva and of Iodine in the Urine.* (*Concluded.*)
19. Iselin, H. *Injury to the Skin by Röntgen Light after Deep Treatments: Cumulative Effect.*

1. Gerhardt believes that the crescendo murmur of mitral stenosis occurs when the diastolic murmur produced by the auricular contraction is checked by the beginning of ventricular systole. If there is any pause between this diastolic murmur and the first sound, the crescendo character of the snap of the first sound is lost. In partial heart-block with mitral stenosis the murmur is lost on beats having a long pause between the contractions of auricle and ventricle, with a resulting pause between the diastolic murmur and first sound. In perpetual irregularity, when the auricles may be assumed to be in fibrillation, the crescendo character appears only when one beat of the ventricle quickly follows another.

2. The writers studied the effect of morphine, opium and pantopon on six humans having fistulae in various parts of the intestines, and on one dog. They found that the three substances act much alike, but that in youth they delay the emptying of the stomach for hours, but that in older persons this delay is less. The time of passage through the small intestines was pretty constantly much lengthened. The large intestine was not affected but material remained long in the sigmoid, perhaps due to inhibition of the reflex of defecation. [G. C. S.]

No. 51. DECEMBER 17, 1912.

1. BRESSLAU, E. *Hyperthelia.*
2. BERING, F. *The Effect of Light.*
3. GROSS, O. *Simultaneous Occurrence of Achylia Gastrica and Pancreatica.*
4. DIENST, A. *Cause of Failure of the Blood to Clot During Menstruation.*
5. MEYER, E. *The Question of Artificial Abortion in Psychic Disorders.*
6. *FÜRER. *The So-called Abstinence in Delirium of the Chronic Alcoholic.*
7. STOLTE, K. *Significance of Copious Finding of Fat in Infancy and Its Practicability.*
8. GRUSSENDORF. *Suture of the Bladder in Children After High Incision for Stone.*
9. RABE, F. *The Question of Absorption of Iron Preparations.*
10. VEIT, K. E. *Treatment of External Anthrax.*
11. VORPAHL, K. *Finding of Spirochetae in the Urine in Syphilitic Nephritis.*
12. FREUND, E. *Abortive Cure with Salvarsan.*
13. HENGGE, A. *Hypophyseal Extract and Semi-sleep in Midwifery.*
14. MÜLLER, A. *A Universal Examining Table for the Practicing Physician.*
15. MICHELSON, J. *Sterilizer and Universal Instrument Table.*
16. v. LORENTZ. *A New Table with Special Advantages for Röntgen Examination.*

6. Fürer doubts that delirium tremens is brought on by sudden abstinence. He recommends cutting off alcohol completely in alcoholism and treating the patient by rest, hypnotics, forced feeding. etc. [G. C. S.]

No. 52. DECEMBER 24, 1912.

1. *SCHULTZE, E. O. P., AND BEHAN, B. J. *Negative Pressure in the Long Bones of Dogs.*
2. *GREGOR, A., AND SCHILDER, P. *Studies of Muscle with the String Galvanometer.*
3. v. DUNGERN, E. *Sero Diagnosis of Tumors by Fixation of Complement.*
4. MÜLLER, A. *Relation of Chronic Appendicitis to the Female Genital Organs.*
5. STOFFEL, A. *Technic of My Operation for Relief of Spastic Paralysis. (To be concluded.)*
6. KOTZ, R. *The Question of Curability of Otogenic Meningitis.*
7. FRIEDIGER, A. *Dimethylamidoazobenzol as a Microscopic Reagent for Fat, and Its Use for Examination of Gastric and Intestinal Contents.*
8. RÖDER, H. *Fitness for Military Service and Enteroptosis.*
9. *CREDÉ, B. *A New Cathartic for Use Subcutaneously and Intramuscularly.*
10. PICK, J. *Hemorrhagic Diathesis.*
11. EICHLER. *Severe Arsenic Poisoning After Salvarsan.*
12. RIECK. *For and Against Pituitrin.*
13. BRUCK, C. *Weakening of the Organism in Diseases of the Skin.*

1. In the course of studies on fat-embolism the writers discovered that in the long bones of dogs the venous pressure is negative to 19-22 mm. of water. If these observations are confirmed they will throw new light on the circulation of blood which is likely materially to modify present conceptions. The findings afford a ready explanation for fat-embolism and metastatic infections and help to explain the action of passive venous hyperemia.

2. The observations of Gregor and Schilder on muscular action by means of the string galvanometer are likely to prove deeply interesting to physiologists and to neurologists. The work seems to point the way to a clearer understanding of innervation in pathological stasis.

9. Credé has evolved and tested a preparation of senna which he calls sennatin. He reports excellent results from its use subcutaneously or intramuscularly for catharsis. It is said to be entirely harmless, to produce practically no local reaction when given intramuscularly. [G. C. S.]

No. 53. DECEMBER 31, 1912.

1. *FRANZ, R. *Serum Treatment in Melena Neonatorum.*
2. SCHRENCK, T. *Effect of Digitalis on Different Forms of Heart Disease.*
3. HINSBERG, V. *Relief of Dysphagia in Disease of the Larynx.*
4. CHIAROLANZA, R. *On Surgery of the Bones.*
5. MÜLLER, J. M. *Care of the Teeth in the Army.*
6. STERN, K. *Laparotomy in Private Houses.*
7. HEERMANN. *How Shall We Obtain Uniformly Accurate Measurements of Temperature?*
8. SCHÖNEBERGER, F. *Spring Extension for the Lower Extremity.*
9. HAUN. *Treatment of Phlegmon of the Upper Extremity.*
10. STRONGMEYER, A. *A Simple Instrument for Removal of Diphtheritic Membrane.*
11. WOLFF, M. *An Electric Reflector for Microscopy, etc.*
12. WEISZ, E. A *Simple Apparatus for Treatment of Stiff Wrists.*
13. v. ANGERER, C. *The Epiphanin Reaction.*
14. *STOFFEL, A. *The Technic of My Operation for Relief of Spastic Paralysis.*

1. Franz reports success in the treatment of five cases of melena neonatorum by subcutaneous injections of human blood serum.

14. The detailed methods described by the writer are unsuitable for abstracting, but his results in spastic paralysis are strikingly good. [G. C. S.]

WIENER KLINISCHE WOCHENSCHRIFT.

No. 1. JANUARY 2, 1913.

1. KELLING, G. *New Experiments for the Production of Tumors by Means of Homogenous and Heterogenous Embryonic Cells. (To be concluded.)*
2. THEILHABER, A. *The Prophylaxis of Carcinoma.*
3. ARZT, L., AND KERL, W. *The Knowledge of the Parasitotropic Action of Atoxyl and Neosalvarsan.*
4. STRISOWER, R. *Contribution to Cases of High-Grade Blood Eosinophilia in a Carcinomatosis and in a Lymphogranuloma.*
5. ZOGRAFIDES, A. *Bilateral Ekchondroma of the Ear Muscle.*
6. *KOWANITZ, O. A. *Our Experiences with Hexal.*
7. FISCHER, I. *Contributions to the History of Medical Culture.*

6. Kowanitz reports three typical cases in which he employed, as a bladder antiseptic and analgesic, hexal, a synthetic combination of hexamethylentetramine with sulpho-salicylic acid. From his experience, he concludes that it is a valuable drug in the treatment of all forms of cystitis, and is cheaper and acts more quickly than urotropin. It has all the advantages of urotropin, and in addition is analgesic and pleasant to take. Its dosage is the same as that of urotropin. [R. M. G.]

REVUE DE MÉDICINE.

DECEMBER, 1912.

*NIMIER, H., AND NIMIER, A. *Some Symptomatic Manifestations of Peripheral Facial Paralysis.*
*ROGUE, G., AND CORDIER, V. *The Tuberculous Nature of the Ascites in the Cirrhoses, Especially in That of Laënnec.*
COURMONT, J., SAVY, P., AND MAZEL, P. *A Case of Protracted Malta Fever, Observed in the Region of Lyons.*
CECILSAS, J. *Contributions to the Study of Pathological Heredity.*

1. The authors cite as signs and symptoms of ripheral facial paralysis the three following signs: rrowing of the palpebral fissure during abduction, rrowing of the fissure associated with involuntary vation of the globe, and involuntary narrowing ring the act of laughing. As objective symptoms y emphasize the following: Acousalgia and musar sounds in the impaired ear.

2. As conclusion to an extensive and extended icle on the tubercular nature of ascites in cirrho-, Rogue and Cordier draw the following conclus: All ascites in Laënnec's cirrhosis is of tuberar origin and presupposes the existence of an inmmatory peritoneal process. This process has often clinical evidence and is not of the anatomical aparance of the tubercular peritonitis previously deibed. They believe also that in such cases the er is almost always the seat of a tubercular ocess. In their last seven cases, which they admit ufficient to refute the well established etiology of disease, alcohol played a rôle, simply favoring the set of the cirrhotic process. [L. H. S.]

IL POLICLINICO.

DECEMBER, 1912.

MEDICAL SECTION.

CAVOZZANI, E., AND AVITE, G. *Concerning an Antifermentative Action of Sulphocyanic Acid Upon Pespin.*
GIANI, E. *On the Value of the Glycyltryptophan Test in the Diagnosis of Gastric Cancer.*
*GHILARDUCCI, F., AND MILANI, E. *...Biologic and Curative Properties of the Fluorescent Substances Associated with the X-rays.*

3. Ghilarducci and Milani experimented with the orescent substances associated with x-rays, testing ir effect on blood, on bacteria (bacillus pyocyaneus, tubercle bacillus and the lactic acid bacillus) and the extirpated glands of tuberculous animals. They n tested the therapeutic value of these substances cases of epithelioma and cutaneous tuberculosis. ey find that x-ray fluorescent substances possess ctericidal properties superior (especially in their erapeutic application) to those demonstrated by ppeiner in other fluorescent substances. [L. D. C.]

Correspondence.

MORBIDITY REPORTS.

NITED STATES PUBLIC HEALTH SERVICE, WASHINGTON, D. C.

January 27, 1913.

Mr Editor: The Tenth Annual Conference of State d Territorial Health Authorities with the United ates Public Health Service, held in Washington, ne 1, 1912, adopted a resolution submitted by the nference committee on Morbidity Reports.

The purpose of the resolution was to put into operan a co-operative plan by which information of the rrent occurrence and geographic distribution of the communicable disease would be available to the respective health authorities.

The main features of the resolution were provisions (1) for the telegraphic report to this office of the occurrence of cases of certain dangerous epidemic diseases, exotic or of unusual occurrence; (2) for the telegraphic report of outbreaks or epidemics of the ordinary epidemic diseases; and (3) for the monthly report by mail of other notifiable diseases.

The intended purpose is that the Bureau of the Public Service shall serve as a clearing house for this information and shall publish it currently in the Public Health Reports. In the case of the occurrence of exotic or dangerous diseases, or of unusual outbreaks, the information will be telegraphed to the various State health authorities from the Bureau.

Blanks have been prepared for the making of the reports to be forwarded by mail, and have been distributed to the health authorities of the various States, who have been asked to what extent it will be practicable for them to co-operate in the making of these reports.

Copy of the resolution as adopted by the conference is inclosed in Reprint No. 83, marked Exhibit "A". A copy of the letter sent to each of the State health authorities is also inclosed, marked Exhibit "B", and a set of the blanks prepared for these reports marked Exhibit "C".

The matter of being able to know of the occurrence and distribution of disease is one of paramount importance to public health work. Public health work is in reality nothing more than the prevention of the occurrence and spread of disease. The occurrence or spread of disease cannot be prevented unless the location and frequency of foci of infection, or of the conditions which produce morbidity, are known. This cannot be known unless the occurrence of disease is reported. Without a knowledge of the prevalence and geographic distribution of disease there can be no rational public health work, and the only reliable and accurate way by which this knowledge can be acquired is the notification of cases of disease.

I am sending you this letter that you may be cognizant of the work this Bureau is attempting to accomplish in co-operation with the State health authorities, and that you may, through your JOURNAL, be of such assistance as to you seems warranted.

I trust that you will feel at liberty to make any suggestions regarding these reports or the manner in which they are published in the Public Health Reports (See issue of December 6, 1912, p. 2046) that may occur to you as likely to increase their value.

Very truly yours,
RUPERT BLUE, *Surgeon General.*

[The resolution referred to in this communication is published in another column of this issue of the JOURNAL (p. 211). The reporting blanks it is obviously impossible to reprint, but they can be obtained by those who are interested. This action of the Public Health Department should greatly further and facilitate the important and desirable end of securing more extensive, accurate and reliable centralized and coördinated information about the occurrence of communicable diseases throughout the registration area. —EDITOR.]

THE FLUOROSCOPIC METHOD.

January 29, 1913.

Mr. Editor: Th writer notes with interest, in your current issue, the kindly criticism from the pen of Dr. A. L. Benedict, of Buffalo, of his recent article in the JOURNAL dealing with the investigation of the alimentary tract by means of Roentgen rays.

It was far from the writer's intention to give precedent to the work of Rieder over that of others, in point of temporal priority, or otherwise. By his statement, quoted by Dr. Benedict, he wished to convey that Rieder took pains to "demonstrate what could really be done"—not necessarily by Rieder alone.

It occurs to the writer that broadcast *demonstration* by Roentgen procedure can best be accomplished by pictorial records without the aid of manual delineation, simplification or diagrammatizing. He believes it to be the general impression among American Roentgenologists that Rieder's *pictorial records* of his early momentary exposures of the thorax are of a character monumental. Rieder's records of his alimentary findings as published, are of a nature which suggest the same appellation.

The early observations of Dr. Benedict, as of many others, are familiar to very Roentgen worker and it was a distinct omission that they are not embraced in the suffix to the article in question, which, however, was merely a list of references and, by no means, a complete bibliography of the subject.

The work of the earlier observers, which includes that of Dr. Benedict, of Williams on the chest, and of Cannon on the physiology of alimentation, was necessarily largely fluroscopic and, therefore, difficult of ocular *demonstration in the literature* by any diagrammatic Roentgen records. It is a pleasure to note that, by virtue of its value as shown by these men and by others, the fluoroscopic method, for a long time slighted, has again come into its own.

Yours very truly,

PERCY BROWN, M.D.

DIABETES-MELLITUS.

Mr. Editor: I am undertaking an exhaustive research into the pathology, etiology and dieto-therapy of Diabetes-Mellitus. I am very anxious to hear from every physician in the United States who has a case under treatment or who has had any experience in the treatment of this malady. Von Noorden says, "the best treatment for the diabetic is the *food* containing the *greatest* amount of *starch* which the patient can bear without harm." If any physician who reads this has similar or contrary experience, and would take the trouble to write me, I would esteem it a special privilege to hear from him, if only a postal card.

Very truly yours,

WILLIAM E. FITCH, M.D.,

355 West 154th Street, New York City.

January 27, 1913.

Miscellany.

APPOINTMENTS.

DR. WALTER C. BAILEY, of Boston, has been nominated by Governor Foss to succeed the late Dr. Arthur Tracy Cabot as trustee of the Massachusetts state hospitals for consumptives.

The Boston Health Commissioners have recently appointed from the civil service list DR. FRANCIS G. BARNUM, of Hyde Park, DR. JOHN S. BROWNRIGG of Roxbury, and DR. EDWARD F. TIMMINS, of South Boston, as assistant physicians in the child hygiene division of the Boston Health Department.

TUFTS COLLEGE MEDICAL SCHOOL.—*Morton Prince, A.B., M.D., LL.D.*, has been appointed Professor of Neurology, Emeritus. *George H. Washburn, A.B., M.D.*, has been appointed Professor of Obstetrics, Emeritus. *John Jenks Thomas, A.M., M.D.*, has been appointed Professor of Neurology. *Alfred William Balch, Ph.G., M.D.*, has been appointed Professor of Chemical Pathology and Toxicology. *Stephen Rushmore, A.B., M.D.*, has been appointed Professor of Gynecology. *Leo V. Friedman, A.B., M.D.*, has been appointed Assistant Professor of Obstetrics. *Elmer W. Barron, A.B., M.D.*, has been appointed Assistant Professor of Children's Diseases.

RECENT DEATHS.

DR. ALBERT CLINTON ALDRICH, of Somerville, Mass., who died of heart disease on Jan. 29 at Winchester, Mass., was born in Lisbon, N. H., on Aug. 27, 1857. He received from Harvard University the degree of A.B. in 1879, and that of M.D. in 1883. After serving for a year as house physician at the Rhode Island State Hospital, he first settled in St. Johnsbury, Vt., but in 1885 removed to Somerville, where he continued active in the practice of his profession until his death. He was a Fellow of The Massachusetts Medical Society, a member of the Somerville Medical Society, and of the local Board of Health. He is survived by his widow, by one daughter, and by one son.

DR. ROBERT PARKER MARR AMES, who died of diabetes on Jan. 25 at Springfield, Mass., was born in 1856. He received the degree of M.D. in 1880 from Jefferson Medical College. After serving for a year as resident surgeon at the Jefferson College Hospital and at the Blockley Hospital in Philadelphia, he was in 1881 appointed assistant surgeon of the United States Marine Hospital at St. Louis, and subsequently saw considerable service in the navy at sea. He was a member of the American Medical Association, a Fellow of The Massachusetts Medical Society, and a member of the Hampden District Medical Society.

DR. GEORGE A. GIBSON, lecturer on medicine in the Royal Colleges of Edinburgh, died suddenly from heart disease January 18th last. Dr. Gibson received an honorary degree from Harvard in 1909.

DR. ORVILLE HORWITZ, who died of heart disease last week in Philadelphia, was born at Washington, D. C., in 1859. He graduated from the University of Philadelphia in 1881, and in 1883 received the degree of M.D. from the Jefferson Medical College, where he was subsequently for some years professor of surgery. He was a member of the American Medical Association and of many scientific societies. He was unmarried.

DR. ELMER E. MOORE, who died last week at East Providence, R. I., was born in 1850. He had practised his profession in East Providence since 1877.

DR. ALFRED MORSE, who died of septicemia in Boston on Jan. 29, was born in this city in 1885. He received the degree of M.D. from the Tufts Medical School in 1910, and served as house officer at the Boston City Hospital. He had recently received an appointment at the United States Marine Hospital, Chelsea, Mass. He is survived by his mother and by two sisters.

DR. JAMES ALEXANDER PETRIE, who died on Jan. 23 at Phillipsburg, N. J., was born in 1842, in England. He was a graduate of King's College, London. After coming to the United States he entered the Navy and served as a surgeon throughout the Civil War. Subsequently he received the degree of M.D from the University of Pennsylvania in 1866 and practised medicine for a time in Jersey City and in Elizabeth, N. J. He is survived by his widow.

DR. JAMES PERCIVAL TUTTLE, who died of diabetes on Jan. 31 in New York City, received the degree of M.D. from the University of Pennsylvania in 1881. He was connected with several New York hospitals, and was the author of numerous articles on cancer. He is survived by his widow.

BOOKS AND PAMPHLETS RECEIVED.

Spinal Analgesia—Development and Present Status of the Method, by William Seaman Bainbridge, M.D. Reprint.

Original Articles.

DISEASES OF THE MIDDLE EAR AND MASTOID CELLS, BASED UPON A STUDY OF 454 AUTOPSIES AND 2232 CASES OF DIPHTHERIA, SCARLET FEVER, AND MEASLES.*

BY C. R. C. BORDEN, M.D., BOSTON.

Since the opening of the contagious department of the Boston City Hospital in 1896, autopsy records of 454 cases have been collected. Nearly all of them were children, who had died from scarlet fever, diphtheria, measles, or from complications arising from these diseases. The records were written by skilled pathologists who performed the autopsies, and each record is as complete, carefully written, and accurate as it is possible to make them. In 202 of the autopsies the head was not opened, owing to the objection of parents and friends. The remaining 252 state clearly the condition of the middle ear or mastoid, normal or abnormal, as the particular case may be.

In order that we may better compare the post mortem with the clinical cases, I will briefly quote the few statistics available. Dr. McCollom reports 18% of middle ear complications in scarlet fever and 24% in measles. Downie of Glasgow 12% in scarlet fever and 26% in measles. Caiger 11% in scarlet fever; Burckhart and Finlayson 10% and Alderton 11% in scarlet fever and but 15% in measles.

None of the above writers have mentioned the aural complications in diphtheria. The only statistics I know of in this disease are a small number of cases observed and reported by the writer in a previous paper, viz. 1.4%. To further compare statistics in the same institution, I have collected a series of 2232 cases of scarlet fever, measles and diphtheria. Of this number, 746 cases of scarlet fever showed 11% of aural complications; 456 cases of measles 28%; and 952 cases of diphtheria 2.9%. Sixty-eight cases of mixed infection were the highest in the percentage of all middle ear complications, viz. 44%.

Such statistics will vary considerably in different epidemics with the season of the year, the institution in which they occur and the community from which the patients have come. Many of our children are brought to us from large charitable institutions and these little patients unfortunately constitute a considerable number of our seriously sick or fatal cases. On the other hand, the contagious hospitals of Brookline and Somerville, suburbs of Boston, show a marked decrease in the number of aural complications; due to the fact that the vitality of their patients is greater upon entering the hospital. This fact should be clearly borne in mind in consideration of the cases to be reported in this paper, in as much as the majority of our patients come from very poor surroundings, and consequently have a relatively low degree of bodily resistance.

From the statistics gathered thus far in clinical cases, we would naturally suppose complications of the middle ear and mastoid would follow the same relative frequency in fatal cases. The frequency is the same, but the percentage is far greater. In diphtheria, instead of 2.9% it is 82%. In scarlet fever it is 94% and in measles 100% of middle ear or mastoid involvement.

Again, we would naturally expect mastoiditis to follow the general course of the middle ear. As a matter of fact, however, the order is exactly reversed in the fatal cases. We find diphtheria least in the clinical, to be highest in the fatal cases in the number of mastoids. Thirty-one per cent. of fatal diphtheria cases showed mastoid involvement, 26% of the scarlet fever cases and but 14% of the measles cases had mastoiditis. This is a significant fact and is, I believe, the most important point in the entire subject.

Bilateral otitis media is far more common than unilateral in all the fatal cases, as is also bilateral mastoiditis in diphtheria and scarlet fever. In measles, but one case of mastoiditis occurred in the series of 7 fatal cases, and that one was unilateral.

Of the 59 cases of mastoiditis, 33 of them were bilateral, and in every case, conditions were ideal to create the severe allied complications which so often occur with undetected and untreated mastoiditis. Yet, the autopsy records show but one case of an infected jugular vein; but four cases of septic meningitis; and not a single brain abscess. This is made even more remarkable by the fact, that at least 80% of the mastoiditis cases showed edema and congestion of the brain. Edema of the brain was not confined to the mastoiditis cases, however, as it occurred in a large number of the infected middle ears without mastoid involvement and in a few cases where neither middle ear nor mastoid were infected.

The appearance of the middle ear and mastoid cells, at the time of the autopsy, present a sharp contrast between scarlet fever, measles and diphtheria when these special organs are diseased. In scarlet fever and measles the fluid found therein is almost invariably described as yellow, white or creamy pus. In diphtheria, record after record refers to it as small in amount, thick, tenacious, gummy gelatinous, semi-solid, etc. The color is also peculiar in this disease, and is described as green, yellowish green, brownish green and other colors bordering on this hue. Involvement of the mastoid cells ranges from acute congestion to absolute destruction.

Of the 59 cases of mastoiditis but 6 or 8 of them were recognized during life, and of that

* Read before the Ninth International Otological Congress, at Boston, August, 1912.

number, operation was performed on but one side when both sides were diseased. I beg to state, however, that the 59 cases of mastoiditis covered a period of nearly 15 years and that our mastoid operations upon diagnosed cases show a mortality of only 2 or 3% in uncomplicated cases.

In four cases a fistulous tract was found, leading directly from the middle ear into the cranial cavity, but in only one of these cases was septic meningitis present.

Doctors Councilman, Mallory and Pearce, in an exhaustive article on diphtheria, report the cultures made in 86 of these same autopsies as follows: In 59 cases: staphylococcus was found in 7 cases; pneumococcus in 5; staphylococcus albus in 3; streptococcus pyogenes in 4, and streptococcus aureas in 1 case. In a series of 27 cases; the diphtheria bacillus was found in 12 cases; streptococcus in 14; staphylococcus pyogenes in 5; bacillus pyocyannus in 2 cases. Generally two or more of the bacilli occurred together and, as a rule, the diphtheria bacillus occurred with the streptococcus, the staphylococcus or with both. Few pure cultures were present of any kind.

An examination of the nasal sinuses in 52 cases of diphtheria are reported in the same article. In 33 cases, inflammatory changes were present in both antra 19; both antra, sphenoid and ethmoid 2; one antrum only 7; sphenoid only 2; and in the sphenoid and ethmoid 1. In 59 of the autopsy cases, 21 acute abscess cavities were found in different parts of the body.

The question will naturally arise in your mind, why so many of the otitis media cases and most of the mastoiditis were unsuspected during the illness of the patient. It is not because the resident physicians in the hospital were negligent or careless. Whenever symptoms arose pointing to the middle ear, careful examination was made of those organs. But diagnosis of such conditions is, in many cases, extremely difficult to make. A careful daily routine aural examination of from two to five hundred patients is impossible, as physical examination of the other organs must be made at the same time. It is entirely possible to have, not only otitis media present and active without diagnostic symptoms; but mastoiditis as well. Such being the case, the attending physician cannot be criticised for failing to diagnose many aural complications.

In measles, middle ear and mastoid symptoms occur during the height of the active process, and adults are particularly liable to mastoiditis. In scarlet fever, middle ear involvement comes at any time during the course of the disease, and is by no means limited to the active stage. Adults are not especially liable to mastoiditis in scarlet fever. In diphtheria, otitis media or mastoiditis are not as active as in scarlet fever or measles, and the diagnosis is far more difficult to make for this reason.

Middle ear complications are not only of extreme importance on their own account, but because of their effect upon other complications present. When they occur with inflammations in other organs, such effections are invariably exaggerated. Thus, with active inflammation in the heart, lungs or joints, infection of the middle ear or mastoid cells, causes the symptoms in those organs to become more active and dangerous to the life of the patient. On the other hand, prompt and efficient treatment of the aural inflammation, usually causes marked relief in the inflammatory process of the other organs.

Next to bony tissue itself, bony cavities, lined with mucous membrane are among the lowest of all the tissues of the human body, in their power to cope with bacterial invasion. Because of its relatively small blood supply, the antibodies cannot reach such cavities with sufficient freedom to strongly exert their anti-bacterial properties. In both the middle ear and mastoid cells, we have not only bony cavities lined with mucous membrane, but anatomical structures particularly susceptible to infection from the nose or throat, because of their location. In case of infection, if the Eustachian tube becomes sufficiently swollen to close its lumen, the middle ear and mastoid cells become closed cavities, and we have at once a condition identical with an abscess cavity in any part of the body. The passing of bacteria from an infected middle ear into the circulating blood stream produces symptoms too well known to require further mention.

So long as the phagocytes and the anti-bodies have sufficient power to overcome the bacterial invasion, no systemic symptoms occur. This is doubtless the reason why infected middle ears occasionally smoulder for weeks before showing active symptoms.

A few years ago, attention was called to the tonsil as an avenue by which bacteria from the throat and mouth could find its way into the general circulation. The discussion pro and con of this theory lasted several years and gradually it became an accepted fact. In establishing the theory, eminent writers proved conclusively, that such effections as endocarditis, pleuritis, septic synovitis, adenitis, etc., often derived their infection primarily from a diseased tonsil. In such cases, thorough removal of the infected organ was quickly followed by permanent relief in the inflamed condition. The results of such operations were so uniformly beneficial, that they have become one of the most common procedures in our daily practices.

Up to this time we have looked upon the middle ear and mastoid cells as structures particularly susceptible to infection in the contagious diseases. When such infection occurred, however, we feared only one of two things; if moderately severe, discomfort to the patient from the pain and a strong possibility of deranged hearing later; if very severe, mastoiditis. Should the process extend still further, brain

abscess or jugular thrombosis, were the dreaded consequences to be feared. So far as I know, the middle ear or mastoid cells have never been suspected of being the primary foci of infection in the many and serious complications which so commonly occur in the contagious diseases. Yet the position of these bony cavities is identical in every way with the tonsil as an avenue of entrance for bacteria into the circulation. Anatomically their structure is ideal to produce inflammation, and their location is such as to be closely related to the specifically inflamed tissues of these particular diseases. Previously we have supposed the percentage of aural involvement to be relatively small, but the study of the fatal cases, proves them to be alarmingly high. As practically all the fatal cases showed complications in the heart, lung, kidneys, etc., as well as in the middle ear or mastoid cells, may we not suspect the two to go hand in hand, to a very great extent? Indeed we may go still further and assume one to depend upon the other.

Many of the clinical records show a sudden rise in temperature followed by all manner of complications in various organs of the body. In many of them, however, there is a period of from one to three or more days between the initial rise in the temperature and the appearance of localizing symptoms in the affected organ.

This is commonly supposed to be the prodromal stage in the inflammatory process. Often, however, with the appearance of active symptoms in the heart, lung, joint, etc., one or both middle ears show marked signs of inflammation, or spontaneously rupture. When such phenomena occur in the middle ear, it is usual to have the symptoms in other organs subside to a remarkable extent. Also the frequency with which all existing complications abate, after spontaneous rupture or free incision of the drum membrane, is significant of the powerful influence of the aural condition over other symptoms in different organs. Such being the case, may we not assume the middle ear or mastoid cells to be the point from which bacterial invasion gains access to the circulation?

In view of the increased demands upon vital organs in these diseases, their resistance to toxic influences must of necessity be lowered. Muscle tissue is not often attacked but serous cavities and joints of cartilaginous and serous membrane structure are particularly susceptible to lowered vitality and consequent inflammation. Thus the valves of the heart, the lungs, serous cavities and joints are commonly involved. If, at such a time, the middle ear or mastoid cells send bacteria into the blood stream, the devitalized organs are in a position to absorb them, and they themselves become foci of infection to still further increase the toxemia of the patient.

This is rather a new theory, but should it prove to be correct, would be of great importance. It is too broad and complicated a subject, however, to be discussed further at this time.

It is the writer's intention to make this paper mainly a collection of facts found in the records of the autopsy cases and not to discuss the theories involved.

The following cases illustrate the prominent rôle played by the middle ear and mastoid cells in the contagious diseases.

Case I. A. J., 3 weeks old. Diphtheria. Admitted to hospital Jan. 6, 1908. Was not very ill. Had no special symptoms until March 6, when she began to cry continuously. Ears examined and found normal in appearance. March 13 temperature rose to 103. March 14 edema of the scalp and chest with marked inflammation of these areas. March 17 temperature again normal. March 19 died without any special symptoms.

Autopsy.—Acute pericarditis-pleuritis-peritonitis. Both middle ears contain an acute process which consists of an elevated pink excresence. (Note on record reads.) It would appear the lesions in the ears are primary and the lesions elsewhere in the body are secondary to this.

Case 2. I. N., 2½ years old. Diphtheria. Child was sick for three weeks before admission to the hospital in April, 1910. She was an undeveloped, underfed baby in critical condition. Marked prostration. Nasal discharge. Slight dullness at base of right lung. Pulse rapid and weak. No vomiting. Temperature 101.6 April 8. Pulse dropped to subnormal. Heart action very weak with gallop rhythm. Failed and died. Child was too sick to make careful examination at any time.

Autopsy.—Broncho-pneumonia. Acute pericarditis. Empyema. Acute peritonitis. Both middle ears and mastoid filled with creamy, yellow pus. South Department record gives cause of death as diphtheria and empyema.

Case 3. R. W., ? years old. Diphtheria. Admitted to hospital July 27 with typical diphtheria symptoms. Temperature 101.6. Slight nasal discharge. Aug. 8 developed a gallop rhythm of the heart. Cold extremities. Some vomiting, etc. From this time on patient continued to gain and was very comfortable. Temperature practically normal. Sept. 8. Today shows marked weakness. No special symptoms. Following day died, apparently from paralysis of respiration.

Autopsy.—Slight edema and congestion of the brain. Chronic appendicitis. Chronic pleuritis. both drum membranes intact. Both middle ears contain small amount of gummy, yellowish fluid. No reason to suspect ears during life.

Case 4. A. D., 17 months old. Diphtheria. Admitted to hospital Aug. 10, 1906. For past week has been fretful. No vomiting. Marked dyspnea and prostration for 24 hours. No dullness in lungs but has moist coarse râles. Pulse rapid and weak. No evidence of laryngeal stenosis. Marked pallor and cyanosis. Gradually became comatose and died same day. Ears examined and found normal.

Autopsy.—Broncho-pneumonia. Edema and softening of brain. Chronic pachymeningitis. General lymphoid hyperplasia. Both middle ears con-

tain purulent fluid extending into the mastoid cells on the right.

CASE 5. R. C., 1 year old. Diphtheria. Admitted to hospital Dec. 10, 1909. Was not very ill. No nasal or aural discharge. Temperature 99.6. Dec. 18. Since yesterday patient has been greatly prostrated. Poor pulse and slight rise in temperature (101). Heart and lungs negative. No special symptoms of any kind, except stools show pathological conditions. Grew gradually weaker and died the next day.

Autopsy.—Edema of brain. Acute otitis and mastoid. Right middle ear contains thick, gelatinous yellow pus. In left is dark brown fluid. Same condition in mastoid. Culture, streptococcus.

CASE 6. J. G., 2 years old. Scarlet fever. Admitted to hospital on April 29, 1900. Marked prostration. Temperature, 104.8. Cervical glands indurated. Heart action rapid but regular. Lungs normal except few slight scattered râles. May 7, marked septic temperature since last note. Has grown steadily worse. Heart rapid and feeble. Lungs filling up with fine and coarse râles. May 30, condition steadily growing worse. Lungs filling up. Died. Temperature 105.

Autopsy.—Mastoiditis. Meningitis. Lungs not specified in autopsy report.

Anatomical Diagnosis.—Acute otitis media and mastoid. Acute ethmoiditis and sphenoiditis. Both middle ears and mastoid filled with pus. No aural symptoms in records.

CASE 7. L. G., 12 years old. Scarlet fever. Admitted to hospital on March 31, 1909. Marked prostration. Temperature 103. Pulse 120. Semiconscious and very restless. April 6, spontaneous rupture of right ear. April 8, much better breathing, pulse, etc. Mental condition also improved and is quite comfortable. Apr. 12, spontaneous rupture of left ear. Both now discharging. April 16, failing rapidly. Profuse discharge from both ears. April 24, swelling and edema over left mastoid. Mastoid opened. Right mastoid shows no symptom of being involved at this time. Temperature 105. April 28, temperature at 104. Conditions remain the same. May 3, continued to grow weaker and died.

Autopsy.—Pleuritis. Endocarditis. Nephritis. Both middle ears and both mastoids filled with pus. Both ethmoids and sphenoids also infected.

CASE 8. R. S. C., 8 years old. Scarlet fever. Admitted to hospital Nov. 6, 1905. Physical examination negative at time of entrance except scarlet fever rash. Following day became much prostrated. Temperature rose to 103. Had marked delirium, etc. During the night both ears ruptured spontaneously. Temperature rose steadily for two days and conditions became worse. Two days later developed slight facial paralysis on right side. White count 21,600. Right mastoid opened and no free pus found. Some rough bare bone in middle fossa.

Autopsy.—Septecemia. Acute nephritis. Acute pleuritis. Double mastoiditis. One operated on.

CASE 9. M. L. C., age 12 years. Scarlet fever. Admitted to hospital Dec. 19, 1908. Patient is delirious. Pulse 103. Râles over both lungs and slight dullness at the base of the right lung. Dec. 26, condition has been the same until today, when she is brighter and less delirious. Marked septic temperature still. Dec. 30, again delirious and much weaker. Patient continued with septic temperature in same condition until Jan. 7, when she died. Few hours before death showed slight facial paralysis.

Autopsy.—Acute pericarditis. Acute bronchitis. Congestion of the lung. Left middle ear filled with pus. Right middle ear and mastoid filled with pus.

CASE 10. M. H., 2 months old. Diphtheria. Admitted to hospital Sept. 21, 1907. Not very ill, and continued to gain until the 29th, when she suddenly began to fail. Some vomiting at this point. Does not take nourishment well. Sept. 30, died without any special symptoms. Temperature normal. No symptoms pointing to ears at any time.

Autopsy.—Broncho-pneumonia. Edema of the brain. Both middle ears and mastoids contain pus.

Cases 1, 3, 5 and 10 illustrate a peculiar state of affairs. All were diphtheria patients and each of them was not especially ill upon entrance to the hospital. Each improved or showed no symptoms for sixty-seven, forty-four, eight and ten days respectively. Then they developed weakness or prostration and gradually died without definite symptoms of any kind. The autopsies showed all of them to have had double acute middle ear disease; and three of the four cases, either single or double mastoiditis. Not one of the four showed any reason to suspect the middle ear during life.

Cases two and four were also diphtheria patients and were very much prostrated on admission to the hospital and died the same day. Both had severe complications in other organs, which may have been secondary to middle ear infection or mastoiditis, both of which were present in each case. In neither case was the ear suspected of being diseased during life. Elevated temperature was present, but was attributed to heart, lung or kidney inflammation, which was present and active.

Cases 6, 7, 8 and 9 were all scarlet fever patients and showed a marked contrast to the diphtheria cases. Each of them was very septic on admission; each had high temperature and severe complications other than the middle ear or mastoid. All four of these cases had mastoiditis unsuspected on either one side or both. The question may again be raised as to whether the primary infection was not in the middle ear or mastoid cells, and the inflammation of the heart, lung or kidney secondary to them. In support of this theory may be cited cases 2 and 8, in which the records state; either free paracentesis or spontaneous rupture was followed by immediate and "marked relief from vomiting, difficult breathing and high temperature."

In cases 6 and 9, neither middle ear or mastoid was suspected during life; both, however,

had pus in the mastoid cavity. Cases 7 and 8 had a mastoid operation on one side, not followed by relief of symptoms. At the autopsy, the opposite side in each case was found to be filled with pus. Neither of the unsuspected mastoids had the ordinary symptoms during life.

Granting middle ear complications to be of greater importance than we have believed them to be in the past, we face a very ugly question. Diagnosis is extremely difficult and treatment in many cases would be equally hard to carry out. A study of the clinical records of these autopsy cases prove symptoms to be practically *nil* in many instances. The common every-day methods of diagnosis are not at our disposal to make use of. As you have observed, most of the fatal cases mentioned occurred in very young children. All of them were under 12 years of age and many of them under two years. The sensation of pain is eliminated from the situation. Restlessness or fussiness are occasionally seen, but can never be depended upon. Swelling of the posterior wall of the canal is impossible as the young child has no bony wall. Swelling of the drum membrane and edema over the mastoid are positive signs of diagnosis only when present; as the autopsy records plainly demonstrate, pus may be present in either middle ear or mastoid, with no suspicion of these two symptoms present.

Either one of two courses is open to us. We must of necessity develop new and improved methods of diagnosis, or fail in our mission as aurists in these particular cases.

The newer methods of diagnosis are scarcely available for several reasons. It would be somewhat difficult to x-ray these cases on account of the ages of the patients. Such a procedure at the bedside of very sick cases, would be practically impossible. Patients with contagious diseases would never be allowed in special x-ray rooms, and no x-ray machine I know, could be carried into a contagious hospital. The only solution of this problem would be a special x-ray room for the particular purpose. The x-ray, so far as I know, is an untried experiment in such cases, and probably would be of little value, except possibly in the very acute scarlet fever and mastoid cases, wherein a large amount of pus is present. In view of the extreme necessity, however, for new methods of diagnosis, the x-ray should be tried out.

The Mosher transillumination method would be ideal if we had adults and not very young children to deal with. The apparatus is simple, small, could be easily sterilized, and taken from one patient to another. It would further have the advantage of being used at the bed of very sick patients, without moving or otherwise disturbing them. In its present form, however, it is useless in the class of cases we most desire to use it upon, because of the age of the patient. Some modifications of this instrument may be developed, and it would be of the greatest assistance. In fact at the present time, a modification of this instrument is about the only hope I see upon the horizon of these cases.

In view of the large percentage of aural involvement in very sick and fatal cases, the closest possible watch must be kept on the middle ear. Naturally such close observation will be rewarded by finding many inflamed and swollen drum membranes. Once determined, this condition is easily handled; but as distinct stereotyped symptoms are lacking, the observer must be prepared to note the merest suspicion of trouble in this locality and possess sufficient skill to note the slightest trace of altered natural conditions.

With active symptoms present in any organs of the body, particularly in the heart, kidney, pleura or joints, suspicion should be directed to the middle ear as the original focus of infection. If prominent symptoms are present in this locality, prompt and radical measures must be taken to overcome them. Should one fail to find the common symptoms of inflammation in the middle ear or mastoid cells, those organs are by no means free from suspicion on that account. It is possible, the appearance of an infected middle ear may be altered at different hours of the day and night. An apparently normal looking drum membrane in the morning, may have a different appearance in the late afternoon or evening. It would be interesting to know whether or not there was any change in the appearance of the middle ear at the time of the two extremes of a septic temperature; providing of course the fluctuation was inflamed by aural conditions.

In the treatment of such cases, there is but one course, viz. wherever pus is present, it must be thoroughly drained. This sounds simple enough to any physician reasonably familiar with aural work; but it fails to be as simple as it would first appear. To establish drainage in a comparatively healthy patient is simple enough, but to keep such drainage open in a very sick patient is an entirely different matter. Repeated incisions of the drum membrane are often called for and should be resorted to as long as necessary. Ether operations should of course be avoided as much as possible when important organs are involved; but they are never absolutely contra-indicated when necessity demands. This has been proven many times in the Boston City Hospital. Very sick patients will take ether better than would be supposed. The free drainage of pus, with its attending toxins, will do far more good, than ether with its irritation to inflamed tissue will do harm.

Ice bags should never be used in seriously ill patients in the contagious diseases. Symptoms in the middle ear or mastoid should be encouraged as much as possible. Ice bags or other methods of cold applications very effectually mask such symptoms and should be absolutely avoided. Over-conservatism will jeopardize the life of the patient. Treatment must be broad-

minded, courageous and thorough. It must also be prompt and decisive. Hours count tremendously in this respect. Toxins must be eliminated before the system is overwhelmed to the point from which it can never recover. Unlike pneumonia, typhoid, tonsillitis, etc., this is not a self-limited process. The moment the pus is liberated, the toxins cease to be absorbed to any extent, and if the patient has sufficient vitality, the ones already in circulation will be taken care of by nature herself.

The matter of prompt and thorough treatment cannot be too strongly emphasized. The failure of present day treatment in many cases, is a lack of skillful diagnosis in the first place and failure to promptly relieve dangerous symptoms in the second place. Practically every case of brain abscess and every infected jugular vein is the result of failure to diagnose and treat comparatively simple conditions in the early stages.

CLINICAL CASES.

SCARLET FEVER.

Total number of cases	746
With otitis media	65—11%
Without otitis media	681

MEASLES.

Total number of cases	456
With otitis media	125—28%
Without otitis media	331

DIPHTHERIA.

Total number of cases	962
With otitis media	28—2.9%
Without otitis media	934

MIXED INFECTIONS.

Total number of cases	68
With otitis media	30—44%
Without otitis media	38

2232 cases in all.

333 AUTOPSIES.

	DIPHTHERIA.	SCARLET.	MEASLES.
Total number of cases	214	106	15
Head not opened	51	24	6
	163	82	7
Ears negative	29	5	0
	134	77	7
Percentage of aural involvement when conditions were noted in the records	82%	94%	100%
AURAL COMPLICATIONS.			
A.—Unilateral otitis media	32	12	1
B.—Bilateral otitis media	61 } 69%	46 } 74%	5 } 86%
C.—Unilateral mastoiditis	19	8	1
D.—Bilateral mastoiditis	22 } 31%	11 } 26%	0 } 14%
	134	77	7
BRONCHO PNEUMONIA.			
Total number of cases	57	23	8
Ears normal	13—23%	2— 9%	1—12.5%
	44—77%	21—91%	7—87.5%
A.—Unilateral otitis media	12	4	2
B.—Bilateral otitis media	14 } 59%	13 } 74%	5 } 100%
C.—Unilateral mastoiditis	5	1	0
D.—Bilateral mastoiditis	13 } 41%	3 } 26%	0
LOBAR PNEUMONIA.			
Total number of cases	13—92%	1	0
Without otitis media	1— 8%	0	0
A.—Unilateral otitis media	0	0	0
B.—Bilateral otitis media	9 } 66 2-3%	1 } 100%	0
C.—Unilateral mastoiditis	1	0	0
D.—Bilateral mastoiditis	2 } 33 1-3%	0	0

THE DIAGNOSIS OF FEEBLE-MINDEDNESS AMONG IMMIGRANTS.

BY J. G. WILSON, M.D.

A. A. Surgeon, U. S. P. H. S., Ellis Island, New York.

THE differential diagnosis of the high grade feeble-minded individual from the normal is an exceedingly difficult and complex problem. There are all grades of human intelligence, and these grades group themselves into strains which are hereditary and can be traced with a fair degree of accuracy through successive generations. There is the strain of high intellectual ability which is easily recognized. This is followed by the middle grade or average, which is in turn to be differentiated from the feeble-

minded stock. This differentiation of the high grade feeble-minded individual, or moron, from the person of only average intellectual capacity is rendered all the more difficult by the fact that we have not yet an entirely satisfactory understanding of what really constitutes the moron. To say that he is a person whose intellectual development is permanently arrested somewhere between the ages of eight and twelve years seems to convey a definite idea, but, when dealing with immigrants it is open to the objection that the standards of intelligence vary with different races. "Ontogeny recapitulates phylogeny," and the forests of Africa have whole tribes which are entirely composed of morons. While there is no immigration from the wilds of Africa, there is a stream from certain parts of Europe that appears to be composed of persons whose intellectual development has stopped short of the average standard of our own people.

It is entirely proper to require that the immigrant shall measure up to our own standards of mental capacity rather than to those of his own country. To freely admit mentally inferior *individuals* because of the fact that they come from a mentally inferior *race* would be an extremely unpatriotic policy. The influx of bad foreign blood would tend to undo whatever good the practice of Eugenics at home might accomplish. But while in no way advocating the lowering of the standard, or a letting down of the bars to the mentally unfit, I think that we should be extremely cautious not to confound dense ignorance with inherent mental incapacity. The difficulties in the way of diagnosing the immigrant *moron* from the immigrant *ignoramus* are chiefly those which arise on account of differences in the language and the racial viewpionts of life's problems. These differences are so great that it often requires an extraordinary amount of time and patience before a definite conclusion can be reached. Besides time and patience, and a general knowledge of the subject, it often helps to invoke the aid of some of the special methods devised for the determination of intellectual standards.

According to Binet and his followers we are able to classify with a fair degree of accuracy the intellectual capacity of a given individual by requiring him to perform a series of mental tests which have been found to be readily accomplished by the average person of his age. The Binet system seems admirably adapted to the diagnosis of feeble-mindedness among people who have been brought up in the same or a similar environment as the persons among whom his original experiments were conducted, that is, the environment of the French school children.

With slight modification Goddard has successfully applied it to our own children. There seems no doubt about its practicability as an aid to the diagnosis of the degree of mental ability of the average American, but when it comes to its application to the examination of immigrants there is a grave question as to its fairness when relied on alone.

Even though the essential phenomena of feeble-mindedness be the same among all races it does not necessarily follow that these can be best elicited in every case by identical methods. The congenitally feeble-minded of all races, almost without exception, respond to external stimuli. But this response does not bring about normal reaction. They lack in co-ordination. In the realm of thought this is shown by the lack of constructive imagination. In common with the normal mind the brain of the defective is capable of imaging past experience. That is to say, he has the reproductive imagination developed. He is also able to locate the image in point of time and place, and is therefore gifted with the power of memory. Often the higher grades of imbeciles and morons are gifted with exceptionally good memories. The presence of this faculty is therefore no evidence of normality nor any adequate test for the degree of intelligence. But all grades of feeble-minded from the highest to the lowest are greatly lacking in constructive imagination. In other words they are unable to put together in new combination the images of past experiences. This faculty of constructive imagination more than any other underlies the normal intelligence. It has been claimed that the Binet tests are especially adapted to the determination of the presence or absence of this faculty. The advocates of this method state that the tests are in reality not an index to the education of the individual so much as they are to his inherent capacity for education.

For several months past the Binet test has been applied to immigrants as the opportunity offered. Out of 92 who were certified by the examining physicians as mentally deficient during the months of October and November, 1912, this method was used in whole or part as one of the aids in determining the diagnosis. Besides those certified as mentally deficient during these two months there were 2393 examined in the same way who were determined to be normal. Making all due allowance for difficulties of interpretation and strangeness of environment, I think that the Binet tests should not be solely relied upon either for the determination of the normal intellect nor the higher grades of feeble-mindedness among immigrants. For idiots and low grade imbeciles they are practical enough, but these low grades are easily determined by other methods and without any special apparatus.

The following copy of the mental examination of an alien is instructive and typical of the way the Binet system may fail to bring out the constructive imagination of the alien, whereas an examination conducted along other lines will place him in his proper class.

BINET EXAMINATION.

D. S. Male, 20 years old, Ruthenian. Cannot read nor write. No schooling. Farm laborer.

Six-year Old Test.

1. Morning or afternoon? (Correct.)

2. Define fork, horse, table, chair, mama. (Correct.)

3. Executes three simple commands. (Correct.)

4. Shows right hand. Left ear. (Correct.)

5. Chooses prettiest of three pictures. (Correct.)

Seven-year Old Test.

1. Counts 13 pennies. (Correct.)

2. Describes pictures. (Very poor.)

3. Sees that pictures lack eyes, nose, mouth and arms. (Had to be helped.)

4. Copy of diamond. (Very imperfectly done. Never had pencil or pen in hand before.

5. Recognizes colors—red, blue, green, yellow. (Correct.)

Eight-year Old Test.

1. Compares wood with glass, horse with cow; paper with cloth. (These comparisons were not spontaneously given. He had to be helped so much that his answers would probably have been called a failure by most examiners.)

2. Repeats days of week. (Correct.)

3. Stamps. (Incorrect.)

4. Repeats 43795. (Incorrect.)

5. Counts backwards from 20. (Incorrect.)

Nine-year Old Test.

1. Makes change 20 cents less 4 cents. (Incorrect.)

2. Definitions (these were given in terms of use only and very poorly even in this way.)

3. Knows date. (Incorrect.)

4. Knows months of year and repeats them. (Incorrect.)

5. Arranges a series of four weighted blocks in order. (Incorrect.)

As indicated in the foregoing resumé of the Binet tests to which this man was subjected, he was mentally on a par with a child of not more than 8 years at the most liberal estimate. In other words, he was, according to the Binet standard, a high grade imbecile. However, when subjected to the comprehension tests in the 10-year old group he showed so much evidence of possessing more than a modicum of common sense that the examination by the Binet plan was abandoned and he was examined by asking him the following questions.

"If you had missed the ship you came on what would you have done?"

"I would have had to return home."

"To whom are you going?"

"To an uncle."

"Suppose, for the sake of supposing an unlikely thing, that when you get to the house of your uncle you should find he is dead and that there is no one to receive you, what would you do?"

"I shall grieve very much if anything like that should happen."

"Which is worse to lie or to steal?"

"To steal." After a moment's thought the alien says, "One ought to keep things locked up so they cannot be stolen."

"If you broke something that did not belong to you what would you do?"

"Tell the owner and ask pardon."

"What makes a ship move through the water?"

"I don't know."

"Did you ever ride on a train?"

"Yes, once."

"What made the train go?"

"Steam."

"Now tell me what makes a ship move through the water?"

"I don't know."

"What do you *think* makes it go?"

"I think it is steam."

"What is this?" (pointing to a shoe).

"A shoe."

"What is the shoe made from?"

"From leather."

"What is leather made from?"

"From hides of horses, cows and sheep."

"What is this?" (pointing to a pair of trousers).

"That is wearing material,—cloth."

"What is it made from?"

"Wool."

"Where does wool come from?"

"We get it from ships, I mean the ships bring it to us."

"Yes, I know, but where does the wool come from in the first place?"

"It grows."

"Does it grow on animals or is it a vegetable growth?"

"It comes from animals."

"Where does the sun rise?"

"Over there to my right."

"Where does it set?"

"Over there to my left."

"Where does it go over night?"

"In the heavens."

"Were you brought up on a farm?"

"Yes."

"Now, you have seen horses and cows lying down, haven't you?"

"Yes."

"Tell me the difference between the way a horse and a cow get up when they are lying down."

"A horse rises on his front feet first, a cow gets up on her knees and then on her hind feet."

A comparison of the answers to the Binet questions with those given to the foregoing queries in regard to subjects with which the alien had had practical experience, shows that absolute standards for determining mental capacity must be used with great discretion. A casual inspection of this alien's mental attitude and general appearance indicated that he was backward or stupid, to say the least. A careful examination and observation for several days convinced me that in reality his powers of observation and his constructive imagination simply had lacked opportunity for development. His power of attention was poor, but he had never had need to apply himself to any of the details of a complex daily life. His intellectual and moral judgments were fair and there seemed no good reason to believe that he would not soon react normally to his complete change of environment and be able to earn his living unaided, which is, after all, the great practical criterion in determining the mental capacity of the individual.

It must be admitted that as a rule those aliens who make such a complete failure of the Binet examination, do not make such a good showing when questioned by the "common sense" method. I have purposely chosen this extreme case in order to indicate the danger of relying on this standard alone.

Realizing the great difficulties in the way of drawing conclusions from tests which have been primarily devised for determining the mental calibre of persons who have lived in an environment of education, whether they themselves have attended school or not, it has occurred to several investigators that some plan should be devised to gauge the capacity of those who have not had the benefit of association with any but the illiterate. In looking over many of the puzzles and problems devised with this end in view, it occurred to me that Healy's Rack test would perhaps be of some practical value in the examination of immigrants. According to the authors of this method, it is designed to "bring out perception of relationships of forms, and, also, the individual's method of mental procedure for the given task—particularly his ability to profit by the experience of repeated trials, in contradistinction to the peculiar repetition of impossibilities, characteristic of the subnormal and feeble-minded groups."

Healy and Fernald state that they found that most of their twelve-year old children were able to do this puzzle in time ranging from 12 seconds to 2 minutes. As the time element is admittedly of less importance in doing the problem than the way in which the person attempts to do it, I determined to give every immigrant who tried it all the time he wanted and to insist that he should not give it up before it was obviously simply a matter of luck as to whether he would eventually succeed or not. One hundred adult immigrants were subjected to this test. They were taken at random from those who had been set aside by the physicians making line inspection, as persons who looked or acted in a way that made them think it possible that they were in reality below par mentally. Of the hundred thus picked out all but seven were subsequently determined to be in reality perfectly normal in their mental make-up. Of the seven who were found to be feeble-minded, six were unable to do the test. But on the other hand 13 of the normals made as poor an attempt to do the test as did any of the feeble-minded, while one of the feeble-minded had comparatively little difficulty in getting the puzzle together. Observation of the way intellectually normal aliens attempt to solve the Healy Rack Puzzle gives the impression that it has some value as a diagnostic measure in determining that the alien in question is normal; but that it is not of much practical use in determining abnormality. In the total of 87 who did the puzzle without difficulty, all but one were mentally normal. But one must not lose sight of the fact that there were thirteen normals who could not do the test. A fair conclusion would seem to be that the man who can do it quickly and without false moves usually turns out to be all right, whereas the one who blunders at it and fails may or may not be deficient in other ways.

So it seems to me that every artificial aid to determine mental ability of the alien must be used with great caution and considered as an adjunct only to a general examination which considers the reaction to his environment under all conceivable circumstances. To determine this one must bear in mind the general truth of the proposition that if the alien reacted normally to the environment to which he was accustomed at home, he will probably do the same in his new surroundings within a reasonable time. Therefore, any tests to be applied with success should have an air of familiarity about them. The mere appearance of the apparatus to a man who has never seen or probably never heard of anything of the kind, may serve to so confuse him that he will be absolutely unable to do himself justice.

Likewise, the fact, that a grown man does not know the simple things which are matters of every-day knowledge to even our children, should not of itself be construed as evidence that he is feeble-minded. If a native-born citizen from the state of Ohio should depart from his home by train, board the Lusitania at New York and after five days on the water arrive at London; and then, in response to questions put to him by English officials, say that Columbus was the capital of the United States, that he did not know how long he had been en route,

that he had never heard who was the president of the United States and that the name of the ship he came on was Mr. Cunard, we should certainly be justified in saying that this man was mentally deficient. But if a Sicilian peasant were to give us the same answers the same conclusions would not necessarily follow. I say Sicilian because he represents this peculiar type of ignorance. The Russian Jews, Slavs from Austria and Russia, as well as the peasants from the Balkan states could all be chosen to represent other types of ignorance which would be just as suggestive of feeble-mindedness were they encountered among our own people. Out of 100 non-English speaking adult immigrants who were subsequently determined to be mentally normal, there were 43 who did not know the name of the ship on which they came. Out of this same hundred there were 32 who could not count backward from 20 and who were apparently unable to grasp what was meant by the request, even when a conscientious effort was made to explain it to them.

The more carefully one studies the whole question of feeble-mindedness among immigrants the more he will become convinced that the diagnosis must be established by a câreful weighing of all the evidence which every reputable method of examination can furnish. The Binet tests, the Di Sanctis tests, the apparatus of Healy and Fernald are all useful as adjuncts and are especially valuable in determining the lines along which the alien should be especially examined and in helping one to come to a rapid conclusion. But upon whatever method or combination of methods the examiner finally comes to place the most reliance, he should always bear in mind the fact that what he really desires to determine is whether or not the alien is lacking in one or more mental traits which will make it impossible for him to assume his normal relations to society. With this idea uppermost in his mind he will gradually learn to interpret the findings of the very valuable artificial aids in their true light and will not place undue significance upon the apparent absence of mental ability in any one particular field.

Finally, however difficult the problem of determining the mental status of the immigrant may appear, it is in reality not a hopeless task. The obstacles to be overcome are those which increased facilities for examination can readily surmount. There is a remarkable unity of opinion among all those who have had experience with this particular line of work as to just what is needed to perfect the system.

The aids to diagnosis, the proper interpretation of findings, and the general situation are all well in hand. The one thing lacking is a larger force of trained men and interpreters and a place for them to work. These things take money and so far Congress has failed to adequately provide the funds which the exigencies of the case require.

PERSISTENT MOUTH BREATHING FOLLOWING ADENOIDECTOMIES.

BY IRVING SOBOTKY, M.D., BOSTON.

WHY are there so many failures after adenoidectomies and what can be done to facilitate nasal breathing? How often patients return anywhere from one to six months after operation with little or none of the nasal respiration that was so emphatically promised!

Parents are told to compel the young patient to breathe through the nose—that it is simply the "habit" of mouth breathing, formed from birth to the present time, that prevents nasal breathing and if the child is constantly told to keep the mouth closed and force air through the nostrils—a cure will be effected. This may be true in some cases but in many the difficulty lies in abnormal conditions within the nasal cavities. It is obvious, then, that simply removing the adenoid, however completely, will not cure mouth breathing when there is nasal obstruction of any cause.

J. V. White[1] speaks of variations of the sphenoid bones, of the location of the fossa of Rosenmuller and of Thornwald's disease, as factors determining the post-operative mouth breathing. Maurè gives similar reasons. Another factor according to Brühl of Berlin, is delay in removing the adenoid until the bony framework is formed with a high palatal arch. In these high arch cases, mouth breathing will persist after operation and the patient must be referred to a dentist for the spreading of the arch and the regulating of the teeth. These conditions are also the cause of deviated septum, as there is not sufficient room for the septum to grow straight. This type of case can usually be recognized by the elongated shape of the face and skull.

An examination of the nose, which should be a matter of routine in every case of adenoid, will often reveal hypertrophied lower turbinates or deviated septum. The presence of enlarged lower turbinates, deviation and spur of the septum are said to favor the development of adenoid, but, according to St. Clair Thomson of London, it is much more likely that these intra-nasal conditions are secondary. Diemont[2] expresses the same opinion and has observed the co-relation of hypertrophy of the lower turbinate with adenoid.

By enlarged turbinates a true hypertrophy is meant and not the vaso-motor type or the enlargement caused by constitutional diathesis. These three types can be differentiated by a thorough examination.

The vaso-motor lower turbinates are pillow-like, smooth, red or pinkish in color and may seem to be in contact with the septum or with the middle turbinates. A probe sinks as if into an air cushion. The application of adrenalin and cocaine causes shrinking, but when the ef-

fect of the solution has worn off the turbinates swell to their former size.

The truly hypertrophied turbinates are not smooth but nodular and pebbly and resemble adenoid vegetations. In color they are pale pink. Adrenalin and cocaine does not produce marked contraction and probe pressure does not cause pitting but gives the sense of resistance of thick, fleshy tissue. This condition is caused by an hypertrophy of the adenoid layer of the mucosa.

The hypertrophy caused by constitutional disease (syphilis) is hard to distinguish from a true hypertrophy unless a close view shows some ulceration. This type with insignificant ulceration is not rare and should always be borne in mind.[3]

The question now arises what can be done to facilitate nasal breathing in these cases? Labourè advocates a complicated system of breathing exercises including the immobilization of the free moving parts of the thorax.[4] It would seem that this method is not suited for children, hence operative treatment of the nasal condition gives the most promise of benefit.

If the nasal examination shows a deviated septum, should a sub-mucous resection be considered when the patient is under sixteen years of age? It is better to wait at least until that time in life has been reached because we could not be certain what influence the sub-mucous operation might excite upon the development of the nose; also, more regenerative tissue forms, after this operation, in children than in adults, and the object of the treatment might then be nullified. Freer, however, operates on quite young children.

It is in cases, where the type of truly hypertrophied lower turbinates, previously referred to, are found and where there is no considerable deviation of the septum, that a simple operative procedure has shown good results.

There is at present a disinclination to do turbinotomies or turbinectomies unless a positive indication exists, such as obstruction to the drainage of the accessory sinuses of the nose or polypoid degeneration of the turbinate. The tendency to an atrophic nasal condition which so often results, is in no way desirable. Stewart[5] says an inferior turbinate should never be entirely removed. In cases of too free removal, the loss of its moistening and filtering action produces the discomfort of dry pharyngitis and laryngitis.

However, using the turbinate scissors and simply cutting a slice of the thickened mucous membrane of the inferior turbinate along the lower and posterior portion, parallel to the long axis of the bone, and being extremely careful not to cut the bone itself, will not cause atrophic changes. The healing will leave a linear surface scar and the cicatricial contraction will widen the nasal cavity enough for all breathing purposes. This operation should be done at the same time the adenoid is removed and must be the first procedure so as to avoid clouding of the nasal cavities by blood. The nares need not be packed as the bleeding soon stops, but it is well to keep cargile membrane between the operated turbinate and the septum to avoid the formation of synechia. This treatment should not be undertaken during the age of puberty in male or female, as at this time the entire nasal mucous membrane is in a state of turgesence and cauterization or removal of tissue should be deferred.

Kyle says that electrolysis, using the bi-polar method, has given favorable results and has the advantage that tissue is conserved, there is little reaction and no danger of synechia. But this treatment requires frequent sittings and is, therefore, tedious and extremely difficult with children.

According to Freer, the use of the galvanic cautery is unsatisfactory and this opinion is shared by St. Clair Thomson who says that the galvanic cautery destroys a certain amount of epithelium and the steam and heat it produces causes a reaction in the surrounding tissues and makes it difficult to limit its area of reaction.

SUMMARY.

The writer wishes to emphasize these points:

1. For the cure of persistent mouth breathing the nasal breathing exercises have not proven efficient.

2. An operative treatment of the nasal condition is indicated. Such treatment must be appropriate for the age of the patient.

3. Patients should have the adenoid removed before the typical high palatal arch is formed.

4. If this high arch is formed the treatment should be dental; such as spreading the arch and regulating the teeth.

5. Cutting a slice of mucous membrane from the enlarged lower turbinates, as an aid to nasal respiration, has given good results.

6. A sub-mucous re-section should not be done in children under sixteen.

7. Electrolysis, using the bi-polar method, is effective in reducing the enlarged turbinates but is not suited for children.

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A NOTE ON THE HISTORY OF RETROGRADE CATHETERIZATION IN RUPTURES OF THE URETHRA.

BY CHARLES GREENE CUMSTON, M.D., BOSTON.

THE reason for this short historical item is due to the fact that a certain number of American and German writers attribute the honor of having devised this operation to Brainard of Chicago, in 1849. That this is erroneous we shall show, because this operation was done about one hundred years before the Chicago surgeon attempted it.

It was Verguin of Toulon, who first, in 1757, performed retrograde catheterization of the urethra in a case of traumatic rupture of the canal. A sailor was admitted into his service, having fallen astride a mast. After having vainly tried to pass a sound, and as retention of urine continued even after a perineal incision had been made, Verguin operated as follows: The bladder was punctured above the pubis and a cannula was introduced and left *in situ*. A few days later he introduced a catheter through the cannula to the neck of the bladder and made it protrude through the perineal wound. This catheter served as a guide to the sound which was passed into the bladder and allowed to remain. Three months later the patient left the hospital completely cured.

The above report is due to Chopart, who gives it in his work on diseases of the urinary tract, and although the operation was new, it made little impression in France or elsewhere.

In 1813, Souberbielle was led to perform retrograde catheterization, but as he was ignorant of Verguin's case he considered himself the inventor of the operation. Fine of Geneva, in 1809; Gurdon Buck of New York, in 1843; Chassaignac of Paris, in 1844; and Guersant, in 1847, resorted to retrograde catheterization in traumatic ruptures of the urethra. As is seen, all these surgeons performed the operation before the date of Brainard's operation, namely, in 1849.

Now, to continue with the history of the operation. Voillemier in 1857 resorted to it in a case of ruptured urethra; Giraldès, in 1867, had recourse to the same procedure; while, in 1875, Volkmann operated by this technic on a seven year old child for a rupture of the urethra and perineal abscess.

Up to 1874, retrograde catheterization was done by making a suprapubic opening of small size, and Péan was the first to perform suprapubic cystotomy as the first step in vesicourethral catheterization. Up to this time the procedure was only possible in cases of retention of urine with a distended bladder, or when a suprapubic fistula was present, as happened in Voillemier's patient.

In 1880, Neuber introduced a metallic sound through a suprapubic fistula in a case of rupture of the urethra from fractured pelvis, and obtained a complete cure. Then in 1881, Lawson in England resorted to the same device on a man fifty-five years of age with a urethral rupture. From this time on the operation became developed until the present time, when its indications have been decided upon and the technic perfected.

Were the medical profession more versed and interested in the history of the healing art, such errors as the one referred to would not be constantly occurring, as is now unfortunately the case.

Symposium.

ON THE RELATIONS OF DENTAL AND ORAL HYGIENE TO HEALTH.

THE TEETH AND THEIR RELATION TO THE BODY.*

BY GEORGE H. WRIGHT, D.M.D., BOSTON.

WE shall consider the definite relations which are of special interest to the general practitioner:

First. The Relation of the Development of the Teeth to the Tonsils and Other Glands.

SUMMARY.

Tonsils are lymphoid structures.

Diseased teeth may be a source of infection and enlargement of glands and tonsils. Tonsils become enlarged without infection or disease whenever (*a*) the first group of temporary molars at two years of age are in process of eruption; (*b*) at six years, when the first permanent molars, and at twelve years, when the second molars are active in eruption.

General practitioners of medicine, district nurses and physical examiners of school children in particular should learn the years when to expect these teeth.

Where there has been no previous history of recurrent tonsillitis and tonsils are simply enlarged, the periodicity of the eruption of teeth should be considered.

Second. Teeth and Deformities of the Nose and Face.

The importance of the superior maxillary is to be recognized, and particular attention must be given to the transverse facial suture. With these observations carefully in mind, with due attention to the histological structure of the superior maxilla, we are in a position to judge of the relative merits and importance of measurements which shall be made within the nose in conjunction with readjustment of the maxillary bone. An instrument is here shown by the use of which three measurements may be obtained and results of its application and use in actual cases are here presented.

* Dr. Wright's address was a summary of his address upon this subject at the annual meeting of the Massachusetts Medical Society, June 12, 1912, which was published in full in the BOSTON MEDICAL AND SURGICAL JOURNAL, December 5, 1912.

ORAL PROPHYLAXIS.

BY HERBERT W. ADAMS, M.D., D.D.S.

It would be difficult to say just when the idea of preventive dentistry was born, or to whom, if to any one person, the credit belongs, but it would be safe to say that it is due to Dr. D. D. Smith of Philadelphia that today hundreds of dentists are practicing along these lines.

Decay of the teeth is caused by the fermentative action of bacteria, producing an acid which causes a destruction of the inorganic constituents of the teeth. It is necessary for the production of caries or decay of the teeth for the bacteria of decay to become fixed npon or attached to the surface of the teeth in order to carry on their destructive work. This necessary fixation of the bacteria of teeth decay is accomplished by the property which they possess of surrounding themselves with an adhesive substance which glues them to the enamel in protected places, forming what is known as gelatinous placques.

Preventive dentistry is the practice of placing the mouth and teeth in such a condition as to make decay almost impossible. This is accomplished by the removal of every foreign particle from the mouth. The teeth are cleaned, filled and polished not only above the gum, but below as well, wherever a pocket may exist, and are left in glistening condition, which makes lodgment of food, tartar and germs impossible. Particular attention is paid to the surfaces and edges of old fillings that they may offer no lodgment for foreign substances.

To be successful, prophylactic treatment entails frequent visits to the dentist; this is one of the essential features. To be ideal, the treatment should start with the eruption of the deciduous teeth.

Great as the factor of cleanliness is, we cannot overlook the fact that caries is seen frequently in mouths in which the strictest prophylaxis is maintained; while the converse is true, namely, that many filthy mouths are perfectly immune to caries. Cleanliness is, therefore, a factor in the determination of the condition of immunity and susceptibility, and in some cases is the controlling factor, while in many other instances, but one of several influences which, by their combined effects produce a condition which is favorable or unfavorable to caries.

We know, however, that by proper mouth prophylaxis, by the best modern reparative measures. and by the use of food requiring a great deal of mastication, we may resist the action of caries in the average individual. It is said that the natives of countries where hard food is eaten have broad, strong jaws and sound teeth. Thus by mechanical measures we produce a partial or complete immunity, in spite of unfavorable conditions which may exist in the mouth.

Until a better method be found, we must continue to fight caries by the best prophylactic and reparative measures which we can command. By keeping the mouth in a healthy condition and the teeth free from tartar, smoothing the edges of old fillings, and replacing gold caps and bands that irritate the gum, we can, in the vast majority of cases, prevent the so-called pyorrhea alveolaris, which is a molecular disintegration of the investing structures of the teeth, sometimes, but not always, accompanied by the formation of pus.

The physician will always be the adviser of the public in things pertaining to the health, and when he awakens to the fact that the teeth are more essential to health and happiness than has been supposed, his natural position as mentor of the public health will cause him to educate the people as to the insiduous nature of oral sepsis in the same manner that he has taught them the dangers of drinking from a public cup.

The human mouth is a habitat and breeding ground of many bacteria which are the cause of definite pathological conditions. They have here all of the elements necessary for their existence, food, moisture and warmth. They are found between the teeth, under the gums surrounding each tooth, in cavities of carious teeth, under ill-fitting crowns, bridges and plates, defective fillings, pyorrhea alveolaris pockets, tonsils and abraded pathological mucous membranes. Among the germs that frequent septic mouths are the following: bacillus tuberculosis, bacillus influenza, bacterium coli communi, pneumococcus Freelander, pseudo-diphtheretic bacillus, staphylococcus albus, staphylococcus citreus, streptococcus, Vincent's bacteria, and others.

From the mouth may be distributed the pathological factors named to the rest of the body by continuity of surface, absorption through tonsils, pathological surfaces and concealed pus foci by blood and lymph streams, inhalation into the bronchi and lungs and ingested into the stomach and intestines, producing autointoxication. The passage of the discharges of a septic oral cavity into the stomach, along with ill-masticated food, due to defective dental organs, leads to disturbances of function. The proper function of that organ is rendered inefficient, because the contents of such a stomach undergo fermentation of putrefaction, instituted by the micro-organisms that have come from the septic mouths. The irritating products of incomplete digestion are not in a proper state to be turned into blood. This may give rise to almost every disturbance.

During the resting period, when hydrochloric acid is not being secreted, the discharge and contents of septic mouths passes into the stomach, producing a streptococcus and staphylococcus gastric infection. The contents of such a stomach pass into the small intestine and repeat the process there with the initiation of enteritis or septic enteritis and affect the gall ducts, kidneys, spleen and pancreas. That impaction and constipation contribute their share in the production of fecal toxemia from this retention of resi-

due in the large intestine may well be appreciated when we remember that one-third of the total weight of the solids of normal feces may consist of bacteria.

It may well be appreciated that the number of fecal bacteria are increased under the condition of oral sepsis due to faulty mastication by decayed, deformed and deficient teeth.

The long continued absorption of perverted digestion, decomposition and putrefaction, along with bacteria of low toxicity, produces and contributes to headache, malaise, lassitude, sciatica, epilepsy, eclampsia, dermatitis, various forms of nervous diseases, chlorosis, anemia, nephritis, arteriosclerosis and rheumatic fever.

The important result of preventing such absorption is shown in the following case:—

CASE 1. A dentist was called to do what was absolutely necessary to relieve the discomfort of a patient who had been confined to her bed with intestinal infection. While placing two cement fillings the operator noticed a congested condition of the mucous membrane, and on pressure pus was seen to exude from the gingival margin. After three or four days' treatment and the use of a mouth wash every hour or so, the patient was able to leave her bed and take her meals with the family. Her improvement from that time was rapid.

Dr. William Hunter of London, in October, 1910, published in the *Lancet* of Jan. 14, 1911, the following: "My clinical experience satisfies me that if oral and naso-laryngeal sepsis could be successively excluded, the other channels by which 'medical sepsis' gains entrance into the body might almost be ignored. Sepsis as an important and prevalent cause of disease in medicine would almost cease to exist, instead of being, as in my judgment it is at the present time, a more important and prevalent cause of disease in the domain of medicine than it is in that of surgery."

Dr. Evans, Health Commissioner of Chicago, says, "For a long time, in watching cases of scarlet fever, in order that the community might be protected, we watched the skin. We have learned now that it is more essential to investigate the condition of the mouth, the nose and throat, and the teeth." Then again he says, "We have learned that there is not so much danger of diphtheria from a child that is actively sick as there is from a child who has not been sick at all, but who harbors diphtheria bacilli. These individuals are capable of inducing diphtheria in others, because the bacteria may remain latent in the nose, throat, tonsils, and in the cavities of the teeth, a fact which is not thoroughly understood by the practitioners of medicine.

In 1904 Dr. J. F. Hoverstadt of Boston read a paper before the Massachusetts Dental Society in which he said that he had given his services for eight years to the children of the West Roxbury Home. There were 53 to 60 children, ranging from two to fourteen years of age. When he began to give his services the teeth of the children were in a deplorable condition. Diphtheria and many other diseases were prevalent.

Here is a letter written by the superintendent.

West Roxbury, April 3, 1904.

DEAR DOCTOR:—If the inclosed record is of any use to you, I shall be pleased at any time to vouch for the correctness of the following statement or record:—

Since the time that you have taken care of the children's teeth in our institution, the health record has been remarkably improved. There has been no more typhoid or diphtheria. For this we have to thank, in the first place, God, but it is also due to the scientific and conscientious work that you have done for the children. The doctors' and drug-store expenses for the past nine years have been as follows:

1895.....	$89.97	1900.....	$38.29
1896.....	70.94	1901.....	2.88
1897.....	49.78	1902.....	3.80
1898.....	45.61	1903.....	8.86
1899.....	303.39		

The reason that the expenses were so much higher in 1899 than in the preceding years, was due to the fact that two newly arrived children had brought the measles and whooping-cough into the institution, and eighteen children were affected by same; the sum includes pay for nurse. The great decrease in physicians' and drug expenses is most markedly shown by the last three years, as the same has been reduced from $89.97 in 1895 to $2.88 in 1901, $3.80 in 1902, and $8.86 in 1903.

(Signed) REV. F. WILHELM, *Superintendent.*

I spoke with the doctor a week or two ago and he told me that there had been no case of infectious disease at the home since he wrote the paper.

SCHOOL INSPECTION AND DENTAL CARIES.*

BY W. J. GALLIVAN, M.D., BOSTON.

Chief Division Child Hygiene, Boston Board of Health.

PHYSICAL examination of school children in Boston for the year 1911-1912 reveals the fact that 51,340 pupils, or 43.3% of the school population, were recorded as having defective teeth. This report is made as a part of a complete physical examination and, of course, indicates only gross and glaring defects. No one doubts that if such an examination were made by dentists instead of physicians, the percentage of defective teeth would be considerably increased.

Similar examination made in the City of New York shows 58.1% of the school population afflicted with defective teeth. In Chicago, 40% are so recorded. In Philadelphia, 50%. In short, a compilation of statistics made by Dr. Thomas Wood, Professor of Physical Education in Columbia University, places the school population of this country at about 20,000,000, and of

* Read before Norfolk District Medical Society, October 29, 1912.

this number, 10,000,000, or 50%, have defective teeth.

From such data, we can reasonably infer that defective teeth in school children is a condition not peculiar to Boston alone, but is widespread throughout the whole country.

A further investigation was made of the reports from the various sections of Boston, comparing conditions found in children coming from the best residential districts with those coming from less favored sections, with reference to dental caries, with the following result:

City Proper	52%
Back Bay,	45%
South End	67%
West End	54%
North End	30%
Jamaica Plain	53%
Roxbury	41%
West Roxbury	40%
Dorchester	32%
Brighton	61%
Hyde Park	59%
South Boston	42%
East Boston	20%
Charlestown	62%

From the foregoing table we can also reasonably infer that dental caries is no respecter of persons, but attacks high and low with equal impunity.

In every instance, notice of the defective condition found was sent to the parent or guardian, informing him of the condition and recommending that treatment be sought, either at the hands of the family dentist or at some dental clinic.

Physical examinations for the year 1912-1913 are now under way and upon their completion a complete list of the correction of defects can be furnished. Anticipating that such information in relation to dental caries might be sought at this meeting, a comparison of this year's examination with that of last year was made. We were able to make comparisons in 2,000 cases. Statistics dealing with such small numbers may not be of much value, but it is encouraging to note that on the basis of 2,000 children reexamined, 70% were recorded without defects, as compared with 29% recorded without defects last year. Following down the list of corrections, we find that

Defective teeth corrected	40%
Hypertrophied tonsils	42%
Defective nasal breathing	54%
Cervical Glands	50%

When we consider that dental charity in Boston, at present, is wholly inadequate compared with the opportunities for medical charity and when we consider that inquiry among dentists furnishes the information that Saturday is the only day on which they are able to make appointments with children, through the child's fear of marring school attendance record, we feel that this result is a tribute to parents who have demonstrated that they are able and willing to care for their children, once their attention is called to conditions which require treatment.

This widespread prevalency of dental caries among the children of all classes does not indicate any lack of parental instinct in caring for their young. It is simply due to ignorance of medical, dental and hygienic affairs about which no effort was made until the present time to provide information.

Sound teeth appeal to the average layman for their cosmetic value. That dental caries may be the harbor for all kinds of bacteria that some day may lay him low, probably has never caused him a thought. And yet, for some time, physicians have known that in the etiology of diphtheria, scarlet fever, pneumonia, tuberculosis, and other respiratory infections, dental caries play an important part. The educational value of this work then in calling attention to the train of evils which follow dental caries will be seen and felt in the prophylactic measures which will be applied to future generations.

Meanwhile, we are confronted with the problem of caring for defective teeth, as well as for other defects noted in the process of medical inspection of schools. As usual, when announcements of this nature are made extreme views are spread broadcast, perhaps from a desire to atone for a past of indifference and inactivity. In this category may be placed the suggestion to establish dental clinics in the school building. And if this position is tenable, clinics for the correction of other defects of equal importance as dental caries should follow. This line of suggestion followed to its logical conclusion leads to possibilities we dare not contemplate. From the earliest times, school has never been too attractive to the normal boy, and until it can be proven that parents have lost all sense of responsibility in caring for their offspring, the duty of the school physicians had better be confined to its present limits, *i.e.*, to examine, refer and report.

THE PURPOSE OF THE FORSYTH DENTAL INFIRMARY.

BY TIMOTHY LEARY, M.D., BOSTON.

The Forsyth Dental Infirmary for Children is a charity incorporated under the laws of Massachusetts whose purpose is to furnish to the worthy children of Greater Boston the dental care which they require.

Dr. William J. Gallivan in his report for the Division of Child Hygiene of the Boston Board of Health for 1911-1912 classifies the conditions found as a result of the physical examination of the Boston school children as follows:

Number pupils examined		118,781
Total number of pupils without defects		40,850
Total number of pupils with defects		77,931
Mental deficiency	501	
Defective nasal breathing	9,693	
Hypertrophied tonsils	25,121	
Defective teeth	51,340	
Defective palate	371	
Cervical glands	13,711	
	100,236	
Pulmonary Disease:		
Pulmonary tuberculosis	133	
Acute bronchitis	1,169	
Asthma	63	
Pleurisy	42	
Miscellaneous	987	
Cardiac disease	3,091	
Nervous disease	505	
Orthopedic defects:		
Tuberculosis	693	
Non-Tuberculosis	1,881	
Skin	5,245	
Rickets	1,019	
Malnutrition	3,891	
Total	119,456	

It will be observed that defects were found in 68 per cent. of the children examined. The defects found total 119,456, and of these the defects originating about the mouth and included under the headings: Defective Nasal Breathing, Hypertrophied Tonsils, Defective Teeth, Defective Palate, and Cervical Glands, total 100,236, or practically 84 per cent. of all defects found.

Most of the defective nasal breathing is due to adenoids (Dr. Gallivan's opinion), and recent work indicates that enlarged cervical glands are not, as has been thought, primarily tubercular, but are related to sources of infection in the mouth and subside promptly in most cases on cleaning up the mouth lesions.

These statistics do not include defects in the alignment of teeth with the exception of the most extreme deformities.

This then is the problem which the school children of Boston proper present at the present day from the standpoint of oral hygiene. The school population of suburbs of Boston within easy access of the city proper numbers about 110,000, and it is a reasonable presumption that the percentage of defectives among these children should correspond to the findings in the Boston schools.

The solution of the dental portion of this problem lies in bringing the children under the care of experienced dentists. This might be done in one of two ways—(*a*) By causing the dentist to visit the children, or (*b*) By bringing the children to the dentist. The Trustees of the Forsyth Dental Infirmary for Children have given deep thought to this problem and have concluded that from all standpoints it was wiser and on the whole more practicable to bring the children to the dentist. This is the era of effort toward efficiency of human labor. The value of the time of a child is the cost of its education to the city which is estimated at 3 cents per hour. The element of time apparently lost to education can be ignored since it is being recognized that the physical well-being of the child is essential if it is to obtain full value from the instruction offered. Time apparently lost in obtaining dental care is, therefore, repaid many fold in the ultimate outcome.

The time of the dentist on the other hand can be estimated as worth from $3.00 per hour upward. A fair estimate would fix it at about $5.00 per hour. Unlike the physician who can make use of any part of the twenty-four hours in adding to his income, the dentist is limited to the daylight hours. With artificial light it is possible to lengthen the working day but at an expense to eyes and quality of work which leads the average dentist to confine his professional labors to an eight-hour day.

The physical effort of standing by an operating chair and carrying out manipulations which require constant muscular activity also limits the possibility of greatly extending the working period.

With units of so greatly different value the efficiency expert quickly reaches the conclusion that the units whose time is of less value (*i.e.* the school children) should be brought in touch with the units of greater value (*i.e.* the dentist). The cost of tranporting the children to a central situation (10 cents for carfare) and the cost of their oversight (time of school nurses) does not appreciably modify the relative value of the units.

Unlike the physician the dentist requires a complex equipment in order that he may work. The multiplication of dental outfits in many situations necessitates the duplication of many parts of the plant outside of the chair and instruments.

Dentistry is surgery and no form of professional activity offers more opportunities for the transmission of disease from one individual to another so that rigid asepsis is an essential. A central plant where the sterilization of everything which enters the mouth is under the control of an individual whose sole business this is, surely furnishes a more complete check on cross infection than the divided effort in small plants.

THE VOLUNTEER DENTIST.

The physician who gives two or three hours per day to a public charity feels the income loss slightly if at all since he has a large part of the day to recoup the lost time. The busy dentist who gives of his daylight hours to a charity must take from this a definite loss of income which cannot be made up. Those who have had practical experience in the establishment and oversight of volunteer dental clinics can best appreciate the difficulty of obtaining volunteers among experienced men.

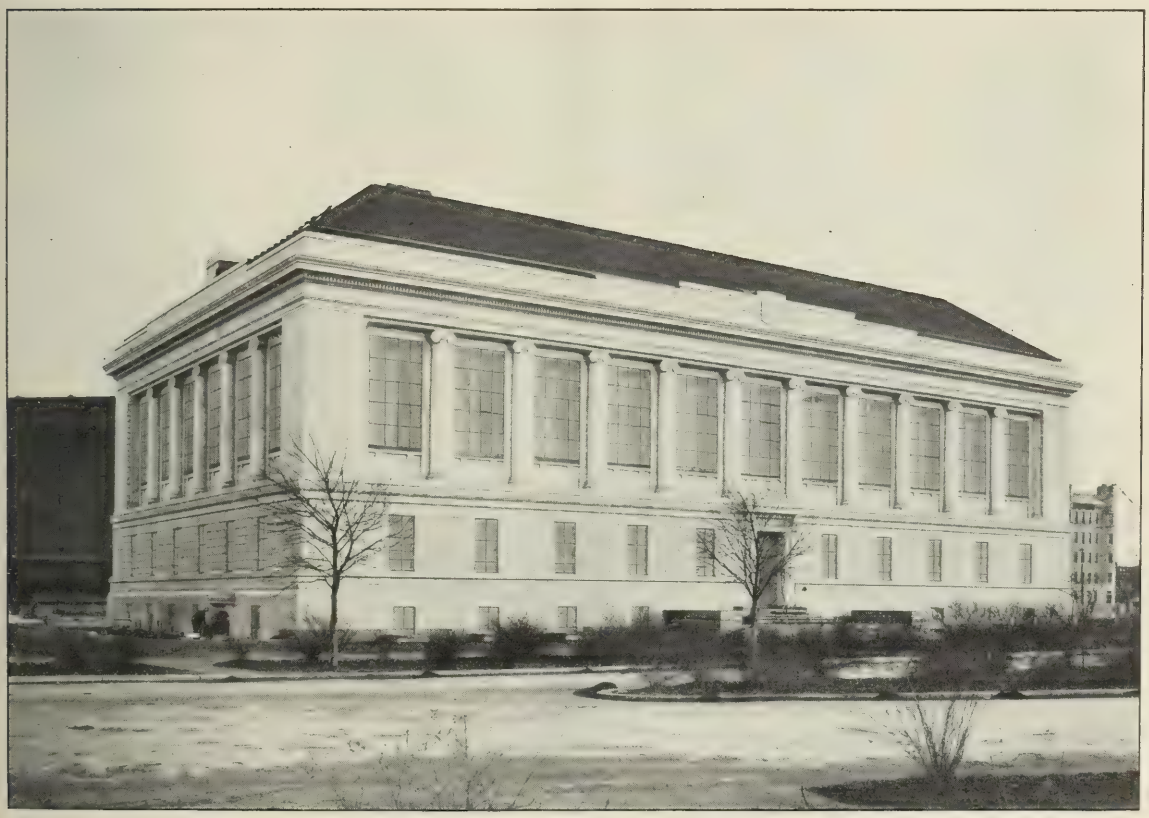
Success in dentistry is associated with more and more exacting demands on the time of the dentist who increases his income not by increasing the length of his working day, but by de-

manding a larger sum per hour for his services.

Success in medicine is often associated with less exacting demands on the time of the physician as a practice is converted into a consulting practice.

The eminent physician who gives his time to a public charity is required to do a minimal amount of routine work and is rewarded by the legitimate advertising arising from his connec-

attempt been made to care for the dental requirements of the children of a great city. Small clinics have been established in many cities, but nothing on a similar scale is in existence in the world. Many new problems have had to be met since the character of the institution has necessitated the creation of agencies hitherto uncalled for. The Board of Trustees has met many of the old problems as though



FORSYTH DENTAL INFIRMARY FOR CHILDREN

tended as a memorial to the dead Forsyth brothers and is fittingly monumental in character. When completed it is the consensus of opinion that it will be one of the most ornamental structures in the city. The trustees for the past two years have bent all of their efforts to make its appointments so complete that its equipment will be adequate for the Herculean task which this new work will entail.

Nowhere in the world up to this time has an

in dentistry. Here will be concentrated an enormous amount of clinical material. It is our purpose to invite experts who are dealing with dental problems in any part of the world to come to Boston and report the results of their experience. Clinics will be held by experts in the various branches of dentistry and the busy local practitioner will be kept in touch with dental progress. In other words he will be given the opportunity which the general practitioner in

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Success in medicine is often associated with less exacting demands on the time of the physician as a practice is converted into a consulting practice.

The eminent physician who gives his time to a public charity is required to do a minimal amount of routine work and is rewarded by the legitimate advertising arising from his connection with a hospital and also by the opportunity to add to his experience by the concentration of a large amount of clinical material in the institution. This material also makes it possible for him to add to his reputation by teaching. In other words, public service attracts the most eminent members of the medical profession by the opportunities which it creates.

It is our belief that public dental service should in a similar way offer opportunities which will attract to it the most eminent members of the dental profession as well as the rank and file.

The Forsyth Dental Infirmary for Children was founded as a memorial to James Bennett Forsyth and George Henry Forsyth. Its first group of trustees was made up of leading educators and professional men together with three representatives of the dental profession. The most active member of this group was Dr. Edward W. Branigan who had given the greater part of his life to dental education and notably to the problem of the care of children's teeth. The death of Dr. Branigan and the resignation of other members led to a reorganization of the board which as now constituted is made up of four business men, two physicians, and four dentists—one representing the Baltimore dental schools, one representing the Philadelphia dental schools, and one representing each of the local dental schools, under the presidency of Thomas Alexander Forsyth, one of the donors.

This institution is dedicated to the children. It is the purpose of the foundation to care for mouth conditions in worthy children under the age of sixteen years. Its functions will include not only the care of the teeth but also related oral diseases including defective palates, adenoids, etc. Much of the work it will be called upon to do in its early years will deal with the curing of already established processes. When established processes are under control it is expected that it will have to do in great part with the prevention of defects by oral prophylaxis. The building which will house the foundation is under construction on the Fenway. It is intended as a memorial to the dead Forsyth brothers and is fittingly monumental in character. When completed it is the consensus of opinion that it will be one of the most ornamental structures in the city. The trustees for the past two years have bent all of their efforts to make its appointments so complete that its equipment will be adequate for the Herculean task which this new work will entail.

Nowhere in the world up to this time has an attempt been made to care for the dental requirements of the children of a great city. Small clinics have been established in many cities, but nothing on a similar scale is in existence in the world. Many new problems have had to be met since the character of the institution has necessitated the creation of agencies hitherto uncalled for. The Board of Trustees has met many of the old problems as though they were new ones, and the equipment of the institution will be marked by many changes from standard devices. The main problem has been the question of supplying expert dentists for carrying on the details of the work. This problem we believe we have solved by adopting the methods demonstrated to be successful in public medical institutions. The foundation of successful work in hospitals dealing with acute conditions is the house officer. He is a recent graduate in medicine who gladly gives his time to the institution in return for the experience gained. The clinics of the dental schools try to supply a similar demand in dentistry but not always adequately. Post-graduate training in dentistry is rarely obtained except through opportunity to assist dentists in their offices. The average dental student goes directly from the dental school into the practice of his profession.

The generous endowment of the Forsyth Dental Infirmary outside of the cost of the building will permit of the employment of recent graduates in dentistry at a small salary. On completion of a satisfactory service of one or two years each of these members of the permanent staff will be given a diploma certifying his service. It is believed that this service with its opportunities for wide experience will attract picked men from the dental graduates of the whole country and further will train a group of experts on oral prophylaxis whose influence on the profession will be widespread. The number of dentists whose whole time can be paid for in this will be necessarily limited. Among recent graduates who are practising in this city are many, however, whose time is not wholly occupied by their practices and who would be willing to give half time to the institution for a small remuneration. They, with the whole-time men, will constitute the permanent staff.

A volunteer staff will be made up of dentists who are willing to give one-half day per week or per two weeks or per month to charity. In order to draw to this service the eminent members of the local profession it is intended to make the institution a clearing house for the newer things in dentistry. Here will be concentrated an enormous amount of clinical material. It is our purpose to invite experts who are dealing with dental problems in any part of the world to come to Boston and report the results of their experience. Clinics will be held by experts in the various branches of dentistry and the busy local practitioner will be kept in touch with dental progress. In other words he will be given the opportunity which the general practitioner in

medicine seeks when he takes post-graduate instruction or which the visiting physician to a hospital obtains as the result of his connection with the institution. It is recognized in medicine that those public hospitals do the best work for their patients in which clinical teaching is practiced. The members of the visiting staff of such an institution are compelled to keep in touch with modern progress or be subjected to the criticism of students. Their patients profit by the mental acuteness which such a training develops. The value of such continuous instruction to the dental profession of Boston cannot be overestimated. Its value in turn to the children who come under their care should be a tangible asset to the community.

Men who would be unwilling to devote time to the deadly routine of a one or two-chair clinic should find in this central clinic with its perfect facilities and large clientele so potent an attraction that the difficulties which the small clinics are suffering in obtaining volunteers should not be met.

The research department of the institution is supported by a fund set aside from the rest of the endowment and should add materially to the World's knowledge of dental conditions.

From the practical standpoint the following figures may of value. The institution will start with an equipment of 64 chairs which may be increased to 106 as needs demand. It is estimated that each chair will care for 12 patients in an eight-hour day. This allows for more than a single filling if necessary. Seven hundred and sixty-eight patients per day can be treated with the initial equipment according to this schedule. With 300 working days per year 230,400 operations can be carried out. This will allow for three treatments annually of 76,800 children. With full equipment 381,600 operations can be carried out or three treatments annually of 127,200 children. In considering these figures it should be remembered that a large percentage of school children will be cared for, as now in dental offices, at the expense of their parents.

It would seem that schemes for school or local dental clinics at the expense of the taxpayers of Boston should be held in abeyance until this splendid charity dedicated to the children has had an opportunity to demonstrate whether it will be adequate to cope with the dental needs of the school children or not.

This foundation seeks the good will of the sister professions, medicine and dentistry, and looks for their co-operation in its effort to uplift the physical standard of humanity.

A WORD ON THE SCIENTIFIC, ECONOMIC, AND SOCIAL PROGRAM OF THE FORSYTH DENTAL INFIRMARY.

BY HAROLD DE WITT CROSS, D.M.D.

DR. LEARY has told you how the Forsyth Dental Infirmary for Children came into existence, and I will tell you a little about the building and its work. It is very appropriate that this subject should be discussed before a medical society because the medical and the dental men are equally interested in it. The subject has incited much interest not only in this vicinity, but in all portions of this country and all over the world. There are many problems to meet in undertaking the establishment of an institution of this kind, problems in connection with the building, its equipment, and the selection and organization of the staff.

This is the day of endowments. Schools, hospitals and clinics are being endowed, and established in many places; but there is none which compares with the Forsyth Infirmary, in the magnitude of its undertaking, and it is *all* for the children. The exterior of the building is monumental, because it is to serve as a memorial as well as an infirmary. The interior will be constructed with regard to the most improved style of hospital finish. The chairs are to be made without corners and with a smooth metalic surface which can be easily cleaned and sterilized. The instruments arranged in sets, suitable for all ordinary operations, will be placed in suitable metal trays, which, together with the enclosed instruments will be cleaned and sterilized, and a complete, sterile set provided to be used with each patient.

The lavatories are to be of the hospital operating-room type, somewhat modified, and will be provided with an aseptic soap server of new design. The improvements which have been made in the lavatories will no doubt establish a new standard for aseptic fixtures.

The principal rooms of the building are as follows: The infirmary, the main room of the building, is a large, airy, light room and will be equipped with modern dental apparatus for all operations, extracting, orthodontia, surgical and research rooms, a children's waiting room, a permanent and a visiting staff's, a nurses' and a students' room, and a large lecture hall.

The entire staff is to be composed of a consulting, visiting and a permanent force. The visiting staff's services will be gratuitous, but the permanent staff will receive a moderate compensation, and those serving on it will devote their entire time to the work. It is quite possible that a competitive examination may be necessary to obtain a place on the staff. These positions will be filled by recently graduated men, who will find the experience invaluable, and the training will in many ways be the equivalent of a post-graduate course.

The research laboratory will be completely equipped with suitable apparatus, and in it will be an experienced person devoting his entire time to research work. It is to be hoped that many problems, now unknown, will be solved in connection with the diseases of the oral cavity.

The museum will be a repository of pathological specimens and will serve as a centre for the dissemination of knowledge of oral hygiene.

The lecture hall will be used for popular lecture on all subjects of hygiene and oral prophylaxis.

The particular work of the infirmary will be, of course, dental, and will consist of the filling, cleaning, extracting, and straightening of the teeth, together with the necessary operations on tonsils, adenoids, harelip and cleft palate. The two ward rooms and the adjoining diet-kitchen make ample provision for surgical cases to be given proper care.

In the beginning it will be necessary to do considerable extracting in order to clean up the diseased teeth and mouths; but later it is hoped that, due to the care which will be given the children's teeth, the improved condition will be such that more and more time can be given to prophylactic work, gradually increasing such work as the health of the oral cavity improves and as the child feels the importance of the care of his teeth. In this way teaching the child the importance of prophylaxis creates the way to continue this work in adult life, and may assist in creating the need of specialists in this line of work.

It will be possible to do complete work in this infirmary; complete in the sense that a few fillings will not be made in the front teeth, while decayed and loosened roots are allowed to remain in the less accessable parts of the mouth. This is frequently done in many clinics on account of the inability of the little patient to pay for the material or from indifference on the operator's part. *All necessary* work will be done for each patient, continuing the appointments and following up the child, through the school nurse or otherwise until the entire mouth is clean and healthy, including the nose and throat. This is bound to give better results than the desultory methods which are often the best that can be offered to the needy child.

And while the expense attendant upon this complete work on the teeth and mouths of the children will be such as can be easily met by the poorest, coming here for treatment, it will be necessary to so control the work that undue advantage will not be taken by those better able to pay for the services. Through a social secretary it will be possible to get in touch with the school nurses and charitable workers in order to know who the deserving ones are.

Above all it is our duty to see that a wise expenditure of the magnificent endowment of the Forsyth Dental Infirmary for Children accomplishes that which its donor intended, namely, to give the children of this vicinity clean and healthy mouths.

Through the courtesy of the Dental Hygiene Council, I am able to show wax models of children's mouths, made from life, which show more eloquently than any words of mine, just what the Forsyth Dental Infirmary for Children intends to do. It will devote its money and the energies of the trustees to change these mouths from a diseased, germ-feeding place to a healthy and beautiful masticating apparatus.

Clinical Department.

ABNORMAL PERITONEAL SACCULATION OF THE OVARIES CAUSING ACUTE PAIN, WITH A REPORT OF THREE CASES.

BY EDWARD REYNOLDS, M.D., BOSTON.

Case 1. Private Records, Series B, No. 3351. A neurasthenic and somewhat ill developed girl of 22 years. The little finger of the right hand was contracted by a congenital web. Complaining of sharp pain, varied by acute exacerbations, in the lower abdomen and back, mostly right-sided. This pain was of about a year's duration and the acute attacks were accompanied by frontal and occipital headaches, with hot flushes, and sweating of the right arm only. During these attacks she was somewhat hysterical. On examination there was a small uterus in retroversion, with some tenderness over the right broad ligament, but nothing else abnormal was felt. After two months' observation, and failure to obtain relief by minor means, the pain was plainly becoming more severe, and operation was advised. On Jan. 15, 1911, the abdomen was opened by a small exploratory incision and the movable fundus drawn up. The left ovary was at once seen to be moderately enlarged and cystic, but in normal peritoneal relations. The right tube was visible throughout the greater part of its length, but at its distal extremity appeared to fuse with the broad ligament. On more careful inspection it proved to disappear into a slit in the broad ligament about three-quarters of an inch long and with edges so sharply defined as to be clearly congenital. Upon traction on the tube the ovary was visible lying within a peritoneal pocket, the mouth of which was too small to permit its withdrawal. The utero-ovarian ligament was perceptible at the inner angle of the slit. This was seized with forceps, and after some manipulation it proved possible to so rotate the ovary within the pocket as to bring it to the opening by one pole, in which position it was possible to withdraw it. It was moderately enlarged by several small follicular cysts and two good sized corpora lutea. After resection of both ovaries, closure of the sacculus, a suspension of the uterus, and the removal of the appendix the abdomen was closed. The patient made a good recovery and the attacks of ovarian pain ceased.

Case 2. Private Records, Series B, 3496. An apparently well developed, though somewhat neurasthenic girl, 25 years old. Complaining of pain in lower abdomen, more especially on left, for seven to eight years, increasing and continuous for last three to four months, and has had one severe "spell" of this pain. Her physician, Dr. J. P. Carroll of Woburn, was clear that her pain, as he had seen it, was at times so severe that something must be done about it. On examination right ovary, the size of a large English walnut, believed to account for the pain. Operation recommended. Abdomen opened April 3, 1912. Left ovary normal. Right ovary much enlarged, lying caught in shallow pocket on

the posterior side of the broad ligament. Traction on the utero-ovarian ligament resulted in release of the ovary from this pouch, with a very apparent slip as the ovary was released from the pouch. Ovary enlarged by one large, definitely cystic corpus luteum, cyst, having a well formed capsule. Resection of the ovary, removal of appendix. Convalescence normal, and entire relief of pain.

This patient etherized badly and the results of the Trendelenberg posture were unsatisfactory. The intestines were in the way of the operation throughout, and the ocular inspections obtained were brief, intermittent, and far from satisfactory. The opening of the pouch was, however, seen, and its relations were studied with some care by the touch. At the conclusion of the operation the information obtained by both methods were embodied in a diagrammatic sketch (Fig. 1).

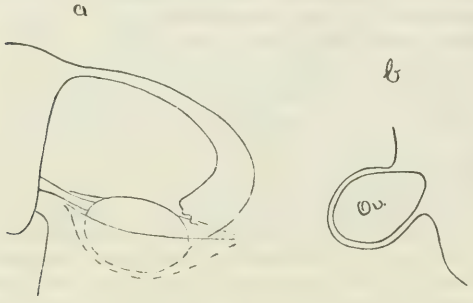


FIG. I.

(*a*) Diagrammatic sketch of peritoneal relations of ovary in Case 2.
(*b*) Diagram of probable cross section.

CASE 3. Private Records, Series B. 3307. Patient of Dr. F. B. Brown of Dorchester. A very small and sharply neurasthenic girl of twenty-one, whose appearance was that of a girl several years younger. Complaining of short but sharp pains in right lower quadrant, coming in attacks lasting from fifteen minutes to an hour, three or four times a year for the last seven or eight years, and lately increasing in frequency and severity, also of late of a sense of weight in the pelvis. On examination genital organs double from hymen up, both cervices very small with pinhole openings, the uteri small and somewhat retroverted. April 17, 1912, septum between vaginae divided with scissors from hymen up to cervices. On careful examination it was now evident that the inner walls of the cervices were in coalescense, though with distinct canals. The uteri above were separate. The vagina was packed and the abdomen opened. On inspection each uterus looked perhaps a little larger than one-half of a normal uterus. The right ovary was contained in a pocket closely similar to that of

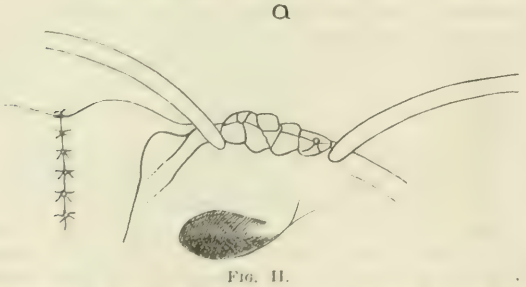


FIG. II.

(*a*) Sketch of Case 3 with resected ovary elevated by forceps and mouth of sacculus consequently stretched open.

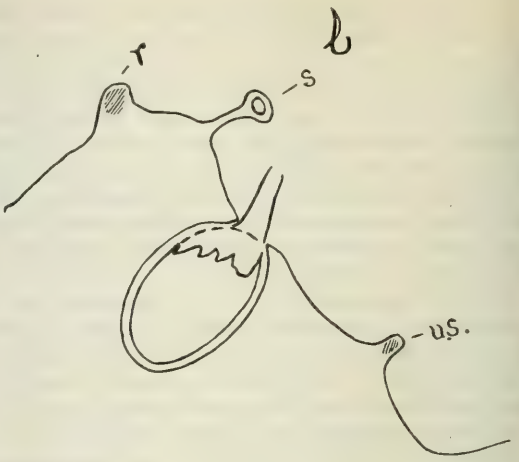


FIG. III

Diagrammatic section through broad ligament of Case 3, parallel to mesial section and cutting sacculus, (*r*) round ligament, (*s*) salpinx, (*u.s.*) utero-sacral.

Case 1. This was carefully studied and a sketch drawing was made immediately after the conclusion of the operation. The view of the broad ligament obtained in this case was excellent and continous, and had it been feasible to have a drawing made during the progress of the operation it is probable that other details than those given might have been included, but I am very confident that all which are given are accurate. The ovary was somewhat enlarged and could be withdrawn from the pocket when only one pole was brought to the opening by traction on the utero-ovarian ligament. The other ovary was normal. The right ovary was resected, and the mouth of the sacculus closed by sutures.

The inner aspects of the two uteri were then laid open by longitudinal cuts. After careful exploration with a sound, blunt-pointed scissors were passed downward, one blade in either cervical cavity, and the cervices were laid together by closing the scissors. The posterior edges of the incisions in the uteri were then sutured together, each to the other, and the anterior edges each to the other, the result being a uterus of fully normal size and most surprisingly normal appearance. During convalescence there was some attempt at re-formation of the cervical septum, which was, however, easily broken up with dilators. At the present date the only abnormality perceptible consists of slight evidences of the vaginal septum in the fornices and about the cervix. All ovarian pain has ceased.

These three cases were so closely similar in the symptoms provoked and the anatomical conditions found, as to form a distinct pathological entity which seems worth consideration, in spite of its probable rarity. It is, so far as I have been able to find, hitherto undescribed. It possesses scientific, and some clinical interest.

From the scientific standpoint, the cases seemed worthy of being put on record in a paper which is to be published in the *Bulletin of the Boston Society of Natural History*, and a few words from this standpoint may be of interest here.

All developmental anomalies have an explanation, but the meaning of this anomaly was, at first, to me incomprehensible. It was solved only by recourse to the facts of comparative anatomy. Every one knows that the embryological record furnishes a skeleton picture of the course of evolution from the primitive organisms to man, but every one does not realize how sketchy the embryological record is. It furnishes at the most only a few traces of each of the great stages in our descent. Comparatively few physicians are practically familiar with the fact that this outline sketch is to a great degree filled in and amplified by the evidence furnished us by the study of developmental anomalies, many of which reflect minute stages of our ancestry and throw light on our relationship to the other vertebrates. These three cases furnish a very typical instance of this method of amplification of the records of the past.

If we study the peritoneal relations of the ovaries among the other mammalia we find that they differ widely, and exhibit almost all gradations between two extremes, of which one is represented by the situation of the ovary in the human female, and the other by the anatomy of the female mouse. Zoologists describe the human ovary as attached to the posterior surface of the broad ligament by one border, from which it hangs dependent, in contact with a shallow depression in the broad ligament, the lower edge of which is formed by the utero-sacral ligament, though my own recent studies throw some doubt on the analogy between this depression and those described in the other mammalia, a point which is fully elaborated in the other paper referred to. On the other hand, in the mouse the ovary lies in a closed sac of peritoneum, the small orifice of which is not only filled completely by the Fallopian tube as it passes through it, but the peritoneal covering of its edges has actually become incorporated with the peritoneal covering of the tube; and many intermediate stages of saccculation are described in other genera and species of the mammalia.

The comparative anatomy of the genitalia is peculiar in the distribution of its variations, and for this reason forms a very complicated study, which, indeed, in its evolutionary bearings, appears from the light of our present knowledge to be in many respects contradictory. It, moreover, involves one of the vexed questions in biology, one which can be settled only by the accumulation of many isolated observations, and probably only in the distant future. Only its most evident features are then appropriate for mention here.

In the most primitive forms of the living mammalia, *i.e.* the monotremata and marsupials, the ovaries lie in shallow peritoneal depressions, not unlike what is zoologically described as the normal anatomy of the human female; in the insectivora, a family which is in most of their anatomy but little higher than the marsupials, the sacculation of the ovary within a specialized cavity is nearly complete; and it is, therefore, a most curious fact that among the higher mammals marked variations in the degree of development in this particular occur among individual species in almost all genera, rather than along regular lines of descent. Thus, for instance, while in the rhinoceros, tapir, and most perissodactyla, the ovaries lie in shallow depressions; in their near relation, the mare, they are concealed in nearly complete saccula. Again, among the horned ruminants every variety is found, only the bison having deep and comparatively enclosed saccula. Among the carnivora, only the common bitch has complete saccula, and, not to multiply instances, the same conditions obtain among the primates. In several of the American monkeys the ovaries are suspended in a pouch which, though not fully developed, is so formed as closely to suggest the anatomy of the insectivora with their almost complete sacculation; but, on the other hand, in the higher apes and in woman the depression is at most so shallow as to be normally almost unnoticeable; yet in two of the three cases reported the anatomy was that of practically complete sacculation, and in the third case (Case 2) was in an intermediate stage which is well known among the quadrupeds.

In so far as we are justified in drawing any conclusions from this wide variation of conditions throughout the mammalia, it would appear probable that an early ancestor, later than the marsupials, possessed completely sacculated ovaries, and that this peculiarity has been lost by most of its descendants, but has persisted in typical form among others.

The cases reported are then of biological interest as instances of the re-appearance in isolated individuals of a type of anatomy which is of remote inheritance and has been lost by the species.

From a clinical point of view the condition would be of marked interest if it were not for its probable rarity. When a single observer sees, within a few months, three cases of a hitherto undescribed condition, the first impression made upon his mind is naturally that it is probable that a not uncommon condition has been overlooked, but in the more marked instances this anatomy is so distinctive that if it were not really rare it would probably have become long ago familiar to surgeons* and to pathologists. It is to be borne in mind, however, that there is no reason why sacculation of the ovaries should excite symptoms in the absence of ovarian enlargement, and it is, of course, probable that numerous other instances of this anomaly have occurred in individuals who reached neither the operative nor post-mortem table. In spite of its rarity the symptom complex which characterizes it is, however, probably worth analysis and remembrance as an explanation of the symptoms in an occasional case.

*A personal communication from Dr. A. S. Tucker of Portland, Oregon, informs me that he has seen a similar case.

In the differential diagnosis the first point worth notice is the long established principle, that anomalies of development are seldom single, *i.e.* that an individual who has one anomalous organ usually shows other mal-developments also. In two of the three cases reported other failures of development were noted on examination. In the case with partial sacculation of the ovary, no failure of development was noted in the physical examination.

In each of the three cases the character of the pain was somewhat peculiar. In each a woman who had previously been free from pain, became subject to occasional brief but sharp attacks of ovarian pain unattended by anything which would suggest inflammatory reaction. In each there was increasing dysmenorrhea, but in each the attacks appeared during the menstrual intervals as well. In each they gradually became more frequent and more severe, until relief became imperative. A dull, dragging sensation in the pelvis was more or less continuous in each case towards the end of the history.

The immediate and complete relief of pain obtained by the release of the ovary from its enclosure within a rigid capsule was only what would be expected, and would probably have been secured without the resection of the ovary, which was performed in each case for the sake of the patient's future and a probable more complete relief of symptoms.

It seemed wise that the mouths of the pouches should be closed by sutures, not only to prevent possible reincarceration of the ovary, but also to do away with a possible source of intestinal strangulation.

In two of the three cases the physical examination failed to disclose any cause of the pain, and the operation was performed on the symptomatology only and therefore with some hesitation. In any future case with this form of pain I should be the more ready to operate from the experience gained in these cases.

The third case reported possesses another interest which can, perhaps, be fully appreciated only by those who saw it. The appearance of the double uterus was that familiar to all from the pictures in the text-books. From the shape of the two uteri it looked as though an organ formed by their union would be most abnormal in shape, but so soon as the inner aspect of each uterus was divided by a linear incision the cuts rolled open in a way that made it evident that they would come together nicely, and the shape of the resultant union at the end of the operation was almost that of a normal uterus, one which under exact description would have been called slightly cordate. The very marked improvement which has taken place in this girl's health and general nutrition must probably be attributed in part to the relief of pain, and in part to the removal of a distended and congested appendix, which for the sake of brevity was not mentioned in the record of the case; whether the relief of a moderate dysmenorrhea was in any way affected by the operation on the uterus must remain a problem. She is single, but if she should marry, her obstetric history might be of much interest.

Medical Progress.

PROGRESS IN THE SURGERY OF BLOOD VESSELS.

BY J. C. HUBBARD, M.D., BOSTON.

I DO not consider in this review some of the experimental work since at present it appears to have no definite clinical bearing.

Several attempts have been made to remove an embolus by opening the arteries and removing the clot.

Proust (*Bulletin American Society de Chirurgie,* Paris, 1911) had a patient with a mitral lesion who had a pulmonary embolism and hemiplegia. He had a sudden embolism of the left side. Diagnosis of the location of the clot was made by point tenderness. He was operated on twelve or fourteen hours after the embolism. The femoral artery was incised and the clot removed. As there was no bleeding from the vessel, a stylet and afterward a catheter was passed into the vessel in each direction. The blood finally ran. The vessel was then sutured. The discoloration of the leg decreased after the operation. Patient died the next day from his myocarditis, and a thrombus was found at the site of the operation. Proust found in literature the reports of five cases, all of which were failures.

Mosuy and Dumont (*Bulletin Academy de Medicine,* Paris, 1911) report, however, a very interesting case. A man of thirty-eight with a mitral insufficiency, probably of congenital origin. He entered the hospital because of his cardiac condition. While there, had a sudden pain in left calf, with complete loss of function of the left lower extremity. Six hours later the vessel was cut down upon. A sense of firmness gave the site of the clot. The vessel was opened. A bifurcated clot was pressed out from the common femoral with two arms reaching down into the profunda and the superficial femoral. The vessel was then sutured. Next day the leg was normal in appearance. Thirty-six hours after the operation pulsation was re-established in the posterior tibial. A month after the operation the leg was perfectly well.

Recently there have been several cases of arterial suture reported, mostly in patients with arterio-venous aneurysm. DaCosta (*Annals of Surgery,* April, 1912) reported a popliteal aneurysmal varix. He incised the vein and closed the opening from the artery to the vein from the vein side. This left too little of the vein to repair, therefore he excised that portion of the vein and did an end to end suture. Goecke (*Medical Klinische,* January 21, 1912)

treated a popliteal aneurysm the size of an apple by excision and then transplanted 10 cm. of the saphenous vein into the defect caused by the removal of the aneurysm. Clinically the case was a success. Four months later the man died from cardiac conditions, and a thrombus was found at the site of the suture, about which there was some sepsis.

Wiewiorowski (*Medical Klinische,* 1912, page 185) had an aneurysmal varix in the femoral region, caused by a bullet wound. There were two femoral veins, one of which was completely destroyed; 2½ cms. of this he resected, and did an end to end suture. The artery and the other vein each had four holes in it which were closed by sutures. Four months later pulsation in the popliteal and femoral vessels was good. There was none, however, in the dorsalis pedis. The pulsation of that vessel in the other foot was very weak.

A very similar case is reported by Vaughn (*Transactions of the American Surgical Association,* 1911). A case (*American Journal,* New York, 1912, page 83) by Eustis, of a similar kind, is worth mentioning, where there was an aneurysm of the brachial artery caused by an accidental stab wound. Before the operation the radial pulse on that side had disappeared. The hand was cold and pale. At the time of the operation the opening from the artery into the aneurysm was closed by suture. The distal extremity of the artery was found to be wholly excluded by fibrinous adhesions. These adhesions within the artery itself were overcome by passing in a grooved director and a soft rubber catheter. At the end of the operation the radial artery pulsated satisfactorily and the case was reported as a success.

Several successful cases of ligation of the subclavian for aneurysm have been reported.

Browne (*British Medical Journal,* 1911 page 1534) tied the first portion successfully.

Newbolt (*British Medical Journal,* October 5, 1912) also reports an aneurysm of the second and third portion of the left subclavian cured by ligature.

In an article on the treatment of subclavian aneurysm by Elliot in the *Annals of Surgery* for July, 1912, he makes the following statement:—

Aneurysm of the first position of the subclavian is rarely so placed as to permit proximal ligation of that part of the artery. While proximal ligation of the subclavian, whenever it can be successfully carried out, seems preferable to distal ligation of either that vessel or axillary, the latter procedure has proved its value as a secondary measure in cases where proximal ligation has been followed by a relapse of aneurysm.

The risk of secondary hemorrhage is still further lessened by the number and type of ligature. Two ligatures should be applied, separated by an interval of from a quarter to a third of an inch, of which the proximal should be tied with sufficient force to oppose the intima, and the distal ligature should be tied as tightly as possible. For the proximal, silk or Halstead is used. For the distal, chromic gut. The distal ligature (still on the proximal side of the aneurysm) ruptures the intima, and the resulting clot, beginning at this point, rapidly forms behind the friendly shelter of the proximal ligature and subsequently probably extends beyond it to the vertebral. The danger of secondary gangrene of the extremity seems to be comparatively nil after either ligation or excision.

Although with a very few exceptions the operative treatment of subclavian aneurysm has consisted in some forms of ligation of the artery or excision of the sac, there are in the literature several instances in which endoaneurysmorrhaphy, the operation of Matas, has been attempted.

In conclusion it may be stated that the most satisfactory treatment in aneurysm of the third part of the subclavian (or of either subclavian) is a ligature of the first part of this artery, together with its branches, with the possible exception of the vertebral; that such simultaneous ligation of the branches diminishes both the risk of secondary hemorrhage, and the possibility of subsequent relapse of the aneurysm; that, in the event of a recurrence, a cure may be effected by distal ligation of the axillary as close to the aneurysmal sac as possible. Should the aneurysm again recur, excision of the aneurysmal sac after the ligation of the main arteries supplying it should be attempted; that in many cases a cure of the aneurysm is marred by some permanent disturbance of the extremity, either motor, sensory, or trophic; that unfortunately, these patients are prone to the subsequent development of a fatal aneurysm of the aorta.

Finney, in the *Annals of Surgery* for May, 1912, gives his opinion about the wiring of otherwise inoperable aneurysms. In short, his statements are as follows:—

Wiring, then, is the only effective means at our disposal with which to combat this otherwise hopeless condition. The tendency in aneurysm of the aorta, in the vast majority of cases, is steadily progressive towards a fatal termination. Reason suggests and experience has shown that the only class of case in which this method offers any reasonable expectation of cure is in aneurysm of the sacculated variety, especially when of traumatic origin. It is not applicable to and should not be employed in the fusiform variety. The reason for this is obvious. The immediate risks of the operation, especially in aneurysm of the thoracic aorta, are not great. The immediate results attending this operation are sometimes striking. Perhaps the most remarkable of all is the diminution in pain. The ultimate results of this operation are necessarily somewhat disappointing when one considers the small percentage of cures. The observers insist that no cases are permanently cured. This, however, it seems to me is too extreme a statement.

A small percentage of cases have died as the immediate result of the operation. A larger percentage have died from the remote results of the operation. The vast majority have been improved by it. Improvement has lasted from a few days to a term of years. A few cases I believe can truthfully be said to have been completely cured. It is of the utmost importance that these cases should be kept as nearly as possible in a state of physiological rest for a term of months after the wiring.

Wheeler (*Transactions of the Royal Academy*, 1911, Vol. 29) reports the case of an abdominal aneurysm which increased in spite of medical treatment. By operation wire was passed into the aneurysmal sac. No electricity was used because of the complicated technic and fear of sepsis. Patient was shown seven weeks later, when the aneurysm pulsated less strongly and felt more firm.

SAPHENOFEMORAL ANASTOMOSIS.

Schaak and Hesse (*Annals of Surgery*, January, 1912). Transplantation of the vena saphena into vena femoralis at a new place by vascular suture produces normal physiological conditions for the venous blood circulation.

For a certain large group of varices the static and mechanical factors are of prime importance etiologically as well as the condition of the valves in the diseased veins and their insufficiency.

In the vena femoralis below the original junction with the saphena there is always a great number of valves. If the saphena is transplanted below such a pair of valves, the abnormal pressure from above can be checked by means of the interpolated valve. The new anastomosis must be made 10 to 12 cm. below the inosculation of the saphena.

The results were most thoroughly satisfactory. The most important and above all the most conspicuous phenomenon which must appear after the saphenofemoral anastomosis is the disappearance of Trendelenburg's symptom, previously present.

As to their effective results, the authors could ascertain in all their cases a diminution, even repeatedly, a complete disappearance of the varices. In every case the ulcers, which had hitherto defied every treatment, healed.

TRANSFUSION.

Transfusion is perhaps one of the most useful branches of arterial surgery at present. Scattered through literature are numerous accounts of new forms of apparatus for making the technique less difficult. None of these, however, seems to offer any advantage over the glass tubes of Vincent or Elsberg's cannula, except possibly Bernheim's tubes for use in infants. Bernheim (*Journal Medical Association*, April 6, 1912) was struck with the difficulty of the technic in transfusion for hemorrhagic disease of the new born. He, therefore, devised two metal tubes, one of which is inserted into the vein of the recipient and the other into the artery of the donor. When both are in place they are united. This method, and that of Vincent with the glass tubes, make the technic easier because it allows more room between the two patients.

Bernheim considers that liquid petrolatum, which is easy to handle and always at hand, is as satisfactory as paraffin for coating the tubes. Neither Vincent nor Bernheim claims that the flow through the tube will continue indefinitely without clotting, but that it will run sufficiently long to give a baby all the good blood that it may need.

In preparing for a transfusion the general impression now is that a test for hemolysis is unnecessary but that a Wassermann test is quite important.

A number of men speak in high terms of transfusion from vein to vein. Soresi (*Medical Record*, New York, Vol. 81, page 835) says that the advantages of the vein to vein over the artery to vein method are that the flow is slow and uniform without thus overcrowding the heart of the recipient; that no artery is destroyed; and that the technic is more simple. To have the transfusion a success, the vessels when united must be covered with warm wet gauze, and left so. The constant examining of the vessels to see whether the blood is flowing is bad technic. He says that testing the hemoglobin at five minute intervals will tell whether the transfusion is working. It will steadily increase if the flow is running.

In an article by Hartshorn (*Yale Medical Journal*, 1911, Vol. 18) Hartwell of New York writes in favor of the vein to vein method. He says that he has done recently six to eight cases with entire satisfaction.

Dorance (*Pennsylvania Medical Journal*, 1911 and 1912, Vol. 15) is also an advocate of the vein method.

The use of direct transfusion of blood is finally becoming limited to rather definite conditions. In the first place it is of undoubted value in hemorrhagic disease of the new born.

Scattered through literature are isolated cases of marked benefit following transfusion. Vincent here in Boston has done a number of cases himself (*Boston Medical Journal*, April 25 1912). He has made one improvement over the technic of others, in the use of the external jugular vein, as it is one of the largest superficial veins in the baby. He has allowed the blood to flow in his cases from three to six minutes.

Transfusion is also of benefit in replacing the blood lost by hemorrhage. In other secondary anemias and in primary anemia it is of only temporary benefit. Hartwell (Hartshorn's article, *Yale Medical Journal*, 1911-12, Vol. 18.)

Transfusion is also of benefit as an aid to improve a patient's condition so that he may undergo an operation.

Dorance (*Pennsylvania Medical Journal,* 1911-1912, Vol. 15) reports several cases where transfusion has been of benefit in this respect.

One case of hemorrhage from a duodenal ulcer. Blood count was red 18,900, white 7,500, hemoglobin 19%. Eighteen hours after the transfusion patient was operated upon, the bleeding vessels were located and the ulcer excised. He reports also, another case of a patient almost exanimated by an intestinal hemorrhage. The blood count was 1,230,000, hemoglobin 18%. After the transfusion the red blood corpuscles had increased to 3,250,000 and the hemoglobin to 44%. Forty-eight hours later there was another hemorrhage and the blood count fell again so that the hemoglobin was 18%. A second transfusion brought the blood up to normal. The patient refused operation. He also says that transfusion increases the coagulability of the blood, and therefore is of benefit when there is general capillary oozing.

David and Curtis (*Surgery, Obstetrics and Gynecology,* October, 1912) carried out a series of experiments which show the advantage of direct blood transfusion over saline infusion. Dogs were bled until almost dead. A salt infusion caused an immediate recovery followed by death in a few hours. A direct blood transfusion caused the same immediate recovery, but the result was permanent. They consider that the infusion of any fluid, even tap water, will have the same immediate stimulating effect. They consider direct transfusion the operation of choice, and infusion of salt solution a temporary measure till transfusion can be arranged. They are opposed to the injection of defibrinated blood, for if it is used fresh it may cause death, and if any fibrin is injected with it may cause an embolism.

They have devised (*Journal American Medical Association,* January 7, 1907) a "y" shaped cannula to determine the amount of blood transfused. To the arms of the "y" the vein and artery of the patients are tied. To the stem is fastened a glass syringe. By suction, blood can be drawn from the donor and then injected into the vein of the recipient. An exact amount of blood can thus be transfused. The whole apparatus must be coated with paraffin, and it seems not to be particularly advisable for use on man, although they report a successful human case.

As an aid to determine when to stop the flow Soresi (*Medical Record,* New York, Vol. 81, page 835) has suggested that the hemoglobin of the recipient be examined at frequent intervals. When it has increased about 30% the flow of blood should be stopped. The blood-pressure of the donor may also be watched and when it has fallen a number of points the transfusion should be ended.

ARTERIOVENOUS ANASTOMOSIS.

Perhaps the best way to present this subject will be to consider the arguments of those opposed to the operation and then of those in favor of it. One of the arguments advanced by those opposed to the operation is that the valves in the veins prevent the flow of arterial blood through the veins in the reversed direction.

Conen and Wiewiorowski (*Beit. Klinische Chirurgie,* 1911, page 313) have written a most excellent article, on the whole opposed to arteriovenous anastomosis as an operation. They experimented on dogs to determine whether the valves do or do not give away. They found that in dogs they do not give away. Should the veins give away, the flow in the capillaries would necessarily have to be reversed, and the artery would be found to contain venous blood. To determine whether this was possible they removed the kidney and sutured the iliac artery to the renal vein and vice versa. The renal vein after the operation pulsated freely but no blood came from the renal artery, showing that the reversal of the circulation in the kidney was not possible, and here there were no valves to interfere. From this they determined that the blood current when reversed could not get through the capillaries, although they recognized that the capillary system of the kidney is more complex than that of the lower extremities. They then removed a kidney and forced salt solution into the vein. The kidney substance itself would rupture before any of the salt solution would come out through the artery. They felt sure that a venous pulsation does not necessarily mean that there is a flow of blood through the veins. The pulsation might be due to the transmission along the wall of the vein, of the impact of the arterial blood forced against the valves by the heart's action.

They realized that inasmuch as their experiments had been carried on on dogs, and their deductions drawn about dogs, it was possible that they might be wrong when applied to the human. They, therefore, tested the valves in the veins of freshly dead bodies. By injecting the vein they learned that the valves were not forced. In one subject, however, a man of seventy-nine with arteriosclerosis, the valves did yield sufficiently to allow the injected fluid to pass by. These valves were insufficient because of the changes due to the arteriosclerosis. They considered it probable that in the human should the valves give away before the blood-pressure, the blood would not pass through the capillaries but through the numerous venous anastomoses till it reached a vein where the current was going towards the heart. They recognized that clinically some cases seemed to have been successful, though experimentally they could not bring their minds to believe in the operation.

Halstead and Vaughan, in the *Transactions of the American Surgical Association,* Vol. 29,

after going over the literature of the subject came to these following conclusions:—

CONCLUSIONS.

1. There is experimental evidence to show that in animals the circulation through the large veins of the extremities may be reversed, and that it is possible for the normal blood-pressure in the arteries to overcome the resistance of the valves of the veins.

2. Experimental and clinical evidence show that anastomotic opening is not permanent, but that gradual obliteration by intimal overgrowth takes place in event of the failure of early occlusion by thrombus.

3. There is not sufficient clinical evidence in the reported cases to show that the pressure of the blood in the arteries in the cases operated upon was sufficient to force the valves in the veins.

4. It is also shown by the cases reported that early occlusion of the vessels about the anastomotic opening by a thrombus was the rule, and in many the opening never at any time functionated.

5. In event of the arterial blood forcing the valves in close proximity to the anastomotic opening, it returns chiefly through the larger communicating veins and does not traverse the capillaries in many, if not most cases.

6. A study of traumatic arteriovenous aneurysm shows that with a normal arterial pressure it required weeks or months for the valves in the communicating vein to be overcome, as is evidenced by the gradual development of varicosities and the long delayed pulsation in the veins, remote from the seat of aneurysm. Under these conditions, the arterial blood supply is maintained partly through the usual collateral channels, which are unobstructed. In cases of gangrene from obliterating diseases of the arteries, the collateral vessels are already occluded. In such a case immediate reversion of the circulation is imperative. This cannot be accomplished at present:—

(*a*) Because of the obstruction offered by the valves.

(*b*) Because in many cases the circulating blood must also overcome the resistance offered by a thrombosed vein.

(*c*) Because the blood returns through the nearest communicating vein and does not reach the peripheral capillaries.

7. Our final conclusion is that there is but one indication for the application of arteriovenous anastomosis in surgery, *i.e.* in traumatic destruction of a principal artery, where an end-to-end union of the torn vessel is impossible. In such a case arteriovenous anastomosis might be attempted, and through it we might maintain a sufficient blood supply to preserve the integrity of the limb until an adequate collateral circulation was established.

Davies (*Annals of Surgery,* June, 1912) on the whole thinks a little better of the operation than those previously quoted. In his article he bids us remember that gangrene is not a disease itself, but the manifestation of some pathological change occurring in the body. In a great number of the cases gangrene is the expression of some change in the vessels. In such cases might arteriovenous anastomosis be considered. Compared with the means previously at our disposal, the operation has shown considerable advance, for not only have patients with actual gangrene recovered and enjoyed a period of relief from pain and of restoration of function for some months at any rate, but in other cases it has been possible by doing a local amputation in addition to obtain immunity from return of symptoms for much longer periods. He concludes that when considering arteriovenous anastomosis all other forms of conservative treatment must have been attempted first. The condition of nutrition of the patient must be good. Infection, if present, must not be extensive. Edema must readily subside on raising the foot, so as to prove that the venous circulation is sound. The most favorable cases are those in which the gangrene is only threatening. Pulsation must necessarily be present in the femoral artery and the femoral vein must be free from thrombosis.

He concludes that in erythromelalgia and Reynaud's disease, conditions where the arteries are generally pliable, uninflamed, and uncalcified, some effort should be made to save the limb by arteriovenous anastomosis in those cases where amputation would be necessary for relief of pain or gangrene.

Now to turn to those in favor of the operation. Glasstien (*Revue de Chirurgie,* 1912, Vol. 45) reports a case of cure where pain was relieved and threatened gangrene done away with.

Heyman (*Revue de Chirurgie,* 1912, Vol 45) also reports a favorable case of Reynaud's disease of the hand.

Bernheim, in the *Annals of Surgery,* for February, 1912, covers the ground most recently and adds a number of cases of his own. He reports two cases of Reynaud's disease. On one a lateral anastomosis was done between the femoral artery and the vein, and seven months later the circulation was in good condition. On the same patient an end to end anastomosis had been done on the other leg, and eleven months after the operation the leg was in good condition. He goes over the literature and finds that there are fifty-two cases, and he puts down 15 as successful, either in saving the leg from real gangrene or from threatened gangrene. He considers a lateral anastomosis better than an end to end.

Reports of Societies.

AMERICAN ORTHOPEDIC ASSOCIATION.

The Twenty-sixth Annual Meeting, Held at Atlantic City, N. J., May 30 and 31 and June 1, 1912.

(*Continued from page 205.*)

Dr. Porter: I want to say that Abbott does not attempt or profess to correct the curvature at one sitting. The object is purely to compel the rib and the vertebra to gradually, slowly rotate. If we could fix the pelvis perfectly firm, and put the patient in this position and keep him there, day and night, the scoliosis would become corrected gradually; but we cannot do that. I want to caution you that the apparatus that Abbott uses is not well made. The principle of the apparatus, however, is correct.

Dr. Goldthwait: If prolonged maintenance of the position that Dr. Abbott has insisted upon and some of us are now using were kept up, it would be undesirable, so far as the viscera are concerned; but it is maintained for only an exceedingly short time. It seems fair to recognize that it is probably not possible to maintain permanently the complete correction of all these cases. On the other hand, of the fact that improvement is possible, there can be no doubt, and much more rapid improvement than with the other methods.

A SIMPLE OPERATION FOR THE RELIEF OF CONTRACTURE IN CERTAIN CASES OF VOLKMANN'S PARALYSIS.

Dr. Leonard W. Ely, Denver, Col.: This operation was first worked out on a specimen in the laboratory. It was found that a simple division of the tissues between the tendons of the flexor sublimis, and the flexor profundus digitorum, and the bones in the distal phalanges would release the contraction. In regard to the causation of this condition I think that the experimental work of Lorenz and others has failed to prove their claim that it is the cutting off of the blood supply that produces Volkmann's paralysis. I think the paralysis is caused by the injury of the nerve, that may have been produced at the same time as the bone was injured, and not by the pressure of the splints upon the blood vessels.

DISCUSSION.

Dr. R. H. Sayre, New York City: If I understood Dr. Ely correctly, it was the division of the muscles in the distal phalanges that released the contraction.

Dr. Ely: Not necessarily the division of these muscles, but of the tissues between their tendons and the bones.

Dr. Sayre: It is possible that there is more than one cause making the contractions in these cases. I think that Dr. Ely is incorrect in assuming that the experimental work of Lorenz and others has failed to show that cutting off the blood supply produces this effect, because if you cut off the blood supply for a number of hours this condition is produced.

Dr. G. B. Packard, Denver, Col.: One point as to the causation of these cases: It has been shown that an elastic bandage does not cause this type of paralysis, but a flaccid paralysis; so in this case the paralysis was due to the splints.

PLATES FOR STATIC FOOT TROUBLES.

Dr. William E. Blodgett, Detroit, Mich.: We are justified in making any kind of plate that will stop pain and still allow function. A plate made to conform to the shape of the sole is often not so successful as one of an arbitrary shape. In making the casts, no effort is made to get the foot into the shape that it would take if it were not flat. The pain, in the majority of cases, can be stopped by a very simple plate.

DISCUSSION.

Dr. E. McKenzie, Toronto, Can.: I should like to ask where the plate stops in front. Does it extend until it passes under the heads of the metatarsal bones, or does it stop short of that?

Dr. Blodgett: It stops just short of the plantar surface, at the tarsophalangeal joint of the great toe.

THE MECHANICAL TREATMENT OF HIP DISEASE.

Dr. George E. Packard, Denver, Col.: I believe that if sufficient mechanical treatment, in addition to proper hygienic measures, is instituted early in hip disease, a cure will many times take place with motion. Every means should be used in the early stages to effect such a result. Traction, fixation and protection from weight-bearing should be persisted in as long as there seems any possibility of obtaining such results. Early weight-bearing should not be allowed, as it favors ankylosis, absorption, and enlargement of the acetabulum. If stiffness persists after two years of treatment by traction, fixation and protection, and there seems to be little probability of recovery with motion and there is absolute freedom from sensitiveness, then weight-bearing, with fixation to prevent flexion and adduction, is the treatment of choice. Undoubtedly ankylosis is to be desired in many cases as the best possible result for future comfort and permanent cure. Therefore, the treatment should not be one of routine, but selected according to the indications in each individual case.

RESULTS IN HIP TUBERCULOSIS AFTER MECHANICAL TREATMENT (WITHOUT TRACTION) AND HYGIENE.

Dr. Henry Ling Taylor, New York City: Seven patients treated by Phelps' brace are reported. Five children had their splints removed in the summer of 1910. All but one child had abscesses. They were all early cases, and of at least average severity. The average duration of the treatment to the time the splints were removed was three years. In the double case, moderate flexion has since been corrected, and two have had treatment for a weak knee. These two still use crutches; the others walk well without support. All the patients are now in good health; and in all the abscesses are healed. In all but one, who has thirty degrees of motion, there is only slight motion at the hip joint. In all, the position of the leg is excellent. In none does the shortening exceed one inch, except in the two girls with weak knee. X-ray plates show more or less enlargement

of the acetabulum, moderate erosion of the head (except in two), and the head in the acetabulum.

DISCUSSION OF DR. PACKARD'S AND DR. TAYLOR'S PAPERS.

DR. R. W. LOVETT, Boston, Mass.: We are not sufficiently careful about looking after the muscular atrophy that follows joint injury. More persons have stiff, irritable knees due to that than any other thing. There is also a large element of disuse in this condition. Athletes will not allow their joints to be fixed. They use them with light bandages. Accompanying the muscular atrophy in some cases there is a distinct atrophy of the bone, which diminished to one-third its normal width. A good many of the effects we see in chronic joint disease are possibly due to bone atrophy.

DR. L. W. ELY, Denver, Col.: How can weight-bearing cause a less amount of atrophy of the limb than a treatment that causes function of that limb? Muscular spasm is nature's method of putting the joint at rest. It cannot cause trauma to the joint. It is motion that causes the pain. Trauma may have a slight causative effect in joint tuberculosis, but hardly in the bone. Where the tuberculosis focus occurs in the bone, the bone is subject to trauma. The only way to find the solution to these questions is to ask "Why?" when any opinion is advanced regarding fixation and traction.

DR. H. A. WILSON, Philadelphia, Pa.: Weight-bearing is not the only method applicable to bony ankylosis, but it gets rid of some of the results of uncarefully applied fixation and confinement in bed. The physical improvement of twenty patients with tuberculosis of the hip who were in Atlantic City all winter, who never slept in warmth in their room, and with very little fixation, has been phenomenal, and it shows that the emaciation that we see when there is fixation in bed and disuse is not present. When there are enough cases to form a reasonable basis for analysis, in showing that there is a possibility of doing with tuberculosis what is being done with scoliosis, where the work being done seems marvelous, we are progressing toward the solving of the problem.

DR. P. W. NATHAN, New York City: Our duty lies in the direction of finding, in the beginning, which cases will do well with extension and which are best adapted to fixation.

DR. F. H. ALBEE, New York City: I could show x-rays of cases where there has been such a tremendous rarefaction of the head of the femur that it gave no more density than the softer tissues in which it was imbedded. That type of case should have weight-bearing removed, and be either placed in bed with traction, or put into a brace that would prevent weight-bearing, if not produce traction.

DR. VIRGIL P. GIBNEY, New York City: I believe that the x-ray is not always so reliable as some people make out. This question of rarefaction is a puzzling one among radiologists. Some say that it means tuberculosis, and others that it does not. I am still a believer in the value of a full history of the patient and how he behaves under different circumstances. In my later work I have religiously used the plaster spica in all early cases, and the results have been so uniformly good that I have sometimes questioned its being tuberculous. I have wondered whether it was not infection of some kind. I have been trying for some time to get some ambitious member of the staff to collect two or three hundred of these cases and get their end results. In many cases of x-ray plates that I see from men whose reputation is great for that line of work, I find that they cannot tell whether it is a degenerative or a regenerative process that is going on in the head and neck of the femur. I believe that many of these cases are regenerative, and throw out bone to protect the parts about the joint.

DR. JOSEPH ROOT, Hartford, Conn.: There is a sensitive stage in every case, which you can see without the aid of x-rays or anything of that sort. It would seem to me that this is the stage when the child should be kept quiet. I do not believe that we have any preambulatory extension that can be as much protection to the joint as the ordinary fixation.

DR. CHARLETON WALLACE, New York City: Three years ago I took out an armful of pictures containing some coxa varas and tuberculous lesions, etc. The plates that showed the least amount of bone destruction were the ones that had had only plaster of Paris treatment and rest in bed. The cases that had had brace treatment had more destruction of the head. Some had pathological displacements. The solution of the problem, I believe, will be in raising the resistance of the patient. He should be out of doors all the time, and get good nourishing food. He should be kept from brain fatigue and brain tire.

DR. G. G. DAVIS, Philadelphia, Pa.: There are two kinds of spicas. One is the short spica, and the other is the long spica. I am opposed to the short spica; and I believe a long spica, from the waist to the toes gives fixation and rest, and that the short spica does not. So far as the treatment of the active stage goes, I believe in absolute rest in bed, with as much fixation as one can obtain. The long spica should be kept on until the patient can be out of bed, when a high shoe on the opposite side and crutches should be put on—instruments to be resorted to only when all active symptoms have subsided. Our experience has been that children do better in our hospitals than at home. Personally, I look with suspicion on the convalescent homes. The general condition improves and the local condition deteriorates.

DR. B. E. MCKENZIE, Toronto, Can.: I have thought that traction was meant to serve a double purpose; that of keeping the head of the femur in such a position that it will not be brought violently into contact with the acetabulum, and that of preventing deformity. We cure the disease by enabling the resistance from within to throw off the affection. The part where the tuberculous lesion is should be exposed directly, for hours every day, and this treatment continued for months. I believe that no long brace has ever supplied complete fixation for the joint.

DR. C. J. JAGER, New York City: There should be a distinction drawn between the short spica and the Lorenz spica. The short spica will not fix the hip; but the Lorenz spica fixes it absolutely.

DR. T. H. MYERS, New York City: The focus is sometimes in the epiphyseal line, and sometimes in the acetabulum. In the first case the amount of immobilization needed is very different from what is needed when the findings show that the focus is in the joint itself. There was a case in which the x-ray showed a destruction of fully one-half the head. I saw the case two years afterwards, and there had been a regeneration of the head to its normal shape.

(To be continued.)

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THE MILK SITUATION IN MASSACHUSETTS.

AMONG the most important hygienic problems of corporate social communities is that of procuring and safeguarding the purity of water and milk supplies. The larger the community, the more important and the more difficult does this problem become. Of the two, the water supply is on the whole the easier to secure and maintain, since it does not involve, as does the milk supply, the constant production, handling, and transportation of a quickly perishable and readily contaminated animal food product. The Boston metropolitan district is singularly fortunate in the admirable and adequate water supply with which by wise and judicious foresight and honest administration it is provided. The condition of its milk supply, however, though far better than it was some years ago, is still not satisfactory. What is needed now is an adequate and simple scheme of legislation lodging in proper and efficient hands the responsibility and power to direct, control, and supervise the milk producing and distributing industry in this state in such way as to guarantee the purity and quality of the supply.

Two years ago a measure, known as the Ellis milk bill, aiming to secure this end, was passed by the General Court but vetoed by the Governor. Last year, this bill was reintroduced, but did not pass the Legislature. This year the Ellis bill, in slightly modified form, is again before the House for consideration. The situation is as urgent as before, and the manner in which it may be met is important. For this reason a review of the Ellis bill and of the conditions for which it seeks to provide seems desirable.

The chief provisions of the Ellis bill, or the consumers' bill as it is now termed, have been summarized as follows:—

"1—Milk regulations are to be administered and inspection supervised by the State Board of Health. In order to secure efficiency, it is vital that the supervision of the health of the State shall be in charge of one central authority. Milk health work and other health work are so closely related that they should be administered by the same authority. In case of milk-borne epidemics the State Board of Health would have jurisdiction anyway.

"2—These regulations governing the production and sale of milk are to be passed by a board of five, appointed by the governor, of whom two shall have had practical experience in milk production. This is fair to the producer and makes it certain that nothing unreasonable will be asked of him. Two members are to be physicians or bacteriologists and the fifth a sanatarian. The last three can be appointed from the State Board of Health if desirable for the sake of unity. This Board serves without compensation, as it has nothing to do after the passage of the regulations except to amend them when it seems necessary.

"3—The powers of the local boards of health are carefully preserved.

"4—The State Board of Health will coördinate its work with that of the local boards, covering vacant spots, but encouraging local boards to do the work themselves. Most of its actual inspection will be confined to out of the State dairies, from which over half of our milk comes. Its supervision will enable it to prevent annoying and uneconomical duplication of inspection.

"5—All producers will be registered and dealers must take out permits from the State Board. This can be done by mail. No fee is charged. Neighbors selling not over five quarts a day need not take out permits. This exception is less than a can and therefore such milk would not be likely to get into the general milk supply."

This measure, as it stands, is favored by the Massachusetts Milk Consumers' Association, which has issued the following statement of its arguments and reasons for desiring the passage of the bill:—

"1. It does not create a new administrative department. The State Board of Health is already thoroughly equipped for the work with up-to-date laboratories.

"It is prepared to make water analyses, examination of cultures, bacteriological tests, and to do all other processes necessary for discovering sources of infection and for preventing epidemics.

"2. It puts the administration of the act in

the State Board of Health, thereby securing the maximum degree of efficiency in the work of reducing the infant mortality by preserving unity in the administration of the work for the prevention of diesase.

"3. The State Board of Health was organized for the purpose of protecting the public health. It is disinterested and has in mind only the public welfare. Supervision of the milk supply by it would give the public a guarantee of purity which would be worth something.

"4. It will give the producers an impartial guaranty of the purity of the milk. Such an independent guaranty is needed because 'the confidence of the consumers is the backbone of the milk business.'

"5. It provides for the coöperation of the State Board of Health with the local boards of health in the inspection of milk and dairies, simply broadening the existing relations between the two and supplying a central coördinating and supervisory authority which will enable the local boards to lay out their work in such a way as to avoid overlapping and omissions. Wherever the local boards, the local milk inspectors or the local cattle inspectors are doing effective work it will be accepted by the State Board of Health in lieu of its own inspection, but the responsibility for seeing that the entire field is properly covered will be concentrated in the State Board of Health.

"6. By denying a permit to any dealer who sells milk from the dairy not approved by the State Board of Health, it stops the unfair competition of out-of-state uninspected dairies with Massachusetts producers, and as over half of our milk comes from out of the State its control is essential to the health of the State.

"7. While preserving unity of administration in health matters, it safeguards the interests of the producers in such a way that there is no possibility of doing them any injustice.

"8. The members of the State Board of Health and of the committee to pass regulations are all appointed by the Governor with the consent of the Council. Thus through the Governor they are all responsible to all the people of the State. This is as it should be, because their action affects all the people of the State and the legislation is demanded for the protection of all."

In contradistinction to this, may be cited, as representative of the arguments of the opponents of the Ellis bill in its original form, the following passage from the annual report of the secretary of the Massachusetts State Board of Agriculture:—

"The most important milk measure of the year was the so-called Ellis milk bill. This was a most pernicious measure, providing as it did for inspection of milk producers in Massachusetts, and, in the opinion of your secretary and that of many perhaps qualified to form an opinion as to the legal effect of the bill, utterly failing to properly provide for like inspection for the milk producers of other states.

"In addition, there were numerous objections to the bill in question, notably that it provided for inspection primarily for the benefit of the metropolitan district at the expense of the people of the whole state, producers as well as consumers; provided a uniform system of inspection throughout the state, regardless of the needs of various communities, which differ as their supplies differ, and placed too much stress on the inspection of barns and their equipment, on the theory, long since exploded, that these are controlling factors in the production of clean milk.

"As has been shown again and again, the man is the chief factor in the production of clean milk. A clean man can make clean milk under adverse conditions and a man who is not clean can never make clean milk, no matter what his equipment may be.

"The proponents of this bill should stop to consider that more can be done to induce dairy farmers to make clean milk by offering legitimate rewards than can be done by beating them over their heads with the inspection club or any other.

"The call for a uniform standard of inspection is also based on wrong premises. There should be no uniform standard of inspection. It may very well be that the standard applicable to Boston would not do at all for Brockton or Worcester, while the standard for those cities might not be at all suited to the needs of towns like Greenfield or Westfield.

"What is really wanted is a reduction of the number of inspecting bodies, not a uniform system of inspection with the same number of parties at work.

"In spite of these very manifest objections, which were all brought to the attention of the committee who had the bill under consideration and of the Legislature as a whole, the bill which would, in our opinion, have dealt a severe blow to the dairy industry of Massachusetts was duly passed by both branches, and only prevented from becoming a law by the veto of the Governor.

"This board is as desirous of seeing the milk supply improved as is any other body of good citizens, but our method is not that of the supporters of the Ellis milk bill."

On careful consideration of both sides of this important question, it seems that on the whole those who favor the present bill have a better case than its opponents. The bill is not an ideal measure; but is as good as any that the legislature would be likely to pass. Though some of its details could to advantage be modified, its spirit and its main provisions are good. It

ould provide a working method, in the main tisfactory, for regulating, supervising, and administering the milk production and traffic in Massachusetts. We hope and believe therefore, at it will be enacted into law.

One important further complication of the tuation is the difficulty of controlling milk supplies coming from sources in other states. This an be done effectually only by interstate agreement. Interestingly enough at this juncture, here met last week in New York City a conference on state milk control and bovine tuberculosis, which was attended by representatives rom Baltimore, Boston, Newark, N. J., New York, Philadelphia and Providence, R. I. The Massachusetts delegates to this conference were Mr. P. M. Harwood, general agent of the Dairy Bureau, Dr. Mark W. Richardson, secretary of he State Board of Health, and Mr. Charles W. Wood, president of the Cattle Owners' Association.

Report from New York on Feb. 6 summarizes he results of this conference as follows:

"State inspection of the milk supply of the arger cities of the East and Middle States was avored in resolutions adopted at the conference. On the question of State control, a point urged by the New York milk committee which called he conference in the hope of obtaining some action looking to uniform laws in the nine States represented, there was a wide divergence of opinion. The New York milk committee favored a State milk board but this plan was abandoned n favor of State control of dairies and shipping stations by the State department of agriculture which the delegates also decided should have the power of veterinary inspection of cows and sanitary inspection of barns, water supplies and drainage. It was explained that dairymen generally feared an increase in the cost of production if a new authority were created as proposed by the New York milk committee.

"A motion was also adopted favoring State control over the manufacture and handling of milk products. By demanding State control the delegates expressed a hope of getting away from he triple inspection to which the dairies are now subjected in some states by the Federal, State nd municipal authorities. Many considered xcessive inspection synonymous with increased ost of living and thought they saw their way ut of the difficulty by advocating State supervision."

Thus far these conclusions do not promise o bear important fruit. They indicate, however, at least that the question of interstate cooperation in regulation of the milk supply is being seriously considered. The problem is large and complex, and it is only by such repeated consideration that we can hope ultimately to arrive at its satisfactory solution.

MILK GRADES AND PASTEURIZATION.

Dr. Ernest J. Lederle, the Metropolitan Commissioner of Health, has issued to the public a circular describing the plan of milk grading now enforced by the Department of Health in New York City, and advising the citizen body of the official requirements in order that the latter may know precisely what quality of milk is being bought. All milk, whether in bottles or cans, is henceforth to be labelled with the grade for which a permit has been issued. Three grades only may be sold, the first for drinking, the last for cooking. Grade A, which is suitable for infants and children, is to be sold only in bottles, the caps of which must be marked "Grade A"; this grade comprises certified milk, guaranteed milk, inspected raw milk and selected milk pasteurized. Grade B is suitable for adults, and comprises pasteurized milk and selected raw milk; it is sold in bottles or cans, caps and tags of which must be marked "Grade B" in large green letters on a white ground. Grade C is suitable for cooking only and, from the sanitary standpoint, is the poorest milk that is permitted to be sold; *it should never be used for babies or children;* this milk must be plainly marked in red letters "Grade C for Cooking"; and all milk stores carrying it must display a placard so stating.

All pasteurized milk of either grade must plainly be so labelled; the Department considers milk thus treated to be safer than raw milk of the same grade. Whenever milk is sold for immediate use by adults, as in restaurants, hotels, clubs, bakeries, lunch counters and dairies, it must be either A or B quality. Whenever possible bottled milk should be bought so that the quality may be known from the label. Grade A milk should be used for infants, and if this be beyond the mother's purse she is advised to apply to the nearest infant's milk station in New York City, of which there are many in that community, a list of them being published by the Department. Grade C milk should never be used for infants. The Pasteurized Grade B milk is the safest; and should raw Grade B milk be bought, it should undergo pasteurization or boiling in the household.

Here is an official act of beneficence which

it were difficult to overrate, and one most noteworthy of emulation in municipalities not thus provided. Practitioners are familiar with the outrageous and really occasionless urban infant mortality, which is due most of all to bad milk. It is not Providence, but bad milk, that kills these babies that have suffered from the gastro-enteric inflammations and from ingestion tuberculosis. Breast fed infants seldom contract these diseases; bottle milk is responsible for most such cases. The importance of a pure milk supply for any community has long been realized by conscientious health officials; and much has been accomplished during several decades past to this end—mainly by altruistic physicians and sanatarians, against business and political interests.

The kind of milk that was sold a generation ago could get no place in our market of today; it would instead flood our gutters. Some of it, in places where health officers do their duty, still finds its way there. No one will deny that much is yet to be done. Apart from abnormal bacterial content, there is yet sold much milk contaminated with dust and cow-manure, and material deposited by bacteria-laden flies. (These impurities, by the way, could be almost entirely excluded by the simple contrivance of a cheap cloth fastened over the top of the milking pail and renewed for every can or two). That millennial era when all raw milk, from healthy tuberculin-tested cows, shall remain rich and pure in its successive and very devious migrations from the udder to the consumer's lips, is not now in sight; and until this era is reached the claims for pasteurization imperatively demand consideration.

One deduces from the perusal of Dr. Lederle's circular that this process has his approval with regard to most of the milk that is sold in New York City. Indeed, in no other way can the transmission of such infections as typhoid fever, "sore throat of milk-borne origin"[1] be absolutely prevented; there have been milk-borne epidemics of such diseases in which the dairyman and the dealer, though they might have been held blameworthy for carelessness and ignorance, could not have been accused of downright perversity: pasteurization would very likely have obviated epidemics of this kind.

One opposes pasteurized milk as "embalmed milk"; that it is as if one had to choose between water from a pure mountain spring and such as would be filtered from a cess-pool. But unclean milk should have no standing whatever in the market, however prepared for human consumption; the authorities must insist on decently clean milk in the first instance, after which pasteurization may be councilled. Milk thus prepared would seem to be cleaner than raw milk; and to average about one quarter the bacterial count of the latter, according to Dr. P. G. Heinemann's investigation in the University of Chicago of milk sold in that city.[2]

Some object that pasteurization does not destroy toxins, that it does destroy enzymes, and causes scurvy and rickets; but these objections do not seem well sustained. In any event they are certainly not sufficiently valid against pasteurization. The process is extremely simple; the milk is kept for twenty minutes at a temperature of 165° F., and then rapidly cooled; by this process many bacteria are killed and their toxins eliminated. There are contrivances by which the house keeper can easily do this as a matter of domestic routine; which had perhaps best be done even for certified milk. Many producers regularly pasteurize their product, however excellent it is before marketing it. Pasteurization of milk should be as easy and should be as inexpensive as by the apparatus used in breweries to render beer sterile for adults; and if to do this is a part of the brewery business, how much more should it obtain for the milk by which tender infant and child life must be maintained.

[1] Rosenow, E. C.: Streptococci from Milk and from Epidemic Sore Throat. Jour. Infect. Dis., Nov., 1912.
[2] Jour. Amer. Med. Asso., Oct. 19, 1912.

THE DIAGNOSIS OF FEEBLE MINDEDNESS.

IN this issue of the JOURNAL Dr. J. G. Wilson sounds a note of warning to medical examiners in the Immigration Service against the danger of placing entire confidence upon any single method of examination, in an article (p. 226) entitled "The Diagnosis of Feeble-Mindedness among Immigrants." We believe that this warning note should also be heeded by those specialists whose patients are *not aliens*. Apparently in response to a real need, there has come into vogue a great number of artificial aids in determining the mental status of individuals and many attempts have been made to grade intellectual ability with the same degree of accuracy as the college professor marks an examination paper. If it is impossible to do this among im

migrant people a little reflection will suffice to show that it is also impossible among the native born. As pointed out by Wilson the essence of feeble-mindedness consists in the fact that the feeble-minded of all degrees are lacking in the power of *constructive imaginaton.*

To determine the presence or absence of this ability is the crux of the whole matter. In common with the normal mind the brain of the defective is capable of imaging past experiences. That is to say, he has the power of *reproductive imagination* developed. He is also able to locate the image in point of time and place and is therefore gifted with the power of memory. But even though his intelligence is active in so far that he responds to external stimuli and afterwards remembers what sensations these stimuli awakened in him, he is incapable of combining old experiences so as to form new patterns. Like the lower animals his conduct becomes stereotyped. This is well illustrated by Johnstone, who cites the case of a feeble minded boy who had been taught to plow. One day he was started at his work in the usual manner and returned from the field at the sound of the dinner horn with an index finger completely torn off. It was afterwards ascertained that he had met with the accident several hours before, but that it had never occurred to him that the unusual experience should in any way alter his usual routine work. Being so utterly deficient in constructive imagination the feeble minded person is unable voluntarily to adjust himself to existing social conditions. These conditions are not only different in different communities but they are constantly changing in the same community, therefore it is apparent that any one scheme or artificial aid to determine this power of adjustibility must be very flexible to the demands of "common sense." The presence or absence of "common sense" is what must be determined in the patient and to do this requires the presence not only of technical skill but also "common sense" in the examiner.

The difficulty of measuring intellects by "rule of thumb" is further illustrated by the fact that varying degrees of "constructive imagination" are what constitute the various grades of genius among individuals of normal intelligence. Thus the inventor reacts to old facts known to every one so as to produce something new; the literary genius takes experience common to the race and creates a unique work. To measure in terms of figures and percentages the amount of creative imagination possessed by the inventor and the poet is manifestly absurd. To profess to determine its entire absence by any strictly mathematical contrivance impresses us as being equally impossible. Therefore we are inclined to agree with the author of the article upon which our remarks are based when he says that "the more carefully one studies the whole question of feeble mindedness among immigrants the more he will become convinced that the diagnosis must be established by a careful weighing of all the evidence which every reputable method of examination can furnish. The Binet tests, the Di Sanctis tests, the apparatus of Healy and Fernald, are all useful as adjuncts and are especially valuable in determining the line along which the alien should be especially examined and in thus helping one to come to a rapid conclusion. But upon whatever method or combination of methods the examiner finally comes to place the most reliance, he should always bear in mind that what he really desires to determine is whether or not the alien is lacking in one or more mental traits which will make it impossible for him to assume his normal relations to society."

These remarks can very well be extended to include the native as well as the alien. If the *absence* of "ability to assume normal relations to society" be held as the *sine qua non* of the diagnosis of subnormal minds there will be no danger that any of the valuable "mental tests" will be allowed to usurp the domain of common sense and good judgment.

VENEREAL DISEASE.

In our issue of January 16th Dr. John H. Cunningham contributed an article on venereal disease in which he presented conclusive evidence of the widespread existence of these diseases and the very serious consequences which gonorrhea and syphilis often entail. Death, invalidism and sterility are among the common indirect results of gonorrhea in women. It frequently causes sterility in the male also and to it are attributed a large proportion of the childless marriages among officers of the German army. Syphilis, as is well known, kills many young children, destroys the health and ruins the lives of many more, whereas gonorrhea is responsible for the blindness of many. Add to this the effects of syphilis on the central nerv-

ous system including among its results tabes, paresis and insanity and we have a list of ailments due directly to the two principal forms of venereal disease which, when seriously considered, is nothing less than appalling.

Dr. Cunningham urged that we should look the issue squarely in the face instead of refusing to recognize our duty because it is an unpleasant one.

By way of practical suggestion he proposed that boards of health should everywhere undertake to assist physicians in the diagnosis of venereal infections much as they do now in cases of diphtheria. He believes that the responsibility for the spread of these diseases rests primarily with the boards of health which can, if they will, take steps to control them. We are in complete sympathy with Dr. Cunningham in the views expressed and we feel that it is a duty of our profession to bring about a change of public sentiment in regard to venereal disease. Radical preventive measures will then inevitably follow.

THE FORSYTH DENTAL INFIRMARY.

The dental papers published in this issue of the JOURNAL call renewed attention to the public importance of oral hygiene and instruction for children, and to the approaching completion of the Forsyth Dental Infirmary which will make possible the realization of some of our ideals in dental care and prophylaxis. The Infirmary, whose beautiful marble building is an architectural as well as a sociologic adornment of our city, has recently issued a pamphlet, prepared for the International Congress of Hygiene and Demography, at Washington last September, in which are outlined not only the plans for the institution, but the nature of the work which it will have to do and the spirit in which that work is to be undertaken.

"The acute dental needs of the children have never been fully recognized outside of the profession; their importance has never been acknowledged. Until municipalities recognize these needs and their obligation to meet them, the work must be carried on by independent foundations. The Forsyth Dental Infirmary represents the first attempt on an adequate scale to satisfy the requirements.

"This is a plea for recognition of the right to develop children physically as well as mentally at the public expense. The private dental clinic would eventually obtain public support in giving freely expert advice and dental treatment to pupils in the schools.

"It is an aim that should be encouraged to the extent of providing for children in poverty whose parents cannot pay for the treatment needed. Public support and all charitable support, should stop here."

The work is indeed of great importance, and rightly administered should be capable of accomplishing immense good in the community.

MEDICAL NOTES.

FLY EXTERMINATION IN FINLAND.—Report from Helsingfors, Finland, on Jan. 30, states that an active popular movement is in progress for the extermination of the domestic fly from that country.

ILLNESS OF PRINCE ADALBERT.—Report from Berlin on Feb. 1 states that Prince Adalbert, third son of the German Emperor, is ill with pneumonia, following a recent attack of measles.

CONTINUED ILLNESS OF THE CZAREVITCH.—Report from St. Petersburg on Feb. 3 states that Dr. Eugen Enderlen, professor of surgery at the University of Würzburg, Germany, has been summoned to attend the Czarevitch Alexis.

CONFERENCE TO REGULATE THE USE OF SACCHARINE.—Report from Paris states that on Feb. 3 an international conference for the regulation of the use of saccharine and analogous substances was opened in that city. Delegates were in attendance from France, Germany, Italy, Russia, Switzerland, Holland, Belgium, Portugal, and Greece.

THREE BRITISH CENTENARIANS.—Mrs. Daniel Swinford, who died on Jan 3, at Minster, Isle of Thanet, England, was locally reputed to be 100 years of age.

Mrs. Moore, of Plymouth, Devonshire, is said to have been born on Jan. 20, 1811.

Mary Fehily, who died on Jan. 5 at Middleton, East Cork, Ireland, was alleged to be 104 years old. She had for many years practised the habit of smoking tobacco.

A MEDICAL MARTYR.—The knowledge has recently been made public that Dr. Sir George Turner, of England, has become a leper, having contracted the disease during his service at the leprosy hospital in Pretoria, South Africa.

Dr. Turner, who has rendered distinguished duty in fields of research and preventive medicine, is now living in retirement at his home in Devonshire, where he "awaits the inevitable end."

A Living Indian Centenarian.—Wah-Hah-Gun-Ta, a Blackfoot Indian chief at the Glacier Reservation, who is known to have visited Thomas Jefferson while the latter was president, is reported to have been born in 1781. He is said to preserve still an active and vigorous physical health.

Two Centenarians.—James Thomas, who died last week at Monett, Mo., is said to have been born in 1807.

Sarah Ann Byles, a negress, who died on Jan. 29 at Frederick, Md., was locally reputed to have been born in 1798.

Institute of Dental Pedagogics.—At the twentieth annual meeting of the Institute of Dental Pedagogics, held last week in Pittsburg, Dr. D. H. Squires, of the University of Buffalo, was elected president of the organization for the ensuing year.

Conscientious Objectors in California.—Report from Berkeley, Cal., states that 1200 pupils have recently withdrawn from the local public schools in protest against a joint order issued by the boards of health and education compelling immediate vaccination of all children on account of an epidemic of smallpox now prevalent in that city.

Fire in a Hospital.—Report from Big River, Saskatchewan, states that on Feb. 4 the local hospital was destroyed by fire. Eighty patients were safely removed from the burning building. The loss is estimated at $20,000.

BOSTON AND NEW ENGLAND.

Opium Raid in Boston.—In Boston last week custom inspectors raiding a Chinese laundry found and seized an opium-smoking outfit and several hundred dollars' worth of the drug.

Milk Fines in Dorchester.—Before the Dorchester municipal court last week four local milk dealers were fined $10 each, and two $50 each, for various violations of the milk laws.

Scarlet Fever in Rhode Island.—Report from Cranston, R. I., on Feb. 6 states that scarlet fever is at present epidemic in that town and that the local public schools have been closed.

Massachusetts Homeopathic Hospital.—At the annual meeting of the Massachusetts Homeopathic Hospital, held in Boston recently, the reports showed that 6007 house patients were treated in 1912. as against 5213 in 1911. There was a deficit of $18,281 for the year 1912.

Boston Mortality Statistics.—The total number of deaths reported to the Board of Health for the week ending Saturday noon, Feb. 1, 1913, is 252, against 274 the corresponding week last year, showing a decrease of 22 deaths, and making the death rate for the week 17.87. Of this number 126 were males and 126 were females; 241 were white and 11 colored; 158 were born in the United States, 89 in foreign countries, and 5 unknown; 56 were of American parentage, 165 of foreign parentage, and 31 unknown. The number of cases and deaths from infectious diseases reported this week is as follows: Diphtheria, 60 cases and 5 deaths; scarlatina, 61 cases and 0 deaths; typhoid fever, 5 cases and 0 deaths; measles, 177 cases and 4 deaths; tuberculosis, 61 cases and 27 deaths; smallpox, 1 case and 0 deaths. The deaths from pneumonia were 40, whooping cough 3, heart disease 34, bronchitis 4. There were 13 deaths from violent causes. The number of children who died under one year was 38; the number under five years 57. The number of persons who died over sixty years of age was 75. The deaths in hospitals and public institutions were 111.

Cases of infectious diseases reported to the Boston Board of Health for the week ending February 4, 1913, are: Diphtheria, 50; scarlatina, 57; typhoid fever, 2; measles, 177; smallpox, 0; tuberculosis, 58.

The death-rate of the reported deaths for the week was 15.95.

Non-resident cases are included in the total cases.

NEW YORK.

Mount Sinai Hospital—The annual meeting of the directors of Mount Sinai Hospital was held on January 26, when the report of the president, George Blumenthal, for the fiscal year showed that the receipts were $448,294 and the expenditures $450,661. Legacies and bequests

amounted to $56,165 and donations to $30,633. Two gifts to the endowment fund, each of $10,000, were received bringing the total fund up to $235,000.

The total number of patients treated in the hospital during the year was 8,204, of whom 5,386 were free patients. 1,071 paid a nominal rate, and 1,315 were full-paying patients. In the dispensary 236,297 patients were treated. Work on proposed extensions to the hospital is to be commenced next summer, and of the estimated cost of these ($1,350,000) $650,000 has already been subscribed.

LABORATORY OF SOCIAL HYGIENE—It is announced that in connection with the Bureau of Social Hygiene, a private and independent organization formed in 1911, there has been established at Bedford Hills, Westchester County, a "laboratory of social hygiene" adjacent to the reformatory there. In this it is purposed to have a study made by experts of the physical, mental, social and moral characteristics of each person committed to the reformatory.

REPORT OF CORONER'S OFFICE—The report of the coroner's office of Manhattan and the Bronx for 1912 gives the statistics of the deaths reported to the office during the year and recommends additional legislation for the protection of the lives of citizens. There were 2,712 deaths by violence, of which 474 were suicides, 114 homicides, 267 due to burns, 146 from automobile accidents, and 108 due to horse-drawn vehicles. The coroner's physicians made 619 autopsies.

Current Literature.

MEDICAL RECORD.

JANUARY 25, 1913.

1. POLK, W. M. *The Works and Needs of the Academy of Medicine.*
2. *HOROWITZ, P. *A Further Contribution to the Action of Lactic Acid Bacilli on the Percentage of Glucose in the Urine in Diabetics.*
3. DARDEL, J. *Gonorrheal Rheumatism in Arthritic Subjects.*
4. ROSENBERG, L. *The Sanatorium or the Home?*
5. BENEDICT, A. L. *The Influence of Sodium Chloride on the Hydrochloric Acid Secretion by the Stomach.*
6. PLACE, F. *Bibliographic Style in Medical Literature.*

2. Horowitz writes another paper on the effect of lactic acid bacilli on glycosuria, giving further information about cases previously reported, and citing new ones in support of his contention. His comprehensive conclusions are as follows: In all cases of diabetes changes in the pancreas, especially in the islands of Langerhans, are probably present, with perhaps irritation and changes in the suprarenals, the thyroid, the nervous system and the hypophysis and these changes are caused by an auto-intoxication. In cases without indicanuria and with no auto-intoxication, there is usually a definite cause of glycosuria, such as thyroidectomy or ether narcosis. By correcting auto-intoxication we remove irritating influences on the sugar-regulating apparatus. Now bacillus bulgaricus overcomes intoxication by destroying putrefaction, making the reaction of the intestinal tract acid and inhibiting carbohydrate digestion so that only small amounts of sugar are formed and absorbed. Properly administered in cases of diabetes, lactic acid bacilli thus gradually increase carbohydrate tolerance until it becomes normal. [L. D. C.]

NEW YORK MEDICAL JOURNAL.

JANUARY 25, 1913.

1. KNOPF, S. A. *Tuberculosis and Other Diseases in Schools and Colleges.*
2. KONKLE, W. B. *Sex Ethics; a Medical Orientation..*
3. SCOTT, G. D. *Value of Pertussis Vaccine.*
4. *BOGGS, R. H. *Malignant Growths.*
5. MORTON, R. S. *The Education of the Public in Personal Hygiene.*
6. KAHN, L. M. *Abdominal Rigidity.*
7. HARBRIDGE, D. F. *Concomitant Convergent Squint.*
8. MCMURTIE, D. C. *Crippled Children in the English Public Schools.*
9. EHRENRICH, S. G. *Incipient Pulmonary Tuberculosis.*
10. TUPPER, P. C. *Alkalies and Hyperchlohydria.*

4. Boggs makes a plea for more conservative treatment of malignant disease. As experience enlarges with a great number of cases traced out carefully to their end results, men are questioning the wisdom of treating all malignant growths by the most radical means possible. More conservative treatment is necessary if we are to obtain more positive results in curable cases and greater palliation in hopeless cases. The Roentgen ray is very valuable in all cases, and with many practitioners it is superseding all other methods, even excision, in the treatment of epithelioma. [L. D. C.]

THE LANCET.

JANUARY 11, 1913.

1. *MARTIN, C. J. *Horace Dobell Lecture on Insect Porters of Bacterial Infection. Lecture II.*
2. HALL, A. J. *Two Cases of Colloid Tumor of the Third Ventricle.*
3. KELLOCK, T. H., LYSTER, C. R. C., AND APPERBY, R. E. *A Case of Pneumonotomy for Foreign Body.*
4. MCGAVIN, L. *Colotomy for the Removal of a Hairpin Impacted in the Ascending Colon.*
5. TREADGOLD, C. H. *Myeloid Leukemia in a Child, with Blood Picture of So-called Megaloblastic Degeneration.*
6. *RIGGS, E. E. A. T. *On the Alleged Diagnostic Value of the Provocative Injection of Old Tuberculin in Suspected "Closed Pulmonary Tuberculosis."*

1. Cf. *British Medical Journal*, Jan. 11, 1913.

6. Riggs dealing with a small series of cases, 61, of closed pulmonary tuberculosis, concludes that the subcutaneous injection of tuberculin is of no value in diagnosis of this condition. [J. B. H.]

BRITISH MEDICAL JOURNAL.

JANUARY 11, 1913.

KEITH, A. *An Address on the History and Nature of Certain Specimens Alleged to Have Been Obtained at the Post-mortem Examination of Napoleon the Great.*

*MARTIN, C. J. *The Horace Dobell Lecture on Insect Porters of Bacterial Infections. Lecture II.*

GORDON, W. *An Address on Medicine and Liberty.*

MAYNARD, E. F. *Salvarsan in Pernicious Anemia.*

2. In this second Dobell Lecture, Martin considers n some detail the transmission of plague by fleas, ne evidence that bacilli are found and multiply in ne body of the flea, the mechanics of transmission o healthy animals, the proof of this, and the expla- ation of epidemics of plague on this basis. He next onsiders the transmission of certain diseases, notably yphus fever by lice, the relation of African re- psing fever to the tick, and that of anterior polio- yelitis to the stable fly, *Stomoxys Calcitrans*, and nally he considers bed bugs as porters of infection. he paper is full of interesting information in regard o this important subject. [J. B. H.]

WIENER KLINISCHE WOCHENSCHRIFT.

NO. 2. JANUARY 10, 1913.

KLING, C. *The Etiology of Infant Paralysis.*

PAPPENHEIM, A. *The Benzol Treatment of Leukemia and Allied Blood Diseases.*

*FISCHER, O., AND KLAUSNER, E. *A Communication on the Skin Reaction in Syphilis.*

LAWATSCHEK, R. *The Prognosis of Tuberculosis in Nursing Babies.*

ORTHNER, F. *Case-Histories of Impalement Injuries.*

KELLING, G. *New Researches on the Production of Tumors by Means of Specific Foreign Embryonic Cells.*

3. The authors touch briefly on the work devel- oing the Noguchi reaction, and state the conclusion hat it is constant in tertiary syphilis, while the Was- rmann reaction is constant in secondary syphilis. hey then point out that the Noguchi reaction is also ositive in a certain proportion of so-called para- yphilitic cases, notably in paralysis progressiva. hey further state that this is true in 60% of the arasyphilitic cases. This per cent. is higher than is stified from a histological standpoint at present. orking with their preparation from a syphilitic ng, used subcutaneously, with a normal lung fluid ntrol, in a mixed series of 118 cases, including 20 es gummosa, 3 lues hereditaria tarda, 20 paralysis rogressiva, and 37 lues i and ii, they obtained posi- ve reactions in the 23 cases of lues gummosa and es hereditaria tarda and negative reactions in the paralysis progressiva and the 37 lues i and ii, as ell as in the remaining miscellaneous cases. They erefore conclude that their method offers a definite mited chemical diagnosis of tertiary syphilis and es hereditaria tarda. [F. S. K.]

DEUTSCHES ARCHIV FÜR KLINISCHE MEDIZIN.

NOVEMBER 22, 1912.

1. SCHLECHT, H., AND SCHWENKER, G. *The Relation of Esinophiles to Anaphylaxis.*

2. *HAUSMANN, T. *The Topographical Superficial and Deep Palpation of the Digestive Tract and Its Uses.*

3. *HAUSMANN, T., AND MEINERTZ, J. *X-ray Studies Controlling the Position of the Stomach and Intestines as Mapped Out by Superficial and Deep Palpation.*

4. BRUNS, O. *The Blood Circulation in an Atelectatic Lung.*

5. KAUFMANN, R., AND POPPER, H. *Essay on the Study of Pulse Rhythm*

6. FISCHLER, F., AND GRAFE, E. *The Influence of Liver Extirpation on the Respiratory Metabolism.*

7. SCHOTT, E. *The Rise of Pressure in the Venous System on Exertion as a Measure of the Functional Power of the Human Heart.*

8. OGAWA, S. *The Absorption of Active Principles from Digitalis Leaves and Digitalis Preparations.*

9. SCHULTZE, F. *Curable Acute Hepatitis.*

10. LÜDKE, H., AND SCHÜLLER, L. *Investigations on Nephrolysm.*

11. SCHERFER, P. *Tertian Malaria and Its Cure by Neosalvarsan.*

2. Hausmann describes in detail his method by means of palpation of different kinds to map out the different abdominal structures. In addition to light palpation and deep palpation he uses auscultatory percussion. He shows that the only satisfactory method for control of these observations is the Roentgen ray examination.

3. This paper by the author of the preceding in conjunction with Meinertz is well illustrated with schematic drawings and x-ray photographs. It supports very prettily the claims of Hausmann that his methods of diagnosing the positions of the different parts of the alimentary tract are accurate. He ends up with a plea for more study with the use of the hands, as they can be more readily supplied than the x-ray machine. [C. F., JR.]

REVUE DE CHIRURGIE.

JANUARY, 1913.

1. GROSS, G., AND BARTHÉLEMY, M. *Sterilization by the Vapors of Formol in Surgical Practice.*

2. DUVERGEY, J. *Phlebitis in the Evolution of Fibromata of the Uterus.*

3. *TADDEI, D. *Typhlo-Ureterostomy.*

4. CHALIER, A., AND BONNET, P. *Primary Melanotic Tumors of the Rectum.* (*To be continued.*)

3. As a result of his anatomic and experimental researches, Taddei of Florence describes the technic of his operation of typhlo-ureterostomy, after exclusion of the cecum and appendicostomy, in the treatment of vesical extrophy, and reports six cases, in five of which he obtained satisfactory results from this procedure in dogs. [R. M. G.]

PROCEEDINGS OF THE ROYAL SOCIETY OF MEDICINE.

VOL. VI. NO. 2. DECEMBER, 1912.

1. BARTON, G. A. H. *Death During Hedonal Infusion Anesthesia.*

2. BOYLE, H. E. G., AND GASK, G. E. *New Apparatus for the Intratracheal Insufflation of Ether.*

3. SHIPMAY, F. E. *Apparatus for the Intratracheal Insufflation of Ether.*

4. BUNCH, J. L. (*a*) *Congenital Syphilitic Infant Treated by Intravenous Injection of Neosalvarsan.* (*b*) *Molluscum Contagiosum.*

5. CARR, J. W. *Partial Hemiatrophy of the Face and Tongue.*

6. NORBURY, L. E. C. *Spina Bifida with Ulcerated Meningo-Myelocele in a Child.*

7. FAIRBANK, H. A. T. *Ununited Fracture of Neck of Femur.*

8. PRITCHARD, E., AND DREW, D. *Congenital Esophageal Stenosis.*

9. PRITCHARD, E. *Multiple Exostoses with Symmetrical Wasting of the Muscles of Both Upper Arms.*

10. BOYD, S. *Osteoma of the Forearm.*
11. SUTHERLAND, G. A. *Cerebral Non-Development.*
12. *CLOGG, H. S. *Malformation of the Rectum.*
13. WILLIAMSON, O. K. *Cerebellar Ataxia.*
14. ROLLESTON, J. D. *Fatal Case of Hemorrhage from Throat.*
15. LAPAGE, C. P. *Primary Carcinoma of the Liver in a Boy Aged Six Years.*
16. LANGMEAD, F. *Congenital Adenoma of the Liver.*
17. GUTHRIE, L. *Epidemic Catarrhal Jaundice.*
18. CASSIDY, M. A. *Rheumatoid Arthritis.*
19. TROTTER, W. *Advanced Carcinoma of Epiglottis.*
20. *WYNTER, W. E. *Acholuric Jaundice.*
21. MCGAVIN, L. (*a*) *Resection of Cecum, Appendix, Ileocecal Valve and Ten Inches of Ileum for Chronic Appendicitis.* (*b*) *Resection of Cecum, Ileocecal Valve, Appendix, and Ten Inches of Ileum for Obstruction Following an Entero-anastomosis; Subsequent Ventral Hernia Cured by Filigree Implantation.* (*c*) *Resection of Cecum, Ileocecal Calve, Appendix, and Five Inches of Ileum for Sarcoma; Anastomosis by Murphy's Button; Button Retained for Four Years.* (*d*) *Gastro-enterostomy for Hematemesis Followed by Ileus and Fecal Vomiting; Cecostomy; Subsequent Ventral Hernia; Cure by Implantation of Six Inches Filigree.*
22. BATTEN, F. E. *Celluloid Splints in the Treatment of Acute Poliomyelitis.*
23. HUGHES, E. C. *Congenital Syphilitic Disease of the Knee Joint.*
24. ARMOUR, D. *Chronic Circumscribed Inflammation of the Corpora Cavernosa.*
25. GALLOWAY, J. (*a*) *Tuberculous Peritonitis.* (*b*) *Sclerema Cutis (Adultorum).*
26. HUTCHISON, R. *Hirschsprung's Disease.*
27. ADAMSON, H. G. *Acne Urticaria.*
28. CASTELLANI, A. (*a*) *Further Researches on Trichomycosis Flava Rubra et Nigra of the Axillary Regions.* (*b*) *Note on Copra Itch.*
29. HIRST, S. *Report on the Mite Causing the Copra Itch.*
30. CASTELLANI, A. *Note on the Etiology of Some Tropical Dermatomycoses (Tinea cruris, Tinea flava et nigra, Tinea imbricata).*
31. MACLEOD, J. M. H. *Generalized Macular Pigmentation of Trunk and Extremities.*
32. GRAY, A. M. H. *Dermatitis Herpetiformis.*
33. LITTLE, F. G. (*a*) *Erythema Multiforme of Unusual Type.* (*b*) *Epitheliomatous Growth on the Foot.*
34. MACCORMAC, H. *So-called "Acne Agminata of Crocker."*
35. MORRIS, M., AND DORE, S. E. *Extensive Case of Infective Angioma (Hutchison).*
36. SEQUERIA, J. H. *Case Illustrating a Sequel to Alopecia Areata.*
37. ADAMSON, H. G. *A Discussion on Erythema Multiforme.*
38. *JELLINEK, S. *Electric Accidents from the Clinical and Forensic Standpoint.*
39. EWART, R. J. *The Influence of Parental and Grandparental Age at Birth of Offspring on Their Susceptibility to the Zymotic Diseases.*
40. CROOKSHANK, F. G. *Some Recent Theories of Tuberculosis and Their Possible Significance.*
41. *OSLER, W. (*a*) *President's Opening Remarks.* (*b*) *A Down Survey of Manuscript of William Petty.*
42. CRAWFURD, R. *Contributions from the History of Medicine to the Problem of the Transmission of Typhus.*
43. POWER, D'A. *Notes on Early Portraits of John Bannister, of William Harvey, and the Barber-Surgeons' Visceral Lecture in 1581.*
44. ATKINSON, J. *Mikulicz's Disease.*
45. TILLEY, H. *Fibroma of the Nasopharynx.*
46. O'MALLEY, J. F. *Two Cases of Bilateral Edema of Nasal Septum.*
47. MCKENZIE, D. (*a*) *Denker's Operation for Maxillary Antrum Suppuration.* (*b*) *Tuberculosis of the Tonsils and Cervical Lymphatic Glands.*
48. DONELAN, J. *A Simple Tonsillotome.*
49. MUECKE, F. (*a*) *Epithelioma of the Soft Palate.* (*b*) *Double Abductor Spasm, Caused by Vocal Overstrain.*
50. TWEEDIE, A. R. (*a*) *Tonsils and Cervical Glands Removed Post Mortem.* (*b*) *Cartilaginous and Fibrous Growth Removed from a Girl.*
51. THOMSON, STC. (a) *Epithelioma of the Larynx.* (*b*) *Two Cases of Radical Frontal Sinus Operation (Killian).*
52. TOD, H. (*a*) *Malignant Disease of Left Sphenoidal Region; Proptosis with Blindness of Eye on Same Side; Enlarged Cervical Glands on Both Sides.* (*b*) *Marked Infiltration of Ary-epiglottic Fold and Ventricular Region of Right Side of Larynx, Together with Partial Fixation of Vocal Cord.* (*c*) *Tertiary Syphilis and Ulceration of Larynx, Causing Laryngeal Obstruction, Treated by Neosalvarsan.*
53. DAVIS, H. J. (*a*) *Faucial Mucous Tubercles, Hunterian Sore on the Back of the Neck.* (*b*) *Enlarged Tonsils, Lympho-sarcoma or Lymphadenoma.* (*c*) *Skiagram Showing a Butcher's Wire Skewer in the Right Secondary Bronchus.* (*d*) *Skiagram Showing a Penny Coin Impacted in the Esophagus.* (*e*) *Sluder's Guillotine.*
54. WATSON-WILLIAMS, P. *Case of Pansinusitis.*
55. HOPE, C. W. M. *Infiltration of Uvulva, Epiglottis and Arytenoids.*
56. HORSFORD, C. *Atrophic Rhinitis.*
57. PHILLIPS, S. *A Fatal Case of Widespread Ulceration Limited to the Small Intestine.*
58. LEA, C. E. *Four Cases of Auricular Tachycardia.*
59. THOMSON, H. C. *Pituitary Tumor.*
60. TAYLOR, J. *Peroneal Atrophy.*
61. GUTHRIE, L. *Congenital Cerebellar Ataxia.*
62. FEARNSIDES, F. G. (*a*) *Nystagmoid Movements of Palate and Lids; Lateral and Rotatory Nystagmus; Cerebellar Incoördination.* (*b*) *Tetanus; Chloretone Poisoning; Recovery, Followed by Polyneuritis.*
63. STEWART, P. *Family Myoclonus.*
64. BUZZARD, F. F. (*a*) *An Obscure Case of Athetosis with Abolition of Tendon Reflexes.* (*b*) *Post-encephalatic Diplegia with Involuntary Movements.*
65. BATTEN, F. E. *Atrophy of Distal Muscles in All Four Extremities.*
66. COLLIER, J. (*a*) *Unilateral Tremor Resembling That of Paralysis Agitans in a Child.* (*b*) *Two Members in Which Visual Defects and Loss of Knee-jerk Have Occurred During Three Generations.*
67. ELLIOTT, T. R. *Unilateral Fredreich's Disease.*
68. HARRIS, W., AND BANKART, A. S. B. *Spinal Tumor and Scoliosis.*
69. WALSHE, F. M. R. *Jacksonian Attacks.*
70. GREEVES, R. A. *Partial Third Nerve Paralysis with Rhythmic Movements of the Pupil.*
71. MAXWELL, R. D. *Puerperal Eclampsia Treated by Caesarean Section.*
72. ANDREWS, H. R. (*a*) *Simultaneous Intra-uterine and Extra-uterine Pregnancy with Probable "Internal Wandering" of the Ovum.* (*b*) *A Small Ovarian Terratoma Containing Brain and Well-formed Intestine.*
73. ROBERTS, C. H. *Ugent Caesarean Section for Prolapse of the Cord in a Case of Contracted Pelvis.*
74. WYATT, J. M. *LeFort's Operation.*
75. MUMMERY, J. H. *The Nerves of the Dentine.*
76. BADCOCK, J. H. *Orthodontics in Modern Practice.*
77. NETTLESHIP, E. *Sarcoma of the Choroid of Unusual Chronicity.*
78. NETTLESHIP, E., AND THOMPSON, A. H. *A Pedigree of Leber's Disease.*
79. ORMOND, A. W. (*a*) *Retino-choroiditis Juxta-papillaris.* (*b*) *Pemphigus of the Conjunctiva.*

). FISHER, J. H. *Semilunar (Subhyaloid) Retinal Hemorrhages.*
1. *GREEVES, R. A. *Partial Oculomotor Paralysis.*
2. PARSONS, J. H. *"Mooren's" Ulcer Associated with Ulceration of the Sclerotic.*
3. PATON, L. *Modification of Herbert's Flap Operation for Chronic Glaucoma.*
4. *LAKE, R., *and* PENNY, A. F. *Two Cases of Vertigo.*
5. LAKE, R. *Aberrant Carotids*
6. JONES, H. E. *A Method of Making a Periosteomeatal Flap in the Radical and Modified Radical Mastoid Operations.*
7. WEST, C. E. (*a*) *Thrombosis of Jugular Bulb.* (*b*) *Injury to Internal Carotid Artery.*
8. DAVIS, H. J. (*a*) *Cerebellar Hernia Following Cerebellar Abscess.* (*b*) *Labyrinthine Vertigo.* (*c*) *Malignant Polypus of the Ear.*
9. MCKENZIE, D. (*a*) *Acute Middle-ear Suppuration.* (*b*) *Lens for Use in Mastoid Operations.*
0. KISCH, H. A. *Operation for Chronic Adhesive Catarrh of the Middle Ear (Tympanoplasty).*
1. PETERS, E. A. *Chronic Diffuse Labyrinthitis.*
2. COCKE, R. S. *Osteoma of the Mastoid.*
3. BASTIAN, H. C. *Further Experiments Concerning the Origin of Life.*
4. MCDONAGH, J. E. R., AND KLEIN, B. G. *Vaccine Treatment of Gonorrhea.*
5. HORT, E. C., AND PENFOLD, W. J. *Further Studies in Experimental Fever.*
6. GOULD, A. P., ET AL. *A Discussion on Sarcomata and Myelomata of the Long Bones.*
7. COW, D. (*a*) *The Action of Pilocarpine and Atropine on the Urinary Secretion.* (*b*) *The Action of a Tissue Extract in the Production of Diuresis.*

12. Clogg reports a case of rectal malformation in hich there was complete absence of the post-allanoic gut and the proctodeum. The case was successlly treated by operation.

20. Wynter reports an unusual case of acholuric undice due to hemolytic anemia.

38. Jellinek of Vienna presents an interesting and aluable study of electric accidents, illustrated by diarams and cases.

41. Osler records an interesting item about Sir Villiam Petty, a seventeenth century professor of natomy at Oxford.

81. Greeves reports a case of partial oculomotor aralysis with synchronous clonic contractions of musles supplied by the third cranial nerve.

84. The authors report two cases of vertigo in hich the blood-pressure was very low and rectionary vertigo was excessive after rotation.

[R. M. G.]

Obituary.

WILLIAM HOWSHIP DICKINSON, M.D., F.R.C.P.

DR. WILLIAM HOWSHIP DICKINSON, who died n Jan. 9 at Tintagel, Cornwall, England, was orn at Brighton in 1832. He received his cademic education at Gonville and Caius Colge, Cambridge, of which he was subsequently ade an honorary fellow. In 1851 he entered t. George's Hospital Medical School, London, here Mr. Henry Gray was then lecturer on natomy. Dickinson became a member of the oyal College of Physicians of London in 1858. n 1859 he received the degree of M.B., and in 861 was appointed assistant physician to the Iospital for Sick Children, Great Ormond Street, London. He obtained the degree of M.D. in 1862, and in 1865 was elected a Fellow of the Royal College of Physicians. In May, 1866, he was appointed assistant physician to St. George's Hospital. He became physician to the Hospital for Sick Children in 1869 and to St. George's in 1874. In 1876 he delivered the Croonian lectures before the Royal College of Physicians. In 1884 he was made consulting physician to the Hospital for Sick Children. In 1888 he delivered the Lumleian lectures and in 1891 the Harveian Oration.

Dr. Dickinson was an all-round physician, and his abundant writings include nearly every branch of medicine. He was particularly interested in pathology, and was early made a member of the Pathological Society of London and in 1889 to 90 its president. He was also president of the Royal Medical and Chirurgical Society, and a Fellow of the New York Academy of Medicine. In 1891 he was president of the section of pathology and bacteriology at the annual meeting of the British Medical Association at Bournemouth, and in 1894 president of the section of diseases of children at the meeting at Bristol. In the latter year he gave up his extensive practise, was made a consulting physician at St. George's Hospital, and retired to his home in Tintagel, where the remainder of his life was spent. He is survived by four daughters and one son.

Dr. Dickinson was a man of remarkable individuality, great originality of thought, and intensity of conviction. He was stimulative as a teacher, and though shy and of abrupt manner, was in reality genial, well read, full of sympathy, and gifted with an exquisite sense of humor. He was one of the last of an older group of distinguished medical practitioners of London.

GEORGE ALEXANDER GIBSON, M.D., D.Sc., LL.D.

On January 18, 1913, there died in Edinburgh Dr. George Alexander Gibson. Dr. Gibson came to Boston at the time of the inauguration of President Lowell as a delegate to Harvard University from St. Andrews and the University of Edinburgh. On this occasion and during other visits many of the Boston profession had an opportunity of knowing him and of beginning a friendship which was most delightful

Dr. Gibson was probably the first physician in Scotland. Born in Perthshire, January 27, 1854, educated in Edinburgh where he received the Doctorate of Medicine and the Doctorate of Science, his activities were centered about the Royal Infirmary, to which he was Physician, and in which he conducted teaching under the auspices of the School of Medicine of the Royal Colleges of Edinburgh, performing a very active part in that form of extramural teaching which has been a large factor in making Edinburgh a great center for medical students over

a period of many years. His own particular field of investigation had been cardio-vascular disturbances, and in addition to numerous papers on these subjects, from his pen came one of the best books in the English language on heart disease.

In many ways he was honored by his colleagues. Dublin University conferred on him the Honorary Degree of M.D.; Harvard that of D.Sc.; St. Andrews and McGill Universities that of LL.D. He was a member of the Governing Board of St. Andrews University and served for a considerable period of time on a Council which regulates medical teaching and medical registration in Great Britain.

A most genial man of wide interests, he proved an acceptable member of many circles of friends. Vigorous in health, he was keenly interested in out-of-door sports. Following a spring of great activity, last summer his health broke down and he was a sufferer from cardio-vascular disturbances during the past six months. He seemed to convalesce slowly, and on the day before his death appeared to be rather better than usual, and particularly bright and cheerful. During the night of January the 18th he died in his sleep without pain or discomfort. Many of his American colleagues will greatly miss his cordial hospitality and enthusiasm for medicine when they visit Edinburgh or attend meetings of the many medical societies in Great Britain of which he was a member.

THE EARL OF CRAWFORD.

JAMES LUDOVIC LINDSAY, twenty-sixth Earl of Crawford, head of the house of Lindsay, and premier earl of Scotland, who died recently in London, was born at St. Germain-en-Laye, France on July 28, 1847. He was for many years president of the British Royal Astronomical Society and trustee of the British Museum, but was distinguished not only as an astronomer, a statesman, and an explorer, but also for his interest in medical science. During the last decade of the nineteenth century, the British Medical Association awarded him its gold medal for his eminent services in preventing the entrance of Asiatic cholera infection into England. He was especially interested in the study of cardiac disease, and was one of the earliest to introduce the use of the sphygmograph to record the heart-action.

Miscellany.

RECENT DEATHS.

DR. HENRY GOODWIN MACKAYE, who died on Feb. 2, at Newport, R. I., was born in New York in March, 1856. He received the degree of A.B. from Harvard College in 1878, and that of M.D. in 1885 from the Harvard Medical School. In 1886 he settled at Newport, where he continued active in the practise of his profession until his death. He was on the staff of the Newport Hospital, and was a member of the Newport Medical Society. He is survived by his widow and by three daughters.

SOCIETY NOTICES.

MT. SINAI HOSPITAL.—Clinical meeting at Sprague Hall, Boston Medical Library, Monday, February 17, 1913, at 8.15 p. m.

Dr. Walter M. Brickner, Adjunct Surgeon, Mt. Sinai Hospital, N. Y., will read a paper on "The Differential Diagnosis of Syphilis, Sarcoma, Carcinoma, Cyst and Osteomyelitis of the Long Bones."

Discussion by Drs. E. A. Codman, C. L. Scudder, F. J. Cotton, and J. D. Adams.

IRVING SOBOTKY, M.D., *Secretary.*
366 Commonwealth Avenue.

THE NEW ENGLAND HOSPITAL MEDICAL SOCIETY.—There will be a meeting of the New England Hospital Medical Society February 20, 1913, at 7.30 p. m., in the Kensington Building. Paper: "Medicine in Panama," Dr. Helen I. McGillicuddy.

Refreshments after the meeting.

MARGARET L. NOYES, *Secretary.*

BOSTON SOCIETY OF MEDICAL SCIENCES.—The next meeting will be held on Monday evening, Feb. 17, 1913, at the Harvard Medical School, in the Amphitheater of Building D, at 8.15 p. m.

The following papers will be presented:

Dr. E. E. Tyzzer: "Factors in the Production and Growth of Metastases of Tumors." (20 minutes.)

Dr. W. B. Cannon and Dr. Henry Lyman: "The Depressor Effect of Adrenalin." (20 minutes.)

Dr. J. H. Pratt: "Pancreatic Transplantations in the Spleen." (With lantern slides.) (15 minutes.)

Dr. Howard T. Karsner and Dr. A. E. Meyers: "Giant Cell Pneumonia." (15 minutes.)

For prompt publication, abstracts of these communications should be ready at the close of the meeting.

CLEAVELAND FLOYD, M.D., *Secretary.*

RECORD OF MORTALITY.

FOR THE WEEK ENDING SATURDAY, FEB. 1, 1913.

CITIES.	Reported deaths in each.	Deaths under five years.	CITIES.	Reported deaths in each.	Deaths under five years.
New York	—	—	Pittsfield	7	2
Chicago	—	—	Waltham	7	1
Philadelphia	—	—	Brookline	9	4
St. Louis	—	—	Chicopee	—	—
Baltimore	—	—	Gloucester	7	1
Cleveland	—	—	Medford	5	2
Buffalo	—	—	North Adams	8	2
Pittsburgh	—	—	Northampton	8	1
Cincinnati	—	—	Beverly	3	—
Milwaukee	—	—	Revere	3	—
Washington	—	—	Leominster	5	1
Providence	—	—	Attleboro	3	1
Boston	252	57	Westfield	7	2
Worcester	37	8	Peabody	—	—
Fall River	45	21	Melrose	3	—
Lowell	30	13	Woburn	5	1
Cambridge	38	13	Newburyport	4	—
New Bedford	38	16	Gardner	5	1
Lynn	31	7	Marlboro	—	—
Springfield	39	8	Clinton	6	3
Lawrence	—	—	Milford	—	—
Somerville	23	5	Adams	—	—
Holyoke	17	5	Framingham	—	—
Brockton	9	1	Weymouth	—	—
Malden	14	4	Watertown	5	1
Haverhill	19	6	Southbridge	1	—
Salem	19	8	Plymouth	1	—
Newton	12	4	Webster	—	—
Fitchburg	19	6	Methuen	—	—
Taunton	9	3	Wakefield	—	—
Everett	7	2	Arlington	3	—
Quincy	—	—	Greenfield	3	1
Chelsea	8	2	Winthrop	—	—

Original Articles.

EDICAL EDUCATION AND THE HARVARD MEDICAL SCHOOL.*

BY E. H. BRADFORD, M.D., BOSTON,

Dean of the Harvard Medical School.

For centuries there has been teaching in the idy of medicine in one of two ways: following ethods which may be defined as direct teach-g, and the academic method.

By the first of these the master of his art ains his pupil as in the apprentice system. his method is necessarily employed in a new untry, sparsely settled and remote from es-olished educational centers. The practice of edicine was taught in this way in the Ameri-n colonies, and produced in this country many ysicians of high character, whom we justly gard as the Fathers of American Medicine. few of them enjoyed educational advantages courses taken in Edinburgh, but they were reality home products, nursing perhaps in eir minds ideals of what the Science of Medi-ne should be, but acquiring knowledge in the de school of experience, guided at first in the ice of the busy practitioners of their neigh-rhood.

The passer today on the busiest of Boston reets, where formerly stood the famous Old rner Book Store, can exercise his imagination picturing to his mind the young medical sistants of the great Dr. Warren of the rly days, compounding medicines, bandag-g wounds, setting bones and following the od doctor with whom they "read medicine" his daily busy rounds.

The custom of medical students entering the ice of leading practitioners prevailed in some rts of this country well into the latter part the past century. Physicians today are in tive practice whose first step in the study of edicine was to register with a prominent phy-ian, their "preceptor," paying in some in-ances a fee for the privilege.

The advantage of the method of direct teach-g lies in the fact that it is direct, and that it tempts to meet existing medical needs. Fan-ful theories and fine spun speculations had tle chance of development among doctors hose work consisted in relieving the suffering a hard working people. Human nature was served at close range by men who were trained the accurate observation of symptoms in their lation to the development of disorders and the tural course of diseases.

The value of the method of direct teaching seen today in many places. At Rochester, innesota, Dr. Mayo and his brother are show-g to the world an admirable example of direct aching. Those trained by them can begin their ork as masters of their art. Young physicians who were fortunate enough to have assisted the late Dr. Maurice Richardson in the many years of his surgical activity throughout New England, were trained in the best of schools of direct teaching in surgery; this added to their medical school studies and hospital work made them proficients in their calling.

The apprentice system still survives in a most valuable form in hospital training of assistants, and this should be utilized as a definite part of the educational plan of every properly organized medical school.

In England, early the land of individual effort, medical education began with direct teaching. The universities, until comparatively recently, treated the art of medicine as affording few subjects worthy of the study of a cultivated mind. The Royal College of Surgeons was an off-shoot of the Guild of Barber Surgeons. Although the university later claimed the right to grant medical degrees, the English medical schools were to a greater or lesser degree proprietary schools, outgrowths of the hospital.

The apprentice system in medicine, however, fails from the very complexity of its undertakings. No one would think of attempting to teach all of medicine today; no man can even know one branch of medical science exhaustively. The great practitioners, as their fields of usefulness enlarged, gave up undertaking to teach medical truths to individual students; group teaching followed, often conducted by the less busy men, would-be masters for personal advertisement or gain, and the proprietary school developed with its commercialism and superficiality. A condition of affairs grew up manifestly injurious, and the medical world finally turned to the universities in the hope that they might establish higher ideals, more thorough and broader methods. The multiplication of cheap medical schools became a national disgrace and the horde of untrained medical doctors a calamity.

In the dawn of civilization the development of the science and art of healing can be traced as coming from the Chaldean, Egyptian and Greek temples and shrines, to which sufferers were brought in the hope of divine aid. The priests and attendants who accepted the offerings performed the rites, watched the sick and the dying, and those who were most observant and humane among them studied the effect of such measures of relief as were attempted. The code of Hammurabi, the Egyptian papyri, the Book of Leviticus show in many instances the accuracy of observation and the soundness of reasoning of these primitive teachers. But the legacy from the Greek temples and the philosophy of Aristotle, who is supposed to have had some knowledge of medicine, with the writings of Galen and Hippocrates, are of a much more lasting value. For centuries all medical teaching had for its foundation principles. not direct observation, but instead a knowledge of the recorded theories and opinions of the ancients and

* Presented at a meeting on Dec. 7, 1912, of the Aesculapian ub of Boston.

the later teachers in the few great schools of medicine. Without the sanction of such authorities no changes in medicine and practice could be permitted. Even when Harvey ventured to publish his great discovery, the result of careful observation, he prefaced his statement with a disclaimer of any attempt on his part to subvert the doctrines of the early great teachers of medicine.

It is perhaps difficult for us today to realize the benefit which in the middle ages must have come to the world from the great schools of medicine in Greece, Alexandria, Italy, and France. Our knowledge and experience today enable us to comprehend that, like the dogmatism and bigotry of theology, crushing out the development of true religious thought, the medical dogmatic delayed progress in medical studies for centuries. But we forget that it was in these schools that true zeal in the study of medicine was promoted, and the foundation of a science laid which has become so important in human affairs today. Even a superficial acquaintance with the medicine of China, Thibet and Japan of forty years ago, countries uninfluenced by the teaching of the great European schools of medicine, is sufficient to suggest to us the enormous debt we owe to the academic tradition in the study of medicine.

But the academic tradition may degenerate into bigotry and pedantry; the zeal of the scholar may crush; the lamp of learning may smoke and need trimming. History teaches that the surgeons of the black robe looked down upon Ambrose Paré. Molière has shown us in his Dr. Diaphoirus a type which we know must have been true to life. Pedagogic authority ruled, and in Germany even as late as the middle of the past century, all instruction in medicine was given in Latin. It is not strange that the profession of medicine was often ridiculed and mistrusted, for its dogmatic theorizing, unchecked by precision in thought and observation.

As a reaction against this pedantry the medical schools of Continental Europe finally sought academic freedom, and demanded systematic direct teaching in clinic and laboratory.

As every well-organized medical school today attempts to combine the advantages of the direct method of teaching with those coming from the high academic standards of a university in its curriculum, degrees and honors, those interested in the welfare of the Harvard Medical School can justly ask that a statement be made to them describing the present condition of the Harvard Medical School, especially in its relation to the important question of medical education. The members of the Aesculapian Club, which has always been active in its aid to the Harvard Medical School, unquestionably deserve to be kept in close touch with its affairs.

Laboratory research in a medical school is useful, not only in advancing medical science, but also as a stimulus preventing the teaching force from becoming mechanical. Laboratories should be manned by well-trained, zealous o servers, producing work of value, the test of t value of such laboratories being found in the output. Judged by every standard, the labor tories of the Harvard Medical School will found to be in a most satisfactory conditic The amount of the work is large, and thou much of it is of a character to be appreciat only by experts, some of the more recent pub cations have aroused much general interest. T fact that the "stable fly" is the host in pol myelitis, demonstrated by Dr. Rosenau, is o of great value, as is also the pathological re tion of the germ of pertussis to the cilia of t trachea and bronchi, recently shown by Dr. M lory. The former points out a new path for attempt to suppress poliomyelitis, and the latt to the direction of therapeutic measures for t cure of an obstinate and distressing malad Both are likely to prove of the greatest value preventive medicine and in the treatment disease.

Of great importance also is the recent work Dr. Folin, whose new methods for clinical qua titative determination of nitrogen waste pro ucts in small amounts of blood give to t clinician much needed precision in the study a treatment of nutritional disorders. The die tian has now, to guide him, a test as precise the thermometer in the observation of fever, a even of more importance in regulating tre ment. The recent research work of Dr. W bach in the sleeping sickness of Central Afri deserves mention, not only for itself, but also an illustration of the activities of the School.

From this brief statement of a few only of t more recent publications of its laboratories, it evident that the Harvard Medical School c be justly proud of its laboratory research wor ers, who, it may be added, are also excellent a active teachers, both for undergraduate a for research workers.

Criticism of the School has been frequent heard, made chiefly by the older graduates, the effect that too much time is given to labor tory teaching. Such an opinion, however, w not bear the test of close examination of the cu riculum, in view of the great and growing d mand in the modern practice of medicine f thorough familiarity with methods in bacte ology, pathology, and chemistry, a familiari only to be acquired by direct instruction a practical work in well-directed laboratories.

But it is not only in laboratories that teac ing and research should be conducted. Mec eine is to be taught in hospital clinics, where r search is possible through the records of car fully trained observers. The earlier physicia in this country necessarily studied their patien in their daily rounds of country practice, b today the large hospitals form the great schoo in medicine. An understanding of this fa leads to a better comprehension of the tr function of a great public hospital. Original a hospital was a place of shelter for the need

it became an institution where the home-ick were cared for. Today the function of spital is a much more important one. It d serve also as a means of protecting a com-ty from disease, educating the inhabitants e rational care of disease.

this purpose there should be a close alli-between the hospital and a well equipped cal school. Few hospitals keep in their em-an expert epidemiological investigator and rimenter, but the advice of such an expert d be at once imperative if an unusual dis-appears. The medical school also needs the ital. The expert who can check or prevent ravages of a disease in a guinea-pig should have the opportunity to organize the suc-ul application of the best methods in the of man.

ie need of mutual coöperation between the or and the scientist is recognized generally; me places the medical school has its hos-, and in others the hospital its medical ol. In Europe the government owns and ts both, but in our community, as the direc-and administration of a medical school rs from that of a hospital, requiring differ-talents, an economy of effort is secured ugh the plan of an agreement between ol and hospital, based upon an understand-and recognition of their respective mutual ests.

nder such a plan the medical school does not e over'' the hospital, nor does it interfere any hospital rules or arrangements. The of a hospital department should be engaged at he can give the greater part of his time energy to clinical study not only of his s but of disease; he should also be aided by uately paid assistants, who in the early s of practice desire to obtain the advantages spital work. Such hospital chiefs perform er hospital service if they are trained teach-nd under the direction of a medical faculty h stimulates and demands active investiga-of disease and careful study of cases under criticism of well trained student followers of colleagues, fellow teachers in a univer-zealous for high standards.

he connection of the Medical School with vard University is of advantage to the for-in strengthening its organization as well as dding to it a valuable academic spirit. It also aided the School in making satisfactory ngements with hospital authorities.

ospitals owned and administered by medical ols tax the resources and administrative ities of the school. Local hospitals have, as a , only a local reputation and command for r staff local talent. A satisfactory combina-is made when the medical school is relieved the responsibility of administering to the ls of each patient, while the hospital can se-e a wide field in the selection of its medical surgical staff if it offers the added distinc-of a prominent position in the medical fac-ulty of Harvard University. From alliances and agreements of this character, the School is now able to offer to its students excellent opportunities for study (clinical as well as laboratory), and for a curriculum meeting all possible requirements for undergraduate and post-graduate work.

Suggestions as to change in the present requirements for admission to the Harvard Medical School have been freely made by two different groups of critics of the School. One of these groups, loyally interested in maintaining broad and high standards in the academic department of Harvard University, believes that it is the duty of our larger universities to preserve at all cost the study of humanities and that culture which is above the utilitarianism, already it is thought too dominant in our land. These thinkers fear that the special schools of the University, training for bread-winning occupations, will fall away from the high standards of philosophic thought which should animate all students of a great university.

It is not difficult to understand these arguments. The Harvard Law School, one of the best in the English speaking world, does not regard merely the educational needs of a young aspirant for a cheap legal practice; it seeks to train in the spirit of the jurist. The Theological School, in the same way, does not attempt to teach those desiring to learn only arguments supporting a dogma, but those searching for truth as far as the human mind can reach in theological thought. It is unmindful of the numbers of its pupils and seeks to provide for the elect in thought. The Schools of Science and Business both wish to devote their resources to the training of those who will be fitted for the larger undertakings in engineering. Why should not the Medical School devote its energies and resources chiefly to the training of the future great leaders in medical sciences?

Prompted by this proper desire for high standards and recognizing the need in America of improvement in medical education, the Harvard medical faculty decided to establish the Bachelor's Degree as a preliminary requirement in the study of medicine.

Objections to this have come both from those who regard the standard as not furnishing sufficient preliminary training and also from those who consider this standard of entrance unnecessary and absurd.

To the first group of these critics it would seem advisable that the A.B. degree, often obtained only through energetic coaching, should be reinforced by a year of training in chemistry, physics and biology. Otherwise, many of the holders of simple A.B. degrees will, from their imperfect training, be incapable of receiving the benefit from instruction, and remain a drag upon the classes of beginning medical students already well trained in these branches. Admitting the justice of this demand, the admission standards of the Harvard Medical School now

require in addition to the A.B. degree, evidence of a practical knowledge in organic chemistry. Are courses in physics and biology also needed as a preliminary training?

To another group of critics it appears that the present admission requirements of the Harvard Medical School keep out from the School a large number of excellent men who, mentally thoroughly qualified for the practice of medicine and capable of doing creditable work, are deprived of the advantages of instruction at the Harvard Medical School, and obliged to study elsewhere, where less strict preliminary educational standards are required.

The justice of the criticisms urged is readily admitted, but it is also evident that it is impossible to devise requirements for medical school education which will be entirely satisfactory when so divergent views are held. Since the establishment of an A.B. requirement by a few of the prominent medical schools of the country several years ago, the cause of the improvement of medical education in America has been energetically and ably espoused by the many interested in the subject in different parts of the country. The Carnegie Foundation, in its reports, also has attempted to show the proper requirements of a thorough medical education, and it is now possible to examine the problem with a better knowledge of the subject and of the situation confronting medical educators in this country.

Those who fear that the Medical School will ever place its standards lower than is befitting an important faculty of Harvard University are not familiar with the history of the School and its relation to the development of medical science in our community. In no part of the University is the record of scholarly zeal more manifest. The great collection of the Warren Museum embodies a century of enthusiastic devotion, and the great hall may well seem a shrine of a temple of the healing art watched over by the memories of remarkable men who devoted their lives to the relief of the sufferings of their fellowmen. It is difficult to escape the influence of such a tradition. There may be a danger from an excess of conservation, but no fear that the legacy of high ideals will be forgotten.

It should not be overlooked that medical education must be thorough. The law student in the early days of his practice can consult authorities before acting, but the young medical practitioner needs at times to meet emergencies which demand immediate action, with the responsibility of life and death, and for this the medical educators of today recognize that the medical student needs, for the best training, a year of hospital service with its guided experience.

The Harvard Medical School will soon be in a position to offer valuable hospital work to every graduate and to urge his compliance with a requirement of such service. If such an arrangement is made, the School will be able to offer a complete and excellent system of medical education, but with the disadvantage of adding another year to the period already too long before bread-winning in the profession is possible to the medical student.

That an A.B. graduate of our University at the age of 21 to 22 is to be required to devote from five to six years to medical studies before he begins his life work is a tax which may tend to turn a man of energy to other fields of activity. Would not the law, theologic and scientific schools be depleted if such a prohibitive requirement were presented to every prospective student in the respective fields of activity? Is it just that the study of medicine, necessarily most exacting, should be unduly handicapped? But how the time tax in medical education is to be reduced is a serious question, difficult of solution.

To any one who has enjoyed the privilege of four years' study in one of our universities, there is no doubt of the advantages derived from these years. While it is difficult to define what is acquired, certainly more is learned than the mere proficiency to pass the examinations for a bachelor's degree. The saying of the famous President Kirkland, that it was a benefit to a student to rub his shoulders for four years against the walls of University Hall, expresses a truth, even if with exaggeration. But although such educational advantages are exceedingly desirable, two added academic years demand an additional pecuniary tax, often met with great difficulty. If this is required of all medical students, the profession of medicine will be deprived of the talent of many young men of energy and ambition. If this requirement is maintained only by medical schools presenting the best educational opportunities, many will, if desiring medical study, be forced to enter less well equipped schools. Without doubt, our best medical schools should admit any young man of ability, provided he is mentally sufficiently trained to be taught in the curriculum. The School must have admission requirements. The dullards should be strained out and the men of energetic promise passed. It is to be hoped that the recent changes in the examination system introduced in the Harvard Medical School will serve to help in the matter of preliminary education and admission requirements. This new system of medicine has already been fully described and further details are unnecessary here. In brief it may be said that the examinations are designed to abolish what has been termed the cellular system, by which all that is required of a student is that he shall pass the examination in each branch which satisfies the instructor in that branch. Under the new system he is not merely a proficient in note taking or in the study of notes taken by others of the *ipsisima verba* of instructors, men who are often master only by title. They may be teachers without being scientists, or scientists and not teachers, or even merely pedants. Un-

der the new system it is hoped a better test of the student's actual knowledge will be established and more elasticity be permitted in our entrance requirements than before the improved system of examinations was introduced. It will be extremely difficult for an improperly trained student or one with an inadequate amount of mental breadth to be passed by his instructors in every branch and then also in a searching general examination of the whole field of medical science and practice, conducted by a selected board of educators.

The problems confronting the medical educator today are many and difficult, but they are carefully studied. Medical schools of great excellence are established in many of our educational centers, and thoughtful and energetic educators are striving to direct public opinion that the demand for a high standard in medical education will in time be imperative. The purpose of those entrusted with the direction of the Harvard Medical School should be definite; to utilize its resources so that it becomes foremost among equals, and that the Harvard doctor's degree in Medicine, as in Arts, Philosophy, Theology, should be the hall mark of sterling worth. Associations like the Aesculapian Club, and meetings like the one this evening warrant the belief that our Medical School enjoys the loyal support of all its graduates and of the well wishes of Harvard University.

THE PROBLEM OF GRADUATE MEDICAL INSTRUCTION.*

BY HORACE D. ARNOLD, M.D., BOSTON.

Dean of the Graduate School of Medicine of Harvard University.

The essential basis for the existence of graduate medical instruction is the wide extent of medical knowledge. No single mind can master this whole subject, in all its essential details, in a life-time. In the four years of the medical course, no student, however brilliant, however well prepared, however assiduous, can attain more than a broad foundation in the essentials of medical science. On this foundation further experience and study will enable him to erect a structure,—his own personal attainments in the realm of medicine. Every live man erects such a structure. It may cover a large or a small part of the foundation; it may be high or low, imposing or modest; it may be well or poorly constructed; it may be serviceable for the public or the reverse;—but it is never a complete structure and it can always be improved. The function of the graduate school is to help physicians to improve their medical knowledge and to enable them to attain better results than they can by their own unaided efforts.

The extent to which the graduate medical school may carry its advanced instruction is limited only by its equipment and the ability of its teachers. Even the most experienced physicians and the most highly trained scientists may profit by such opportunities, for no one has mastered so much of medical knowledge that there are not many others capable of teaching him many useful things.

From this point of view it is clear that instruction in the methods of research and opportunities for original investigation are not only legitimate parts of graduate medical teaching, but that the graduate medical school which fails to develop this part of its work falls far short of our idea of what such an institution should be. Abundant resources and the highest type of teachers are needed for success in this direction, and the graduate school, even more than the undergraduate medical school, needs the resources and the standards of a strong university back of it. It should properly be a department of a university.

There is, then, no limit to the legitimate aspirations of a graduate medical school in the matter of advanced instruction. Where should the limit be established in the other direction? What should be the minimum requirements for admission? The answer will depend upon our conception of what the graduate school should attempt.

If, as it should be, the graduate medical school is a department of a university, the question at once arises whether it should not establish high admission requirements, commensurate with the requirements for admission to other graduate departments. From an academic point of view this would seem to be the logical position for a university to take. Having established a standard of under-graduate medical instruction in the course for the degree of M.D., the university would naturally adopt this standard, or its equivalent, as a requirement for admission to a school giving still more advanced training. The maintenance of university standards would seem, at first sight, to demand this solution of the problem; yet Harvard University, which is very solicitous about maintaining high standards, is not establishing any such requirements for admission to its Graduate School of Medicine.

This apparent departure from its ordinary standards demands an explanation, and the explanation is not to be found in any laxity of standards, for such laxity does not exist. The explanation lies first in the fact that a course in the graduate medical school does not at present lead to any degree, and secondly in the recognition of a public duty. If a higher medical degree than the M.D. were to be granted for work in the Graduate School of Medicine, Harvard or any university, should require a preliminary training that is equivalent to its requirements for the M.D. degree, but the problem of such higher or special degrees in medicine is as yet unsettled, and Harvard has wisely postponed the consideration of this important

* Read before the Aesculapian Club of Boston on Dec. 7, 1912.

problem. High admission requirements are, therefore, not demanded in order to maintain definite standards.

Such being the case, the university may organize its graduate medical school so as to best meet the needs of the medical profession and to be of the greatest benefit to the public. In this connection it may be noted that our universities have awakened to a new sense of public duty. Many of them have co-operated with public authorities in the solution of problems affecting the public welfare, and many, even of our highest universities, are showing great liberality in offering instruction to those who may profit by it, irrespective of fixed requirements as to preliminary education. Perhaps the most marked instance of this is the instruction, more or less freely open to the public, in the form of "Extension Courses."

Consideration for the public welfare is, therefore, taken as the deciding factor in establishing admission requirements to a graduate medical school. The cardinal principle is that any person who is legally qualified to practice medicine should be given an opportunity to improve his medical knowledge. And the question may be asked: Who needs instruction more than the more poorly prepared practitioners of medicine who are allowed to treat the public?

The question of admission to a graduate medical school is therefore one of practical needs rather than of ideals. The low standards of medical education in America and the loose registration laws in many of the states are responsible for the fact that there are many poorly prepared practitioners of medicine who have legally as much right to practise on the public as the best trained physicians. Many of these men either were not able to attend the best medical schools or did not appreciate the importance of high standards of medicial education. Many are conscientious in their desire to improve their medical knowledge that they may be able to serve the public better. Surely such men should be encouraged and no greater service can be done the public than to give such men the best opportunities for improvement. So it comes about that a graduate medical school should be open to licensed practitioners irrespective of the kind or amount of medical instruction they may have received.

On this basis the graduate medical school should provide elementary courses for poorly trained practitioners as well as the advanced courses before mentioned. It is clear that while poorly trained men may be admitted to the school they should be restricted to those courses which they are qualified to pursue. Success in post-graduate teaching will depend largely on instruction to small groups where the student may receive individual attention. The instruction should be adapted as far as possible to the special needs of each student, yet the rights of the majority of such a group must take precedence over the needs of any individual. Therefore, a student should not be allowed in a course if he is a hindrance to the proper teaching of the rest of the group.

While then it is not desirable to fix a definite minimum educational requirement for admission to the school, it is necessary to have such a requirement for each individual course. These requirements will vary with the different courses and may vary from time to time in the same course within certain limits according to the qualifications of the group of students taking the course. The authorities of the graduate medical school must have full power to decide whether or not a student may pursue a given course, and admission to the school should carry with it only the privilege of attending such courses as, in the opinion of the authorities, the student is qualified to take.

This absence of fixed standards in the graduate medical school is in striking contrast with the conditions in the undergraduate school. The fundamental reason for this difference lies in the fact that the medical school proper confers the degree of M.D. This implies definite requirements as to previous education, a course of four years and a fixed curriculum. The student receives a definite fundamental training in the medical sciences and an experience which should enable him to properly care for the sick. There is a definite minimum standard to which all must attain who would have the degree of M.D. To the extent that the graduate school grants certificates or later may confer degrees, equally rigid requirements should be enforced.

In another way the graduate medical school differs widely from the undergraduate school. In the latter the student has no choice as to his subjects of study or the length of time he will spend on each. The Faculty determines these matters when it fixes the curriculum. This statement is essentially true even in those schools where, during a part or the whole of the fourth year, the students are allowed to exercise a choice from a number of "elective" subjects. The extent to which this may be wisely permitted may be open to question, and it will vary with the previous training and the ability of the students; but there can be no question but that a student should receive a broad general training in the fundamentals of medicine before he is granted this privilege. He should first receive in each required subject such training as the Faculty considers essential for the degree of M.D. In other words, except in the matter of time, he should have fulfilled the essential requirements for his degree before he exercises a choice as to his studies.

If, as a result of better education, of better training, and greater ability, he is able to attain in less than four years that broad medical education that the medical degree should represent, there is no objection to allowing him to choose the subjects on which he will spend the balance of the time required for the degree. But any school which allows such choice earlier will be

in danger of turning out graduates who are unequally developed—strong in some directions and correspondingly weak in others that should be essential to a well-rounded medical education. At the time, then, when a medical student should be allowed a choice in his stulies, he already is a graduate in medicine, from the point of view of acquired knowledge, and in his "elective" work he is really pursuing graduate studies which are administered by the undergraduate school. So the general statement remains true that undergraduate medical students are not allowed to choose their subjects.

In the graduate medical school the conditions are entirely different. Here the student is allowed a free choice both as to his studies and as to the length of time he will pursue them. It is assumed that the graduate knows in what direction he wishes to develop his knowledge further or he has found by experience what his weak points are and wishes to strengthen them. In either case he is entitled to make his own choice of studies. The length of his stay at the school will depend in part upon the course he wishes to pursue but will often be determined by the length of time he can remain away from his professional work. Furthermore, the time when he can best get away from his professional work will vary. So the physician must not only be allowed to decide the length of time he will spend on a given subject, but he must be allowed to choose the time of year when he will pursue his studies.

As far as possible, then, the graduate medical school should aim to provide instruction in important subjects throughout the entire year. In the case of many subjects in the undergraduate curriculum, it is enough if instruction is provided once a year for a specified number of weeks or months, but such a plan will not adequately meet the reasonable demands that will be made on the graduate school. The physician should be able to take a single exercise of an hour or to pursue a course of a year or more; and he should be able to take any subject he is qualified for, as far as possible, at any time.

Notwithstanding these fundamental differences, it is desirable and practicable that the graduate medical school and the medical school proper should constitute but one educational institution. The common use of the same equipment and the same teachers not only prevents needless duplication but may enable the combined schools to secure better equipment and better teachers than either could alone.

In like manner the needless duplication of courses in the two schools should be avoided, but the problem of how far graduates and undergraduates should be admitted to the same course is a difficult one to solve. To a limited extent this can be done without detriment to either class of students, and to the extent that this holds true such a combination should be made for the sake of economy of resources and of effort. The extent to which this can be carried advantageously should be decided by practical experience rather than by theoretical considerations.

The courses which are used jointly should be organized primarily either for undergraduates or for graduates. The interests of the students for whom the course is primarily intended must be paramount and other students should be admitted only to such extent as will not interfere with such interests.

Such a combination of students is especially desirable in the laboratory subjects. The problem here depends essentially on the number of instructors available and this may be adjusted to the number of students. It will often be desirable that the graduate students should have desks separated from the undergraduates and that special assistants should be assigned to teach them. Under these conditions they cannot interfere with the regular course and the graduates are likely to get better and more thorough instruction when the energies of the whole department are given to the course than when a course is organized for a few students only. Therefore in the laboratory subjects the combination of the two classes of students should be encouraged as far as possible.

In the clinical courses the conditions are sufficiently different to demand that we proceed very cautiously. Graduate students should as a rule be excluded from these undergraduate courses in which the instruction is given to small sections. Usually such sections are already too crowded with the regular students. Furthermore, unless a graduate has had almost exactly the same training as the regular students in a section he must either interfere with the regular work or he will himself get little profit from the course.

The limitation of clinical material in a given subject, at the time when undergraduate instruction is being given, will often be the determining factor in permitting a graduate to join an undergraduate course. Even here the rights of the undergraduates must not be sacrificed, and the graduate may have to be content with a course that only in part answers his individual needs. If, however, the graduate can leave his practice only at this particular time, it is better to take what he can get. It profits him not at all that the school, in some other month, when the clinical material is not used for the regular students, can give him a course that is better adapted to his special needs,—for he cannot take it.

It is in some ways fortunate that more physicians are able to get away in the summer months than at other seasons of the year for this is the time when the undergraduate school has a vacation and does not need the material. At the time of the greatest demand upon the graduate school all the resources of the institution are available for its use.

Interesting possibilities arise if we stop to enquire why the undergraduate medical school

has so long a vacation. The best schools give but eight months of actual instruction, although the school year may nominally cover nearly nine calendar months. Are four months of rest from medical studies essential each year for the well-being of the medical student? The answer is found in the fact that many students pursue medical studies during at least a part of their vacation without detriment. The duration of the school year is partly a matter of tradition and is determined in part by a consideration of the convenience of the teachers.

We have seen that courses of the grade of the undergraduate courses are desirable in the graduate medical school for many graduates. Why should not such courses be open to the undergraduate students during vacation? It has long been the custom in medical schools to offer such courses for the regular students who have failed to pass in any subject. Why should not such courses be open also for the abler students who have not failed? And why should not such students be allowed to count such courses toward their degree, if these courses are equal in thoroughness and in duration to the corresponding courses of the curriculum? In other words, why shouldn't students during the summer vacation be allowed to anticipate their future work, if prepared for it, as well as to make up back work?

There is, of course, a practical limit to such privileges. A student should not work continuously the year round. But it would seem reasonable to allow a student to anticipate at least four months of his medical course during the three summer vacations. This would make it possible to shorten the medical course to practically three and a half years, without making any sacrifice in the standards of education. Since in many good colleges the A.B. degree may be obtained in three years by a bright student, it would be possible for such a student, under this plan, to obtain both his A.B. and M.D. degrees in six and a half years from the preparatory school, without counting any time double for these degrees. This is a close approximation to the six year "combined" course, to which many educational authorities object.

There has been much criticism of the length of time needed for a good medical education. Here is a feasible plan by which it may be materially shortened without sacrifice of standards. This matter assumes greater importance when we consider that a very large proportion of our graduates voluntarily add at least a year of hospital work to their medical education, and that there is now a strong movement toward requiring such an extra hospital year as a requirement for the degree of M.D.

One of the most important problems of the graduate medical school at present is that of granting certificates; and one of the most difficult problems of the future will be that of granting special degrees.

Hitherto certificates have been granted by "post-graduate" medical schools in a somewhat indiscriminate way. Sometimes they have not necessarily meant anything more than that the student has paid for a certain course,—with perhaps an extra charge for the certificate itself. Neither the attendance nor the character of the work in a course has been, as a rule, checked with sufficient care to give the certificate the meaning it should have. This criticism unfortunately applies to some of the best schools as well as to the poorer ones.

This condition of affairs has arisen in part because most of the "post-graduate" schools have been proprietary schools and have engaged in a commercial competition for students, and in part because a large number of those students want the certificates to hang in their offices for the purpose of impressing their patients. The number of such students, who care more for the possession of the certificate than for the quality of the work, is sufficiently large, so that the proprietary schools have feared to establish reasonable standards for certificates, even though the best of them clearly recognize the evils attendant on the present loose methods.

In considering this matter we should recognize that every student in the graduate medical school should be entitled, if he desires it, to an official statement of the work which he has performed. He is just as much entitled to such a statement as he is to a receipt for any money he may have paid to the school. There can be no objection to having such a document state the facts as to his attendance at any course, as to the character of his work, and as to any mark he may have attained in any examination. The statement of such facts, however, does not constitute a certificate, in the sense that we are using the term, although such facts would naturally be incorporated in any certificate that might be issued.

The distinguishing feature about a certificate is its form,—not the substance of the statements it contains. A special form might be adopted by a school for official statements of the character mentioned above, yet it would not properly be called a certificate. It is only when the statement takes a form similar to a diploma that it becomes a certificate in the sense that we are using the word. Such a certificate, or diploma, must have the character of an official document. It usually has the name of the school or university so displayed as to readily attract attention, and it is usually adorned with the college seal. Its form is made attractive for display, and it is frequenty framed and hung upon the wall or otherwise displayed so as to attract attention.

Such a certificate from an institution of learning is naturally supposed to confer some distinction upon its possessor, and to indicate that the institution has set its seal of approval upon that individual. One of the chief objections to certificates which are loosely issued is the lack of discrimination on the part of the public. If the

public carefully read such a document and considered just what it implies, there would be little objection to such certificates, if they stated actual facts clearly. But the public is prone to see only the name of the college and its seal and to attach to the document practically the same importance that it does to a degree. Unscrupulous physicians take advantage of this to convey to the public a false idea of their attainments. Herein lies the danger.

On the other hand, if a student in the graduate medical school has attained special skill in any subject by a sufficiently thorough course, if his education and ability are such that the university may properly set its seal of approval upon him, it is not only proper to issue a certificate to that effect, but there is no more objection to the display of such a certificate than there is to a similar use of any degree which he may have won.

It is by its regulations about certificates that a graduate medical school establishes its standards. Undoubtedly these regulations will vary somewhat in different institutions, just as the requirements for a degree vary in different medical schools. In reality a certificate is a degree on a small scale, and an institution which is solicitous about its reputation should not issue such a certificate to a person to whom it would not be willing to issue a degree after a sufficiently prolonged course of study. The requirement as to the length of the course for a certificate should be sufficient for the student to acquire something of the spirit and standards of the university. The course during that time should be on one subject or on subjects sufficiently correlated to make the course a consistent entity. Such a course should receive the approval of the authorities of the school, the character of the student's work should be satisfactory, and the amount of knowledge he has acquired should be tested by a suitable examination. Finally the student's previous education and experience should be taken into account, in addition to the work done at the school.

The Faculty of Medicine at the Harvard Medical School has established such requirements for certificates from the Graduate School of Medicine, and has fixed the minimum time for such a certificate at four months of work occupying the whole day.

A few words only need be said at present on the question of having graduate medical schools grant degrees. It is a large and very important subject and demands careful consideration. Harvard University has postponed the consideration of this matter, and I can only give my personal views.

I believe that degrees should ultimately be granted by the Graduate School of Medicine and that they should be of a higher grade than the degree of M.D., bearing to that degree something of the relation that the degree of A.M. or of Ph.D. bears to the degree of A.B They should be granted only after a systematic course of at least eight months' duration, which has been approved by the school authorities. It would seem reasonable that thorough scientific work by properly qualified students for that length of time in a course approved by the school authorities should receive the recognition of an appropriate degree.

All that has been said about standards in connection with certificates applies with even greater significance to such degrees. The question of previous education and experience especially requires careful consideration. Such degrees in certain well-recognized special lines from universities of high standing might do much good in establishing standards for specialists and might lessen the recognized evil of having a physician pass himself off on the public as a specialist in a certain line on the flimsy basis that he has given a few weeks to the study of this subject. In that time he can only get a smattering of knowledge in his specialty, he is not qualified to properly treat his patients as a specialist, and he brings discredit on the profession by pretending to do what he is not capable of doing.

The precedent for such degrees has already been established in the degree of Dr.P.H., and I believe that the wisdom of establishing similar degrees in other departments of medical knowledge will soon become apparent. On the other hand the need of definite standards among institutions of learning in connection with such degrees is emphasized by the existing differences in the requirements for the degree of Dr.P.H. in different institutions. At Harvard the requirements are high and a course of eight months is required, whereas at some institutions this degree is granted for a shorter and less exacting course. Reasonable uniformity in the requirements for such a degree in different institutions is very desirable.

It is recognized by every one who is familiar with the situation that graduate medical instruction is becoming an important factor in medical education. It carries with it great possibilities for good to the community. In it we may find a remedy for the existing variable and often low standards of medical education in this country. However much those standards may be raised and unified, they will affect only the future medical students and physicians. It is only through graduate medical schools that it is practicable to raise the standard of the physicians who are already in practice.

Hitherto this important branch of medical education has received little serious consideration. Harvard is the first university in this country to place graduate medical instruction on a university basis, and to recognize its importance by organizing it as a separate department of the university. This example should be followed elsewhere. The "post-graduate" medical schools are, with a few exceptions, proprietary schools. A few are doing good work, with high aims. Many, however, are mere com-

mercial ventures organized by groups of physicians largely for their own benefit. Many are so poorly equipped or so poorly manned as to have little real value.

The better schools of this class like the proprietary medical schools should seek real affiliation with strong universities. The poorer ones, like the poorer medical schools should go out of existence.

It should be the duty of the medical profession to correct the recognized evils of this form of medical education, and there is no better means of securing this result than through the organization of the American Medical Association, which has done so much to correct the evils that existed in undergraduate medical teaching. In the case of graduate medical teaching, publicity and the enlightenment of the public as to standards will prove equally effective means of correcting existing evils.

TRANSFUSION IN THE TREATMENT OF RUPTURED TUBAL PREGNANCY.*

BY ROBERT M. GREEN, M.D., BOSTON.

(From the Gynecological Clinic of the Boston City Hospital.)

THE direct transfusion of human blood, conceived in theory several centuries ago, and subsequently attempted from time to time without success, was first made a practicable surgical possibility in 1906 by the scientific genius of Crile. Since then, improvements in the technic of the operation have been made by Elsberg, Vincent, and others; and today direct blood transfusion stands as a recognized therapeutic procedure of great beneficence and value.

The field of indications for transfusion has been steadily widened until it includes a large variety of conditions characterized by diminution in the quantity or change in the quality and constituents of the circulating blood. In some of these conditions, the benefit of transfusion is transient or doubtful. In none is it more strikingly definite, curative and life-saving than in the acute anemia of traumatic hemorrhage, from any cause, and in the imperfectly understood group of diseases, collectively classified under the term *hemorrhagica neonatorum*.

Of the conditions giving rise to acute internal concealed hemorrhage, the rupture of a tubal pregnancy affords one of the most dramatic and serious pictures of surgical emergency. Though not frequent, it is unhappily not rare, and occurs with a considerable percentage of regularity in the clinical experience of general as well as of special practitioners. Though not often immediately fatal, it generally becomes so if not promptly treated by surgery; and though nature may occasionally effect a cure by the organization of a pelvic hematocele, rarely by the continuance of abdominal pregnancy and formation of a lithopedion, the after-results of these terminations are likely to be inconvenient, serious or lethal. Even prompt surgical intervention is by no means always effectual in saving life; for the shock of laparotomy, superadded to that of hemorrhage, often constitutes the *coup de grâce* to a patient already *in extremis*. For these reasons, any procedure which shall minimize the shock of operation and restore, in whole or in part, the volume of blood lost, is urgently to be desired in the effort to reduce the mortality of this grave abdominal emergency.

The employment of direct blood transfusion in the treatment of ruptured tubal pregnancy immediately suggests itself to anyone familiar with the conditions. As a matter of fact, I have been able to find in the literature very little reference to the use of transfusion in the immediate treatment of ruptured tubal pregnancy.

Anderson,[1] in the discussion of a paper by Wilkinson, mentions having examined the blood of a patient with secondary anemia following a ruptured ectopic pregnancy, in whom "transfusion was followed by very happy results."

Soresi,[2] in an article on "Clinical Indications for Direct Transfusion of Blood," mentions two ruptured ectopic pregnancies in a list of twenty-five cases in which he has performed transfusion, but gives no further details, other than to state that both patients were helped by the transfusion, and recovered.

Doubtless the procedure has been much more extensively employed in ruptured tubal pregnancy than these references would seem to indicate, but the cases have not happened to come to my notice, or have not been reported. Obviously, Anderson's case was one of late transfusion, and hardly comes within the field of our consideration. Soresi's cases were probably fairly early and acute, though he does not state whether the transfusion was done at the time of original operation or later.

It was therefore my desire to test the procedure in actual practice, and to determine whether immediate transfusion might not be a valuable adjunct to the surgical treatment of ruptured tubal pregnancy.

Opportunity to do this has arisen twice during the past five months in the Gynecologic House Clinic at the Boston City Hospital. For the privilege of operating upon and reporting these two cases, I wish to express my most courteous and appreciative gratitude to the Visiting Surgeon, and to my senior colleagues on the staff. I wish also to extend my cordial and sincere thanks to all the house-officers and nurses, who assisted in the operation and care of these patients, for the cheerful and efficient fidelity, zeal and intelligence of their coöperation.

CASE I. M. A. R., 25. Married one year. No previous pregnancies. Last catamenia, May 26, 1912. Entered B. C. H. (Gyn. 181-209) at 1 a. m., on Aug. 8, 1912, with a history that 24 hours ago she had a sensation of scalding, followed by severe pain in the lower part of the abdomen. She has grown progressively weaker and has been very

* Presented at the Boston City Hospital Clinical Meeting, Dec. 26, 1912.

thirsty all day. Some vomiting; no headache or fever. Physical examination shows a well developed and nourished woman with an anxious expression, restless, and with marked pallor of skin and mucous membranes. Pulse 136, of fair quality, and regular. Temperature 98.0°. Heart and lungs normal. Abdomen moderately distended, with slight tenderness and spasm throughout, most marked in the left lower quadrant. There is shifting dullness in both flanks. By vagina the cervix is felt to be soft and velvety, the external os patulous, the internal os closed. There is a slightly blood-tinged discharge. Uterus somewhat enlarged and globular. In the left vault there is a bulging, doughy, tender resistance. White count 18,000. Hgb. 35%.

The diagnosis of ruptured left tubal pregnancy seemed clear, and immediate operation was advised and accepted.

On opening the peritoneum, the abdomen was found full of dark fluid blood and clots, to the estimated amount of about three pints. The left tube was found to be the site of a ruptured ectopic pregnancy, and was accordingly tied off and removed. The right appendages were normal. The appendix was thickened and showed a few old adhesions, and was therefore also removed. The patient's pulse was by this time 160 and of very poor quality. In view of her precarious condition, transfusion had previously been suggested, and the husband, who had volunteered as donor, had meantime been prepared. While the abdomen was being closed in layers by the senior assistant, the donor's left radial artery was exposed under ½% cocaine local anesthesia. The patient's left median cephalic vein was also exposed, and transfusion performed by the usual technic, employing an Elsberg cannula in making the anastomosis. Good pulsation was obtained in the recipient's vein, and the blood was allowed to flow for 25 minutes, delivering an amount estimated at 1½ pints. During this period the patient's color and general appearance improved notably and her pulse fell to 132. By this time the donor was becoming pale, and sighed several times, though his pulse had risen from 70 only to 90. The transfusion was therefore intermitted, the vessels tied off, and the wounds closed with horsehair stitches.

The patient made an uninterrupted convalescence. For several days she had a slight pyrexia, as is common in these cases from absorption of fibrin and from peritoneal insult; but the pulse never again rose above 132, and dropped steadily to a level of about 90. She was discharged well on the fourteenth day after operation, with both wounds healed by first intention, hemoglobin of 75%, the uterus well involuted, and the pelvis free from exudate. The donor's wound also healed by first intention, and after a few days he felt none the worse for his experience, and has had no unpleasant after-effects, either from his loss of blood or from the sacrifice of his radial artery.

Case II. S. F. H., 36. Married for six years. No previous pregnancies. Last catamenia Oct. 12, 1912. Entered B. C. H. (Gyn. 186-353) on Dec. 20, 1912, with history that two weeks before entrance she began to have cramp-like pain in the lower abdomen, which has continued ever since, and for the past week has been accompanied by moderate flowing. No vomiting, chills, or fever. No history of previous similar attacks of pain.

Physical examination shows a well-developed, slender woman, with moderate pallor of skin and mucous membranes. Heart and lungs normal. Pulse 128, regular, fair quality. Temperature 98.8.° White count 7800. The lower half of the abdomen was tender, with moderate fulness and spasm, especially on the right. No shifting dullness was made out in the flanks. Vaginal examination showed the cervix small and soft, the uterus of apparently normal size and displaced forward and to the left by a tender, rounded, semi-fluctuant mass, about the size of a large orange, occupying the right vault and extending into the posterior cul-de-sac. The left vault was free. There was no flowing.

The patient's history suggested an ectopic pregnancy, with primary rupture two weeks before, followed by encysting of blood clot and the formation of a pelvic hematocele. Pelvic abscess was also considered as a diagnosis, but was thought unlikely in the absence of fever and leucocytosis. As the patient's condition seemed in no way critical, she was put to bed and kept under observation.

On Dec. 21, her condition was essentially the same. That night she had a considerable exacerbation of pain in the lower abdomen, but no flowing, nd her pulse began to rise. When seen at 9.30 a. m., on Dec. 22, her clinical picture had distinctly changed. She was markedly pale and restless, had a thready pulse of 140, and there was a notable increase of general abdominal spasm and tenderness, though no free fluid was made out. In view of these developments, the diagnosis was made of secondary rupture of an encysted ectopic pregnancy, and immediate laparotomy was advised and accepted. The patient's husband consented to act as donor, if transfusion should be deemed necessary.

On opening the abdomen, a considerable amount of dark, clotted blood was found free in the peritoneal cavity, and floating among the clots was a two months' embryo. The right tube was ruptured and connected with it was a cavity of adhesions, evidently representing the result of the first rupture two weeks previously. The right tube, and the small sclerotic appendix were removed. It was then discovered that the fluctuant mass previously felt by vagina in the posterior cul-de-sac, was a parovarian cyst originating from the left broad ligament, but prolapsed and adherent behind the uterus. This cyst was removed intact, and the uterus suspended. The patient's pulse was now 160, irregular, and her condition evidently grave. Therefore, while the senior assistant was closing the abdomen in layers, the donor's left radial artery was prepared, by the usual technic, and transfusion performed into the patient's right median basilic vein, an Elsberg cannula being employed in making the anastomosis. Good pulsation was obtained in the recipient's vein; but as the donor's artery was small, and his pulse-volume not as great as in the preceding case, the flow was allowed to continue 40 minutes. During this time, the patient's color and general appearance improved markedly, and her pulse dropped to 120. At the end of this period, the donor, whose condition had apparently remained unchanged during the transfusion, turned suddenly pale and sighed profoundly. The vessels were therefore tied off and the wounds closed with horsehair stitches, a continuous subcuticular stitch being used in the case of the donor.

The patient's pulse later rose again to 140, but dropped to normal in a few days, and she made an

uninterrupted convalescence, except for the moderate, characteristic pyrexia of the first week, as above described. She was discharged on the seventeenth day after operation, with both wounds healed by first intention, and hemoglobin of 70%. The donor recovered promptly and completely.

Several points of technic deserve comment in connection with this case. In the previous transfusion considerable difficulty was occasioned by the bleeding from small radicles on the posterior surface of the radial artery, which were cut in raising it from its bed. In the present case, therefore, the artery was exposed, but was mobilized only at the point of applying the cannula. The remainder of the artery was mobilized only at the moment of making the anastomosis, and the bleeding was much less than when the radicles were cut before the flow of blood into the vein was established. At a recent unsuccessful attempt at transfusion in a case of profound sepsis, failure seemed in part attributable to spasmodic arterial contraction from the trauma of the Crile clamp applied above the anastomosis. Accordingly in the present instance, no clamp was employed, the compression of the cannula alone being relied on to hold the blood current in check, and proving entirely efficacious. At first no ligature was applied about the cannula at the point of anastomosis; but after a while there began a slight leakage, which was, however, easily controlled by a ligature, passed without interrupting the transfusion.

These two cases are, of course, far too few to warrant any positive or generalized conclusions. Both patients might well have recovered without transfusion; but it is my belief, from such experience as I have had, that their prognosis without transfusion was fairly grave, and that the transfusion at least did no harm, minimized shock, and expedited convalescence, even if it did not actually save life. These two cases, in my opinion, seem to indicate that direct blood transfusion may be a procedure of definite value in the treatment of ruptured tubal pregnancy. It would certainly be unwise and unnecessary to advocate its employment as a routine measure, but in properly selected, grave cases it seems justifiable. It can do no harm, and may do much good. The ideal method would be to have one operator begin the preparation of the donor's artery at the same time that another operator opens the recipient's abdomen, in order that the transfusion may be made immediately after the hemorrhage is checked; but if this be impracticable, the method above described is satisfactory. In any event, I believe that transfusion at the time of laparotomy is much preferable to transfusion at a later period, since it supplies the blood when it is most needed, combats the shock of the primary operation without involving additional shock, and by enabling the operator to take advantage of the recipient's original anesthesia, obviates the necessity and disadvantage of a second anesthesia, without which the transfusion can hardly be performed with success and convenience. It is to be hoped that further reported experience, from different sources, in the employment of this procedure, may contribute sufficient clinical data to determine definitely its value, indications and limitations in the treatment of ruptured tubal pregnancy.

SUMMARY.

1. Direct blood transfusion is a surgical procedure of beneficence and value in the immediate treatment of ruptured tubal pregnancy associated with excessive hemorrhage, and may to advantage be employed in such cases as soon as possible after the hemorrhage is checked, and under the original anesthesia.

2. Even if the patient's life is not in imminent danger, such transfusion, in serious cases, at least does no harm, minimizes shock and expedites convalescence.

3. In the technic of transfusion, if the Elsberg cannula be employed, it seems advisable not to apply a clamp proximally to the donor's artery unless the compression of the cannula proves insufficient to control the flow of blood. It seems also advisable not to mobilize the donor's artery completely until the moment when the anastomosis is made, since by this method troublesome hemorrhage from minute arterial radicles may be avoided.

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MENTAL SYMPTOMS ASSOCIATED WITH RENAL INSUFFICIENCY.*

BY MARY LAWSON NEFF, M.D., BROOKLINE, MASS.

MEDICAL literature contains frequent references to the close connection between failure in the function of the kidney and mental aberration; yet this correlation has not gained general and adequate recognition. The fact that patients showing mental symptoms frequently pass out of the hands of the general practitioner has perhaps contributed to this result.

Among those who call attention to psychic alterations as due to the suburemic state are Sir Dyce Duckworth, White, Diller, Berkley, Lugaro, E. F. Wells, and H. B. Allyn.

The French school use the term "petite uremie" to indicate the nervous and mental symptons which develop before the graver condition of coma to which English writers sometimes limit the term "uremia." We see in French literature also the term "folie Brightique," indicating the paranoid condition developing in the course of a nephritis. This term is referred to by Herrick in Osler's "Modern Medicine," where he expresses the opinion that the condition is encountered more frequently than melancholia, which has been rec-

* Read before the New England Hospital Medical Society, Dec. 19, 1912.

gnized as an accompaniment of nephritis, perhaps, longer than other psychic manifestations.

Accepting the clinical assumption that a nephritis is the reaction of an over-taxed kidney to a toxemia, it might be said that the mental symptoms are but one feature of a syndrome of which a degenerative condition of the kidneys is another. The pre-existing toxemia is perhaps the logical basis of both, yet since a normal kidney is capable of excreting a great quantity of toxic material, it is only with the failure of the kidney function that the poisoning of the nervous system appears. The connection is thus a vital one, whether regarded as concomitant, or sequential.

The general condition of renal insufficiency is indeed, so frequent, so potent, and of such paramount importance in clinical work that we may give it, so to speak, an artificial position as an entity in order to discuss the problems that arise from it—much as the sociologist gives to "poverty" the position of an entity, for similar reasons.

The term "renal insufficiency" should include not only the various degenerative conditions of the kidney, but the secondary failure of renal function in heart disease, as well as the relative insufficiency which occurs when a kidney ordinarily adequate to the demands of the organism becomes inadequate in times of special stress.

Accepting E. F. Wells' definition of uremia as "an auto-intoxication which affects mainly the nervous system and occurs in connection with renal insufficiency," it is logical to suppose that an intoxication which affects *mainly* the nervous system, should also affect *first* the nervous system. It would seem an absurd clinical assumption, indeed, that toxic substances capable of producing the serious and fatal poisoning which occurs in uremic coma, (a process so extreme as to bring about demonstrable changes in the cerebral ganglionic cells) should not affect the nervous system in varying degrees long antecedent to such a final catastrophe.

An insufficient kidney that under ordinary circumstances would not attract attention may be the determining factor in a typhoid delirium, a facial neuralgia, an attack of asthma, a period of insomnia, or a delirium tremens, though only one term in the equation.

The suburemic condition also frequently underlies the nervous symptoms of the chronic semi-invalid—the patient who is apt to be classed as "neurasthenic"—who complains of headache, dizziness, inability to fix the attention, vaso-motor disturbances, et cetera.

It is less generally recognized that the psychic alteration may be the first and for a time the only symptom of uremia. Lugaro says, "Slight but chronic lesions of the kidney can determine conditions of stupidity, temporary loss of speech, and violent attacks of confusion and agitation"—and again, "In mental disease it is somewhat exceptional for the organic factor to be apparent." If during this period of mental disease, before the organic factor becomes apparent, the patient drifts to an institution for the chronic insane, it is perhaps only at the autopsy that the organic factor claims attention.

It would be difficult to find a condition more likely to remain undiagnosed than a "slight but chronic" lesion of the kidney. Not only does it fail to invite attention, but it frequently escapes detection by the most patient and skilful clinician. To quote Berkley, "the presence of a very sclerotic kidney is not inconsistent with the appearance of fair health on the part of the patient, and the cause of auto-toxic symptoms may remain a profound mystery until revealed at the autopsy table." Tirard, among many clinicians, calls attention to the great difficulty encountered in making an early diagnosis of nephritis, and to this the experience of any practitioner will bear testimony.

Cabot reports a series of 35 cases of chronic interstitial nephritis in which both the clinical histories and the autopsy reports were available, the diagnosis being based on the latter. Of these cases five had been diagnosed accurately during life. In ten some pathological condition of the kidney was recognized. Four were diagnosed as arteriosclerosis. In sixteen—nearly 50%—the diagnosis was made without reference to the kidneys. These cases had been carefully examined by competent general medicine men. We could hardly expect the nephritis which passed into the hands of the alienist to fare any better than this, in regard to diagnosis.

The following cases, among those which first called my attention to the subjects of this paper, are reported from my office records while in general practice:

Case 1. Patient with chronic diffuse nephritis, in whom mental aberration was noticed before this diagnosis was made. During a period of many years she showed repeatedly psychopathic symptoms which improved with proper treatment of the kidney condition. Two cases similar to this, of several years' duration, I have had an opportunity to observe in the practice of colleagues.

Case 2. Patient with chronic parenchymatous nephritis who developed acute hallucinosis with much mental confusion, and had to be committed to an insane hospital. The mental symptoms disappeared as the renal crisis passed.

Cases 3 and 4. Chronic interstitial nephritis, with arterio-sclerosis. Cases of so-called "agitated melancholia," both of which had been for a time in institutions for the insane. Treatment directed to the underlying nephritis brought about notable improvement of the mental symptoms. Case 3 refused to follow the regimé laid down for her, and relapsed after a short period of improvement. Case four continued sufficiently improved to live at home. As both these patients were nearly sixty

years of age, improvement was all that could be reasonably hoped for.

CASE 5. Chronic interstitial nephritis of low grade. The patient showed mental depression, insomnia, suspicion, irritability and a tendency to fixed ideas. Mental symptoms varied directly with the physical.

CASE 6. Diffuse nephritis. Patient was acutely depressed and had twice attempted suicide. On treatment for nephritis, recovered completely and resumed an active life. Later a giving up of the regimé on which she had recovered, brought about a recurrence of the mental symptoms.

CASE 7. Chronic interstitial nephritis of low grade. Patient showed persistent insomnia, lack of mental concentration, and melancholia with some vague delusions of persecution. After treatment for the renal inadequacy, this patient recovered from her mental symptoms, though still in impaired health. An interesting feature in this case was the following: In order to increase elimination, electric light cabinet baths were ordered. The urine at this time was of extremely low specific gravity, 1003, with total nitrogen .3%. The perspiration was twice collected and analyzed, showing a specific gravity of 1008, and 1009, and total nitrogen .9%. This indicated that the functioning of the skin was for the time greater than that of the kidneys, thus bearing out the claim of some observers that the skin is able to take on a vicarious function in cases of this kind. The remarkable benefit resulting from the treatment was in accord with these findings.

The above case records were selected from a series of 24 cases, in which the correlation between the mental and renal symptoms seemed too close to be disregarded, and in which improvement in the psychic symptoms paralleled that in the somatic. The mental condition varied with the specific gravity and total excretion rather than with the amount of albumen or casts. In the majority of these cases the mental symptoms preceded the physical. The patients were usually of the neurotic type where we would naturally expect the nervous tissue to be less resistant than normal.

It is difficult to ascertain to what extent degenerative conditions of the kidney exist in hospitals for the insane. The subjoined figures are suggestive in this connection.

The State Hospital at Norristown, Pennsylvania, has recently issued an index of 1180 necropsies, at the suggestion of Professor Allan J. Smith of Philadelphia. Taking the records covering the years 1890-1907 inclusive, four series of cases were selected for analysis.

All patients over sixty years of age were excluded, as were cases of paresis, epileptic insanity, and dementia—in which we may assume the mental symptons to be due to organic changes. Theoretically at least we distinguish between the functioning of nerve centres actually impaired or partly destroyed, and the reaction of centres still normal, to pathological stimuli. Disturbances of the latter type are what would be expected as suburemic symptoms, though we can well imagine that irreparable injury would result from prolonged irritation to the central nervous tissue.

Of 139 cases showing excitement, elation or irritability 117 showed degeneration of the kidney, and in 99 of these degeneration of the liver was also present. Of the remaining 22 cases, twelve showed degenerative changes in the liver, and in six the kidney was tubercular.

The second series of 100 cases, in which depression was the most marked symptom, showed 43 cases of chronic interstitial nephritis, and 33 of chronic parenchymatous nephritis. Degenerative conditions of the kidney of a chronic type were present in eight other cases, and four showed acute nephritis. Of the remaining 12 cases four had tubercular kidneys, and seven showed degenerative changes in the liver.

Of eight cases of paranoia six showed degeneration of the kidneys.

Of eleven cases of manic-depressive insanity 10 showed degeneration of the kidney.

For the four series taken together, the percentage of degenerative conditions of the kidney was 90; while of the total 258 cases there were eight only which showed no degeneration of either kidney or liver.

Even allowing for a maximum of error, due to the personal equation of an over-critical histologist, these figures seem far too significant to be lightly regarded. The series examined covered the services of five pathologists.

At the State Hospital at St. Peters, Minn., in 1908, 60 admissions were studied irrespective of their mental symptoms. Of these 80% showed some degree of renal inadequacy. In the report of these cases it was stated that a definite coincidence was observed between improvement in the mental condition and the functioning of the kidneys.

A consideration of the character of the mental symptoms due to uremia carries us into somewhat unexplored territory. In studying the psychoses a clear logical distinction must be made between the psychogenetic factors that may determine the *character* of a psychosis, and the somatic conditions that determine its *occurrence*. It is to the latter that our attention is directed.

That the physical alterations in uremia should be definite and uniform would seem improbable, *a priori*. A condition depending, to quote H. G. Wells, not "upon one but many various and varying causes," and protean in its manifestations, could hardly produce a specific reaction in the nervous cells, even if we supposed these to be uniform in different individuals. The widely varying psychic reactions to so definite a poison as alcohol, and the fact that paresis, tho a pathological entity, is a "veritable microcosm of the psychoses," lends support to this improbability.

White and Berkley speak of a hullucinatory-nfusional type of psychosis as somewhat char-teristic of uremia. Berkley says,—"The hal-cinatory-confusional insanity may begin with-t other indications of renal disease." Refer-ce has already been made to the paranoid con-tion, with delusions of persecution—"folie ightique." This trend was noticeable in sev-al of the cases reported in this paper. Melan-olia is perhaps more often referred to in med-l literature than other conditions, but almost y form of mental aberration may occur.

The progress of scientific medicine depends uch on original research in the laboratory of e chemist and the histologist; but it depends less on the constant correcting of perspec-e, the constant redistributing of emphasis, and e proper organizing and correlating of facts eertained by the worker in a circumscribed ld. The general medicine man must "think three dimensions," if he is to profit by the tail work which must be rigidly done "in one nension." A man's mind must "have its stole and its diastole—must be continually ex-nding and contracting between the whole hu-n horizon and the horizon of an object-glass," d we need to be somewhat on our guard lest e systole be too prolonged in this day of the rrower specialism.

If the paper just read has arrested our minds diastole this evening, it has served its pur-se.

That mental symptoms may be the earliest in-cations of renal insufficiency—that they are e frequent accompaniments of such a condi-n—that treatment directed to the underlying ohritis would in many cases ameliorate them and that a critical analysis of the somatic sis of the psychoses would frequently transfer em from the somewhat mystical realm where ey now lie into the domain of general medi-e, seem to the writer propositions not un-rthy of attention.

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OPHTHALMIA NEONATORUM: ADMINISTRATIVE STANDARDS.*

BY HENRY COPLEY GREENE,

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As the Secretary of State Board of Health has said more than once, the State Board and the Massachusetts Commission for the Blind are jointly campaigning to make ophthalmia neonatorum as rare a disease as possible and to prevent its damage to eyesight. In this attempt the Board of Health has carried on the work of administrative hygiene while the Commission for the Blind has stood as a special advocate both for those already blind and for those threatened with blindness. In this capacity, the Commission has followed to its source every known case of blindness from ophthalmia neonatorum, has spread information, and has helped to perfect the administrative machinery. The outcome is promising. And though it is still too soon to quote significant figures, it is good to know that the Boston Nursery for Blind Babies, which admitted four children blind from ophthalmia neonatorum in 1911, received in 1912 only one.

Though encouraging, this fact is symptomatic only. The whole story is worse. And even if this one child's blindness summed up the damage done by ophthalmia neonatorum in 1912, it would demand our attention; for it offers us all, as guardians of the public health, a somewhat notable challenge. The case is as follows:

The baby, X, was born of foreign parents in a mill city. The mother had been infected with gonorrhea. A midwife was in attendance. This technically illegal practitioner used no preventive at birth; and if she observed any redness or swelling of the baby's eyelids, or any unnatural discharge from the eyes, she did not notify the local board of health. No agent of the board visited the home; and the board had sent the parents no leaflet, setting forth the dangers of the disease. Small wonder, then, if the father also neglected to notify the board of health, but, assuming the physician's function, treated the child's eyes with rose water, till corneal ulceration resulted in the heavy scars which make the child totally blind.

I have said that this case offers a challenge to us all as guardians of the public health. Does it not indeed challenge us to show that in our own cities ignorant parents are warned, that midwives, *if permitted to practice*, are taught to use the nitrate of silver droppers sent to all physicians: and that mothers attended by ignorant practitioners are promptly visited and instructed in the essentials of infant hygiene?

This case, challenging as it may be, is hardly typical. The typical case of infant blindness from ophthalmia neonatorum, we must admit, is that of a baby delivered by a licensed physician,

* Paper read before the Essex North District Medical Society, January 1, 1913.

generally a graduate of some more or less reputable school. He fails to use the preventive, or after its use is baffled by a secondary infection. He observes the symptoms of "babies' sore eyes" which are, of course reportable, but fails to report, because the case seems slight. He prescribes an orthodox remedy, but employs no nurse, calls no consultant, fails to visit for a day or so, or longer, and when he calls again is surprised to find ulceration of the corneae. After this, too often, his most conscientious efforts are in vain.

To eliminate such cases, the Commonwealth and its officers have taken these steps:

(*a*) It requires notification of births within 48 hours;

(*b*) It requires the use of an approved preventive at every birth occurring in any lying-in hospital;

(*c*) In distributing to all physicians a dropper containing a 1% solution of nitrate of silver, it recommends the routine use of this preventive;

(*d*) It requires the immediate reporting of the symptoms of ophthalmia neonatorum both by physicians and nurses and by hospitals, to local boards of health;

(*e*) It lays upon these boards the duty and gives them the power, to take all possible measures for the prevention of blindness; and finally

(*f*) It advises with the local boards, through State District Health Inspectors, and follows up cases discharged from lying-in hospitals, so as to establish practical standards of treatment which shall exclude the possibility of needless blindness.

This system is humanly imperfect. But is it not worthy of active support?

Take the prompt birth-return law. It is important that it should be observed,

(*a*) Because every legally issued birth-return blank carries a reminder that ophthalmia neonatorum is reportable, and prompt filling out of this blank brings this reminder under the physician's or midwife's eyes at an opportune time;

(*b*) Because a prompt birth-return makes it possible for the board of health not only to send out timely warnings to parents, but to begin instructive work in infant hygiene.

The fruitfulness of such work both for general health and for eyesight can hardly be exaggerated. It has proved capable of reducing the infant death rate; and as for the matter of babies' eyes, in a very recent instance the warning to parents, sent out immediately on the receipt of a prompt birth notification, resulted in a mother's bringing her child for expert treatment in time to save his eyesight.

The *use of an approved preventive* is required, as we know, at every birth in any lying-in hospital. If doubt remains as to the efficacy of routine preventive treatment, the lying-in hospitals throughout the Commonwealth offer a wide field for experiment. The results to date are far from perfect. Not only slight silver reactions, but cases of gonorrheal conjunctivitis still occur in these hospitals, often enough to suggest secondary infections. Interested physicians will doubtless be able to minimize such occurrences.

In private obstetric practice I venture to add that physicians can aid in the State Board of Health's campaign by adopting the State dropper, wherever possible, for routine use. Though routine use of this dropper has been urged by the Secretary of the State Board of Health, the objection is sometimes raised that parents would rebel. But if the parents are frankly informed that the preventive will be used, even when gonorrhea is not suspected, much can be done to remove any popular prejudice that ophthalmia neonatorum is necessarily of gonorrheal origin.

Is not the presence of an unrecognized gonorrheal infection, moreover, a possibility to be guarded against? Take for instance the experience of a physician in the central part of the state, who was suddenly called to a confinement case. Though he knew the father intimately and believed him to be of the cleanest habits, he put him on his honor to say whether he had ever had gonorrhea. "No," said the young man. The use of the preventive was omitted. A gallopin case of gonorrheal conjunctivitis began on the second day, and though the child was immediately removed to a hospital for expert treatment and constant nursing, the result was one eye blind. "After this," said the physician in question, "nothing will prevent my using the preventive in every case, with the *possible* exception of my own family.

The State's next demand—and this time it is no mere urgency, but a requirement of law—the reporting of ophthalmia neonatorum, or of the symptoms of "babies sore eyes." As there has been some misunderstanding on this point, I may be pardoned a word of explanation. Ophthalmia neonatorum, like trachoma or poliomyelitis is defined by the State Board of Health as a disease dangerous to the public health. As such it is reportable. But what is ophthalmia neonatorum? Whether caused by the gonococcus or the pneumococcus or some other pathogenic bacillus, it is any diseased condition of the eye, originating within two weeks after birth, and manifesting itself in redness, swelling and unnatural discharge from one or both eyes. No matter when the physician finds a baby suffering from ophthalmia neonatorum, whether it is the third day or the thirtieth day, he is required to report. And even if the physician fails to make a diagnosis, the requirement is practically the same; for under chapter two hundred and fifty-one of the acts of 1905, if these *symptoms* appear within fourteen days a physician called to see the child —either then or thereafter—must immediately report in writing to the local board of health. This, in brief, is the opinion of the Attorney General.

Two objections have been raised against this law; one that it makes family misfortunes public, the other that it infringes on the rights of private physicians. The first objection is based on a misunderstanding. If the law required the reporting of gonorrheal conjuctivitis, the objection would at least be consistent. But as the law requires the reporting of a condition due to various possible causes, observance of its provisions cannot brand the family with the stigma of gonorrhea. This disease, to be sure, causes most of the serious cases. But the more implicitly the law is obeyed, the more light cases will be reported until gonorrheal cases are a relative rarity. For example, out of a total of 577 examinations at the bacteriological laboratory of the Boston Board of Health during 1912 only 15 were positive. Among the families of ophthalmia neonatorum patients, therefore, gonorrhea was apparently not much more prevalent than in the families of children with measles or scarlet fever.

The second objection to this law, is a plausible objection. The object of the law is plain. It is that the "board of health shall take such immediate measures as it may deem necessary in order that blindness may be prevented." After licensing the physician to practice, the State, by this law, limits that right. But in so doing it puts the physician in no exceptional position. By its license to practice, the State gives the physician, as it gives the public service corporation, a special privilege. And in the interest of the public safety it is surely warranted in limiting such privileges, as it deems needful.

Now if the registered physicians of this State were all ophthalmologists, if they all had skill in the delicate handling of ocular disease, the law would be, not only needless, but farcical. But Massachusetts is now alone with Tennessee in requiring no medical degree of physicians licensed to practice medicine on her citizens. Among the so-called physicians now actually practising in this State are a former midwife, and an ex-blacksmith whose only medical training was transient association with another so-called physician. The former midwife rubs lard on babies' eyes; the ex-blacksmith is one of the several physicians of my acquaintance who "prevent" gonorrheal conjunctivitis with—lemon juice.

Such practitioners are, of course, exceptional. Incapacity to cope with ophthalmia neonatorum is far less so. Even among the well-trained, experience is essential to the safe handling of such cases; and many an obstetrician comes upon a case of this disease only once or twice in a thousand births. Is it, then, unreasonable on the part of the Commonwealth to enter upon the delicate task of advising with physicians as to protection of children from the calamity of blindness?

If general physicians saw, as the Commission for the Blind constantly sees, the results of the opposite policy, they could not but agree that the treatment of ophthalmia neonatorum must not be left to their exclusive judgment. Not only the ignorant, but unfortunately, the reputable physician sometimes and very naturally blunders in caring for one of these children. And so indefensible has been the carelessness of certain members, even of the Massachusetts Medical Society, and so disastrous the results, that the Committee on Ethics and Discipline has sent them a reprimand.

From this ugly side of the picture one turns with relief to the constructive work begun by the health authorities. The local boards, as we know, are required to notify the State Board in every case. The nearest district health inspector then investigates and advises with the physician and with the local board. This system of checks and balances has disadvantages which skilled physicians are in a position to minimize. The local boards are too apt to lie back on the district health inspectors. Too often, instead of obeying the spirit of the law, they take no action other than notifying the State Board of Health. This means delayed investigation, delayed advice, and possibly a delay in adequate treatment for the disease, which no possible skill can remedy. By inducing local boards to advise with them and to supply them with nurses and with a consultant if need be, by such means as these, skilful physicians can make experts of any laggard boards of their acquaintance, and the result will be that when less able practitioners report a case the board will automatically take efficient action.

Not only local boards, but the district health inspectors themselves, need and deserve such stimulating help. It is hard for them to force upon unwilling general practitioners the standards which wider experience with these cases proves advisable. When general physicians, on the other hand, insist on constant nursing by skilfully trained nurses, and in serious cases on consultation and even repeated visits by ophthalmologists,—then the health inspectors' standards will be upheld and raised still higher; and this raising of their standards will affect medical standards throughout the State.

In suggesting what these standards should be, I have purposely omitted hospital treatment. Hospital treatment is sometimes essential. But babies with this disease are so often premature or (for some other reason) abnormally delicate, that bottle-feeding may make all the baleful difference between death and life. Moreover, as Dr. Nimmo Walker of Liverpool has pointed out, experience with a considerable number of cases, both bottle-fed and breast-fed, seems to show that bottle-fed infants with ophthalmia neonatorum are more liable to its worst results. However this may be, so long as separation from the mother, besides all its frequent moral disadvantages, subjects the child to greater danger of death, I for one cannot urge indiscriminate transfer of

these cases to any hospital where mother and child are not taken in together, or where provision is not made at least for partial breast-feeding of the baby and for preservation of the mother's milk supply till the time of the baby's discharge.

By increasing the number of hospitals where such humane methods are combined with technical skill, physicians can raise the standards of treatment for ophthalmia neonatorum. They can raise these standards again by demanding of local boards of health, and of the district health inspectors, well paid consultants, and where need be the regular paid attendance of ophthalmologists. And, once more, they can raise these standards above their present average level by insisting on constant trained and skilful nursing.

How far even this minimum requirement will raise present standards, you will see from the three case histories:—

CASE 1. Child born Sept. 6, 1911. No preventive used. Symptoms observed Sept. 11. Treatment begun Sept. 12. Case reported according to law. No trained nurse. No specialist called in consultation. The mother was helped by her mother-in-law. Case transferred to the Eye and Ear Infirmary Oct. 10, *blind* in both eyes. Physician, Dr. X, Harvard Medical School, 1904, member of the Massachusetts Medical Society.

CASE 2. Child born April 16, 1912. Symptoms in one eye observed at birth; in the other eye on the third day. No preventive used. Eyes not washed out by the doctor and no instruction given as to washing out the eyes. Case reported according to law. No trained nurse in attendance; no consultation with a specialist. The mother was helped by a neighbor. From April 23 to April 27 no physician in attendance. Case transferred to the Eye and Ear Infirmary April 29, *blind*. Physician, Dr. Y, studied at the Baltimore Medical College and graduated at the medical department of George Washington University. He came to Massachusetts in July, 1907, when he failed to pass the examination given by the Board of Registration in Medicine. He was re-examined and registered in the autumn of 1907. He is apparently not a member of the Massachusetts Medical Society.

CASE 3. Child born Oct. 13, 1912. Protargol used at birth. Symptoms observed by the physician Oct. 15 and reported according to law. No trained nurse in attendance; the mother was assisted by a relative. No physician in attendance Oct. 25 to 28. Case transferred to the Eye and Ear Infirmary Oct. 28. Cornea o. d., ulcer and perforation; cornea o. s., hazy and irregular ulcer. Physician, Dr. Z, graduated at Johns Hopkins, 1904, and is a member of the Massachusetts Medical Society.

These cases are luckily unusual in their bad results. But besides these results they have this too usual point in common: no specialist and no nurse was in attendance. Dr. Cheney has ably set forth the specialist's claim.* If we do not quite agree with him, that the specialist's services should be required by law, we may still support the gist of his contention by insisting, where possible, on an ophthalmologist's advice, and in serious cases, on a specialist's constant attendance. And physicians who hesitate here will, I trust, unanimously support four minimum standards:

1. Routine use of the prophylactic at lying-in hospitals and, with few exceptions, in private practice.
2. Prompt birth returns.
3. Absolute adherence to the reporting law which requires immediate notification of the symptoms of ophthalmia neonatorum, or "babies' sore eyes," and
4. Insistence by the health authorities on constant skilled nursing in all but the lightest cases, the specialist's help at the first suspicion of danger, and if this cannot be had in the parents' home, then prompt transfer of the baby, with mother if *possible*, to a hospital where expert nursing and special medical care are constantly available.

Where these standards are not upheld we find case after case of children needlessly and carelessly blinded or handicapped. And how do these dingy tragedies occur? In Kipling's phrase—

> All along o'dirtiness,
> All along o'mess,
> All along o'doin' things rather more or less—

Now doing things "rather more or less" is not what reputable physicians tolerate. I, therefore earnestly trust that, throughout the State, they will one and all uphold these standards, so that blindness from ophthalmia neonatorum may become as rare in Massachusetts as blindness from smallpox.

* Dr. F. E. Cheney, BOSTON MED. AND SURG. JOUR., Jan. 23, 1913.

Clinical Department.

HEMANGIOENDOTHELIOMA OF THE TEMPORAL BONE.*

BY FREDERICK L. JACK, M.D., BOSTON.

PATHOLOGICAL REPORT BY

CALVIN B. FAUNCE, JR., M.D., BOSTON.

M. P. Armenian, 46 years old. Entered the Massachusetts Charitable Eye and Ear Infirmary on December 24, 1911.

He had suffered considerable pain and loss of hearing before applying to the Infirmary for relief, and gave the history of a chronic suppurative inflammation involving the right middle ear and the removal of a polypoid growth about eighteen years ago.

Examination revealed a purulent discharge and growth, filling the middle ear cavity. Profuse hemorrhage followed the removal of a portion of a growth, for microscopic examination. The pain in-

* Read at the forty-fifth annual meeting of the American Otological Society, Atlantic City, June 10 and 11, 1912.

creased and at his next appearance, two days later, he was admitted for operation.

His condition changed slightly. Some redness and swelling of the canal wall, with preauricular tenderness was noticed. No mastoid tenderness.

Microscopic Report.—Rare tumor, exact nature undeterminable, due to insufficient amount of material.

On Dec. 29, the radical operation was performed. The bony cortex was found extremely thick and hard. Deep situation of the antrum and much inflamed. Nothing unusual was encountered, until the middle ear cavity was reached. This was found filled with a growth extending inward and upward, nearly three-quarters of the distance to the median line in the petrous bone. Attempts at the removal were followed by such profuse and uncontrollable bleeding and facial twitching, that further operative interference seemed inadvisable. The radical cavity was treated in the usual way.

Patient comfortable for two days, when the pain returned in the ear, together with headache and rising temperature. Leucocytosis, 14,400. From that date his condition grew increasingly worse. Three days later white blood count was 19,800. Lumbar puncture showed turbid spinal fluid growth of fine streptococci. Death occurred on Jan. 7, 1912, nine days after the operation.

PATHOLOGICAL REPORT.*

Autopsy Jan. 8, 1912, at 11 a. m. Head only. Permission for general autopsy not obtainable.

Body is that of a well nourished man, cold, no rigor. Pupils equal 5 mm. in diameter.

There is an open operative wound in the right mastoid region 6 mm. in length. There has been an exenteration of the right mastoid bone. The bone cavity is bathed in white, creamy pus. Apparent exuberant bluish-red granulations protrude from the internal portion of the cavity and from the middle ear.

On removal of the calvarium the pia is seen to be congested. The sulci are everywhere edematous and markedly purulent. There is no hemorrhage. The cerebro-spinal fluid is purulent. The base of brain is covered with fibrinopurulent exudate. The venous sinuses are free. Roof of tympanum is intact; there is no evidence of extension of the purulent inflammation through the remaining petrous bone or the dura.

Projecting from the posterior surface of the petrous bone is a nodular tumor mass, 19½ mm. by 19½ mm. (Fig I). The tumor projects 8 mm. beyond the inner table, replacing the bone and the dura at this point. The upper margin of the tumor extends over the internal auditory meatus, but does not reach the tentorium. The nodular surface of the tumor is smooth and is reddened and vascularized. It is nowhere adherent to the cerebellum. the opposing surface of which is normal, but for the meningitis.

On sectioning the specimen after decalcification the involvement of the bone is found to be much more extensive than the projecting portion of the tumor seemed to indicate (Figs. 2 and 3). The entire petrous bone is pervaded by the growth, including the labyrinth. The margin of the tumor is fairly sharply defined. The tumor passes entirely through the temporal bone, meeting the soft tissues beneath.

Smears taken from the purulent exudate show streptococci pyogenes.

The whole of the temporal bone, including the tumor and part of sphenoid bone was removed, intact.

One-half of the presenting portion of the tumor was removed and fixed in Zenker's fluid, the remaining part of the tumor and the bone being fixed in Orth's fluid (Miller's fluid plus formalin), to which was added glacial acetic

* From Pathological Laboratory of Massachusetts Charitable Eye and Ear Infirmary.

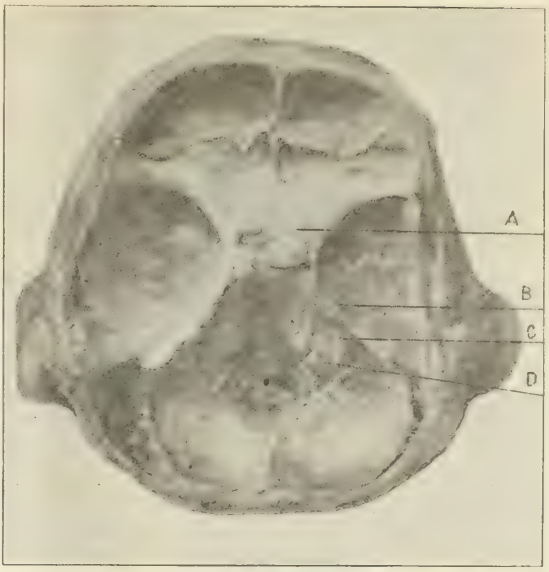


Fig. 1. (*a*) Second nerve. (*b*) Fifth nerve. (*c*) Seventh-eighth nerves. (*d*) Tumor.

Hemangioendothelioma of petrous bone (outlined in white) presenting in posterior fossa. The upper margin of the tumor involves the internal auditory meatus.



Fig. 2. Hemangioendothelioma of temporal bone (outlined in black). Showing destruction and invasion of the bone by the tumor.

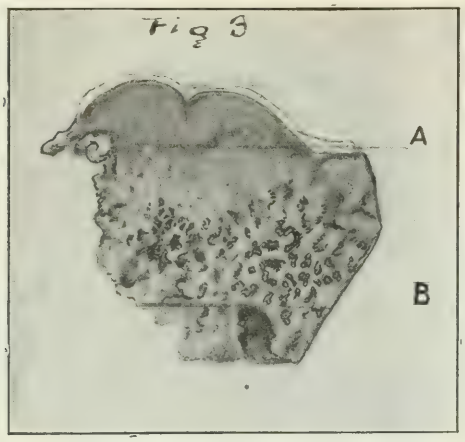


Fig. 3. (*a*) Portion of tumor presenting in cranial cavity. (*b*) Site of operation.
Hemangioendothelioma of temporal bone extending from site of operation into the cranial cavity.

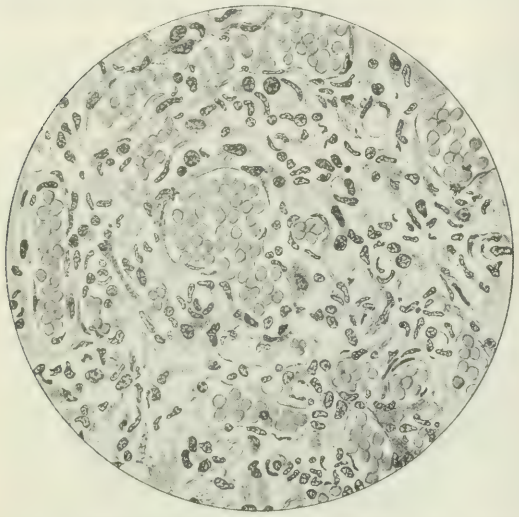


FIG. 4. Hemangioendothelioma of the temporal bone, showing proliferating vessels and endothelial cells.

acid to the amount of three per cent. The bone was placed in fresh solution daily for one month. It was then washed in running water for 24 hours and decalcified in a solution of 6% nitric acid in 10% formalin. Some of the tissue was further decalcified in a saturated solution of picric acid. When thoroughly decalcified, the specimen was dehydrated in alcohol and imbedded in celloidin.

The structure of the tumor is best seen in the Zenker fixed specimen, and is strikingly uniform throughout.

The internal surface of the tumor is covered with fibrin and pus; the superficial vessels show numerous purulent thrombi. The infection cannot be traced by direct continuity through the tumor, but that the infection undoubtedly took this course is shown by the infected air cells and medullary spaces passing from the site of the operation and reaching to within a short distance of the inner surface of the growth.

The tumor is made up of actively proliferating small and large vessels, most of which are somewhat larger than capillaries (Fig 4). As a rule the vessels have a very definite connective tissue wall and are lined for the most part by a single layer of endothelial cells. These cells differ from the normal endothelial lining of the vessels, in that they are very large and irregular, and form thick, uneven layers. Certain of the vessels possess more than one layer of these irregular cells. Free, large endothelial cells, many showing signs of degeneration, are found between the vessels.

At the advancing margin of the tumor the tumor cells first appear immediately around the vessels, where they gradually increase in numbers, replacing all the tissue in the medulla, and eventually destroy and replace the bone.

The brain was hardened in formalin for one month and then carefully sectioned. No evidences of metastases were found.

PATHOLOGICAL DIAGNOSIS.

Hemangioendothelioma involving the temporal bone, including the middle and internal ear.

Chronic suppuration of the middle ear.

Operation for exenteration of right mastoid bone.

Streptococcus meningitis by extension through the tumor.

Reports of Societies.

AMERICAN ORTHOPEDIC ASSOCIATION.

THE TWENTY-SIXTH ANNUAL MEETING, HELD AT ATLANTIC CITY, N. J., MAY 30 AND 31 AND JUNE 1, 1912.

(*Concluded from page 248.*)

DR. V. P. GIBNEY, New York City: We have long since forgotten all about those spindle-shaped femora and tibias. All are of good size now.

DR. J. E. GOLDTHWAIT, Boston, Mass.: All of us are agreed that hip disease is a general disease, and that local treatment is a question of individual experience. Local treatment is certainly no more than protection. I think bone atrophy does not come from disease, but from disuse. At one time I started on a hunt for a lot of cases, that had come to the hospital, in order to see the results of our treatment. I found many that had taken care of themselves and were better than those who were being treated by us. Dr. Morton, of the American Hospital in Paris, said that the results obtained by the direct exposure in a hospital in Switzerland were superior to the sun treatment.

DR. J. F. LORD, Omaha, Neb.: When the condition indicates that the head of the bone is liable to break down, traction is the indication. The amount of traction now used is not adequate to prevent the destructive process and mechanical displacement.

Dr. Wallace Blanchard, Chicago, Ill.: It is friction that does the destructive work in the hip joint in the majority of cases. Lateral, as well as longitudinal movement is necessary for this, and I have advised using both kinds of extension to produce traction in the direction of the neck of the femur.

Dr. Packard: The object of my paper was to emphasize the necessity of treating these cases according to their type and the stage of the disease.

Dr. Taylor: There are two factors to consider, general and local hygiene. We are appreciating both of these factors in their details and their divergent requirements in the different classes of cases.

THE RESULTS OBTAINED BY THE IMPLANTATION OF SILK LIGAMENTS AND TENDONS FOR POLIOMYELITIS PARALYSIS.

Dr. Nathaniel Allison, St. Louis: Artificial ligaments and tendons are more valuable than the older operation for stability, namely, arthrodesis, The author's method is to imitate the pull of normal tendons by silk cords; inserting these in the bone above and below and running the silk tendon in the sheath of the paralyzed tendon. In no case has there been infection, nor has the inserted silk caused trouble. The use of one or another silk artificial ligaments or tendons is preferable to arthrodesis in children.

DISCUSSION OF BARTOW AND PLUMMER, AND PORTER'S PAPERS.

Dr. J. L. Porter, Chicago, Ill.: I want to ask Dr. Allison, what is the objection to boring a hole through the entire tibia, instead of merely in the periosteum.

FURTHER OBSERVATIONS ON THE USE OF INTRA-ARTICULAR SILK LIGAMENTS IN THE PARALYTIC JOINTS OF POLIOMYELITIS ANTERIOR. BY BERNARD BARTOW AND DR. W. W. PLUMMER.

Dr. W. W. Plummer, Buffalo, N. Y.: During the past year the writers have employed this procedure exclusively in fifty joints. Many of the cases have too recently been operated to be more than suggestive of the improvement that is anticipated. That the procedure has been developed to the point that takes it out of the experimental stage may be confidently stated. While this procedure is not advocated as an exclusive mode of treatment, it is not too much to assert that it may become so in some cases. There is also necessity for careful protection of the joint after the operation for a prolonged period.

Dr. Allison: There is no objection.

Dr. Porter: Would it not give a stronger support?

Dr. Allison: Yes, it would.

Dr. John Dunlop, Washington, D. C.: I should like to ask what becomes of the silk when it is sewed into the bone insertion at both ends. As the length of the bone increases, I should think this would cause deformity.

Dr. Prescott Le Breton, Buffalo, N. Y.: Three things have impressed me: first, the little reaction that takes place in the tissues from the introduction of the ligaments; second, there are many conditions that could be relieved in this way; third, the importance of protection afterward. The real thing that takes place is the formation of fibrous tissue along the silk ligaments later. That is what we want, rather than the silk ligaments themselves.

Dr. R. W. Lovett, Boston, Mass.: I should like to ask Dr. Plummer whether he uses braid or twisted silk, and whether the strands are knotted separately or all tied in one large knot; also whether in the cases of simple drop-foot, the ligament is tied to itself or carried across the foot and fastened in a mattress suture.

Dr. H. A. Wilson, Philadelphia, Pa.: I have had personal experience with a knot that cannot slip. It is the fisherman's knot. It is possibly better than the ordinary square knot.

Dr. Plummer: We have used the Corticelli twisted silk. The knot used in the earlier cases was a square one. In the drop-foot illustrated the basket suture goes all the way around, and produces a stirrup ligament. Dr. Wilson's suggestion is an excellent one.

THE INDUSTRIAL EDUCATION OF THE CRIPPLED AND DEFORMED.

Dr. H. Winnett Orr, Lincoln, Neb.: The care of cripples is part of the modern tendency toward the prevention of dependency. Even after adequate hospital care, many orthopedic patients lapse into dependency for want of an occupation. It is necessary that some kind of employment should be selected by competent orthopedic surgeons, who should have subsequent supervision over the crippled and deformed. The ideal arrangement is for the hospital and training school to be combined in one institution. There is a great need for such institutions, only a small number of which are in existence at the present time. Cities and States should make such training in connection with orthopedic hospitals a part of their educational system.

DISCUSSION.

Dr. H. Tunstall Taylor, Baltimore, Md.: We have had the co-operation of both the City and State, regarding the educational training of the children. As soon as they are able, they go to the school room, where we have the regular school system, established by the school authorities of Baltimore. After a child has been with us several months, it goes to its proper grade in the public school. We have a definite selection of occupations suitable for the individual cases.

Dr. W. G. Stern, Cleveland, Ohio: I visited the New Jersey Training School for Feeble-Minded and Defective Children, at Vineland. It was wonderful what educational training had done to improve the arm muscles of children with spastic paraplegia, enabling them to learn trades. With a slight change in the plan, this institution might be taken as an example for the conduct of schools for crippled children, in other states.

Dr. C. H. Jager, New York City: It is remarkable what can be done with these cases. We should not consign these poor defectives to the scrap heap before we have tried to do something for them.

Dr. Orr: Our children should not be put into direct competition with normal children; they need special educational methods.

The following papers were read as a Symposium and discussed together.

THE ABDOMEN AN IMPORTANT FACTOR IN CHRONIC JOINT AFFECTIONS.

DR. FRANK E. PECKHAM, Providence: Many joint conditions are due to faulty physiology. Intra-abdominal pelvic pressure is an important factor. Putrefactive processes are due to sluggishness of the intestinal functions. There is a sagging of the intestines with atonic walls and flabby muscular development. Thinking surgeons are beginning to realize that only a few cases are benefited by so-called short-circuiting, and that the question is a physiological one. Physic-therapy offers most in the way of permanent benefit. General gymnastics, as in out-of-door sports, are beneficial. Special gymnastics that develop the abdominal muscles are important. Mechanical vibration, properly applied, is a great stimulant to general physiology. The D'Arsonval current and the Morton wave current, applied to the abdomen, stimulate metabolism.

AN X-RAY STUDY OF GASTRO-INTESTINAL FINDINGS IN MULTIPLE ARTHRITIS.

DR. GEORGE R. ELLIOTT, New York City: These plates have been taken from ten selected cases of walking patients afflicted with classical type of chronic polyarticular arthritis. Nine showed ptosis of some portion of the viscera or stasis in the stomach or colon; one showed a markedly dilated stomach; and three, enlarged spleen. From these cases I draw the following conclusions: While the primary etiology of the disease does not lie here, yet we are dealing with important factors which tend to keep up a vicious circle. The original infective toxins, in many cases, soon cease to act, but the abdominal conditions, acquired and otherwise feed the already diseased joints. The physician who does not have a proper examination—x-ray and otherwise—neglects his patient. Most of the abdominal intestinal conditions may be remedied.

SOME CONDITIONS OF THE PATHOGENESIS AND TREATMENT OF TOXIC POLYARTHRITIS.

DR. P. W. NATHAN, New York City: There exists very little definite knowledge of toxic polyarthritis. The general opinion seems to be that there is a definite joint disease as a result of auto-intoxication from the intestinal tract; but in the reports of the cases of undoubted auto-intoxication from this source no mention of joint symptoms is ever made. The conception that a toxic joint condition is the result of intestinal putrefaction, seems to rest on the basis that in a certain percentage of the cases there is indican in the urine. It has been disproved, however, that indican in the urine is of any diagnostic importance. Nor has it been definitely shown that the cases reported as toxic arthritis of intestinal origin have any connection with the intestines.

THE ETIOLOGY OF CHRONIC ARTHRITIS.

DR. LEONARD W. ELY, Denver, Col.: The cause advanced for this group of diseases is still a matter of debate. As we study the history of the subject, we see the infectious theory gradually growing in strength. I believe that all these diseases are infectious. Every bone and joint disease whose exact cause we know is infectious. It is perhaps better for the present to believe that a number of different organisms may be responsible for these diseases, especially as this agrees with clinical evidence. Finally let it be said that in many of these cases of chronic joint disease a distinct source of infection has been found, and in some the removal of this source of infection has been followed by an improvement or a cure of the joint disease.

CASES OF ACUTE AND CHRONIC ARTHRITIS (ACUTE TOXIC ARTHRITIS, ARTHRITIS DEFORMANS, RHEUMATOID ARTHRITIS, ETC.).

DR. MICHAEL HOKE, Atlanta, Ga.: I studied a series of forty-seven cases, extending over fourteen months, without regard to classification. I found running through the whole series, while they were acute, a profound disturbance of metabolism. As the patients got better, their metabolism became nearer to the normal. As we cut down their protein, the excretion of uric acid rose coincidently with improvement in the patients. An ordinary healthy human being, can take care of intestinal putrefaction. The arthritic patient cannot take care of it. It harms him, and should always be avoided.

DISCUSSION ON THE PAPERS OF DRS. PECKHAM, ELLIOTT, NATHAN, ELY AND HOKE.

DR. JOEL E. GOLDTHWAIT, Boston: This group of so-called mechanicians have gone so far as to recognize that the joint symptom is merely a symptom, and not a disease. It seems to me that we have in the abdominal region and the organs inside an explanation of one of the difficulties that the human family has. One of the penalites that we all have to pay for being bipeds, instead of quadrupeds, is a maladjustment of our viscera. It is of no consequence, unless it leads to some disturbance. The anatomic type usually considered normal has been found to be rather uncommon. A series of cases were measured by Dr. Brown and myself in the dissecting room. We found that a great many people have only half of the small intestine. Of course these patients are not well nourished. The possibility of organisms traveling up this short intestine from the colon and getting to a point where absorption can take place is, naturally, much increased in such persons.

DR. J. L. PORTER, Chicago: In the St. Luke's Hospital at Chicago, we had a nurse who suffered with a chronic arthritis of the ankle-joint. We found that she had had severe tonsillitis in previous years, a great many years before this time. After going over the case and not finding any cause for the joint trouble we advised operation on the tonsil; and the tonsils were removed. In the center of the larger of the two, there was discovered a little focus of infection. The pathologist made an emulsion of the contents, and injected the ear of a rabbit intravenously with a very little dose of this material. Within a few days the rabbit developed marked enlargement of the wrist joint, which showed chronic articulate changes. At the same time, a professor in Chicago University dies with an acute pyogenic infection, which involved all his joints. At the autopsy, Dr. Davis secured this infective material; and, at the same time that he injected the other rabbit, he injected the veins of the ear of a second rabbit with this material obtained from the body of the professor. The second rabbit developed the same type of infection in all its joints. The infection was of the same type that the rabbit that had died had shown. The changes in both were

identical in type, and were in the same location as in the patients from whom the material had come.

Dr. S. M. Cone, Baltimore: I should like to know whether the internal secretion itself, as a poison, produces the joint trouble, or does so by its action on whatever organism is present. It appears to me that it is the abdominal secretion of hormones which will allow of some abnormal action of the intestinal tract—possibly delayed passage of the intestinal contents, which then allows some of the conditions to which Dr. Hoke has referred to occur, these, in turn, allowing of poison of the joint involved.

Dr. H. P. Galloway, Winnipeg, Can.: Dr. Porter failed to tell us what was the effect on the patient's ankle producedd by removal of the tonsils.

Dr Porter: She was cured.

Dr. C. F. Painter, Boston: A great many infections do not produce any symptoms, and a great many anatomic disarrangements do not give rise to disturbances; and probably a good many internal secretions may be disturbed without causing anything that we can recognize as a clinical disturbance.

Dr. A. H. Freiberg, Cincinnati: I think that we are in danger of falling into a kind of scientific empiricism. Unless we confine our studies more closely to the joint phenomena ourselves, we are likely to be carried into the realm of internal medicine without getting much nearer to the solution of our question.

Dr. J. J. Nutt, New York City: I have noticed this: that in the treatment of tuberculosis joints, those children who were allowed free motion of every joint possible and lived as normal a life as was consistent, did remarkably well in comparison with those treated with more or less confinement. I have also followed out this treatment in some chronic rheumatoid arthritis cases, and a great deal may be said in favor of permitting and encouraging all functions of the body that do not interfere with the correct treatment of the joint.

Dr. G. R. Elliott, New York City: Our studies have shown that the disease we call Still's disease cannot be regarded longer as a distinct disease entity. Still made the claim that this disease occurring in children differed from arthritis in adults; and that in the latter, the enlarged spleen was not found. In four of the ten cases that I reported today, the spleen was much enlarged.

Dr. Nathan: I merely wished to call your attention to the only possible method of solving the problems or progressing in a study of these conditions. Unless we take all our cases and formulate definite clinical entities as nearly as we can, separate the cases, and bring them into connection with definite pathological conditions and clinical conditions, how can we learn anything about these cases? When we come to deal with joints, we are dealing with a mechanical apparatus. It makes very little difference what the process in the joint is, the mechanical conditions are impaired, and the impairment is apparently the same; so that we have difficulty in differentiating the joint conditions *per se*.

Dr. F. E. Peckham, Providence: I feel that there are a very large number of cases due to faulty physiology in the abdominal region somewhere. I think that the time may at last come when most of these joint diseases, with their different pathological conditions, will be found to be due to one main thing. The treatment, of course, must then be applied to that thing, instead of to the end results in the joint.

Dr. L. W. Ely, Denver, Col.: Instead of building up clinical entities and studying their pathology, we should build up pathological entities and mould the clinical manifestations upon them.

STEREO-ARTHROLYSIS—RESTORING MOBILITY IN BONY ANKYLOSIS OF THE JOINTS.

Dr. R. Tunstall Taylor, Baltimore: Ten months ago the writer began laboratory and animal experimentation to determine a liquid, absorbable, animal substance that could be sterilized, injected by syringe between the denuded ends of the bones entering into the proposed new-made articulation and that would immediately solidify in such manner as to prevent contact for some six or eight weeks before absorption. Yellow wax -1, and lanolin 2-5 were the chief substances and proportions determined on after careful study. The advantages of this method, the writer claims, are, primarily, the prevention of the reformation of bony adhesions in properly done cases; the absence of pain, none of the above requiring any anodyne; the speedy, voluntary ability to move the joint as compared with other methods; the absence of fever and suppuration; the hemostatic effect of the wax on the bone ends, absence of hematomata and ecchymosis and the rapidity with which the operation can be done compared with other methods.

ABSENCE OF THE BONY FEMORAL HEADS AND NECKS.

Drs. John Ridlon and H. B. Thomas, Chicago: Absence of the bony femoral heads and necks, supposedly occurring in rachitic children, is a rare condition as proved by the bone pictures taken later in the life of the individual cases where bone salts have been depositd. X-ray pictures taken at different angles will sometimes give evidence of a head and neck in a supposedly congenital absence.

BONE TRANSPLANTATION IN THE TREATMENT OF CLUB-FOOT, PSEUDO-ARTHROSIS, AND POTT'S DISEASE.

Dr. Fred H. Albee, New York City: In cases of club-foot in older children, where adduction of the front part of the foot predominates, a wedge of bone has been ingrafted into the scaphoid, in several cases with most gratifying results. In several cases of pseudo-arthrosis of long standing, a strip of bone about five inches long by one-half by one-third, from the crest of the healthy tibia, has been inlaid into the cortex of the end of each bone fragment, and fixed with heavy kangaroo tendon through drill-holes in the recipient bone fragments. A firm union has been secured in each case, and in one in which a Lane plate had previously failed. In thirty-two cases of Pott's disease, a prismatic-shaped piece of the tibia has been implanted into the spinous processes of the diseased vertebrae, with most striking results.

DISCUSSION OF PAPERS OF DRS. RIDLON AND THOMAS AND ALBEE.

Dr. C. M. Cone, Baltimore: Was it easy to get a protected wound to protect the transplant where Dr. Albee had to cut into the contracted tissue on the inside and put in the transplanted scaphoid?

DR. G. G. DAVIS, Philadelphia: I believe that the present means of treating Pott's disease are so unsatisfactory as to justify our resorting to radical measures. Even after a quiescent stage has been reached, the deformity increases. The disease extends over many years, and frequently breaks out afresh and kills the patient. I am a firm believer in the regeneration of bone in the transplantation of bone in these various processes. I think the procedure is not so serious as to preclude our using it.

DR. JOHN B. MURPHY, Chicago: Dr. Albee's treatment is the first ray of light on the management of spondylitis. It is a prophylaxis against deformity. Putting in a bone is easy to do now. You can apply the treatment of transplanting of bone from the same individual, having contact of bony surfaces with the periosteum, the first time that the child shows stiffness and fixation; and you will have a uniform regeneration of the bone in the transplant. A graft of bone, once transplanted, does not grow in length, but only in circumference. If the periosteum is left on the bone will not spread. The entire rôle played by the graft is that of supporting the Haversian vessels. The graft must be human bone. This treatment is going to be ideal for ununited fractures. Where there is a defect in development, these grafts may be used with effect.

DR. J. T. RUGH, Philadelphia: Does it make any difference which side of the graft is placed to the firm half of the process? There are certain fractures of the neck of the femur that refuse to unite. Would the insertion of a piece of this bone tend to bring about bony union?

DR. B. E. MCKENZIE, Toronto, Can.: I did not notice that anything was said about transplanting bone where there is deficient bone congenitally. Nothing was said by Drs. Ridlon and Thomas regarding complete absence of the femur. I have seen four cases in which there was nothing, except an indefinite nodule at the upper end, to indicate where there was a remnant of the femur left.

DR. RUGH: In a case of congenital absence of the lower two-thirds of the tibia, I substituted the fibula; and it became practically of the same size as the tibia, and is keeping pace with its growth.

DR. T. H. MYERS, New York City: Two of Dr. Albee's x-ray illustrations show the diseased bodies separated by considerably more interval than they would have been before he had straightened them. Our old idea was that these would not heal unless the surfaces came together.

DR. GOLDTHWAIT: I have seen a case in which both fibulae were transplanted to take the place of an absent tibia. There is deformity of the foot, but both legs have developed so that the child runs about and plays without difficulty.

DR. H. P. GALLOWAY, Winnipeg, Can.: I am a firm believer in the principle that if you can bring about ankylosis in tuberculous joints, you will cure the disease. This is not easy in the sacroiliac joint. I should like to ask whether the transplantation of a bone graft into the sacroiliac joint would bring about ankylosis in that joint.

DR. ABRAHAM JACOBI, New York City: I found that my fractures would heal more readily when I fed my patients on phosphorus. My cases of Pott's disease and tuberculous ankles got decidedly better in a shorter time with phosphorus than without it. Tuberculous disease, not only in the lungs, but in the soft parts and in the bones, will do well when systematically treated on arsenic. We should not forget that there are other things besides operations, and that a great deal can be done to strengthen and purify the system for the purpose of making an operation more successful. Arsenic is a semi-specific in tuberculous disease. You will get better results if your patients are in good condition; such as you can bring about by the use of phosphorus and arsenic.

DR. J. B. MURPHY, Chicago: The tendency has been to go entirely away from medication; but we are coming back now to the things that combat tuberculosis in the bone, lung, and every other position, the apex of which is represented by arsenic.

DR. ALBEE: The disadvantages in the use of metal and other foreign bodies are obvious. You cannot trust metal to hold tension in bone. If motion persists in tuberculous disease, it is a danger, and favors a relapse of the condition. The autogenous transplantation of bone is very important, as Dr. Murphy has said. The graft should be placed against the unbroken side. When I first began I placed the cut side next to it; but I have since turned the graft around, split the periosteum, and put the periosteal side against the unbroken spinous process. I should think the plug of bone would be worth trying in the case of fractures of the neck of the femur. I see no reason why the transplant should not be put directly across from the sacrum to the ilium, as this would fix it more simply and with less operative procedure.

CONGENITAL ABSENCE OF THE FIBULA.

DR. PRESCOTT LE BRETON, Buffalo: I wish to report two cases of this rare condition; one of which was operated upon with satisfactory results. Also, to show some photographs and x-rays of these cases.

The following officers were elected for the ensuing year: President, Dr. A. R. Shands, Washington, D. C.; First Vice-president, Dr. J. D. Griffith, Kansas City, Mo.; Second Vice-president, Dr. David Silver, Pittsburgh, Pa.; Treasurer, Dr. G. G. Davis, Philadelphia, Pa.; Secretary, Dr. Ralph R. Fitch, Rochester, N. Y.

The next meeting will take place at Washington, D. C., in May, 1913.

Book Reviews.

The Therapy of Syphilis: Its Development and *Present Position.* By DR. PAUL MULZER, of Berlin; with a preface by Prof. P. Uhlenhuth, M.D., Privy Councillor; translated by A. Newbold. New York: Rebman Company. 1910.

This small volume of 248 pages, including the index, discusses recent advances in our knowledge of the therapy of syphilis. The ground is adequately covered in brief compass. A particular value of the book is an excellent bibliography, preceding a very complete index. The publication is one of many which should appeal particularly to elementary students of the subject.

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W. M. LEONARD,

101 TREMONT STREET, BOSTON, MASS.

ATIONAL INSURANCE AND WORKMEN'S COMPENSATION.

For the past year or more we have been tching with attention the contest in England er the British National Insurance Bill, and ve speculated with considerable interest on effect which its operation is likely to have on medical profession. It seems obvious that act has met with disfavor among the maity of physicians, and that it will seriously ect not only the quality of medical service to poor, but also the welfare of the profession the community.

Meantime there has arisen in our own State, thout contest and almost without notice, an alogous, though by no means so serious, situan as a result of the operation of the Workn's Compensation Act. By the terms of this t, injured employees are left free to obtain dical care from whatever source they see fit. me of the employers and insurance comnies, abiding by this provision, have not atnpted to dictate where or by whom their beneiaries should be treated, and have paid, with-t protest, all reasonable charges for their care. her companies, on the contrary, have successlly brought pressure upon employers to com-l the latter to insist that injured workmen ould go only to hospitals for treatment.

In a large city, like Boston, with many diverse asses of population, from which the practice physicians is drawn, this does not work so rious a hardship. But in smaller cities, espeally manufacturing towns, with fewer persons wealth, and the population of which consists in large proportion of factory or mill operatives, the situation becomes critical. Most of the physicians in such towns derive their incomes chiefly from a large amount of hard work among the middle classes for small fees. Therefore, if all cases of occupation injury and sickness among insured workmen are compelled to go to hospitals for treatment, an almost fatal blow is thereby dealt to the practice and livelihood of an important number of our profession. Moreover, some insurance companies even object to paying the usual hospital charges, and it is stated that two large hospitals in Boston have already reduced their fee for insured workmen to a minimum below the actual cost of their care.

The remedy for this situation lies in the hands of the board created for the administration of the Compensation Act, and to its members a straightforward and serious appeal should be made by the medical profession. The hardship done to the general practitioner by the ordinary abuse of hospital charity is enough, without its augmentation and aggravation by this perversion of the purpose of the Act. With the Act itself the physicians have no quarrel, recognizing it as a broad and wise measure for human protection and benefit. But its operation should be so regulated as not to help one class in the community by damaging another. Hospitals are intended to relieve the destitute, not to take from the hard-working, conscientious practitioner the class of self-respecting, modestly self-supporting patients among whom his work chiefly lies. We feel sure that a frank and concerted presentation of the facts in this situation to the responsible authorities will be followed by an equitable adjustment for the welfare of all.

HEREDITARY SYPHILIS AS A FACTOR IN THE PRODUCTION OF GENIUS.*

IT would seem at first that the above heading is paradoxical. Nevertheless it has been a serious study and thesis of more than one well-known writer in France. In effect this thesis is that there exists in numbers of children suffering from heredo-syphilis of the first or second generation especial characteristics which are made manifest by an evident disproportion between the physical development, which is insufficient and not normal, and the intellectual

* Trans. fr. Audrain, "La Chronique Medicale," December, 1912.

development, which is often extraordinary. It is a little dangerous to affirm that syphilis can exercise favorable influence on the intellectual power of many celebrated men and that it may enter partly, at least, in the creation of genius. The foolish and ridiculous ostracism concerning this malady throws around it a shadow which obscures many things pertaining to it. If we observe or "enbloc" the families who are the victims of heredo-syphilis we find special characteristics which are well worthy of study.

That great author and master of irony, Anatole France, wrote somewhere in "Jocaste," paradoxically it is true, this singular phrase, "It is only general paralysis which makes great men." Now we know that general paralysis does not make illustrious men, but syphilis may create a functional cerebral-activity above the normal. It makes the intelligence more active, then too active, up to the point when it slumbers in the veritable excess of its activity. This conception can be seen all around us. The syphilitic influence is certain in the greater part of individuals physically asymmetric, the instant that we find together with this physical stigma an abnormal degree of intellectual activity. The other diatheses all tend to induce more cachexia and are incompatible with the life of productive activity.

Syphilis alone with the chronicity of its lesions, permits the sufferer to support it stoically because it is painless. Many people in this way attain adult age whose infancy was continually a terrible problem, "perpetually snatched from death," continually giving evidence in these cases of the diagnostic and prognostic errors made concerning them. It is not necessary that the infancy of such people should be full of grave maladies or that they should have successfully passed through all the contagious children's diseases. Suffice it that their individual type is out of the common, that their ambitions are not measured by the debility of their bodies. From such beginnings come some men of genius, some in revolt against the existing order of things, agitators and instigators of anarchy as well as wonderful workers, excessive in their work, excessive in their devotion to their chiefs, with the one reservation that these respect the common sentiment of heredo-syphilitics, that is, the exaggeration of their personality.

Professor Gilbert-Ballet recently made some valuable contributions to this subject in connection with premonitory signs of general paralysis. We find in this premonitory condition first, a rich flow of ideas, then their confusion then a predominance of ideas connected with th personality,—ideas of fear or envy, isolated o combined. These ideas until the terminal perio last during the day but later the height of th ideation is nocturnal, perhaps even not occu ring excepting in the dreams or semi-consciou state. In time this hyper-activity of the brai during the night becomes painful and headache appear, and, little by little, general paralysis b comes fully established. But at what exact m ment does general paralysis establish itself Therapeutic tests can answer us. If warned b such signs and symptoms, the physician can hav charge of such cases during the first insomni he can modify them. By mercurial treatmen he can bring back calm to the patient with an in credible facility.

If it is true that in the final period nothin can be done, it is entirely different at first, an this mental agitation can be modified as we and as quickly as in the case of cerebral gumm The prophylactic treatment consists in watchin over all "excessive genius," and if the phys cian who under the circumstances has to d what he can in silence, cannot realize the "Ther apia sterilisans magna" he at least can main tain the vital equilibrium of his patients an hold in check his mental activities.

RELATIVE MERITS OF THE MILK BILLS

IN last week's issue of the JOURNAL we pub lished an editorial reviewing "The Milk Situa tion in Massachusetts," presenting the principa provisions of the Ellis bill, now pending befor the state legislature, and commenting on th chief arguments against it and in its favor. By way of supplement, it seems fair also to com ment briefly on the two other milk bills also a present before the General Court. These ar the Meaney bill and the producers' bill.

The Meaney bill merely requires the labellin of all milk with a statement of its age an source. This in itself is excellent, but the bil fails to provide the machinery necessary for it enforcement.

The producers' bill, introduced by certain lo cal milk inspectors, and supported by th Grange, the Cattle Owners' Association, and th Massachusetts State Board of Agriculture, i not directly antagonistic to the Ellis bill. I

nes itself solely to prescribing a bacterio-
test of milk and establishing a bacterial
t of 500,000 per cubic centimeter as a maxi-
permissible standard. This is the figure at
ent required by the Boston Board of Health.
ortunately the culture medium specified in
bill is so acid as greatly to retard the growth
acteria and thereby lower all counts. More-
, the mere provision of a uniform bacterial
t, though desirable, would not at all re-
e, or suffice, without an adequate and effi-
system of general inspection.
oth these bills, therefore, if duly amended,
it well be passed as adjuncts to the Ellis
The latter, however, contains the really
ortant essentials for the establishment of a
ble system of state supervision and control
e milk supply.

BERT SCOTT AND HIS COMRADES.

ITHIN the past week there has come to the
vledge of the world an act of valor which
stand forever on the annals of mankind;
of those acts which from time to time, and
diverse sources, arise to give the world
rance of its men. The tragic death of Cap-
Robert Scott and his comrades, on the re-
from their successful expedition of discov-
o the South Pole, has stirred all who have
of it with a realization of its significance.
e are those who will say that the end for
h these men sacrificed their lives was not
hy of the cost, but none will deny that the
in which they sacrificed them was worthy of
best that is in humanity. The record of
journey and of their death, found on
's body, is one of the documents which
the history of the human race. Sublime,
was the solitary heroism of Oates, who
zing himself a hindrance to his companions,
he knew would not forsake him, forewent
the scant comfort of the tent's shelter and
leeping-bag to die in, and chose to go out
e alone in the drifts of the Antarctic bliz-
that they might have the least possible
r chance of escape to safety. He and they
, as the Scots knew at the siege of Luck-
that so long as any of their countrymen
, the effort to relieve them or to ascertain
fate would be made. But even in the un-
inty of its success, they died in the secure
iousness of duty done and in fearless confi-
dence that the world would care for those whom they left unprovided for to its protection. Like those who, a fortnight later, went down with the *Titanic,* they

> "Stood up each, when the Lord God called,
> Gentlemen unafraid."

Such a display of heroism, surrounded with the accidental glamor of romance, seems unapproachable by those in common life. Yet the best of its lessons is, perhaps, that the courage of daily life is no different in kind, though less in measure. The unconsidered heroism of Sir George Turner, dying now in England, by inches, of leprosy, caught in the simple discharge of duty in Cape Colony, is of the same sort. Members of our profession may be deemed fortunate that they have more opportunities for the display of such valor than do others not so constantly on the battle-line between life and death; yet the doctor's acts of courage deserve no more credit than the unnumbered deeds of countless other men. It may fall to the lot of none in our generation to perform so conspicuous a deed of gallantry as that silent achievement of Scott and his comrades. Perhaps the end for which they died was fruitless; yet it served to demonstrate, as did the manner of their death, the superiority of man's spirit to the circumstances of his environment, and that alone was not without its value. And it is the contemplation of the example of such lives and deaths as theirs that helps to inspire us, when the hour of our test comes unsuspected, to act in a fashion befitting the leadership of their intrepid spirits, of the souls which to the drum-beat of the centuries immortally go marching on.

MEDICAL NOTES.

THE COST OF PUBLIC HEALTH.—In a statement recently forwarded by the Secretary of the Treasury to the United States Senate, it is made known that the annual cost of maintaining the health division of the War Department is $5,714,090; that of the Navy Department, $3,730,522; that of the Department of Agriculture, $3,899,202; and that of the Panama Canal, $1,620,391, a total of $19,800,086. The entire health service of all these departments employs 15,632 persons.

STERILIZATION OF CRIMINAL DEFECTIVES IN MICHIGAN.—Report from Lansing, Mich., states

that on Feb. 12 the Michigan House of Representatives passed the O'Dell bill, providing for the sterilization of mental defectives and degenerate criminals in state institutions.

A CENTENARIAN.—Levi Shoemaker, who died last week at Berlin, near Frostburg, Md., was locally reputed to have been born in 1811. He is said never to have used eyeglasses and to have maintained his activity until within a few weeks of his death.

LONDON DEATH-RATES IN DECEMBER.—Statistics recently published show that the total death-rate in London in December, 1912, was 16.4 per 1000 inhabitants living. Among the several districts and boroughs, the highest rate was 25.2 in Shoreditch, a crowded eastern slum, and the lowest was 11.3 in Wandsworth, a populous suburb on the south.

TWO NOTABLE ADDRESSES.—On Thursday of last week, Feb. 13, Dr. D'Arcy Wentworth Thompson, professor of natural history at University College, Dundee, delivered the Herbert Spencer lecture on "Growth and Form." On Friday, Feb. 14, the Hunterian oration was delivered before the Royal College of Surgeons by its president, Sir Rickman Godlee.

ANTITYPHOID INOCULATION IN THE FRENCH NAVY.—Report from Paris on Jan. 30 states that in a recent communication to the French Academy of Medicine, Dr. Chantemesse, reviewing the history of antityphoid inoculation, called particular attention to the experience of the French navy. Antityphoid inoculation was first authorized in the navy in April, 1912. Since that time there have been 5,421 cases of typhoid fever among 67,000 uninoculated sailors, and not a single case among 3,107 who were inoculated. Accumulating experience seems uniformly to corroborate the great value and efficacy of this new measure of preventive medicine.

BOSTON AND NEW ENGLAND.

RECENT HOSPITAL BEQUESTS.—The will of the late Martha H. Brooks, of Brookline, which was admitted to probate at Dedham, Mass., on Jan. 22, creates a residual trust fund of about $100,000, from which ultimately about $10,000 each will revert to the Massachusetts Charitable E and Ear Infirmary, the Boston Instructive D trict Nursing Asssociation, and the Massach setts Homeopathic Hospital.

The will of the late Mrs. Samuel New Brown, who died on Jan. 18, was filed recent in the Suffolk probate court. It contains a l quest of $250,000 to the New England Bapt Hospital, Roxbury, for a new building to known as the Samuel Newell Brown Memor Hospital. It also provides for legacies of $6 000 to the Brockton (Mass.) Hospital, $10,0 to the Cullis Home for Consumptives, Dorch ter, and $5000 to the Home for Crippled Ch dren, Boston.

By a recent decision of the Supreme Cou a bequest of $60,000 in the will of the late Sar E. Cazenove, who died in 1870, has at last be awarded to the Massachusetts General Hospit

The will of the late Frances H. How, Haverhill, Mass., contains a bequest of $500 the Hale Hospital, Haverhill.

The will of the late Harriot Ware, of Broo line, Mass., which was filed recently in the pr bate court at Dedham, Mass., contains a beque of $2,000 to the Perkins Institution and Mass chusetts School for the Blind.

A CENTENARIAN.—Mrs. Mary Maynard, wl died on Feb. 5 at Nashua, N. H., is said to ha been born on Oct. 25, 1811, in Derchere, Quebe She is survived by four aged children, forty-si grandchildren, and fifty-seven great-grandchi dren.

THREE LIVING CENTENARIANS.—Mrs. Mari Greca, of Stamford, Conn., is said to have bee born on Feb. 2, 1807, in Italy. Her presen health is excellent.

Mrs. James R. McGary, of South Scituat Mass., who is said to have been born on Feb. 1811, at Barnstable, Mass., celebrated recentl her supposed 102d anniversary. Her health i excellent. She is a widow and has three livin daughters.

Morris D. Shimelovich, of Brockton, Mass., i said to have been born on Feb. 8, 1811, at Viln Russia.

STERILIZATION BILL VETOED IN VERMONT.—Report from Montpelier, Vt., states that on Ja 31 Governor Fletcher vetoed a bill, which ha passed both houses of the state legislature, pr

ding for the sterilization of criminal defectives.

Opium Raid in Providence.—Report from Providence, R. I., states that on Saturday of last week, Feb. 8, an extensive raid was made by United States customs inspectors on four Chinese opium resorts in that city. Twelve complete smoking outfits and over $12,000 worth of the drug, much of it smuggled, were seized, and 5 Chinese were arrested on the premises.

Officers of Boston Dispensary Staff.—At the recent annual meeting of the medical staff of the Boston Dispensary, Dr. L. Vernon Briggs was elected president for the ensuing year, Dr. John B. Adams vice-president, and Dr. Elmer P. Barron secretary.

Rules for Protection of Food-Stuffs.—The Boston Board of Health has recently adopted a set of rules, approved by the Massachusetts State Board of Health, requiring marketmen to keep products offered for sale cleanly covered to protect them from flies, dust, and animals.

The rules also require that stalls in which such food or products are stored or exposed for sale shall be kept in clean and wholesome condition; that all persons handling such products shall wear clean outer garments and shall be free from all contagious or infectious disease. The use of unclean paper for wrapping of articles of food is prohibited.

Peddlers of food-stuffs will be required to keep on their carts a water-tight receptacle for refuse, and such waste must be disposed of so as not to cause a nuisance."

Boston Mortality Statistics.—The total number of deaths reported to the Board of Health for the week ending Saturday noon, Feb. 8, 1913, is 203, against 233 the corresponding week last year, showing a decrease of 30 deaths, and making the death-rate for the week 14.39. Of this number 97 were males and 106 were females; 195 were white and 7 colored; 128 were born in the United States, 75 in foreign countries, and 0 unknown; 46 were of American parentage, 133 of foreign parentage, and 24 unknown. The number of cases and deaths from infectious diseases reported this week is as follows: Diphtheria, 45 cases and 5 deaths; scarlatina, 35 cases and 0 deaths; typhoid fever, 6 cases and 2 deaths; measles, 190 cases and 2 deaths; tuberculosis, 60 cases and 18 deaths; smallpox, 0 cases and 0 deaths. The deaths from pneumonia were 40, whooping cough 3, heart disease 35, bronchitis 6. There were 6 deaths from violent causes. The number of children who died under one year was 45; the number under five years 55. The number of persons who died over sixty years of age was 51. The deaths in hospitals and public institutions were 74.

Included in the non-residents were the following, brought to Boston for treatment: Scarlet fever, 2 cases; diphtheria, 3 cases and 1 death.

Cases of infectious diseases reported to the Boston Board of Health for the week ending Feb. 11, 1913, are as follows: Diphtheria, 50; scarlatina, 32; typhoid fever, 6; measles, 189; smallpox, 0; tuberculosis, 61.

The death-rate of the reported deaths for the week was 16.31. Non-resident cases are included in the total cases.

NEW YORK NOTES.

Committee on Publicity and Education—A committee on publicity and education, composed of officials of the department, has recently organized in the City Health Department which will have the supervision of all publications of the department, the development of a reference library, and the establishment of a permanent exhibit, to be open to the public; and, in general, the educational activities of the department will be directed by the committee.

Washington Irving High School—A class of 400 was graduated on January 30 at the new Washington Irving High School. This school is the largest in the world in point of numbers, having 5,000 girls, and it is claimed that the building, which is a model of its kind and equipped in the most approved manner for the health and convenience of the pupils, is also the finest. It stands on Irving Place, extending from 16th to 17th Streets, and is directly opposite the quaint old house where Washington Irving used to live. The Municipal Art Society has been collaborating with the Board of Education in the decorations of the building, which have not yet been completed, and it is designed to make it in every way a fitting memorial of the great author whose name it bears.

Harriman Research Laboratory—The Harriman Research Laboratory was incorporated at Albany on January 31, and among the Incorporators are Drs. W. C. Lyle and L. R. Morris.

This institution was established in 1910, and is maintained by Mrs. E. H. Harriman for the study of chemical problems connected with disease. It owns and operates a building, with a thoroughly equipped plant, on the grounds of Roosevelt Hospital, and has a working staff of four chemists and three assistants. Up to the present its work has consisted of the investigation of the action of ferment acid on the human system from the standpoint of the comprehension and treatment of various diseases.

HOSPITAL BEQUESTS.—The appraisal of the estate of the late A. W. Openhym of New York, who died in April last, shows bequests of $40,550 each to Mount Sinai Hospital, the German Hospital and Dispensary, and Columbia University. The bequests to the hospitals are for the purpose of maintaining free wards, and that to Columbia, to be known as the Openhym Research Fund, for cancer research work.

APPOINTMENT OF DR. DOTY—Dr. Alvah H. Doty, formerly health officer of the port of New York, has been appointed medical director of the employees' benefit fund of three large telephone and electric companies. In announcing this appointment, the president said:

"So far as practicable, we shall seek the early detection of diseases, particularly those that are communicable, and notably tuberculosis, and arrange for their prompt removal, care and treatment. This not only offers a far better chance for the patient's recovery, but also protects other employees. Preventive measures will also include sanitary conditions in offices and workshops, such as proper lighting, good air, pure water, safe plumbing and the discontinuance of articles in general use which are inclined to be agents of infection. By various plain and practical methods employees will be instructed in hygiene and sanitation, and we hope that the information thus gained will redound to the home and to the public generally."

HARVEY LECTURE—The seventh lecture in the current series before the Harvey Society was given on Saturday evening of last week, Feb. 15, at the New York Academy of Medicine by Dr. Theodore C. Janeway, of Columbia University, on "Nephritic Hypertension."

IMMUNIZATION AGAINST TYPHOID FEVER.—The division of communicable diseases of the department of health of the City of New York, has recently issued a circular of information regarding immunization against typhoid feve The following extracts from this documer seem pertinent and instructive:

"The first immunizations against typho fever, in man, were made by Pfeiffer and Koll but to Wright is due the credit for the intr duction of the systematic practice of immuniz tion on an extended scale, and as before seate its value is now thoroughly established.

"Official committees appointed by the Go ernments of the United States, England, Ge many and France have investigated the matt and all unite in recommending the employme of immunization as a rational and practic method of diminishing, by a sensible propo tion, the frequency and gravity of typhoid fev in all individuals whose profession, or who usual or accidental methods of alimentation, daily or frequent association with the sick with typhoid carriers, expose them to direct indirect contagion by the bacillus of typho fever.

"The procedure has been widely used, esp cially in armies and the conclusions of the pr ent day are based on the results of more th 100,000 immunizations.

"The following conclusions are accepted practically all authorities:

"1. The practice confers a notable imm nity against typhoid infection.

"2. It reduces by three quarters the c incidence of typhoid fever in groups of indiv uals submitted to this method of immunizati

"3. Under similar conditions, typhoid fev occurring in immunized persons has appro mately one-half the fatality of typhoid cases persons not so protected.

"4. Typhoid fever thus is less apt to occ and when it does occur, runs a milder cou among the sick who have been immunized th among those who have not.

"The probability of the occurrence of a action and its nature should be explained to t patient. The injection causes some pain wh quickly subsides. After the lapse of seve hours a local reaction may develop, consisti of a red, tender and edematous area seve inches in diameter. Sometimes the reaction more extensive and severe. The lymph gla near the site of injection may become enlar and tender, and constitutional symptoms m develop. The latter consist, in most cases, f headache, malaise, and a rise in temperatu A severer reaction than this is met with in l than in one per cent. of those injected. In a event, neither the local nor general reacti should cause alarm, being of no importance cept for the discomfort caused. The general action seldom lasts over 24 hours.

There is no direct relation between the gree of the reaction and the amount of munity conferred."

Current Literature.

Medical Record.

February 1, 1913.

OPF, S. A. *Some Newer Problems and Some Newer Phases of the Anti-Tuberculosis Warfare in the United States.*

SCHER, C. S. *Remarks on the Gastric Motor Functions.*

LE, I. S. *Hygiene for the American Child.*

NDRESEN, A. F. R. *The Clinical Examination of the Feces.*

Andresen emphasizes the value of investigating ntestinal contents, summing up the kinds of in-ation which can be thus gleaned about the pa- and suggesting an admirable outline for routine ination of the stools. [L. D. C.]

New York Medical Journal.

February 1, 1913.

OWN, L. *The Curability of Cervical Cancer of the Uterus.*

APP, M. D. *The Newer Teachings of Diseases of the Gastro-intestinal Canal.*

ER, I. *Medical Education: An Unsolved Problem.*

OHNSON, W. N., AND WATT, C. C. *Typhoid Fever; Its Milk Free Treatment.*

MEROY, J. L. *Pulmonary Tuberculosis and Peripheral Nervous System.*

MERSET, W. L. *Scarlet Fever.*

RBRIDGE, D. F. *Prescribing Glasses.*

LLENGER, E. G., AND ELDER, O. F. *Meatotomy.*

UFMAN, B. *A Case of Apoplectic Malaria.*

Johnson and Watt report in detail 65 cases of id fever treated at the Germantown Hospital fed on a milk-free diet, which they consider ly responsible for the good results obtained, ially the low percentage of diarrhea, distension, rrhage and perforation. The diet consisted of s, soups, gruels, gelatin, eggs, milk sugar and r. Milk was absolutely eliminated except in the lescent stage. There were four deaths in the s. [L. D. C.]

Journal of Experimental Medicine.

January 1, 1913.

ANWARING, W. H. *The Effects of Subdural Injections of Leucocytes on the Development and Course of Experimental Tuberculous Meningitis.*

ARREL, A. *Artificial Activation of the Growth in Vitro of Connective Tissue.*

CCRUDDEN, F. H., AND FALES, H. L. *The Nature and Origin of the Nitrogenous Compounds in the Feces of Infantilism.*

CCRUDDEN, F. H., AND FALES, H. L. *The Cause of the Excessive Calcium Excretion Through the Feces in Infantilism.*

5. *WATSON, E. M. *The Negri Bodies in Rabies.*

6. FOOT, N. C. *The Growth of Chicken Bone Marrow in Vitro and Its Bearing on Hematogenesis in Adult Life.*

7. JOBLING, J. W., AND BULL, C. G. *Studies on Ferment Action.*

8. *PEABODY, F. W. *Studies of the Inorganic Metabolism in Pneumonia with Especial Reference to Calcium and Magnesium.*

9. SWIFT, H. F. *The Absorption of Arsenic Following Intramuscular Injections of Salvarsan and Neosalvarsan.*

10. NOGUCHI, H. *Cultivation of Treponema Calligyrum (New Species) from Condylomata of Man.*

11. CLAYPOLE, E. J. *On the Classification of the Streptothrices, Particularly in Their Relation to Bacteria.*

5. Watson believes from a detailed study of the types and phases of the Negri bodies in rabies that these bodies are definitely protozoan parasites, and describes two phases that seem to be constantly cyclic in their development.

8. Peabody finds that during pneumonia the metabolism of inorganic substances deviates markedly from the normal. Chlorine, sodium and calcium tend to be retained in the body, while potassium and magnesium tend to be excreted normally or in excess. During the period of retention, the chlorine content of the blood is distinctly lower than normal, but the skin is shown to play no part in the chlorine retention. [R. I. L.]

The Lancet.

January 18, 1913.

1. *MCCARRISON, R. *The Milroy Lectures on the Etiology of Endemic Goitre. Lecture I.*

2. *WHITE, W. H. *A Clinical Lecture on Myxedema.*

3. GREENWOOD, M. *On Methods of Research Available in the Study of Medical Problems, with Special Reference to Sir Almroth Wright's Recent Utterances.*

4. CHAPPLE, H. *The Treatment of Pelvic Inflammations by Auto-Inoculations.*

5. WRIGLEY, P. R., AND MORITZ, M. *Acute Intestinal Obstruction Due to Volvulus of the Cecum.*

6. THOMSON, E. *Ocular Myoclonus.*

7 ATKEY, O. *A Case of Tetanus Treated by Intravenous Injections of Paraldehyde and Copious Injections of Normal Saline Resulting in Cure.*

8. WEBER, F. P. *Non-syphilitic Arteritis Obliterans ("Thrombo Angeitis" of Leo Buerger), with Intermittent Claudication of the Left Lower Extremity.*

9. LEIPER, R. T. *Gapes in Man, an Occasional Helminthic Infection and a Notice of Its Discovery by Dr. A. King in St. Lucia.*

10. KERTH, A. *History and Nature of the Napoleonic Specimens in the Museum of the Royal College of Surgeons, England.*

1. McCarrison in the first of the Milroy lectures on endemic goitre, discusses its distribution, geographically and according to race, predisposition, occupation and social status. It prevails with different degrees of intensity in different countries, and in different parts of the same country; it has made its appearance in many places where it was formerly unknown. It prevails especially in rural districts; it may disappear almost entirely from a given locality. It seems to occur most frequently during and after

the wet or rainy season. It is apt to develop in six weeks to three months in an individual after arriving at a goitrous locality. It affects mules, horses and dogs, as well as human beings. It is more common in females than in males. There seems to be no doubt that water, unboiled and unfiltered, contains the causative agent.

2. White discusses myxedema in an interesting and instructive paper. He describes its symptoms, reviews the discovery of the disease and investigations of the functions of the thyroid gland, discusses the relation of the pituitary gland to myxedema, the value of thyroid treatment, and the importance of recognizing early cases. [J. B. H.]

BRITISH MEDICAL JOURNAL.

JANUARY 18, 1913.

1. *CARWARDINE, T. *Pericolitis.*
2. BARKER, A. E. *A Lecture on Some Points About Drainage of the Abdomen under Various Conditions of Inflammation.*
3. SPENCER, W. G. *Appendicostomy in Place of Colostomy for Relief of Obstruction Caused by Irremovable Cancer of the Rectum and Colon.*
4. MALCOLM, J. D. *Gangrene of the Vermiform Appendix and of a Coil of Small Intestine; Operation; Recovery.*
5. HUGHES, G. S. *Two Cases of Gangrenous Appendicitis with Unusual Histories.*
6. *MUTCH, N., AND RYFFEL, J. H. *The Metabolic Utility of Rectal Feeding.*
7. OLHRENSHAW, R. *Renal Calculus in Childhood.*
8. *BLACK, E. H. *The Qualitative and Quantitative Effect Observed on Polymorph Neutrophile Leucocytes in the Treatment of Tuberculosis by Tuberculin.*
9. DAVIS, E. D. *Observations on Suspension Laryngoscopy, with the Notes of a Few Cases.*
10. FULLER, A. L. *Recovery after Taking 8¾ Grains of Corrosive Sublimate.*

1. In a short article Carwardine considers pericolitis due to a wandering kidney, appendicitis and cholecystitis. He cites numerous illustrative cases and discusses operative procedures.

6. Mutch and Ryffel conclude from their experiments that while starch, fat and proteins are very little absorbed when introduced by rectum, dextrose is fairly well absorbed. A 6% solution is best; 15 oz. may be given four times a day if the rectum is thoroughly washed with salt solution once daily. This equals 100 grains or more of dextrose supplied to the body.

8. Black shows that by means of tuberculin treatment the leucocytes are increased quantitatively and also qualitatively in that the proportion of mesenteric forms whose phagocytic power is large, becomes greater. [J. B. H.]

THE INDIAN MEDICAL GAZETTE.

JANUARY, 1913.

1. CRAWFORD, D. G. *History of I. M. S. Courts Martial.*
2. GREIG, E. D. W. *Recent Research on Cholera in India.*
3. *SCOTT, L. B. *Pyorrhea Alveolaris in Sylhet Jail.*
4. SLADEN, R. J. L. *An Efficient Sterilizer for Use in Small Towns.*
5. MACKIE, F. P. *An Improved Method for Staining Negri Bodies.*

3. From an extensive statistic study of pyorrhea alveolaris among inmates of a Bengal jail, Scott finds that the disease is almost universal among native Indians, that it is more prevalent in hot, damp weather, that Hindus are more subject to it than Mussulmans, and that it is more probably the result than the cause of general poor health. He finds no causal relation between it and scurvy, dysentery, rheumatoid arthritis, appendicitis, or peptic ulcer. He believes that after its earliest stages pyorrhea is incurable, though its more troublesome symptoms are capable of amelioration. [R. M. G.]

WIENER KLINISCHE WOCHENSCHRIFT.

NO. 3. JANUARY 16, 1913.

1. KÜRT, L. *On Dorsal Auscultation of the Heart and Vessels.*
2. FERNAU, SCHRAMEK, AND ZARZYCKI. *Concerning the Effect of Induced Radioactivity.*
3. *ZUBRZYCKI, J., AND WOLFSGRUBER, R. *Contribution on Combatting Anemia by Intramuscular Injection of Defibrinated Human Blood.*
4. FINSTERER, H. *Rare Complications after Herniotomy in Strangulated Inguinal Hernia.*
5. PFLANZ, E. *The Hydrotherapy of Renal Disease.*
6. BACHSTEZ, E. *The Local Treatment of Parenchymatous Keratitis with Neosalvarsan.*
7. DEUTSCH, H. *Alcohol and Homosexuality.*

3. The authors, stimulated by similar work at the Marburg University Frauenklinik, studied in detail the effect of the intramuscular injection of defibrinated human blood, in six patients suffering from severe anemia following prolonged uterine hemorrhage from different causes. They obtained the blood by puncturing a vein in the arm of healthy, Wassermann-negative patients, defibrinated it by shaking with glass-pearls, and injected it into the gluteal region of the recipients, in doses of 20 or 30 cm., 3 to 5 doses being given over a period of two to four weeks. They watched the Sahli hemoglobin, the red and white count, and the general condition of both donor and recipient.

The effect on the donor was a slight reduction in hemoglobin and in red count, with a negligible variation in white count. The effect on the recipient was a marked increase in hemoglobin, together with a marked increase in red and white cells, always with a parallel improvement in general condition.

The extent of this improvement in the two most successful cases was as follows: A carcinoma of the cervix had five injections, 140 cm. in all, in approximately four weeks. Hemoglobin increased from 25% to 35%; red count increased from 1,500,000 to 3,800,000; white count increased from 3,200 to 5,400. This in the face of a very severe hemorrhage while under treatment. The other case had 80 cm. total injection, and in two months the hemoglobin increased from 20% to 45%, red cells from 1,640,000 to 4,304,000; white cells, 2,200 to 4,400. Whether this increase in hemoglobin and blood cells is due directly to the injected blood, or reflexly by stimulation of the blood forming organs, the authors are not prepared to say.

They feel that this procedure is absolutely safe if done under strict aseptic precautions, that it is painless and simple, which attributes they think cannot be claimed for transfusion; and they consider the reported cases prove it of value. [F. S. K.]

ARCHIV FÜR KLINISCHE CHIRURGIE.

VOL. 100. PART 1.

1. VON EISELSBERG. *Operations for Tumor of the Hypophysis.*
2. BIER, A. *Observations on Bone Regeneration.*
3. SCHMIEDEN, V., AND ERKES, F. *Clinical Studies in the Process of Regeneration in the Hip-joint Following Resection.*
4. *VON HABERER, H. *Unilateral Closure of the Pylorus.*

5. *Härtel, F. *Local Anesthesia and Injection Treatment of the Gasserian Ganglion.*

4. Von Haberer writes in favor of "one-sided" closure of the pylorus, as advocated by von Eiselsberg and by Doyen. In this operation, which is intended for use in cases of duodenal ulcer, ulcer of the pylorus, and ulcer of the pyloric end of the stomach, the stomach is cut across proximally to the lesion. Both the severed ends are then closed, and a gastroenterostomy done. Before cutting the stomach, the great vessels along each curvature are ligated on either side of the proposed line of incision, thus reducing the likelihood of hemorrhage. von Haberer has done this operation 24 times, with no immediate mortality and with good functional results. The advantages which he says it possesses are its simplicity, the certainty that hemorrhage will cease and perforation will be stopped, and the prevention of cancerous degeneration within chronic ulcers. Where perigastritis exists, it is quieted much more rapidly by this operation than by simple gastroenterostomy.

5. Härtel's article is an exhaustive review of the anatomy of the skull with reference to the nerve distribution and route by which the important nerve trunks and ganglia may be reached. Besides injecting the Gasserian ganglion as a remedy for neuralgia, he has done so to produce anesthesia under which operations upon the jaws, tongue, eye ball, nose, etc., may be performed. Novocain-Suprarenin is used and gives an anesthesia lasting an hour and a half.

[G. G. S.]

Annales De L'Institut Pasteur.

November 25, 1912.

1. *Metchnikoff, E., and Wollman, E. *Some Effects of Intestinal Intoxication.*
2. Bertrand, G. *The Part in Agriculture of Minute Chemicals.*
3. *Burnet, E. *The Virulence of the Tubercle Bacillus and So-called Attenuated Tuberculosis.*
4. Lafont, A. *Trypanosome of the Conorhinus Nebrofasciatus Inocuable into the Rat and Mouse.*
5. Dubourg, E. *Researches upon the Manic Ferment.*
6. Bertrand, G., and M. et Mme. Rosenblatt. *Investigations upon the Hydrolysis of Saccharose by Different Acids in the Presence of the Increase of Aspergillus Niger.*

1. In this article Metchnikoff and Wollman bring up to date the work on intestinal intoxication. In the first part they take up a discussion of the different theories in regard to the relation between old age and digestive products. Their reviews consist chiefly of French and a few German works. They do not mention the careful work on intestinal flora of Kendall. Next they take up the relation between the kind of diet and the production of intestinal poisons of the aromatic series. They show that the diet is only one factor in the production of intestinal poisons, and that the more important factor is the intestinal flora. They then take up a discussion of the different bodies produced by the different types of intestinal bacteria. They feel that the products of proteid putrefaction are not the only factors which have poisonous effect upon absorption from the intestines, and researches along this line are being carried out in their laboratory.

3. In a study of 35 cases of tuberculosis of the joint, bone, and skin, Burnet has not found a single case of bovine tuberculosis. The bacilli from these cases have shown as much virulence towards guineapigs and monkeys as tubercle bacilli from sputum, and in some cases more. If a tuberculosis is not severe it does not mean that the virus has been attenuated. Attenuated tubercle bacilli exist but are very rare, and so far always occur in skin tuberculosis. The virulence of the tubercle bacillus varies in nature and experimentally. The quality of the bacillus is as important as the quantity in regard to the severity of the disease. The tuberculous flora is quite extensive and a so-called subflora exists, the rôle of which is undetermined. These points suggest the possibility of prophylactic inoculations. [C. F., Jr.]

The Sei-I-Kwai Medical Journal.

January, 1913.

1. *Takiki, Y. *Erysipelas.*
2. Higuchi, S. *Experiments on the Transplantation of Japanese Mouse Carcinoma.*
3. Soto, N., and Fukada, S. *Two Cases of Pregnancy in Myoma of the Uterus.*
4. Kamada, and Toreinni, S. *Report on the Results of Measurements of the Bony Pelvis and the External Genitals in the Living.*
5. Sewaki, H. *A Study on the Method of Increasing the Body Weight.*

1. Takiki presents a study of sixteen cases of surgical erysipelas treated with streptococcus vaccine. Though some of these cases were very serious, none died. He believes that in early cases the course of the disease was shortened, and that this method is of great value in the treatment. Autogenous proved more efficacious than stock vaccines. [R. M. G.]

Miscellany.

MEETING OF THE COUNCIL OF THE MASSACHUSETTS MEDICAL SOCIETY, FEBRUARY 5, 1913.

A stated meeting of the council was held at the Boston Medical Library, February 5, 1913, at twelve o'clock noon, the president being in the chair, and six presidents of district Societies and seventy-two councillors being present.

The records of the last meeting were read and accepted.

Dr. Homer Gage called attention to the desirability of revising the by-laws, a matter which had been advocated previously by the president at the October meeting and by the outgoing president at the annual meeting, last June. Dr. Gage moved, and it was

Voted, That a committee of five be appointed by the chair to revise the by-laws, and that the proposed revision be printed and distributed to every Fellow with the call for the annual meeting, in May.

The president appointed the following committe: H. Gage, Worcester; J. A. Gage, Lowell; J. W. Bartol, Boston; H. Cabot, Boston; W. L. Burrage, Boston.

Upon nomination by the president, the following delegates were appointed:—

To the American Medical Association for two years; H. Cabot, Boston; J. B. Blake, Boston, Alternate; C. P. Hooker, Springfield; H. E.

Sears, Beverly, Alternate; G. Osgood, Rockland, Alternate.

To the annual meetings of state medical societies: Maine—G. Z. Goodell, Salem; H. P. Stevens, Cambridge. New Hampshire—H. W. Manahan, Lawrence; G. S. Allen, Lawrence. Rhode Island—A. R. Crandell, Taunton; E. Washburn, Taunton. Connecticut—F. B. Sweet, Springfield; G. H. Janes, Westfield.

To conference on Medical Education and to Association of American Medical Colleges at Chicago: H. C. Ernst, Jamaica Plain.

To be a member of the National Legislative Conference of the American Medical Association at Chicago: C. F. Withington, Boston.

Upon nomination by the president, the following were appointed to audit the treasurer's accounts: C. J. White, Boston; D. N. Blakely, Brookline.

Dr. Goss for the Committee on Membership and Finance reported as follows:

The Committee on Membership and Finance respectfully report and recommend

That the petitions of ten Fellows to change their district membership be granted;

That the resignations of two Fellows be accepted;

That dues to the amount of $10 be remitted to one Fellow;

That four be placed on the retired list; and

That eight be deprived of the privileges of membership for non-payment of dues.

Voted, To accept the report and adopt its recommendations.

The secretary read the report of the committee appointed to consider the petition of one Fellow to be restored to the privileges of fellowship.

Voted, To accept the report and adopt its recommendations.

In the absence of the chairman, Dr. J. F. Burnham presented a revised list of medical schools and colleges for the purposes set forth in By-law 1, and the list was adopted unanimously.

The committee appointed to consider the relations of the Massachusetts Medical Society to the American Medical Association and other state medical societies reported through Dr. Arnold, who outlined his experiences at the meeting of secretaries of State Medical Societies at Chicago, last October, and sketched the resolutions which were passed at that time. He stated that his committee wished to make a preliminary report, and presented to the meeting the following four resolutions with explanations as to their purport:—

1. *Moved,* That the fiscal year of the society begin on the first day of January of each year on and after January 1, 1914, all resolutions or votes to the contrary being hereby annulled.

2. *Moved,* That the assessment for the period from April 15, 1913, through December 31, 1913, shall be $4.00

3. *Moved,* That after January 1, 1914, the first assessment paid by Fellows who are admitted to the society following the November examinations shall be considered as including the annual assessment for the succeeding fiscal year. This privilege shall be extended to those fellows admitted as a result of the examinations in November 1913 on the payment of an assessment of $5.00

4. *Moved,* That it is the sense of the council that members in good standing of other state and territorial medical associations who apply for fellowship in The Massachusetts Medical Society shall be admitted to fellowship on the same basis as Fellows of The Massachusetts Medical Society who have resigned and apply for readmission, provided that such members of other state and territorial medical associations meet the requirements of By-laws 1 and 2. Therefore it is directed that this provision be included in the draft of the next revision of the By-laws.

The motions being read and acted on severally were passed unanimously.

The secretary read a communication from the committee of the society on Public Health, which was accepted.

On motion of Dr. R. I. Lee, it was

Voted, That the council endorse the four following propositions which were embodied in the said communication;

1. That local health administration be placed as far as may be in the hands of a single official who shall hold office during his continued efficiency.

2. That said officials, wherever possible, be men trained for their special duties.

3. That in neighboring and sparsely settled communities a single health official be given authority over two or more towns or communities.

4. That communities be shown the advantages of such permanent trained health officials; that they be urged to obtain such officials; and that they be stimulated to support them loyally when they have obtained them.

Dr. A. N. Broughton, Chairman of the Committee of Arrangements, outlined in a general way the plans for the coming annual meeting; and Dr. Arnold, for the officers of the sections, reported along the same lines.

Dr. Broughton asked for an expression of opinion from the council whether the annual dinner should be given in the middle of the day or in the evening. The question was discussed at considerable length by the following men; H. C. Ernst, C. F. Withington, J. F. Burnham, J. B. Field, E. B. Harvey, G. B. Shattuck, and F. W. Goss, and the many advantages and disadvantages of a dinner at either time were set forth in detail; also the merits of a postal card vote and reference of the question to the district societies was discussed. Dr. Prior stated

that he had complete confidence in the Committee of Arrangements, and that he thought there were no more complaints last year than in past years; and that it was difficult to get an opinion by a postal card vote; therefore he

Moved, That the matter be indefinitely postponed; and it was so voted.

Dr. W. H. Merrill presented a communication from the Essex North District Medical Society as to the practical application of the Workmen's Compensation Act as it relates to the care of injured employees by hospitals and physicians.

Dr. Watts, President of the Norfolk District Society, discussed the communication, pointed out the present unsatisfactory situation, and presented the following motion;

Moved, That a committee of five members of the council be appointed by the president to consider the workings of the "Workmen's Compensation Act" so called, as it affects the physicians of Massachusetts; to coöperate with the Committee on State and National Legislation; and to report at the annual meeting of this council in June, the result of its findings, together with such recommendations as it may deem expedient.

Comments were made by Dr. Sweetsir, Dr. Malone, Dr. Field, and Dr. Cotton. A motion to amend Dr. Watts' motion by making the committee six instead of five members was lost; and the original motion was passed unanimously. The president appointed the following as this committee:—F. J. Cotton, Boston, Chairman; W. A. Dolan, Fall River: S. B. Woodward, Worcester; F. W. Snow, Newburyport; R. J. Meigs, Lowell.

Adjourned at 1.45 P. M.

Walter L. Burrage, *Secretary.*

INTERNATIONAL MEMORIALS TO LORD LISTER.

The following letter and editorial comment from the *Journal of the American Medical Association* for Jan. 25, p. 308, is reprinted in the hope that it may call the attention of members of the Boston profession to a worthy memorial which deserves and should receive their cordial and substantial support.

"*To the Editor:*—I have received word from Mr. A. Ernest Maylard of Glasgow that the managers of the Royal Infirmary have been induced to retain one of the wards in which Lister worked. It will be converted into a museum for everything associated with Lister and his great work. Surely no American surgeon can contemplate such a memorial and the other memorials planned without wishing to take part in at least one of them. The profession owes the profoundest debt to Lord Lister. We all have recognized this in words. Now the opportunity has come to recognize it in deeds. I beg leave through *The Journal* to appeal to members of the profession throughout the country to contribute such sums as they feel they can afford, sending the amount to those having charge of any of the proposed memorials.

May I also ask through *The Journal* that the various medical journals of the country give publicity to these splendid memorials to one of the greatest benefactors of humanity?

W. W. Keen, M.D., Philadelphia.

[Comment.—The Lister memorials comprise a Lister International Memorial Fund, from which will be drawn from time to time a Lister International Award for the most notable contribution to surgery in any part of the world, and which will also support fellowships and studentships in surgical research; a monument in London; a memorial tablet in Westminster Abbey; a monument in Glasgow; and the preservation of the ward in the old building which is now being torn down to make way for a new building of the Royal Infirmary. This ward will be arranged at it was in Lister's time, furnished with contemporary articles, and provided with exhibits showing the work that Lister did and with articles of a personal nature associated with the man in his work. Contributions may be made to any of the memorials, and may be sent to Dr. W. W. Keen, 1729 Chestnut Street, Philadelphia. Each contributor is asked to designate the particular memorial to which he wishes his contribution to be applied.—Editor.]"

AVICENNA AND HIS WORKS.

Among the two thousand priceless manuscript volumes which constitute the library of the Hagia Sophia at Constantinople, founded in the middle of the twelfth century by the Sultan Mahmud, is a copy of Avicenna's great Arabic treatise on medicine, "Kanun fi'l Tebb," dating from the year 1220. This work, as described in a recent issue of the New York *Tribune,* is a book 3¾ by 5 meters in size, "bound in velours and covered with a strange script. . . It contains three hundred pages, each of which is adorned with sketches representing a plant, a fish, an insect, or other animal. All the illustrations are in natural colors."

Avicenna, surnamed the Prince of Physicians, was born at Afshena, Bokhara, in August, 980, his Arabic name being Ibn Sina. He was the most famous of the Arabian physicians. His medical works, which number over one hundred, though little more than transcriptions from Hippocrates and Galen, constituted the form in which those authors were chiefly known to the medieval universities, and for six centuries were standards of medical tradition, teaching, and authority. He died at Hamadan, Persia, in 1037.

RECENT DEATHS.

ROBERT EDDY BELL, M.D., a Fellow of The Massachusetts Medical Society, and a Councilor for the Middlesex North District Society, died at Lowell, Jan. 4, 1913, aged 51 years.

DR. H. D. GEDDINGS, who died on Feb. 13 in Washington, D. C., was born at Charleston, S. C., in 1858. He was a former assistant surgeon-general of the United States Public Health and Marine Hospital Service.

DR. GEORGE C. JEFFREY, who died of heart disease last week in Brooklyn, N. Y., was born at Albany, N. Y., in 1852. After graduating from the Pulte Medical College in Cincinnati, Ohio, he settled at Brooklyn, where he served on the staffs of several homeopathic hospitals. He is survived by his widow, by one daughter, and by one son.

DR. ARTHUR STANLEY FLETCHER, who died of typhoid fever on Jan. 31, at Waterville, Me., was born in that city on June 29, 1881. He received the degree of M.D. from the Tufts Medical School in 1906, and served as an interne at the Worcester (Mass.) City Hospital, at the Carney Hospital, South Boston, and at the Children's Hospital, Boston. He was a member and secretary of the Waterville Clinical Society, and a member of the Kennebec County Medical Society, of the Maine Medical Association, and of the American Medical Association. He is survived by his widow.

DR. WINFRED SCOTT SHRIGLEY, who died of cerebral hemorrhage last week in Boston, was born in Maryland in 1849. He studied dentistry and practised that profession for thirty years at Valparaiso, Chile. Since his retirement in 1903, he had made his home in Boston. He is survived by his widow, by one daughter, and by two sons.

DR. WOLFRED NELSON, who died of pneumonia on Jan. 16 in New York City, was born at Montreal, Canada, on April 9, 1846. After receiving the degree of M.D. from McGill University, he began the practice of his profession at Quebec in 1872, but subsequently removed to Panama. Here he became interested in climatology and the study of tropical disease, and in pursuit of these sciences he travelled extensively in Central and South America. In 1874, in recognition of his discoveries as an explorer he was elected a Fellow of the British Royal Geographical Society. In 1890 he returned to New York City, and there continued in active practice until a few months before his death. He was a member of the American Association for the Advancement of Science, and of the New York State Medical Society, and was the author of many treatises and papers on sanitation and tropical disease.

DR. WILLIAM F. GAMSTER, of Brooklyn, N. Y., died on February 11, at the age of 46 years. He was graduated from the Long Island College Hospital in 1896.

SOCIETY NOTICE.

THE NORFOLK DISTRICT MEDICAL SOCIETY.—A regular meeting of the Society will be held at Masonic Temple, 171 Warren Street, Roxbury, Tuesday, February 25, at 8 o'clock p. m.

SYMPOSIUM ON "DYSPEPSIA."

A New Method for the Diagnosis of Gastric Diseases with Reference to the Prognosis and Treatment. Geo. A. McEvoy, M.D.

Chronic Duodenal Ulcer; Its Rôle in Chronic Dyspepsia; Its Presence in Syphilis. C. P. Sylvester, M.D.

Gastric Symptoms Dependant Upon Diseases of the Gall Bladder. Samuel Crowell, M.D.

Gastric Symptoms Dependant Upon Disease of the Appendix. Arthur N. Broughton, M.D.

The March meeting of the Society will be devoted to a consideration of the Workmen's Compensation Act. The President invites suggestions.

BRADFORD KENT, M.D., *Secretary*,
798 Blue Hill Ave., Dorchester.

CHANGES IN THE MEDICAL CORPS, U. S. NAVY, FOR THE WEEK ENDING FEB. 8, 1913.

BROWNELL, C. D., surgeon. Detached from duty, Navy Yard, Portsmouth, N. H., to Naval Hospital, Boston, Mass., for treatment.

WRIGHT, B. L., surgeon. When discharged from treatment, Naval Hospital, Norfolk, Va., to duty at Navy Yard and Naval Hospital, Portmouth, N. H.

RICHARDS, T. W. surgeon. To additional duty, Naval Hospital, Boston, Mass., and Naval Hospital, Newport, R. I.

BOOKS AND PAMPHLETS RECEIVED.

A Reference Handbook of the Medical Sciences, Thomas Lathrop Stedman, Editor. Wm. Wood & Co. 1913.

Some Practical Points in the Interpretation and Management of High Blood Pressure, by Edward E. Cornwall, M.D. Reprint.

Suggestions Regarding the Nature and Treatment of the Toxemia of Pregnancy, by Edward E. Cornwall, M.D. Reprint.

The Indication for Treatment in Lobar Pneumonia and How to Meet Them, by Edward R. Cornwall, M.D. Reprint.

RECORD OF MORTALITY.

FOR THE WEEK ENDING SATURDAY, FEB. 8, 1913.

CITIES.	Reported deaths in each.	Deaths under five years.	CITIES.	Reported deaths in each.	Deaths under five years.
NewYork	—	—	Pittsfield	16	4
Chicago	—	—	Waltham	6	1
Philadelphia	—	—	Brookline	6	—
St. Louis	—	—	Chicopee	—	—
Baltimore	—	—	Gloucester	4	4
Cleveland	—	—	Medford	3	—
Buffalo	—	—	North Adams	8	1
Pittsburgh	—	—	Northampton	8	1
Cincinnati	—	—	Beverly	4	—
Milwaukee	—	—	Revere	5	1
Washington	—	—	Leominster	3	—
Providence	—	—	Attleboro	—	—
Boston	203	55	Westfield	4	1
Worcester	60	15	Peabody	—	—
Fall River	29	12	Melrose	6	1
Lowell	30	8	Woburn	2	1
Cambridge	—	—	Newburyport	—	3
New Bedford	33	17	Gardner	4	2
Lynn	22	5	Marlboro	—	—
Springfield	23	8	Clinton	3	2
Lawrence	—	—	Milford	—	—
Somerville	20	5	Adams	2	—
Holyoke	20	10	Framingham	—	—
Brockton	13	3	Weymouth	—	—
Malden	—	—	Watertown	—	—
Haverhill	15	4	Southbridge	3	2
Salem	12	5	Plymouth	—	—
Newton	7	—	Webster	9	2
Fitchburg	14	7	Methuen	—	—
Taunton	15	1	Wakefield	2	1
Everett	13	3	Arlington	3	—
Quincy	—	—	Greenfield	3	1
Chelsea	19	1	Winthrop	3	—

Original Articles.

"THE ARGUMENT FOR THE LARGE STATE INSANE HOSPITAL."

BY SIR THOMAS CLOUSTON, M.D., LL.D., EDINBURGH.

Dr. Walter Channing has been good enough to send me a reprint of his article in your issue of August 1, 1912, on "The Argument for the Large State Insane Hospital," which he had read at the semi-annual Conference of the Massachusetts State Board of Insanity and Trustees of State Institutions; the subject under discussion being the size of hospitals for the insane and feeble-minded. I am well aware that it is always an invidious thing, and seldom fulfils its object, for a native of one country to criticize or even to take part in a discussion on the affairs of another land, the particular circumstances of which cannot be fully known to him. The question of the proper treatment of those suffering from mental disease and deficiency, however, is one that concerns equally all civilized nations, and the history of the subject shows that every country is indebted to its neighbors to a large extent for the enormous advances which have been made of late years in psychiatry and in the provision for the treatment of the insane and feeble-minded. I am the more emboldened to take part in this discussion that the State of Massachusetts, through its then Board of Lunacy and Charity, did me the high honor in 1879 to ask me to submit plans to them for "An asylum or hospital home for two hundred patients," and that these plans, I believe, influenced in some measure, the construction of some of the earlier asylums of the State. "Much water has run under London Bridge" since that time, however. I have for nearly fifty years taken the keenest interest in the construction of hospitals for the unsound in mind in Great Britain, America, and the Continent of Europe. I began with a prejudice in favor of the small and manageable hospital, and my experience of the large hospitals which have been constructed since that time has strongly accentuated my opinion that they have not always been a success on economical grounds and have often been failures in the interests of the insane. In some cases they have in my judgment, at least, been almost destructive to the medical idea of individualizing each patient and treating him, medically and otherwise, as a man with a body to be studied and a mind to be cured.

For the decision of this question there are various considerations that all physicians, humanitarians and legislators must take into account. Everyone will admit that the first of these is the happiness, cure or amelioration of those who suffer from mental diseases or deficiencies. The second is the cost of the proposed arrangements. The third is their effect for good or evil on the relatives of the persons so afflicted, and on public opinion. It is a fact to be deeply deplored that in all Christian countries there is a strong and cruel prejudice against those who suffer from mental disease and defect, a prejudice which right-thinking and well-instructed men and women should strive earnestly to combat. The kind of hospital in which they are treated manifestly affects this prejudice. The man or the institution that in any way lessens this handicap of the direst affliction of humanity does a great service to civilization and makes life more worth having to millions of afflicted men and women. The patients and their relatives are alike made happier.

I am aware that there are no data for fixing anything like an exact number as the maximum for which a mental hospital should be constructed. My personal experience of a small hospital for two hundred patients, of which I was the physician and superintendent, was that I knew each individual patient from start to finish of his illness, each official who aided me in my work, and each detail of administration, in a way I have never done in a larger institution. The human relationship between me and my patients, too, dominated the situation more. But I do not specially advocate this size of hospital. It has its disadvantages. When I came in charge of a larger hospital, one of about eight hundred patients of all classes, my experience was such, after giving the question my most careful attention, that I resolved to exercise all the influence I could possibly bring to bear, to prevent the institution being much enlarged. So strongly did I feel this to be my duty to my patients, that, in face of what seemed to be a binding agreement between the Managers of the Royal Edinburgh Asylum and the City of Edinburgh to admit all rate-paid patients sent to it, I urged my Board to a non-fulfillment of this contract. They resolutely backed me up, taking the consequences. Fortunately, common sense, dread of the law's delays and uncertainties, with the general homologation of my ideas regarding the disadvantages to the patients of too large an institution, prevailed, and the City of Edinburgh provided for its rate-paid patients one of the most up-to-date hospitals, at Bangor. Its Lunacy Board, under the advice of the late Sir John Sibbald, who had just retired from our Commission in Lunacy, went to Germany for its idea of a "village asylum," where the various buildings are scattered over an estate of six hundred acres, and are adapted in their construction and arrangement to the varied mental and bodily conditions of the patients. It restricted the number to be accommodated to about eight hundred patients. No one can say that the patients are not better off in the two institutions than they would have been in the one enlarged to twice its size. It will always be a source of personal satisfaction to me to think of this. In Scotland we had been prepared to adopt the idea of individualization by our experience of the advantages, economic and per-

sonal, of boarding out two thousand of our chronic and harmless patients in families all over the country. This plan had been largely initiated and carried out by Sir Arthur Mitchell, one of our Commissioners in Lunacy, fifty years ago. Our experience of this "Boarding-out System" has been, amongst other advantages, that it largely saves the capital expense of building hospitals and that the mentally unsound and defectives so mingle with ordinary citizens that the former prejudices against them have been reduced to a great extent. The individual peculiarities and wants of the patients are carefully studied and they are on the whole happier than they were when inmates of hospitals. They live a really "home" life. In Scotland, I am glad to say, we have only one hospital which exceeds a thousand patients, and that very slightly.

In England the opinion in favor of the smaller hospital was strong and universal among our best men sixty years ago, but the convenience and the apparent economy of additions to existing institutions has prevailed and she has now 35 hospitals whose numbers exceed a thousand patients. In Ireland there are five institutions with more than a thousand patients, but none over sixteen hundred. The last Report of the Commissioners in Lunacy for England, that for 1911, contains many facts which bear on this question. There are in England 95 County and Borough Mental Hospitals, which together treat 99,742 patients, the vast majority of whom are of the rate-paid class. The average number of patients in each hospital is, therefore, 1050, this average having gradually increased for the 66 years since our first important Lunacy Act became law. Of the 35 hospitals which have over 1000 patients, the largest of all has 2,760. Taking first the recovery rate of those 35 asylums on the admissions for the year, patients transferred from other asylums being excluded from the computation, it is seen to be 32.4%, while the average rate for all the institutions was 33%, and that for the hospitals with less than 1,000 inmates, 33.6%.

The other kind of institution in England consists of the 14 "Registered Hospitals" which receive only private patients at various rates of board; 840 of those being admitted for the year, and their total population at the end of 1911 being 2,621. The average number of patients in each was, therefore, 187. The recovery rate on the admissions in them was 47.5%, against 33% in the County and Borough Hospitals. This is a striking fact, but it is not a sufficient ground for an absolute scientific induction. The patients all paid both higher rates of board and had a much larger nursing staff in these Registered Hospitals, and in other ways the circumstances are not alike in the two classes of institutions. But even allowing for this, I cannot help thinking the small hospital with its more numerous staff partly accounts for the higher recovery rate.

In regard to the economical aspect of the question, the Report from which I have quoted shows that while the average yearly cost for each patient in the whole of the County and Borough Asylums of England, large and small, is £26 13s. a year, the cost in the 35 asylums with over 1,000 patients in each is £26 17s, so that there is no saving of money by enlarging them to this size.

There is an argument against large hospitals which I have seldom seen referred to, but which to my mind is of importance in deciding the question of their maximum size. It is the tendency to a deteriorating and hardening effect on the minds of the physicians who treat the patients whom they cannot study medically, and of the lay officials, through their coming in daily contact with such vast numbers of demented people. Such mental derelicts are incurable, are to human nature as it commonly exists, largely uninteresting and unlovable, suggestive of no new and stimulating ideas and a deadweight on the intelligence and emotions. It needs all one's sense of duty, all one's medical instincts and all the feeling of human kindliness that is in one to fight against this benumbing influence, even in a moderate sized asylum. My experience, and it is that written largely in the history of the unsound, is that it is the medical instinct which chiefly keeps the doctor immune from callousness of mental action and conduct. The lay mind, however well principled, however kindly, and however religious, is apt to yield ultimately, from sheer lack of interest in such cases, to the temptation of neglecting them. They are sometimes troublesome, and their habits are often dirty and offensive. The *cui bono* is apt to be almost unconsciously asked after the first years of energy, devotion, and interest in the work. I have been simply amazed and shocked at the proposals and the practices of well-principled, well-trained, and conscientious matrons, head-attendants and nurses, as well as lay members of committees, as to what was good enough for certain troublesome and incurable patients, and as to the measures that should be taken with the dangerous and destructive among them.

There is another argument which I have been in the habit of putting forward in discussing this matter. It is this, and may be put in the form of a question: "Why should not every small city and district of, say from a hundred thousand to three hundred thousand inhabitants, have its own mental hospital, as it now has its general hospital, its almshouses and its higher grade schools? The way in which we find masses of incurable patients in large institutions neglected by their relations, simply because they are too far off to be visited, is a very serious fact in the treatment of the insane. There is no critic so keen about the neglect of a patient as a mother or a maiden aunt. Thers is no stimulus so good for the nurses and officials and doctors, and so effective, as a personal appeal on the part of a near relation of a patient. Is it not one of the primary rights of a citizen, sane and insane, in a

civilized, well-governed country, to have reasonable facility of visiting or being visited when suffering from disease of any kind? I think myself that this is as much a humanitarian requirement as being housed and clothed and fed and nursed and doctored. Everyone acquainted with the subject knows that this personal visiting of the patients is not so common in large institutions, distant from the localities in which the patients have lived, as in the smaller hospital.

There are few men so alert in mind and body, so keenly conscientious and so medical in their instincts that they will keep up year by year for over twenty or thirty years the individual interest in each one of a thousand patients. When it comes to two or three thousand, the thing, in my judgment, is impossible. If I might refer to my own experience on this point, I found my power of individualizing my patients sensibly diminished after I had been 30 years at the head of a hospital of 800 patients, though I began this at 23. I had always laid down for myself the dictum, as a counsel of perfection, that when I ceased to be able to say to any of my patients, "Good morning ———," calling him by name, that then I should seriously think of retiring, and I never had more than about 850 patients, who were distributed and classified in 12 buildings, no "ward" in the main houses containing more than fifty patients, and some of them much fewer.

It is a suggestive fact in regard to this question that until very lately few hospitals were from the first arranged, planned and built for over a thousand patients. The additions to that number were commonly carried out as matters of expediency, of getting over the difficulty of purchasing more land, or of supposed ease of administration or economy. I believe that a certain amount of intellectual and administrative inertia, with a reluctance to face up the whole bearings of the question at issue were really at the bottom of most of the large additions to existing hospitals. I have been impressed with the fact that many of the Commissioners in Lunacy, members of the committees, and the physicians, have been inclined to apologize for the existence of such additions, and of large asylums, instead of defending them on principle. Dr. Channing in his paper, while endeavoring to take an impartial view of the subject discussed, clearly shows some of the same spirit of uncertainty and apology. His medical instincts seem to me contending with his argument. The economic gains of a large asylum have been nil, and the arguments that the same administrative buildings will do for a hospital of a thousand patients or for two or three thousand, has been proved to be fallacious.

The intelligent lay man, as well as the doctor, naturally asks the question, "How has the increase in the size of hospitals affected the recovery of the patients as a matter of experience?" I am not sure that we have reliable data on which to answer this question, because of late years, in Great Britain at least, the character of the patients sent to such hospitals has in many respects changed. Far more of the senile dotard class and many more paralytics and broken-down people are now certified as insane, and sent as patients to mental hospitals than formerly was the case. Certainly our general recovery rate has fallen considerably in the last 40 years. But my personal impression is a very strong one, and it seems to be fortified by the statistics I have quoted, that the greater individual attention which is bestowed on the curable patients, the more abundant liberty which the convalescents enjoy, the feeling of being an individual instead of one of a crowd, which exists in the smaller institutions, are influences which powerfully tend to prevent many patients falling into dementia, that terrible goal of all the uncured insanities. I have elsewhere defined insanity as a "tendency to dementia." No one who has had an insane relation and has thought clearly and felt acutely as to the problem of his recovery, but has striven to attain the most individual attention, the greatest amount of personal nursing and the most concentrated medical experience for this end.

I have not referred to the "Psychiatric Hospital" of small size, with a large medical staff and situated, if possible, near a medical school, for the early treatment of the curable and acute cases of mental disease, because I think that is now accepted by all of us as being most desirable, nor have I specially referred to institutions intended exclusively for the quiet, incurable class and for many of the quiet mental defectives, because I believe the general arguments I have put forward apply also to those classes, if we are to secure for them that humanizing care which will produce the greatest amount of happiness in their lives.

As responsible advisers to the local authorities who represent the rate-payers, I believe we shall be on safer ground if we doctors follow our medical instincts, which always make for individualization in treating any disease, rather than by taking motives of expediency, ease of administration and saving money, too much into account. To crystallize a wrong policy by bricks and mortar where the recovery from disease or human happiness is at stake, may be irretrievable. At all events, the patient and his chances of recovery should always have the benefit of the doubt.

No greater thing has been done for humanity in the last hundred years than the provision of the Mental Hospital. A public, which was at first entirely unconcerned, ignorant and prejudiced has been so roused and educated that it has done this. That public, under the influence of its humanitarians and its doctors, has willingly spent over £10,000,000 in providing Mental Hospital accommodations and is spending £4,000,000 a year in the cure and maintenance of their 147,000 patients in Great Britain. Those figures must be more than doubled for America.

The responsibility of the building and running of those hospitals and the right expenditure of those vast sums is enormous. If mistakes are made, through insufficient care, to solve the problem rightly, it cannot, unfortunately, be easily undone. We have gone in this respect on wrong lines in England, I believe, and the unsound in mind are in consequence not all getting the best done for their maladies. The United States and Canada would do well to make further inquiries before they follow our example.

THE SYMPTOMATOLOGY OF RENAL TUMORS; A STUDY OF SEVENTY-FOUR CASES FROM THE MASSACHUSETTS GENERAL HOSPITAL.*

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EVEN a hasty glance at medical literature, recent and old, shows that neoplasms of the kidney have had their full share of consideration. Garceau's admirable monograph, the monumental work of Albarran and Imbert, and the mass of statistical material contributed by others might lead us to think that the last word had been said, and that an early diagnosis was always possible. That such is not the case most of us know, but since, as we shall see, the patient may have his first intimation of the disease only after it has progressed beyond operative limits, we find ourselves in a situation which, in some respects, cannot be altered.

Under these circumstances, the writer makes bold to contribute his mite, in the hope that if it serves no other purpose, it will at least call attention to the gravity of the situation and to some of its difficulties.

That renal tumors are somewhat infrequent is shown by the fact that from the early eighties to the present time the clinical records of the Massachusetts General Hospital contain only 74 cases proved by operation or autopsy. This series does not, however, include many neoplasms of the kidney accidentally discovered at the autopsy table and which gave no hint of their presence during life.

The list comprises 27 hypernephromata, 7 sarcomata, 7 carcinomata, 3 adenomata, and 1 endothelioma. The remaining 24, in the absence of microscopic examination, must remain unclassified. It is seen that, as usual, the hypernephroma occurs most often. The diagnosis of carcinoma in 7 cases leads us to believe that we have been unduly favored in this respect, but were some of the sections on which this diagnosis was based examined in the light of our present pathological knowledge, this number would probably be reduced somewhat. Also it is fair to assume that the 24 unclassified cases would group themselves in about the same proportion as the others.

In our analysis of this series we have endeavored to generalize as much as possible, believing that with certain exceptions, the symptomatology of renal neoplasms is essentially the same.

The 74 cases occurred in the white race with one exception, a negro. This is of interest, if not of importance. There were 43 males and 31 females, ranging in age from 1 year and 10 months to 66 years, the incidence being greatest in the fourth decade, with the fifth next in order. Contrary to custom, the left side was affected more often than the right, 41 against 30.

So far as could be ascertained (the estimate must necessarily be rough) the duration of symptoms pointing directly to the urinary tract or kidney ranged from a few days to over ten years. The latter figure may seem startling in the presence of a malignant growth, but is not inconsistent with our knowledge of the habits of such tumors, nor is it in disagreement with the statistics of other writers. However, in more than half the cases there were symptoms which brought the patient to the hospital within a year of their onset; in fact the greatest number (28) sought relief within six months. It is significant to find that in many the malignant nature of the disease had manifested itself in general terms long before it revealed its locality. Thus 13 patients said they had been "running down" or "losing weight" for many months or even years before the appearance of any symptoms of a local naure. It is this aspect of the situation which clips the wings of our hope and makes the early bird a *rara avis*.

Inquiry as to the way in which the patient became aware of his trouble shows that in forty cases the situation gradually unfolded itself by a growing sense of weakness, a slow loss of weight, a little disturbance of urination, some unaccountable dyspeptic symptoms, a fleeting pain in the loin, a change in the color of the urine, or an increase in the girth. In the remaining thirty-four the curtain was suddenly drawn, showing hematuria or tumor on a background of pain.

Loss of weight is known definitely to have occurred in 51 cases. In some it was very gradual, extending over months or even years; in others it was a question only of weeks, and often involved many pounds of flesh.

Urinary disturbances, aside from hematuria, also figure in the picture to a certain extent. Frequency, dysuria, urgency or difficulty were noted in 21 cases, but are not to be regarded as pathognomonic. In 46, urination was said to be normal in every respect.

Nausea and vomiting, usually accompanying renal colic, but often of independent origin, were noted in 29, and are to be regarded as significant. When not produced by renal colic, they may be accounted for by a toxemia, or even by metastases in or about the digestive organs.

* Read at the meeting of the New England branch of the American Urological Association, Hartford, Conn., Nov. 18, 1912.

It is well known that the cardinal symptoms of renal tumor are, in order of frequency, pain, tumor and hematuria. As regards pain, a point of diagnostic value is that it may and often does come on during sleep, thus differing from the pain caused by renal calculus, and aroused by muscular activity. It may be accounted for by a passive congestion of the kidney, by pressure on nerve trunks, by the passage of clots or shreds of tissue, or by a temporary blocking of the ureter. In other features, such as intensity, duration, location and radiation, it has no special characteristics.

Hematuria, like pain, also may begin insidiously and without apparent cause. It often alternates with a clear urine, appearing late or early in the disease, and may occur but once or may be constant. Its relation to pain is important, the two often beginning simultaneously. Its duration is generally brief, its frequency and intensity variable.

An inquiry into the initial symptoms in these patients shows that pain alone occurred in 25, hematuria alone in 18, and tumor alone in 15. Pain and tumor, and pain and hematuria sounded the alarm in six cases each, hematuria and tumor together were seen but once. That pain is an almost constant feature is shown by the fact that it occurred at some time during the course of the disease in 63 out of the 74 cases, while the patient had noticed a lump in his side 46 times, and had passed bloody urine 39 times.

Further analysis shows that from time of onset to operation or death pain was the sole symptom in 10 cases, tumor alone in 5, and hematuria alone in 3. On the principle that misery loves company, we find these symptoms grouping themselves together in one combination or the other so that during the course of the disease pain and tumor were the symptoms in 22, pain, tumor and hematuria in 16, pain and hematuria in 15, and, finally, tumor and hematuria in 3.

One patient had no symptoms in the urinary tract at any time, came to the hospital because he felt "all in," and revealed the nature of his malady only after careful physical examination.

The general condition of 30 was considered to be good, whereas in 28 it was distinctly poor, and in 15 could be called only fair. In other words, 43 cases showed the effects of the disease to a greater or less extent.

Sixty-five patients had a normal temperature at time of entrance, from which it is clear that renal growths *per se* cause no pyrexia.

An examination of the urine in 71 cases showed the presence of albumen, pus, casts, or blood in 61. Hematuria was observed after their admission to the hospital in 17 patients. It is thus seen that a pathological urine is the rule, but it is equally clear that in the absence of hematuria it may give no definite clue to the diagnosis. It is also noteworthy that in ten cases, all with well developed tumors, the urine, when examined, was normal in every respect. Some authors have mentioned the occasional presence of tumor cells in the urinary sediment. Such findings are conspicuous by their absence in this series. But in view of the statement of the pathologist in many of the excised kidneys, that the growth was found to have extended into the renal pelvis or ureter, one might reasonably expect the microscope to reveal tumor cells more often.

The question of increased arterial tension, especially in connection with hypernephromata, has been investigated by other writers. That it may occur has been shown by Eisendrath, Neisser and Holmes, Keen, Pfahler and Ellis, and by Ochsner. On the other hand, Eisendrath and Garceau, after careful investigation, have each concluded that it is infrequent. The meagre data furnished by the present series of cases support this view. The blood-pressure was observed in only three, one a hypernephroma, so proved by the pathologist. The patient was 54 years old, with a blood-pressure (presumably systolic) of 140 mm. The other two cases are unclassified, but in one the clinical diagnosis was hypernephroma. The patients were 43 and 57 years of age, their blood-pressures being respectively only 120 mm. and 135 mm. Although this evidence is slight, it at least shows that no marked rise of blood-pressure is to be expected in such cases.

Cystoscopy and ureteral catheterization were done in but a few of these patients. In some a stream of bloody urine was seen to issue from the affected side. It seems worth while to mention briefly a case of hypernephroma, in a male, cystoscoped by the writer before operation. On the posterior bladder wall, near the fundus, was a smooth, fleshy growth, perhaps the size of a dime, with a short, thick pedicle. In the light of the subsequent operative and pathological findings it was believed that this tumor was metastatic. Garceau found only one instance of bladder metastasis in 176 cases of hypernephromata. With the hope of determining the nature of the tumor in our patient, the bladder was examined again about two weeks after operation with the Young operating cystoscope. The growth had completely disappeared, leaving behind a small scar with a sloughing base.

The x-ray, used repeatedly in our series, showed nothing of value beyond an occasional calculus, or a difference in the density or size of the two organs. We must insist, however, on the importance and even the necessity of careful examination by the cystoscope and x-ray. If the bladder presents a negative picture much valuable information can be obtained by catheterization of each ureter. By this means alone can we determine the character of the two urines, and estimate the functional capacity of each kidney, a matter of supreme importance in the consideration of nephrectomy. Also in combination with the x-ray, the stiletted catheter or a collargol injection of the renal pelvis

will often clinch a diagnosis, or eliminate the kidney entirely as the seat of trouble.

Convincing proof of the constancy of a palpable tumor is furnished by the statement of its presence in 65 cases. In a few the mass could not be differentiated from a mere hypertrophy of the kidney from some other cause. In the large majority its shape, nodularity, hardness, immobility, and, in some cases, enormous size, left no doubt as to its nature. Tenderness is not a constant feature, as shown by the fact that it was mentioned by the patient before entrance only fifteen times, and was elicited during the course of the physical examination only 27 times.

In view of the known tendency of renal tumors, notably hypernephromata, to begin in the upper pole, and hence escape early detection, the writer wishes to emphasize the importance of examination in other than the dorsal position. The bowels should be thoroughly emptied, and the methods of renal palpation described by Guyon, and by Israel used with care. Personal experience has demonstrated many times that a kidney which cannot be felt in the ordinary dorsal attitude, is often distinctly palpable with the patient in Israel's position, *i.e.* lying on the sound side with the thighs flexed, the operator palpating the kidney by bimanual pressure.

In the examination of this class of cases we must be ever watchful for evidence of metastases. Lung symptoms of vague origin, gastric disturbances of apparently idiopathic nature, bone tumors of suspicious character, must always be regarded as merely the tail to the kite. In our present series such metastases were observed clinically in but eight cases, three times in the supraclavicular glands, twice in the lung, and once each in liver, spine and pelvis. The records of many cases, on the other hand, show that the growth had long since exceeded the possibilities of operation by extension along the great vessels, while in others, coming to autopsy, the liver, brain, spleen and other vital organs were found to be hopelessly involved. In his analysis of 176 cases of hypernephromata, Garceau found bone to be the favorite seat of metastases, with lungs and regional glands next in order, but with practically every other tissue offering a fertile soil.

The investigations of Guyon, Legueu, and Morris have shown that renal tumor and varicocele (especially right sided) not infrequently go hand in hand. No such companionship has been noted in this series. There were three instances of varicocele, all on the left side, none of them remarkable for size of sudden appearance, but in each case the tumor was also on the left, a point which is perhaps suggestive. In the same connection we have noted a dilatation of the abdominal veins (*caput Medusae*) in four cases, once on the right, thrice on the left side, while one patient was sorely afflicted with hemorrhoids, and another had marked varicosities of both legs.

Such is the picture to be drawn from a fairly large number of renal tumors, none the less valuable because it is a composite. It shows that in spite of our best efforts we are still many laps behind the disease in the race for victory. But it also gives hope that much ground may be gained and time cut short by minute study of the symptomatology, by the intelligent use of every diagnostic procedure, and, where all else but tumor has been eliminated, by operative exploration of the kidney without delay.

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THE EARLY RECOGNITION OF TUMORS OF THE BLADDER.*

BY ARTHUR L. CHUTE, M.D., BOSTON.

THERE are many sides to the subject we are to discuss tonight, and one that I believe we may consider with profit is, "How can we get better results in our cases of tumor of the bladder?", for I believe that all who have seen and followed any considerable number of these cases will admit that their results have not been entirely satisfactory. My remarks apply only to primary tumors of the bladder. Tumors that have their origin in the prostate and invade the bladder secondarily belong in a different group; in them the outlook is very properly considered especially unfavorable.

The means at our disposal for the treatment of bladder tumors have been added to materially within the past few years, and vary from the intravesical destruction of small papillomata, by means of cauterization, to the removal of a part or even the whole of the bladder, a very wide range of procedures and presumably adequate for the successful treatment of any primary tumor of the bladder at one time in its course.

Yet the application of these means are not always successful. Only a few days ago I saw an autopsy that illustrated this point only too well. It was on a man, for whom I had done, in October, 1911, a transperitoneal resection for a tumor situated most favorably, high in the posterior wall of the bladder. The mass had been excised with a good margin, yet it recurred, and at autopsy the whole mesentery was studded with great metastases; the bladder itself was nothing but a thick walled cavity of friable material; the os pubis was so infiltrated that it was easily cut through with a knife. Perhaps this was a case where I should have done a total cystectomy, an even more radical operative procedure than transperitoneal resection. However, my per-

* Read at the meeting of the New England Branch of the American Urological Association, Hartford, Conn., Nov. 18, 1912.

ional feeling about cystectomy is that it is such a frightful mutilation that it is justifiable only in advanced cases, so much so that one might almost say of it that, in the cases where it is clearly indicated, it will probably be of little benefit.

As we can remove any part of the bladder, or the whole of it, as seems wisest in the individual case, I feel that we have practically reached the limit of operative possibilities in dealing with these cases; that if we are to get more satisfactory results, they must come from the application of these means at an earlier stage of the disease. To do this, these cases must be recognized earlier than they are at present.

As I have gone over the histories of my own cases, I have been impressed with the late recognition of these cases. For instance, in the case whose autopsy I have cited, the first symptom was in February, the operation in October. The tardy recognition of bladder tumors is not often due to a lack of symptoms, but to a lack of a just appreciation of the significance and importance of symptoms. The symptom that we see early in a large proportion of growths of the bladder is bleeding. This is a striking symptom, but it occurs with other conditions, and when unattended with pain, as it so often is, there seems to be a very unfortunate tendency to assume that the bleeding has a less important origin and to wait to see if it recurs. Often the recurrence will not be for weeks or even months, and again the bleeding is transitory and ceases promptly under almost any treatment. I believe that what has been said and written about the so-called "essential hematurias" has tended to confuse practitioners and has encouraged them to believe, in the absence of pain or other marked symptoms, that the bleeding they had in hand was very likely of this type.

This tendency to ignore the symptom of urinary bleeding has come home to me especially forcibly recently. During the last week in October I operated upon three cases of tumors of the bladder; all these happened to be papilloma. In two of these three cases the bleeding began three years before; in the third there had been attacks of bleeding over a period of eight or nine months. This is the common history, the appearance of the initial hematuria a long time before the patient came for careful diagnosis. I find from my records that I have seen but two cases of bladder growth in which the patients have presented themselves within a month of their initial hematuria.

Urinary bleeding is not a very uncommon thing and may be due to almost trivial conditions, but it should be looked upon in a similar way to a mass in the breast. A mass in the breast may be a chronic mastitis a cyst or a fibroma, but no one is justified in assuming that this is the case until he has definitely found it to be true; so a urinary bleeding may depend upon a trivial cause, but this must not be assumed until it has been definitely demonstrated.

It further seems to me that too much stress has been put upon the non-malignant tumors of the bladder, which certainly make up a very small proportion of these cases. I have seen a considerable number of tumors of the bladder, but, with the exception of a few pedicled prostatic masses, which I believe it is straining a point to call tumors, I have never seen a tumor of the bladder that was not either actually or potentially malignant. The carcinomas and sarcomas are actually malignant; the papillomas, unless eradicated early and thoroughly, are in the vast majority of instances going to spread so as to involve a large amount of the bladder surface; and even when they are not actually malignant, they are going to undermine health by hemorrhage and sepsis. This sepsis does not limit itself to the bladder, but often extends to the kidney, for with an infected residual of any considerable number of ounces there is going to be back pressure on the kidneys and, finally, pyelonephritis.

You may feel that I am by inference putting the blame for our lack of success in the treatment of bladder tumors on the general practitioner. While I agree that without the early coöperation of the general practitioner I see no hope for improvement in our treatment of tumors of the bladder, yet I do not think any blame attaches to him for our past lack of success. If there is blame to be placed anywhere, it belongs to us who are the ones who are expected to guide the general practitioner about such matters. I believe we have not made two points sufficiently clear.

First, that hematuria is always to be looked upon as a grave symptom until it has been definitely proven to be trivial. This demonstration of its triviality must not rest upon the fact that it stopped promptly under some simple medication, or that it was unattended with pain. It can be declared trivial only when, after a most careful examination we find that it has its origin in some unimportant condition.

The second point that I believe we have not made sufficiently clear is in regard to the real malignancy of bladder tumors as a whole. We speak about the malignant and benign papillomas, referring to their microscopical picture rather than to their clinical course. This gives to many men not especially familiar with them the impression that there is a class of bladder tumors that is really clinically benign. I do not believe this is so, and I feel we should make it clear that all bladder tumors are essentially malignant. I do not intend to give the impression that all papillomata are malignant in the sense that they infiltrate or lead to metastases, as the carcinomata and sarcomata do, but they are malignant in the sense that they proliferate locally and lead to danger through hemorrhage and infection of the bladder and kidneys.

One of the three cases I operated upon in October showed this very clearly, and in this instance the delay cannot be put upon the gen-

eral practitioner. This man, fifty years of age, began to bleed three years before. He was seen by a competent man, who told him, after cystoscopic examination, that he had a small papilloma of the bladder. It was so small that he advised simply nitrate of silver irrigations. I suppose this man expected to have a chance to follow this patient, but the patient changed his residence, though he kept on with his physician's advice.

When I saw him, early in October, he showed a bladder full of papillomatous masses; his urine was low in gravity and solids, and contained a large amount of albumen. He had a residual of seventeen ounces. His renal function was poor. After some preparatory treatment, I opened his bladder and removed a handful of soft papillomatous masses. They clustered about the outlet and whole lower part of the bladder. This patient did well for a time and seemed to be on the way to recovery, when he suddenly died of embolism on the fourth day after operation.

The microscopical examination of this growth showed it was of the "non-malignant" type, and at the time of operation there was no point where I could feel any infiltration of the bladder wall. Yet, if we can believe the history, and I see no reason to doubt it, this "benign" tumor had grown in three years from a single small papilloma to a great mass; the kidneys had become involved and the growth infected. Certainly this growth was not benign as regards its clinical course.

To be sure, this man died of what one might say was an accidental cause, and yet I do not feel sure that we may consider embolisms in patients with advanced papillomatous growths of the bladder as quite accidental. There is a considerable tendency in such cases to embolism, since there are great veins that lead from the growth that seem to be favorite locations for thrombus formation and the detachment of emboli.

I have just had another case in which a septic pneumonia of embolic origin followed very promptly the loosening of some wicks that I had placed in a bladder to control oozing after the removal of some very large papillomatous masses. This man had to have his chest opened for an empyema that followed his pneumonia, but now bids fair to recover. These two cases do not represent the total number of cases of embolism that I have seen following operations about the bladder outlet. I believe there is a predisposition to embolism in these cases, and this becomes greater when we have infection added to the great dilatation of the veins of the bladder that we see in growths that have been allowed to reach a considerable size.

If we are going to teach that every hematuria may possibly be the first sign of a bladder tumor, and urge cystoscopy at once on the ground that the only chance of permanent cure may depend on immediate action, we must be able to detect bladder tumors with reasonable certainty. A single papilloma presents a striking picture that it is difficult to mistake. However, a bladder full of papillomata presents anything but a distinctive picture, especially if it is infected, as so often happens, and I for one have been absolutely misled, at the first examination, by the picture presented by a bladder filled with masses of growth.

With the infiltrating growths the difficulty in recognition is not in the advanced cases, which present a fairly definite picture, but in the early cases, the ones that I feel we must recognize if we are to get better results. These early cases may simply show little raised, rough surfaces, or slightly raised, velvety plaques, and be very difficult to recognize, especially when they are not bleeding.

I had the good fortune to recognize, some eighteen months ago, a beginning carcinoma in which the initial hematuria had been but three weeks before. This growth, which was nothing but a slightly raised and roughened area, was excised and a few months ago had shown no sign of return. In this case there was no infiltration to be felt, and microscopically the cell invasion was limited to the mucous membrane. In another case, operated upon four months ago, the patient was seen two weeks after his first hematuria. I could see what I supposed was a beginning growth on an intravesical projection of his prostate. I operated from above and found that the surface I had seen was really beyond the prostate on the lateral bladder wall. It was removed, with another little infiltrated area just anterior to the bladder outlet; both areas proved to be carcinoma. It is too soon to tell anything as to what the result will be. These areas were simply little velvety patches where the bladder had lost its normal surface. There was no ulceration and very little, if any, elevation of the surface.

There is another point in connection with the early diagnosis of bladder tumors that I think we should emphasize, that is, the difficulty that is encountered at times in finding the source of any urinary hemorrhage. This is most marked naturally when we make our examination in the interval between hemorrhages. Too many men have the idea that a cystoscopic diagnosis can be made in a single examination, and, while this is true in many instances, it is not without its marked exceptions. Especially is this true in cases requiring the location of the source of a urinary hemorrhage. It may be necessary, in order to arrive at a diagnosis, to study a case with great care, and over some time; this may require making several cystoscopic examinations.

In dealing with bladder growths at the stage I believe we should see them, if we will impress on the medical public the great importance of the early investigation of all cases of urinary bleeding, it is essential that we see the lesion and note carefully its location, with reference to

ome of the landmarks of the bladder, before we pen the bladder. This is because of the great difficulty in recognizing a small and non-infiltrated area in the open and collapsed bladder. For areas that are near one ureter I have found it useful to insert a ureter catheter before opening the bladder, simply to have a landmark by which to locate a certain point. This does not apply naturally to the larger growths. While a reasonable suspicion of a growth warrants us in exploring a kidney, in the case of the bladder we are not warranted in opening it until we have definitely located the point we are to attack. This is for the reason that it is extremely difficult to find a small and perhaps little changed area in an open bladder.

In closing, I would say that it is my belief that if we are to get better results in our treatment of bladder tumors, we must see these cases earlier; that in order to see them earlier we must impress upon the medical public two points: First, that any hematuria may be a sign of very serious bladder disease; each should be looked upon with suspicion until its source and cause are clearly demonstrated. Second, we should combat the idea of the benign nature of bladder tumors. A very large proportion are malignant from the start in that they infiltrate the bladder wall and lead to metastases. Some that are apparently benign in the beginning tend later to infiltrate. Some that do not show any tendency to infiltrate tend to multiply and destroy life by hemorrhage, sepsis and interference with the renal function. Until our knowledge of these tumors is greater we are taking too great a risk in assuming that any given bladder tumor is clinically benign, though we have reason to believe that a few probably are.

In my opinion, the only proper treatment for tumors of the bladder is their early and complete removal. In most instances I believe this should be by excision.

OBSERVATIONS ON RECENT CASES OF BLADDER TUMORS AT THE MASSACHUSETTS GENERAL HOSPITAL WITH SPECIAL REFERENCE TO OPERATIVE TECHNIC.*

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(From the Genito-Urinary Department.)

IN this brief paper I wish to discuss certain points of interest in relation to the cases of bladder tumors which have been operated upon in the Genito-Urinary Service at the Massachusetts General Hospital during the last year. These are ten in number and all have been carefully observed. The oldest patient was 72 and the youngest 18, the others varying from 39 to 65. There were seven males and three females.

* Read at the meeting of the New England Branch of the American Urological Association, Hartford, Conn., Nov. 18, 1912.

Pathologically four of these cases were infiltrating cancer. In two the infiltration was slight, in another it was marked, the muscular coat being deeply involved and in the fourth the process was extensive, going beyond the bladder. Three are described as malignant papilloma, these being pedunculated tumors with a papillary appearance having a small pedicle, the base of which on section had begun to show an infiltration of the deeper coats of the bladder with atypical masses of epithelial cells. Two are described as non-malignant papilloma. One of these is of interest because of the fact that two years ago he had two growths removed which were described as malignant papilloma. In one case which had previously been treated by high frequency cauterization, the excised tissue showed chronic inflammation with few epithelial elements.

Five cases were operated upon by the transperitoneal route, two of these requiring a reimplantation of the ureter, four by suprapubic cystotomy, one of these having had a previous transperitoneal operation. In one advanced case, curettage of the growth and cauterization of the base only was done. There were no operative deaths, although the case last mentioned left the hospital in poor condition and doubtless will succumb to the original disease. Another case is still in the hospital having had an embolic pneumonia 20 days after operation.

In regard to the symptomatology; all of the cases gave a history of hematuria and all but one or two showed marked bleeding at the time of examination. Some cases showed the terminal bleeding so characteristic of tumor, in others there was nothing in the character of the bleeding to suggest bladder rather than renal origin. Two of the cases suffered from urinary frequency previous to the advent of the hematuria, one of these having a median lobe prostatic obstruction. The others gave a history of painless, intermittent hematuria with varying intervals between the attacks but as a rule the bleeding tended to become constant.

The longest duration of symptoms was three years, in the case of non-malignant papilloma; the shortest was eight weeks. In this case the secondary anemia was so profound that transfusion was done before radical operation could be attempted. In another of nine weeks' duration practically an emergency operation was done, the bladder being distended with clots, the patient passing apparently clear blood at frequent intervals. These are extreme examples of extensive hemorrhage. The longest interval between attacks of bleeding was nearly two years. This occurred in a patient who presented a small papilloma on the posterior bladder wall with well marked hematuria. Operation was advised but the bleeding stopped and he disappeared, having no trouble until a week before entrance when he had an attack of bleeding sufficient to cause acute retention. During this time the tumor had about tripled in size. Some of the

cases were suffering from increased frequency of micturition due to a secondary cystitis. Pain, however, was not a feature in any of the cases with the exception of the advanced malignant one where it was intense, and in the case where there was retention due to clots. While the history of irregular intermittent hematuria with or without urinary frequency and associated with a low blood pressure is suggestive of bladder tumor and much more so should the bleeding be terminal, excluding the course of the prostate; an accurate diagnosis can only be made by means of a cystoscopic examination, which was done in all of our cases. By this means the size, number and position of the growths can almost always be determined. I qualify this statement for the reason that rarely on account of the size or the number of the growths or the presence of an excessive amount of bleeding an accurate interpretation is impossible. For example, one of our cases already referred to, a man of 50, where the bleeding was so profuse that beyond the fact that there was a tumor in the region of the base, nothing further could be made out. This patient was in poor condition, having diffuse bronchitis and a rapid pulse, so suprapubic cystotomy was done under spinal anesthesia. The bladder contained a large amount of bloody fluid and old clot; just above the left ureter orifice was a pedunculated papilloma the size of a plum which was removed. This patient made an uninterrupted discovery and left the hospital in two weeks.

In regard to the deductions which may be drawn from the cystoscopic appearances of these growths, we are able to say with considerable accuracy that a certain type of growth is malignant; in this class are the sessile and broad pedicled tumors and the infiltrating cancer. Unfortunately the reverse of this is not true, for however benign a papilloma may appear to the eye we have no means of telling whether or not any infiltrating of the base of the pedicle has begun. Cystoscopy is, however, of great benefit in determining the nature of the operative procedure to be followed out in a given case. These procedures are supra-pubic cystotomy, transperitoneal cystotomy, total cystectomy and the palliative operations of curettage and cauterization. The high frequency cauterization method of treatment is here omitted as it forms the subject of another paper.

SUPRA-PUBIC CYSTOTOMY.

We employ this operation for the removal of papillomata with small pedicles which do not involve the ureteric orifices. Our technic is as follows: The operative field is prepared with tinc. idoi, the bladder distended with boric acid solution and the patient is placed in a moderate Trendelenberg position. A median suprapubic incision is made through the muscles and fascia down to the pubic bone. The peritoneal reflection is found and displaced upward. The bladder is opened from this fold forward as far as is necessary to obtain a good view of the tumor. Wide retaction is employed and several sutures are placed in the bladder wall about the tumor by means of which it is steadied and lifted into the field. Should the tumor be near one of the ureteric orifices a catheter or probe is introduced, the pedicle is grasped with a right-angled clamp and the growth is excised, without being handled, with a good margin of normal tissue, the resection including the muscular coat. This space is closed with a continuous catgut suture through all layers which is sufficient to control the bleeding. The bladder incision is closed in two layers, the fascia and skin sutured, a small rubber tissue drain placed in the prevesical space and a catheter introduced into the urethra. This method was employed in four cases. Prompt recovery took place in three, two being discharged in 15 days and one in 12. There was slight leaking for a few days in one case only. The pathological examination in these three cases showed a beginning infiltration of the base of the pedicle in each. In the fourth case, already referred to, where benign recurrence occurred two years after a previous operation, the catheter became plugged, necessitating reopening of the suprapubic wound and the introduction of a tube. A sinus persisted for a number of weeks. The second operation was performed a year ago. This patient has at present several small recurrences which are being treated by high frequency cauterization.

TRANSPERITONEAL CYSTOTOMY.

We regard this the operation of choice in all cases of sessile and infiltrating growths where radical cure can be attempted except those so extensive as to require total cystectomy, as well as in cases where the tumor involves one of the ureteric orifices requiring reimplantation of the ureter, for the reason that the bladder may be widely opened and these tumors can be much more freely excised than by the other route. This operation was done in five cases, some of which are of sufficient interest to give in detail.

A striking case is one of a girl of 18 who had been feeling "tired" for a year and for the last eight weeks had had a profuse continuous painless hematuria with loss of weight and strength. There had been no pain, but of late some increased frequency of micturition. Examination showed a fairly developed, very anemic girl. Red count 3,000,000 Hg. 50%. A cystoscopic examination under ether showed a sessile malignant appearing tumor the size of a small grape on the posterior wall of the bladder well behind the intraureteric bar. Bladder otherwise normal. After the cystoscopy the red count fell to 2,250,000 and the Hg. to 20%. Three days later a direct transfusion was done, her father acting as donor. The pulse rate after the transfusion fell from 140 to 120 and the Hg. rose to 55%, the pulse of the donor going from 80 to 125. The next day there was a sharp

rise in temperature which was normal on the following day. The third day after the transfusion the patient had a good color, pulse 88, Hg. 80%. The hematuria remaining the same, irrigations with $AgNO_3$ and adrenalin solutions having no effect, transperitoneal cystotomy was performed. The peritoneal cavity was opened in the median line and after walling back the intestines, an incision was made in the posterior bladder wall at one side of the growth, this incision was continued in a curved direction about the tumor which was excised with a good margin of normal tissue leaving a racquet-shaped opening, the resection including the peritoneum. The bladder wound was closed with a continuous suture re-enforced by a second one infolding the peritoneum. The peritoneal cavity was closed without drainage and a self-retaining catheter inserted into the bladder. This was removed on the fourth day. The patient made an uninterrupted recovery, being discharged on the 16th day. The pathological examination showed epidermoid cancer extending to the muscular coat but not infiltrating it. A very unusual type of growth in so young an individual.

When the resection has been extensive or infection is present, the above technic is modified by the use of a suprapubic, extra-peritoneal drainage tube, which is removed after a few days and urethral drainage substituted to hasten the closure of the suprapubic sinus.

In the two following cases, the ureter was divided and re-implanted into the bladder.

In the first of these, the patient being a man of 46, a non-malignant papilloma was removed with the adjacent mucous membrane from the region of the left ureteric orifice. After the removal, the cut end of the ureter could not be recognized. The peritoneum was then separated from the left lateral bladder wall and drawn inward. The ureter was opened at the pelvic brim, a bougee passed into the bladder emerged form the middle of the resected area. The end of the ureter was freed and sutured to the bladder mucous membrane. The incision in the ureter was sutured and a drain placed to it and a suprapubic tube in the bladder. No ureteral drainage was employed. The patient passed some urine per urethram but a considerable leaking persisted from the wound. A cystoscopy, several weeks later, showed that the bladder had healed at the site of the excision but the ureter opening could not be identified. Shortly after this the wound stopped draining and a tender sausage-shaped tumor appeared in the left loin with some rise in temperature. The sinus re-opened itself with relief of symptoms. An operation was then undertaken for the closure of the ureteral fistula. The ureter which was not dilated was opened high up near the renal pelvis. A No. 7 ureter catheter was passed down into the bladder, grasped with a lithotrite and drawn out through the urethra. The catheter drained for six days and was then removed. Recovery was uneventful. When seen several months later there were no symptoms and cystoscopy showed a patent ureter orifice situated high on the posterior aspect of the left lateral wall. In this case it would have been better to have maintained drainage by means of a ureter catheter at the first operation as when contraction began the urine took the course of least resistance and fistula and extravasation occurred. On dilating the new ureteric orifice and establishing drainage, prompt recovery took place.

In the second case the method of dealing with the ureter was different. Cystoscopy showed a large tumor with a papillary appearance on the right lateral wall extending half way up and nearly to the median line below. The right ureter could not be seen nor could it be made out whether or not the tumor had a pedicle. For this reason the technic was modified by first performing an exploratory suprapubic cystotomy, when it was found that the tumors had a broad infiltrating base but apparently had not extended beyond the bladder. The operation was then converted into a transperitoneal one and a large portion of the right lateral wall and part of the base including the right ureter was resected. Search for the divided end of the ureter was unsuccesful so the peritoneum was incised over the bifurcation of the iliac artery, the ureter found, opened and a No. 6 ureter catheter inserted, the end of the ureter was readily found, slit laterally and sutured into the bladder. The catheter was passed out through the urethra and pulled down until the funnel-shaped end was just above the point where the ureter had been opened high up. This opening was closed and the peritoneum over it. The peritoneal cavity was closed without drainage and the bladder sutured about a rubber tube, a drain was placed in the extra vesical region to the under side of the ureter implantation. The ureter catheter drained well and was removed on the sixth day together with the other drainage, after which urethral drainage was started. He did well until the 20th day when he developed an embolic pneumonia and was dangerously ill for several days. The temperature fell by crisis, but the cardiac condition has remained unsatisfactory and the general condition seems to be gradually failing. On account of the small size of the bladder, constant drainage has been difficult to maintain but the suprapubic wound is closing slowly. He has had of late some pain in the right loin suggestive of pyelitis but there are no signs of renal obstruction.

The pathological report in this case is cancer deeply infiltrating the muscular coat so that the probability of recurrence is considerable.

While large areas of the movable portion of the bladder may be resected with perfect functional recovery, this case represents about the extent to which the more fixed part can be removed with the hope of a resulting useful viscus. Here about one-third of the bladder was removed, the incision going nearly to the median line and to within one-half inch of the prostate in front. We believe the method of dealing with the ureter in this case to be decidedly the better of the two.

One other case of which I wish to make brief mention is that of a man of 72 with prostatic symptoms and slight hematuria. Cystoscopy showed a median lobe obstruction and on the right side posterior to the ureter a papilloma the size of the end of the thumb. This was subjected to eight high frequency applications with considerable diminution in the size of the growth. The last cystoscopic note reads, "Tumor now consists of a number of small nodules and for the first time has the appearence of a number of small nodules about a parent

growth." Because of the suspicious appearance a transperitoneal cystotomy was done and an indurated area one and a half inches in diameter with a half-inch central ulceration was removed, together with a small median lobe.

The pathological examination is of interest. On section the excised area was found to be composed principally of highly vascularized granulation tissue showing a marked degree of chronic inflammation involving the submucous coat only. The epithelial elements showing little tendency to infiltrate. Whether this is in spite of or because of the previous high frequency cauterization, we are unable to form an opinion.

When the growth is very extensive but still confined to the bladder, or when both ureter openings are involved, total cystectomy should be performed after the method advocated by Dr. Watson. This consists of a preliminary bilateral nephrostomy, the cystectomy being performed at a later date. The procedure is a formidable one and is obviously limited to those patients who can receive the after-care incident to double loin fistulae.

The advanced case which was treated by curettage and cauterization is an example of that type which is obviously unfit at the time they present themselves for any other than some paliative operation for the relief of the distressing symptoms.

In conclusion, we would state that the foregoing represents our present views on the operative treatment of bladder neoplasms.

THE VALUE OF HIGH FREQUENCY CAUTERIZATION IN THE TREATMENT OF VESICAL PAPILLOMATA.*

BY HORACE BINNEY, M.D., BOSTON.

Little more than two years have passed since Beer[1] made the first report on the treatment of Papilloma of the Bladder by this method. With the comparative rarity of this disease, there is naturally, as yet, no large number of case reports on which to base opinions regarding this method, and in this brief period there are but few published cases which have been followed for more than a year. In the light of these facts, any attempt at this time to form conclusions as to the practical value of high frequency cauterization may seem premature. A study of the reported cases and my experience with the method in four cases has led me to believe that it is of certain definite value, and a number of points stand out clearly. These I shall dwell upon in the course of this paper.

Before weighing the evidence it may be well to review briefly the development of the method and the manner in which it is now usually employed. After the discovery of the high frequency current and its application in X-ray work and elsewhere, it was found that superficial skin lesions, such as warts, moles, etc. could be destroyed by cauterization with the high frequency current. According to the particular form of coil used, the current applied is either of two types: the bipolar or d'Arsonval type, and the monopolar or Oudin type. In the first, one pole was placed in contact with the patient's body or limb by means of a broad flat electrode, while the other pole was attached to a pointed metallic electrode placed on the tumor. On closing the circuit a fine stream of sparks is developed which produces a superficial cauterization. In the second (Oudin) type, but one pole is necessary, this being connected to a pointed electrode, and applied close to the tumor, giving off a similar stream of sparks, the return flow of current passing through the patient, the surroundng objects, and even the air.

The effect of this current on tumor tissue is to produce a superficial cauterization at the point of contact of the electrode. This is not fulguration, a term which has been borrowed from the electro-therapeutists, and designates a wholly different electrical effect; therefore the two should not be confused. "High frequency cauterization" is the more exact and therefore preferable term.

Although in their earlier cases Beer, Keyes,[2] and others used the bipolar method, they soon found that the monopolar or Oudin type of current was fully as effective and simpler in application than the other, and therefore adopted it altogether. This is the only method with which I have had experience.

For the benefit of those who have not seen the actual application of this procedure I will say that an ordinary catheterization cystoscope is used, an electrode consisting of a slender steel or copper wire covered with insulation, the size of a No. 5 or 6 ureteral catheter.

By the manipulation of the lever the electrode can be brought in contact with the tumor. On closing the circuit (usually by means of a foot switch) the cauterization is begun. It has the effect at first of blanching the tissue, and after fifteen seconds or so of the application of the current the cauterization actually begins, with charring of the tissue. Carried on for more than twenty-five or thirty seconds the cauterization becomes quite marked and the tissue cauterized adheres to the end of the electrode. If the cauterization is carried on for longer than that, it becomes inconvenient through fairly large masses of tissue sticking to this electrode so that it is clogged, and future applications cannot be made until the pieces of tissue are detached from the electrode. Sometimes quite large pieces of the tissue can be broken off even after a short application of perhaps twenty or thirty seconds. Of course, progress is much more rapid than when this takes place.

It has been fully demonstrated that papillomata, even of considerable size, can be completely destroyed in a reasonable number of sit-

* Read at the meeting of the New England Branch of the American Urological Association, Hartford, Conn., Nov. 18, 1912.

tings. Our object, then, is to discover the value of this treatment as compared with other methods, of which the only one worth serious consideration is radical removal, through suprapubic cystotomy, by means of knife or cautery. For this purpose it will suffice to compare the following points in both forms of treatment, (1) mortality, (2) complication, (3) recurrence.

As to other intravesical methods, since the instruments required are expensive and complicated, the danger of injury to the bladder wall and of hemorrhage is far greater, and the results less satisfactory than with the high-frequency cauterization, I have omitted these methods from further consideration.

The mortality of suprapubic operations for bladder tumors is given by Von Frisch[3] as 14%. His statistics included malignant as well as benign tumors. Watson[4] gives combined statistics on 380 papillomata treated chiefly by curetting and cauterizing, showing a mortality of 10%. Since the operation of complete excision of the papilloma,—now accepted as the most effective radical measure,—is more formidable than curetting or cauterizing, the operative mortality is presumably somewhat higher. We may, therefore, conclude that the general mortality of methods of removal through the suprapubic wound is between 10 and 14%.*

Of the cases of high frequency cauterization so far reported, there has been no mortality, a result to be expected with such a simple procedure. One case of sudden death a few days after the treatment is reported by Beer but the patient was a cardiac, and the treatment appears to have been no way the cause of death.

As to complications following the suprapubic operations we know that hemorrhage, sepsis, post-operative pneumonia, etc. occasionally occur, although with diminishing frequency, thanks to improved technique. In the high frequency cauterization there appears to be no danger of any complication except hemorrhage. In the majority of the cases reported this is invariably too slight to be of importance. In one case reported by Keyes a severe hemorrhage occurred, lasting two days, and in a patient treated by me, on whom I cauterized his papillomata some 25 times, troublesome hemorrhage occurred only once. The bleeding lasted eight to ten hours, was sufficient to produce several medium size clots which he was able to pass without pain, but he had no other inconvenience and was able to go about his work the next day.

As is well known by students of this branch of surgery, the discouraging feature of operations for papilloma is the tendency to recurrences or development of fresh tumors in other parts of the bladder, on the suprapubic scar especially. I shall not burden you with examples, or reasons adduced to explain this phenomenon, except to quote a case recently reported by Thompson-Walker[5] of London.

A man 31 years old was operated upon for a single papilloma near the right ureteric orifice. The base was clamped and cut away with the cautery. One year later hematuria returned. Cystoscopy showed a recurrence at the site of the original tumor, and a "track of small papillomatous buds from the right ureter to the apex of the bladder and extending symmetrically across the left side of the bladder almost to the left ureter." The number was between 20 and 30.

The disposition of these secondary growths in this case is striking. They appear as if sown along a line on each side of the bladder, which corresponds to the position taken by retractors during the operation. The probability suggests itself that the mucosa thus traumatized by the retractors was the site of implantation of tumor cells, giving further weight to the implantation theory which has been the especial doctrine of Casper, Lichenstern and Zuckerkandl.

Whatever the cause of these secondary growths, their frequent occurrence is well known. According to Rafin[6] the percentage of recurrence following suprapubic removal is twenty-six. Of all methods of ablation of the growth from its site the most successful appears to be excision of the base with suture of the mucous membrane. Of four such cases that have come under my observation, one has shown secondary growths within six months, the site of the orginal tumor remaining clear so far.

With the complete excision of underlying bladder wall, the so-called transperitoneal method, I have had no personal experience in simple papilloma, but apparently the percentage of secondary growths is less than by other "radical" methods.

Turning to statistics regarding recurrence or development of secondary growths after high frequency cauterization,—the crucial point of this study,—we must admit that the period of less than three years, during which this method has been under trial, is too short for any irresistible figures to be forthcoming.

A number of the patients of Beer and Keyes disappeared soon after completion of the treatment and could not be followed, but the striking feature of their results is the small number of relapses. In the nineteen cases reported by Beer, Keyes and Buerger,[7] of which a number were multiple so that the number of separate papillomata represented is much more than nineteen, only one case was known to have relapsed. The majority of these cases had been followed more than six months, and I think these figures compare favorably with the result of the more radical operations. Of the five cases of papilloma, which I treated by high frequency cauterization, only one has been followed for a year. Freedom from recurrence

* In selected groups the results would be more favorable. In a recent number of the American Medical Journal there is a report by Judd[8] of a number of cases at the Mayo clinic; the transperitoneal operation giving a mortality of only ten per cent., and the suprapubic three per cent., the latter in a group of only thirty-three cases. Of course, with much larger groups covering a large number of hospitals and operators, the mortality would presumably be higher.

has been verified in this case, just twelve months from date of the first treatment.*

If high frequency cauterization will destroy the primary growths, its value in the treatment of secondary or recurrent tumors is obvious. Its usefulness is well shown in the following case:

Mr. S., 46 years old, had an attack of hematuria in 1905. He was treated with drugs for two years when the hematuria became severe and he consulted Dr. J. B. Blake. He was cystoscoped and a large papilloma found which Dr. Blake removed by suprapubic cystotomy and curetting in March, 1908. He was free from bleeding for a year and a half; then recurrence was seen with cystoscope, and in December, 1909, Dr. Blake again operated. The pathologist's report was then papillary carcinoma. He was then well for another period of a year and a half, when severe hematuria recurred and Dr. Blake operated for the third time, removing many papillomata from various parts of the bladder. It is interesting to note that these were all pedunculated, without tendency to infiltration of bladder wall. After this operation he went six months only before the bleeding returned. In December, 1911, Dr. Blake referred him to me for high frequency cauterization. With the cystoscope were seen many lobular papillary growths on the top and lateral walls.

Regular sittings from one to two weeks apart were begun and the treatment carried on until April, 1912. The growths had considerably diminished in size but progress was so slow that it seemed best to again remove them by suprapubic cystotomy, and start fresh with the high-frequency current. Accordingly on May 6, Dr. Blake operated for the fourth time, kindly permitting me to assist. The bladder was found practically filled with papillomata, all freely movable and the underlying bladder wall everywhere soft, without any sign of malignancy. The growths were picked up with forceps and cut away with the actual cautery, the base of each being thoroughly cauterized. At the end of this operation it looked as if fully half of the total mucous surface had been cauterized away, exposing the submucosa.

The patient made an excellent recovery and a month later came to my office for cystoscopy. I found eight small papillomata on the lateral walls and apex of the bladder. The mucous membrane elsewhere showed many pale cicatrices but was almost perfectly smooth. The bladder held five oz. of fluid comfortably. I then began high frequency sittings, of which there have been fourteen. At the last one, a week ago, there were seen a pea-sized growth on the right lateral and on the anterior wall, a little cluster of tufts at the front end of the suprapubic scar, which were remains of the original growths, not yet completely destroyed. There was also a tiny fringe of villi, situated on the upper margin of the left ureteral orifice. These I destroyed with two applications of the current for a few seconds only.

The cicatrices elsewhere have remained wholly free from signs of fresh tumor development. Except for a single hemorrhage lasting a few hours, as mentioned earlier in the paper, the treatment has been without any bad effect, the patient has kept at his work, and has gained twenty pounds in the past five months.

During the past six weeks I have treated one other case of secondary growths following within six months of excision of the primary tumor. The bladder shows now the recent cauterization scars only.

During the past two months I have also treated two primary papillomata, one of considerable size, the second about one centimeter in diameter. The latter appears to have been destroyed in two sittings.

A point in connection with estimating the size of these tumors. I have found myself often mistaken in judging their size, and have lately tried the expedient of passing an ureteral catheter, graduated in centimeters, alongside the tumor before attacking it. By manipulation of the cystoscope this enables one to estimate fairly accurately their size in two dimensions at least.

CONCLUSIONS.

1. High frequency cauterization is an important addition to our means of attacking vesical papillomata of the non-infiltrating type.
2. It is free from complications or danger if properly applied with exception of hemorrhage; this appears, however, to be rarely serious or troublesome.
3. It avoids the danger of multiple recurrences such as occur not infrequently after suprapubic cystotomy.
4. Although the cases so treated are too recent for absolute proof of cure, the results are highly encouraging.

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* Since I wrote this paper there has come to my notice in this same article in the A. M. A. Journal a brief report of the experience in the Mayo clinic with the High Frequency cautzerization. They have used it on some seventeen cases and in the six cases where a year or more has elapsed there has been absolutely no sign of recurrence.

Medical Progress.

REPORT ON MENTAL DISEASES.

HEREDITY IN INSANITY.—STERILIZATION FROM THE EUGENIC STANDPOINT.—SCHIZOPHRENIA.—THE PARANOID SYMPTOM COMPLEX IN PROGRESSIVE PARALYSIS.

BY HENRY R. STEDMAN, M.D., BROOKLINE, MASS.

HEREDITY IN INSANITY.

In a study of heredity in insanity in the light of the Mendelian theory, Rosanoff and Orr[1] give a brief account of the Mendelian theory and come to the following conclusions, based on a large number of cases:—

1. The neuropathic constitution is transmitted from generation to generation in the manner of a trait which is, in the Mendelian sense, recessive to the normal condition.

2. Actual cases, which were not specially selected, were found to follow the various rules of theoretical expectation with quite as much exactness as could be expected, considering the numerous sources of error.

3. Various clinical neuropathic manifestations bear to one another the relationship of traits of various degrees of recessiveness; in a most marked way recoverable psychoses, though recessive as compared with the normal condition, are dominant over epilepsy and allied disorders.

4. Various other clinical neuropathic manifestations bear to one another the relationship of neuropathic equivalents; that is to say, they are conditions of the same degree of recessiveness of the patient, etc.

5. The total incidence of neuropathic conditions may be roughly estimated as affecting between 1.5 and 2 per cent. of the general population.

6. It is further estimated that about 30 per cent. of the general population, without being actually neuropathic, carry the neuropathic taint from their ancestors, and are capable under certain conditions of transmitting the neuropathic make-up to their progeny.

In analyzing the Inborn Factors of Nervous and Mental Disease, Mott[2] deals with the tendency to regression to the normal average of the species and of the race, and with the law of anticipation, or tendency in heredity diseases for the manifestations of the morbid change to appear at an earlier age, either in members of each succeeding generation as a whole, or in successively born children of one parentage. This seems to be one method by which nature seeks either to end or mend a degenerate stock. A number of interesting statistical data and family histories are given bearing on this point. These data seem to show that if the offspring of an insane parent passes adolescence he has a very good chance of not inheriting the taint. In the case of insanity it is also shown how there is a strong tendency to an inheritance of the same type of insanity, which is even more marked between the members of the same co-fraternity than between parents and offspring.

Corson[3] details the results of an inquiry into the occurrence of an inherited tendency to insanity in the insane of a rural population under the following headings: (1) The proportion of cases with heredity predisposition. An insane hereditary influence was present in 31.8 per cent. of cases out of a total of 1,131 cases admitted (males 27.4 per cent., females 36 per cent.). (2) The influence of insane heredity in different forms of insanity. Under this heading the tables show the highest percentage of hereditary cases in manic-depressive cases. In delusional insanity and dementia praecox there is also a high percentage, whilst in cases of senile dementia only a comparatively small number show an insane ancestral history. (3) The relative frequency of transmission of hereditary influence by father and mother, respectively. From the tables, paternal transmission is seen to be greater than maternal (52.8 per cent., as compared with 42.4 per cent.). (4) Direct and collateral heredity. More cases showed insanity in the direct than in the collateral lines of ancestors. (5) The comparative susceptibility of the sexes to hereditary influence. Females showed the greater percentage. A greater number of males inherited from the father than from the mother; as regards the females, the numbers were approximately equal. (6) Cases with evidence of insanity in brothers and sisters only. Where two or more individuals of the same generation of a family are insane, similarity of sex is much more frequent than dissimilarity, and the proportions appear to be about the same as regards the sex. The author then discusses the age at which the first attack of insanity occurred in the hereditary and non-hereditary cases, the recurrence of attacks in manic-depressive insanity in relation to hereditary influence, etc., and concludes his article by detailing several pedigrees of patients in whom heredity appears, from the ancestral history, to act as a strong determining cause.

STERILIZATION FROM THE EUGENIC STANDPOINT.

Clarke[4] questions the practicability and value of sterilization in preventing the propagation of the insane. Among other sensible views, he holds that arguments based upon the experience and methods of stock-breeders cannot fairly be applied to human beings. Breeders of pedigree animals, biologists, and experimenters on Mendelian and other lines are gradually collecting facts and formulating laws of inheritance. They teach us of normal and abnormal variations; they separate the hereditary characters from those due to nurture and environment. Their work is invaluable to the student of eugenics, but they help us but little with the problem of insanity. They shed no light on the transmission of mental qualities, and are concerned purely with the physical. The pedigree heifer is probably a dement; the foxhound is a cheerful imbecile; the fleetest race horse is often an irritable, dangerous rogue. Zoologists and breeders have some great advantages in the study of heredity. They can choose the parents; they can alter the nourishment, and exactly determine the environments. A single observer can watch and record in detail many generations of animals, but it is very seldom that an accurate record can be obtained of even three generations of human beings. It should also be observed that breeders of special strains of animals and of pedigree stock do not propagate from the average animal, but only from the best, only from those who possess in the most marked

degree those qualities which they consider desirable to transmit.

In order to ascertain what proportion of recent admissions to Long Grove Asylum would not have been born if every patient for the last three or four generations had been sterilized before he or she was discharged from the asylum he undertook an investigation resulting as follows: Of 236 cases, 110 gave a family heredity of mental defect (excluding nieces, nephews, and offspring). In 65 cases there was a history of insane heredity, 34 being direct heredity and 31 collateral. The large majority of these 34 insane progenitors were certified, but supposing they had all been sterilized before they had been discharged, in only 3 cases would it have prevented the appearance of the patients under consideration. In all other cases the patient (or his parents or grandparents) was born prior to the certification of the insane progenitor. In two of these three cases even it is doubtful whether sterilization would have been effective; they were both recurrent cases who broke down more than once at the puerperium, and although there is no doubt that they were insane prior to the birth of the patient, diligent inquiry has failed to discover whether they were certified or not. Although these numbers are too small to draw very definite conclusions, they are at least interesting and suggestive. The conclusions from his paper are: Firstly, admitting inheritance to be the most important factor in mental constitution, it has yet to be shown that any practicable scheme of sterilization would materially diminish the normal increase of insanity. Secondly, we have no right to hold out a hope of material decrease from the statistics at present at our disposal. Thirdly, there is urgent need of better record of family histories, which should be kept separate from the present useless conglomeration which compose our statistics. Fourthly, the suggestion is made that the chief danger from the eugenic point of view is the large class of mental degenerates who are not insane. Fifthly, the opinion is expressed that sterilization ought to be recommended in some cases of mental disease quite irrespective of the eugenic standpoint.

Daniel[5] has made a similar investigation and found that only five cases of insanity would certainly have been prevented by sterilization during the years 1909 and 1910 at Hanwell Asylum, where the average number of patients is 2,540. He adds that in the prevention of insanity, insane heredity is only one of the many factors in heredity that have been taken into consideration. The deduction is that any legislation to be effective must be aimed, not at the insane alone, but at all degenerates, whether so in mind or in body. There is one interesting fact about the 81 cases in which both parent and child are or have recently been resident at Hanwell, or one of the other London County asylums, and that is that in 49 (*i.e.* in over 60 per cent.) the paternal insanity occurred about or after climacteric. This naturally refers more especially to women, the age of whose climacteric was about 45; in men the age of this period has been reckoned at 55. Paternal heredity, 29 cases; over 55 in 10 instances. Maternal heredity, 52 cases; over 45 in 39 instances.

At first sight it might be thought from this study of paternal heredity that insane heredity is not of such vital importance in the production of insanity as is usually supposed, but this would be a fallacy due to considering the question from too narrow a point of view. A family may be absolutely free from the taint of insanity (*i.e.* no member of the family has ever been certified as insane), and yet teem with instances of mental and physical degeneracy, hysteria, epilepsy, criminal imbecility, etc. It should be recognized that these are of equal importance with insanity when arising among the forebears. Insanity may be only one of numerous signs of degeneracy in a degenerating family; the inheritance is, in fact, not so much the inheritance of insanity as the inheritance of degeneracy. This degeneracy may show itself in various forms, such as arterial or renal disease, epilepsy, insanity, intolerance of alcohol, liability to tuberculosis, etc. The deduction as regards sterilization is this: Even if epileptics, lunatics, imbeciles, and criminals were all prevented from reproducing the species, yet insanity and other forms of degeneracy would still occur in degenerating families. The degeneration of the family is as natural as the death of the individual. The question to answer is, Should Nature's methods of dealing with degenerate families be hastened by sterilization? To answer this question satisfactorily much fuller knowledge must be obtained about degeneration in families, and it is impossible to obtain this without taking the family history in the form of a pedigree with full particulars of each member of the family. Surely we are justified in assisting Nature by preventing the birth of degenerates, provided that some practicable method can be proposed for dealing with this degenerate mass. Sterilization is sure in its action, but absolutely impracticable. No government is strong enough to bring forward a measure which would affect the immediate relatives of a large proportion of the electorate, for degeneracy ramifies through every class from the degenerate nobleman to the epileptic pauper. Sterilization, too, would be a measure more fitted for a Spartan government than for a modern government with its altruistic ideals. Segregation is far more practicable, but to be completely effective it must be applied to such a large proportion of the population that complete segregation must be regarded as impracticable on account of the enormous financial burden involved. It might, however, be applied to the most degenerate of the population, though it would be hard to draw a definite line between those to be affected and those not; it might be applied to all epileptics, habitual drunkards and criminals, and also to the recurrent insane.

SCHIZOPHRENIA.

Hoch[6] pronounces the work of Bleuler on dementia praecox undoubtedly one of the most important contributions which have been made to psychiatry for a long time. The most admirable part is the symptom-analysis which contains much that is of great value to every psychiatrist. It is necessary, first, to be clear as to what Bleuler means by schizophrenia, and what he includes in this group, because it comprises a great deal more than the group of dementia praecox, such as others conceive it. With the exception of manic-depressive insanity, which to him is small, the few cases of Kraepelinian paranoia and hysteria, everything within the functional group of psychoses is dementia praecox. Nor is it to be wondered at that, in this dementia praecox, only a comparatively small number of marked deteriorations occur. Bleuler puts the figure at 22 per cent., while 18 per cent. present a moderate degree of deterioration, and as many as 60 per cent. a mild degree of deterioration. He claims, however, that there is no case in which some defect is not seen, but this defect is sometimes very slight and may amount to not much more than a lack of adequate insight. In order to understand this we must be familiar with his conception of latent schizophrenia. Bleuler considers that probably the largest number of cases belonging to the group of schizophrenia are latent cases who rarely come to asylums. There are cases which are looked upon as nervous people or as psychopaths; among them he describes irritable persons who cannot get along well, individuals with oddities, or those who are reticent, seclusive, or present an exaggerated scrupulousness and precision, and so forth. He admits that they are often difficult to diagnosticate, but that they must have some of the fundamental symptoms, that is, a certain defect of logic, shut-in-tendencies, or affective anomalies, more particularly a lack of interest in things which ought to interest them. Among the fundamental symptoms, by which he means symptoms which are always present to a certain extent in active as well as latent schizophrenia, he mentions, above all, a disorder of the association process, that is, a primary loosening of the connection. He also mentions abnormalities of the affective life, particularly a more or less extensive loss of interest, and that which he calls by a very good term "autism," that is, the tendency to turn away from the outside world, or to that which Hoch has called shut-in tendencies. He also mentions other features, but these are the most important.

The supposed disease process he is inclined to regard as associated with some poison, and he takes the analogy of rheumatism, which may be either chronic or acute, which may last a lifetime or may stop. The primary symptoms, which he attributes directly to this underlying disease process, he also admits are not definitely known, and it should be stated that Bleuler is very open in his theorizing and speaks of it as tentative. However, he is inclined to think that the association disorder, that is, as I said, a loosening of the associations which gives rise to elisions, to marked defects in logical thinking, even to imperfect concepts, etc., is a primary defect. As we shall see, Bleuler explains a great deal in the clinical picture of schizophrenia psychologically on Freudian mechanisms; the blocking and other disorders in thinking, acting, and feeling, are referred to a great extent to this. But he is evidently of the opinion that is not enough, but that some fundamental disorder must be assumed to make such extensive complex manifestations possible.

In spite of his conviction of the importance of psychogenesis for the production of symptoms, and even acute syndromes, he lays very little stress, in his chapter on etiology, upon the mental causes. The reason for this is quite clear; it is because the mental causes do not produce the disease, but merely some symptom, and as a matter of fact he has very little to offer in the way of etiology. According to Bleuler, mental causes produce attacks, but the disease has existed before.

Late katatonias often begin as involution melancholias, and are then to be regarded as schizophrenias. Depressions are very common in schizophrenia, and, if I understand him correctly, any hallucinations which are not in harmony with the mood, oddities in behavior, or any peculiarities in make-up, would at once put the case into schizophrenia. Ten per cent. of his dementia praecox cases are alcoholics, who take alcohol on account of their dementia praecox, and he claims never to have seen the sequence of alcoholism-dementia praecox, but only that of dementia praecox-alcoholism.

Hoch's review of Bleuler's schizophrenia, of which this is a very brief abstract, is discriminating and full of interest. It gives an excellent idea in comparatively small compass of the first comprehensive work on a subject in psychiatry, in which the principles of pschoanalysis are made extensive use of.

THE PARANOID SYMPTOM COMPLEX IN PROGRESSIVE PARALYSIS.

Kern[7] reports four cases of general paralysis in which the paranoid symptom complex was in the foreground. Although conclusions from such a small number cannot be drawn, nevertheless he considers his studies stimulating for further investigations. It is particularly important to note that a paranoid symptom complex usually occurs in atypical cases. They are stationary, or present focal symptoms (Lissauer), or the posterior columns are involved. The paranoid ideas do not become fixed or systemized because of disintegration of personality. The question of endogenous and exogenous origin of the paranoid symptom complex is inter-

esting, and if anatomical bases for this symptom complex could be determined, then an actual progress towards the recognition of psychotic disease-picture would be made.

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(To be continued.)

Reports of Societies.

AMERICAN UROLOGICAL ASSOCIATION.

FALL MEETING OF THE NEW ENGLAND BRANCH IN CONJUNCTION WITH THE HARTFORD MEDICAL SOCIETY, HUNT MEMORIAL BUILDING, HARTFORD, CONN.

MONDAY EVENING, NOVEMBER 18, 1912.

PRESIDENT, DR. HUGH CABOT, BOSTON.
SECRETARY, DR. R. F. O'NEIL, BOSTON.

Opening remarks by OLIVER C. SMITH, M.D., President of The Hartford Medical Society:

At the urgent request of The Hartford Medical Society, The New England Branch of The American Urological Association has come here to deliver a symposium at their regular quarterly meeting. Many of you members of The Hartford Medical Society will remember that four years ago this Branch of The American Urological Association came to us, and we had a most interesting and instructive evening on the subject of Hematuria. Some of you have joined the Hartford Medical Society since that occasion, and for your benefit I will say that The American Urological Association was formed at Saratoga in 1902. It was then a small organization, promoted for the advancement of the science of Urology, the treatment of diseases of the renal tract. From that time the Association has grown until it has now a membership of 350, all the states of the Union being represented. It is divided into sections, this being the New England section; there are the New York section, the Southern section, Chicago and Pacific Slope sections. These sections have quarterly meetings, and the general Association has annual meetings. The proceedings of these quarterly and annual meetings are published, and mark the progress of Urology in America.

Possibly in no field of specialization has there been more marked advance made and more good done for the benefit of humanity than in this field of Urology. This Association was formed at the time that the wondeful work of Nitze and others was impressing itself upon us, and we had just commenced to appreciate the great advantages of cystoscopy and ureteral catheterization. It is a record of marvellous expansion and growth, which has changed an uncertain diagnosis into one of scientific certainty.

It is a great pleasure to have those gentemen who have been foremost in the work in this country, and a number of them are men of national and international reputation, come here to deliver the lectures which otherwise would have been given in Boston.

At the present time Dr. Hugh Cabot of Boston is chairman of the New England Branch of The American Urological Association. I take great pleasure in introducing Dr. Cabot, and will now turn the meeting over to him.

DR. HUGH CABOT, Boston: I am sure it is a very great pleasure for us to meet here this evening; and I think that without casting any aspersions upon the Boston membership of the Branch it is perfectly clear that we have a far larger and more appreciative audience in Hartford than we could have obtained in Boston.

The first thing upon the program is:

THE DEMONSTRATION OF SPECIMENS AND REPORTS OF CASES.

DR. PAUL THORNDIKE of Boston:

SPECIMEN OF TUMOR OF THE TESTIS.

This tumor is an embryoma; and it is interesting because it is typical, and because there seems to be growing belief, and a growing amount of proof attached to it, that most tumors of the testis are of embryonic origin. Pathologists at the present time call such tumors embryomata if the cells remain undifferentiated instead of differentiating themselves and demonstrating other tissues in their structure.

KIDNEY SPECIMEN.

The other of my two specimens is a so-called hematogenous kidney. There is nothing unusual to say about its clinical history; it presented the usual picture of an acutely infected kidney on the right side, with the usual pain and tenderness; there was systemic disturbance ushered in by a chill. The kidney was removed and the patient convalesced promptly.

Pathologist's report.—"Specimen consists of a kidney considerably enlarged (about 250 grams) and incised from the convex surface through to the pelvis. Thorough examination of kidney is impossible owing to request that it be preserved in toto. A thin slice was taken from one cut surface for microscopic purposes. No cultures possible.

"The cut surface shows numerous large and small areas running from pelvis to cortex and spreading out, deeply congested and studded with greyish to yellowish points and streaks.

"Microscopic examination shows an acute diffuse inflammatory process spreading upward through the tubules and in some instances reaching the glomeruli. Nowhere does the infection start within glomeruli. The tubules in many places are distended and contain polymorphonuclear and endothelial leucocytes. In places the lining epithelium is partly too completely destroyed. In this way small abscesses are being formed. The inflammatory process has also extended to the intertubular tissue which is infiltrated with numerous polymorphonuclear and endothelial leucocytes and also many lymphocytes and occasional eosinophiles. Fibrin is fairly abundant in places.

"The only organism present is a small bacillus, unquestionably the colon bacillus. It occurs in small numbers almost exclusively within polymorphonuclear leucocytes. A single leucocyte will contain one to a dozen organisms.

"Diagnosis: Acute ascending infectious nephritis.—The term surgical kidney is commonly applied to the chronic form of infectious nephritis with more or less complete destruction of the kidney

from abscess formation and ulceration extending out from the pelvis.

"The acute form is usually due to the colon bacillus which reaches the kidney through the ureter and pelvis, often without causing any noticeable lesion. In mild cases repair takes place because often no abscesses are formed, only necrosis of the tubules and increase of the connective tissue.

"This type of lesion in the kidney corresponds to infectious cirrhosis and pancreatitis, due to the colon bacillus gaining entrance through the ducts. It is probably never of hematogenous origin."

(F. B. Mallory.)

Now, here is a perfectly typical case, with a perfectly typical history, with a perfectly usual operation, and a perfectly typical recovery, which the pathologist declares is an acute ascending infection of the kidney. And he also declares that you cannot have such a thing as a multiple hematogenous infection of one kidney. In other words, the pathologist states that if you get what has been described as an acute hematogenous kidney with multiple lesions that the infection begins in one spot, works it way down to the pelvis of the kidney, and then, makes other ascending infections from the original one by way of the pelvis; so that these conditions are not, strictly speaking, acute hematogenous infections at all, but ordinary ascending infections usually coming up from below, occasionally from a cortical infection which has worked down and into the pelvis, and so made it possible to get by an ascending process these other foci of infection.

Dr. Cabot: I believe it is customary that after these presentations the questions shall be discussed. There are various points suggested by the cases which Dr. Thorndike has shown that I should like very much to have discussed. I think this is a very appropriate time to do it, and I trust you will not be backward about doing so.

In the first place, I would like to ask what conclusions, if any, you could draw from the tumor of the testicle in regard to the length of time between the discovery of tumors of the testicle until the diagnosis can be made by ordinary clinical manifestations.

Again, I would like to ask whether he intends to assent to the wonderful opinion of the pathologist, which appears to me to be wholly at variance with everything that has developed in the last ten years or so on that subject. Is this his opinion or his pathologist's opinion; and whether, if it is his pathologist's opinion, he agrees with it?

Dr. Thorndike: First, as for the tumors of the testis: These testicular tumors should be explored and looked at every single time. It is also my feeling that in spite of the lack of knowledge of the exact pathology of these testicular tumors in the past, the old clinical fact remains true that, whether or not they display clinically evidences of malignancy, they do tend to behave badly in the long run; that they should be explored; and, if necessary, removed. In this case the tumor had been growing only nine months so far as the patient knows. He was a man forty years of age. We discovered a number of nodules in the belly which the man himself never questioned and knew nothing about.

As for the kidney, I meant only to show what to me was an interesting specimen, which would give a possibility for some pathological discussion which I am not capable of continuing very far.

Dr. Mallory believes that renal infections come in one of two ways; either a straight septicemia, in which, if you get abscesses in one kidney you are going to get them in the other, and probably elsewhere; or, that you have got a single infection, possibly of hematogenous origin, which gives rise to these subsequent ones. I personally agree with this belief, in spite of the fact that Dr. G. E. Brewer and others have demonstrated the possibility of hematogenous infection of injured kidney in animals.

Dr. C. E. Taft of Hartford: Presented

A SPECIMEN OF RETROPERITONEAL FIBRO SARCOMA.

The patient from whom this tumor was removed came into my office on June 3, 1912, with a history of a previous operation four years ago for supposed fibroid tumor of the uterus. At the operation it was found that this was a tumor of the right kidney. Consent could not be obtained for a further operation at that time. The patient then decided to postpone the operation until her visit to me. The only symptoms she presented aside from the growth of the tumor and the inconvenience caused by its size were pain in the back muscles from muscle strain and a varicose condition of the veins in the right leg due to pressure of the growth. She did not present any symptoms of cachexia whatever. A small uterus, not connected in any way with the tumor, and a lacerated cervix were also noted.

The tumor extended to the margin of the ribs and to the left side half way between the umbilicus and left anterior superior spine, the colon could be very easily palpated, lying very close to the umbilicus. An incision was made through the right rectus sheath to the capsule of the tumor. We then decided to investigate the condition of the left kidney and, therefore, opened the peritoneum to the inner side of the colon and were able to get our hand in, but with difficulty, on account of the size of the tumor. So far as we could tell the kidney was normal. We had previously tried to catheterize the ureters and were able to catheterize the right ureter leading up to this tumor, securing a normal urine, but were unable to find the left ureter.

On investigating the condition of the abdomen further we also found some old adhesions about the gall-bladder but could not determine exactly what they concealed on account of the size of the tumor.

We had some difficulty from hemorrhage and shock, the patient's pulse going up to 150 at one time during the operation. Stimulation and Trendelenberg's position promptly brought the pulse down to 100 beats per minute.

The tumor was fastened to the posterior surface of the right kidney just above the attachments of the renal vessels. On removing it from its capsule we tore a hole about one and a half inches long in the kidney which we were obliged to sew up with three mattress sutures.

The tumor was encapsulated, the capsule arising from the fascia, as near as we could tell. We were only able to remove a portion of the capsule of the tumor. The weight of the tumor was six and one-half pounds.

We inserted stab drainage in the sac through the right loin, and then sewed up our anterior incision. After removing the drain on the second or third day we had a little air get under the skin which was absorbed after three or four days, then we had no further trouble until at the end of the tenth or twelfth day, a small abscess developed in the sac and discharged through the median incision.

The patient left the hospital in a month the wound having entirely healed.

This tumor was examined by Dr. P. D. Bunce and Dr. H. G. Jarvis and found to be a fibro sarcoma. These are rare as only a few cases over a hundred have been reported in the journals to-date.

DR. CABOT: You are to be congratulated on getting away with a tumor of that size and the patient at the same time. Various of us have gotten away with the tumor but not with the patient.

SYMPOSIUM ON RENAL AND VESICAL NEOPLASMS.

THE SYMPTOMATOLOGY OF RENAL TUMORS.*

DR. J. D. BARNEY, Boston.

THE EARLY RECOGNITION OF TUMORS OF THE BLADDER.†

DR. A. L. CHUTE, Boston.

OBSERVATIONS ON RECENT CASES OF BLADDER TUMORS AT THE MASSACHUSETTS GENERAL HOSPITAL, WITH SPECIAL REFERENCE TO OPERATIVE TECHNIC.‡

DR. R. F. O'NEIL, Boston.

THE VALUE OF HIGH FREQUENCY CAUTERIZATION IN THE TREATMENT OF BLADDER TUMORS.§

DR. H. BINNEY, Boston.

DISCUSSION.

DR. HUGH CABOT, of Boston: There are many interesting points in these papers, and there is one point of particular importance that I hope we shall get some information on—Whether hypernephromata show any consistent change in the blood pressure. It is, as you all know, described as of adrenal origin; but considerable doubt has been raised I think, by the apparent fact—becoming more apparent—that they do not show any changes in the blood pressure mechanism which one would expect if they were a reproduction of adrenal tissue. That seems to me likely to start opinion away from the views once held.

The name of "Keyes" has been taken in vain here several times tonight. Now he has a chance to defend himself—Dr. Keyes.

DR. E. L. KEYES, JR., of New York: I have had so much more experience in the high frequency treatment of bladder papillomata than in any other of the points relating to neoplasms of the urinary tract that I am sure it will be more interesting to you if I confine my remarks almost exclusively to this. Permit me to preface, however, with one remark in reference to tumors of the kidney.

It had always been my impression from reading of these tumors that it was practically impossible for a tumor in the kidney to bleed so profusely as to cause clotting of the blood in the bladder. As a matter of fact I have had three cases of bleeding from a neoplasm in the kidney of sufficient severity to cause retention of urine by an accumulation of clots in the bladder. Two of these cases were hypernephromata, and the third a papillary tumor of the pelvis of the kidney.

To proceed to the high frequency treatment of bladder tumors: One of the most important features of this treatment is the very one that Dr. Binney has so unkindly left open for me to discuss. That is, the question as to what tumors should be treated intravesically by electricity and what tumors should be operated upon at once. I need not insist that the worst thing that can be done to any patient with a malignant tumor or a potentially malignant tumor is to lose time in the removal of that tumor. Inasmuch as these high frequency treatments of bladder tumor can usually not be repeated oftener than once a week (and, indeed, it usually seems convenient to burn not oftener than every two weeks) you can well understand that a diagnosis which comes only by means of a failure to remove this growth by an attempt at cauterization may imply a delay of several months, a delay which may well be fatal to the patient. Therefore, it is to the last degree important that we determine as early as possible what tumor is amenable to this form of treatment and what tumor is not.

All of us who attempt this mode of treatment must classify the signs of malignancy of bladder tumors according to an entirely new point of view. Malignancy of a bladder tumor is not precisely what Dr. Chute calls it, including bleeding and cystitis; it is not precisely what the pathologist calls it, a tumor which shows by a section of its base evidence of carcinomatous change, for I have reported such a case cured by electricity, and, I think, Dr. Binney treated one case which he thinks he is in a fair way to cure of a tumor which had been previously declared to be carcinoma by the pathologist. Hence, the pathologist's diagnosis is not infallible as regards the clinical view of malignancy. *The clinically malignant tumor is the tumor which is not curable by the electrical treatment through the cystoscope.*

The signs of malignancy, so far as I have made them out, are as follows: Multiplicity of tumor; size of tumor; infiltration of the base of the tumor; sloughing; intractable cystitis. It has been quite impossible for me to determine cystoscopically whether the base of a papilloma was infiltrated or not, because the villi so overshadowed it that one could not see the base with the cystoscope. By an infiltrated base I mean a base of a tumor which can be felt by rectal, suprapubic or bi-manual examination as an indurated area or a lump somewhere in the bladder wall. Further, there is a cystoscopic appearance that is suggestive of malignancy; and that is a sloughing surface of the tumor or an ulcerated surface of the tumor. Then, there is a clinical symptom that is peculiarly indicative of malignancy. That is severe, intractable cystitis, so severe as to cause very frequent and painful urination, so severe as to torture the patient, and to render cystoscopy extremely difficult and painful, if not impossible; a cystitis which is entirely beyond treatment by any local measures.

Papillary tumors, whatever their size, are, in my experience, amenable to cystoscopic treatment, to high frequency current. Of course, it is perfectly possible for either a small or a large papillary tumor to have an indurated base, which indurated base may appear after the palliary tumor has been burned out. In an experience, however, with some fifteen patients I have only found one (and that, curiously enough, a small papillary tumor), which was not amenable to treatment by the high frequency current. That tumor showed a symptom which I have not mentioned; that is, constant hemorrhage in spite of burning. This man I burned six or seven times and yet he kept on bleeding. I infer that this bleeding was a sign of malignancy in the sense that his tumor certainly is not going to get well by cauterization at my hands.

You may think I am carrying my treatment to excess. I had a case of an old gentleman, 79 years of age, thin and feeble, who bled at intervals, for

* See JOURNAL, page 300.
† See JOURNAL, page 302.
‡ See JOURNAL, page 305.
§ See JOURNAL, page 308.

twelve years, constantly for two years. It did not seem practical to attempt a major operation upon him; so, for the purpose of seeing if I could give him relief, I began to burn his bladder tumor. I burned it for eighteen months before I could tell from which side of the bladder the tumor grew. Yet, the bleeding stopped after the first burn. I am burning him yet. And at the end of two years (he is 81 years old now) his tumor is reduced to a little lump not more than a centimeter in any of its diameters. I have burned away three or four secondary tumors. He is in a fair way to be cured.

Multiplicity of growth indicates a greater tendency to malignancy, certainly, than a single growth shows. Notwithstanding, in my own fifteen cases four were multiple; and as I didn't include one that I burned a few times and then sent back to the physician who sent him to me, making five multiple cases, you will see that one in three of my cases were multiple. All of the multiple cases that I have carried through have been cured.

The next point—Inveterate cystitis defies intravesical treatment; ulcerated tumor absolutely cannot be cured by cystoscopic treatment.

I have seen two cases similar to the one mentioned by Dr. Chute, which I have not included in this series because I am not sure that they are tumors. They showed slightly ulcerated surfaces of the bladder wall, which bled profusely. One of these I operated upon, thinking it was possibly carcinoma, and I found white spots, indicating leucoplakia of the bladder. I burned it in another case with the high frequency current, but I didn't succeed in stopping the bleeding. I think these conditions with slightly ulcerated spots in old persons are evidences of leucoplakia and not of true tumor.

Now, in the past two years and over I have attempted to cure by the cystoscopic treatment all of the papillary tumors that have come to me. One small one, as I stated, I have failed to cure because, I believe, it is malignant in the clinical sense. Of the remaining fourteen nine have remained cured for one or two years. Of the remaining five one was the old gentleman referred to; the others are more or less recently apparently cured. The largest one that I treated I showed to Dr. Cabot when he was in New York a few days ago; a small papilla only remaining of four tumors I had removed, and that was very readily burned away. Of these fifteen patients treated with the high frequency cauterization, with the exception of the one that proved malignant, one has relapsed after an apparent cure of one month. These cures I myself verified by the cystoscope.

Of those that have been apparently cured for from one to two years (there were thirteen tumors in nine patients): Three were cured by one burn; two were cured by two burns; one was cured by three burns; three were cured by four burns; two were cured by five burns; one was cured by 12 burns; one was cured by 19 burns.

It is interesting to note the average number of burns in each case. The total number of treatments was eighty-seven for thirteen patients, which is an average of between six and seven burns to a case. And that means a treatment covering anywhere from two to three months, which is probably the average time required.

Another point—the duration of the symptoms. One man had his first bleeding fifteen years before the treatment—he was cured in four burns. On the other hand, another man had symptoms only eighteen months. He had a very large tumor, which it took me nineteen burns to cure, the second longest in my experience. So that the length or duration of the symptoms does not indicate the length of time that will be required to cure.

Dr. J. W. Keefe, Providence: I don't know that I can add a great deal to what has been said. I might, perhaps, emphasize some of the points brought out in some of the papers. I believe that there is a transitional period coming on with the pathologist; and that the pathology of some of these tumors of the kidney is to be rewritten; Dr. Wilson of Rochester, Minnesota, suggests that most of these tumors are not true tumors of the kidney. And I believe that other noted pathologists are coming to that belief with him. I presented a case where the pathologist reported sarcoma of the kidney, at that time the chairman stated that sarcoma of the kidney seldom occurred. Later on the pathologist came to the conclusion that it was not a sarcoma of the kidney but sarcoma of an embryological rest. So that the chairman was correct in his view.

In reference to Dr. Barney's statement that often these tumors become of large size without being recognized, I recall a case of a tumor, perhaps half the dimensions of the one in the jar on the table, where the patient had not had hematuria, and had noticed the growth but one week before. It seemed incredible that she should have carried this tumor about and not have known that there was some derangement there.

It occurred to me in listening to the reports of the different cases that, while some of these operations appeared to be brilliant at the time, the ultimate results, particularly in malignant cases, are not particularly good. We have still something to learn, perhaps, about the method of removal. It may be that the high frequency current may do more for us; but it would appear that it is only of value in the benign cases. And yet many tell us that these benign growths ultimately become malignant, while we have clinical evidence that some of these people have had these growths for fifteen or twenty years, as high as twenty-seven years, with occasional bleeding. So it is rather difficult to state just what cases should be operated upon and what cases should be treated with the high frequency current.

The transperitoneal operation appeals to me more than the suprapubic if one has to remove a growth in the bladder. The Trendelenburg position affords an exposure of the bladder where one can very readily attack the growth. Dr. Chute mentioned the fact that the ureter catheter placed previous to doing the transperitoneal operation would materially assist in removing tumors of the bladder. That I have done in some instances for the removal of fibroid and it is a very valuable thing to have in the catheter at the time of the operation. It would seem to me in Dr. O'Neil's cases where he had difficulty in finding his ureter that if he had introduced his catheter previous to his operation he might have been able to excise his growth and still find the end of his ureter and be able to transplant it.

Dr. Hugh Cabot, Boston: I want to say a few words before the meeting adjourns. I don't know whether or not it is equally true in other fields, but it seems to me that in Urology the pathologist has been a source of trouble for years. We find in clinical experience that patients do not die of malignant tumors sometimes, and do die of non-malignant tumors. While we may be interested in knowing

what the pathologist's opinions are as shown by the microscope the thing that the patient is interested in is what is going to happen to him; and that is not descernible from the report of the pathologist. Dr. O'Neil reported one of our cases in which the tumor removed a year ago was pronounced malignant; sometime later it recurred and the pathologist reported it non-malignant; I don't know what his next report will be. Dr. Thorndike has reported a case tonight in which the pathologist has begun to change his views in the matter of ascending infections. Clinically few urologists now believe that ascending infections play any important part in these lesions of the kidney. I think we must reconstruct our pathology in relation to certain of these tumors of the bladder on a more clinical basis. And I am very much interested in Dr. Keyes' view, because we must reach a method of deciding whether or not these cases should be dealt with by high frequency cauterization or by radical operation. In many cases it will be a guess, and we shall have to make up our minds whether a treatment extending over two, three, four or even six months by any method will not be to the disadvantage of the patient.

The infiltration of the base is the most important point though in the case of some tumors that cannot be decided.

My own experience of late years has been rather the opposite of that of Dr. Keyes. I have been operating upon most of my cases, and cauterizing a much smaller number; largely, I think, because most of my cases are of the peripatetic hospital variety which I cannot put in jail and cannot keep them within reach by any other method. The patient in a general hospital had probably better be operated upon because if treated by cauterization he may not return. I don't know the method of Dr. Keyes but whatever it is his patients apparently stick; our patients do not stick; and it is probably in their interest to operate in the majority of cases. And partly for this reason—I feel very sure that a papilloma of considerable size removed by operation gives you a hold on the patient which will enable you to finish the work by the intra-urethral method; and watch for recurrences. It seems to me perfectly clear that in the cases which recur promptly after operation the treatment should be by the high frequency current; and if one has gotten hold of the patient by first stopping his hematuria he can probably be persuaded to come back for cauterization. We have much better success in having the patients come back to us following operation than when trying to manage them in the dispensary. This is not so true with our private patients, and they of course reap a benefit that the hospital patient does not.

Dr. O'Neil spoke of two cases of ours of re-implantation of the ureter; and Dr. Keefe referred to these cases in regard to the use of the ureteral catheter in establishing the position of the ureter. In the two cases Dr. O'Neil referred to the growth entirely surrounded the ureteric orifice and it could not be found. Under these conditions you must entirely disregard the ureter. If you go slicing along trying to keep away from the ureter you are going to leave some of the tumor. You must entirely forget that there is any ureter. Find your ureter afterward if you cannot find it before. Do not bother about the lower end, but afterward go up toward the iliac vessels and pick it up. I don't believe that implantation is quite so difficult a business as we have been taught to believe. I have done it in seven cases; the first, seven years ago. It was a most hopeless case, and yet that patient is still living and with a clear urine. It was the most obviously hopeless case you could find. I am still willing to resect considerable portions of the bladder in rather unfavorable cases because I know that some of them which seem the worst get well, whereas many of them which seem best promptly die. Resection of the ureter must be undertaken when the ureter is in the way; and I don't believe that it adds heavily to the mortality.

DR. J. D. BARNEY, Boston: I have nothing special to add except this:—In what little experience I have had with the high frequency treatment as applied to bladder tumors I have found that selection must be employed to some extent. In many cases we cannot use this treatment because they cannot stand cystoscopy once a week or even once in two weeks; one patient whom I burned nine times in as many weeks I could have cystoscoped nine times a day and he would not have felt it; another patient has a very serious time of it no matter what the interval between cystoscopies is, and, yet, his tumor is small and gives one the impression of being an easy matter.

DR. H. BINNEY, Boston: I think Dr. Keyes' points in regard to the selection of cases very helpful indeed, but even with their aid, I believe that there are cases in which doubt will arise as to the propriety of continuing this method of treatment. In such cases I think our course should be as follows: If, in any doubtful case after a few weeks of high frequency treatment, progress in destruction of the tumor is not satisfactory, we should resort to suprapubic removal; then if fresh tumors appear, either at the original site, or elsewhere, and appear to be benign, they can be easily handled by high frequency cauterization; on the other hand, if the tumor recurs as an infiltrating epithelioma, which could not have been cured by high frequency treatment, we have at least done the best for the patient that our present knowledge offers.

DR. OLIVER C. SMITH, Hartford: I will not attempt to enter into any scientific discussion on this subject; it has been most brilliantly gone over. But I want to call attention to this feature of the papers that have been read; they are original papers; they have been papers not taken from text-books, but papers which precede the text-books, and that later on will appear in the text-books. These men are making history in Urology. That is the feature of the work here this evening.

If there is anything more than another that has impressed me with its importance tonight, it is the fact that we must all of us redouble our efforts in determining directly when patients come to us with hematuria, pain and other symptoms, what steps ought to be taken. If we haven't time to investigate, the case must be turned over to some one who has the time and the ability. This field of tumors of the bladder and kidneys has been sadly neglected, and many of these disorders have been permitted to go until they were irreparable.

Urology is a specialty; the men who are doing this work are the men to handle it, and it is our duty as general practitioners and general surgeons to recognize that, and at the early stages turn these patients over to these men who are skilled in this work.

I wish to extend my thanks to the men who have come here and made this so interesting an evening.

THE BOSTON SOCIETY OF MEDICAL SCIENCES.

Meeting of February 17, 1913.

Dr. W. B. Cannon and Dr. Henry Lyman read a paper on

THE DEPRESSOR EFFECT OF ADRENALIN.

Stimulation of an adrenal gland, or splanchnic stimulation after excluding splanchnic vessels, results in the cat in a fall of blood-pressure due to vasodilation.

Injection of small doses of adrenalin (*e.g.* .1 to .5 c.c., 1 : 100,000) at a uniform slow rate (*e.g.* .02 c.c. per second), into a cat causes a similar fall of blood-pressure. This effect varies, within limits, with the dose and with the rate of injection. Repeated doses causing vasodilation have a cumulative effect. The percentage drop in a given case is usually constant for the same dose, given at different initial pressures.

The depressor effect of adrenalin is changed into a pressor effect after pithing and after extreme depression from depressor stimulation combined with repeated relaxing doses of adrenalin. During the drop in pressure after pithing the brain, the action of adrenalin may reverse from depressor to pressor. It reverses with high temperature (44° C.).

The depressor effect does not occur if arterial tension has been much lowered by nitroglycerine.

The reversal from depressor to pressor action after pithing can be again reversed to depressor action by ergotoxine (Dale).

There are good reasons for believing that the depressor effect is not of central origin, is not due to blocking of vasoconstrictor impulses, or to stimulation of supposed vasodilator sympathetic endings by adrenalin.

The two effects, vasodilation and vasoconstriction, may be attributed to opposite actions of adrenalin according to the state of the muscle-relaxation when tonically shortened, contraction when relaxed. Other instances of like character are known.

Book Reviews.

A Treatise on Diseases of the Hair. By George Thomas Jackson, M.D., Professor of Dermatology in the College of Physicians and Surgeons, Medical Department of Columbia University; and Charles Wood McMurtry, M.D., Instructor in Dermatology in the College of Physicians and Surgeons, Medical Department of Columbia University, New York. Octavo, 366 pages, with 109 engravings and 10 colored plates. Philadelphia and New York: Lea and Febiger. 1912.

This is by far the best practical book on diseases of the hair that has been offered to the medical public of late years. Dr. Jackson's well known ability and care in compilations would ensure the success of any such publication of which he was the author, and the work has in fact been excellently done. The writers have with good reason drawn largely on the works of Sabouraud on parasitic diseases, and of Darier on the subject of histopathology. Many very excellent illustrations have been taken from these writers. In fact, the illustrations as a whole are exceedingly well chosen, and good modern pictures are not, as is so often the case, interspersed with illustrations made many years ago that have been passed along from one text-book to another. The chapter on ringworm is very well compiled and beautifully illustrated. The value of the book from the point of view of the general reader is added to by the fact that it does not represent individual opinions, but offers a clear and fair exposition of the theories that are sustained by reliable observers. The pages on the etiology of alopecia areata are a case in point. In brief, we can truthfully say that this treatise on the hair seems to us admirable from every point of view. It is hard to see how a book on these lines could be made better.

Psychotherapy. Including the History of the Use of Mental Influence, Directly and Indirectly, in Healing and the Principles for the Application of Energies Derived from the Mind to the Treatment of Disease. By James J. Walsh, M.D., Ph.D. 8vo. pp., xvi, 806, with 34 illustrations. New York and London: D. Appleton and Company. 1912.

This is a work on psychotherapeutics with a difference. Imagine a large volume on this subject with comparatively slight reference to hypnotism, a passing allusion or two to Freudism, a casual mention of psychoanalysis, written in clear, simple language, without the neologisms of abnormal psychology, and with the subconsciousness accented on the *sub!* The author is not ignorant of all these things and we strongly suspect that he could "drink with any (Freudian) tinker in his own language" if he were so inclined. His psychotherapy, however, is mainly the psychotherapy of education, and hypnotism and psychoanalysis are wisely subordinated. The title, to be sure, is something of a misnomer for beside psychotherapy proper he discourses at considerable length upon the general management and care of the patient, apart from the administration of drugs, dwelling fully upon the many petty details which often make so much for comfort and contentment, such as the arrangement of pillows, attention to the feet, the character of the patient's reading and the like,—details which are seldom even hinted at in the ordinary treatises. The book is characterized by wide general knowledge of men and books, sound judgment, sanity and sound common sense. It should be read—and it is very readable—by every physician and medical student, and it would do the laity no harm. Perhaps—perish the thought!—it might do more good than all the works of the Freudians. Was it incidentally the author's Archimedian heterophemy that led him to ascribe the well-known quotation from the Agricola on page 379 to Cicero?

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MAIMONIDES.

ONE of the most famous of medieval Jewish physicians was Moses Ben Maimun, generally known as Maimonides, whose full name in Arabic, however, was Abu Amram Musa b'n Maimun Obaid Allah. He was born in 1135 A.D. at Cordova (Corfu) in Spain, then one of the leading centres of culture, but was obliged early by the persecutions of Almohades to flee to Fez, and thence in 1165 to Egypt, where he settled at Fostat, the old city of Cairo. Here he lived, studied, and produced his numerous writings, and here in 1204 he died.

During his residence in Cairo, Maimonides became physician to Saladin, and through him came into relation with Richard Coeur de Lion. Maimonides was a scholar and a philosopher as well as a doctor, and the majority of his works deal with religious and political subjects. His principal medical work, "Pirke Mosheh," has been recently reviewed in the issue of the *British Medical Journal* for Jan. 11 (page 82).

"Maimonides records that every morning he went to the palace, and if any of the numerous officials and dependents there were ill he had to prescribe for them, getting back to his own house in the afternoon when 'almost dying with hunger.' There he would find, in his own words—

"Jews, Mohammedans, a varied crowd who are seeking my medical advice. There is scarcely time for me to get down from my carriage and wash myself and eat a little, and then until night I am constantly occupied so that from sheer exhaustion I must lie down. Only on the Sabbath day have I the time to occupy myself with my own people and my studies, and so the day is away from me.

"Maimonides wrote on philosophy as well as medicine. The most interesting of his writings was a series of letters on dietetics written for the son of Saladin, who seems to have been something of a neurotic, suffering from indigestion, constipation, and depression. The rules laid down by Maimonides have become part of the popular medical tradition. In view of the orginality claimed by so many minor prophets of the present day for views that are almost as old as disease, it may not be amiss to give a summary of them. We should eat and drink only when hungry and thirsty, and should be particularly careful of the regular evacuation of the bowels and bladder. The inclination should as far as possible be satisfied at once. A man must not overload his stomach, and should not drink much during the meal, and only of water and wine mixed. Food should be taken always in the sitting position. Most diseases come from eating either too much or unsuitable food. Every week at least a man should take a warm bath. He should not bathe when hungry nor after eating till the food is digested, and should bathe the whole body in warm but not too hot water, and the head in hot water. Afterwards the body should be washed in lukewarm water, and finally cold water should be used. Bleeding should not be frequent; it is only meant for serious illness. After the age of 50 there should be no bleeding. Whoever observes these rules of life faithfully will live long without disease, and in the fullness of his years he will die a natural death. Only the healthy should keep these rules. Whoever is ill or a sufferer from any injury or has lost his health through bad habits, for him there are special rules for each disease only to be found in the medical books. Every change in a life habit is the beginning of an ailment. Maimonides rejected astrology, and was never afraid to say he did not know anything."

In this last fact Maimonides perhaps showed his greatness more than any other thing that he ever said or did.

THE DANGERS OF THE COLD SEA BATH IN ARTERIOSCLEROSIS.

THE great good accomplished by hydrotherapy in many divers conditions is so well recognized at the present time that it does not require comment.

The pleasure, luxury and stimulating effect of the cold ocean bath is acknowledged by all. That it may be attended by serious danger and death in cases of unrecognized arteriosclerosis has been proved by more than one occurrence at our sea-shore resorts. Every year thousands of visitors come from the Middle and Southern

states to our Northern New England watering places, especially to Maine. Among them are many elderly or middle-aged people entirely unware oftentimes of arterial trouble.

It is the custom of these people often to immediately bathe in the salt water, often taking a run up and down the sands with the hot sun streaming on their heads, as a preliminary, then after the bath a walk up to the bath-house over the beach and frequently a cold shower over the head and body to get rid of the salt, then to a warm and stuffy bath-house. The influence of the cold plunge, often 55 or 56° F., after the exercise, tends to increase the blood-pressure probably to a considerable extent.

When we think of all these conditions and the number of elderly people who indulge in this pleasure, who must have more or less arteriosclerosis, it is a wonder that serious and fatal accidents do not occur more often than they do, but the fact that they do occur at our summer resorts shows that the indiscriminate use of the cold ocean bath in elderly people, without a previous medical examination certainly in some cases is disastrous.

IODINE MEDICATION OF THE BLADDER.

In the issue of the Journal for January 2 (Vol. clxviii, p. 18) was reported the use of iodine vapor in cystitis, as recommended by Farnarier. Our attention has been called in this connection to an article in the *New York Medical Journal* for July 27, 1912, by Dr. Frank T. Woodbury, in which he reports a case of cystitis treated by irrigation with a mixture of one drachm of tincture of iodine (U. S. P. 7%) in a quart of salt solution. The author considers this method of iodine medication of the bladder simpler than that with iodine, and equally efficacious.

MEDICAL NOTES.

Schwabacher Prize in Medicine.—Report from Berlin states that the heirs of the late Adolf Schwabacher, a German banker, have established a fund of 100,000 marks, from the income of which a quinquennial prize in medicine is to be awarded.

Appointment of Dr. Stephens.—Report from Liverpool states that Dr. J. W. W. Stephens has been appointed to the Sir Alfred Jones professorship of tropical medicine at Liverpool University, to succeed Sir Ronald Ross, who resigned recently to become physician for tropical diseases at King's College Hospital, London, as noted in the issue of the Journal for Feb. 6.

Subjects of the Cartwright Lectures.—Professor Ludwig Aschoff's lectures, the Cartwright lectures of the Alumni Association of the College of Physicians and Surgeons, will be given at the Academy of Medicine (New York) on March 12 and 15. The subject of the first lecture will be "Thrombosis," and of the second, "Contracted Kidney."

A Centenarian.—Mrs. Julia A. Hill, a negress, who died on Feb. 16, at Jersey City, N. J., is said to have been born a slave in January, 1812.

University of Georgia Medical School.—On Jan. 29 the new building of the medical department of the University of Georgia was dedicated with appropriate ceremony. On this occasion the honorary degree of LL.D. was conferred on Dr. J. A. Witherspoon, president-elect of the American Medical Association, and on Dr. William M. Polk, dean of Cornell University Medical College.

Meningitis in Texas.—Report from Austin, Tex., on Feb. 15, states that three cases of cerebro-spinal meningitis, with two deaths, have recently occurred among members of the State Legislature, which in consequence has adjourned its sessions for a fortnight.

Dinner to Dr. Mumford.—On Wednesday evening, Feb. 12, a dinner was given at the Rochester Club, Rochester, N. Y., in honor of Dr. J. G. Mumford, of Boston, who is at present in charge of the Clifton Springs Sanatorium near Rochester.

BOSTON AND NEW ENGLAND.

Improved Condition of School-Children.—In a recent report by Dr. William J. Gallivan, chief of the bureau of child hygiene of the Boston health department, it is stated that since the beginning of the current school year 30,331

public school pupils have been medically examined.

"Of this number, 17,233 were discovered to be children who were found with defects during the first examination in 1912, before the end of the school term. On the second examination 9,245 cases, or 30.47%, of all defects discovered during the first examination, had been remedied by the parents on their attention being called to the defects.

"Of the 27,773 defects found in the examinations made in 1911-1912, those remedied in 1912-1913 numbered 11,470."

A CASE OF LEPROSY IN BOSTON.—A case of anesthetic leprosy was discovered last week in Boston, in the person of a Portuguese longshoreman, recently emigrated to this country. The patient has been placed in quarantine pending his deportation or removal to the Penikese Island leper colony.

REPORT OF ST. MONICA'S HOME.—The recently published twenty-fifth annual report of St. Monica's Home, Roxbury, shows that during the past year 58 patients were treated in this institution, which has now paid off its mortgage, but is urgently in need of $8,000 for a new building.

INSTRUCTIVE DISTRICT NURSING ASSOCIATION.—On Wednesday of this week, Feb. 26, was held in Boston the twenty-seventh annual meeting of the Boston Instructive District Nursing Association. The report, showing the growth of its work during the past year, was presented by the director, Miss Mary Beard. The graduate courses in nursing, offered by the Association, were described by Miss Bessie S. LeLacheur, chief of the education department. An address was delivered by Dr. Milton J. Rosenau, professor of preventive medicine and hygiene at the Harvard Medical School.

GIFT TO MAINE STATE SANATORIUM.—Report from Portland, Me., on Feb. 17 announces a gift of $75,000 by Mr. David D. Stewart, of St. Albans, to the Maine State Sanatorium Association. The money will be kept intact and known as the Levi M. Stewart fund, the income only to be used for current expenses.

NEW SANATORIUM IN MAINE.—Report from Augusta, Me., states that on Feb. 18 a measure was introduced into the Senate asking an appropriation of $100,000 for the establishment of a new sanatorium for tuberculates.

BOSTON MORTALITY STATISTICS.—The total number of deaths reported to the Board of Health for the week ending Saturday noon, Feb. 15, 1913, is 252, against 258 the corresponding week last year, showing a decrease of 6 deaths, and making the death-rate for the week 17.87. Of this number 145 were males and 107 were females; 245 were white and 7 colored; 148 were born in the United States, 101 in foreign countries, and 3 unknown; 46 were of American parentage, 175 of foreign parentage, and 31 unknown. The number of cases and deaths from infectious diseases reported this week is as follows: Diphtheria, 51 cases and 1 death, scarlatina, 52 cases and 4 deaths; typhoid fever, 7 cases and 1 death; measles, 213 cases and 2 deaths; tuberculosis, 54 cases and 16 deaths; smallpox, 0 cases and 0 deaths. The deaths from pneumonia were 40, whooping cough 7, heart disease 36, bronchitis 5. There were 8 deaths from violent causes. The number of children who died under one year was 51; the number under five years, 76. The number of persons who died over sixty years of age was 68. The deaths in hospitals and public institutions were 107.

Cases of infectious diseases reported to the Boston Board of Health for the week ending Feb. 8, 1913: Diphtheria, 52; scarlatina, 50; typhoid fever, 12; measles, 243; smallpox, 0; tuberculosis, 65.

The death-rate of the reported deaths for the week was 17.09.

Non-residents are included in the total cases.

NEW YORK.

STUDY OF CRIMINALS AND DEFECTIVES.—At a meeting of the Society of Medical Jurisprudence held Feb. 10 a committee, of which Dr. A. E. Gallant was chairman, appointed at the preceding meeting for the purpose, presented a report on the U. S. Senate bill (known as the McDonald bill) to establish a Government bureau for the study of the criminal, pauper and defective classes. The committee in its report offered resolutions, which were unanimously adopted, to the effect that the Society does not recommend the passage of this bill, or any similar one, but recommend to the Secretary of the Treasury to authorize the Public Health Service to devise a plan whereby the work of reliable investigators in private or public institutions, of whatever character, throughout the United States

and other countries may be carried on in connection with the Public Health Service, and by it compiled, coördinated and codified, in the hope that all the facts may be established upon a scientific basis, to the ultimate benefit of mankind. The reasons assigned for this action, as set forth in the preamble to the resolutions are: (1) the belief that the proper study of the criminal, pauper and defective classes is in the line of scientific advancement, which may lead eventually to much of benefit; (2) much time, thought and effort have already been expended by private, professional and official investigators along independent lines, which to be of any practical use should be thoroughly weighed and sifted; (3) the Congress of the United States, by an Act approved Aug. 14, 1912, has decreed that the Public Health Service may study and investigate the diseases of man and conditions influencing the propagation and spread thereof.

Recent Bequests—By the will of the late Dr. James P. Tuttle $1,000 is left to the New York Academy of Medicine to establish a fund for the purchase of works and literature on diseases of the alimentary tract.

By the will of the late Louis Bossert of Brooklyn, N. Y., $5,000 each is left to the German and St. Catharine's Hospitals, Brooklyn.

Occupational Diseases.—Before the woman's department of the metropolitan section of the National Civic Federation, on Feb. 6, the evils of occupational diseases in dangerous and unhealthful lines of industry and manufacture, and of mercury, lead and arsenic poisoning in particular, were described by Prof. W. F. Willoughby of Princeton and Dr. John Andrews, respectively president and secretary of the American Association for Labor Legislation, and by Dr. E. E. Pratt, an expert on labor conditions. At least 13,000,000 cases of illness among workers and a money loss of $750,000,000 annually, it was estimated, could be ascribed to occupational diseases in the United States.

Milk Conference.—Ten States, as well as the Federal Government, were represented in a conference held on Feb. 5 and 6, at the Academy of Medicine, under the auspices of the New York Milk Committee, and the recommendations for securing increased purity of the milk supply adopted are to be incorporated in legislative bills.

Insanity Commission Report.—The State Hospital Commission reports that 5,759 new cases of insanity requiring treatment developed in New York State during the past year. Although the Commission succeeded in having deported to other countries or removed to other states 1,753 alien and non-resident patients, and 3,242 patients were discharged from the State Hospitals, there was in 1912 a net increase of 573 patients in the hospitals. The public and private institutions for the insane in the State now contain 16,271 male and 17,702 female inmates. The report states that the over-crowding of the State Hospitals continues, the shortage of accommodations at the close of the year being 4,800 beds. In the case of insane aliens, it is held by the Commission that the Federal Government should reimburse New York for its outlay in their care, since an unwarrantably large proportion of aliens is represented in the admissions to the hospitals.

Unwashed Milk Bottles.—On Feb. 7 the Appellate Division of the New York Supreme Court upheld the constitutionality of the statute making the possession of unwashed milk bottles a punishable offense. A milk-wagon driver had been convicted of this, and his employer backed him in his appeal, contending that the statute was unreasonable and drastic. The court dismissed this and other pleas in his behalf, upholding the statute in these words: "The danger to be apprehended from the use of unclean receptacles for milk intended for human food is so well known that drastic measures to prevent the possibility of such use are reasonable and justifiable."

Feeble-Minded School-Children.—In a report to the committee on school inquiry of the Board of Estimate and Apportionment, just made public, the statement is made that 15,000, or 2%, of the pupils in the public schools of New York are feeble-minded, by Dr. H. H. Goddard, director of the department of psychological research of the New Jersey State Training School for Feeble-Minded Boys and Girls, who is one of the eleven educational experts employed under Prof. P. H. Hanus of Harvard to investigate the public school system. After detailing some of the prevalent conditions, Dr. Goddard makes various recommendations for handling the problem of the feeble-minded.

HARVEY LECTURE.—The eighth lecture in the current series before the Harvey Society will be given on Saturday evening of next week, March 8, at the New York Academy of Medicine, by Edward G. Conklin, of Princeton University, on "The Size of Organisms and Their Constituent Parts in Relation to Longevity, Senescence and Rejuvenescence."

DEATH NOT DUE TO STOVAIN.—In the issue of the JOURNAL for Jan. 9 (Vol. clxvii, No. 2, p. 66) we published a brief summary of the coroner's findings in the case of a patient who died last November at the New York Polyclinic Hospital after a lumbar subarachnoid injection of stovain, preparatory to the performance of an operation for hernia. The following fuller statement of the history of this case, recently published as a supplement to the article on "Spinal Analgesia," by Dr. William Seaman Bainbridge in the issue of the *Journal of the American Medical Association* for Nov. 23, 1912 (Vol. lix, p. 1855), should be of interest and value to the profession:—

"*History.*—P. H., Irish, male, age given as 50 years, probably 60 or more; chronic alcoholic. Came to my clinic at the New York Polyclinic Medical School and Hospital, Oct. 18, 1912, seeking relief for a condition which proved, upon examination, to be right inguinal hernia, at times irreducible, and causing great suffering. The man gave a history of having felt a sharp, tearing pain in the right groin, while operating a taxicab, about three months previous to coming to the clinic. Since that time he had been to several dispensaries in a vain search for relief. He had used a truss without success. Failing to obtain relief by other measures, he wished to be operated upon at once.

"From the general physical examination the patient was found to be in a very bad condition, as the result of the prolonged excessive use of alcoholic stimulants. The following conditions were present: General atheroma of the arteries; renal insufficiency, due to chronic Bright's disease; marked enlargement of the liver; myocarditis, with systolic murmur at the base; emphysema; râles over the bases of both lungs. A history of chronic gastritis was also elicited.

"The patient's general condition was such that immediate operation was not deemed advisable. He was told, accordingly, to abstain from the use of intoxicants, and to refrain from lifting or straining; he was put upon a diet, tonics, etc., and was kept under observation for about three weeks. Despite the fact that only slight improvement followed this régime, he insisted upon operation. He was then admitted to the hospital, on Nov. 14, and prepared for operation the next day.

"Because of the man's general condition, inhalation anesthesia was considered contraindicated. He was prepared, accordingly, for operation under spinal analgesia. Before the members of the Congress of Surgeons present, I injected into the cauda equina twenty-six minims of a one per cent. solution of stovain. The patient, who presented no symptoms differing from those of the average subject during the spinal injection, was then sent to another room to be operated upon by Dr. E. M. Foote and Dr. Claude A. Frink, of my staff, while I concluded my lecture before the Congress. The man's mind was perfectly clear, his pulse was good, there was no nausea, no cyanosis, no respiratory embarrassment—in fact, *none of the symptoms of stovain poisoning.* He suddenly turned pale, said, 'I am dying,' and instantly died.

"The case was made a coroner's case, and an autopsy was performed the next day, with the following findings:—

"Marked edema of the brain, so-called 'wet brain'; myocarditis; atheroma of aorta; aortic insufficiency; emphysema of lungs; chronic interstitial splenitis; chronic gastritis; chronic enteritis; chronic interstitial nephritis. Spinal cord showed no gross lesion.

"The coroner's inquest was held on Dec. 1, 1912. The jury, after listening to the testimony of the above facts and a number of experts as to the indications of death by stovain poisoning, did not find that the man died of stovain poisoning, but that death was caused 'by pathological conditions' as above described, and all concerned were exonerated from blame."

ADDRESS BY DR. ALSBERG.—In an address before the Association of Manufacturers of Medical Products on Feb. 12. Dr. Carl L. Alsberg, recently appointed chief of the bureau of chemistry of the United States Department of Agriculture, is reported to have spoken in part as follows with reference to the enforcement of the pure food laws:

"The eyes of the people have centred upon the department's struggle for pure foods. The work of the department has, I think you will admit, been successful in improving the quality of our foods and preventing grave forms of fraud and adulteration. We realize fully that much remains to be done, but public confidence has been won and precedents have been created. No backward step will be taken. There will be no letup in the enforcement of the pure food and drugs act.

"While the efforts of the Department of Agriculture, in so far as the control of the food products over which it has jurisdiction is concerned, have been attended with considerable success, this has been true to a less degree with drugs and medicines. The fault has been in part with unforeseen loop-holes in the law. Gloomy as the outlook seems, there is yet a ray

of hope. It is the attitude of a small but powerful portion of the press itself, which has voluntarily scoured its advertising columns till they contain only clean and honest matter.

"Even if we succeed in protecting the people from quack medicines, a great task remains. This is to protect them from habit-forming drugs, such as opium and cocaine. We all are agreed that something must be done to control their sale and distribution. Virtually all our supply of these drugs is imported.

"It is, therefore, feasible if the State and Federal Governments coöperate to keep an accurate record of the fate of all of each consignment imported through the wholesaler and jobber down to pharmacist, physician, dentist and veterinarian. I wish to have a clear understanding with you. I hope that now we can pledge each other to work together for the common good."

Current Literature.

Medical Record.

February 8, 1913.

1. Honan, W. F., and Hassler, J. W. *General Anesthesia by the Intravenous Route.*
2. Lynch, J. M. *A Preliminary Report of Operations Under Extradural Anesthesia.*
3 Hollingsworth, H. L. *Experimental Psychology and Medicine.*
4 Beer, E. *Treatment of Benign Papillomata of the Urinary Bladder with the Oudin High-Frequency Current Introduced Through a Catheterizing Cystoscope.*
5. Reid, E. C. *Literary Genius and Manic-Depressive Insanity.*
6. Hille, H. *The New Chemistry and the New Materia Medica.*
7. Field, C. E. *The Neglect of Oral Treatment in Infectious Diseases.*

New York Medical Journal.

February 8, 1913.

1. *Chapin, H. D. *The Double Function of Fats and Carbohydrates in Nutrition and Their Different Nutritive Properties.*
2. Lever, J. W. *The Relation of Scoliosis to School Seating.*
3. McMurtrie, D. C. *Prostitution in Japan.*
4. Snow, W. B. *Physical Therapeutics from the Modern Point of View.*
5. DeKraft, F. *High Frequency Currents in Medicine.*
6. Manges, M. *The Mouth from a Diagnostic Standpoint.*
7. Brav, A. *Ocular Headache.*
8. Edwards, J. F. *Medical Inspection of Schools.*
9. Brady, W. *Chronic Ulcers of the Leg.*
10. Jacob, M. M. *Gastric Symptoms in Incipient Tuberculosis.*

1. Chapin points out that fats and carbohydrates serve two distinct purposes in nutrition and the two are equally important. They not only supply heat and energy but they also supply water to the cells. Fats are more effective producers of metabolic water than carbohydrates. In milk, the natural food of rapidly growing young animals which require much metabolic water to promote cell nutrition fat supplies the greater part of this water. The amount of heat excreted is a measure of the food that is being burned, but does not show how much is needed for growth. The number of calories a food will yield is not an indication of its nutritive value. Over- emphasis has been placed upon the caloric values of foods, particularly for infants. Digestive suitability and capacity to produce true growth and proper development are the essentials. [L. D. C.]

The Journal of the American Medical Association.

February 1, 1913.

1. Nichols, J. B. *Medical Sectarianism.*
2. Symmers, D. *A Recurrent Neuroblastoma of the Scapular Region.*
3. Gaskill, H. K. *Melanotic Sarcomas Resulting from the Irritation of Pigmented Nevi.*
4. *Russell, F. F. *Antityphoid Vaccination in Children.*
5 Moore, A. R. *Edema and Nephritis; Further Experiments Proving the Invalidity of the Colloid-Chemical Theory.*
6. Fischer, M. H. *The Colloid-Chemical Theory of Water Absorption by Protoplasm. A Third Response to Some Criticisms.*
7. *Aaron, C. D. *A Sign Indicative of Chronic Appendicitis.*
8. Baughman, G. *Protection and Repair of the Perineum.*
9. Gordon, A. *Early Paresis. Importance of Its Recognition; Differential Diagnosis; Medico-legal Considerations.*
10. Zenner, P. *Sex Instruction in School.*
11. Brooks, H. *Involvement of the Ovary in Epidemic Parotitis, with a Report of Two Cases.*
12. Bernheim, B. M. *Arteriovenous Anastomosis. Successful Reversal of the Circulation in All Four Extremities of the Same Individual.*
13. Flexner, S., and Noguchi, H. *Experiments on the Cultivation of the Virus of Poliomyelitis. Fifteenth Note.*
14. Bogert, F. *The Serum Treatment of Tetanus after Symptoms Have Developed.*
15. Buchsbaum, M. *A Rapid Method for Celloidin Sections.*

4. Russell reports statistics based on anti-typhoid vaccinations of 359 children between the ages of two and sixteen years. The dosage is based on body weight, rather than on the age of the child. The child is given that proportion of the adult dose which its weight bears to the average adult weight, namely, 150 pounds. Inoculations should be given at about 4 in the afternoon, so that the reaction, if any, will come at bedtime. No harmful effects have been reported, and no cases have contracted typhoid fever, although some of the vaccinations were over three years ago. Re-vaccination in children should be undertaken earlier and oftener than in adults, as children are immunized on the basis of body weight, and consequently should be given a second course when the body weight shows material increase. Re-vaccination should be used about once in three years until further experience shows that the interval may be lengthened.

7. Aaron has found that continuous firm pressure over the appendix in cases of chronic appendicitis, induces referred pain in the epigastrium, left hypochondrium, umbilical, left inguinal, or precordial regions; and states that this may often be a valuable sign in rather obscure cases. [E. H. R.]

February 8, 1913.

1. *Jordan, E. O. *School Diseases.*
2. *Herling, R. *Methods of Water Purification for Large Cities.*
3. *Culler, R. M. *Epididymotomy. A Plea for a Rational Treatment of Epididymitis.*
4. Halsted, W. S. *Developments in the Skin-Grafting Operation for Cancer of the Breast.*

5. *BUERGER, L. *Ulcer of the Bladder.*
6. *CHASE R. F. *Recent Observations on the Influence of the Position of the Stomach on Certain Aspects of Gastroptosis.*
7. WHITING, A. D. *Conservatism in Surgery.*
8. REINHARDT, G. F. *Public Health Education.*
9. *TROWBRIDGE, E. H. *Salvarsan in General Paresis.*
10. BISHOP, E. S. *Narcotic Addiction—A Systemic Disease Condition.*
11. PUSEY, W. A. *Sulphuric Acid Caustic Pastes.*
12. COOLEY, T. B., AND VAUGHAN, J. W. *A Simple Method of Blood-Transfusion.*
13. NEILSON, C. H., AND HYLAND, R. F. *The Effect of Strong Purging on Blood-Pressure and the Heart.*
14. HARRIS, C. M. *The Importance of Preserving the Integrity of Contiguous Structures When Operating on the Tonsils.*
15. SCOTT, J. R. *A Critical Study of the Albumen Reaction in the Sputum of Tuberculous Patients.*
16. ROCKEY, A. E. *Death from Spinal Anesthesia.*

1. Jordan believes that we are at present unable to prove that there is such a condition as increase of certain infectious diseases because of close contact in the schools, but believes that each disease should have its own special prophylaxis in each case.

2. Herling's article on the purification of water supplies of large cities states his belief in the comforting assurance that our water supplies are well and reasonably safeguarded.

3. Culler's reasons for strongly advocating epididymotomy are that the operation gives sudden and permanent relief from pain, fall in temperature within forty-eight hours, rapid reduction in the size of the inflammatory mass, early healing of the wound without suppuration and early convalescence without relapse.

5. Buerger believes that solitary ulcer of the bladder is more common than is generally supposed, and that it is easily curable by fulguration.

6. Chase, in a well-stated article, shows that gastroptosis is not so common as is generally believed; that the position of the stomach is actually of little account, provided it is doing its work satisfactorily. The condition cannot be said to exist unless the greater curvature is one or more inches below the umbilicus.

9. Trowbridge does not believe that we have in salvarsan a drug which can give any hope of cure in paresis. [E. H. R.]

THE JOURNAL OF MEDICAL RESEARCH.

JANUARY, 1913.

1. MARINE. *Benign Epithelial Tumor of the Thyroid Gland.*
2. SIMPSON. *Growth Centers of the Benign Blastomata with a Special Reference to Thyroid and Prostatic Adenomata.*
3 *TORREY AND RAKE. *Studies in Canine Distemper.*
4. BROOKS. *A Study of an Unusual Type of Arteriocapillary Fibroma Clinically Resembling Myasthenia Gravis.*
5. SWEEK AND FLEISHER. *Inhibition of Hemolysis by the Serum of Cancerous Individuals.*

3. The etiological factor of canine distemper is proved to be the bacillus bronchisepticus. This was isolated from the respiratory passages, chiefly during the incubation period of the disease, in one hundred per cent. of the cases observed, and often in pure culture. This frequency falls somewhat during the progress of the disease, although the organism was isolated in at least 75% of all cases as late as the third week. After death the figures were reversed, so that it was found that the organisms were isolated in only as many instances as they failed to appear antemortem. This fact is doubtless due to the vast overgrowth of secondary infecting organisms. The bacillus bronchisepticus is found in the nose, throat, trachea, bronchi, bronchopneumonic areas of the lung, liver, and spleen; and to a less extent in the other organs. The authors give a minute account of the cultural characteristics and biologic character of the bacillus. The filtrate was found inert; but dried and powdered organisms injected into the nasal, buccal, and aural cavities were potent, producing the typical disease. The disease was shown to be highly infectious, even during the incubation period; transmission being possible, even at that time, from attendants and unsterilized cages. Finally, animals secure from this disease, naturally acquired or produced by inoculation, an immunity protecting them against further infection. This immunization can be produced artificially by inoculation, so that further infection is impossible. [L. H. S.]

THE LANCET.

JANUARY 25, 1913.

1. *GOULD, A. P. *The Purvis Lecture on the Treatment of Inoperable Cancer.*
2. *MCCARRISON, R. *The Milroy Lectures on the Etiology of Endemic Goitre. Lecture II.*
3. MILLIGAN, W. *The Treatment of Meningitis of Otitic Origin.*
4. HELLIER, J. B., AND STEWART, M. J *On a Case of Adenomyoma Uteri.*
5. BARLING, H. G. *Hypertrophic Stenosis of the Pylorus in Adults.*
6. KENRICK, W. H. *Malaria in India and the Birth- and Death-Rate.*
7. THIELE, F. H., AND EMBLETON, E. *A Preliminary Communication on the Pathogenicity and Virulence of Bacteria.*
8. VERDON, H. W. *The Jugular Pulse.*
9. STOREY, L. *A Case of Hair Cast of the Stomach; Gastrotomy; Recovery.*
10. ALEXANDER, W. *Necessity of a Better Classification of Epileptics.*

1. Gould emphasizes the importance of mental and physical rest, strict cleanliness, abstinence from alcohol and a simple diet in inoperable cancer. Among palliative operative procedures he speaks of gastrostomy, colostomy, cystostomy, gastro-enterostomy, neurectomy and paracentesis. He goes into radium and x-ray treatment in some detail and cites some cases in which there was great symptomatic relief from such measures.

2. In the second Milroy Lecture upon goitre, McCarrison takes up the influence of soil and its geological structure in relation to this disease, concluding that goitre can and does prevail upon almost any kind of soil. He then considers the chemical substances in water and their relationship to goitre, the nature of the toxic agent of goitre, which he believes to be a living organic substance, and not any organic salt or mineral. He discusses the goitre developing in artificially bred trout, the experimental production of goitre in man in the following conclusions: Thyroid enlargement can be experimentally produced in man within a few weeks by the administration of the suspended matter taken from goitre producing water; this cannot be done when the water is boiled. Water passed through a Berkefeld filter does not appear capable of producing goitre. He describes Bircher's experiments along this line. He goes on to describe how soil seems to be the vehicle of infection, which explains why the disease is common among the poorer classes and those dwelling in agricultural districts, [J. B. H.]

FEBRUARY 1, 1913.

1 *COLLIE, J. *A Lecture on Malingering in Accident and Disease.*

2. *Kilroy, L. *The Treatment of Syphilis with Salvarsan. First 1000 Cases Treated at the Royal Naval Hospital at Plymouth.*
3. *Tubby, A. H., and Hicks, J. A. B. *A Case of Suppurative Post-Typhoid Osteitis 13 Years After an Attack of Enteric Fever.*
4 Keith, A. *Progeria and Atcleiosis.*
5. Grümbaum, H. G., and Grümbaum, A. S. F. *New Growth and Inefficient Immunity.*
6 Woodward, H. M. M., and Clarke, K. B. *A Case of Infection in Man by the Bacterium Prodigiosum.*
7. Gibson, A. *A Case of Old-standing Dislocation of Hip-joint Treated by Open Operation.*
8. Mennell, J. B. *The Treatment of Recent Injury by Mobilization and Massage.*

1. This is an interesting paper on malingering, with numerous illustrative cases with suggestions as to detection and prevention.

2. Kilroy reports on 1000 cases of syphilis treated with salvarsan; 2147 injections were given to these patients with 13 invalidings, no deaths and 26 clinical relapses.

3. "Progeria" is the name given to a rare pathological condition of premature old age. Keith describes such a case in detail. [J. B. H.]

British Medical Journal.

January 25, 1913.

1. **A Report of the Work Carried Out at the Radium Institute from Aug. 14, 1911, to Dec. 31, 1912.*
2. Miles, W. E. *A Lecture on the Diagnosis and Treatment of Cancer of the Rectum.*

1. This report of the Radium Institute occupies the greater part of this number of the *Journal*. It describes the apparatus, methods of application, reaction, which may be (1) simple erythema, (2) erythema followed by desquamation, (3) vesication with superficial ulceration, (4) deep ulceration. There are tables showing results in 578 cases so far treated, which consist chiefly of carcinoma, rodent ulcer, sarcomata, nevus keloid, parotid tumors, fibromata, lichenification, pruritus psoriasis, lupus, tuberculous adenitis and arthritis deformans. The cases are given in full. The results are remarkable in many ways, though hardly admitting of detailed review. While it is by no means advised that radium treatment should replace proper surgery, in operable cases it is often of assistance, and in inoperable cases of very great value in relieving distressing symptoms. The report is sane and conservative and makes no undue claims for this agent. This report and the editorial remarks on it are of the greatest interest.

[J. B. H.]

February 1, 1913.

1 Bland-Sutton, J. *An Address on the Exotic Flora of the Uterus in Relation to Fibroids and Cancer.*
2. *McKisack, H. L. *Remarks on Atypical Exophthalmic Goitre.*
3. *Emrys-Roberts, E. *The Portals of Entry of the Tubercle Bacillus, Especially in Childhood.*
4. Raw, N. *The Varieties of Tuberculin in the Treatment of Tuberculosis.*
5. *Rigg, E. E. A. T. *On the "Controlled" Therapeutic Use of New Tuberculin in the Treatment of Pulmonary Tuberculosis.*
6. Gregson A. H. *Organic Acid Ratio of Urine after Tuberculin.*
7 *Stoney, A. *A Year's Experience of Dioradin in Surgical Tuberculosis.*
8. Sturrock, W. D. *Gastric Hemorrhage and Other Complications in a Case of Childbirth.*
9 Wilson, C. *A Case of Cardiac Asthma.*

2. McKisack describes the functions of the thyroid gland, the etiology and symptoms of exophthalmic goitre, discussing the early atypical cases and their recognition, and in particular urges that we drop the name exophthalmic goitre and substitute that of hypothyroidism.

3. The writer sums up the portals of entry of the tubercle bacillus, especially in childhood, as including the respiratory system, the alimentary tract, the mucous membrane of the naso-pharynx, skin and lastly the placenta. The entire community is "tuberculized." The paper offers nothing new, but discusses the statistics already collected from post-mortem and other evidence.

5. Rigg's paper as to the effect of tuberculin as judged by certain criteria is interesting, but the number of cases is too small to make it of any value.

7. Stoney has had good results with "Dioradin" in surgical tuberculosis but does not state what this substance is. [J. B. H.]

The Practitioner.

February, 1913.

1. Barker, A. E. *Septic Infection of Joints.*
2. *Poynton, F. J. *Rheumatism in Childhood.*
3. *Kebbell, C. V. *The Significance of Some Common Symptoms in Childhood with Remarks on Diagnosis.*
4. Roth, P. B. *Bow-legs in Small Children.*
5. Thursfield, H. *Review of Recent Literature on Children's Diseases.*
6. *Jordan, A. C. *Intestinal Stasis.*
7. Gillespie, E. *On the Treatment of Gangrenous Hernia by the Combined Anastomosis and Fistula Operation.*
8. Emery, W. d'E. *Review of Recent Literature on Clinical Pathology.*
9. Finzi, N. S. *Review of Recent Literature on X-rays and Radium.*
10. Thomson, H. C. *Review of Recent Literature on Nervous and Mental Diseases.*
11. Cooper, J. W. A. *The Combined Treatment of Alcohol Inebriety.*
12. Curle, D. *Notes and Answers to Correspondents on "Obervations on the Actions of Iodine" Published in the December, 1912, Issue of "The Practitioner."*
13. Wheeler, E. R. *Two Curious Cases of Coin in the Alimentary Canal.*

2. Poynton in a long article discusses rheumatism in childhood and his well-known researches and views on this subject. He does not find it rare under five years and had no difficulty in collecting 50 cases of his own under that age. It steadily increases up to the 12th year and then declines. He emphasizes the fact that what he calls rheumatism is not merely an arthritis but a general constitutional infection. He speaks of diseased tonsils as a most important factor; he mentions its close relationship to scarlet-fever. Under pathology he summarizes the chief changes which are found. In childhood the clinical manifestations are more varied and more numerous than in adults. The articular lesions are less severe, heart affections more frequent, and the disease accordingly more fatal. Chorea and other nervous symptoms are more frequent; sweating less frequent, anemia more profound, subcutaneous nodules are more frequent, hyperpyrexia is rare. These various subjects he discusses in detail in a most practical and interesting manner. Prognosis depends on age, the nature of the onset, the constitution, presence of complications, especially pericarditis. He goes over in detail the prognosis of the various cardiac lesions. Under treatment he recommends tonsillectomy and careful care of the throat in general, warm clothing. He believes the effect of salicylate of soda to be purely symptomatic. He urges prolonged rest. He is still in doubt as to the value of vaccines.

3. Kebbell in a practical manner discusses the significance of cough, headaches, sore throats, pyrexia, wasting, abdominal pain, laryngeal stridor and certain cerebral symptoms, such as convulsions.

6. Jordan, in a paper illustrated with many excellent plates, discusses intestinal stasis from the point of view of the radiographer. [J. B. H.]

MÜNCHENER MEDIZINISCHE WOCHENSCHRIFT.

No. 1. JANUARY 7, 1913.

1. *ROMBERG, E. *On Digitalis.*
2. *SCHULTZ, W. *Technic and Results of My Method of Estimating Coagulability of the Blood.*
3. GROBER. *Spontaneous Cure of Basedow's Disease.*
4. COAN, A. *Treatment of Malignant Tumors with Radio-active Substances.*
5. RUPPRECHT. *Prostitution of Young Girls in Munich.*
6. v. FRISCH, K. *The Color-sense of Bees and the Colors of Flowers.*
7. HERZOG. *Shortening of Bone-conduction with Normal Hearing. (To be concluded.)*
8. SCHMIDT, A. *Chronic Diphtheritic Infection of the Lungs.*
9. LANGBEIN, R. *The Diagnosis of Perforating Aneurysm of the Cerebral Arteries.*
10. CREDÉ-HÖRDER, C. *"Late Infection" of Ophthalmoblenorrhea.*
11. PAGENSTECKER, E. *Gastropexy by Means of the Ligamentum Teres.*
12. KÖLLE, W. *The Treatment of Sclerodema with Coeliacin.*
13. BEYER. *A Case of Spontaneous Rupture of the Uterus in Pregnancy.*

1. This article on digitalis is an interesting resumé of advance in knowledge of the clinical use of digitalis.

2. Schultz describes again his method of estimating the coagulability of the blood and reports the result of his tests of some current methods for hastening coagulation. No change was shown after the use of calcium salts, after injection of natrium nucleinicum (to increase the leucocytes), or after administration of citric acid in the form of fruit juice. Testing injections of gelatine in cases of pulmonary hemorrhage, he found a decided hastening of coagulation occasionally. [G. C. S.]

BERLINER KLINISCHE WOCHENSCHRIFT.

No. 1. JANUARY 6, 1913.

1. HEFFTER, A. *The Fundamentals of Treatment with Medicine. (Jubilee Article.)*
2. EWALD, C. A. *The Therapy of Intestinal Diseases During the Last Fifty Years.*
3. KÜTTNER, H. *Circumscribed Tumor Formation by Abdominal Fat Necrosis and Subcutaneous Fat Decomposition.*
4. EHRMANN, R. *Diabetic Coma. (To be continued.)*
5. *BLÜHDORN, K. *The Treatment of So-called Uncontrollable Bleeding in Infants.*
6. BERNHARDT, G., AND ORNSTEIN, O. *The Variability of Pathogenic Micro-organisms.*
7. HANAUER, W. *Some New Theories Concerning the Causes of Death Among Nursing Infants.*

5. The author reports two cases of *Hemorrhagica Neonatorum*, both with tarry, stools, bleeding from the cord and subcutaneous hemorrhages. These were treated with injections of the calcium salts and diphtheritic serum. Both recovered. The author feels that the use of the calcium salts is always indicated. He thinks that the serum is of importance, but only secondary. He does not consider the advantages of direct transfusion at all. [J. B. S., JR.]

DEUTSCHES ARCHIV FÜR KLINISCHE MEDIZIN.

DECEMBER 12, 1912.

1. *SPULER, A., AND SCHITTENHELM, A. *The Occurrence of So-called Nuclear or Cell Inclusions in Lymphatic Leukemia and the Nature of the Eosinophile Cells, Also Remarks on the Bone Marrow Puncture as a Diagnostic Aid.*
2. OCZESALSKI, K., AND STERLING, ST. *Experimental Investigations on the Effect of Bleeding and Subperitoneal Injections of Blood Upon the Number and Resistance of Red Blood Corpuscles.*
3. ISAAC, S., AND HANDRICK, E. *Relations of Anemic Conditions to Carbohydrate Metabolism.*
4. *KNOLL, W. *Relation Between the Organism and the Agent Causing Tuberculosis Dependent upon Its Morphology.*
5. GROEDEL, T., AND GROEDAL, F. *Investigation of the Heart by Cinematographic and X-ray Pictures ad the Electrocardiogram.*
6. BAUER, J., AND HELM, F. *Roentgen Ray Findings in Goitre Hearts.*
7. *ELLERN, H. *Work on the Etiology of Diabetes Insipidus.*
8. SCHÜRER, J. *Importance of Antibodies in Tuberculosis.*
9. *DAVID, O. *Therapeutic Use of Oxygen-Poor Air in Anemia.*
10. *LERCH, O. *A New Percussion Method.*
11. LOMMEL, F. *So-called Bantis' Disease and Hemolytic Jaundice.*
12. *REINHARDT, R. *Relation Between the CO_2 Excretion and Size of Breath in Lung Emphysema.*

1. In the study of a case of lymphatic leukemia, these authors conclude that the cell inclusions occur as a result of degenerative changes in the nuclei of the lymphocytes. They also reach the conclusion that eosinophiles are dependent for their origin to some extent upon blood destruction, and do not come from bone marrow. They found the bone marrow puncture of value.

4. Knoll in this paper takes up the question of the morphology of the tubercle bacillus. He describes at the end of the paper in detail his technic for staining the bacillus and feels now assured that there are granular forms of the tubercle bacillus. The bacillus stains red and the granules a blue-black by this stain. He presents a set of photographs from different parts of the body showing these bacilli.

7. This author has written a long paper upon the etiology of diabetes insipidus. He thinks that by far the most important step to decide is whether you are dealing with a polydypsia or a polyuria. A true diabetes insipidus may be of renal, cerebral, nervous or syphilitic origin. It is also probable, but not yet proven, that this condition may arise from disturbances of internal secretion, such as those from the adrenals or hypophysis.

9. In view of the fact that high altitudes affect the blood picture usually by an increase of red corpuscles, David thought that there might be some therapeutic value in having anemic patients breathe air poor in oxygen for an hour or so daily. In normal people this showed practically no change in the blood picture. In simple anemia the reds and hemoglobin showed a gradual increase, but the color index remained low. In primary anemia the color index at first fell because the reds first increased, but later the hemoglobin increased and the index rose. Although the treatment seems to influence the blood picture no therapeutic value was proved.

10. Lerch with a perimeter and hammer describes a technic for percussion by means of simply letting the hammer fall. In this way, if always raised to the same height the individual error from force of blow is avoided. With this method he claims to have been able to mark out edges of organs most minutely. He also lays emphasis on the percussion of the kidneys.

12. Reinhardt studied by the recent methods the CO_2 output in emphysematous patients. He found that they breathe out about 50% more air than a healthy person. This is accomplished by increased frequency and depth of respiration. The amount of CO_2 in this air is proportionally below the normal. The whole CO_2, however, is increased, possibly due to increased muscular activity. The vital capacity is therefore lowered. [C. F., Jr.]

Wiener Klinischer Wochenschrift.

No. 4. January 23, 1913.

1. Buetiner, W. *Some Questions on the Physiology and Pathology of Digestion and Absorption in the Light of Modern Serological Knowledge.*
2. *Kren, O. *Conclusions on Our Experience with Salvarsan.*
3 Bárány, R. *A Case with Complete Restoration of Hearing After Complete Deafness of Nearly a Year, Due to the Symptom-Complex of von Bárány.*
4. Guzmann, E. *Hereditary Family Optic Nerve Atrophy.*
5 Bardach, B. *Phenolpthaline-Spectrum and Its Influence on the Spectroscopic Study of the Urine.*

2. The author draws the following conclusions from his experience with salvarsan:—

Salvarsan is the best anti-syphilitic, its administration changes the course of the disease. Best therapeutic results are obtained when it is administered in the first stage. It is in certain first stage cases in which the serum reaction is not yet positive that its use prevents second stage; several such cases have been under observation two years without secondary symptoms. Also in some primary cases with positive reaction will the secondary stage be aborted, but as a rule the early skin lesions, as well as the later skin and mucous lesions, must be expected.

In secondary syphilis salvarsan should be used over a longer period, and in larger doses. If its use here does not give the desired result mercury should be used with it. Results of salvarsan therapy are especially good in third stage and hereditary syphilis. Large single doses of salvarsan are dangerous.

Successful results depend on a strict observance of the contraindications. Death never followed its use in the author's cases.

Parasyphilitic nervous conditions do not contraindicate salvarsan therapy. Best results come from energetic salvarsan-mercury treatment; these results are of course not especially good.

The contraindications to the use of salvarsan are: 1. High blood-pressure, as in arterial sclerosis, aneurysm, myocardial degeneration, nephritis. 2. Severe, non-specific nervous affections, as high grade neurasthenia and serious forms of hysteria. 3. Occupational exposure to noise and explosions, as locksmiths, artillerymen, chauffeurs, machinists. 4. Inflammatory and adhesive middle and inner ear disease, non specific. 5. Disseminated lymph gland disease, as disseminated glandular tuberculosis, disseminated abdominal lymph gland disease, the danger being pneumonia or peritonitis. 6. All localizations of syphilis which follow Jackish-Herxheimer swelling, as high grade perichondritis or syphiloma of the trachea.

These conclusions are based on 600 injections in 285 cases. [F. S. K.]

Miscellany.

CHARLES DICKENS' AID TO THE SCIENCE OF PEDIATRICS.*

It is not generally known that Charles Dickens was a benefactor to children in ways other than by his books. Charles Dickens was a great friend of West, the English pediatrist. During a number of years West had only a Dispensary, where he could study children only under difficulties, not being able to study the more serious cases of illness and not having any autopsy material. West deplored this deeply and displayed great activity, and worked with unceasing zeal to found a special hospital for children, like those which were on the continent at this time.

Dickens interested himself in this building and contributed with West in the efforts to make the public realize the necessity of this institution. Thus he and West really were responsible for the founding of the first hospital for children in England,—the Hospital for Sick Children, Great Ormond Street, founded in London, in 1855. Thus the English children's specialists are in a great measure indebted to this great author for actual help in their science.

ANTIQUITY OF VACCINATION.

In his recent work on "Medical and Surgical Science" in the Twentieth Century Science Series, Dr. Hillier calls attention to the real antiquity of preventive inoculation against smallpox:—

"The practice of inoculation against smallpox is usually supposed to belong to the eighteenth century. The supposition is true enough, so far as Europe is concerned, but it was no more than a re-discovery of facts well known ages ago. Inoculation was practiced by the ancient Brahmins, and their method is fully described in the Vedas. They rubbed the skin of the patient until it was red, then scratched it with a sharp instrument and laid upon it a piece of cotton soaked in the variolus pus obtained from smallpox vesicles of the previous year. Such re-appearances of ancient knowledge are common enough, indeed far more common than is usually admitted. Among the major scientific theories and discoveries of today there is hardly one that can sustain a claim to originality in the face of our increasing knowledge of Oriental literature."

* Trans. La Chronique Medicale, August, 1912.

Correspondence.

ROBERT FLETCHER, 1823-1912.

Boston, February 18, 1913.

Mr. Editor: Those of our profession who have been accustomed to take advantage of the rare privileges and courtesies afforded by the Surgeon General's Library will sadly miss the scholarly and dignified gentleman who for so many years carried on his shoulders the brunt of one of the greatest and most successful bibliographic tasks ever undertaken.

Perhaps equally effective is the influence of a library on its librarian and the influence of the librarian on his surroundings—and Robert Fletcher seemed as much a part of the familiar place as did the current journals in their racks and the pictures and books in the reading room. And, so far as externals are concerned, the library—despite its extraordinary growth—and is presiding genius—despite his advancing years—imparted to the visitor the same impression of fixity and permanence. There seemed to be no outward change in Dr. Fletcher during the fifteen years following the days when the younger generation of us at the Johns Hopkins Hospital first came to know him through his weekly lectures on medical jurisprudence, which brought him over from Washington with punctual regularity. Indeed, but a short few weeks before his death he was to be found in the library, where, after recovering from a critical illness, he had again returned to his desk—in his ninetieth year, the same spare, courtly, neatly clothed, soldierly personage. Even on those who never came into contact with the man himself, his scholarly qualities and capacity for detail will forever breathe from the pages of the two great medical indices—a monument to his painstaking industry and capacity for detail.

After a five years' preparation for his profession—first in the medical school of Bristol, England, the town of his nativity, and subsequently in the Bristol Infirmary and the London Hospital—he received his M.R.C.S. in 1844, and three years later, when only twenty-four years of age, he came with his young wife to this country and settled in Cincinnati. There he entered into practice, and there he might have remained had not the Civil War come to change the course of his life, as it changed that of many others.

He was first appointed to the Ohio Volunteers; three years later he was given a Government commission and was placed in charge of one of the important hospitals of the Northern army, and at the close of the war he was breveted colonel. Continuing in the service, he was ordered to Washington in 1871, where he participated in the preparation of the Anthropometric Statistics of the Provost-Marshall's Office of the War Department, and five years later was transferred to the Surgeon General's Library, where, shortly before, Dr. John Billings had begun a catalogue of the growing collection of books gathered largely by Surgeon General Hammond and his successors for the use of the Army Medical Department, in preparation of the monumental volumes dealing with the medical and surgical history of the war.

In the first volume of the Index Catalogue, which appeared in 1880, Dr. Billings pays tribute to the unflagging industry of Robert Fletcher; and to his early example more than to any other factor is doubtless due the extraordinary accuracy of the references on the printed pages of the subsequent volumes of the Index Catalogue and Index Medicus, which makes them almost unique among books of reference.

Though for some years the brunt of the work has been carried on by his cultured and able successor, the colossal nature of the undertaking which the three men, Billings, Fletcher and Garrison, have successfully carried through, despite an often sadly insufficient office force and an unsympathetic Government purse, is shown by the prefatory table in the recently published Volume XVII of the Second Series of the Index Catalogue, which records 289,826 book titles and 1,043,253 catalogued subject titles of journal articles. Dr. Fletcher's association with the Index Medicus lasted for a period of twenty-one years, as editor-in-chief for the last nine years, or until the unfortunate hiatus in the series following the abandonment of the task in 1899 from lack of support, after which, in 1903, the publication was resumed under the auspices of the Carnegie Institute.

A man's scholarly tastes are perhaps best shown by the character of his personal collection of books; and the catalogue of Robert Fletcher's library, which is to be sold this month by the Anderson Auction Company, comprises collections on crime and criminals, prisons and punishments, anthropology, ethnology, etymology, witchcraft, early drama, ballads and songs, argot and slang, dictionaries, biographies, memoirs and art—all was grist to his mill. The volumes were evidently for use and enjoyment—not the gatherings of a bibliomaniac— and the range is wide: from Lady Mary Wortley Montague to Bill Nye; from Fanny Burney's Diary and Kenelm Digby's Memoirs, to Earle's Native Races of the Indian Archipelago; from Sir John Harrington's Nugae Antignae and Orlando Furioso to Eugene Field; from Rader's 1863 "Dictionarie" to the Relique Hernianae.

Of Robert Fletcher's several writings the earlier ones are largely on anthropological subjects, and his scholarly monograph on Prehistoric Trephining was one of the earliest and most important treatises on this interesting subject. From time to time, before the Johns Hopkins Hospital Historical Club he gave some charming sketches, among which were his "Medical Lore in the Older English Dramatists and Poets" (1895), "The Witches Pharmacopeia" (1896) and "A Tragedy of the Great Plague at Milan in 1630" (1898); and since his death an interesting paper, "On Some Diseases Bearing the Names of Saints," has appeared in the December number of the Bristol Medico-Chirurgical Journal. Thus his last written words fittingly appear in the organ of the school where he graduated and of which he was the oldest living student. The words of appreciation by his friend, Sir William Osler, concerning his services to Medicine, which were to have accompanied the article, were unexpectedly and sorrowfully turned into a memorial notice.

In 1910 the gold medal of the Royal College of Surgeons was given him, a rarely conferred distinction, which he shared with but eleven others, among whom were Parkinson, Paget and Lister; but more lasting than gold is the service which his peculiar talents fitted him to give to the medical profession of the world and of which his share in the great medical indices is the enduring expression.

HARVEY CUSHING, M.D.

THE MODERN FEMININE FIGURE IN CLASSIC TIMES.

Boston, Jan. 29, 1913.

Mr. Editor: I have heard that certain physicians, who have given much study to the problems of metabolism and dietetics, have been often consulted by women, who are anxious to attain the lath-like figure which has been recently and perhaps is still the ideal, in order that they may get rid of all superfluous flesh and such unfashionable projections as hips, busts and buttocks. In this connection the following lines from Terence, which I ran across the other day, may prove interesting. The speaker has fallen in love with a girl who is beautiful and has what he considers a good figure of the type once called feminine.

"Haud similis virgo est virginum nostrarum, quas matres student,
Demissis humeris esse, vincto pectore, ut graciles sient.

Si qua est habitior paulo, pugilem esse aiunt, deducunt cibum:
Tam etsi bona est natura, reddunt curatura junceam:
Itaque ergo amantur."

Eunuchus, 313-317.

Yours truly,

PHILIP COOMBS KNAPP, M.D.

[For the benefit of those whose Latin, like my own, is oxidized an inch thick, I append Mr. John Sargeaunt's translation: "It's a girl not like the girls in our society, whose mothers try to fit 'em with falling shoulders and straight bosoms to make 'em slim. If one of 'em is the least bit plump she's called a boxer and docked of her rations. She's all right by nature, but treatment makes her like a bulrush. Ay, that's why suitors come."—P. C. K.]

[For the further benefit of our readers, we would refer them, in connection with Dr. Knapp's apt quotation from Terence, to the following similar passage from "The Ten Classes of Women," by Semonides, a Greek iambic poet, who flourished about 625 B.C.

'τὴν δ' ἐκ πιθήκου [θεὸς ἔθηκεν]· τοῦτο δὴ δακριδὸν
Ζεὺς ἀνδράσιν μέγιστον ὤπασεν κακόν.
αἴσχιστα μὲν πρόσωπα· τοιαύτη γυνὴ
ἐστὶ δι' ἄστεος πᾶσιν ἀνθρώποις γέλως·
ἐπ' αὐχένα βραχεῖα, κινεῖται μόγις,
ἄπυγος, αὐόκωλος· ἆ τάλας ἀνήρ,
ὅστις κακὸν τοιοῦτον ἀγκαλίζεται.'

The modern fashionable feminine figure was evidently not unknown twenty-five centuries ago. Particularly interesting in this description is the use of the word ἄπυγος which may be rendered euphemistically, though not with literal accuracy, "slab-sided." The same term is employed, in a fragment from Plato Commicus, in the description of a man, Kinesias:

'Εὐαγόρου παῖς ἐκ πλευρίτιδος Κινησίας,
σκελετός, ἄπυγος, καλάμινα σκέλη φορῶν,
φθόης προφήτης, ἐσχάρας κεκαυμένος
πλείστας ὑπ' Εὐρυφῶντου ἐν τῷ σώματι.'

This Kinesias was apparently a popular figure of ridicule in his time; for Athenaeus, in "The Deipnosophists," (Book xii, Chapter 76), says of him:

"Kinesias was in reality an exceedingly tall and exceedingly thin man; on whom Stratis wrote an entire play. Others, as, for instance, Aristophanes, often call him φιλύρινος, because he took a plank of linden wood (φιλύρα) and fastened it to his waist under his girdle, in order to avoid stooping." A forerunner of the corset.—EDITOR.]

HENRY JENKINS: CENTENARIAN.

Duncan Lodge, Providence, R. I.,

Feb. 2, 1913.

Mr. Editor: It may interest you to know that there hangs in my study a very old print of Henry Jenkins, the legend of which, in black letter, is as follows:

Henry Jenkins
Aged 169

Born 1501, Reign xvi of Henry VII. Obit. December 3rd, 1670 xxi of Charles II. Who lived during the Reigns of Henry VII, Henry VIII, Edward VI, Queen Mary and Elizabeth, James I, Charles I, Cromwell, and Charles II.

Events—Popery the Law of the Land; Remembered the Abbott of Fountain Abbey, Yorkshire, before the Dissolution of the Monasteries; Protestant Religion Established Twice, Persecution of Protestants over, also the Government of the Church and State overturned by Cromwell and his Associates, and Charles I beheaded January 30, A.D. 1649. .....

On the back of the picture is further the following note:

Henry Jenkins was born at Ellerton, upon Swale, near Richmond in Yorkshire; his father, a farm labourer, attended to the gardens of the neighbouring gentry. When a boy he was in the service of Lord Conyers (to whom he became butler) and remembered the battle of Flodden Field, Sept. 9, 1513, being sent to North Allerton with a cartload of arrows, but an older boy was employed to carry them to the army. In the King's Remembrances Office in the Exchequer, there is a record of a deposition being taken April, 1665, where Henry Jenkins of Ellerton-on-Swale, labourer, aged 157 years, was produced as a witness. He died in 1670 and was buried at Bolton-on-Swale, where a monument was erected by public subscription to perpetuate his memory. It consists of a base 4 ft. 4 in. square and 4 ft. 6 in. high, surmounted by a pyramid 11 ft. high. On the east side is inscribed:

This monument was
Erected by Contribution
In the year 1743 to ye memory of
Henry Jenkins
Aged 169

On a mural tablet of black marble at the west end of the chancel is inscribed the following epitaph, composed by Dr. Thomas Chapman, Master of Magdalen College, Cambridge:

Blush not marble
To rescue from oblivion
The Memory of
Henry Jenkins,
A person obscure in birth,
But of a life truly memorable,
For he was enriched
With the goods of nature
If not of fortune;
And happy in the duration, if not variety,
Of his enjoyments;
And tho' the partial world despised
And disregarded his low and humble state,
The equal eye of Providence beheld and blessed it
With a patriarch's health and length of days,
To teach mistaken man
These blessings were entailed on Temperance,
On a life of labour and mind of ease.
He lived to the amazing age of 169,
Was interred here Dec. 6 [lege 9] 1670,
And had this justice done to his memory 1743.

Yours faithfully,

G. ALDER BLUMER, M.D.

PREPARATIONS OF CROTALIN.

1829 Spruce Street.

Philadelphia, Pa., Feb. 5, 1913.

Mr. Editor: I have just been credibly informed that several druggists in this city dispense crotalin for hypodermic use at the extravagant price of ten dollars for one dozen ampules, each ampule containing 1/100 or 1/200 of a grain.

This is a prohibitive rate, especially to the poor, and, as I am the original sponsor for the hypodermic method of giving crotalin, and since it has proved itself valuable in the treatment of pulmonary diseases, epilepsy, and other intractable nervous diseases, in the hands of others, as well as in my own, I am unwilling that this rate should prevail and ham-

per its further introduction, and would say that, in my five years' experience with the injection of this agent, I have chiefly employed a solution, made according to the following formula, which will remain fresh for at least a month:

℞

Crotalini	gr. 1
Glycerini	m. 100
Aquae. Destil.	m. 400

M. Ft. Sol. Sig. for hypodermic use.
Dose: From one to seven and half minims. Children one-half to five minims. Always begin with the smaller doses.

I have occasionally used the hypodermic tablets of equal strength, but prefer the solution because it is always ready for use.

Among the many thousands of injections that I have given, I never encountered an abscess, or any other serious mishap.

In this form it may be obtained at a very reasonable cost from Druggist Clark, 1900 Pine Street, Philadelphia, or Druggist Hunsberger, 1600 Spruce Street, Philadelphia, and the dried venom is furnished by the Armstrong Snake Co., Commerce and Steves Streets, San Antonio, Texas.

Yours very truly,

THOMAS J. MAYO.

RADIUM EMANATION.

Boston, February 20, 1913.

Mr. Editor: Frederick Soddy, one of the discoverers of the emanation of radium suggested many years ago trying it in internal medicine. Yet as late as August, 1912, he makes the following remark: "The physiological effects of radium are imperfectly known and are probably potent. This as a field of investigation I personally have no desire to explore, so we must, therefore, cork the tube and so prevent the emanation from diffusing into the room." Before a form of energy can be wisely used in medicine there is but one safe course to pursue, the one I adopted with x-light and radium at the time they were discovered, namely, testing on animals. If the directions published at that time as to the effects of x-light and radium had been heeded much human suffering would have been saved. We cannot too clearly remember that the radium rays which, since 1901, have proved so useful in skin cancers are not given off from the radium, but rise from the emanation, a heavy gas of the argon group. As these children of the emanation have produced serious consequences when used externally, is it well without more experiments on animals to introduce their parent into a man, when we can in no way even retard its production of particles and rays which can produce such serious results?

The force liberated by an unweighably minute amount of the emanation, so far transcends our old notions of what was possible that we cannot be too careful. The energy accompanying the rupture of a single atom of the emanation, is a million times as great as in chemical transformations.

WILLIAM ROLLINS.

RECENT DEATHS.

DR. MINOT A. STEELE, who died of septicemia on Feb. 17 in Portsmouth, R. I., was born at Nashua, N. H., in 1867. He received the degree of M.D. from Albany Medical College in 1890, and since 1895 had practised his profession at Portsmouth. He was medical examiner for the Newport district. He is survived by his widow.

SOCIETY NOTICES.

THE NEW ENGLAND HOSPITAL FOR WOMEN AND CHILDREN.—The Training School Committee announces a Course of Lectures on Applied Psychology, by Mary Lawson Neff, M.D., at the Hospital, Dimock Street, Roxbury, on Tuesdays and Fridays, at 8 p. m., from February 25 to March 21.

BOSTON MEDICAL LIBRARY in conjunction with the SUFFOLK DISTRICT MEDICAL SOCIETY.—Medical Section meeting at the Boston Medical Library on Wednesday, March 5, 1913, at 8.15 p. m.

"Bacterial Infection and Metabolism: Their Relation to Internal Medicine," Dr. Arthur I. Kendall, Professor of Bacteriology in Northwestern University Medical School, Chicago.

Drs. Theobald Smith and Fritz B. Talbot will take part in the discussion.

GEO. C. SHATTUCK, *Secretary.*
205 Beacon Street.

NEW ENGLAND PEDIATRIC SOCIETY.—The twenty-fifth meeting will be held at the Boston Medical Library, at 8.15 p. m., on Saturday, March 1, 1913.

The following papers will be read:

1. "Artificially Dried Casein. A Preliminary Investigation," Henry I. Bowditch, M.D., Boston.
2. "On the Pathogenesis of Casein Curds in the Stools of Infants," Alfred F. Hess, M.D., New York.
3. "Metabolism of a Child with Complete Absence of the Bile from the Intestines," Willard S. Parker, M.D., Boston.
4. "Amaurotic Family Idiocy," Report of two cases. Isador H. Coriat, M.D., Boston.

Light refreshments will be served after the meeting.

JAMES S. STONE, *President.*
FRITZ B. TALBOT, *Secretary.*

BOOKS AND PAMPHLETS RECEIVED.

Napoleon's Campaign in Russia, Anno 1812, by Dr A. Rose. 1913.

RECORD OF MORTALITY.

FOR THE WEEK ENDING SATURDAY, FEB. 15, 1913.

CITIES.	Reported deaths in each.	Deaths under five years.	CITIES.	Reported deaths in each.	Deaths under five years.
New York	—	—	Pittsfield	17	4
Chicago	—	—	Waltham	3	1
Philadelphia	—	—	Brookline	5	—
St Louis	—	—	Chicopee	6	3
Baltimore	—	—	Gloucester	4	1
Cleveland	—	—	Medford	10	2
Buffalo	—	—	North Adams	1	—
Pittsburgh	—	—	Northampton	12	3
Cincinnati	—	—	Beverly	5	1
Milwaukee	—	—	Revere	6	—
Washington	—	—	Leominster	6	4
Providence	—	—	Attleboro	—	—
Boston	252	76	Westfield	3	1
Worcester	52	12	Peabody	—	—
Fall River	47	18	Melrose	4	—
Lowell	28	8	Woburn	5	4
Cambridge	—	—	Newburyport	5	—
New Bedford	34	8	Gardner	4	1
Lynn	28	5	Marlboro	—	—
Springfield	27	8	Clinton	7	3
Lawrence	—	—	Milford	—	—
Somerville	26	6	Adams	—	—
Holyoke	21	9	Framingham	—	—
Brockton	18	4	Weymouth	—	—
Malden	11	—	Watertown	—	—
Haverhill	13	5	Southbridge	2	—
Salem	14	6	Plymouth	—	—
Newton	15	3	Webster	4	2
Fitchburg	19	7	Methuen	—	—
Taunton	16	—	Wakefield	—	—
Everett	15	2	Arlington	—	—
Quincy	—	—	Greenfield	2	1
Chelsea	13	1	Winthrop	—	—

Original Articles.

A COLLECTION OF FACTS, IDEAS, AND THEORIES RELATING TO THE DIVERSE ELEMENTS THAT CONTRIBUTE TO SUCCESS IN TREATMENT OF JOINT DISEASES. RELATIONSHIPS BETWEEN VISCERAL PTOSIS AND ARTHRITIS. COMPARISONS BETWEEN MILD INTESTINAL TOXAEMIAS AND GOUT.

BY H. W. MARSHALL, M.D., BOSTON.

In the study of joint diseases clinicians soon become dissatisfied with their own personal observations made alone upon patients, and search for explanations for the difficulties encountered in treatment by turning to established data of well known scientific subjects.

Personal clinical impressions are looked over again to see if they can be correlated and made to harmonize with ideas held by chemists, physiologists, biologists, bacteriologists, pathologists and anatomists; and each review usually results in modifications being made among the inferences that have been drawn from clinical data. The latter finally become associated with a very large number of facts of very great variety as conceptions become more comprehensive and accurate in detail.

Therefore careful studies upon arthritic subjects are difficult and tedious to read, because in the present stage of advancement of medical science many intricate associations of facts and difficultly proven truths are encountered. And these must be fairly dealt with if progress is to be made, although preference for simple, easily understood ideas is to be encouraged. The predominance of complex combinations at the present time cannot be ignored.

It is well also to recognize that, as far as practical results of treatment are concerned, the existence of simple convincing proofs for ideas used in directing therapeutic measures is not absolutely essential, because results depend primarily upon the soundness and accuracy in detail of the ideas which control therapeutic measures, and not upon the ease with which such working hypotheses can be demonstrated to be correct.

One other feature that should be mentioned about the present stage of development of treatments for joint diseases, is the probability that the existing disparity will be overcome in the future between excessively large numbers of therapeutic agents now in use and the generally limited understanding of these particular troubles.

In medicine, as in other arts, when experience, skill and understanding increase, superfluous tools and agents are sure to be eliminated; and a useful comparison can be drawn between the problems of modern medicine and those of modern engineering

Engineers engaged in complicated construction work use the simplest methods available. Their problems are not solved generally by elementary arithmetic but primarily through knowledge and skill in handling very complicated, difficultly understood principles of higher mathematics, physics and mechanics. And physicians, it seems, must follow a similar example. They too must no longer insist that medical procedures be restricted alone to those simple ones which are based upon elementary knowledge that can be understood by all at a glance.

The writer has had an experience similar to the usual course of events just outlined, and has groped around among the various aspects of joint diseases until he has accumulated a large number of impressions and ideas of various sorts. These, when they are combined, give a somewhat different conception of arthritis and its causes from those generally held. And because one's point of view is a matter of greatest practical importance in directing treatments, since it determines what interpretations shall be placed upon clinical observations, what kinds of curative agents shall be used and what methods of application employed, the writer has the temerity to present this rather long series of discussions upon the diverse elements that contribute to success.

There is a large group of facts and impressions that may be discussed together advantageously concerning the relationship between visceral ptosis and arthritis, and in comparisons between mild intestinal toxæmias and gout. Accordingly, these topics will constitute the main features of the paper.

Enough observations have been made by surgeons to show undoubtedly that operations which overcome stasis, and those which side track or completely remove from function certain defective portions of the gastro-intestinal tract by anastomoses, resections and colostomies, will be followed in some instances by subsidence of aggravate arthritic lesions. Visceral ptosis is so frequently an accompaniment of such defective conditions that by some it is considered the dominant feature of them.

Equally well established also is the fact that internists lay emphasis upon, namely, that most marked degrees of visceral displacements may be present without symptoms of arthritic disease.

These facts have led to disagreements about relationships between the two, and new light is shed upon these uncertainties if clinicians will drop temporarily their usual conceptions derived from direct personal experience, and if instead they will consider some general biological aspects of the matter.

A convenient abstract biological view that may be used as a starting point, has been stated recently by W. T. Sedgwick[1]. He says, "The

body of the higher animals, as everyone knows, is not a solid mass completely enclosed by the skin, but a semi-solid bundle of tissues tunnelled by a long folded tube, the alimentary canal or food tube. This tube possesses its own special walls, expressly adapted for preventing raw food and other foreign substances from entering the real body—which lies between the food tube and the skin,—until such substances have been digested and made ready for absorption. Within this tube, food, whether raw or cooked, is chemically treated until some of its components—but only some—are admitted into the body proper, the remainder being held in the tube, moved onward and eventually cast out."

The natural place to begin, when attempts are made to understand visceral ptosis and other associated defects, is at the surface of this food tube where materials first come in contact with the body and are absorbed. Ptosis may be an accompaniment rather than the cause either of them or of arthritis.

The first points to be dealt with are factors which determine the amounts and qualities of absorptions from the alimentary canal, not primarily with anatomic peculiarities exhibited by these organs, because anatomic variations do not correspond precisely to functional ones, although they may influence normal physiologic activity. *Physiologic and anatomic data should be kept clearly separated because they are not identical.*

Among other topics that are encountered in biologic consideration of visceral ptosis and arthritis, besides quantitative and qualitative sides of absorptions already referred to, must be mentioned the influences which absorbed circulating substances have upon body tissues; the influences of variations in excretory functions upon concentrations in the blood; the factor of variable resistances in joint tissues; the presence of congenital anatomic variations; the effects of posture, and of relaxations after pregnancies upon positions of the viscera; physiologic limits from which returns are possible to normal states again; indications for medical treatment, orthopedic supports and surgical interference.

Starting with the situation as it is presented in the lumen of the gut, attention will be directed first to work of physiologists who have studied absorption by the intestinal mucosa from experiments upon animals after operating upon them. If a small loop of the gut of an animal is cut away completely from the rest of the bowel leaving the blood supply of the loop intact, by suturing its two ends to the abdominal wall a small separated section of mucosa is made accessible for experimental purposes. It is understood that the continuity of the divided intestine is restored again by anastomosis before the experimental loop is turned up to the surface.

In such an isolated Thiry-Vella loop, absorption can be studied by the introduction of various food stuffs, salt solutions, etc. "Much work has been done to ascertain whether the known physical laws of diffusion, osmosis and imbibition are sufficient to account for the absorption or whether it is necessary to refer them in part to some unknown activities of the living epithelial cells. It would seem that diffusion and osmosis occur in the intestines. Concentrated solutions of neutral salts—sodium chlorid, for instance—if introduced into a Thiry-Vella loop, cause a flow of water into the lumen in accordance with their high osmotic pressure, and, on the other hand, some of the sodium chlorid diffuses into the blood in accordance with the laws of diffusion. It seems equally clear, however, that absorption as it actually takes place is not governed simply by known physical laws. Thus, the animal's own serum, possessing presumably the same concentration and osmotic pressure as the animal's blood is absorbed completely from an isolated intestinal loop.

"The energy that effects the absorption is furnished by the wall of the intestine, presumably by the epithelial cells. It constitutes a special form of imbibition which is not understood. That this particular form of energy is connected with the living structure is shown by the fact that when the walls are injured by the action of sodium fluorid, potassium arsenate, etc., their absorptive power is diminished and absorption then follows the laws of diffusion and osmosis.[2]"

While almost nothing is yet known of the nature of ultimate vital activities of living protoplasm, whether of intestinal epithelium, renal epithelium or of any tissue, nor of variations of absorptive powers of the intestinal mucosa from time to time; nor very accurately of comparative efficiencies of the intestinal mucosas of different individuals, yet all observations that have been made point to the likelihood of some variations in absorption due to conditions in the intestinal epithelium.

Histological studies of the intestine in acute enteritis, typhoid fever and dysentery show congestions, desquamations, and ulcerations of the mucosa, and suggest that variations in intestinal functions observed to occur clinically very roughly correspond to the visible pathologic changes seen in these troubles.

An interesting phenomenon, showing the importance of vital activity of the intestinal lining and dependence of health upon it, is seen in the rapid spread of intestinal bacteria through the walls of the gut into other organs in moribund conditions. Although no obvious change may have taken place in the dying tissues of the alimentary tract, they cease to hold back any longer the invading micro-organisms, and the latter spread through the body just before death.

But other factors besides permeability of the intestinal epithelium influence the amount and quality of absorption; and considering for the moment that the mucosa has a fixed capacity

for taking up materials, variations may occur from varying quantities of food ingested, from variable physiologic rates of peristalsis, from existence of abnormal conditions,—ptoses, strictures, obstructing pressures due to adjacent organs, defective functioning of the liver, pancreas and other associated glands.

In healthy states, as well as in pathological conditions, if no food is ingested there can be no absorption; and according to increments in quantities and change of qualities of food taken there will be corresponding changes in absorptions up to a certain limit, namely, that of the maximum capacity possessed by the particular individual's mucosa. Beyond this limit changes in quality of the materials taken up, due to bacterial activities of intestinal micro-organisms, will become prominent features of the situation. If constant quantities of food are taken and fixed absorption powers exist, there may be physiologic variations in absorption depending upon the rate with which food products are hurried through the alimentary canal.

In pathologic conditions—dilatations, atonies, ptoses, strictures, and obstructions, there is wide range in time that foods are retained with differences depending upon the degree of obstruction and peristaltic activity, and upon the quantities of food ingested. In other instances, if there is no bile, or scanty amounts of pancreatic juice, in the intestine the character of digestion also is considerably influenced.

From all these facts the following conclusions seem justifiable, namely, that the blood stream continually receives varying quantities of normal food elements and products of intestinal bacterial activity; and secondly, that at times excessively large quantities of the latter may be present in the circulating blood as the result of the following theoretical combinations:—Excessive formations within the lumen of the gut associated with average rates of absorption by the intestinal mucosal lining; excessively rapid absorptions associated with average rates of formations in the bowel; and lastly, excessive rates of formations combined with excessive rates of absorptions.

. . . . . .

Starting anew upon the basis afforded by these conclusions, inquiry will be made next into the influence exerted by variations in excretion by the kidneys. The fate of ordinary food materials will not be followed.

Kidney functions as well as their gross appearances are known to vary within wide limits in pathologic conditions. Kidneys also show occasional congenital abnormalities and normal physiologic variations. To quote Hammarsten "the absolute quantity of urea nitrogen in the urine of adults amounts to about 10-16 grams per day. In disease the proportion of the nitrogenous substances may be markedly changed, and a decrease in the quantity of urea and an increase in the quantity of ammonia have been observed in certain diseases of the liver. In diseases of the kidneys which disturb or destroy the integrity of the epithelium of the convoluted urinary tubules, the elimination of urea is considerably diminished."[3]

In uraemia there are very pronounced toxic symptoms associated with anuria.

Other renal functions also are known at times to show as great variations as those exhibited in urea elimination, for example, in the varying volumes of water excreted. Without troubling at this point to enumerate all peculiarities described, and simply accepting many recorded observations as correct, let it be supposed that a kidney of ordinary capacity is at work excreting into the urine bacterial products from the blood which have been absorbed from the intestinal tract.

Ordinarily it has no difficulty in doing so, and the individual enjoys good health. If occasionally there are unusual intestinal bacterial activities with absorption of their products, there are occasional extra demands made upon the kidneys to excrete the extra amounts. Renal function generally responds to such demands and in consequence the urine shows daily fluctuations without clinical symptoms.

In some instances it may happen that there are pathological conditions of the alimentary tract, that fermentations and putrefactions in it constantly are rather large, and also that rates of absorption are rapid, depending upon blood pressures; desquamations, ulcerations and hyperemias of the intestinal mucosa; or upon atonies and stenoses which hinder normal peristaltic function. The kidneys are obliged to work very actively under these conditions to excrete the large quantities of materials brought to them; and if occasional periods of still greater bacterial activity occur in such persons, when already there are decidedly active ones going on, there may be thrown into the circulation too many such products for the kidneys to take care of quickly. As a result there will be a temporary backing up of these substances in the blood.

This latter condition will persist until the excretory organs, working at their maximum rate, catch up in the work which has accumulated, and after a longer or shorter time restore again normal proportions in the blood stream. During the period when undue accumulations in the blood exist, if the degree of concentration is sufficient, variable clinical symptoms will be noticed.

In other cases the equal balance between absorptions and eliminations may be maintained for a long time at a level which represents very nearly the limit of renal adaptability and function, then, owing to minor factors of wear and tear of life, defects may appear extremely gradually either in the alimentary tract or kidneys. The kidneys, having been working nearly at their maximum rate may not be able to meet the new demands made upon them; and, as a

result, the healthy vascular balance is slowly lost with almost imperceptible changes taking place in the blood occupying weeks or months in development. There may be fluctuations, with a temporary regaining of the healthy balance between the intake and output, as the human organism tries to compensate for renal difficulties through vicarious functioning of the skin. The result theoretically is the same upon concentrations in the blood whether the kidneys slowly deteriorate, or the digestive tract becomes gradually more permeable without compensatory increase of renal function.

It should be clearly understood also that concentrations in the urine are independent of concentrations in the blood. With vigorous kidneys of large capacity theoretically there may be excessive intestinal formations, rapid absorptions and rapid eliminations without undue vascular proportions yet with large amounts of bacterial products in the urine. Obviously the determining factor is the vital activity of the renal epithelium,—if it is sluggish accumulations in the blood can occur, while if it is very active none are possible. In the latter condition the urine may show nearly the same variations that exist in absorptive powers of the intestinal mucosa.

Theoretically it is entirely possible to have average or diminished intestinal formations associated with rapid absorptions and with sufficiently faulty eliminations to lead to excessive accumulations in the blood, and at the same time with scanty quantities of the products in the urine. The kidneys in these cases presumably must be weak in function from congenital peculiarities or from diseased conditions. It may be noted in passing that these same suppositions hold true with regard to proportions of urates in the blood and urine, and assist in comprehension of gouty manifestations.

To summarize the possible theoretical combinations of the various, definitely known, variable factors: there should be at times excessive formations of substances derived from bacterial activity in the bowel without excessive concentrations in the blood; excessive absorptions from the intestine without corresponding concentrations in the blood; and excessive quantities of bacterial products in the urine without undue proportions of them in circulation;—also there ought to be at times slight formations, or poor absorptions, or both, from the alimentary tract which show simultaneously scanty proportions in the urine, yet with abnormally large quantities in the circulation. Nothing in these suppositions is antagonistic theoretically to the idea of a single, comparatively harmless, bacterial product in the blood stream being the cause for many arthritic manifestations. Theoretic possibilities are seen to tally with actual clinical observations, but for direct proof of the latter the reader is asked to wait and simply to suspend judgments for the present.

From these theoretical considerations, which agree with clinical observations in so far as the latter have been made, it is justifiable to think that quantities of bacterial products in the circulation may at times show different grades of concentration over widely varying periods, as the resultant effect of the combined influences of intestinal absorption and of renal excretions; also that vascular proportions depend in every instance upon the ratio of the rates of absorptions to those of excretions, and not upon absolute functioning powers of either the alimentary tract or excretory organs independently.

DIRECT ACTION OF CIRCULATING VASCULAR CONSTITUENTS UPON BODY TISSUES.

Direct pathologic influences of the blood upon tissues may be those due to harmful kinds of irritants, or to injuriously large amounts of normal waste products always present in the circulation.

Examples of harmful kinds of circulating substances producing symptoms are seen in effects of toxins of virulent pathogenic bacteria and from metallic poisons like lead.

Illustrations of the pathologic effects of large amounts of ordinarily harmless substances are presented in pathologic accumulations of lymph in oedema, and in retentions of waste products in uraemia. Fatigue effects after muscular exercise are concerned with temporary accumulations in the circulation of ordinary metabolic products from working muscular tissues. Hydrochloric acid in gastric juice is beneficial in the strength of 0.2%, but when present in slightly larger or smaller amounts there are often digestive difficulties, and in strong concentrated solution the acid destroys the mucosa. Again, cells like red blood corpuscles swell and lose their normal appearance if blood plasma is diluted with its principal normal constituent, water; etc., etc.

The importance of healthy proportions among vascular constituents can be appreciated better if an attempt be made to name any single substance, among those normally present in the circulation and concerned either with the building up or breaking down phases of metabolism, that can be increased or diminished indefinitely without influence upon the individual.

It seems that no normal vascular constituent is absolutely devoid of pathologic influence in all possible proportions, although some vascular constituents can vary between wider limits without appreciable harm than some others.

Products of intestinal bacterial activity generally are considered to be extremely harmless because of the constant presence of great numbers of bacteria in the bowel, and on account of the continous appearance of substances in the urine derived from them. All throughout life these bacterial products are being absorbed, passed through the circulation, and excreted, so that all body tissues are more or less constantly subjected to their influence.

They must be thought of, in part at least, as waste products which are of no further use to the organisms evolving them or to their host; and that consequently they are continually being eliminated in the urine together with waste materials produced in tissue cell metabolism.

Notwithstanding the fact that they are usually considered harmless, the writer believes when they circulate in the blood in too great concentrations that they are capable of producing pathologic changes similarly as retention of katabolic products from tissue metabolism may cause pathologic symptoms and changes.

The writer would place the responsibility primarily for certain slow changes taking place in connective tissues about joints; for some relaxations resulting in postural defects; and for certain dilatations of stomachs and saggings of the abdominal viscera, upon the presence of excessive quantities in the blood of comparatively harmless katabolic products from the metabolism of intestinal bacteria.

In conditions thought to show the direct influence of excessive quantities of so-called harmless bacterial products in the blood, clinically there have been observed associated with them at times secondary anemias; sallow appearances of the skin; unusual perspirations; skin eruptions; slowing of the pulse rate and lowering of the blood pressure; loss of muscle tone; enlargements of lymph nodes, spleen, liver and joints, etc. The picture is a variable one, clinically, as it should be theoretically, and differs according to degrees of active irritation by the circulating bodies and to relative strengths of different tissue resistances.

At this point mention of the usual reactions of joint tissues to circulating vascular constitutents must be made. Joints are not always affected, and they are influenced to marked degrees in some instances from irritants of supposedly intestinal origin when the urine shows very little evidence of intestinal fermentation and putrefaction.

Like all tissues articulations present their own congenital and acquired peculiarities which are shown in their metabolic activities and vital resistances. Such peculiarities and aberrations are seen in the hemorrhagic joints of persons having hemophilia; in joint lesions developing after mechanical injuries,—these happenings determining at times involvement of injured joints in subsequent infectious processes; in the healthy resistances to mechanical injuries shown by some individuals who resist severe traumata which set up synovitis in others; in the setting up of inflammations by slight, usually negligible injuries in joints which have already been weakened from other causes; and finally in the congenitally low resistances of some joints as indicated by their repeated involvements in acute rheumatic fever, and in other diseases of infectious nature.

There should stand out prominently in conception of joints, not only their structure, but their exhibition physiologically of occasional wide variations.

And the incidental fact that they are designed to be unusually resistant to mechanical frictions and pressures of ordinary body movements, should not obscure their equally important peculiarity of variability in other ways, both anatomically and physiologically, visibly and invisibly, as all living tissues do occasionally to important degrees.

An individual with low joint resistances presumably may go through life without joint troubles, provided he is robust in other respects, and does not contract diseases that are capable sometimes of causing joint lesions. The chances for escape from arthritic manifestations are very greatly improved, the writer assumes, if such a susceptible person always maintains well-regulated digestive and renal functions, and never has excessive accumulations in the blood of katabolic products from intestinal bacteria.

Clinical observations prove that joints are resistant to well known bacterial infections like tubercular, gonococcic and pyogenic ones; and the proportion of susceptible persons in these instances (approximately 2-20%) makes it extremely probable that the large majority of persons with abnormally large proportions of bacterial products in circulation from the alimentary tract similarly will show no joint symptoms. This supposition is borne out by the much greater frequence of intestinal auto-intoxications without joint involvements than severe grades of arthritis that can be ascribed to this origin.

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Having briefly mentioned a few features of intestinal absorptions; renal excretions; direct influences of vascular constituents due to different kinds and to variable proportions of circulating substances; and the usual reactions and peculiarities of joint tissues there remain to be noticed a number of additional points.

These include the effects of circulating bacterial products from the gastro-intestinal tract upon the stomach and intestines themselves; the influence of vascular constituents upon the nervous system, spleen, muscles and other body tissues; the part played by the liver in the train of complex physiological happenings which follow absorptions from the digestive tract; the exact chemical nature and precise origin of bacterial products; further explanations and discussions of renal conditions; and the intestinal tract as an excretory organ.

Topics thus far have been taken up in their biological sequence which is determined by normal anatomical and physiological considerations; and next there should be mentioned logically the direct reactions of vascular constituents upon the digestive tract as has been done already with the articulations.

Owing to the many complexities and obscurities in reactions between the blood and blood-forming tissues, nervous tissues, liver and other

organs, these will be omitted from discussion temporarily for the sake of clearness, although they too should be included as well as the gastro-intestinal tract and the joints from the standpoint of physiological completeness.

Their existence, however, will be taken into account during the consideration of the reactions between blood, stomach and intestines. Visceral ptosis, it seems, may be the cause or result of defects in the visceral organs, and so this *anatomic* defect will be taken as a starting point to introduce the *physiologic* events taking place between the blood and the gastro-intestinal tract.

RELATIONSHIPS BETWEEN VISCERAL PTOSIS AND ARTHRITIS.

Visceral ptosis may be congenital, or it may follow mechanical stretchings of abdominal walls after repeated pregnancies. At times it seems to be caused by postural defects due to bendings of the vertebral column which allow relaxations of the abdominal muscles and squeezing downward of the organs by the ribs. Pressures from clothing, removal of tumors and organs, and intrathoracic conditions may cause it. Again, it may follow definite pathologic conditions, strictures, strangulations and the like, or develop simply as a result of defective digestive function without gross anatomic abnormalities.

The last mentioned variety of ptosis will be taken up first. Again the idea will be considered of excessive amounts of intestinal bacterial products acting upon various body tissues while they circulate in the blood stream, producing among their effects direct ones upon the digestive organs from which they came.

That such bacterial metabolic products do not act alone upon articular structures is indicated by clinical phenomena seen frequently accompanying digestive troubles. Many patients with abnormalities in absorptive functions of the alimentary tract, showing articular swellings, also are anemic as has been already intimated. The latter condition at such times plausibly may be explained as due to mildly deleterious effects of circulating bacterial products upon blood-forming tissues.

Enlargements of lymph nodes and spleen, which are very conspicuous features in other cases likewise may be attributed as well to the influence of such circulating bacterial products as to any other cause that has yet been suggested. The slight feelings of mental heaviness, headaches and irritability may be attributed theoretically to these circulating bodies although no direct experimental proof of their prolonged influence upon the nervous system is at hand nor is likely to become a possibility.

It would seem strange if the same circulating products which lead presumably to decided joint changes, anemias, losses in muscular tone, and nervous manifestations should have no influence upon the involuntary muscles and similar connective tissues of the stomach or intestinal walls; and therefore there should be no surprise over the actual clinical findings that have been recorded so often of frequent visceral saggings and dilatations associated with autointoxications.

The prominent feature in arthritic reactions to vascular irritants is the influence of circulating substances upon connective tissue. This is discovered upon microscopic examination to consist primarily in edematous changes rather than in active proliferations of connective tissue cells for at least a considerable time. Finally joint capsules and ligaments become visibly stretched by mechanical strains if subjected to deteriorating vascular influences long enough.

Relaxing processes must be considered always to be the result of several influences. First to the direct reaction between the blood and the tissues, and secondly to the same bacterial irritants in the blood producing other effects upon other organs,—blood-forming tissues, nervous tissues, etc.,—and thus indirectly leading to combinations of physiological defects in blood supply and nervous control.

Under these combined slightly unfavorable influences muscles and connective tissues become less resistant and very slightly deteriorated. Joints, as already stated, become relaxed from stretching of weakened capsules and ligaments under the mechanical pressures and strains of body weight. And muscle tone in the alimentary tract probably becomes poor with resultant relaxations and dilatations. The latter result from the mechanical influence of food accumulations and distentions upon the poorly resisting supports and walls of the digestive organs.

Tendencies among persons leading inactive lives, who eat heartily, are toward the gradual development of indefinite symptoms sometimes expressed as getting out of condition. This is to be expected frequently, yet it is not necessarily observed in vigorous individuals. According to degrees of inactivity and to degrees of excesses in diets some persons become fat and relaxed; others relax without storing up fat; and the small proportion who have been born with, or who have acquired weak points, develop articular symptoms if the slight irregularities persist long enough to overcome joint resistances.

The beginnings, consisting of slight feelings of mental heaviness, headaches and occasional slight indefinite digestive symptoms, loss of muscular tone, etc., presumably make the gastro-intestinal tract remain relaxed and dilated at first only to a very trifling degree. Directly, or indirectly, in ways already explained, tendencies slowly develop toward greater relaxations, and large amounts of food ingested help to increase them still further.

Absorptions become more and more abnormal very gradually in consequence of weakened peristalsis, or increased permeability of the gut, or from both conditions combined. If conditions are not changed, this cycle of slight defects leads

to vicious cycles of increasing ones until there begin to appear more apparent evidences of the harmful action in secondary anemias, transitory joint and muscle pains, beginnings of joint swellings, decided atony of the stomach walls, etc. And finally out of an obscure beginning develops perhaps a well marked case of gastroptosis or visceroptosis with pronounced arthritic symptoms.

The point which the writer wishes to emphasize is that *in this instance ptosis is not the cause of arthritis but both have a common origin;* and that when this origin is properly dealt with, there will be a recession of symptoms both in joints and in the stomach, provided symptoms have not existed so long that physiological limits have been exceeded from which return to a normal anatomical condition again is possible.

Instead of simple inactivity and over-eating, the starting point for ptosis with excessive absorptions may be in catarrhal inflammations and ulcerations of stomach or intestine. Occasionally following typhoid fever there are arthritic manifestations without factors of over-distention of the stomach or the dragging weights of gastric accumulations.

Before visceral saggings appear in these instances to any pronounced degree arthritic lesions may develop, and cultures of B. coli have been recovered locally from affected joints suggesting the nature of the toxemia and infection. Here the causes presumably lie in part in destruction of intestinal defences, namely, the mucosal lining and lymph nodes of the bowel by the invasion of typhoid bacilli. Anemias and joint symptoms in this instance develop from abnormal absorptions, as just explained, but without the well marked mechanical influence of distentions and of gravity acting upon the organs and their contents.

Clinical experience teaches practically that there are many different grades of arthritis and ptosis simultaneously associated; that extreme ptosis may exist with no arthritic symptoms; that joint lesions may develop practically without ptosis; and that all intermediate stages occur which show wide variations in times of development.

Ptosis may be partially corrected at times by mechanical supports with no appreciable relief to the joints. At other times mechanical supports alone when used in treatment of visceral saggings ameliorate arthritic symptoms; and it should be emphasized again in this type of cases that dilatations and saggings are not the causes of arthritis but are the result of other conditions. The latter are the origins of both.

Developments always depend upon several variable factors; local resistances of different tissues including those of the joints and gastro-intestinal tract; and upon variable blood pressures, absorptions, excretions, and ingestions that have been mentioned which determine degrees of concentrations in the circulation.

Local narrowings of the lumen of the gut by strictures, cancer, outside pressures and intestinal adhesions often have the effect of producing greater degrees of atonies and saggings and also quicker development of them. These are extremely important and may require very radical surgical treatment.

VISCERAL PTOSIS RESULTING FROM STRETCHINGS OF THE ABDOMINAL WALLS AFTER REPEATED PREGNANCIES.

Marked saggings of stomachs may occur occasionally without development of joint symptoms, and without anemia or other symptoms of auto-intoxication. It is interesting to observe, therefore, that the origin for visceral displacements in these instances at first lies simply in loss of mechanical support which is usually afforded by elastic abdominal muscles. In such women despite the draggings upon connective tissue supports, blood vessels and nerves the visceral organs may perform their physiologic functions well.

Sooner or later, however, there is likelihood in many individuals that these displacements will interfere with normal function. Through failure of peristaltic functions, and from constipations that at times cause ulcerations of the mucosa, finally there may result defective action of the mucous lining as already described. Then there are added to the effects of lax abdominal walls those due to intestinal toxemias.

In some women with relaxed abdominal walls caused by many childbirths it may be truly said that ptosis long precedes development of arthritic lesions, but there still is the choice of considering abnormal laxity of the abdominal muscles the cause of ptosis and circulating bacterial products the cause of arthritis; that neither would have occurred without a primary cause for both in the stretching of the abdominal walls.

CONGENITAL ANATOMIC VARIATIONS IN STOMACH AND INTESTINES.

To Goldthwait is due the credit of having brought forcibly before the medical profession again the interesting relationships between gastroptosis, enteroptosis and rheumatoid disease; and to him the importance of congenital features in the etiology of these conditions became apparent.

To quote directly from his paper in the discussion of "congenital features in the etiology of gastroptosis and enteroptosis," he says, "at first it was supposed that the condition (ptosis) was wholly acquired as the result of bad posture, irregular habits of eating, improper costume, etc., but as the work developed it soon became evident that while these features are of importance and may lead to moderate degrees of ptosis, in a very large number of the cases congenital conditions represented the chief element. This fact was not previously appreciated by the

writers and as the literature makes no mention of it, it seems wise to consider the subject more fully here. It is known to the anatomists that a very considerable number of subjects, about one in every five, are found to have a mesentery upon the ascending and descending colon and the observations of the writers seem to show that with this greater mobility of the colon there is a correspondingly greater mobility of the stomach. . . The obvious result of this is that as long as the child is the infant and its activities and habits are largely those of the quadruped, very little disturbance occurs, but when the erect posture is assumed the disadvantages of such formation are evident. . . With the stomach the erect position must result in sagging downward of the organ," and "with such displacement, if the stomach is affected there must result a gradual absorption of the retroperitoneal and intra-abdominal fat tissue, thus naturally increasing the possibility of the visceral sag, and naturally interfering with the nutrition." [4]

There seems no question about the prevalence of anatomic variations. Definite figures, about one person in every five, indicate how commonly variations do occur. To some persons, however, the conclusions of Goldthwait and Brown, that congenital variations are important factors which contribute to interference with nutrition do not seem as plausible as the supposition that moderate congenital anatomic variations do not interfere very seriously with nutrition.

Anatomic ones, which in this instance are assumed to be defects, should be considered important etiological elements at times, probably, it seems to the writer, as this assumption harmonizes with the importance generally attributed to variations, favorable and unfavorable among all living things.

The point which is open to question is whether the twenty per cent. of persons showing defective structural variations represent a corresponding per cent. of physiologic ones. Simply as a matter of opinion, the writer would be inclined to consider only the severe grades of congenital or acquired anatomic peculiarities as being serious enough to lead to appreciable impairment of physiologic functions. The topic is an extremely interesting one and serves to call attention again to variations which are ever present and which always must be thought of.

Neither the existence and influence of variations, nor their range and frequency, seem to be taken into account sufficiently by many persons; that upon unusual combinations of several variable factors many differing apparently contradictory, clinical observations are based.

If all the theoretical combinations, which are mathematically possible when several elements vary independently and enter into different combinations with each other, were more familiar to everybody and came immediately to mind without effort, there probably would be less fruitless search for single unknown causes for obscure conditions. The confusing clinical findings which are so difficult to understand then might be satisfactorily explained by these combinations of unusual variations without looking always for unknown causes.

PTOSIS DUE TO FAULTY POSTURES.

The effects upon abdominal organs from relaxations of abdominal walls and pressures of the ribs accompanying habitual bending of the vertebral column, although important, will not be discussed at length. But the influence of intestinal auto-intoxications upon muscles and ligaments of the back presumably is similar to the effects observed at times upon other joints and upon the digestive tract.

The mechanical effect of the weight of the head, arms and trunk acting upon relaxed muscles of the spine and upon weakened connective tissues of the spinal articulations is to produce faulty postures. Growing children, independently of pronounced intestinal bacterial intoxications, show similar laxities and faulty attitudes when greatest demands are made upon the digestive powers by rapidly increasing body structures. Blood presumably then also is inferior in quality with slightly unfavorable proportions of constituents if tissues take up food materials from it at a rate which the alimentary tract has difficulty in contributing to the blood stream.

The benefit derived from orthopedic appliances occasionally in all these temporarily relaxed conditions is very striking. Properly fitted back braces with abdominal supports occasionally are sufficient to terminate vicious cycles which have been started, and this therapeutic measure alone in rare instances permits the gastro-intestinal tract to functionate more normally, leading directly to the subsidence of auto-intoxication symptoms.

Such relief from supports helps to impress upon the mind the probability that extremely defective postures seen in some severe grades of arthritis deformans play an important rôle in perpetuating joint lesions through secondary visceral changes and intestinal toxaemias in these patients.

PRACTICAL USES OF BIOLOGICAL IDEAS IN TREATMENT.

When a house is being built there is no doubt about the advantage of knowing something concerning building materials and houses in general; and when a person is to be restored to health there should be no explanation needed that knowledge of normal human functions, causes of abnormal ones, and familiarity with therapeutic agents, will be equally useful in treatment of disease.

Whether the particular problem deals with arthritis, ptosis, or other trouble, the greatest

chances for improvement in treatment now undoubtedly lie, the writer believes, in better understanding of broad general principles governing the life of living tissues; in knowing more accurately interactions among the complex structures of the human body.

It seems that increased knowledge of many pathogenic bacteria, and of definite chemical problems perhaps has influenced the medical profession into dealing with all obscurities in a direct way, as though single causes primarily underlie all pathological conditions, as they do in specific bacterial diseases. But health, on the contrary, always represents the combined influences of many physiologic elements, and inadequate understanding of these physiological combinations are the defects which stand forth most prominently now when single well defined causes for disease have been studied comparatively exhaustively.

The reasons for the present situation are not difficult to understand. Studies in physiology, physiological chemistry and cellular biology are complicated, and naturally they have been avoided for more simple problems that can be convincingly proven and for methods that can be applied reliably in treatment. Search has gone on so incessantly, however, that the majority of simple things have been discovered and future accomplishments must necessarily be concerned largely with more difficult problems.

As has been stated in the beginning, now there is no alternative left progressive physicians except to grapple with complexities and generalities because, although neglected, they are important features of every situation. And exactly how important they are is shown perhaps by the fact that success in treatment is still far from perfection.

It can be truthfully said now, instead of obtaining comprehensive general conceptions first in any given case by rapid review of all possible contributing causes, and following up the ideas thus gained by accurate judgments of the degrees of defective function each contributing cause exhibits, that there often is an entire disregard for the fact that all states, normal or abnormal, always represent combined influences of many physiologic elements, and that each element exhibits important individual variations.

The strong tendency to select and treat some single prominent defect by a single remedy in a fixed way very commonly makes treatments incorrect both qualitatively and quantitatively. And these defects will not be overcome by additional discoveries, but by better comprehension and more skill in application of the facts which are already known to physiologists and biologists.

The writer several years ago started ambitiously to investigate arthritic diseases, expecting to select favorable cases for study and thinking perhaps to clear up some obscurities by discovering new interesting micro-organisms or other causes.

It was not very easy to find pure types of joint disease which represented undoubtedly the actions of single etiological defects; and combinations of well known causative factors gradually were recognized of greater importance than they appeared to be at first glance as causes for obscure clinical appearances.

On consideration, when it was appreciated fully that numerous variations are recorded for every known physiological and anatomical fact, it seemed extremely probable that exceptional variations might simultaneously occur with more than one etiological factor very frequently, and lead to confusing obscurities that naturally would be ascribed to an undiscovered single cause when none really existed.

Obscure clinical appearances are not described in the literature as originating in these unusual combinations, but they must occur, and underlie many situations that we are unable to explain.

This line of reasoning led to consideration of the theoretical possibilities that exist among combinations of variable ingestions, absorptions, excretions, concentrations in the blood, resistances of joints, and resistances of the gastrointestinal tract.

And it was seen that facts enough were already known to account roughly for all confusing clinical observations that have been made concerning digestive disorders and joint manifestations. In brief, that the obscurities were due in large measure to the writer's lack of familiarity with the situation, and to his poor realization of what established facts will account for in a satisfactory manner.

The writer is strongly of the opinion that others like himself are confusing obscurities that are due to their own lack of accurate knowledge of the problems, with assumed undiscovered causes for arthritic disease which exist only in the imaginations of the persons who assume them. This does not signify, however, that many things do not yet remain unknown, but that there are some important obscurities which can be cleared up only by much more careful study of possibilities of the facts known at present.

When patients are seen who show severe grades of ptosis with no arthritic symptoms, there is no justification for the conclusion, sometimes made, that no relationship exists between these two states. It only proves that the relationship is not a very simple one, and that joint resistances at times may be great enough to withstand pronounced abnormal anatomical conditions in the viscera. Such visceral displacements may, or may not, be accompanied by abnormalities of function in these organs, and joints will, or will not, be involved depending upon their healthy vitality in successfully resisting harmful vascular influences that may result finally at times from ptosis.

In order to demonstrate the influence of ptosis conclusively upon joint conditions it is necessary to have very unusual circumstances. Firstly, both ptosis and arthritis must exist in easily recognizable, advanced degrees in the selected case. And in the demonstration there must be no change made in diet, habits of life, or in treatment of the digestive tract except in the single therapeutic measure of mechanically supporting the abdominal viscera more nearly in their normal position.

There must exist in the individual just the right degree of joint resistance, a very delicate balance which is near the normal physiologic limit of tolerance of the patient's particular joints and which is easily affected by any slight change for better or worse. And it should be recollected that four fifths of patients with auto-intoxications probably will not exhibit definite joint lesions on account of the usual high degree of joint resistances.

There must also exist just the right proportion between rates of absorptions, ingestions and excretions to have the influence of the abdominal support show itself upon vascular proportions sufficiently to modify the latter and to restore healthy vascular balance again.

The writer has seen only one case personally in which support of the abdomen alone was followed by subsidence of definite joint pains promptly together with general improvement in health. One good example, however, is sufficient to demonstrate the relationship. The instance occurred in a small, inactive man of fifty years whose occupation constantly kept him in a sitting posture with back bent. Upon standing the abdomen was very prominent and sagging. The abdominal muscles were thin, relaxed and weak, and the patient had the sallow anemic appearance and lustreless eyes of an auto-intoxicated person.

A temporary support of adhesive plaster strips was applied to the lower abdomen while the patient was lying upon his back with the abdominal viscera more nearly in normal position, Upon standing again relief from indefinite heavy sensations in the abdomen was noticed immediately and the patient remarked that he thought the cause of his trouble had been found. Nothing more was done at first because of the decided relief, and the patient continued his usual personal habits of life unchanged. Subsequently he was fitted with a permanent abdominal support and his digestive functions were regulated, but the beginnings of the return to health were in the single therapeutic measure of supporting the obviously sagging viscera.

Ordinarily in such cases other treatments are instituted immediately besides the one of mechanically supporting the viscera; and then it becomes entirely unjustifiable to attribute subsidence of symptoms to the mechanical feature alone. This is shown by internists who overcome moderate degrees of ptosis occasionally without aid of mechanical devices by combined treatments with drugs and regulations of diets. These measures restore normal muscle tone in the muscular walls of the digestive tract and normal functions in its epithelial lining. And coincident with these changes there is re-establishment at times of normal anatomic relations.

Too great emphasis should not be laid upon ptosis because it is simply one anatomic factor that may affect digestive functions. Equal importance should be placed upon combinations of physiologic influences that are concerned in the production, absorption, and excretion of bacterial substances and which determine proportions of the latter in the circulation.

Since ptosis, whether due to congenital or acquired causes is liable to influence digestive functions harmfully, and indirectly also the joints, by setting up harmful pathologic cycles, it should be treated whenever it exists in sufficiently decided degree. In treatment, slight or pronounced degrees of deviations from normal *physiological* function determine the simplicity or severity of therapeutic measures used in correction of these *anatomic* defects.

METHODS OF TREATMENT FOR PTOSIS.

These include modifications in diets, prescription of digestive enzymes, acids, ant-acids, olive oil, bile preparations, tonic drugs, cathartics, intestinal antiseptics and other usual medical measures; lavage; mechanical supports for the abdomen and for defective postures; and abdominal surgery.

The writer does not propose to go extensively into discussion of details, however, although success depends largely upon skill in handling, and experience with the minor features in treatments. Such details belong to the arts of gastro-enterologists and surgeons and must be sought in works upon these subjects. A few simple ideas, probably well known to most persons, can be mentioned appropriately, however, regarding general biological aspects of treatment.

When correction of digestive defects is undertaken the exact physiologic deficiencies producing them always have to be considered; whether contributing factors can be identified in any of the following ones,—in the nervous control, in mechanical distentions from food materials acting upon the musculature and mucosa, in harmful mechanical pulls upon relaxed viscera and their contents by the force of gravity, in variations of blood pressures, and in physical and chemical influences of circulating blood.

The digestive tract has to be thought of alone first, and how it may be influenced in these various physiological ways; and then also, in order to modify defective contributing physical and chemical influences in the blood that are exceedingly important, other organs of the body have to be considered and possibly may require treatment before normal relations are restored perfectly in the tract toward which therapeutic measures are mainly directed.

Treatments are incomplete which do not take into consideration at the outset the conditions of the kidneys, nervous system, blood-forming tissues, heart, lungs, muscles, liver, skin, and all important organs until the individual finally is dealt with as whole, structurally and physiologically.

This comprehensive biological method is entirely different from the selection and treatment of single contributory defects; but there is no antagonism, however, between the biologic way and single cures except with the incompleteness of the latter. Ptosis is one defect, which when considered mainly from its structural aspects, is frequently treated incorrectly from a biological point of view. And the many disappointments in treatment of visceral ptosis for arthritic conditions should be ascribed to lack of complete biological understanding of the presenting problems by physicians rather than to nonexistence of relationships between ptosis and arthritis.

A few concrete details of treatment in contrast to general conceptions will be mentioned. In treatment of alimentary conditions rates of absorptions and of peristalsis together are regulated by the writer by simple modifications in diets, cathartics, lavage, tonics, digestive ferments, &c. Bacterial putrefactions are treated with fermented milk and intestinal antiseptics. Curdled milk is an easily digested food and possesses inhibitive powers over the growth of putrefactive organisms. Renal functions are modified by water drinking and by diuretics. The quality of the blood is influenced by administration of iron, quinine and arsenic; and the nervous system and blood pressures by tonics like strychnia, glandular derivatives, hydrotherapy and other physical agents.

If there are obvious degrees of ptosis; namely, changes that patients recognize themselves as having developed out of a previous normal state, orthopedic supports are used immediately. If the degree is slight and the individual hasn't a decidedly bad posture, other remedies are relied upon at first because of the tendency of wearing artificial supports too long when they are comfortable, thereby weakening still further the natural supports that are already weak. Orthopedic appliances most used are abdominal belts and pads. These are often combined with supports for the vertebral column and shoulders in light steel back braces. Belts presumably assist also in regulating blood pressures in relaxed flabby abdomens, and may owe their good effects as much to this action as relief from harmful mechanical strains of musculature and mucosas.

The harmful effects of gravity are logically treated by having patients lie down after eating hearty meals for half an hour or so without going to sleep. The relief afforded by this simple measure is pronounced at times. Mechanical distentions naturally will be treated by avoidance of large ingestions at any single time, and by prescription of small ones frequently.

The matter of catharsis is a very important one, as by it the very important normal functions of absorption and peristalsis are influenced; but the advisability of extreme purgation followed by strong stimulation; of rest in bed during these treatments; of long continued mild catharsis; of divided small doses versus single large ones; of the abuse of cathartics and of their selection; of the exact amounts and qualities of food taken, etc., are matters which expert gastro-enterologists can explain better than the writer and must be determined mainly by experience.

In spite of skillful treatment some patients grow progressively worse and go on occasionally to fatal terminations, particularly those who show enlargements of liver, spleen and lymph glands. Others have pathological conditions due to chronic ulcerations of the colon; strictures, obstructions and congenital peculiarities of the bowel, and surgical interference is indicated for these graver lesions of the digestive tract. They can be considered best, however, in a separate paper.

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(*To be continued.*)

DIVERTICULITIS.*

BY JOSEPH STANTON, M.D., BOSTON,

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When one considers the enormous amount of literature today on the various surgical subjects it is extremely difficult to select a subject that has not been covered from almost every point of view. In selecting one for consideration this evening my mind has perhaps been somewhat influenced by the occurrence of five cases of diverticulitis (one congenital and four acquired) in my practice during the past two years.

The occurrence of this number of cases of what was considered, up to a few years ago, an anatomical or post-mortem curiosity led me to think that this was not so rare a disease as one might believe.

The influence of Fitz's work on Meckel's diverticulum cannot be overestimated for it called attention to a subject which, up to that time, had attracted comparatively little attention. Later, the work of the Mayos proved that acquired diverticula of the large intestine, especially of the sigmoid, were a not unusual condition, and in 1907, at the meeting of the American Surgical Association, Dr. Mayo presented a series of cases in which he called attention to acquired diverticula. Dr. George Brewer of New York has reported a series of cases of this pathological condition, with some interesting

* Read before the Middlesex Medical Society, Nov. 20, 1912.

comments on its complications, treatment and sequelae.

Before considering acquired diverticula I desire to say a few words in regard to Meckel's diverticulum, which is a true congenital diverticulum in that it embraces all the coats of the intestinal wall and is due to a persistence of the omphalo mesenteric duct. This duct should become obliterated between the fourth and sixth weeks of fetal life. It is accompanied by an artery and vein, branches of the mesenteric, a fact to be borne in mind when ligating. Statistics vary as to the frequency of its occurrence; some state that about two per cent. of human beings are afflicted with it. Post-mortem records at Johns Hopkins report one case to every seventy-two autopsies. It is usually attached to the ileum and is rarely found more than three feet from the cecum. When inflamed its symptoms closely resemble those of acute appendicitis; the pain, however, is situated nearer the umbilicus. About ten per cent. of the cases of acute inflammation of Meckel's diverticulum are fatal if untreated.

The treatment, of course, is prompt removal, with inversion of the stump, similar to the method of treating the stump of the appendix.

The most alarming complications due to this condition are caused by adhesions of the diverticulum to the bowel or abdominal wall, causing obstruction or strangulation of the intestine. The report of the following case well illustrates this condition.

EVELYN R. A child of six, of healthy parents, had been sickly since early infancy. The mother's story was to the effect that the child had never been well; appetite was poor, and in spite of the most careful supervision of her diet, vomiting would occur every few days. During these attacks she would vomit for two or three days, and then slowly improve, only to have a recurrence of vomiting again. These attacks were not accompanied by rise of temperature or other signs of constitutional disturbance. Her bowels were always constipated, requiring very large doses of cathartics.

Many physicians had examined the child and a few of the diagnoses of her condition were as follows:

New growth.
Tubercular peritonitis.
Malnutrition.
Chronic duodenal indigestion.

In November, 1911, the physical examination was as follows: Poorly developed, emaciated child, extremely peevish and irritable, showing evidences of moderate rhachitis; small scars on the right side of neck due to suppurating glands at two years of age. Examination of heart and lungs showed nothing abnormal. Abdomen protruberant. Visible peristalsis in upper abdomen and to right of umbilicus. Not tender to palpation. Percussion revealed flatness over practically the whole of abdomen except about umbilicus. No glands or other masses felt. Rectal examination was negative. Fluid wave was present.

In view of the fact that fluid was present I felt reasonably sure that I was dealing with a tubercular peritonitis. The visible peristalsis was due to some obstruction, probably glands or adhesions.

The following morning I examined the child again and was surprised to find the abdomen retracted rather than distended. There was no evidence of fluid in the abdomen. Just previous to my visit the child had vomited about two and a half quarts of foul smelling fluid, and on introducing a stomach tube I was surprised at the enormous quantity of fluid which the stomach would hold.

In view of the history and later developments, obstruction was the only plausible diagnosis. At operation, a few days later, I found an enormously distended stomach, duodenum and proximal 6-8 inches of jejunum. The stomach was very low in the abdominal cavity, the greater portion of it being below the level of the umbilicus. The duodenum and jejunum were almost as large in circumference as the stomach and their walls were enormously hypertrophied, the layers of muscular fibres standing out very prominently. The cause of all this trouble was an adherent Meckel's diverticulum which had practically occluded the lumen of the bowel. This was easily freed and removed and the contents of the bowel gurgled on their way. Needless to say that her return to health has been extremely rapid and satisfactory.

Acquired diverticula of the intestine are not true diverticula, in that they do not embrace all the coats of the intestine. They may be likened to a hernia of the mucous membrane protruding through the layers of muscle fibres. They are most commonly found along the mesenteric border of the large intestine, particularly on the sigmoid, rarely in the rectum, and almost never above the splenic flexure; in other words, they are found in that section of the bowel developed from the embryonic hind gut. They are found in the epiploical appendages. This explains their frequent occurrence in the sigmoid and their rarity in the rectum.

ETIOLOGY.

Their etiology is hard to explain. They are more common in fleshy people during and past middle life; increased intra-abdominal pressure due to contipation seems to be a factor in their causation, although one of my cases had never been constipated, in fact, he rarely had less than three movements daily. They are more frequent in males than in females. Degeneration of the muscular fibres of the intestinal wall probably explains in part their formation. They may be single or multiple. Why they are more common along the mesenteric border and embrace the epiloical appendages has not been satisfactorily explained. Various explanations as to the arrangement of the blood vessels in the appendages have been brought forward to explain the occurrence of diverticula at these points. Their occurrence during the so-called cancer age is of considerable importance in view of the fact that in about one-quarter of the cases of diverticulitis, found at operation, malignant changes are taking place.

After a most thorough and comprehensive

study of a large series of cases of this disease, Dr. McGrath and Dr. Wilson, of the Pathological Staff of the Mayo Hospital, called attention to the possible origin of cancer in the isolated groups of cells found in cases of diverticulitis.

In many of the cases the epithelial cells of the terminal portions of the diverticula have become isolated and it is here that malignant changes are apt to take place. Frequently the tissues become inflamed about the diverticula, due to oozing of the intestinal contents and toxins through its walls, and a condition of peridiverticulitis, well described by Wilson, is produced.

When this condition is present a large mass the size of a hen's egg is frequently found, and in times past has been diagnosed as malignant disease of the intestine and then abandoned. These are the cases that have recovered when Christian Science has finally been resorted to after the surgeon has failed. Frequently a hardened mass of feces is found in the diverticulum very similar to those found in the appendix.

A certain number of cases undergo malignant changes and then we get symptoms of cancer of the bowel with eventual obstruction. Many cases of supposed primary cancer of the sigmoid are diverticula which have become malignant and if, in the future, you will examine your specimens carefully, after removal, you will often find one or more diverticula within the cancerous growth. No growth on the sigmoid can be branded as cancer until it has been most carefully examined.

SYMPTOMS.

The symptoms of diverticulitis have been described by many as those of a left-sided appendicitis. The onset usually is sudden, with pain more or less general, later becoming localized in the left side, and is usually severe and cramp-like in character. In my experience vomiting has not been so common, nor has the pain been so apt to start in the epigastrium as in cases of appendicitis. This I attribute to the nerve supply and the development from a different source than the appendix.

Tenderness soon develops and signs of localized peritonitis are found. The temperature is elevated and a tumor mass soon appears. This is frequently hard to find as the patients are usually very fleshy. When present, it is usually to the left of the umbilicus, or in the left lower quadrant and corresponds to the tender cake sometimes found about the appendix.

In two of my cases there has been a looseness of the bowels.

DIFFERENTIAL DIAGNOSIS.

Other conditions with which it may be confused are stone in the kidney or pus infections, but these are easily differentiated by the location of the tenderness and the accompanying urinary disturbances..

Where obstruction is due either to inflammation of the diverticulum or malignant changes within it, a differential diagnosis with carcinoma, with which it is most often confused, is extremely difficult. The recurrence of attacks is, of course, in favor of diverticulitis. The presence of blood in the stools favors cancer, but I have seen it in diverticulitis.

The history of left-sided pain, followed by temperature and later a mass is usually sufficient for diagnosis. When inflamed these diverticula may behave in many different ways. The inflammation may subside like a mild attack of appendicitis; or they may remain inflamed over a considerable length of time and a thickened, edematus condition of the bowel, so-called peridiverticulitis form, or abscess formation with subsequent rupture into the bladder or neighboring viscera, or through the abdominal wall, may follow. If they rupture extraperitoneally they are very likely to be followed by a persistent fecal fistula.

TREATMENT.

The treatment varies according to the age of the person and the conditions present. If the patient is old and the attacks are slight, it is better to leave him alone. If an abscess is present it, of course, must be evacuated. If the edema and thickening in the intestinal wall has been sufficient to produce obstruction colostomy had better be performed and later a resection if necessary.

If a mass is present and there is no question as to malignancy, a resection of four to eight inches of gut had better be performed, as advocated by Dr. W. J. Mayo. Similar treatment should be adopted when multiple diverticula are present.

REPORT OF CASES.

My first case was a man of thirty years of age, seen in November, 1910. Previous history was unimportant except for the fact that he had three attacks of what might be termed left-sided appendicitis, after one of which I was able to feel a mass about the size of an egg about two inches to the left and below the umbilicus. The mass was moveable and was tender, and lasted for a week or ten days. Except for two slight attacks during the following year he was well until October, 1911, when he had a very severe attack of cramps, nausea, rise of temperature and tumor formation. At the time of my examination a distinct tumor, rounded in shape, about two inches in diameter and tender to pressure could be felt two and a half inches to the left of and below the umbilicus, just below the point corresponding to McBurney's point on the right side. The tumor was movable. Tenderness disappeared after a few days and the tumor diminished in size. The bowels had a tendency to be loose.

At operation a few days later, a mass about the size of half a lemon was found on the middle portion of the sigmoid adherent to adjacent coils of bowel. Some adhesions were fresh, from the recent attack, while others were old and firm from the previous at-

tacks. There was a marked degree of peridiverticulitis and the bowel wall was very edematous and there was a great deal of thickening and infiltration of the fatty tissue about the diverticulum.

The mass was excised and upon examination a large fecal mass about the size of a marble was found in the diverticulum. The wound was closed with three layers of sutures of chromicized gut and Pagenstecher. The patient had rather a stormy convalescence, developing a patch of pneumonia, and a fecal fistula delayed the healing of his wound.

Two factors in this case are of particular interest: first, the age, the patient being only 30; and, second, the fact that he had never been constipated.

My second case was an elderly gentleman about sixty-five years of age, with a previous history of good health. For about a year he had indefinite attacks of pain in the left side of the abdomen. When seen for the first time, in March, 1912, he had obstruction of the bowel, nothing having passed through it for two days, in spite of enemata and large doses of cathartics.

At operation a cancer of the sigmoid, secondary to diverticulitis, was found close to the rectum. In view of the short period of obstruction and the good condition of the patient, I decided to do a primary resection according to the method advocated by Dr. W. J. Mayo, using a large rubber tube to complete the anastomosis.

The patient recovered from his operation and was having a fairly comfortable convalescence in the third week, when pneumonia developed and proved fatal.

The third case which I wish to report was a man forty-eight years of age with a healthy out-door occupation, being foreman for the gas company.

I first saw this patient in February, 1912. He had been more or less constipated for years and had had three or four attacks of left-sided pain previous to this attack. When I saw him he was tender to the left of umbilicus and was troubled with nausea, but no vomiting. A large, tender movable mass the size of an egg was felt above and to the left of the umbilicus. The temperature was slightly elevated.

This tenderness slowly disappeared and at the end of a month no trace of the mass could be felt. He has had one slight attack since then and operation was advised, but the patient would not consent.

The fourth case was very similar to the second, and was seen in June, 1912.

My fifth case is a man sixty-three years old, extremely fleshy, weighing about 220 pounds. He gave a history of attacks of "bilious colic" extending over many years. His pain has always been above and to the left of umbilicus. I have seen him three times within three months with attacks of very severe left-sided pain, accompanied by pain and occasional vomiting. At about the end of the second day a tender mass can usually be found on the sigmoid. Tenderness and tumor usually disappear within a few days. In view of his age and excessive weight, I have been rather reluctant to advise operative interference.

In closing I wish to present the following conclusions:—

1. That this is not a rare disease.
2. Recurrent attacks of left-sided abdominal pain, with tenderness and tumor formation, in the absence of any active urinary disturbance, are usually due to inflamed diverticula.
3. As a focus of chronic irritation it may be a starting point of cancer of the sigmoid.
4. Surgical removal is the only perfect cure.

A CASE OF INFECTION WITH HYMENOLEPIS (TAENIA) NANA, THE DWARF TAPEWORM.

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THE following case is reported chiefly because of its rarity, but also on account of certain unusual clinical features. The patient entered the Boston City Hospital, on the service of Dr. Francis H. Williams, and it is through his kindness that the case is reported.

Stiles[1] in 1903 predicted that further investigations would show that *Taenia nana* is one of the commonest intestinal parasites in the United States. Yet, up to the present time, only 76 cases have been reported in America.[2] More than half of these have been in the past five years; which means that, as more attention is called to the importance of this parasite in causing obscure symptoms, more careful examinations are being made, and more cases recognized. The present case, however, is the first that has been reported from New England.

S. P., male. Age, 17. Single. Shoe-worker. Entered hospital Oct. 21, 1911. *Family history* and *past history* negative. Habits good.

Present History. For two weeks before entrance felt nauseated at times, with slight dizziness and dull general headache. For about one week had occasional, sharp, sudden pains in left axilla, lasting about 15 minutes. No other pains. No diarrhea. Has always been slightly constipated. No vomiting. Micturition normal. No cough. Appetite fair. Vision good. Has been eating pork in some form daily for several weeks. Day before entrance headache became worse, and dizziness increased. Patient had great difficulty in standing. General malaise and weakness. No epistaxis. Bowels as before. On day of entrance was wrestling with another boy. Latter threw him, and knelt on his right arm. Patient lost consciousness, and woke up to find himself in a police ambulance on the way to the hospital. He was said to have had a convulsion during transportation.

Physical Examination. Well developed and nourished young man. Conscious, but apparently dazed. Shortly after beginning the examination, patient had clonic convulsive movements of hands and fingers, with the characteristic position of tetany, *i.e.* contractures of thumb, wrist, and forearm. These movements subsided after about five minutes.

The patient's face was somewhat swollen and puffy, especially under the eyes. The skin was pasty-colored. The rest of the physical examination was absolutely negative. The knee-jerks were normal. There was no Kernig or any other abnormal

reflex. No tenderness of calf or thigh muscles, or along course of great nerves.

Temperature 100. Pulse 70. Respiration 23. Urine examination negative. Blood-pressure 130 mm. Blood examination: White blood corpuscles, 10,400; red blood corpuscles, 4,800,000. Hgb., 70%. Stained smear. Red cells normal. Differential count of leucocytes:—

Polynuclears	61%
Lymphocytes	22%
Mast cells	3%
Esinophiles	14%

Oct. 25, temperature somewhat elevated the first twenty-four hours after entrance, then reached normal and has been normal since. No further convulsions. Puffiness of the face disappearing rapidly. Feels perfectly comfortable. No untoward symptoms of any sort. Passing a fair amount of urine, which is negative on examination. Blood smear shows some eosinophilia.

Blood smear repeated:—

Polynuclears	63.5%
Lymphocytes	23.5%
Transitionals	6%
Eosinophiles	7%

Examination of laked blood for *Trichina* embryos was negative. Examination of stool this morning showed many characteristic ova of *Hymenolepis nana.*

Oct. 27, patient was on a simple diet with free catharsis all day yesterday. This morning was given the following:—

℞

Oleoresini Aspidii 3jss
Divided in 6 capsules.

One capsule was given every fifteen minutes for 6 doses, followed in three hours by epsom salts, ℥i.

After treatment, patient moved his bowels very freely. Stools full of ova, and large numbers of complete dwarf tapeworms, varying in length from 5 to 10 mm.

Oct. 30, patient has had no untoward symptoms since treatment. Facial oedema now entirely gone. Feels perfectly well. Stools show no ova. General physical examination negative. Patient discharged well. Just before discharge a blood examination showed white blood corpuscles, 14,800. Stained smear:—

Polynuclear neutrophiles	60%
Basophiles	32%
Eosinophiles	8%

Patient was requested to present himself again in two months for re-examination of stool, but he failed to appear.

In this case, symptoms pointing towards the gastro-intestinal tract were practically absent, the only important one being nausea. On the other hand, the chief disturbances were those of the nervous system, severe headache, dizziness, and later convulsions and unconsciousness. This is in harmony with many of the reported cases.

The diagnosis is usually difficult to make, as there are ordinarily no symptoms pointing to an intestinal parasite. Sometimes there are gastro-intestinal symptoms:—diarrhoea alternating with constipation, colicky abdominal pains, vomiting, severe nausea.[3] Often, as in this case, symptoms from the side of the nervous system greatly outweigh the others. These are usually very severe, and may consist of headaches, disturbances of vision, dizziness, convulsions, spasms, fainting-fits, and pains in various regions. Often a very severe secondary anaemia results.[4]



Ova of Taenia nana found in feces. x 430.

The diagnosis can be made only by microscopical examination of the stool, and finding the characteristic ova, or more properly speaking, "onchospheres," as they contain an embryo. These ova have a thick double capsule, within which is found the embryo containing six hooklets. At either pole is a so-called "mammilate" tip, from which several filamentous appendages go off into the surrounding protoplasm. (See figure.) It is the possession of these filaments that distinguishes the *Hymenolepis nana,* or *Taenia nana* as it is more commonly called, from other members of the same genus.[5] The dwarf tapeworms themselves are too small to be noticed in the stool with the naked eye, unless present in very large numbers, as after treatment. In the adult stage they measure only from 5 to 45 mm. in length, although they contain 100 to 200 segments. This is the smallest tapeworm known for man. It is usually a parasite of children, about 70% of the reported cases being in children under the age of 15. Most of the cases reported have been found either by routine stool examinations, for other purposes, or by examination of the stool on a mistaken diagnosis. Deaderick[6] reports two cases where he supposed there was Uncinariasis, because of the grave anaemia and eosinophilia, but on examination only the ova of *Taenia nana* were found. In the present case the examination of the stool was made upon a mistaken diagnosis of probable Trichiniasis, because of the facial oedema, convulsions, and eosinophilia in the blood, together with the history of excessive pork-eating.

Facial oedema has been reported in four cases of infection with *Taenia nana.* These were all in children. Two were reported from New York by Schloss,[7] and the other two by Deaderick.[6] In the latter's cases the oedema involved not only the face and eyelids, but also the hands, feet, ankles, and legs up to the knees. This peculiar oedema, which in all the cases disappeared with evacuation of the parasites, furnishes some interesting evidence to apparently contradict the usual explanation for the appearance of the

primary facial oedema in Trichiniasis. This is said to be due chiefly to the obstruction and thrombosis of the smaller lymphatic vessels, caused by the circulating Trichina embryos.[8] In infection with *Taenia nana* the parasites are restricted to the walls of the intestinal tract, yet a very similar facial oedema results. In the latter case, it must undoubtedly be of toxic or inflammatory origin.

The disturbances of the nervous system are due partly to the absorption of toxins liberated by the parasites, and partly to direct stimulation of the sympathetic nerves, as the animal's head is buried very deeply in the intestinal mucosa.[9] It is enabled to do this by means of a retractable rostellum, crowned with 24 to 30 hooklets. Numerous cases have been reported from various parts of the world in which the parasite caused clonic spasms, and epileptiform and choreiform convulsions.[10] In only one case, reported by Schloss,[7] was there unconsciousness associated with such convulsions. The present case is the only one reported up to now in which the convulsions were of the peculiar character usually associated with tetany.

Eosinophilia has been found present in nearly all the cases in which blood examinations were made. The eosinophile count was always higher in children than in adults infected with this parasite. In this respect it follows the same rules shown by Grek and Reichenstern,[11] who made an extensive study of the eosinophilia associated with the ordinary tapeworms. They found that the cosinophiles constituted 5.7 to 6% in their cases over 13 years of age, whereas, in younger individuals the average count was 12.4%. In these children there was not merely a relative, but also an absolute increase of eosinophiles.

In most cases the origin of the infection can be traced to food contaminated by the excrement of rats or mice. The latter are hosts of a dwarf tapeworm, *Hymenolepis nana fraterna*, which is considered by many authorities to be identical with the species found in man.[12] The rat-stage, however, is not a necessary intermediate step in human infection, as infection from one person to another, and also auto-infection, are both highly probable. The onchospheres, when swallowed by rats, have their capsules dissolved in the intestinal juices. The liberated embryos bore into the intestinal villi, and there develop as the intermediate larva, the "cysticercus." Later these may reach the lumen of the intestine and develop into adult worms, discharging new onchospheres with the feces. This same process probably occurs in man, although this is not yet definitely established. The fact that some cases have lasted as long as three years,[13] in spite of several apparently successful courses of treatment, seems to point to auto-infection from cysticerci which have been protected from the action of the drugs.

The only drug which has been found effective in the treatment of this worm is malefern, in any of its forms. The U. S. P. oleoresin aspidii is as good as any. The other vermifuges, santonin, thymol, naphthol, etc., have all proved unsatisfactory as compared with malefern.

After an apparently successful single treatment, one should not feel that the patient is absolutely cured. The possibility of auto-infection from cysticerci, which may have been implanted in the intestinal wall, is always present. Therefore an examination of the stools should be made several months later to determine the presence or absence of the ova. If present, the treatment must be repeated.

It is worth again emphasizing the fact that the diagnosis of this tapeworm cannot be made usually from the clinical aspects of the case, or from the macroscopic examination of stools. It rests practically always upon finding the characteristic ova by microscopic examination.

There are undoubtedly many cases of infection with this tapeworm in this vicinity which have been unrecognized. They are probably often considered to be obscure, nervous diseases. The number of known cases will surely increase rapidly as soon as a routine microscopic stool examination is made of these obscure cases.

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PATHOLOGY OF TYPHOID SPINE.

BY MARK H. ROGERS, M.D., BOSTON,

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(From the Orthopedic Department of the Massachusetts General Hospital.)

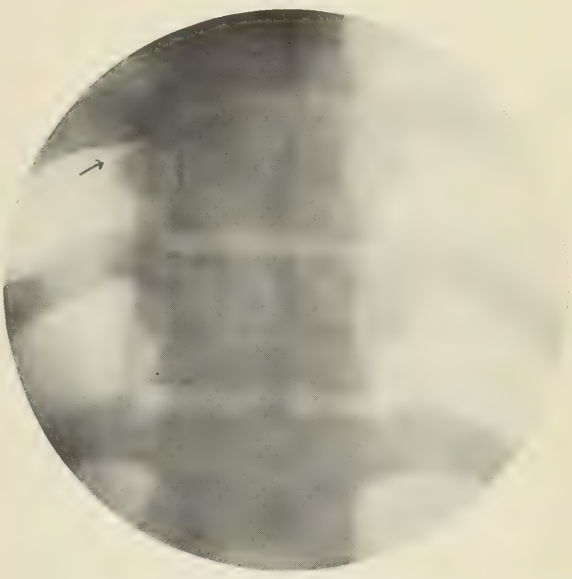
THIS paper is a study of the pathology of "Typhoid Spine," and is based on the reported cases, especially on those that give an x-ray report, and on the x-ray findings of two cases reported here. Of the ninety cases reported in the literature since this condition was first described by Gibney in 1889, there have been no deaths, so that we have no chance to study the pathology post-mortem. Therefore we are dependent for exact knowledge on the x-ray, and of these ninety cases there were eleven with x-ray reports.

In the first report Gibney made the statement that he believed there must be some definite bone or articular lesion to account for the clinical facts. Soon after this Osler gave his opinion that this condition was generally a neurosis, basing it chiefly on the fact that the pain and disability were out of proportion to the condition found on physical examination. The impression made by this statement has lasted to this



Case 1. Arrows indicate a distinct focus in the superior articular surface of the second lumbar and in the inferior surface of the first lumbar vertebra. These lesions are identical with those appearing in the long bones due to the same infection, and result from an actual loss of bone substance.

(From the X-ray Department of the Massachusetts General Hospital, W. J. Dodd, M.D., Roentgenologist.)



Case 2. Arrows indicate similar lesion as in Case No. 1. In this case the lesions show on both sides of the superior surface of the tenth and the inferior surface of the ninth.

(From the X-ray Department of the Massachusetts General Hospital, W. J. Dodd, M.D., Roentgenologist.)

spread so that the x-ray will show more extensive involvement of the cortex. Evidently the typhoid organism is not virulent enough in the bone to cause a constantly increasing osteomyelitis, such as the cocci group, but tends to remain localized, and to die out. If we take into consideration the sudden onset of these lesions, the fact that they may be multiple and yet localized and circumscribed, there is a strong suggestion that they are the result of septic emboli, and this same condition is carried out in the spinal lesions of my two cases.

Before taking up the study of the x-ray findings in the cases from the literature the following cases will be reported chiefly on account of the conditions found in the x-rays.

Case 1. E. J. B. Age, forty-nine. Married.

Family History. Not important.

Past History. Not important. Always well.

Present Illness. In February, 1910, typhoid fever. In bed four weeks. Recovered rapidly and was on

caused pain. Knee jerks lively. No ankle clonus; no disturbances of sensation.

Temperature ran from 100 to 101 degrees at night for three weeks, with three days of 103 degrees. Widal, positive. White count, 9600. Differential count, 67% Neutrophibes, 33% Basophibes. Plaster jacket was applied, which gave some relief, although for a week morphia was required. Pain at first was on the right side of the back, later extended to the left side. At the end of about four weeks temperature became normal and the patient was up and about the ward, with very little pain. X-ray of the lumbar spine taken, which was negative. X-ray later taken of the lower dorsal spine showed lesions similar to Case 1.

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The only drug which has been found effective in the treatment of this worm is malefern, in any of its forms. The U. S. P. oleoresin aspidii

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In the first report Gibney made the statement that he believed there must be some definite bone or articular lesion to account for the clinical facts. Soon after this Osler gave his opinion that this condition was generally a neurosis, basing it chiefly on the fact that the pain and disability were out of proportion to the condition found on physical examination. The impression made by this statement has lasted to this day, and McRae, in his article on typhoid fever in Osler's System of Medicine, states that there may be some bone lesion, although it is often a pure necrosis.

In studying the reported cases it is clear that there is a very definite clinical story, so that there should be one pathological process as the basis. Following an attack of typhoid fever, during the convalescence or within six months time, there is a sharp, rather sudden onset of pain in the back, usually brought on by some slight injury, or sudden motion. The pain is described as much more severe than is usual in any case of tuberculosis of the spine, and is made worse on the slightest motion. There is usually tenderness to pressure over the portion of the spine corresponding to the pain, and all motions are very much limited. There is often a few degrees of temperature at the beginning, there is never any distinct kyphos. The knee-jerks have been reported as increased, but there is no other sign of paralysis, there being often a decided disinclination to use the legs on account of the pain. This condition lasts from several weeks to from two to three months, and there may be either a complete recovery or there may be some limitation of motion of the spine, and occasionally some deformity showing definite bone changes.

The pathological process of other bone lesions due to the typhoid bacillus is well known, and those occurring in the tibia may be taken as a description. The simplest process is a localized bone abscess, sometimes three or four in the same bone, in the cortex just beneath the periosteum. These show in the x-ray as a rounded loss of substance, casting a shadow of different density than normal bone. They are generally small, about the diameter of a lead pencil. The typhoid bacillus has been recovered from such conditions, showing that they are true infections and not simply bone cysts. The periosteum may become involved and the process may spread so that the x-ray will show more extensive involvement of the cortex. Evidently the typhoid organism is not virulent enough in the bone to cause a constantly increasing osteomyelitis, such as the cocci group, but tends to remain localized, and to die out. If we take into consideration the sudden onset of these lesions, the fact that they may be multiple and yet localized and circumscribed, there is a strong suggestion that they are the result of septic emboli, and this same condition is carried out in the spinal lesions of my two cases.

Before taking up the study of the x-ray findings in the cases from the literature the following cases will be reported chiefly on account of the conditions found in the x-rays.

Case 1. E. J. B. Age, forty-nine. Married.
Family History. Not important.
Past History. Not important. Always well.
Present Illness. In February, 1910, typhoid fever. In bed four weeks. Recovered rapidly and was apparently well. About Aug. 1, 1910, six months after typhoid, there was a sudden attack of severe pain in the lumbar region, coming on in the night. Since then the pain was continuous and so severe that he had to stay in bed most of the time. He was admitted to the hospital six weeks after the onset of the pain. A plaster of paris jacket was applied with some relief, before entrance. On admission the pain was very intense, so as to require morphia to obtain sleep.

Physical Examination. A well developed man. Chest negative. Abdomen negative. All motions of the hips were free except flexion with the knee straight, which caused pain in the back. Reflexes normal. The back was held rigid, and was so painful that the patient could not stand. All motions were extremely painful. There was no tenderness nor deformity. The pain was located about the second or third lumbar. Urine normal. The temperature ranged from normal in the morning to 100 degrees at night for two weeks after admission; then it became normal. X-rays of the spine were taken and showed the lesions to be described below. Widal reaction 1-50 was positive. He was discharged after six weeks' stay very much improved, still wearing a plaster jacket. A letter from the patient a year later stated that he was absolutely free from symptoms, and that there was no stiffness of the back. He was still wearing a leather jacket for protection.

Case 2. R. A. C. Age, twenty-one. Single.
Family History. Not important.
Past History. Not important.
Present Illness. In August, 1912, typhoid fever of not severe type; in bed one month. Went to work in November. The last of November he began to have pain referred to the right side of the back just at the lower border of the ribs. Morphia was necessary before he was admitted to the hospital.

Physical Examination. Chest negative. Abdomen held rigid and somewhat tender all over, flat, no masses felt. Spine, no kyphos, tenderness to deep pressure at the lower border of the ribs, over the quadratus muscle. Spine held absolutely rigid, with much muscular spasm. Any attempt at motion caused pain. Knee jerks lively. No ankle clonus; no disturbances of sensation.

Temperature ran from 100 to 101 degrees at night for three weeks, with three days of 103 degrees. Widal, positive. White count, 9600. Differential count, 67% Neutrophibes, 33% Basophibes. Plaster jacket was applied, which gave some relief, although for a week morphia was required. Pain at first was on the right side of the back, later extended to the left side. At the end of about four weeks temperature became normal and the patient was up and about the ward, with very little pain. X-ray of the lumbar spine taken, which was negative. X-ray later taken of the lower dorsal spine showed lesions similar to Case 1.

The x-ray of these cases is the central point of interest. At the time the x-ray of Case 1 was taken the diagnosis was not made, and it was considered possible that there might be a tuberculous focus. When no gross lesion was found the x-ray was at first considered negative, until on more careful examination the so-called punched-out areas on the articular surfaces were noted. At this time more attention was paid to his typhoid fever history, and the Widal reaction taken. The correct diagnosis was made after recognizing the resemblance of the spinal bone lesion to those typhoidal lesions of the tibia.

The x-ray of Case I shows four distinct bone lesions, two situated on the upper surface of the second lumbar vertebrae, and two on the lower surface of the first lumbar. Each of them is about the same size, roughly speaking, the size of a lead pencil. They are circumscribed, rounded and show a distinct loss of bone substance, and resemble very closely the typhoidal lesions of other bones, both in shape and location.

The x-ray of Case 2 also shows four distinct lesions situated at the tenth and eleventh dorsal, with a similar punched-out loss of substance. The location of the lesions corresponds to the point of tenderness, at the border of the ribs. It is interesting to note that a kidney lesion was first sought for before his admission, and the diagnosis of typhoid spine was made on account of the extreme pain with spinal rigidity and was confirmed by the x-ray findings.

In studying the eleven reported cases which had x-rays taken, we find that two, Cutler and Peltesohn, reported no bone lesions. McRae's two cases showed deposits of new bone, or overgrowth; Myers and Silver each described the x-ray as a lack of intervertebral clearness; Cannon says there is distinct bony change; Lovett says there is a bony change; while Fichtner's case showed actual bone destruction.

It seems to me that if the process extends beyond the circumscribed bone abscess there would be an involvement of the intervertebral spaces, giving a lack of clearness in the x-ray, and there would be a deposit of new bone. Unless the x-ray is very clear and carefully focused it would be very easy to overlook such a process as is described in these cases, for we almost overlooked it in a good clear x-ray. We took several x-rays in the first place to confirm the original finding and to be sure it was not artifact.

If this is the true pathology for "typhoid spines" then it is easy to understand the whole clinical picture, the sudden onset, the intense pain, especially on any motion, the relief of pain on complete fixation especially in slight hyperextension, the duration of the condition, the low grade temperature and the ultimate recovery.

The so-called "typhoid spine" is an osteomyelitis of the vertebral bodies, which cause lesions similar to the typhoidal bone abscesses of other bones, located in the cortex just beneath the periosteum.

In Halpenny's article, Surgery, Gynecology, and Obstetrics, 1909, Vol. ix, pp. 649-657, the bibliography was given very completely, and there is appended the references in this article and the bibliography from 1909-1912.

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AUTOTHERAPY IN ACUTE ARTICULAR RHEUMATISM.

BY CHARLES H. DUNCAN, M.D., NEW YORK.

Patient, male, aged forty-eight years, was first seen on Nov. 1, 1912, suffering from mitral regurgitation. He was placed in bed and under the usual remedies gradually improved. On Dec. 27, he complained of pain in the right knee, which steadily grew worse until the 29th, when the writer was again called. At this time the knee was very much swollen, shiny, red and exquisitely painful; temperature, 101° F. The patient was restless and suffered intensely on the least motion. For some weeks previous he had been troubled with a slight bronchitis, which appeared to be aggravated at this time. The phlegm was thick and lumpy. Remembering that bronchitis not infrequently accompanies rheumatism, the question now arose whether the microorganisms causing rheumatism could be present in the sputum. Autotherapy of bronchitis having previously been so successful in the hands of the writer, it was decided to make a test in this case to learn whether the treatment of the bronchitis with the filtrate from the sputum would have any effect upon the rheumatism. Accordingly four c.c. of the thick sputum was placed in an ounce of water and allowed to stand for twenty-four hours, with occasional agitation, after which time it was filtered. At 8 o'clock, p.m., on Dec. 30, twenty minims of the filtrate were injected hypodermatically into the loose cellular tissue over the biceps muscle. On Jan. 1, at 8 o'clock, a.m., or thirty-six hours after the injection, the patient was walking about the room, moving his knee freely and smiling to show how much he had improved, although, as he said, he could still feel pain when he bumped it with his thumb. On Jan. 3, it was necessary for the patient to move the knee for several seconds in order to elicit the pain. He said, "I can feel it when I move it a certain way." Within twenty-four hours the arm was very much swollen around the site of injection. Within forty-eight hours the inflammation had extended to the wrist and the area was red, puffed

and tender, presenting the appearance of an extensive cellulitis. When told this was necessary for a cure, the patient's fears were allayed. Four days after the injection the cutaneous discoloration had practically disappeared, and on the fifth day all pain had ceased. The second night after the injection the patient slept well. As far as could be ascertained, the action of the heart was not disturbed. He was not seen until thirty-six hours after the first injection, at which time the temperature was normal and continued so. The patient will be given several smaller doses to learn whether any effect can be produced upon the cardiac valvular deposits.

While it is realized that one case usually means nothing, the definiteness of the object sought, the violent reaction and the speedy cure, agreeing as they do with the general rules already formulated by the writer in autotherapy of disease, it is believed this method of treating rheumatism should be thoroughly investigated. In considering this case of rheumatism, many important questions arise. One is: In how many diseases may the causative micro-organisms be obtained from the sputum? It has, as far as the writer knows, never been asserted that in a disease apparently as remote from the lungs as is rheumatism, the toxins may be obtained from the sputum. That in this case it was possible to obtain the toxins from the sputum is apparently evident. Is it not possible, yes even probable, that the micro-organisms are brought to the lungs with the inspired air and enter the respiratory tract at a point where the continuity of the mucosa is interrupted, or at some microscopic formina? May not the micro-organisms proliferate here, some being expelled with the sputum, others or their toxins passing into the circulation and reaching distant parts, thus producing constitutional disturbances, such as pain, increased temperature, etc? It is now quite generally recognized that some forms of the staphylococcus and streptococcus are the chief if not the essential micro-organisms or etiologic factors in rheumatism. In recent years it has been assumed that association of bronchitis and rheumatism is accidental. It would appear, however, that they are not disassociated but, on the contrary, are, as ancient writers affirmed, closely related or interdependent. Bronchitis usually is a premonitory symptom. The name "rheumatism" conveyed to the ancients the conception of a "rheum" or "rhea" or flow from the mucous membrane, owing to the fact that they observed the two conditions to be frequently associated. How often have we seen patients suffering with a toxic disease supposedly foreign to the lungs die from a pneumonia that developed quickly? All are familiar with this occurrence. The question that engages attention in this connection is that, had this bronchial condition been recognized early and the filtrate from the sputum containing the specific micro-organisms been therapeutically employed, might not the life of the patients have been spared? How far this simple therapeutic measure may be extended to other affections considered as disassociated from the respiratory tract can only be conjectured at present.

Heretofore the catarrhal condition often accompanying toxic diseases has been accounted for on the basis of impeded circulation. A question still to be answered is, How many acute, subacute, and chronic affections known or suspected to be toxic in nature are at times accompanied by catarrhal states of the respiratory and other tracts? Thought instinctively turns to some forms of psychopathic affections, acute and subacute endocarditis, nephritis, pancreatitis, pelvic and intestinal disorders. Is it not probable that occasionally we may be able in some of these diseases to obtain the products of the causative micro-organism from the sputum and successfully employ them in therapy?

To the large number of physicians who have addressed the writer for filters and instructions for application of autotherapy, it is suggested that the filtrate of the sputum be employed in treatment of many diseases. Diligent search for the discharges of the disease, by whatever route they are eliminated, is a main consideration; and these should be employed in therapy in the form of the filtrate. In acute conditions speedy relief may be expected, but in chronic conditions the treatment may have to be extended over a number of weeks or months. A diagnosis is often unnecessary as far as a cure is concerned.

Clinical Department.

TUBERCULOSIS OF MESENTERIC GLANDS SIMULATING GASTRIC ULCER.

BY MAURICE VÉJUX TYRODE, M.D., BOSTON.

The articles of Dr. D. W. Parker and of Dr. F. B. Lund in the Journal of Dec. 26, on "Tuberculosis of the Mesenteric Glands Simulating Appendicitis," called to my mind a case which I saw several years ago bearing upon an analogous condition.—

Case History. Patient was slight man of twenty-five years of age, rather pale and poorly developed. No previous illnesses except children's diseases and chancre two years ago, followed by an ulcer in throat seven months ago, which was then well. The present symptoms of indigestion had been troubling him for five or six years, and consisted of pain in the region of the epigastrium, going a little to the right side, with heartburn and eructation of sour fluid, the belching of much gas and great heaviness after eating. Physical examination revealed glands in axilla and groin but no mucous patches in the mouth, a moderate degree of anemia, a rather hard, flat abdomen containing no fluid, with a slight resistance and resistant mass in right upper quadrant, which was slightly sensitive. Stomach expression on a special supper and Ewald breakfast showed no retention, an excess of HCl, but no blood. There was no constipation.

The stomach symptoms antedated the syphilis by four years and it seemed probable to me that the

case was one of gastric ulcer. He was placed on antisyphilitic and ulcer treatment with great improvement. The resistant mass at the epigastrium did not change, and I interpreted it as the possible induration of a chronic ulcer.

After a faithful trial of medical treatment, although much improved, as he was not cured, it was proposed to the patient to have an exploratory laparotomy, which suggestion he accepted.

At the operation, performed by Dr. H. H. Germain, a rather surprising state of affairs was found. The stomach and duodenum showed no external evidence of ulceration; the gall-bladder contained no stones and the appendix did not appear diseased, but the entire mesentery was riddled with enlarged glands, varying from the size of a pea to that of a walnut. A particularly large accumulation was present at the place where indefinite resistance was felt. Most of the glands were hard, but some were soft and cheesy. There was no peritonitis, nor adhesions nor fluid, the process being absolutely limited to the glands. The surgeon removed a large gland before sewing up. This gland was examined by Dr. Timothy Leary and reported as undoubtedly tuberculous.

After the exploration the patient was placed on the general treatment of tuberculosis, *i.e.* much outdoors, forced feeding and tonics. He gained about ten pounds in weight and ceased to complain of the pain, but still was troubled by the heartburn for some time.

When I heard of him some years later, he was said to feel entirely well, so it is probable that generalization did not occur.

Medical Progress.

REPORT ON MENTAL DISEASES.

(*Continued from page 314.*)

BY HENRY R. STEDMAN, M.D., BROOKLINE, MASS.

THE SIGNIFICANCE OF WASSERMANN REACTION FOR PSYCHIATRY.—ALZHEIMER'S DISEASE.—OSTEOMALACIA AND INSANITY.—THE MEDICO-LEGAL RELATIONSHIPS OF GENERAL PARALYSIS.—PSYCHO-ANALYSIS.

THE SIGNIFICANCE OF WASSERMANN REACTION FOR PSYCHIATRY.

ACCORDING to Plaut's[1] results, the Wassermann is positive in the blood and fluid in most cases of paresis. Of his own 276 cases, in nine only the cerebrospinal fluid was negative, and one serum showed no complement deviation. He does not agree with the French observers that in the early stages of general paralysis Wassermann reaction is of no assistance for diagnostic purposes, and that in the beginning of this disease the blood is usually positive and the fluid negative; that later both the serum and blood become positive and that in the last stages the serum only is negative. Many observations tend to show that a weak complement deviation suggests remission or a stationary course of the disease. The parallelism between the Wassermann reaction and lymphocytosis, and globulin content, does not exist according to many investigators. Mercury and potassium iodide exert no influence on the Wassermann reaction in general paralysis. Salvarsan, as Alt demonstrated, can make the reaction disappear from the blood, and Plaut observed that cerebrospinal fluid gave a weaker reaction. In cerebral syphilis the serum is usually positive and the cerebrospinal fluid negative. Of 37 cases in 4 the fluid was only slightly positive. In borderline cases where the diagnosis lies between general paralysis and cerebral syphilis, the Wassermann test is of relative value, but great caution should be exercised in interpreting results. A marked positive reaction of the fluid argues in behalf of general paralysis, and negative fluid reaction does not necessarily rule out general paralysis, for there are cases on record in which the fluid is negative. If both the fluid and serum are negative, cerebrospinal syphilis may be thought of. However, in such a case, the syphilitic nature of the disease may be questioned. In the literature, the 400 recorded sera and 127 cerebrospinal fluids showed 71 per cent. and 59 per cent. respectively, a positive reaction. Nonne and Holzmann's 93 cases of tabes gave a positive reaction in 9 per cent. of the cerebrospinal fluid and 67 per cent. of the blood tests. Studies of the Wassermann test in the feeble-minded were made, and Raviart, Breton and Petit found a positive Wassermann reaction in 48 out of 158 idiotic children; Kellner, Clemenz, Bruckner and Rauttenberg's 216 cases showed only on 13 a positive serum reaction; and Lippman in Daldorf and Unchtspringe demonstrated 13.2 per cent. and 9 per cent. respectively, complement deviation in his cases of the feeble-minded. The author examined 54 paretic families with 100 children; only 39 per cent. were free from syphilis. Possibly this is due to the fact that at the time of the examination lues was in the latent form.

Kaplan's[2] comparative tables show that even in paresis the positive Wassermann reaction may at times be wanting in either the serum or fluid or both. As such negative general paresis cases were observed by him, he found it necessary to mention this fact. The causes for such findings must be ascribed in part to the method and technique he employed as well as the extreme caution in rendering positive Wassermann reaction reports and in part to the actual negative conditions that at times are really present in general paresis. He has records of sera and fluids where the report was negative upon four separate analyses. In experimental serology of the above nature, the only control for the obtaining of correct data is to keep the serologist in ignorance of the clinical facts. Those who are accustomed to work with this very complex reaction know how easily mistakes can be made and reported.

Another peculiarity of general paresis is its

stubbornness in retaining the positive Wassermann reaction after treatment, which is a feature worth remembering, when such a result is obtained in a thoroughly treated individual who presents inconclusive evidence suggestive of general paralysis. There are cases of general paralysis where no inhibition is obtained with the serum and others where the spinal fluid may prove to be negative. In his experience a few cases of general paresis were as negative as normal sera and fluids. These discouraging facts may not minimize the value of the test, which being a laboratory report should only be collated with the findings at the bedside. The clinician upon a closer investigation may either accept or reject the laboratory verdict. In case of a negative Wassermann report its value for diagnosis in only about 25 per cent. of the entire ensemble of facts necessary for establishing lues; the clinician has the history, very often finds symptoms more or less classic, and frequently the result of therapy aids him in establishing lues. These three corroborative data outweigh the laboratory findings three to one.

ALZHEIMER'S DISEASE.

Fuller[3] has collected all the recorded cases of this disease including one of his own—thirteen in all—and summarizes their clinical histories thus: About middle life or slightly past, with one exception in early adult life beginning at the age of 32, memory defect, disturbance of retention and general mental weakness set in and progress to a marked dementia. The proggress of the dementia in some of the cases has been slow, in others fairly rapid. As a rule, early in the course of the affection aphasic disturbances—verbal amnesia, occasional paraphasia and jargon, impairment of ability to comprehend spoken language, graphic disturbances, verbal and literal preservation—ideational apraxias and agnosias develop, varying from time to time in severity but never as intense or consistent as the speech disturbances and apraxias originating from coarse focal lesions of the brain. Mental confusion, with some delirium, lack of bladder and rectal control without evidence of limb paralysis, good preservation of gross muscular strength, considerable motor activity and restlessness have been striking features of the majority of the cases. Auditory and visual hallucinations with apprehensive delusions based upon them and spatial as well as temporal disorientation have been prominent in some instances. With one exception luetic infection does not appear in the anamneses. Alcoholic indulgence seems to have played no rôle or at the most a minor one. Cerebral atrophy was noted macroscopically in most of the cases. In only two cases was there instance of appreciable cerebral arteriosclerosis. The microscopical examinations of the brains revealed a large number of miliary plaques in all of the cases save one. The plaques were more numerous and frequently of greater size than those usually found in other brains exhibiting these structures. In one case they were of enormous proportions, a single plaque extending in many instances through one or more cortical laminae. In one no plaques were found. We consider it is reasonable to assume that this type of case, while not in every instance free from sclerotic vascular alterations of the brain, is not a type of mental disease resulting from arteriosclerosis. In a certain sense a precocious senium is conceivable; by this something quite different from an early arteriosclerosis is meant. He in an earlier paper had argued that arteriosclerosis *per se* had little or no causative relationship to the formation of miliary plaques of the brain so characteristic in the microscopical findings of the type of case here considered and in many cases of typical senile dementia, although many brains of the latter class showing plaques also exhibit considerable arteriosclerosis. On the other hand, plaques may be wanting in the brains exhibiting the maximum of arteriosclerosis, particularly in cases recognized clinically as arteriosclerotic insanity and post-apopletic dementia. In all cases of Alzheimer's disease reported, with one exception, plaques have been found in great number, but only two of the cases have shown macroscopically any appreciable arteriosclerosis.

OSTEOMALACIA AND INSANITY.

Charpentier and Jabonille[4], after an exhaustive consideration of the literature bearing on the subject of the tendency to fracture in insane cases, conclude, in a critical review, that (1) fractures do not occur with greater frequency in the insane; (2) in many cases so-called spontaneous fractures have been due to other causes than mental alienation; (3) the idea of osteomalacia in the insane ought not, however, to be summarily rejected, for some undeniable cases have been recorded.

THE MEDICO-LEGAL RELATIONSHIPS OF GENERAL PARALYSIS.

Savage[5] shows how apt general paralysis is to bring the individual into conflict with society, or to give rise to medico-legal problems in any of its stages, but particularly in the first or prodromal stage. The loss of higher control in this stage, so that the actions following feeling rather than reason, lead to impulsive actions, varying with the individual; but as examples, there may be cited violent language, brutal assaults, sexual faults of various kinds, and senseless acquisitiveness of articles for which the individual has no real want. Assaults may be made partly under the influence of drink, but they are always impulsive rather than premeditated. In cases of indecent exposure or assault perpetrated by men of middle age, one should always be on the outlook for the physical signs of general paralysis. Senseless theft or reckless speculation, and ordering of goods, etc., is very typical

of the exalted stage of general paralysis, and is liable to lead to legal proceedings.

Of the question of general paralysis being produced by injury, the view taken by the writer is that while general paralysis probably cannot arise without previous syphilis, yet some other factor is necessary to start it off, and an accident may be this other factor. With regard to testamentary capacity, in the majority of cases it is improbable that a general paralytic will make a sound will, but it must be admitted that in the early stages there may quite well be periods of sanity or lucid intervals, in which a perfectly valid will may be made. It must, of course, be remembered that the mere fact of being a general paralytic or insane is not any proof that the individual has not "a sound and disposing mind" in the eyes of the law.

PSYCHO-ANALYSIS.

Jones[6] in explaining the therapeutic action of psycho-analysis, believes that it effects its cures by making the patient aware of the unconscious complexes that lie at the basis of his symptoms, thus enabling the pathogenic agents to become assimilated in consciousness. It achieves this by discovering and surmounting the internal resistances that are the cause of repression, and which constitute the obstruction, preventing the patient from becoming aware of and assimilating the pathogenic mental processes. As, further, it does not confine itself to the unconscious symptoms, but deals equally with the whole of the repressed material in the patient's mind, its action extends beyond the field of purely medical indications and gives the patient an inner control and self-insight that is not only the best guarantee against any tendency there may be to relapse into a neurotic state, but also the soundest basis for the guidance of his life in the future.

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Reports of Societies.

AMERICAN CLIMATOLOGICAL ASSOCIATION.

The Twenty-ninth Annual Meeting was Held at The Hunt Memorial Building, Hartford, Conn., on June 10, 11, 12, 1912.

The President, Dr. Alexander D. Blackader, of Montreal, made the opening address on

THE ADVANTAGE OF RESIDENCE IN A COLD, DRY CLIMATE IN THE TREATMENT OF SOME FORMS OF DISEASE.

It was shown that the stimulating and health-giving properties of the steadily severe but dry cold of Northern Canada, especially the Laurentian plateau, confers a vigor not to be found elsewhere. Sleep is favored when the body is properly protected; the appetite is stimulated and digestion is better; oxidation is increased. Those who suffer from any interference with the free passage of air through the nostrils do not react well to cold and gain little benefit in winter. In inflammatory conditions of the larynx and trachea cold air may act as an irritant and prove harmful. Extreme cold is not desirable for cases of gout, arthritis or neuritis. For those suffering from advanced degeneration in any organ, for those advanced in years, or for the very young, extreme cold may be distinctly harmful. At St. Agathe, P. Q., the consumptives show a rapid and permanent gain in weight in cold weather; night sweats become infrequent, the amount of hemoglobin rapidly rises; cough and dyspnoea disappear.

Professor Yandell Henderson, New Haven, Conn., made an address on

PHYSIOLOGICAL OBSERVATIONS ON PIKE'S PEAK, COLORADO, MADE IN THE SUMMER OF 1911.

He said that his interest in the physiological effect of the climate of mountains started in the sport of mountaineering rather than in medicine. It was a widely believed fallacy that with a low atmospheric pressure one was subject to severe hemorrhages. One writer in the last century said that when crossing the Andes the mules breathe hard, their lips bulge, their eyes burst. This notion that with a low barometric pressure one got severe hemorrhages was based upon a false idea. Many hundred of people go daily to Pike's Peak and ordinary nose blood is no more common there than occurred among people who took vigorous exercise at sea level. The only cases that he saw of nose bleed were when there was the impact of something against the nose to make it bleed.

A careful study of the arterial blood pressure was made on many on the Peak, and there was found a slight fall in the arterial blood pressure. Those who were mountain sick presented a somewhat different condition, but this was another matter. They often gave symptoms of ordinary fainting spells, weak pulse and other symptoms that went with a cerebral anemia.

In the seventies of the last century Paul Bert showed that the hemoglobin contained in the red blood cells was increased and that the ill effects of a low barometric pressure were due to a lack of oxygen. Some experiments were carried out in steel cylinders from which the air was pumped and it was found that in pure oxygen patients were comfortable at one-fifth air pressure as when they were breathing the normal atmospheric air with one-fifth oxygen and four-fifths nitrogen.

Recently he made some observations in New Haven. He got a large boiler and breathed into it until the oxygen was greatly reduced. When below 10 per cent. he suffered from nystagmus, panting, and almost went into convulsions. There was no great difficulty, in his opinion, in making these studies on artificial mountain sickness at the sea level. It was only a question of oxygen.

Any decrease in the amount of carbon dioxide in the blood in the lungs did not occur under low pressure. Zuntz got many results from his investigations, but he was unable to throw much light upon the cause of the condition. Since Paul Bert not

much progress had been made in this study. A year and a half ago while in Vienna he met with Haldane and Douglas. They made inquiries where they could find a comfortable mountain on which to make investigations and where they would not have to suffer many hardships. They did not wish to do anything heroic and had thought of the Andes or the Himalayas. They finally decided to go to Pike's Peak, Colorado, altitude 14,147 feet.

At Pike's Peak they had a lot of apparatus and especially apparatus for determining the alveolar contents of the lungs; also the respiratory exchange during exercise, the amplitude of respiration, etc. A point of special interest was to find out the volume of blood in the body.

Another point for investigation was the determination of the possible activity of the lungs at this altitude. One of the problems they wished especially to study was the difficult question as to whether the lungs possessed any active process of secretion, that was, whether the blood in passing through the lungs contained more oxygen than mere diffusion would provide.

After being four or five days at Colorado Springs they had four trains to take them and all the apparatus to the top of Pike's Peak. After being one hour and a half on top they noticed that their lips were blue and towards evening they began to suffer about the temples. They had headaches. When supper time came they had no appetites. Of course they ate no supper. Their lips were still blue. They were nauseated. They felt like lying down. All this compared in a way to the symptoms caused by seasickness,—the nausea, the distress about the temples, the frontal headache which was splitting in character, the marked dilatation of the temporal vessels, conditions which pointed to some vascular reaction and which lasted for four or five days. The railway carries about 200 people up to Pike's Peak every day in summer; they stay about an hour; of that number twenty or thirty were slightly affected by the altitude. Most of them had nausea and a great deal of headache. Some went into a dead faint when they reached the top. If they tried to climb, they again fainted and then they would take a train and go down. Some would stay over until the next morning, get up at sun-rise, and then vomit; this would occur usually between two and four the next morning. These people would go down the next morning and then be all right.

There was another set of people who would come up on donkeys.

He had seen the floor of the lunch room covered with people, vomiting, some practically unconscious; others who could not take any food. At sunrise, however, they would get up and some would fall in a faint. He recalled one case in particluar, an individual scarcely off the train, when the lips became blue, with regurgitation of food and other ill effects of the high altitude. He was given oxygen and the lips soon became pink and the individual felt nicely. However, within ten minutes he grabbed a bag of oxygen as if it were a whiskey bottle and ran for his train.

Low air pressure and this lack of oxygen affected people in extraordinary ways; the majority of them were out of their heads. He reported several instances of this crazy behavior.

One of the things noticed at Pike's Peak was that most of those who went up were short-winded and many of them had Cheyne-Stoke's respiration.

Another thing noted was the effect of exercise on the wind. The least work undergone made people out of breath. This was often followed by apnea. Some experienced terrific spells of dyspnea and then second wind. After running fifty yards up-hill the legs would wobble. This occurred in one individual in particular and it became necessary to administer oxygen.

The problems they wished to study were those related to acclimatization; how could these people live at these high altitudes and be comfortable?

The red blood cells were increased from five up to seven and a half million. The hemoglobin from 100 to 145 per cent. or even higher after six months' residence. The percentage of hemoglobin does not remain high after one comes down. Last summer Dr. Henderson had a hemoglobin percentage himself of from 135 to 140. Now it is normal again. The percentage of lymphocytes was increased.

The most important element of acclimatization to low barometric pressure was the development by the lungs of a capacity to secrete oxygen from the alveolar air into the blood, thus compensating in part for lessened diffusion because of the low oxygen pressure in the atmosphere.

The heart rate is somewhat accelerated even during rest, and greatly accelerated by exercise, but the arterial pressure was not considerably changed. As stated, the hemorrhages formerly noted are a myth. Respiration is considerably increased even during rest and enormously augmented by even moderate exercise. The red corpuscles are increased 30 per cent. or 40 per cent.; the total volume of blood, however, was unchanged. The CO method was the one used.

They found what they believed to be clear evidence of pulmonary secretion of oxygen. On Pike's Peak more oxygen was in the blood than in the air. They think they can prove that much of it was secreted from the alveolar air into the blood. They think that the development of this capacity on the part of the lungs to secrete oxygen from the alveolar air into the blood is an important factor in acclimatization. Thus in a new-comer on Pike's Peak the lips are blue, but a day or two later they assume a good color.

Dr. W. A. Campbell, of Colorado Springs read a paper on

High Altitude and the Blood.

The study of the blood at high altitudes is obviously difficult owing to changed climatic conditions and inaccessibility. Altitude increases the erythrocytes, hemoglobin, and leucocytes, thus favoring resistance. The heart acts faster and the pressure is lower, which tends to strengthen the cardiac muscles just as exercise of the general system strengthens the individual as a whole. Caution is needed at the beginning. The lack of oxygen and the consequent increased respiratory exchange increases metabolism and develops the chest. Dr. Campbell cited the case of a man who came to Colorado Springs in 1905 from a low altitude in the East. His chest measurement over the fourth rib was 37 inches; in 1909 his apices were expanding and the measurement was 38 inches; in 1912 he measures 39 inches with no evidences of limited respiratory sounds.

Dr. Campbell considered the experiments of Henderson and Haldane on Pike's Peak important in showing that the adaptation to high altitude is mainly accomplished through the "increased secretory activity of the alveolar epithelium."

DISCUSSION.

Dr. Hoagland, of Colorado Springs, thought there was a wrong impression in the United States with regard to the mortality from pneumonia among those who lived at high altitudes. In his first case of pneumonia he did not know whether to send the patient lower down or send for an undertaker. To his surprise the patient recovered. In order to make comparisons of the mortality from pneumonia he collected statistics from hospitals situated at high altitudes, as in Denver, Cripple Creek, and Leadville and compared those statistics with those of the Massachusetts General Hospital and the Philadelphia Hospital and he found the mortality was no higher. On the Peak many had attacks of insomnia.

As Dr. Campbell had pointed out, there was an increase in the capacity of the chest when one went to higher altitudes.

Dr. Robert H. Babcock, Chicago, Ill., said he did not know anything positive about the effect of altitude in cases of heart disease. When a patient with or without heart disease asked him about the effects in his case of an altitude of 6000 or 8000 feet, he could not positively answer. He knew patients with valvular heart disease at Leadville, Colorado, and other places of high altitude, and they experienced no ill effects. When he is asked by a cardiopath, "Will it be safe for me to go to Colorado?" Dr. Babcock usually answers "Yes, if you keep quiet until you become accustomed to the altitude." Dyspnea and tachycardia are the indications for absolute rest and after a few days one is likely to become accustomed to the altitude, but if not he should not remain.

Professor Yandell Henderson said in answer to Dr. Edson's question about bilateral headaches being due to sinus trouble, he did not think so. It happened that the blood vessels or arteries were congested on one side and not on the other.

The critical line was about 6,000 to 10,000 feet. At 9000 feet oxygen secretion was not necessary. It appeared to be clear that at Colorado Springs there would be no more secretion of oxygen to aerate the blood than at sea level. But in going up Pike's Peak secretion of oxygen would occur. He reported the case of a college boy who was unduly affected. He had bilateral headaches, became blue and was generally miserable. It was found that he was not secreting enough oxygen. Two or three days later he began to secrete oxygen to his immense relief. At Cripple Creek oxygen secretion was necessary to keep from being mountain sick.

He said the discrepancy regarding the respiratory exchange was only apparent and not real. No more CO_2 was gotten rid of at high altitudes than below nor was the intake of oxygen greater; but in getting rid of it the patient breathed harder. To get rid of 25 cc. CO_2, instead of breathing 500 cc. tidal air it required 700 cc. tidal air.

Similar observations had been made by Professor Bingham who climbed 6000 or 7000 feet higher than Pike's Peak, taking him six or seven days to go up. He would walk 20 steps and then lie down 20 minutes. He managed to get to the top. He said the highest altitude ever reached was by the Duke of the Abruzzi in the Himalayas, 24,000 feet. While there a snow-storm came on and he had to come down.

Dr. Delancey Rochester, of Buffalo, read a paper on

CLIMATOLOGY AS PRACTISED BY HIPPOCRATES.

There were many Asclepia or Temples of Health in Greece and they were usually erected near some medicinal spring. Those at Cnidos and Cos were especially noted. Hippocrates began his practice in the Asclepion of Cos and he was the first who wrote on health and disease; his "Airs, Waters and Places" suggests climatology. He deals with seasons, winds, qualities of waters with particular detail. He shows the effect of climate on the constitution and mental character. He showed the value of bathing and laid down directions for bathing in pneumonia, claiming that it promotes expectoration, improves the respiration and allays lassitude. One of his aphorisms was: "The physician should strive to do good to his patient or, at least, to do no harm."

Dr. James M. Anders, of Philadelphia, read a paper on

CLIMATOLOGY IN THE CURRICULUM OF THE MEDICAL SCHOOLS OF THE UNITED STATES AND CANADA.

In 1904, the late Dr. S. E. Solly called the attention of this society to the question of the establishment of systematic teaching of climatology in the medical schools; he mailed a circular to all the medical colleges, to which thirty answers were received. Of these, only seven stated that climatology was included in the curriculum, questions were set, and books were recommended. "The rest of the colleges said there was no regular instruction, but that the different professors, sometimes the professor of medicine, sometimes of therapeutics, sometimes of diseases of the lungs, referred to the matter of climate in connection with the various diseases which they discussed."

Following the example of Dr. Solly, I mailed a circular, but slightly different from his as regards the questions propounded, to all American Medical Colleges—147 in number—with a view to ascertaining to what extent the movement then proposed and started to advance the teaching of the science of climatology had succeeded during the intervening period of nine years.

In the present collective investigations, 19 colleges out of a total of 76 from which responses were obtained, are including climatology in the curriculum as against seven out of a total of 30 answers received in 1904. In 16 institutions, questions are set either in the junior or senior years. No regular instruction is given in climatology, but it is incidentally taught by different professors, in 40 of the 76 medical colleges and universities. The need of more general and uniform teaching of this branch in the medical schools of America was discussed.

DISCUSSION.

Dr. Guy Hinsdale, Hot Springs, Va., said that there was no more proper field for the Association than to promote the teaching of climatology in medical colleges. It was wonderful how students became interested in the collateral branches of this kind when their attention was called to them. In his lectures in Philadelphia Dr. Hinsdale obtained much aid from the use of lantern slides which were furnished him by the University of Chicago which has had made a large series of slides and has published a complete descriptive catalogue from which a selection could be made. At Tufts Medical Col-

lege Dr. Otis uses a similar collection of slides showing meteorological features, particularly conditions of temperature, barometric pressure, humidity and rainfall throughout the country. The slides were very carefully prepared.

Dr. Hinsdale made it a practice to have some lectures printed from year to year and so was able to hand to students printed lectures; this saved the necessity of repeating some lecture. He found that the United States Marine Hospital Service published valuable reprints of papers written by surgeons in various parts of the world on climatic treatment of tuberculosis, the occurrence of hemorrhages at high altitudes, and so forth, and these were furnished by the Government and distributed to the students. That stimulated their interest in this special field of work. It was very helpful both to the student and teacher.

Dr. Hinsdale thought that the American Climatological Association should take this matter up and try to stimulate the teaching of climatology. Recommendations should be made as to how the lectures should be arranged so that the teachers could follow systematic lines.

Dr. Carroll E. Edson, Denver, Colo., said he had had some experience in trying to teach students climatology and he believed that the giving of but four lectures was inadequate except to lay the foundation for further study. One could not give the student a clear idea of how climate affected the physical economy, heat production, and so forth in four lectures when they started in the study without knowing anything about weather observations or the elements of meteorology. In large schools where a preliminary training and education were required in physiology, the students did know the things necessary for the study of climatology.

Dr. Edson thought that such a course of study as was suggested by Dr. Anders, backed by the American Climatological Association, would be of the greatest advantage.

Dr. Anders felt that if the third year or junior student were given a brief course in the elements of meteorology he would have something on which to base the selection of a suitable climate in various diseased conditions. The latter aspect of the subject should be brought to their attention during the senior year. Medical schools could not expect to do more than to give a mere outline of the science of meteorology. The present curriculum would not permit any extended course. However, a lecturer who was qualified could present sufficient data in four or five lectures to lay the foundation for future practical work. The fact that our knowledge of the science of meteorology and of climatology was not advanced was not a good reason why no effort should be made to give medical students that nucleus or slight foundation on which they could subsequently build.

(To be continued.)

Book Reviews.

A Manual of Auscultation and Percussion, Embracing the Physical Diagnosis of Diseases of the Lungs and Heart, and of Thoracic Aneurysm, and of Other Parts. By Austin Flint, M.D., LL.D., Late Professor of Medicine and of Clinical Medicine in the Bellevue Hospital Medical College, etc., New York. Revised by Haven Emerson, A.M., M.D., Associate in Physiology and in Medicine, College of Physicians and Surgeons, Columbia University, New York. 12mo, 361 pages, illustrated. Philadelphia and New York: Lea and Febiger. 1912.

It is a source of distinct satisfaction to have Flint's work again made available for common use. As a concise but complete description of the subject it has never been surpassed. In it one recognizes the original authority for the teachings of one's teachers, some of which are not covered by the text-books now most commonly employed. Being based chiefly upon personal observations interpreted through a remarkable understanding of the fundamental principles involved, the work has a force of conviction largely lacking in the newer works in which the common physical signs have lost their novelty. The revisions by Emerson have been inserted with excellent judgment and in the same concise style as the original descriptions. To such a degree do they blend with the original text that one is startled at times when reading with the attention tuned to hear a voice from a past generation, to come suddenly upon such modern matters as the revelation of the x-ray. The recent teachings as to heart irregularities are included in such a way that the student can obtain an elementary knowledge of them without confusing detail. In a word, the work can be highly recommended for the purpose for which it is intended, namely, as an elementary text-book of physical diagnosis.

Pathology. A Manual for Teachers and Students. By W. T. Councilman, M.D., Boston: W. M. Leonard. 1912.

This book covers the scope of the course in General Pathology which is given in the Harvard Medical School, and is evidently offered with the expectation that it will be found useful in other medical schools. It should find a place in the teaching of pathology elsewhere than in Boston. The work is not a systematic text-book. The subject matter is presented in the well-known vigorous and condensed style of Professor Councilman. It represents the opinions held by him and his colleagues in the fields covered. Other authorities are not cited by name, nor references given. Illustrations, as is stated in the preface, have been purposely omitted. As aids to instruction there are included pertinent autopsy protocols and experiments upon animals, thus presenting an elaborate and well-balanced course in pathology, calculated to correlate knowledge gained from the numerous lines of research into which the great field of pathology has been divided.

The book is abundantly interleaved with blank pages, and is supplied with additional blank index sheets, so that the student may add his own sketches and observations.

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PENDING DENTAL LEGISLATION.

AN important legislative measure now under consideration before the General Court of Massachusetts is the so-called dental nurse bill (House No. 1156). This bill, first introduced last year on petition of Dr. George H. Payne, through a joint committee from the chartered dental societies and in behalf of the Massachusetts Dental Society, makes in essence the following provisions:—

"SECTION 1. Any person who is twenty years of age or over and in the opinion of the Board of good moral character, upon payment of a fee of five dollars, which shall not be returned to him, shall upon application be examined by the Board of Registration in Dentistry, and if found competent, be licensed by said Board to perform as a dental nurse the services specified in section two hereof.

"SECTION 2. A registered dental nurse shall be licensed to perform only such duties as shall be specified in his license and solely under the direction and in the office of a registered dentist. Nurses may be employed by schools and institutions; and directions for all their work shall be given by a registered dentist. The dental nurse shall be licensed to perform the service of cleansing of teeth.

"SECTION 3. Each licensed dental nurse must notify the Board of the name and address of the dentist or institution by whom he is employed.

"SECTION 4. (Provides for annulling the registration of any nurse found guilty of crime or of violating any provision of the act.)

"SECTION 5. The Board shall have power to register in like manner, without examination, any person who has been registered as a dental nurse in another state under laws which in the opinion of the Board maintain a standard substantially equivalent to that of this Act.

"SECTION 6. Whoever, not being licensed to practice as a registered dental nurse within this Commonwealth, practices or attempts to practice as a registered dental nurse, shall for each offence be punished by a fine of not more than one hundred dollars. Whoever becomes registered or attempts to become registered as a dental nurse, or whoever practices or attempts to practice as such under a false or assumed name, shall for each offence be punished by a fine of not more than one hundred dollars, or by imprisonment for three months, or by both such fine and imprisonment. Any dentist who employs a non-registered person to do work specified in Section 2 hereof shall be fined one hundred dollars for each offence. Any registered dental nurse who violates the dental law by performing operations not allowed by the provisions of Section 2 of this Act shall be fined one hundred dollars for each offence, and the dentist, in whose employ and with whose knowledge and consent the nurse so violates the law, shall also be fined one hundred dollars for each offense."

This measure, as it stands, is approved by the Massachusetts Dental Society. The arguments in its favor have been summed up as follows by Dr. Payne, its proponent:—

"The dental nurse bill, or House bill 1156, approved by the joint committee of the Dental Societies, is intended to amend the present dental law, thereby allowing a trained assistant to cleanse the teeth of the people of this commonwealth, if they so desire."

"It provides for the examination of persons, properly qualified, by the State Board of Registration in Dentistry, who, if found competent, shall be licensed to perform only the services of cleansing the teeth in the office of, or in schools and institutions under the direction of, a registered dentist, with a severe penalty for the violation of the terms of the license.

"Connecticut has a dental law which allows dental nurses or assistants to cleanse teeth, and the result of their work has, during a period of six years, prevented 80 per cent. of decay, with a consequent reduction of 40 per cent. in the expense to the patients. I quote from the official report by Dr. A. C. Fones of Bridgeport, Ct. From the report of Connecticut state authorities, this part of the dental law there, governing the dental assistant, has not been violated."

In further discussion of the measure, Dr. Payne is reported to have said in part:—

"A mouth with decayed teeth is the best possible incubator for the germs of all contagious diseases; it containing the four essential requisites, heat, darkness, moisture and pabulum. The first three cannot be removed, but by the frequent and thorough cleansing of the teeth and mouth the fourth can be eliminated, thereby preventing the multiplication of germs causing practically all infectious diseases.

"Boards of health, school authorities and institutions are waiting the advent of the dental

nurse to solve the problem of saving the teeth of the vast army of children, which up to the present time have been sadly neglected.

"Cities and towns will save thousands of dollars, which are now being spent annually for the reëducation of school children, made necessary by inability to be promoted in their classes on account of non-attendance caused by the deplorable condition of their mouths. There is a class of people of moderate means who cannot afford to pay the dentist for the necessary frequent cleansing of teeth, but who will gladly pay and can afford to pay the small fee for the services of the dental nurse. The people who are now receiving the systematic treatment and benefits of oral hygiene are indorsing and demanding the passage of this bill, so that all may receive this necessary service at a minimum expense or in schools and dispensaries free."

On the other hand, the proposed bill has provoked extensive opposition, led by the Massachusetts State Board of Registration in Dentistry. In its recently published twenty-sixth annual report the bill is described as "an attempt to create a new species of dentist to be known as a dental nurse."

" 'Dental nurse' is a misnomer. Cleansing, wedging and examination of the teeth, the treatment of Rigg's disease, and the use of dental instruments, as this proposed legislation would give to dental nurses, is not nursing at all, but practicing dentistry, requiring sometimes the utmost skill of the trained and conscientious dentist. A nurse has no place in the dental office as she has in the sick room or hospital. Attendants, good dentists very properly have, but nurses as such are not needed and are unknown. Obviously, such a law would be simply subjecting the public to the cheap, unskilful workmanship and quackery that formerly disgraced the profession in Massachusetts, the prevention of which was, and still is, the very purpose of our dental law."

Further, the president of the Board of Registration in Dentistry, Dr. John F. Dowsley, issued to the daily press the following statement of the Board's position:—

"The passage of the dental nurse bill is likely to meet with opposition, according to a canvass made among dentists during the past week. Return postal cards issued by prominent Boston dentists who are opposed to the bill, have been mailed all over the state, and the number of cards returned leaves no doubt but that the opposition is very general. There are over three thousand registered dentists in the state. Of these, according to Polk's Dental Directory, about 2200 are engaged in active practice. The others have retired, left the state, or are occupied with other lines of work. Close to 1400 have signed the opposition to the bill, and many more have signified their intention of doing so before the date of the hearing. The bill is not a new one. It has been before the Legislature three times and was opposed by the State Board.

"The broad license given the so-called nurse by adherents of the bill is denounced by those of the opposition as a positive menace to the safety of the public.

"The duties referred to could, at the will of employer or 'nurse,' cover all the administrations of the registered dentist, with the exception of the purely mechanical operation, such as the filling of teeth, making plates, setting crowns, bridges, etc. The 'nurse' would have free access to all instruments in the dentist's office, and might treat the most painful and serious diseases of the teeth and adjacent parts. In the opinion of the Board, none but those trained and educated to the present standard of the Massachusetts requirements should be permitted to use in the human mouth the dental engine, an instrument frequently used to clean the teeth, and one which would accordingly be at the command of the dental nurse."

A reply to these objections has been made by Dr. R. Ottolengui, of New York, in a recent address:—

"The introduction of this measure is not 'an attempt to create a new kind of dentist.' If so, the purposes of those that have introduced this measure would be beneath contempt. A dental nurse, properly described, properly educated, and properly legalized, would no more be a 'kind of dentist' than is the 'medical nurse' a 'kind of doctor.' She is not even granted the privileges of 'assisting a registered dentist during the performance of his dental operations,' work, by the way, which is done by thousands of unregistered girls in dental offices all over the country. The duties of the nurse are described in the single sentence (Section 2 of the Act), 'The dental nurse shall be licensed to perform the service of cleansing teeth.'

"If every dentist in the city of Boston should give his office and his time entirely to the treatment of the public school children in Boston for one year, at the end of that time this tremendous force of skilled practitioners would not have finished even filling the cavities, and if they had succeeded in cleansing each child's teeth once in that year it would have been a marvelous accomplishment.

"The unclean mouth is the breeding place, if not the birthplace, of half the ills from which the body suffers. But in dental clinics, and in the private office, the demand for repair work is so great that there is not time for prophylaxis. One child with toothache will always demand more prompt attention than 100 children with unclean mouths. Yet, from the community standpoint, that toothache is a minor evil. The dental profession, as a profession, never did this cleansing work, is not doing it, never will do it.

In those offices where it is done, it is done by trained dental nurses.

"The objects of those who advocate this bill are first, to extend to the community a service at present offered by less than one-half of one per cent. of the dental profession; second, to safeguard the public by regulating the qualifications that shall entitle the dental nurse to do her work; third, by legalizing and regulating these qualifications to inspire the foundation of proper training schools for dental nurses, thus removing the training from the hands of innumerable individual dentists and thus increasing her efficiency."

Obviously, the question is one upon both sides of which much may be said and has been said. The situation is to a certain extent complicated by the simultaneous presence before the Legislature of the Patten bill, a measure supported by the legislative committee of the Massachusetts Dental Society and providing for the appointment of a board of dental examiners. It requires "that persons shall have a degree from a regularly chartered dental college in order to be eligible for registration as a dentist in this state, and that all dentists shall be annually registered. Further, that the governor shall appoint members of the Board of Dental Examiners from a list of twenty names submitted annually to the governor by the Massachusetts Dental Society, and that practicing dentists properly registered in other States shall be allowed to register in this state without examination."

This bill is also favored by Dr. Eugene H. Smith, dean of the Harvard Dental School. It is opposed by the Commonwealth Dental Association, and others, on the ground "that the Patten bill will wipe off the statute books practically the entire law relating to dentistry. The most pernicious feature of the bill is the section that takes away from the governor the right to appoint the members of the examining board and vests this power in the Massachusetts Dental Society."

It may be surmised that the Patten bill is in part responsible for the opposition of the Board of Registration in Dentistry to the dental nurse bill. It is unfortunate that the issue is thus complicated, for like all issues, it ought to be settled on its own merits. Whatever the legislative conclusion now reached, it is evident that the question is one of complexity and importance, and as such it deserves earnest consideration and discussion in order that it may be settled for the best interests, not of any class or group, but of the entire community.

THE MAINTENANCE OF ISOLATION HOSPITALS.

In the recently published monthly bulletin of the Massachusetts State Board of Health for December, 1912, is a summary, by Dr. William C. Hanson, of the provisions made in cities and towns in this state for "the maintenance of isolation hospitals for the reception of persons ill with diseases dangerous to the public health." A law requiring the maintenance of such hospitals was passed by the General Court early in 1912, and was approved by the Governor on Feb. 24 of that year. This law provides that:—

"Each city shall, and each town may, and upon the request of the State Board of Health, shall, establish and maintain constantly within its limits one or more hospitals for the reception of persons having smallpox, diphtheria, scarlet fever, tuberculosis or other diseases dangerous to the public health as defined by the State Board of Health, unless there already exists in the city or town a hospital for the reception of persons ill with such diseases, which is satisfactory to the State Board of Health, or unless some arrangement which is satisfactory to the State Board of Health is made between neighboring cities or neighboring towns, or neighboring cities and towns, for the care of persons having such diseases. All such hospitals established and maintained by cities or towns shall be subject to the orders and regulations of the Boards of Health of the cities or towns in which they are respectively situated. Plans for the construction of the said hospitals shall be approved by the State Board of Health before the hospitals are constructed, and the State Inspectors of Health shall annually make such examination of said hospitals as in the opinion of the State Board of Health may be necessary. A city or town which, upon the request of the State Board of Health, refuses or neglects to establish and maintain such a hospital shall forfeit not more than five hundred dollars for each refusal or neglect; *provided, however,* that if, in the opinion of the Boards of Health of two or more adjoining cities or towns or a city and an adjoining town or towns, such hospitals can advantageously be established and maintained in common, the authorities of the said cities or towns may, subject to the approval of the State Board of Health, enter into such agreements as shall be deemed necessary for the establishment and maintenance of the same."

During the year which has elapsed since the passage of this act, considerable progress has been made towards the fulfilment of its requirements. Of the 33 cities in this Commonwealth, 9 now maintain adequate independent hospitals of the type in question, and in 7 there are hos-

pitals of this kind under construction. Of the towns only two maintain independent isolation hospitals, though the majority, and the remaining 17 cities, have provision of some sort, or make arrangement for the care of such cases in some neighboring municipality. The condition is in the main creditable, since most communities have evinced a disposition to comply with the requirements of the Act. It is to be noted that the law specifies only smallpox, diphtheria, scarlet fever, and tuberculosis, though the list of notifiable diseases, declared by the State Board to be dangerous to the public health, now includes actinomycosis, anthrax, Asiatic cholera, cerebrospinal meningitis, diphtheria, glanders, leprosy, measles, ophthalmia, neonatorum, pertussis, poliomyelitis, scarlet fever, smallpox, tetanus, trachoma, trichinosis, tuberculosis, typhoid fever, typhus fever, varicella, and yellow fever. As a matter of fact, if the notification of these diseases be prompt and universal, home isolation is in many cases adequate. In larger communities, however, hospital accommodation is essential, and within another year this provision will probably be general.

EFFECT OF CITY LIFE ON PHYSICAL DEVELOPMENT.

There have been many discussions relative to the supposed evil effect of city life upon physical development and vigor. *A priori,* the case has always been against the city, on account of the presumably more favorable hygienic conditions prevailing in rural districts. As a matter of fact, however, the case does not appear quite proved; and there are reasons for believing that life in a city is not necessarily destructive to physical health or even inconsistent with its highest development and propagation. In his "Government of American Cities," Professor William Bennett Munro, of Harvard, considers this question from the pertinent standpoint of fitness for military service:—

"A good deal used to be said and written about the debilitating effect of urban life upon individual physique. Nothing seemed easier to establish than *a priori* conclusions as to the superior physical development of the rural population. It was, indeed, so far taken for granted that the rural militiaman was physically superior to the townsman, that one of the stock arguments for the encouragement of English agriculture by corn laws and other protective legislation, was the necessity of preserving that yeomanry of England which was alleged to furnish the military sinew of the kingdom. There are, of course, a great many reasons why the per capita physical attainment of the country ought, if it could be measured, to be greater than that of the town. The minute division of labor in urban industries, which even in Adam Smith's day, required a man to spend his lifetime in making the 19th part of a pin, nowadays gives him an even more specialized task in production. Most urban .occupations develop only a very small part of the worker's physical powers, whereas the rural employments encourage bodily versatility and all-round physical development.

"When one attempts to adduce accurate statistical evidence of this rural prowess in point of physical development, however, one does not find the expected proofs so readily forthcoming. Statistical data to prove or to disprove the claim are not to be had in America. We must go to those countries of Continental Europe, such as France, Germany and Italy, where universal military service is compulsory, and where, in consequence, practically the whole adult male population is subjected, section by section, to physical examinations of exactly the same scope and nature. Now, the evidence that comes from all these countries—and it is based upon the measurements of many millions of men drawn from all sections during the last quarter century—gives no conclusive support to the notion that city life is physically debilitating. On the contrary, the percentage of those who are rejected each year for failure to meet the minimum requirements in height, weight, chest measurement, and so forth, is in many cases higher among recruits from the rural areas than among those drafted from the population of the large cities. It may be, of course, that many of those who enter the army from cities were born in the country, but that factor alone would scarcely account for the urban superiority which the army statistics often show. It ought to be added, also, that this evidence which disputes popular notions concerning the superiority of rural life as a developer of physical strength and stamina receives corroboration in the expressed opinions of nearly every one who has given the matter careful observation. Military leaders have frequently, in the great wars of the 19th century, commented upon the superior powers of physical endurance displayed by urban regiments. If the urbanization of a people means physical degeneracy, the evidence now obtainable gives no conclusive proof of it. Health, strength and vigor evidently depend less on place of residence and occupation than upon cleanliness, variety of diet and prompt attention to minor bodily ills."

After all, it should be remembered that the city, though man-made, must be regarded as filling a place in the scheme of evolution, and as

affording advantages of environment without which man's progress to his present estate would have been impossible. Nor is the city properly a mere mill for remorselessly grinding the grist of humanity with which it is supplied from the country. It is nature's laboratory of finest experiment in the problems of coördinated human living.

DR. FRIEDMANN AND THE TREATMENT OF TUBERCULOSIS.

In the issue of the *Berliner klinische Wochenschrift* for November 18, 1912 (Vol. xlix, p. 2214), was published an article by Dr. Franz Friedrich Friedmann, of Berlin, giving a preliminary report of his experience in the treatment of tuberculosis by intravenous and intramuscular injection of a preparation of living tubercle bacilli. Before his communication had received the judgment of the scientific world, its data were seized by the daily press and exploited in more or less garbled and sensational form. This action, as in the case of Koch's tuberculin, is much to be regretted, both for Dr. Friedmann's sake, for the sake of his discovery (whatever its merits may prove to be) and for the sake of persons in whose minds perhaps unwarrantable hopes of cure may have been aroused.

Among such persons in this country is Mr. Charles E. Finlay, a wealthy New York banker, who, on Jan. 24 announced that he would pay $1,000,000 to Dr. Friedmann, if the latter would demonstrate in America his ability to cure 95 out of 100 patients with tuberculosis, selected so as to represent various stages of the disease. On January 26 an acceptance of this offer is said to have been received by cable from Dr. Friedmann. On February 18 Dr. Friedmann sailed from Hamburg, and landed at New York on February 25. He was met by Dr. Milton H. Foster, of the United States Public Health Service, and is said to have agreed to demonstrate his method of treatment before representatives of that service. On Feb. 27, Dr. Friedmann had a further conference with Dr. John F. Anderson, director of the Hygiene Laboratory at Washington, D. C.

The above facts are all that can be stated of the matter at present. The actual merits of Dr. Friedmann's alleged discovery are as yet unknown to the medical profession. Apparently his bacterin is a preparation of living, nonvirulent tubercle bacilli from turtles, but the method of its obtainment is uncertain, and the results of its use are not yet positively demonstrated. Naturally the way in which the affair has been brought to public knowledge has aroused skepticism in the minds of physicians. It must be remembered, however, that Dr. Friedmann may be the victim of unfortunate newspaper notoriety and publicity. His own claims for the treatment are much more modest than those alleged in the daily press. To his credit also it should be said that he is reported to have denied his intention to accept any pecuniary reward in the event of successful demonstration of his method. There is no intrinsic reason why his discovery might not rank with those of von Behring or of Ehrlich. At all events, he deserves, and will receive, a fair, impartial trial, and opportunity to show his results, without popular or professional prejudice in either direction.

AMERICAN ASSOCIATION OF MEDICAL EDUCATION.

The ninth annual conference of the American Association of Medical Education, Health, and Public Instruction, held in Chicago on February 24 to 26, was attended by 300 delegates from the various universities, medical schools, and state boards of registration. On February 24 there was an address by Dr. Abraham Flexner, of New York, on "The European Side of Medical Education"; and on February 25 by Dr. S. Weir Mitchell, of Philadelphia, on "The Profession of Medicine in the War of the Rebellion." At the closing session, on February 26, a resolution was adopted recommending that the entrance requirement for all schools in the Association of American Medical Colleges shall include at least a year of previous college work in physics, chemistry, animal biology, and a modern language. A further resolution was adopted establishing a five-year instead of a four-year course as the standard for medical schools, the last year to be spent in hospital work. The passage of these recommendations seems an important step in the progress of medical education in this country, and is likely to be followed by corresponding changes in the requirements and curriculum of many schools.

MEDICAL NOTES.

An Honor for Dr. Carrel.—Report from Paris states that Dr. Alexis Carrel, of the Rockefeller Institute for Medical Research, New York, has recently been decorated with the cross of the French Legion of Honor.

Operation on the Queen of Roumania.—Report from Bucharest states that a preliminary operation for cataract was performed there last week on Carmen Sylva, the Queen of Roumania, by Dr. Landolt, of Strassburg.

A British Clerical Centenarian.—The Reverend P. Carlyon, of Falmouth, Cornwall, England, recently celebrated the supposed 102d anniversary of his birth. In view of his profession as a clergyman, it would seem that the statement of his age must be accepted as veracious.

An Indian Centenarian.—Alexander Daylight, a Colville Indian chief, who died last week at Kettle Falls, Wash., was alleged to be 114 years of age.

Balkan Red Cross Relief Fund.—Report from Washington, D. C., states that on Feb. 20 the American Red Cross cabled to the Greek Red Cross, for Balkan relief work, a sum of $1400 which was raised by the Greek Red Cross committee of New York. The total fund thus far subscribed for this purpose in Massachusetts now amounts to $9,417.08.

The Sanitation of Ecuador.—Report from Washington, D. C., states that on Feb. 18 the House of Representatives passed a resolution authorizing Dr. William C. Gorgas, with two other United States Army medical officers and three engineers temporarily to accept service under the government of Ecuador for the purpose of supervising projected improvements in the sanitation of Guayaquil and other ports in that country.

Inspection of Tropical Fruit Trade.—It is reported from Washington, D. C., that the surgeon-general of the United States Public Health Service has detailed Dr. J. H. White, of New Orleans, La., to make a tour of various Central American, West Indian, and Caribbean ports, to inspect the conditions of their fruit trade to this country, with special reference to the risk of importing tropic diseases.

Surgical and Gynecological Society of Knoxville.—The Surgical and Gynecological Society of Knoxville held its first public meeting in the Lyceum Auditorium, Thursday evening, Feb. 6, 1913. The essayist for the evening was the president, Dr. Benjamin C. Cates, who gave a treatise upon the subject of "The Present Status of Cancer." General discussion followed.

This Society was organized in Knoxville, Jan. 2, 1913, for the purpose of the advancement of medical and surgical sciences relating to surgery in all its branches and to gynecology, to promotion of friendly intercourse among its members and the stimulation of original investigation and discussion of subjects pertaining to these special branches. It was decided that each incoming president shall deliver to the Society an annual address upon a subject of his own selection.

The officers of the ensuing year are:

Dr. Benjamin B. Cates, President.
Dr. H. J. Kelso, First Vice-President.
Dr. Albert G. Kern, Second Vice-President.
Dr. Herbert Acuff, Secretary-Treasurer.

The Society meets on the first Thursday night of each month, and visiting surgeons and gynecologists are cordially invited to attend.

BOSTON AND NEW ENGLAND.

Fire at the Boston City Hospital.—On Tuesday of last week, Feb. 18, a fire was discovered in the coal-pockets at the power plant of the Boston City Hospital, at the water-front on Albany Street. The hoisting tower and part of the coal were destroyed, the total loss being estimated at $20,000.

Opposition to the Ellis Milk Bill.—Opposition to the Ellis milk bill continues vigorous among the milk producers. In Boston a new organization, the New England Milk Producers' Association, was formed last week, to maintain the contest against the measure. In Danvers, Mass., at a meeting of the State Grange, attended by about 300 farmers, a committee of four was appointed to draw up resolutions favoring the producers' bill, described in the issue of the Journal for Feb. 20.

A USEFUL MEASURE IN PREVENTIVE MEDICINE.—It is stated that in New Haven, Conn., a regulation of the local Board of Health requires every ambulatory patient with pertussis to wear a tag announcing the nature of the malady. This provision might to advantage be adopted also in tuberculosis.

DISPENSARY AFTER-CARE OF CHILDREN.—The recently published second issue of the Boston Dispensary *Quarterly* calls particular attention to the work of this institution in the after-care of the patients in its children's department. It is not enough merely to treat the child during the acute phase of his disease; he must be followed to his home, his subsequent life supervised, and faulty home conditions remedied by education and judicious charity. This end is being attempted by the Dispensary through a staff of district nurses and social workers, and it is believed that during the first year of its effort, valuable results have already been attained.

CONSTITUTIONALITY OF MEAT INSPECTION LAW.—By a decision of the Supreme Court last week the law, requiring the inspection and stamping of all meat from animals killed on farms outside Massachusetts and brought into the state for sale, was upheld as constitutional. This judgment was rendered upon the protest of a delinquent who appealed from a fine imposed under the operation of this law.

REPORT OF THE BUTLER HOSPITAL.—The recently published sixty-ninth annual report of the Butler Hospital at Providence, R. I., records the work of this institution for the calendar year 1912. During this period a total of 248 patients was treated. The most important event of the year was the completion and opening of the William H. Potter Home for nurses. Upon the occasion of its dedication, at the graduation exercises of the training school on Nov. 19, Dr. Charles V. Chapin, of Providence, delivered an address on "The Development of Modern Nursing," which is reprinted in this report. The total number of nurses graduated from the school in 1912 was ten women and nine men.

MEASLES AT LAWRENCE.—Report from Lawrence, Mass., on Feb. 21, states that measles is at present epidemic in that city, where there have been nearly 400 cases of the disease since Jan. 1. Three of the local public schools have been ordered closed.

NEW YORK.

MORTALITY IN JANUARY.—The weekly reports of the Health Department show that in the month of January the mortality in the city represented an annual death-rate of 14.46, as against 14.21 in December and 15.60 in January, 1912. Among the diseases in which there was an augumented fatality were the following: The weekly average of deaths from measles increased from 6 in December to 9.5 in January; the weekly average from scarlet fever from 7.5 to 14.75; from whooping-cough, from 4 to 5; from diphtheria and croup, from 25.5 to 27.75; from influenza, from 8 to 15.75; from epidemic cerebrospinal meningitis, from 2 to 5.25; from pulmonary tuberculosis, from 160.25 to 170.75; from acute bronchitis, from 13.75 to 15.75; from pneumonia, from 138.25 to 167; from bronchopneumonia, from 94.5 to 107; from diarrheal diseases under 5 years, from 27.75 to 31.75; from tuberculous meningitis, from 8.25 to 11; from appendicitis and typhilitis, from 10.5 to 12; from hernia and intestinal obstruction, from 9.75 to 16.75; from cirrhosis of the liver, from 20.5 to 23; from Bright's disease and acute nephritis, from 124.5 to 125.5; and from puerperal diseases, from 12 to 13.25. Among the diseases in which there was a diminished mortality were the following: The weekly average of deaths from typhoid fever declined from 7.25 to 3; from cancer, from 85.75 to 79.5; from apoplexy and softening of the brain, from 24 to 18.5; and from organic heart diseases, from 194.25 to 190.

RELATIVE BIRTH-RATES.—Basing the percentage upon each 1,000 births reported, the rate in New York City in the year 1912 was 105, while according to the figures published for England and Wales, which include both urban and suburban areas, the rate in 1911 was 130 per 1,000 births. In Germany in 1910 the rate was 162 and in Berlin, 167.

DEFECTIVE CHILDREN.—In 1912 288,469 children in New York were examined under the system of medical inspection and examination of pupils in the public schools maintained by the Health Department, and of this number, 87,361

were found to be suffering from one or more physical defects interfering with their general health. As a result of the efforts of the school nurses, 57,062 of these received treatment, either by the family physician or at public institutions. During the year the department established six children's medical clinics in parts of the city where proper facilities for clinical treatment have been lacking. These clinics are designed exclusively for school children whose parents are wholly unable to pay for medical treatment, and they are already crowded to their capacity. In addition to the number mentioned, 119,359 were found to have defective teeth, though otherwise normal. The need of facilities for dental treatment has been acute, but the budget appropriation for 1913, allowing the appointment of ten dentists, has made it possible for the department to make a beginning in establishing dental clinics in connection with the school children's medical clinics. Studies during the past year in connection with the Research Laboratory of the department concerning the specific cause and prevention of trachoma have given such evidence as to make the outlook most encouraging for a speedy solution of this question. It has been demonstrated that (1) practically all cases of so-called trachoma (granular and papillary conjunctivitis) in the public schools have been apparently cured within a year when cases have been seen early; (2) with careful treatment of all cases of acute conjunctivitis in homes, clinics and schools, the cases of papillary and granular conjunctivitis have become markedly less in number; (3) prophylactic and curative treatment of these eye conditions has been greatly helped by providing special classes in schools for these cases, where they may be under direct and continuous control.

Death-Rates in 1912.—The death-rate in 1912 in the State, as in the City of New York, was the lowest ever recorded; being 14.8, as against 15.5 in 1911 and 16.2 in the three years preceding. The mortality from diphtheria was 1,625, the smallest on record. There were 300 fewer deaths from this disease than in 1911, when for the first time they fell below 2,000. The average yearly mortality for the seven years preceding was 2,400, and for the twenty years before that, 4,600, while in some years in early records, about 25 years ago, the deaths from diphtheria numbered more than 6,000. Typhoid fever caused 1,128 deaths, and this also is the smallest number ever recorded. For the last five years the yearly average has been 1,300 and for 23 years before that it was 1,600. The Health Department has published an interesting set of tables showing the reduction in typhoid fever rates resulting from improved water supplies in various cities and towns of the State. The most remarkable result has been in Peekskill, where the rate (per 100,000) in 1903-5 was 22.5. In 1906, the department urged the removal of violations of water rules. In 1908, when as the result of a typhoid epidemic, the rate rose to 202.3, it renewed recommendations and urged water filtration. In 1910, when new filters went into permanent operation, the rate was 26.2, and in 1912 there was not a single death from typhoid. In New York City the rate was 17.4 in 1907, 12.8 in 1908, 12.7 in 1909, 11.6 in 1910, 11.0 in 1911, and 9.7 in 1912. Since 1907 some 267 violations of water rules have been examined into and necessary orders issued by the department to local health boards. Since that year also the city has been very active in the patrol of the watershed, and during the past two years a hypochlorite plant has been in use. In 1912 pulmonary tuberculosis caused 13,702 deaths, or 9.5% of the total deaths in the State. This is about 500 less than in 1911, and is the smallest mortality in 9 years, in all of which the deaths have exceeded 14,000. Pneumonia caused 9,545 deaths, or not far from the average of the past five years. Earlier, the mortality in some years was above 15,000. The lowered childhood mortality is the most remarkable feature in the mortality of the year. The deaths under 1 year were 24,536 and between 1 and 5 years, 10,000; which is less for both periods than in any of the past five years, the average of which were respectively 26,600 and 11,800. The mortality from cancer, which in 1885 caused about 2,000 deaths, has steadily increased year by year, until in 1912 it reached 8,234, an increase of 300 over 1911. Organic diseases of the heart caused 14,962 deaths, and Bright's disease and acute nephritis, 11,886.

Abolition of Village Health Boards Recommended.—The State Health Commission recently appointed by Governor Sulzer, of which Dr. H. M. Biggs of New York is chairman, made a report to the Legislature on February 19 in which it recommended that town and village boards of health throughout the State should be abolished and that the State should be districted under the direction of a State Health Council.

GERMAN HOSPITAL AND DISPENSARY.—The annual meeting of the managers of the German Hospital and Dispensary was held on February 17. During the year 48,228 patients were treated, of whom 6,935 were cared for in the hospital department. The training school for nurses of the institution has now passed the twenty-sixth year of its existence.

The Sanitarium for Hebrew Children at Rockaway Park, Borough of Queens, has received a bequest of $20,000 under the will of the late Mrs. Caroline Neustadter of New York.

HOSPITAL IMPROVEMENTS.—A press item under the date of Feb. 10 summarizes as follows the work now in progress in New York for the improvement of hospital buildings in that city:

"Hospital improvements to the value of more than $21,000,000 are either being carried forward in this city or are planned for the immediate future. They consist of new buildings, reconstructions and betterment of equipment of both public and private hospitals. The most costly and elaborate work is the rebuilding of Bellevue and the increase of the capacity of its allied hospital in Harlem. The present capacity is 1290 beds. The new hospital will accommodate 2,500.

"At Harlem a new wing is being added, which will double the present capacity of 180 beds. The cost is to be about $250,000. The entire cost of all the Bellevue plans is estimated at $10,000,000.

"The directors of the New York Hospital are planning an entirely new building. It is intended to erect a building with the most modern equipment, with an ultimate capacity of 600 beds. The capacity of the present hospital is 260 beds. It is estimated that the new hospital and site will cost between $4,000,000 and $5,000,000.

"Other improvements are under way for the Greenpoint Hospital, Mount Sinai and Flower Hospital, while a new down-town hospital, which is expected to do valuable work, is under construction by the Volunteers of America at Beekman and Water streets."

A CENTENARIAN.—Miss Elizabeth Woodbridge Thompson, who died on Feb. 26 at Saratoga Springs, N. Y., is said to have been born in New London, Conn., in 1811. She retained her faculties and activity until a few days before her death.

INVESTIGATION OF STATE HOSPITALS.—Report from Albany, N. Y., states that on Feb. 25, the Legislature concurred in a resolution calling for an investigation of the Bloomingdale Hospital and the Society of New York Hospital, at White Plains, by a legislative committee, and appropriating $5,000 for the purpose.

Current Literature.

MEDICAL RECORD.

FEBRUARY 15, 1913.

1. THOMPSON, W. G. *Centenarians and Nonagenarians.*
2. STETTEN, D. *The Present Status and Future Scope of Thoracic Surgery.*
3. CASTELLI, E. *Public Protection Against Mental Defectives in Paris—The Working of the Special Infirmary Connected with the Police Department.*
4. MORGAN, J. D. *Hodgkin's Disease.*
5. *MEAD, F. H. *Scarlet Fever: Is the Desquamatory Stage Contagious?*
6. LEWINSKI-CORWIN, E. H. *The Associated Out-Patients' Clinic of the City of New York.—A Social Force.*
7. WARBRICK, J. C. *Indicanuria and the Phosphates.*

5. Mead questions the contagiousness of the desquamatory stage of scarlet fever, and cites some experiences of his and some opinions of others to support his contention. Statistics show, he says, that only in a very small percentage of cases do secondary cases arise from exposure to desquamation, and only a comparatively infinitesimal number of cases thus exposed catch the disease. Where the very few cases have developed from desquamation it is probable that the desquamation was infected from discharges from the nose, throat or ears. The old fashioned quarantine for scarlet fever should go, and with no nasal, aural or buccal complications and no kidney involvement, the time of quarantine for an ordinary case will be cut down to twenty-eight or thirty days.

[L. D. C.]

NEW YORK MEDICAL JOURNAL.

FEBRUARY 15, 1913.

1. HENRY, F. P. *Asellius and the Discovery of the Lymphatic Circulation.*
2. ACHARD, H. J. *Friedmann's New Tuberculosis Remedy.*
3. PEDERSEN, V. C. *Acute Gonococcal Urethritis in the Male.*
4. WILLIAMS, T. A. *Multiple Professional Cramps in a Psychasthenic.*
5. SEVER, J. W. *The Relation of Scoliosis to School Seating.*
6. WALKER, J. T. A. *The Routine Disinfection of Schools.*
7. HERVEY, C. R. *Ether, Hot or Cold?*
8. HAYS, H. *Relation of Eustachian Tube to Chronic Catarrhal Otitis Media.*
9. SLATAFER, F. J. *Epidemic Meningitis.*
10. JENNINGS, W. B. *The Worsted Truss.*
11. FREIMAN, M. *Carcinoma of the Lung.*
12. RUSSELL, F. F. *The Prevention of Typhoid Fever.*

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

FEBRUARY 15, 1913.

1. STONE, W. J. *The Use and Abuse of Bacterial Therapy.*

2. Montgomery, C. M. *Pleural Effusion Due to Artificial Pneumothorax.*
3. Billings, F. *Benzol in the Treatment of Leukemia.*
4. Eggleston, C., and Hatcher, R. A. *The Emetic Action of the Digitalis Bodies.*
5. Rhein, M. L. *Mouth Infections: Their Etiology and a Consideration of What Effect They May Have on the Vital Organs and Their Tissues.*
6. Ryfkogel, H. A. L. *Operation for Epithelioma of the Lower Lip.*
7. Clark, W. I. *Medical Supervision of Factory Employees.*
8. Bartlett, W. *The Technic of Gastro-Enterostomy.*
9. Mayo, W. J. *Grafting and Traumatic Dissemination of Carcinoma in the Course of Operations for Malignant Disease.*
10. Bornstein, M. *Temporary Embolism of the Mesenteric Artery.*
11. Parker, C. A. *An Unusual Type of Hydrocele.*
12. Mark, E. G. *A New Suprapubic Drainage Apparatus.*
13. Schulman, M. *Syphilis of Sternum.*

February 22, 1913.

1. *Craig, C. F. *The Interpretation of the Results of the Wassermann Test.*
2. Barach, J. H. *Vaccination and Local Anaphylaxis.*
3. *Crotti, A. *Thymus Tracheostenosis and Thymus Death with Report of Cases.*
4. Brennemann, J. *An Experimental Study of Milk Coagulation in the Stomach, Together with Clinical Observations on the Use of Raw and Boiled Milk.*
5. *Chipman, E. W. *The Etiology and Treatment of Acne.*
6. *Jutte, M. E. *Transduodenal Lavage. Treatment and Report of Some Cases of Chronic Diseases.*
7. McLean, F. C. *Death Following the Administration of Phylacogen (Schafer).*
8. Harrison, W. H. *Trachoma: Its Prophylaxis and Therapy.*
9. Morgan, W. E. *The Serpent's Tooth in Formaldehyde.*

1. Craig's interpretation of the results of the Wassermann reaction are based on 10,000 tests made in the Army Laboratory in Washington, on 5,216 individuals. He found 89.4% of those examined positive in primary syphilis, 95.6% in secondary syphilis, 86.8% in tertiary syphilis, 65.4% in the latent stage, 89.2% in congenital syphilis and 68.1% in parasyphilitic conditions. The article is not easily reviewed in a brief way, but is of great interest and value.

3. Crotti's article on thymic tracheostenosis is very thorough and is well illustrated by excellent drawings.

5. Chipman believes that bacteria do not figure in the production of acne unless the sebaceous ducts are occluded. Bacterial vaccine treatment is not necessary when we are able to provide for the drainage of the ducts, which is the logical treatment of this condition.

6. Jutte is a strong advocate of transduodenal lavage for the treatment of various disturbances of the digestion, especially involving the liver secretions. The technic is not difficult or objectionable to the patient. [E. H. R.]

The American Journal of the Medical Sciences.

January, 1913.

1. *Von Noorden, C. *The Theory and Treatment of Diabetes.*
2. *Stengel, A. *Extracardiac Causes of Failure of Compensation in Valvular Diseases of the Heart.*
3. *Crile, G. W. *The Kinetic Theory of Graves' Disease.*
4. *Barker, L. S. *The Commoner Forms of Renal Disease, with Special Reference to the Knowledge of Them Most Useful to the General Practitioner.*
5. *McKenzie, R. T. *The Influence of Exercise on the Heart.*
6. Dunn, A. R., and Summers, J. E. *Observations on a Case of Mediastino-Pericarditis Treated by Cardiolysis (Brauer).*
7. *Craig, C. F. *The Relation of Parasitic Amoebae to Disease.*
8. Primrose, A. *Breast Tumors, with Special Reference to Carcinoma.*
9. *Frazier, C. H. *The Relief of Gastric Crises in Tabes Dorsalis by Rhizotomy.*
10. Baldwin, H. *A Case of Alkaptonuria.*

1. Von Noorden's article on diabetes is one that deserves to be widely read. It is a clear and concise summary of the newer teaching as to the disease, which puts the matter in an entirely new light to all who have not followed the recent literature. Diabetes is essentially a condition in which the liver is over ready to discharge dextrose into the blood in excess of the capacity of the tissues to utilize it. The production and discharge of dextrose from the glycogen stored in the liver is normally controlled and regulated by two factors, the inhibiting influence of an internal secretion of the pancreas, and a stimulating effect of the chromaffin system of the adrenals. These factors are in turn regulated by other influences. The action of the chromaffin system in stimulating discharge of sugar from the liver may be increased by nervous influences as by stimulation of Claude Bernard's centre in the medulla. The action of the pancreas inhibiting discharge of sugar from the liver may be lessened either by disease of the pancreas itself or by overactivity of the thyroid gland or of the hypophysis; it may be increased by the action of the parathyroid bodies. Diabetes may theoretically be the result of any disorder which stimulates the discharge or lessens the inhibition to discharge of sugar from the liver through abnormal action of *any of these* influences. Practically the most important causes are disease of the pancreas and disorders of the organs which influence the function of the pancreas. But whatever the ultimate cause, there is in all cases of diabetes an abnormal irritability of the sugar-forming apparatus of the liver, varying in degree according to the severity and stage of the disease. Recognizing this fact, the rational treatment of the disease lies in the attempt to calm this excessive irritability by rest of function, provided, if possible, before the condition has been long established or before it has attained a high degree. Muscular work and mental excitement are to be remembered as stimuli to sugar production, but of chief importance is the influence of food. Carbohydrates are to be so limited as to lie within the tolerance of the individual patient, as shown by absence of glycosuria. But carbohydrates are not alone to be considered. The proteins, while probably not to any large extent a source of sugar production, are believed to act as excitants to the liver cells, which in certain cases serve to stimulate the abnormal production of sugar. Limitation of the protein intake is, therefore, indicated in some instances. Fat, on the other hand, does not excite the sugar forming apparatus, and alcohol also serves as a food without this undesirable effect. Of carbohydrates it is apparent that for reasons still unknown, some forms stimulate the discharge of sugar less than others; oatmeal seems to contain some substance which renders it more suitable for use by diabetics than the usual forms of carbohydrate. Noteworthy is the author's protest against the common practice of allowing increased amounts of carbohydrate to combat acidosis; he holds that the attention commonly paid to acetone formation in moderate degrees is excessive. Acetone formation is best com-

batted by sparing the sugar-forming mechanism by diminution of carbohydrate and of protein.

2. Stengel maintains that in consideration of heart disease and its effects, too much attention is directed to the heart itself, and too little to the circulation as a whole. The pumping power of the heart is not the only factor in determining the efficiency of the circulation. The flow of blood is influenced also by the anatomical and vasomotor conditions of the arteries and arterioles; the return flow through the veins is aided by the action of the skeletal muscles and of the diaphragm; moreover, there is evidence that the amount and the viscosity of the blood, while difficult to determine, may be of great importance. The article is suggestive rather than didactic, but the conclusion that the extracardiac factors of the circulation deserve more attention than they are commonly given is undoubtedly justified.

3. Crile expounds the view that Graves' disease is not a disorder primarily of the thyroid gland, but rather one in which the thyroid gland is secondarily influenced in an abnormal manner by bodily states allied to those to which the psychologist traces the emotions. This seems to lie chiefly in the motor mechanism abnormally stimulated from the brain and reacting upon the thyroid. In accordance with this theory, the avoidance of fear and of excitement in the patient in connection with operations on the thyroid is of the greatest importance.

4. Barker's article is an able didactic description of the clinical types of nephritis, but without new teachings.

5. McKenzie reports the finding of heart murmurs in 74 out of 266 apparently healthy students examined after exercise. He attaches no clinical importance to these. Certain recent reports are further summarized, showing that severe athletic competition does not lead to circulatory disorders, even in later life.

7. Craig reviews literature and reports original evidence that the amoebae that have been cultivated outside of the body bear no relation to human disease. He further holds that the *Entamoeba coli* is harmless in the human intestine, whereas the *E. histolytica* and *E. tetragena* are most frequently concerned in the etiology of amoebic dysentery.

9. Frazier's article is an enthusiastic report upon the value of resection of posterior nerve roots for the relief of tabetic crises. [F. W. P.]

THE ARCHIVES OF INTERNAL MEDICINE.

JANUARY, 1913.

1. DARLING, S. T. *Observations on the Cysts of Entamoeba Tetragena.*
2. *LONGCOPE, W. T. *Syphilitic Aortitis: Its Diagnosis and Treatment.*
3. *HOOVER, C. F.. *The Minute Volume and Alveolar Air in Pulmonary Emphysema.*
4. CROWDER, T. R. *A Further Study of the Ventilation of Sleeping Cars.*
5. COCA, A. F., AND L'ESPERANCE, E. S. *A Modification of the Technic of the Wassermann Reaction.*
6. *KAHN, M. *Study of the Chemistry of Renal Calculi.*
7. *DUKE, W. W. *Causes of Variation in the Platelet Count. Experimental Results Showing the Effect of Diphtheria Toxin, Benzol and Tuberculin on the Platelet Count in Rabbits.*

2. Longcope writes an elaborate and very valuable paper on the diagnosis of syphilitic aortitis and its treatment with salvarsan. Twenty cases are tabulated in detail. The salvarsan was given intravenously in practically all the cases. His conclusions are as follows: Syphilis produces a characteristic lesion of the aorta, which is responsible for most aneurysms, about 75% of the cases of aortic insufficiency in adults, many cases of dilatation of the aorta, and a certain group of cases of angina pectoris. The infection of the aorta probably occurs during the secondary stage, and, though symptoms and signs may develop within a few months, the process usually remains latent or unrecognized for fifteen years or more. Syphilitic aortitis is thus probably a common cause for a positive Wassermann reaction in so-called latent syphilis. The early symptoms and signs of syphilitic aortitis are: Precordial pain, slight dyspnea with attacks of paroxysmal dyspnea and angina pectoris, cardiac hypertrophy, dilatation of the aorta, increased pulsation of the vessels of the neck. The precordial pain, paroxysmal dyspnea and angina pectoris are temporarily or permanently relieved by repeated injections of salvarsan, although in certain instances these symptoms may be aggravated for the first forty-eight hours after injection.

3. Hoover discusses pulmonary emphysema and the results of clinical experiments made by him on patients suffering with this condition. He finds that in emphysema the patient suffers from an impaired alveolar ventilation of the lung and not from an impairment of the lung as an organ of external respiration. The alveolar air constitutes a very diminished part of the minute-volume of air, and this diminution is due to an increase of the dead space, which is best explained by bronchiolar atony.

6. Kahn made a chemical analysis of sixteen renal calculi from different patients, and draws the following conclusions from his study: The large majority of renal stones are composed of oxalate of lime; sometimes the calcium salt is the only component of the stone. Uric acid and the urates are found in small quantities in all renal calculi, but it is rare to find a renal stone composed mainly of them. The shape, color and consistency of a stone do not constitute criteria of its chemical composition. Gouty tophi are not always composed of uric acid or the urates, for in three concretions examined a negative murexid test was invariably obtained.

7. Duke studied the effect of diphtheria toxin, benzol and tuberculin on the platelet count in rabbits. He finds that diphtheria toxin in large doses is immediately poisonous to the bone marrow; in sublethal doses first stimulates and then poisons the platelet-forming organs; in very small doses causes a rise in the platelet count. Low platelet counts in diphtheria would, therefore, indicate severe toxemia, especially if early in the disease. [L. D. C].

THE JOURNAL OF EXPERIMENTAL MEDICINE.

FEBRUARY 1, 1913.

1. ZINSSER, H. *On Anaphylatoxins and Endotoxins of the Typhoid Bacillus.*
2. AMOSS, H. L. *Organic Matter in the Expired Breath, with Especial Reference to Its Inhibiting Power on Oxidizing Ferments.*
3. STEWART, G. N., AND ZUCKER, T. F. *A Comparison of the Action of Plasma and Serum on Certain Objects Used in Biological Tests for Epinephrin.*
4. STEWART, G. N., AND ZUCKER, T. F. *The Action of Hydrocele Fluid and Certain Other Pathological Liquids on Some of the Objects Used in Biological Tests for Epinephrin.*
5. INGERBRIGTSEN, R. *Studies of the Degeneration and Regeneration of Axis Cylinders in Vitro.*
6. BUNTING, C. H., AND JONES, A. P. *Intestinal Obstruction in the Rabbit.*
7. MCCRUDDEN, F. H., AND FALES, H. L. *Intestinal Absorption in Infantilism.*
8. MCCRUDDEN, F. H., AND FALES, H. L. *The Cause of the Failure to Develop in Infantilism.*
9. KRAMER, B. *The Rôle of the Lipoids and Particularly Lecithin in Narcosis.*
10. *ROUS, P., AND MURPHY, J. B. *Variations in a Chicken Sarcoma Caused by a Filterable Agent.*

11. *Noguchi, H., and Moore, J. W. *A Demonstration of Treponema Pallidum in the Brain in Cases of General Paralysis.*

10. Rous and Murphy have continued their study of a spindle-cell sarcoma of the fowl. They have previously reported that they were able to transplant this growth by a cell-free filtrate. In this paper they discuss the variations in the resulting growth from the cell-free filtrate. Some of the tumors tended to approach the round cell form, others the giant cell form. They were unable to discover the conditions that determine these variations.

11. Noguchi and Moore demonstrated the treponema pallidum in twelve out of seventy paretic brains examined. These twelve cases were examples of undoubted general paralysis and showed the typical post-mortem findings in the brain. The spirochetes were found in all layers of the cortex, with the exception of the outer or neuroglia layer. Careful search of the pia failed to show any organisms.

[R. I. L.]

Annals of Surgery.

November, 1912.

1. *Shepherd, F. J. *Tetany Following Extirpation of the Thyroid.*
2. *MacEwen, J. A. C. *The Surgical Treatment of Aortic Aneurysm.*
3. Venakle, C. S. *Primary Sarcoma of the Peritoneum.*
4. Delatour, H. B. *Thrombosis of the Mesenteric Vessels.*
5. Sawyer, P. E. *Malignant Tumors of the Mesentery.*
6. *Kerr, H. H. *Volvulus of the Stomach.*
7. Upcott, H. *Tumors of the Ampulla of Vater.*
8. Broasch, W. F. *The Clinical Diagnosis of Congenital Anomaly in the Kidney and Ureter.*
9. Fuller, E. *The Operative Procedure in Cancer of the Prostate.*
10. Elting, A. W. *The Treatment of Fistula in Ano.*
11. Ballenger, E. G., and Elder, O. F. *Salvarsan and Neosalvarsan; Their Intravenous Injection.*
12. Primrose, A. *Ivory Dowel for Preserving the Finger in a Case of Enchondroma of a Phalanx Complicated by Fracture.*
13. Gerster, J. C. A. *The Reduction of the Fragments in Fractures of the Long Bones.*
14. *Monks, G. H. *Tying the Knots of Ligatures and Sutures with One Hand.*
15. Buchanan, J. J. *A Modification of Bartlett's Gastroenterostomy Clamp.*

1. After reviewing the history of the parathyroids, their experimental extirpation, the action of calcium lactate and salts of strontium, magnesium and sodium, and results with parathyroid feeding, Beebe's nucleo-proteid and parathyroid transplantation, Shepherd reports in detail a case of tetany following thyroidectomy. The pathologist found no trace of parathyroid tissue in the removed gland. It must be concluded that the glandules were so injured at operation that they were rendered useless. Premonitory symptoms developed on the third day after operation. On the fifth day tetany was severe. After drachm doses of calcium lactate every three hours, cramps and spasms disappeared in six hours. Whenever the calcium was discontinued the symptoms recurred, despite the continuance of dried parathyroid gland (started on the eleventh day). Six months after operation the calcium was still necessary (20 grains twice a day) for relief of oppression in the head.

2. MacEwen's treatment of aneurysm of the aorta differs from most mechanical measures in that it produces a white, instead of a red, thrombus. This white thrombus is converted into granulation tissue, which at a still later period becomes fibrous tissue. The advantages are two: First, the narrowing of the lumen is slower and less strain is thrown upon the heart, perhaps already weak. Second, the deposition is firm and durable, and much less apt to liberate emboli. The operation consists in the introduction into the aneurysmal sac of a fine, highly polished steel needle. With this the opposite wall is very lightly scratched. A white thrombus is produced and ultimately becomes fibrous tissue.

6. Kerr reports in detail a case of volvulus of the stomach without obvious cause. At operation under cocaine a tense stomach, *not* covered with omentum, was exposed. By means of a large trocar and catheter much gas and 54 ounces of fluid were evacuated. The opening in what was supposed to be the anterior wall of an acutely dilated stomach was sutured with silk and the abdomen closed. Autopsy revealed a markedly dilated stomach completely inverted, with gastro colic omentum torn free from the greater curvature and the transverse colon lying below the stomach. Kerr has found only eight cases of true idiopathic gastric volvulus in the literature, and of these he gives epitomies. Symptomatology and diagnosis are considered.

14. Monks describes a method of tying knots of ligatures and sutures with one hand, devised by him about twenty years ago. Its execution is simple, and with practice may be speedy. The nine illustrations clearly show the several manoeuvres. [T. W. H.]

Obituary.

RIGHT HON. LORD BALTHAZAR WALTER FOSTER, P.C., LL.D., D.C.L., M.D., F.R.C.P., BARON ILKESTON.

Dr. Balthazar Walter Foster, who died in London on Jan. 31, was born at Cambridge, England, on July 17, 1840. He was educated at Drogheda Grammar School, and at Trinity College, Dublin, where he qualified as L.R.C.P. and S. in 1860. He immediately became assistant physician to Queen's College Hospital, Birmingham, and in 1864 was appointed professor of anatomy at Queen's College. In 1868 he became physician to the Birmingham General Hospital, a position which he held until 1890. He took an active part in promoting the amalgamation of Queen's College and Sydenham College, Birmingham, and in 1869 was elected professor of medicine in Birmingham University. He was also a founder of the Birmingham Medical Institute.

After twenty years of active professional life, during which he served as a member of the editorial staff of the *Lancet*, and was the author of numerous medical articles, particularly upon cardiac disease, Dr. Foster entered politics. In 1885 he was elected to Parliament as member for the city of Chester, and immediately became a leader in legislation associated with matters pertaining to the public health. He was knighted in 1886. From 1892 to 1895 Sir Walter Foster was parliamentary secretary to the Local Government Board, where he performed important duty in dealing with the invasions of Asiatic cholera which menaced England during that time. For his services in this position he was awarded in 1897 a gold medal "for distinguished merit," by the British Medi-

cal Association. In 1910 he was raised to the peerage with the title of Baron Ilkeston.

Lord Ilkeston was the second medical peer in Great Britain, his only predecessor being Baron Lister; and his death removes from the House of Lords its only remaining representative of the medical profession. He is succeeded in the barony by his only surviving son.

Miscellany.

REPORT ON TUBERCULOSIS.

THE recently published ninth annual report of the Boston Association for the Relief and Control of Tuberculosis records the activities of that organization for the year ending Oct. 31, 1912. A particularly interesting feature of this report consists of three maps, showing the death-rate from tuberculosis during the periods 1885 to 1890, 1901 to 1903, and 1911.

"In the 1885 to 1890 period the highest rate was 58.7 deaths per 10,000 inhabitants in Ward 13, South Boston, and the lowest rate 9.36, in that section known as Beacon Hill.

In the 1901 to 1903 period the highest rate was 39.39 in Ward 7, that section between the North End and the South Bay, while the lowest rate, in Ward 10, or part of the Back Bay, was 12-13.

The 1911 period finds the highest rate shifted to Charlestown, where Ward 3 shows a rate of 25.86, while the lowest rate, 7.66, is found in the Back Bay, Ward 11.

These maps are shaded and show in a graphic way the gradual but very decided decrease of the high death-rates from consumption all over the city. But a study of the 1911 map indicates the need of continued anti-tuberculosis work in Charlestown and also the South Bay region.

The report also describes the educational work done by the Association through the means of lectures, distribution of literature and exhibits, a total of 384 illustrated lectures having been given to 152,000 persons. Most of these were delivered in 34 of the 48 motion picture theatres, others as a part of the Evening High School course. At these lectures 73,000 pieces of literature were given away. The exhibit has been in constant use during the year and was shown in public libraries, settlements and dispensaries.

An important piece of work described in the report is that concerned with legislation. The Association has kept in close touch with 49 bills relating to the improvement and maintenance of State sanatoria and hospitals, to public health, and to housing measures. Twenty-nine of these bills were approved by the Association and 8 of them became laws. Not one of those disapproved by the Association passed the Legislature.

An investigation of tuberculosis in children was made under the direction of a Special Committee, who recommend:—

That this Association coöperate with the Board of Health and its department of school hygiene, with special reference to the question of tuberculosis. It is this department of the Board of Health that carries out a complete physical examination of all the school children; and if it has the support and encouragement of this Association, more and more satisfactory results will be attained in the most practical manner. That all cases of tuberculosis among school children reported to the Board of Health be made known to its department of school hygiene, and by that department each case be reported to the school physician and master of the school which the individual child attends. That a child reported as having active pulmonary tuberculosis be removed at once from school.

That the Consumptives' Hospital Department assume the care of these children and make suitable provision for them. That the children's wards at Mattapan take care of such as these as need whole-time hospital treatment, separate wards being used for early and advanced cases. That the Boston Consumptives' Hospital Department establish children's day camps in suitable sections of the city for the care of those not needing whole-time hospital treatment, these children's day camps being so located as to avoid the long journeys which have been shown to be harmful to children.

Prendergast Camp, where patients discharged from sanatoria and patients awaiting admission to sanatoria can live in the open air, has cared for 44 persons during the year.

Two pieces of work were undertaken during the year. A Domestic Science Visitor was employed to teach economic housekeeping and the proper purchasing and preparation of food in families where there is tuberculosis. To assist in this piece of work a Housekeeping Centre has been established at 139 Roxbury Street.

The Association has loaned to the Trustees of the Massachusetts Hospital for Consumptives a trained nurse, who is also a social worker, to follow up patients discharged from the State Sanatoria and hospitals in order to find out if full value is being received for the money and effort expended by the State and local communities to benefit these patients. This worker has visited 246 ex-patients and has already shown very decidedly the need of the after-care work."

Correspondence.

THE BACTERIA COUNT BILL.

Brockton, Mass., Feb. 21, 1913.

Mr. Editor: In this week's JOURNAL I note that certain comment entitled, "Relative Merits of the Milk Bills" from the reading of which an altogether erroneous impression of the bacteria count bill, Senate 44, might be obtained. Trusting that your sense of fairness will dictate publication of this letter I will endeavor to let in a little light on the subject.

In the first place the bill is the official bill of the Massachusetts Association of Boards of Health which by vote of association, without a dissenting voice, the Legislative Committee were instructed to introduce at this session of the Legislature. In calling it the "Producers' Bill" it would seem that information concerning it had been secured second-hand as the bill is plainly labelled as petitioned for by the Massachusetts Association of Boards of Health.

Further on reference is made to its being unfortunate that "the culture media specified in this bill is so acid as greatly to retard the growth of bacteria and lower all counts." From just what source this information proceeded would be interesting to learn as the reaction specified is that of the Committee on Standard Methods of Bacterial Milk Analysis of the American Public Health Association, and was determined on only after most exhaustive testing of the various degrees of acidity by the members of the committee.

Dr. F. H. Slack, late Director of the Boston Board of Health Laboratory, and present secretary of the Boston Board of Health, who was chairman of the above committee, today reaffirmed to me his conviction that the acidity named is the proper one to secure the maximum growth of bacteria. Dr. Slack's position as an authority on the technic of bacterial milk examination is so well established as to require no further comment on my part.

May I be allowed, however, to express an opinion that I am informed has taken hold of many hearers of the arguments for proposed milk legislation at the State House these last few years, which is: the less a person knows of the practical side of milk production the more enthusiastic he or she seems regarding the merits of bills setting forth in elaborate detail schemes for supervision of the milk industry.

Senate Bill 44 seeks to provide a state standard for cleanliness in milk. For years we have had upon the statute books a law fixing certain standards of solids and fats for milk intended for sale. This law did not specify that a man must keep so many Jerseys, so many Guernseys, so many Holsteins and so many brindle cows in order to reach this standard; it simply established one and told the producers to reach it.

The production of clean milk is an analogous proposition; anyone who has had sufficient practical experience knows that there are many dairies fixed up in "show" style the product of which does not begin to compare in point of cleanliness with that of many less pretentious dairies. A standard of cleanliness will harm so deserving person for, as Dr. North has repeatedly said, "the proof of the pudding is in the eating."

Also Senate Bill 44 calls for enforcement of its provisions by the State Board of Health who will thus be enabled to proceed against dirty milk whether produced in Massachusetts or brought into the state.

With two quotations, I will close—the first from the resolutions adopted by the New York Milk Committee in 1912: "That the bacteria count of milk indicates its quality and history as it is modified by unusual contamination, improper handling, dirt, improper refrigeration, or age. The high count indicates the necessity of investigation and inspection in order that remedies may be applied."

The second as bearing upon the claims of some who affect to believe that dairy and farm inspections are the panacea. From an article by Prof. M. J. Rosenau, Prof. of Preventive Medicine and Hygiene at Harvard Medical School, published in a bulletin of the Public Health and Marine Hospital Service: "We can scarcely conceive of an inspection so thorough and constant as to prevent milk occasionally becoming contaminated with the germs of typhoid, diphtheria, scarlet fever, dysentery, tuberculosis, etc."

Yours very truly,

George E. Bolling,
Chairman Legislative Committee,
Mass. Asso. of Boards of Health.

WORKMEN'S COMPENSATION.

Lawrence, Mass., Feb. 21, 1913.

Mr. Editor: In the second paragraph of the admirable editorial on "National Insurance and the Workmen's Compensation Act" in the issue of Feb. 20, page 285, is an error in statement regarding the most fundamental point where the act affects the physician.

This sentence reads as follows, "By the terms of this act, injured employees are left free to obtain medical care from whatever source they see fit."

Section 5, Part 2, of the Workmen's Compensation Act is as follows: "During the first two weeks after injury, the association *shall furnish* reasonable medical and hospital services and medicines where they are needed."

The word association evidently refers to the Massachusetts Employees' Insurance Association which was created by the act. All the insurance companies admitted to do industrial accident business are now included in this term. The insurance companies contend that if the injured employee does not go where the insurance company has contracted for him they are not liable for the medical bills. At a hearing of contested medical bills the writer understood the Industrial Accident Board to say they would approve no bills where the employee did not go where he was directed, except in individual exceptional cases.

The insurance companies have brought several such bills before the board upon the ground that the employee had not gone to the hospital. Some of these have been approved as being under exceptional circumstances and others, I understand, have been disapproved.

That the above construing of the words, *shall furnish*, has been accepted by the employee as well as by the insurance companies as meaning that the employee must go where the employer and insurance company send him or forfeit his right to medical attendance, is shown by the amendment offered at this legislature providing the substitution of the words, "*be liable for*" for "*shall furnish.*" Other amendments to produce the same result, *i.e.* freedom of choice of medical attendance were also offered. None of these amendments were offered by the medical profession although approved by the Essex North District as affording an opportunity of protest against the attempt of certain insurance companies to force the people, whose medical bills they had assumed the liability for, into charity hospitals.

As the condition exists now the home office of an insurance company, which may be in London, has been given control over the wills and bodies of the workmen in Massachusetts.

Some of the insurance companies have and some have not attempted to exercise this power conferred upon them.

Very respectfully yours,

W. H. Merrill, M.D.

WORKMEN'S COMPENSATION.

The Commonwealth of Massachusetts.
Industrial Accident Board.

Boston, Feb. 26, 1913.

Mr. Editor: I read the editorial in the Journal of Feb. 20, entitled, "National Insurance and Workmen's Compensation," and note that in paragraph two you say, "by the terms of this act injured employees are left free to obtain medical care from whatever source they see fit."

The exact contrary of this is true, Section 5, Part II, Workmen's Compensation Act says: "During the first two weeks after the injury, the association *shall* furnish reasonable medical and hospital services, and medicines when they are needed."

Bulletin No. 2, Decisions and Rulings of the Industrial Accident Board, page 11, has the following para-

graph, under Section 5, Part II, which reads, "during the first two weeks after the injury the association shall furnish reasonable medical and hospital services," in ordinary cases the insurance company has the right to elect what doctor and at what hospital the injured employee shall be treated. It may happen, as it has in many cases, that because of sufficient reasons growing out of the nature of the injury, personal dislike of the doctor or upon other grounds, the Industrial Accident Board will approve a reasonable bill where services were rendered by a physician selected either by the employee or employer.

We enclose herewith a copy of the law and Bulletin No. 2, and No. 3 of the Industrial Accident Board, and in Bulletin No. 3 call attention to the paragraphs marked on pages 8 and 9, 12 and 13.

The Industrial Accident Board is doing its utmost to adjust this question of medical fees under the law in a manner which will be fair to the employers and insurance companies and at the same time be just and satisfactory to employees, and there is some evidence that we are succeeding, in part at least, in this effort.

We feel also that as you say, in your editorial, "the doctors recognize this act as a broad and wise measure for human protection and benefit" and we will be very glad to co-operate with you to the end that there may be no misunderstanding as to its proper enforcement.

Yours very truly,

JAMES B. CARROLL,
Chairman.

NOTICES.

INSTRUCTOR FOR MIRAJ MEDICAL SCHOOL.—A teacher of physiology, chemistry, physics, biology and bacteriology is needed to work in connection with the Presbyterian Mission Hospital Medical School and Leper Asylum at Miraj, West India. A man who has a knowledge of x-ray work is preferred.

The medical graduate who is appointed to this position will have opportunities for practice as an assistant in medicine and surgery, though the major part of his time will be taken up with teaching.

A man who is looking forward to permanent service as a medical missionary, and who proves satisfactory in this position, would have opportunity for locating permanently if he desired to do so.

Traveling expenses and living quarters are provided in addition to $50 monthly salary. The terms: a three year appointment with the privilege of renewal of contract with two or three additional years, if mutually agreeable.

Men who wish to investigate this opening should send full particulars regarding their qualifications to Mr. Wilbert B. Smith, 600 Lexington Avenue, New York City.

CHANGES IN THE MEDICAL CORPS, U. S. NAVY, FOR THE WEEK ENDING FEB. 22, 1913.

STRAETEN, R. J., passed assistant surgeon. Detached from the *Florida* and order to the *Tonopah*.

BENTON, F. L., surgeon. Detached from the *Delaware* and ordered to duty with marines on army transport *Meade*.

MUNSON, F. M., passed assistant surgeon. Detached from navy recruiting station, Hartford, Ct., and ordered to duty with marines on army transport *Meade*.

HOFF, E. P., passed assistant surgeon. Detached from naval hospital, New York, N. Y., and ordered to duty with marines on the *Prairie*.

POST, D. C., assistant surgeon. Detached from Naval Medical School, Washington, D. C., and ordered to Navy Yard, New York.

CHARTLON, C. F., assistant surgeon. Detached from Naval Medical School, Washington, D. C., and ordered to navy recruiting station, Hartford, Ct.

DRAGOO, C. H., assistant surgeon. Detached from Naval Medical School, Washington, D. C., and ordered to duty with marines on the *Meade*.

FINDEISEN, W. E., WOOD, C. C., assistant surgeons. Detached from Naval Medical School, Washington, D. C., and ordered to duty with marines on the *Prairie*.

CRANDALL, J. W., acting assistant dental surgeon. Appointed from Feb. 7, 1913.

HARVEY, H. E., acting assistant dental surgeon. Detached from Naval Medical School, Washington, D. C., Feb. 22, and ordered to the *Solace*.

TENNENT, E. H., acting assistant dental surgeon. Detached from Naval Medical School, Washington, D. C., Feb. 24 and ordered to receiving ship, *Norfolk*.

BROWN, J. L., acting assistant surgeon. Detached from Naval Medical School, Washington, D. C., Feb. 24, ordered to naval training station, Newport.

SOCIETY NOTICES.

WORCESTER DISTRICT MEDICAL SOCIETY.—A meeting will be held Wednesday, March 12, at 8.15, in Cotillion Hall, 311 Main Street, Worcester. Open to the public. Subject: The Problem of the Mentally Deficient. Illustrated paper by Dr. Walter E. Fernald, Supt. Massachusetts School for the Feeble-Minded. Discussion by Dr. M. J. O'Meara and Dr. B. T. Burley.

MASSACHUSETTS SOCIETY OF EXAMINING PHYSICIANS.—Meeting at Boston Art Club, March 11, 1913. Subject: "Industrial Compensation Act." This act has been in operation in Massachusetts for nearly one year. Hon. James B. Carroll, Chairman of the State Board, will present the subject. All medical men interested are invited.

Dinner at 7 p. m. Discussion at 8 p. m.

EDWARD B. LANE, M.D., *President.*
JAMES H. STEVENS, M.D., *Secretary.*

RECORD OF MORTALITY.

FOR THE WEEK ENDING SATURDAY, FEB. 22, 1913.

CITIES.	Reported deaths in each.	Deaths under five years.	CITIES.	Reported deaths in each.	Deaths under five years.
New York	—	—	Pittsfield	19	6
Chicago	814	245	Waltham	10	3
Philadelphia	—	—	Brookline	12	1
St Louis	—	—	Chicopee	15	—
Baltimore	—	—	Gloucester	—	—
Cleveland	—	—	Medford	4	2
Buffalo	—	—	North Adams	10	2
Pittsburgh	—	—	Northampton	14	—
Cincinnati	—	—	Beverly	7	1
Milwaukee	—	—	Revere	4	1
Washington	—	—	Leominster	5	2
Providence	—	—	Attleboro	5	1
Boston	253	58	Westfield	8	3
Worcester	61	19	Peabody	—	—
Fall River	53	26	Melrose	2	—
Lowell	42	9	Woburn	—	—
Cambridge	—	—	Newburyport	4	2
New Bedford	25	7	Gardner	—	—
Lynn	22	2	Marlboro	8	1
Springfield	36	8	Clinton	5	1
Lawrence	—	—	Milford	—	—
Somerville	37	4	Adams	—	—
Holyoke	21	15	Framingham	—	—
Brockton	17	5	Weymouth	—	—
Malden	12	2	Watertown	6	3
Haverhill	20	3	Southbridge	3	1
Salem	16	3	Plymouth	—	—
Newton	19	3	Webster	—	—
Fitchburg	9	5	Methuen	—	—
Taunton	13	1	Wakefield	—	—
Everett	8	3	Arlington	3	—
Quincy	—	—	Greenfield	3	1
Chelsea	16	5	Winthrop	4	—

Original Articles.

URETERAL OBSTRUCTION.

BY BENJAMIN TENNEY, M.D., BOSTON.

Surgeon to the Boston Dispensary and the Berkley Infirmary.

That there is such a mechanical condition as ureteral obstruction all admit. That obstruction may be due to a variety of causes and may be either total or partial, permanent or intermittent is equally well known and sometimes forgotten. That a one sided pain in the pelvis, abdomen or back, with any sort of variation from the normal in the bladder action may mean ureteral obstruction, is either unknown to some operators or disregarded at times. Yet there is a group of symptoms which should compel all operators to seriously consider ureteral obstruction as their cause.

Case 1. Mrs. E. W. A., 37. Her appendix was removed without drainage in 1900. She had one child in 1902. No edema or known albumenuria during pregnancy. For a year before the appendectomy she had attacks of severe pain in her back and right side low down, and since the operation she has had other attacks which she regards as of the same character. In 1907 she noticed intermittent tumor below her left ribs associated with backache and nausea. In 1909 she began to have frequent urination with pain during and after urination. In 1910 and since, she has had difficulty in retaining urine and has worn a napkin constantly by day and occasionally would wet herself at night. She has talked with physicians about her incontinence, about the discomfort in her lower right side, and about the discomfort and swelling on her left. Besides her appendectomy she had received some vaginal treatment and various bottles and pills. Vaginal examination negative as regards tumor, and her description of tenderness seemed not fully reliable. Radiographs by Dr. A. W. George negative. She was so lacking in self control that cystoscopy was done under a general anesthetic. The bladder leaked around the cystoscope when more than seven ounces of fluid were injected. She showed the peculiar red outside-of-a-honey-comb appearance in the trigone which is often associated with long standing irritation, and this led up to the orifice of the left ureter. There was some prominence of the muscle bundles in the walls and a pouting of the orifice of the left ureter. There was no tumor or foreign body. Both ureteral catheters passed easily. Urine from each was practically clear. The left showed more reds than the right, more bacilli and a few short chain streptococci, but both were albumen free and the rate of flow was equal. No tubercle bacilli in the sediment. For a few days after the examination and while lying in bed she had increase of pain on the left side with moderate ureteral tenderness, especially at the bladder end. My diagnosis was ureteral obstruction on the left and unknown condition in the right pelvis. She was operated upon at the Addison Gilbert Hospital in Gloucester, June 11, 1912, Dr. H. M. Chase assisting and Dr. A. M. Dodge anesthetist. A suprapubic incision found the uterus low down in the pelvis and swung to the right, which may have made a kink in the right ureter as it passes between the layers of the broad ligament. The tubes were a little thickened at their outer ends. Ovaries normal; no adhesions. Both ureters were examined by finger and by the eye from the bladder as far up as possible. The left was thicker. Her uterus was pulled to the median line and sewed into the incision which was closed. Another incision was made in the left loin and a large kidney was delivered, which disclosed a vessel looped around the ureter at the level of the lower pole. This vessel was cut between two ligatures, the kidney suspended and the wound closed. She has gained twenty-five pounds, and is free of pain. For the past two months she has been free of leakage and urination has been normal though her pyelitis has not fully cleared up.

Case 2. Miss C. B. C. consulted me in the fall of 1908 for urinary frequency associated with rectal tenesmus and left sided pain which had troubled her at intervals for more than thirty years. She had previously gone through four operations here and in Europe, and had received every sort of medical treatment and even attempted to wear a steel apparatus to correct some supposed malposition in the spine. Some relief followed her final laparotomy, but the pain in her left side and the vesical and rectal tenesmus were unaffected. Incidental to all her suffering and the disappointment following her operations she had fallen into invalid ways of action and thought and would pass for a neurasthenic. Also, she had lost faith in medicine and almost doubted surgery. Radiographs by Dr. Percy Brown showed no abnormality. There was no blood in her stools. Urine was many times found of low specific gravity, sometimes showing faint traces of albumen and always having sediment which showed long bacilli, red and white corpuscles, round and oval epithelium, hyaline casts, and sometimes crystals. No tubercle bacilli in the sediment or by guinea-pig test. Left kidney region and left ureteral insertion were much more tender than right. Cystoscopic examination under ether showed a bladder holding five ounces, with prominent muscle bundles and redness of left ureteral opening and trigone. Ureteral catheters passed easily and from the left side drew a moderately bloody urine, showing also masses of fatty cells, hyaline casts, mucus, and many bacteria, chiefly bacilli. From the right came an equal amount of urine with some red blood cells, no fatty cells, few bacteria and no bacilli or casts. The operation was done at her home with the assistance of Dr. Chase. Her left kidney was delivered and an artery which crossed the ureter a little below the hilum was cut between two ligatures. The pedicle was short and the kidney was dropped without fixation. Since then she has had no further left sided pain, vesical or rectal tenesmus, and has resumed her place in society.

Case 3, referred by Dr. Robert Bonney of East Boston and Dr. Smith of Somerville, was Mrs. W. K. McD. She was operated upon for appendicitis in 1905, with drainage for a few days. Pain continued at intervals in the right side and a year later she had nausea and vomiting with temperature, and was again opened over the appendix and drained for a few days. Pain and digestive troubles

led to a third operation for a repair of hernia following the first two. At my examination she was tender at the right ureteral insertion and along the whole course of her right ureter up to and including the right kidney. No thickening of the right ureter made out. She was having pain and temperature of 100 degrees at the time of my visit. Cystoscopic examination found a normal looking bladder except for a gaping right ureter and a red trigone. Ureter catheters were painful on both sides, but more in her right ureter, which was partially obstructed about eight inches up. Urine from the right showed considerable fatty epithelium, many leucocytes, rare red cells and profuse bacteria, mostly bacilli. Urine from her left showed few bacteria, few epithelial cells and no red cells. Following the examination she had some days of severe pain on the right with vomiting, chills and fever. She was operated upon September, 1912, at the Boothby Hospital. Exposure showed a band across the ureter apparently not connected with the renal vessels, and a very movable kidney. The band was cut and the kidney was sutured as high as possible. In repairing a partial recurrence of the hernia the cecum was examined and found entirely free from all adhesions, and the scar of the appendix removal was sound and smooth. She is so far free from unpleasant urinary symptoms and from pain in her right side.

CASE 4. Another patient of this type was a Miss M. B. P., a trained nurse, referred to me by Dr. C. O. Kepler. As a child she had enuresis, and always one or more night urines. Her right sided pain began at 15 years. She had two attacks relieved by morphine in 1899. Her appendix was removed without drainage in 1902 and in 1907 she lost a right ovary but her attacks of pain continued. Rarely she was incontinent. Radiographs negative. Vaginal examination found a tender right ureteral insertion. *No tenderness* over the kidneys. Cystoscopy showed a reddened trigone, a red and thickened right ureteral orifice, and some prominent muscle bundles. My notes of the urine examination are lacking. At the Deaconess Hospital in April, 1910, Dr. C. O. Kepler assisting, her right kidney was exposed and the ureter freed as far down as possible through the loin incision. No band or aberrant vessel was seen but one was ruptured with the finger above the pelvic brim. The kidney was large and freely movable and was anchored high with the lower pole swung out to prevent a kink at the beginning of the ureter, as I was not sure whether her obstruction occurred here or lower down. Her recovery was satisfactory and a recent letter says, "I think you may call my case a complete success." She is in active service for a large mill corporation and almost constantly on her feet for long hours.

CASE 5. Another patient was Miss B. E. H., with a history of good health up to 1903, when she began to lose weight and was treated by one or two men for phthisis, then by another man who "replaced her uterus" at intervals, then by another who removed her appendix and later repaired a small right inguinal hernia. All this time she had the right sided pain and more or less frequency of urination. Some time after her last operation she had begun vomiting at intervals and had been extensively examined for intestinal obstruction. When I saw her she had a daily sequence of symptoms. She would rise feeling fairly well. By the time she was dressed the ache would begin and usually she would vomit after breakfast. Then she would have a miserable day until she could lie down. After a variable time her discomfort would suddenly disappear and she would feel the need of urinating. Examination found general ptosis. Right kidney could be easily held and was not tender at my examination. Right ureteral insertion very tender. Cystoscopy found a normal bladder and normal ureteral openings. Ureteral catheters passed easily and delivered clear urine. She had lost twenty pounds and was distinctly neurasthenic. She was operated upon at the Deaconess Hospital in April, 1912, Dr. C. O. Kepler assisting, and a normal appearing kidney was easily delivered with the longest pedicle I have ever seen. There were no bands visible or palpable across the ureter but the kidney pelvis seemed unusually large and the ureter came off above its usual point. Rotating the lower pole out brought the ureter to the lowest part of the pelvis and the kidney was attached high in this position. Her convalescence was slow but her nausea and urinary symptoms and right sided pain are now gone, and she is again in active life, weighing more than ever before.

CASE 6. Obstruction by ureteral stone is another type. One case of this sort was reported by me in 1904, a nurse who had a double ovariotomy in 1893, after several years of invalidism. Some relief followed this, until she had an attack of left renal colic in 1901, followed by three more the next year. During the attacks the pain extended downwards into the bladder, but was never referred to any other location than the urinary tract. Nausea always followed the attacks. She usually had a time of "not feeling just right" for an hour or so before the colic began.

Following the attack of December, 1901, she had some hematuria. At time of examination, January, 1903, the urine was 1002 clear, and showed almost no sediment with the centrifuge, but there were a few epithelial cells and some red and white corpuscles. There was decided tenderness along the line of the left ureter, from the left of the umbilicus down. Vaginal and rectal examinations showed nothing abnormal except marked tenderness at entrance of left ureter into the bladder. An attempt was made to catheterize the ureters without anesthesia, but the posterior wall of the bladder was held back so that the orifices of the ureters could not be made out, even with the knee chest position. An x-ray examination was suggested but refused by the patient. In January, 1903, operation found a ureteral stone just below the brim of the pelvis, which was pushed up and removed through a pyelotomy wound. There has been no recurrence of her left sided pain since her recovery from the operation. Dr. H. M. Chase assisting.

CASE 7. Another case was a man of 36, referred by Dr. H. W. Goodall on account of painless hematuria without symptoms in July, 1912. There was no pain or previous hematuria or night urination or frequency by day. The prostate was uniformly tender and larger than usual. Vesicles normal to touch. Cystoscopy found nothing abnormal except rather free bleeding from the prostatic urethra. There was no visible and no microscopic blood in either catheter urine though there was in the mixed

urine drawn before the cystoscope was passed. It was thought probable that his hematuria was prostatic and due to marital habits. In October he came again with a typical attack of renal colic, great pain, vomiting, and general prostration. Three days later Dr. A. W. George found a shadow of a stone at the upper end of his right ureter and a week after this at the Boothby Hospital, assisted by Dr. Chase, I removed a small stone from the pelvis of the kidney. His kidney had a pedicle so short that I could not deliver it, and the stone was removed by a pair of blunt forceps thrust through the kidney substance. The wound was drained and he left the hospital in two weeks with a small sinus, which closed in another week. He has had a slight colic once since, probably due to a piece of tissue passing down the ureter, but now is apparently all right. The essential difference between this type of obstruction and those before mentioned seems to be the absence of any constant and regular disturbance up to the time when infection takes place behind the obstruction. Before that we find occasional hematuria and occasional colic with health between. After infection occurs the usual symptoms of pyelitis and ureteritis occur.

Case 8. Mrs. G. S., 28, was referred to me by her physician, who had previously operated for some tubal condition in January, 1908. She never was incontinent, even as a child. From the age of fifteen she had pain in her right side. At eighteen she was passing water with annoying frequency and getting up as many as eight times at night. At twenty she was treated for "inflammation of the bladder." During her only pregnancy she had constant nausea and frequent urination. She was operated upon in 1907, losing her right tube and ovary. At that time the operator saw a cyst-like looking structure behind the cecum which leaked a considerable quantity of clear fluid when punctured. Twelve days after operation he noticed that the skin incision was bulging and reopened it, letting out an ounce or more of clear fluid, and this continued to flow, drop by drop, until I saw her in January, 1908. At this time there was a decidedly urinous odor to the fluid, which at first was free of urea as well as odorless. Cystoscopy found a normal looking bladder. The left ureteral catheter passed easily and delivered clear urine. The right stopped at five inches, delivered no fluid, and a solution of methyl blue returned without coloring the fluid which dripped from her abdominal scar. She made no complaint of pain or urinary symptoms at this time. There was no tenderness over her right kidney, which could be held down and did not feel greatly enlarged. She consented to a nephrectomy if necessary, and the abdominal route was chosen to give better opportunity for examining her right ureter. She was operated upon in February, 1908, at the Deaconess Hospital. Her right kidney was stretched out into a sac which was partly filled with fluid. Her right ureter was traced down to the pelvic brim without locating any obstruction. The nephrectomy was as usual, and the ureteral stump was met by a drain passing through a stab wound in the back. Her appendix was removed, the colon replaced and the abdominal wound was closed. The capacity of the hydronephrotic sac was 22 ounces. Her recovery was rapid and uneventful. She was seen in November, 1912, and says she is as well as she has been at any time of her life. In 1909 she had a group of symptoms suggesting a gastric ulcer, which seems quiet at present. She has occasional right sided discomfort in the morning, but no urinary symptoms whatever. She is a little tender over the region of the ureteral stump, and it is possible that she may have a calculus imbedded there. This case is unusual, and the course taken by the urine in dissecting its way outside the peritoneum up to the abdominal wound, from which it dropped freely, is extraordinary. The patient counted the drops for a half hour and insisted that the fistula was excreting two quarts a day. The drip stopped at once after the nephrectomy and the fistula closed within a day or two.

Case 9. G. S. W. was seen by me with Dr. C. O. Kepler, with a probable diagnosis of hydronephrosis. He had a history of discomfort and occasional pain in his right side, associated with nausea for several years. His weight had fallen off and he had become irritable and apprehensive. Three months before coming to Boston his appendix had been removed without affecting his symptoms in any way. Examination showed a large movable tumor below his ribs which was moderately sensitive and elastic. No cystoscopic examination was made. He was operated upon at the Besse Hospital in 1911, Dr. Kepler assisting. The abdominal route was chosen, the presence of a normal feeling left kidney was determined and also the right ureter was traced down into the pelvis without discovering any concretion. The right kidney was replaced by a sac with a capacity of thirty ounces and was easily removed from behind the colon without leakage or hemorrhage. The sac contained clear fluid, which was lost before there was opportunity for examination. The kidney substance was stretched out over a part of the sac and in no place was it more than a half inch thick. The patient made a rapid recovery and remains free of pain and nausea, and without urinary symptoms.

Case 10. N. A. M., 35, single, was referred to me by Dr. George H. Bowles in 1908. In 1900 she had a slow healing sore on her lip which was supposed to be specific and for which she had taken treatment for five years. In 1903 she began to have frequent and imperative urination with pain in right side and had both tubes and one ovary removed, without relieving the symptoms. In 1908 she was urinating eight to ten times every night, wearing a urinal by day, and having pain at the end of every urination. Bladder capacity was three ounces. She was tender over the right kidney and the whole length of the right ureter. Two separate inoculations of her urinary sediment into guinea-pigs gave negative results. Her temperature over a period of some weeks never rose above 99 degrees, but varied between that figure and 95 degrees, producing a tubercular looking chart below the normal line. Cystoscopy was difficult on account of her contracted bladder, but showed a golf hole right ureter opening which accepted only three inches of a ureteral catheter. The left delivered clear urine. Radiographs showed nothing on her right but a shadow in the region of her left kidney pelvis which was produced by calcified lymph nodes discovered at operation. A small tubercular right kidney was removed in August, 1908, at the Boothby Hospital, Dr. H. M. Chase assisting, and her pain stopped at once. Her bladder capacity has slowly increased and is now

twelve ounces, which allows her to sleep nearly all night and to dispense with the urinal.

These ten cases have been selected from my records because each illustrates some type of ureteral obstruction and there is some similarity of symptoms whether we call them cases of hydronephrosis, intermittent hydronephrosis, renal or ureteral calculus, pyelitis, or tuberculosis of the kidney. So far as symptoms go all these conditions produced ureteral obstruction. Ureteral obstruction produced one sided pain, and pain is what drove them all to seek relief. If a patient with obstructed ureter continues to have pain after an operation which may have removed a chronic appendix or a cystic ovary or repaired some damage of childbirth, the patient has disappointment added to the pain and the operator has chagrin for his share. While permanent hydronephrosis and obstructing stones are not seen daily in any clinic, cases with some form of ureteral obstruction are constantly appearing among patients who come seeking relief from pain. Two symptoms appear in almost every condition which obstructs a ureter. One is pain between the point of obstruction and the tenth rib, on the obstructed side. The pain varies from a dull ache to agony and may produce anything from nervous irritability to vomiting and unconsciousness. This pain is sometimes increased by motion, as in stone cases, sometimes brought on by a change from the horizontal to the upright position, as in cases with ureteral kink, and sometimes appears without regard to either, as in pus or bleeding kidneys when the patient's pain comes and goes quickly with the passage of some fibrin mass through the ureter. Pain is present when there is back pressure in the kidney and may be associated with vomiting and fever, as in Case 6, or it may be associated with vomiting and a normal temperature, as in Case 5, or there may be subnormal temperature, as in Case 10. The pain is said to radiate along the affected side down to the penis or vagina or leg, but my patients have had most of their pain in the back in the region of the twelfth rib. Radiation—unless pelvic pain be considered such—has been uncommon in my cases. Cases with pain on the unaffected side have been reported on good authority. The pain may be recent, as in Case 7, or of long standing, as in Case 2, where "side ache" was remembered from childhood on. Pain is what the patient describes without examination. Tenderness may correspond in location or differ. When a patient is in pain from ureteral obstruction he is also tender over the affected kidney. When he is not in pain the tenderness may and often does disappear. In women the ureteral insertion, which can almost always be felt through the vagina, will be found sensitive if there is infection behind a point of obstruction, and often while the infection remains a bacteriuria.

No one who has seen the suffering of a patient whose ureter has been plugged by a stone or a clot, or who has distended the kidney pelvis in the course of his examination can doubt that such back pressure does cause real pain. Pain was present in each of these ten cases and was the cause of their seeking relief.

The other constant symptom has been an alteration from the normal habits of urination. We may find increased frequency, urgency, incontinence, or the necessity of repeated attempts before the desire passes away. The presence of any one of these symptoms is a plain warning that something is wrong in the urinary tract—not necessarily in the kidney—and calls for further study if we are ambitious for a full knowledge of our patients' bodies. The readiness to make a diagnosis of "cystitis" on these symptoms and to administer some one or more of the thirty remedies for "catarrh of the bladder" stands in the way of early diagnosis and prompt relief from most of the surgical diseases of the kidney and ureter. Primary disease of the bladder is certainly as rare as primary disease of the stomach, and the unconfirmed diagnosis of "cystitis" should go the way of "gastritis" into the museum of cloaks to hide our ignorance.

THE CONSERVATIVE TREATMENT OF TOXÆMIA OF PREGNANCY WITH CONVULSIONS.

BY CHARLES M. GREEN, M.D., BOSTON.

(From the Gynæcological Clinic of the Boston City Hospital.)

FOR some time it has seemed to the writer that in this impatient surgical age there is a too prevalent tendency, in the presence of the gravest obstetrical emergency generally known as, but inadvisably named, eclampsia, to proceed too hastily to forced delivery, whether the convulsions first occur before or during labor. Since it is now generally accepted that the ovum or fœtus is the source of the toxines, the effects of which so often culminate in convulsions before, during, or after delivery, and since the death of the fœtus in utero often is followed by an abatement of the convulsive seizures, it would seem logical to proceed to empty the uterus as the first step in the treatment. But whether the toxines are of fœtal origin or whether they are the product of imperfect maternal metabolism and non-elimination of waste products, the fact remains that the toxæmic woman is ill-prepared to resist the shock and trauma of any surgical procedure. Except in the presence of grave surgical emergency, such as fulminating appendicitis or serious bodily injury, no surgeon would operate on a patient with alcoholic toxæmia, nor does the internist look to see the chronic alcoholic survive the supervening toxines of grave general infection, such as pneumonia. Save in exceptional cases, therefore, it would seem more logical to postpone active surgical treatment for a reasonable

time, until by active eliminative measures the toxæmic gravida is better prepared to withstand the added strain of delivery; and the writer believes that when the shock and trauma of the *accouchement forcé* are hastily imposed upon a nervous system already reacting to toxæmic irritation, the *coup de grâce* is not infrequently given to women who under more conservative treatment might recover. Moreover, under successfully applied eliminative therapeusis, the cervix and lower uterine segment often soften and expand to a degree that the woman speedily delivers herself under the usually exaggerated uterine contractions of the convulsive attack, or sufficiently to permit delivery without undue shock or injury. After the cervix is softened and somewhat dilated, it is not difficult to procure by digital dilatation a sufficient expansion for the delivery of the small, non-viable fœtus, making use of embryotomy, if necessary; and when the fœtus is developed to a viable age and is alive, the use of a suitable hydrostatic rubber bag very generally results in a dilatation sufficient to permit safe delivery by forceps or podalic version.

Whatever the obstetric treatment may be, the fœtal mortality is high, even 50%. In 40 cases, recently quoted by Hirst, in which abdominal Cæsarean section was performed for maternal toxæmic convulsions, there were 18 fœtal deaths; and yet this method of delivery would seem to afford the best fœtal prognosis. The fact is, of course, that the fœtus very generally participates in the maternal toxæmia, and even if viable, as it often is not, and delivered alive, it frequently succumbs for that reason, and even exhibits typical toxæmic convulsions. Moreover, as is well known, the premature baby does not well endure the strain of operative delivery, and even after instrumental cervical dilatation or vaginal Cæsarean section, delivery must be effected by operative procedure. Under these circumstances it would seem that in deciding on the line of treatment to be pursued in a given case, that which affords the best prognosis for the mother should be chosen, since that which is best for the mother is generally best for the child. An exception might be made in the case of the late primigravida, nearly at term with living baby, but with undistensible cervix and vaginal tract; in such a case, in which great parental desire may justify the possibly increased maternal risk, abdominal Cæsarean section undoubtedly affords a better prognosis for the baby than strenuous delivery by the genital tract; but the safely delivered Cæsarean baby may subsequently succumb to its toxæmic condition.

If in reasonable time the patient fails to respond to eliminative treatment and to other medical measures for the control of convulsions and the reduction of blood-pressure, if there is deep coma, cyanosis, and pulmonary œdema, resort in desperation is naturally had to emptying the uterus, by forced cervical dilatation or by vaginal Cæsarean section; in such cases, however, whatever the treatment, there is usually a lethal termination. But it has seemed to the writer that in many cases eliminative treatment fails because it is not sufficiently vigorous and persevering, and perhaps because it requires a much more exacting and protracted personal attention of the physician than does the rapid evacuation of the uterus.

The method of treatment employed by the writer is essentially as follows: First of all is given a high compound enema consisting of

Oil of turpentine	1 dram
Extract of aloes	20 grains
The white of one egg.	
Sulphate of magnesium.	
Glycerine.	
Water	of each 2 oz.

Next, the patient is given, when feasible, and it is generally feasible in hospitals, a hot water immersion bath.* Immersion needs not generally to be continued for more than a few minutes before perspiration appears on the forehead. If the patient is visibly dirty, or if sweating does not soon occur, the use of a flesh brush will promote the activity of the skin. If the pulse is weak, a stimulant is indicated before the bath. The woman is then rolled in a blanket, placed in a warmed bed, laid on a rubber blanket covered with a sheet, and another rubber blanket is spread over the extra blankets which cover her. It is well to remember that this treatment not infrequently serves to induce labor; but in the presence of convulsions the invasion of labor is to be welcomed. If the immersion bath is not available, the hot, wet pack is made use of; dry heat is much favored by some clinicians. An ice bag is applied to the head. If the patient is comatose, the stomach is washed out and there is left therein a moderate amount of water, perhaps 8 ounces, containing two ounces of Epsom salts or a like amount of castor oil, with two drops of Croton oil; if conscious, the patient can swallow the cathartic. In the presence of marked œdema it is not well to give much water at first; otherwise the conscious patient should be caused to drink freely, and bitartrate or acetate of potassium may be given to neutralize acidosis. Fluid in the form of salt solution should be given to the unconscious patient, one or two pints under the breasts, in the face of free diaphoresis and purgation; by this in-take and out-go of liquids the blood may be effectively washed of its toxines. Nitroglycerine in 1-100th grain doses is sometimes valuable to relieve blood tension and promote diaphoresis; but generally the blood tension is sufficiently reduced by the active function of skin and bowels. Veratrum viride is much approved by some authorities, but that drug and pilocarpine have both been discarded by the writer. To control convulsions and ner-

* See a paper on this therapeutic measure in the Boston Medical and Surgical Journal, vol. cxliii, p. 624, for Dec. 20, 1900.

vous restlessness, morphine is used. In the event of a living, viable fœtus, and in order not to inhibit uterine contractions, it is used in moderate doses, generally not more than 1-4 grain, with subsequent 1-6 grain doses at two hour intervals, or 1-4 grain doses according to indications and results.

Meanwhile watch is kept for the invasion of labor, which quite generally supervenes. If labor is not excited by the eliminative treatment, and the toxæmia and convulsions abate, pregnancy is allowed to continue, especially when the fœtus is alive and not yet viable; if the fœtus is dead, the woman is generally allowed to await spontaneous delivery. In chronic nephritis, however, labor is quite generally induced not later than the end of the eighth month. When under eliminative treatment labor begins, as soon as the cervix is softened, effaced, and a little dilated, hydrostatic bags are used and the labor terminates unaided, or more generally is completed with forceps or version and extraction. After delivery, eliminative treatment is continued until convulsions cease and œdema disappears. Sometimes there is free post-partum bleeding, and in the presence of a persisting high blood-pressure this is regarded as a beneficent phenomenon. Reference has already been made to what must be regarded as rational treatment of severe toxæmic convulsions when the usually successful eliminative and sedative measures fail.

It is generally recognized that neither ether nor chloroform is a good anæsthetic for use in the obstetric surgery of the toxæmic parturient in convulsions, on account of the pulmonary and renal irritation of the former, and of the hepatic irritation of the latter; some authorities on this account recommend nitrous oxide gas. With this anæsthetic agent in the conditions under consideration, the writer has had insufficient experience to judge of its merits; but for the last four years he has used anæsthol, consisting of ether 46 parts, chloroform 37 parts, and ethyl chloride 17 parts, and has been well satisfied with its effects.

The section of the Boston City Hospital for diseases of women is intended primarily and chiefly for gynæcological surgery; but a considerable number of cases of pathological obstetrics are necessarily received during the year, and in the three and one-half months immediately preceding the time of this writing ten successive cases of pregnancy toxæmia with convulsions have come under the writer's observation and treatment. The treatment has been conducted in accordance with the views above expressed, and a brief synopsis of these cases may be of interest.

CASE 1. M. S., 20, primigravida at 6½ months, entered early on Sept. 12, 1912. (Vol. 182, p. 361.) She had had headache all night and two convulsions before the ambulance arrived. On admission she was conscious, but excitable and irrational; face and legs œdematous; no fever or vomiting; always constipated; pulse 112; blood-pressure 150; fœtal heart 144. Urine: 1,030, acid; albumin, largest possible trace; sediment, free blood and pus, granular and hyaline casts with blood attached. No signs of labor. Eliminative treatment immediately begun, and during the day patient received a compound enema, 60 oz. cream of tartar water, 9 drams of Rochelle salts, and ½ grain of morphia in 1-6th grain doses; she was perspiring freely at 2 p.m., had four dejections, passed a large amount of urine (not collected and measured), and had four convulsions.

Sept. 13: In-take, 130 oz. cream of tartar water, 30 oz. milk, 27 drams Rochelle salts, 2 oz. Epsom salts, 15 grains jalap, 15 grains triple bromides, three 1-6th grain doses of morphia; out-go, 17½ oz. collected urine, 8 dejections, free sweating. Patient more rational and quiet, sleeps at intervals, no more convulsions.

Sept. 14: In-take, 86 oz. cream of tartar water, 40 oz. milk, 24 drams Rochelle salts, 15 grains triple bromides; out-go, 25½ oz. urine, 18 dejections, profuse sweating. Patient slept at intervals.

Sept. 15: In-take, 50 oz. water, 12 oz. cream of tartar water, 47 oz. milk; out-go, 24 oz. urine, 10 dejections, continued sweating.

Sept. 16: Patient rational since yesterday, sweats profusely, bowels kept open with one dram Rochelle salts every hour, urine 23 oz., dejections 10, kept quiet with 1-6th grain doses of morphia every four hours, alternating with triple bromides; albumin ¼%.

Sept. 20: Pulse and temperature normal, blood pressure 160; is taking fluids freely, milk diet, œdema gone; no morphia for two days, bromides omitted; total urine last four days 213 oz.; fœtal heart 140.

Sept. 25: General condition improving, kidneys and bowels working well, blood-pressure 150.

On October 2, three weeks after admission, patient was in excellent condition, and in spite of rather heroic sweating and purging labor had not supervened. As the fœtus was still alive, it was hoped that pregnancy might continue until the baby was safely viable; but four days later the fœtal heart was not heard, and on Oct. 8 a macerated fœtus was spontaneously born; the placenta contained a large white infarct. On Oct. 24, when the mother was discharged well, the urine had sp. gr. 1,022, and contained a trace of albumin but no renal elements.

CASE 2. G. C., speaking no English, entered late, Oct. 18, 1912 (Vol. 184, p. 209). The only history obtainable was that the patient had been well up to 2 p. m., when she had a headache; at 4 p.m. she had a convulsion, and four more prior to admission, when she was unconscious. Apparently nearly at full term, but not in labor; baby living; maternal pulse and temperature 138 and 102.8 respectively. She was put on the usual eliminative treatment; and as the cervix was soft and would admit one finger, a Voorhees bag was inserted. The next forenoon the cervix was found fully dilated, and a living baby weighing 7 pounds was delivered with low forceps. Patient recovered consciousness on the third day; she then drank well and her general condition was satisfactory. She was able to nurse the baby, which weighed 7½ pounds on the 26th day, when mother and baby were discharged well, the mother's urine showing no albumin and no renal elements.

Case 3. M. N., 29, single, secundi-gravida, entered November 9, 1912 (Vol. 185, Page 197). For a week she had noticed œdema of feet and legs, and had felt unable to work; in bed one day and had vomited all food; no pain or headache; pulse 86, temperature 98.6; had several mild convulsions before, and one shortly after, admission. Patient seven months pregnant, cervix closed; fœtal heart not heard, nor movements felt. Urine: 1,028, acid, albumin ½%, many granular casts with cells attached, few fatty casts, some free blood and pus. Eliminative treatment. Patient had no further convulsions after admission until the night of Nov. 14, when she had six, and it seemed best to induce labor. The cervix was soft and dilatable, and a Voorhees bag was introduced under anæsthol in the early forenoon of Nov. 15; a 6 to 7 months macerated fœtus was normally born at 7.30 p. m., the placenta showing many white infarctions. For several days after delivery patient was irrational and restless, requiring large doses of bromides; but she completely recovered from her toxæmia and was discharged well on the 26th day.

Case 4. M. B. M., 36, septi-gravida, entered in the evening of Nov. 10, 1912 (Vol. 185, Page 213). She had noticed œdema of the legs for the past two days, and had had headache and disturbed vision since the morning; at 6 P. M. she had labor pains, at 6.45 p. m. her first convulsion, at 7.45 p. m. a second, and a third in ambulance. On admission the cervix was soft and admitted one finger, the fœtal heart was not heard, blood pressure 200; she was put on eliminative treatment, and there were no further convulsions. Next morning the os admitted two fingers, the cervix was easily dilated under anæsthol, and a 6 to 7 months macerated fœtus was delivered by internal podalic version. On the 16th day the woman was discharged well except for her chronic nephritis.

Case 5. H. W., negress, 22, married 10 months, primigravida, entered early on Nov. 26, 1912 (Vol. 186, Page 17), having had three convulsions. She was unconscious, restless, and breathing stertorously; moderate œdema of face and ankles; apparently 8 months pregnant, cervix soft, admitting one finger, not effaced; membranes not ruptured; head presenting, high; fœtal heart not heard. Urine: ½% albumin. Blood pressure 145. Patient was placed on the usual eliminative treatment, to which she reacted well, but continued to have convulsions. At 9 A. M. she was definitely in labor, and by 11 a. m. the os was almost fully dilated; the membranes were then ruptured, dilatation completed, and an 8 months living baby delivered with high forceps. The woman continued to have convulsions for 48 hours after delivery, however, having 33 in all; she then became conscious and rational, and made an uninterrupted convalescence. Despite drastic saline purgation, she had an abundant supply of breast-milk after the third day, and was able to continue entire lactation for the baby, which steadily gained weight. Mother and baby were discharged well on the 18th day.

Case 6. M. C., 18, married 10 months, primigravida, entered Dec. 4, 1912 (Vol. 186, Page 133), having been delivered at home at 3 P. M. that day of living twins at 8 months, and having had 12 post-partum convulsions before entrance. At entrance she was semi-conscious, but irrational, flowing moderately, uterus hard. Temperature 102.2, blood pressure 148; the urine showed a very slight trace of albumin. Patient was placed on the usual eliminative treatment, to which she responded well, but had eight more convulsions during the next 48 hours. She then gradually recovered consciousness, temperature fell to normal, and patient made an uninterrupted convalescence. There was slight lactation, but insufficient for nursing. The babies were fed on modified cow's milk, and were discharged with the mother on the 23rd day, the latter well, the former weighing 3½ and 5½ pounds respectively.

Case 7. M. H., 20, married one year, primigravida, entered at 11.30 p. m., Dec. 29, 1912 (Vol. 187, p. 73). For past three weeks has had some swelling of hands and feet. At 7 p. m. today went to bed with severe headache, had a convulsion and became unconscious; two more convulsions before admission. At entrance patient was semi-conscious, but irrational; apparently 8 months pregnant; cervix soft, admitting two fingers; membranes intact; head presentation; fœtal heart 152; urine, ½% albumin; blood-pressure, 140. Patient was put on eliminative treatment; but as convulsions continued, the largest size of Voorhees bag was introduced at 2 a. m., Dec. 30. Patient took in active labor, expelled the bag at 8.30 a.m., and delivered herself in an hour of a stillborn fœtus; placenta much infarcted. Patient returned to bed and eliminative treatment continued; she had altogether 3 convulsions before entrance, 12 between entrance and delivery, and 7 after delivery, the last at 4.10 p. m., Dec. 30. She then regained consciousness and made a rapid and uneventful convalescence.

Case 8. M. H., 33, married 8 years, primigravida, entered Jan. 1, 1913 (Vol. 187, p. 101). Headache and epigastric pain for several days before admission; first convulsion at 1 a.m., Jan. 1. At entrance patient was conscious, but not rational, very restless with much jactitation; apparently 7½ months pregnant; cervix soft, admitting two fingers; membranes not ruptured; head presentation; fœtal heart 140; urine ¼% albumin; blood-pressure 148. The usual eliminative treatment was instituted, and the largest size of Voorhees bag was introduced. Patient's condition remained about the same throughout the day, but without further convulsions. At 8 p. m. the bag was extruded from the cervix, which was soft and completely dilatable; head not engaged, fœtal heart 160. Under anæsthol the high forceps was applied, and the baby extracted, apparently dead, but after 40 minutes of mouth to mouth insufflation the baby was resuscitated and lived, although small and choked with mucus. The mother made an uninterrupted convalescence, regaining rationality on the second day after delivery; and both mother and baby were discharged well.

Case 9. F. K., 23, primigravida, entered in the afternoon of Jan. 2, 1913 (Vol. 187, p. 141), having had ten convulsions at home and one during transportation. Patient apparently 7½ months pregnant, comatose; pulse 130, thready; cervix soft, admitting three fingers; membranes intact; head presentation; fœtal heart not heard. Urine shows large trace of albumin; blood-pressure 190 to 205. Placed on routine eliminative treatment, and the largest sized Voorhees bag inserted. Six further convulsions, patient being semi-conscious and very violent in the intervals. At 2 a. m., Jan. 3, the bag was found to have been extruded, and patient was delivered of a

dead fœtus by high forceps. After delivery the blood-pressure fell to 80, but subsequently rose to 90 and remained at that level throughout convalescence, which was satisfactory. The patient had no further convulsions; but on the third day, after regaining consciousness, she was for a time maniacal, but recovered in 24 hours from her psychosis, and was discharged well.

CASE 10. I. P., 19, primigravida, married one year, entered at 8 p.m., Jan. 20, 1913 (Vol. 187, p. 345), having had four convulsions. Headache for several previous days, but no eye symptoms. Patient was found to be semi-conscious, very restless, and breathing stertorously. She was apparently at term; the cervix was hard and not effaced, admitting one finger; membranes intact; head presenting; fœtal heart not heard. Urine showed hyaline casts and ½% albumin; blood-pressure 180. Patient was immediately put on eliminative treatment; she drank water freely and perspired well, but the bowels did not move in spite of continued administration of salts. Within the next hour the patient had two more convulsions. The largest Voorhees bag was then inserted, at 9.30 p. m., and labor pains soon began. At 1.30 a. m., Jan. 21, the bag was still *in situ,* the cervix thinned, but still rigid, the os admitting only two fingers. Patient had had two more convulsions, but further delay was decided upon. By 5.30 a. m. the patient had had three more convulsions, a total of eleven. By this time the bag had been extruded, the os easily admitted four fingers, the cervix was soft and its dilatation was readily completed. The fœtal head, previously high and floating, had become well engaged; under anæsthol, therefore, the delivery of the dead fœtus was quickly completed by an easy intermediate forceps operation. The placenta showed extensive areas of white degeneration. The patient was allowed to bleed moderately from the uterus, and no ergot was given. The blood-pressure fell after delivery to 150, and the next day to 140. Patient recovered consciousness within a few hours. Eliminative treatment was continued; but the bowels did not move for 24 hours after entrance, and then not until after the patient had received two high compound enemata, and by mouth 2 drops of Croton oil and a total of 22 ounces of Epsom salts. After the bowels had moved the patient drank water almost continuously for 36 hours. She had no more convulsions after delivery, and her convalescence was uncomplicated save for an attack of tonsillitis.

In these ten successive cases, then, one of which was a case of twin pregnancy, 5 babies were discharged well, and 6 were stillborn (including 3 macerated fœtuses); all the mothers recovered.

THE PREVENTION OF FOOT STRAIN.

BY ROBERT B. OSGOOD, M.D., BOSTON.

(From the Orthopedic Department of the Massachusetts General Hospital.)

THERE are certain occupations in which foot-strain is sufficiently common to represent a frequent cause for temporary and sometimes long continued disability. Policeman's heel is already a medical diagnosis. Motormen suffer frequently from weakened arches, and nurses in their hospital training are a class whose feet are very susceptible to strain, since their hours are much longer and the surfaces on which they walk are often harder than those to which they have been accustomed. Another factor of possible strain with nurses is the different gait which they frequently assume in their attempt to walk quietly.

It is chiefly in this latter class that the studies to be reported have been begun, but we see no reason why these methods should not be extended to the preliminary physical examination now so generally conducted in large student bodies and in companies employing large numbers of men and women, the efficiency of whose service is dependent upon the efficiency of their feet.

We believe that it is generally recognized among orthopedic surgeons that there exists no definite relationship between the height of an arch and the strength of a foot. The highest arches are often found in the least stable feet and the lowest among savage tribes whose foot-action is most perfect. Furthermore, we have found it often difficult to determine from inspection and palpation alone the potentiality of strain in symptomless feet, and yet in the class of cases above referred to the ability to do this may be of considerable importance.

Five years ago a study of the comparative strength of the abductor and adductor groups of the foot was made independently by Dr. Arthur Legg and the writer, using a simple method of mensuration from which it seemed fair to draw conclusions, although a certain degree of probable error was recognized.

By an unopposed pull of the abductors the foot is drawn into an outwardly rotated position, the calcaneo-scaphoid ligament is stretched, and the plantar arch depressed. Foot-strain would, therefore, be favored if the abductor group; consisting chiefly of the peroneals, controlled the position. By an unopposed pull of the adductors the foot is inwardly rotated, the inner border shortened, and the arch made higher. These adductors consisting chiefly of the anterior and posterior tibial and the flexor longus hallucis may be considered, therefore, as the conservors of the longitudinal arch.

Flexible feet only were measured and these were arbitrarily grouped under four headings.

1. Normal feet.
2. Pronated feet without symptoms.
3. Pronated feet with symptoms.
4. Acute foot-strain, usually with a valgus position.

The averages in the different groups, comprising over a hundred feet, were so uniform in both series as to encourage the writer to persist in the use of the method.

The average ratio of the adductor pull to the abductor pull in normal feet was found to be 10 to 8.2 in favor of the adductors. In pronated feet without symptoms 10 to 10.5 in favor of the abductors. In pronated foot with symptoms 10 to 10.8 in favor of abductors. In acute feet with valgus 10 to 12.2 in favor of abductors.

We began soon after the publication of these findings to study the feet of the probationer nurses at the Massachusetts General Hospital and to follow them during their course of training. Thanks are due to Drs. Goodrich, Wells, and Brown for help in obtaining these. The first records were taken in 1907 and the last in 1912. No statistics as to foot symptoms were kept previous to 1907, but it was at least not uncommon to have nurses laid off duty for foot-strain, and many reported for foot trouble. In conversation with a surgeon in another large city hospital to whom all nurses in training report for foot discomfort, he stated as his impression that at present he sees one or two nurses every month who are laid off duty for foot strain. These nurses are not specially examined on entrance, but are advised to obtain a uniform flexible shoe of good lines. About one-third of the nurses accept this advice.

The headings under which the examinations of the Massachusetts General Hospital nurses have been made are as follows:

1. Name.
2. Date.
3. Previous history of rheumatism or foot trouble.
4. Number of hours a day on feet previously.
5. Flexibility of feet (special reference to dorsal flexion).
6. Points of tenderness.
7. Height of arch without weight.
8. Height of arch with weight.
   a. Standing.
   b. Walking.
9. Callosities.
10. Type of shoe being worn.
11. Muscle balance.
    Tests of adductor and abductor groups.
12. Remarks and recommendations.

TYPICAL EXAMINATIONS.

Case 1. L. S. Z. No. 178. 22 years. October, 1910. At school before entrance. On feet about eight hours daily. No trouble with feet or back. Never has had rheumatism. No trouble with feet or back since entrance. Flexibility, good. Dorsal flexion beyond right angle. Standing position, fair. Walking, fair. Toes out. Arch at rest, low. Left lower than right. With weight drops left more than right. Tenderness, none. Calluses, small callus under anterior arch. Toes, left fifth overrides; right first, slight valgus. Test: Right adduction, 40; abduction, 27; left adduction, 41; abduction, 39. Relaxed low arched feet. Shoes, good, flexible last shoes. No recommendations made.

June 5, 1911. Comes to O. P. D. because of slight tire in left foot. (See balance tests). Is wearing "Ground Gripper" shoes. Examination shows only slight plantar tenderness. Thomas heel prescribed. Hot and cold showering. Relief.

Note.—The symptoms occurred only in the left foot, in which the balance was less perfect. They occurred in spite of the fact that she was wearing a flexible shanked shoe of good lines.

Case 2. M. A. M., Nov. 13, 1911. Age, 24. No. 326.

Past History.—Teacher. On feet from 6 to 7 hours daily. Never has had rheumatism.

Present Illness.—No trouble with feet before or since entrance. Flexibility, dorsal flexion slightly beyond right angle. Standing position, slight pronation. Walking, slight out-toeing with sag. Arch at rest, medium. Arch with weight, medium. Tenderness, none. Calluses, none. Test: Right adduction, 27; abduction, 39. Left adduction, 32; abduction, 39. Shoes, soft. Poor lines, showing marked wear at forward inner corners of heels. Special last shoe advised. Thomas heel, 1-2 in. forward, 3-16 to 1-8 in. rise.

Remarks. Seen in Ward 1, Jan. 5, for foot strain. Disregarded advice at examination. Has only just obtained proper shoes and heels. Strapped with adhesive plaster. Little relief.

Feb. 1. Cast taken for arch plates. Feet re-strapped.

Feb. 18. Strapping removed. Plates applied.

Feb. 24. Condition very much improved.

March 5. Entirely relieved.

Note.—The symptoms occurred as a result of added foot strain in the presence of a faulty balance. We believe that if the advice given at the first examination had been followed this discomfort and the use of plates might have been avoided.

The muscle tests have been made with the patient seated and with the rotation of the thigh controlled, as shown in the photographs (Figs. 1 and 2). We are at present trying a simpler and more portable contrivance which promises as great accuracy and allows the tests to be made in the standing position and with or without the use of the thigh rotators.

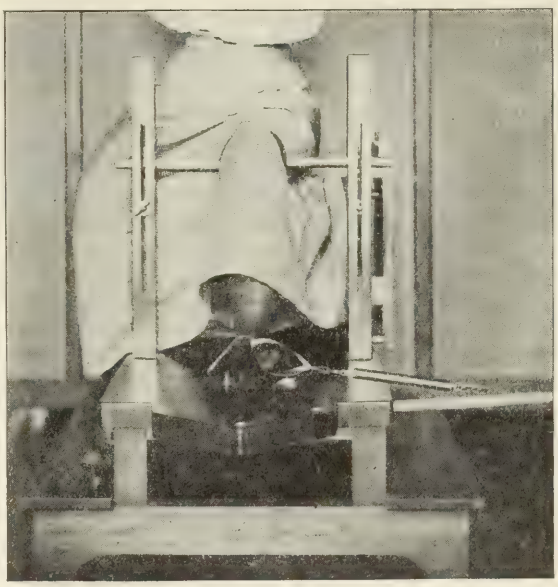


Fig. I. Adduction Test.

Toes curled. Padded strap about foot just back of great toe joint, attached to spring balance indicating pounds-pull. Toes flexed to call into play flexor longus hallucis.

The important part which the rotators of the thigh play in controlling the position of the foot

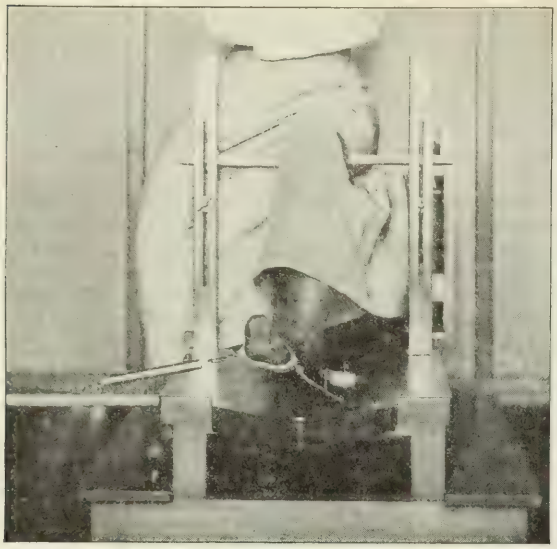


FIG. 2. Abduction Test.
Toes extended.

has been emphasized by Lowman.* With the foot fixed on the ground, for instance, the contraction of the outward rotators would raise the inner border and vice versa. Their force, moreover, is applied to the long arm of the lever.

All probationers have been examined during their first few weeks of hospital life by the methods described in the earlier portions of this paper. They have had explained to them the reasons for wearing during their working hours proper shoes. Lasts suitable to their individual needs with and without Thomas' heels have been prescribed. Eighty-four of 133 taken chronologically and followed for at least a year were considered to need advice. The simple cases of strain and those who were believed to possess the potential of strain have been thus treated. The more severe cases have been told to report to the Out-patient Department and appropriate treatment has been more carefully planned. 64 showed a normal muscle balance; 69 showed an abnormal muscle balance; 19 reported to the Out-patient at some period of their course complaining of foot symptoms. 12 or 60%, of this 19 reported by request after the first examinations, were treated, and never more heard from. 7 reported for trouble later in their course. Of these two were cases of infectious arthritis, one was acute strain of the anterior arch, leaving four reporting for what seemed to be typical footstrain. Of these four, two had an abnormal muscle balance discovered at the first examination and had ignored the advice given them; one later was obliged to give up training on account of persistent rheumatic trouble, and the remaining one had just returned to duty after a long period of comparative inactivity, and was wearing an especially vicious shoe. Only six cases have been treated with plates. We can find record of only two cases of the 133 who reported later in their course for foot symptoms who showed at their initial examination normal muscle balance. One of these, as has been mentioned above, subsequently gave up her training on account of rheumatism and the other improved after giving up her deforming shoes.

A second group of 112 nurses taken chronologically during the past two or three years has been arranged under different headings.

TABLE I.

NURSES, 112.

Adductors, strongest group,	56	
Abductors, strongest group,	33	
Groups approximately equal,	9	
Groups asymmetrical,	14	
Dorsal flexion limited (with abductor balances)	7	
Dorsal flexion limited (with adductor balances)	6	
Faulty position, adductor balance,	12	36
Faulty position, abductor balance,	24	
Good position, adductor balance,	32	41
Good position, abductor balance,	9	
Tenderness to pressure, abductor balance,	9	
Tenderness to pressure, adductor balance,	1	
Poor shoes, abductor balance,	17	44
Poor shoes, adductor balance,	27	
Good shoes, adductor balance,	20	33
Good shoes, abductor balance,	13	

Through the kindness of Miss Homans Professor of Physical Culture at Wellesley College, and Dr. Randall, her Assistant, examination of the feet along these lines was made a part of the general physical examination of the students. In this group there are about 350 cases.

TABLE II.

ANALYSIS OF 369 CASES OF FOOT EXAMINATION, WELLESLEY COLLEGE.

Adductors, strongest group,	76	
Abductors, strongest group,	185	
Groups equal,	29	
Groups asymmetrical,	79	
Dorsal flexion limited (with abductor balances)	40	
Dorsal flexion limited (with adductor balances)	16	
Faulty position, abductor balance,	131	172
Faulty position, adductor balance,	41	
Good or fair position, adductor balance,	31	55
Good or fair position, abductor balance,	24	
Tenderness to pressure, with abductor balance,	40	
Tenderness to pressure, with adductor balance,	10	
Poor shoes, abductor balance,	107	142
Poor shoes, adductor balance,	35	
Fair to good shoes, abductor balance,	43	65
Fair to good shoes, adductor balance,	22	
Previous trouble with feet with abductor balance,	7	
Previous trouble with feet with adductor balance,	1	

The interpretation of these statistics is interesting.

Among the students Dr. Randall reports that a surprisingly small number of the girls are able to take a walk of considerable distance without general and foot fatigue. (See Table II, Add. and Abd. balance ratio, also faulty position ratio.) She also reports that there is a very general

* BOSTON MED. AND SURG. JOUR., Jan. 18, 1912, p. 90.

tendency to vicious shoes of the pointed toe, high heeled type. (See shoe statistics.) Dorsal flexion was limited in 56 cases, more often when the abductors were the stronger group, but frequently also when the balance was normal.

Miss Rossiter of the Department of Physical Education at Smith College reports that roughly speaking the last entering class showed 80% of faulty position and 10% with foot pain.

In the group of nurses, Table I, we are evidently dealing with a more normal and properly balanced class of foot. The previous occupation had, as a rule, been more active and a better physical development may be presupposed. (See Table I, the relation of adductor to abductor groups; also faulty and good position ratio.) The poor shoes outnumbered the good shoes, but not markedly. Dorsal flexion was limited about as often when the adductor pull was the stronger as when the abductor pull was the stronger, seeming to suggest that this may not be as important a factor as has been supposed. In this series the tenderness to pressure beneath the calcaneo-scaphoid ligament and the plantar fascia occurred only once when the balance was normal. There had been practically no previous trouble with the feet among these cases.

Among the nurses since the last report was made there has been but one case who had an approximately normal muscle balance at entrance who has reported for foot strain. This case was one with a stronger adductor pull who had had no previous trouble, but who had a very relaxed foot with pronation and actual valgus in standing, and who, in spite of the normal balance, had been advised to have Thomas heels but had disregarded the advice. The onset of her trouble was acute, had disappeared, when seen, from one foot, and was associated with heat and swelling about the internal malleolus in the other, strongly suggesting a toxemic arthritis. During the past year no nurse, so far as is known, has been off duty for pure foot strain.

It seems probable that by these early examinations of the foot and the determination of the muscle balances a certain amount of preventive medicine may be successively employed to the end of diminishing individual discomfort and increasing institutional efficiency.

TYPHOID VACCINATION.*

A Brief Summary of Recent Literature.

BY J. HERBERT YOUNG M.D., NEWTON, MASS.

Typhoid vaccine may be used in three ways: (1) as a prophylactic, (2) as a therapeutic agent in active typhoid, (3) as a therapeutic agent in chronic typhoid carriers.

The value of typhoid vaccination as a prophylactic measure was clearly demonstrated in the Manoeuvre Division of the U.S.A. in camp at San Antonio, Texas, during the summer of 1911.[1] Here, 12,800 men occupied the camp for about four months and in this command but one case of typhoid fever developed. This was a mild case in a man who had not completed the inoculations necessary for protection. In San Antonio, a city of 97,000 people, 49 cases of typhoid with 19 deaths were reported during this period. In a division of about the same strength, encamped in the same latitude for the same length of time in 1898, there were 1729 certain and 2693 certain and probable cases of typhoid with 248 deaths. Since Sept. 30, 1911, typhoid immunization has been compulsory in the U.S.A. for all officers and enlisted men under the age of 45. In Dec., 1911, there were 3000 unvaccinated and 52,680 vaccinated troops, 2 cases of typhoid had occurred among the vaccinated, 43 among the unvaccinated. Russell[2], in his latest paper reports over 70,000 men in the army immunized. Among these men there were 14 cases of typhoid with one death, due to intestinal hemorrhage.

The method of immunization used in the army is as follows: the site of puncture, usually the outer side of the left arm, is sponged off with alcohol and a small area sterilized with tincture of iodine, the injection made with a sterile syringe and the puncture sealed with collodion. The first dose contains 500 million bacilli, the second and third one billion each. An interval of ten days is allowed between doses, the entire procedure thus taking twenty days. The injection is made into the subcutaneous tissue and not into the muscles. The dosage for women and children is in proportion to the body weight, the above being the dose for the average man weighing 150 pounds. No vaccine is used that is over four months old.

The duration of the immunity conferred by the inoculations is as yet an unsettled question. Firth, from his experience with the British Army in India, places the period of protection at two and one-half years. Leishman thinks reinoculation should be given after two years. In the U.S.A. the enlistment period is three years and for the present the orders are that the inoculation shall be given at each enlistment.

The Massachusetts State Board of Health now furnishes to the medical profession a typhoid vaccine to be used for preventive inoculation. The dosage and interval between doses recommended is that described above as used in the army. There are no contra-indications against the use of the prophylactic in the presence of an epidemic. In fact, its use is rather to be recommended under such conditions. In case, however, the person to be inoculated has had typhoid in the past, reactions may be severe and the dose should be reduced one-half. Care should be taken, furthermore, with individuals who are suffering from chronic infections, as such infections have been known to be aggravated temporarily by antityphoid inoculation. The prophylactic may be obtained by applying to the local board of health in a manner similar to that employed in the case of diphtheria anti-

* Read at the Surgical Fortnightly Club, Jan. 14, 1913.

toxin and smallpox vaccine.[3] It should be borne in mind that after typhoid inoculation the Widal reaction is positive, and an absolute diagnosis of typhoid fever can be made only by means of a blood culture. Russell, in the paper referred to above, says, "It is proven that the prophylactic treatment (of typhoid fever) is without danger (and) that the protection is almost absolute even under conditions of unusual exposure."

The treatment of typhoid fever by vaccines is still in the experimental stage. Different authors recommend doses from one million to one billion, with varying intervals between doses. The sum of opinion of these men, however, is unquestionably favorable. They claim that the fever period is shortened, and that complications, relapses and mortality are markedly reduced; while the use of the vaccine is attended with no bad results and in no way increases the patient's discomfort. Callison[4] has recently collected from the literature 475 cases of typhoid fever treated with vaccines. Omitting 52 cases in which the dose was one or two millions, unquestionably a dose too small to have any effect, the mortality in the remaining 423 cases was 5.4%, with relapses in 6.5%. Callison recommends that vaccine treatment should be instituted as early as it is possible to make a diagnosis. His initial dose is 500 million bacilli; the inoculation is repeated at four-day intervals as long as required, increasing the dose 100 million each time. In his last series of fourteen cases, no patient received more than six, with an average of three to four inoculations. Although 475 cases is too small a number from which to draw conclusions, especially in so protean a disease as typhoid fever, the results obtained are encouraging.

While medical literature contains numerous reports of chronic typhoid carriers, there is but little discussion of the treatment of these patients. Brem and Watson,[5] reviewing the literature in November, 1911, found, including one case of their own, only 12 recoveries of typhoid carriers. Three chronic intestinal carriers recovered after operations on the gall-bladder, one during the administration of B. bulgaricus in large doses, one after repeated exposure of the gall-bladder to x-rays, and one urinary carrier after the administration of hexamethylenamin in combination with boric acid. One intestinal, three urinary and two carriers discharging bacilli from bone lesions were cured with autogenous vaccines. Cummins, Fawcus and Kennedy[6] treated 7 typhoid carriers by various methods and were sure of the recovery of only one patient, an intestinal carrier treated with lactic acid bacilli. Vaccine treatment failed in the three cases in which it was tried, one intestinal and two urinary carriers. Since the publication of Brem and Watson's paper, six cases, one urinary and five intestinal carriers, treated with vaccines have been reported. Two intestinal carriers, one with an acute cholecystitis that recovered without operation,[7] and a bacilluria of twelve years' duration[10] were cured. Two intestinal carriers have remained free from typhoid bacilli for three and one-half[8] and six months.[9] The sixth case, a chronic suppurative cholecystitis, was drained and the discharge gave a pure culture of B. typhosus. The sinus gave no evidence of healing until a vaccine was given.[10] In the treatment of typhoid carriers Meader[9] recommends an initial dose of 100 million bacilli repeated at intervals of two weeks, increasing the dose 200 million each time.

To summarize: (1) Typhoid vaccine as a prophylactic provides almost certain protection from typhoid fever. (2) Typhoid vaccine as a therapeutic agent in active typhoid is still in the experimental stage. A sufficient number of cases have not been studied to enable one to draw definite conclusions. The results so far obtained, however, are favorable. (3) Typhoid vaccine as a therapeutic agent in chronic typhoid carriers, while it does not offer certain cure, is the method of treatment that has given the best results.

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A NEW METHOD OF DEALING WITH THE PERIPHERAL BRANCHES OF THE FIFTH CRANIAL NERVE IN TIC DOULOUREUX.

BY BENJAMIN BRABSON CATES, M.D., KNOXVILLE, TENNESSEE.

IT will no doubt be conceded by the average practitioner in medicine that sometimes neuritis or neuralgia is one of the most obstinate conditions confronting a patient and doctor.

We know that in this condition, as in any other, the essential or primary factor must be sought, because the neuralgia is but a symptom pointing to some latent or obvious cause. Personally I am almost convinced in such cases—especially in individuals in middle or after life—that increasing recurrences of neuralgia is a warning of beginning changes in the arterio-vascular system.

I am so positive that such is the case, even when frank clinical signs are wanting, that such changes are taking place and when consideration of all other possible causes of neuritis is negative, that I assume under the circumstances in the absence of other proof, that the patient has incipient arterio-sclerosis not evidenced by the most refined methods of diagnosis.

I have been taught my lesson in this kind of condition in several instances, more particularly in the case of a man in middle life, with large business affairs, who suffered such excruciating pain in this thumb, forearm and arm that he was unable to give attention to any of his duties, and traveled from place to place, consulting the most eminent neurologists and internists of the country, and who subsequently died of hemorrhagic pancreatitis. If any of the specialists consulted ever suspected arterio-sclerosis as the cause of pain they never indicated it to him or advised me of their suspicion. Furthermore, it never dawned on me until he was attacked, as examination of the urine was negative and the heart sounds were normal.

Eliminating then all known causes of neuritis, there still remains a type of neuralgia that baffles the internist for explanation and which turns for relief to the surgeon. One of the most intractable and mystic is neuralgia of the fifth cranial nerve.

The different suggestions that have been recommended to meet the etiological indications from a surgical standpoint run from the simplest, such as injecting the nerve and its environs with different solutions, resecting the peripheral branches, to removing the Gasserian ganglion. The most absurd is the removal of apparently sound teeth.

Now it will be allowed that removal of the Gasserian ganglion is a most serious and dangerous operation, to be undertaken only in select cases and by a most skilled surgeon. Therefore, any method that will accomplish the same result, with the least possible risk of life to the patient, is a desideratum greatly to be wished.

One of the main objections urged against resecting the different branches of the nerve, is that it is only palliative, that after a variable time the continuity of the nerve is re-established, when there is a return of the pain and suffering.

Surgeons have attempted to prevent just such a condition by plugging the exits of the nerve with some non-absorbable foreign material. In cases where I have tried to plug these openings—sometimes there is no supraorbital foramen, merely a notch—I have failed to anchor these plugs, or broken through these canals when driving the plugs home. In such circumstances I have resorted to another method to prevent the continuity of the nerve being re-established.

That is to say, in respect to the supra-orbital nerve, after pulling it out carry the proximal end of the distal branch by tunneling a variable distance under the muscles of the forehead, then split the occipitofrontalis, and anchor it with catgut to the under surface of the skin of the forehead. The proximal end of the distal extremity of the infra-orbital nerve is pulled down and attached with fine catgut to the tissues of the cheek under the skin.

It is well in this connection to furbish one's mind and to remember that the infra-orbital nerve and its subsidiary branches are derived from the superior maxillary division of the fifth cranial nerve, because by not respecting this anatomical distribution is no doubt the cause of lapses following section of the infra-orbital nerve.

Now the superior maxillary nerve just as it is about to enter the infra-orbital canal gives off the posterior superior dental branches, which supply the gums, the cheek, the antrum and three upper molar teeth; that in the back part of the infra-orbital canal it gives off the middle superior branch to the antrum, and two bicuspid teeth; and just before its exit at the infra-orbital canal it gives off the anterior superior dental branch to the canine and incisor teeth.

Any operator who fails to get beyond the origin of these nerves will be disappointed in his result, consequently one should attempt to break off the continuity of the nerve proximal to the spheno-maxillary fissure.

In regard to the inferior dental branch of the fifth nerve, it may be said that after reaching it by the ordinary way of through the ramus of the jaw, by pulling slowly and steadily from the centrum, one may succeed in breaking it off proximal to the origin of its lingual branch; then by pulling from the periphery on the terminal division, one may succeed in tearing out the nerve with all its branches in the body of the jaw.

It may be worth while to say that, though the nerve has considerable tensile power, any rough handling, such as jerking or twisting, is liable to break the nerve at some point distal to subsidiary branches, which spells failure to relieve the patient and disappointment to the operator.

A COLLECTION OF FACTS, IDEAS, AND THEORIES RELATING TO THE DIVERSE ELEMENTS THAT CONTRIBUTE TO SUCCESS IN TREATMENT OF JOINT DISEASES. RELATIONSHIPS BETWEEN VISCERAL PTOSIS AND ARTHRITIS. COMPARISONS BETWEEN MILD INTESTINAL TOXAEMIAS AND GOUT.

(*Continued from page 343.*)

BY H. W. MARSHALL, M.D., BOSTON.

THE EXACT ORIGINS, KINDS AND CHEMICAL NATURES OF CIRCULATING BACTERIAL PRODUCTS DERIVED FROM THE INTESTINAL TRACT.

In the lumen of the bowel there are always countless living bacteria representing many species. Some are accidently introduced with the food, and resistant spore-forming varieties are the ones especially likely to survive the action of digestive juices. These develop in small numbers among the colonies of bacillus coli upon culture plates when specimens of intestinal contents are examined bacteriologically.

The majority in nearly all instances belong to

the colon group of bacteria even when pathologic species like typhoid and dysentery bacilli are present in large numbers. Consequently bacterial products in the urine presumably represent waste products derived mainly from activities of the colon group of bacteria.

Streptococci; staphylococci; proteus vulgaris; bacillus aerogenes capsulatus and other anaerobes are commonly met with; and if one examines with a microscope the contents of the large intestine the richness of the material in micro-organisms and the variety of their forms is strikingly apparent.

The late Dr. C. A. Herter, of New York City, in his book upon Bacterial Infections of the Digestive Tract, classified chronic excessive intestinal putrefactions under indolic, saccharobutyric, and combined indolic and saccharobutyric types. He also described the fermentative and putrefactive processes from the standpoint of their products; namely, oxalic acid and oxaluria; acetone; basic substances—putrescin and cadaverin; sulphur compounds—mercaptan and hydrogen sulphide; aromatic products—phenol, cresol, skatol, and indol.

Without attempting to indicate further complexities that may exist, attention is focused upon the fact that the colon group of bacteria grow very rapidly and dominate the bacteriological picture of intestinal conditions. Because they overwhelm other species they are thought to exert a beneficial influence in suppressing accidental strange races of micro-organisms in the intestinal flora that otherwise might develop and injuriously affect their host.

It is certain at least that products of growth of bacillus coli are not harmful ordinarily in small amounts. So inocuous are they that their absorption, passage through the body, and excretion in the urine is accomplished usually with no disturbance at all.

Yet these very harmless bodies are the ones the writer wishes to identify with slow development of certain obscure pathological changes in the body tissues.

Harmless bacterial products are comparable to uric acid. Joint symptoms of gout might be even more obscure than they are now if urates didn't happen to crystallize out upon the weakened tissues; and the influence of so-called "harmless" bacterial products might be appreciated more readily if their action upon joints resulted in crystallizations instead merely in edemas and swellings which other causes also produce.

Both are normal waste products of metabolism, uric acid from tissue cells, and bacterial substances from intestinal bacterial cells.

Another point of similarity which they both possess is that of appearing in the urine in a surprisingly variable way, also of backing up at times in the circulating blood, presumably in unusual proportions. Urates are known to be present in the blood in excessive quantities in gouty conditions, and the same probably is true for products of intestinal fermentations in chronic excessive putrefactions. All theoretical considerations support this view and at least no clinical data known contradict it. It is a matter of difficulty, however, to determine the amounts of bacterial substances in the circulation, and the writer does not know of any such quantitative analyses of blood for intestinal bacterial products at the present time.

It is impossible to say whether the theoretical irritating bacterial substance is derived from growth of colon bacilli alone, or whether it is evolved in the activities of many intestinal bacteria. There is the possibility in addition that more than one of the chemically related waste products of bacterial growth may act as vascular irritants.

In a previous paper[5] the writer was inclined to emphasize the importance of metabolic products from strictly anaerobic intestinal bacteria, because they were present in increased numbers in cases of arthritis. There should be no objection to the idea that particular micro-organisms, typhoid bacilli, dysentery bacilli, bacillus aerogenes capsulatus, streptococci, or unknown species, being able to give rise to toxemias of special nature when their own peculiar metabolic products are very greatly increased in the circulation; yet for all clinical manifestations under many conditions that have been recorded, some one substance or several substances, constantly present in the bowel in variable amounts theoretically will explain best the mild recurring symptoms that occur so commonly.

The only ones that fulfill this theoretical requirement are the ordinary harmless waste products developing from growth of bacteria belonging to the colon group, but this conception does not antagonize the notion that many others may contribute also their smaller share of the same kind of waste products and that the effect observed may be due frequently to a combined origin.

It seems likely also that organisms of intermediate virulence, those belonging somewhere between the bacterial species producing acute fevers and the harmless colon group, owe their influence as much to the quantitative as to qualitative effects of their circulating products.

It is possible to imagine other theoretical causes, namely, that the intestinal mucosa itself evolves slightly harmful substances under abnormal conditions independently of intestinal bacterial activity. This is true perhaps in carcinomata of the alimentary tract and in states of intestinal obstruction; but for the many minor manifestations of mild intestinal intoxications without the serious defects that have just been mentioned the only fact about which there is no doubt is the formation, absorption, circulation and excretion constantly of harmless waste products from growth of bacillus coli and allied organisms. Upon them, therefore, the writer places the blame for many chronic pathological states in joints and in the alimentary tract, be-

cause they will account for all appearances satisfactorily. Their harmlessness later will be discussed at length.

In attempting to select the exact ones among common bacterial products which probably act as causes for ptosis, arthritis, anemias and other manifestations of auto-intoxications, an interesting fact can be picked up from the tanning industry.

Skins of animals, which represent fibrous connective tissues mainly, are treated with dilute acid solutions in order to "plump" them after preliminary putrefactive "limings" that remove hair and epithelium in the preparation of leather. The rough swelling effect which weak acids have upon such large bulks of connective tissue suggests that periarticular swellings of connective tissues in persons possibly may have their etiology in chemical reactions of the blood in certain instances.

Indol is immediately thought of as a substance that is produced by bacillus coli and by some strictly anaerobic micro-organisms in the intestinal tract that possibly may be the circulating bacterial irritant of some auto-intoxications. Indol is paired in the tissues and converted into indoxyl potassium sulphate; and the indican also constantly appearing in the urine in variable quantities must be attributed usually to intestinal formation of indol.

The significance of indol interested Dr. Herter, and his statements will be quoted freely to illustrate some of the complexities and possibilities that are met in the formation and passage of indol through the body.

"In the human intestine the presence of indol is dependent on the action of living bacteria, although it is likely that the action of the digestive juices may prepare the way for the attack of bacteria on proteid material. The indol produced in the intestine is, like skatol, dependent on the production of a more complex substance known as tryptophan. Hopkins[6] was able to show that the action of bacteria upon tryptophan may lead to the formation of indol, skatol, indol-acetic acid and indol-proprionic acid. An endeavor was made to determine the influence of individual types of bacteria upon the change of tryptophan, and it was found that B. Coli is capable of giving rise to considerable yields of indol at the same time that it produces indol-acetic acid."

"There are many persons from whose intestines it is impossible to recover indol at all or in more than a mere trace. On the other hand, the production of considerable quantities of indol in the large intestine is a feature of many instances of intestinal putrefaction. In some cases one may find as much as fifty to sixty milligrams of indol in one hundred grams of the fresh stool."

"The faeces may contain little indol while the urine holds much indican; conversely, the faeces may contain a considerable quantity of indol, and owing to imperfect absorption the urine may contain only moderate quantities of indican."

"The living cells of the body, especially the hepatic and renal cells, and the epithelial cells of the intestinal tract, have the power of absorbing considerable quantities of indol as well as of phenol and of tying them loosely in such a way that these bodies cannot be recovered by distillation. Owing to this property of the cells by which they hold these aromatic bodies while subjecting them to oxidation and pairing, the nervous system is screened from their action."

"As to the effects of absorbed indol upon the organism in disease it is necessary to speak with caution, since there is no evidence that indol is the only toxic substance absorbed in those cases where it enters the organism from the gut. Some light is thrown on the question by experiments made through administering indol to normal men by the mouth. In one of the cases, a robust man whose urine had been free from indican, felt no effect from large doses given him until several days' administration, when the influence on the nervous system became distinct and led to irritability, headache, flight of ideas, etc. It should be noted that the quantity of indol administered in this case was probably in excess of any amount that would be absorbed from the intestine even in the most pronounced pathological condition. It would not, however, be safe to infer from this that smaller doses would have been harmless; for while such smaller doses might have produced little or no effect if given during a few days to a normal person it is not unlikely that its long continued administration would have led to symptoms."

The deeper one delves into complexities and theoretical possibilities of intestinal conditions the greater does one's confusion become over the tremendous intricacies. Then it is time to stop following single details, and to collect the features that are common to many or all conditions. These common features are comparatively few and can be remembered well enough to be used efficiently in treatment.

One has to stop and realize that whether one or many intestinal bacteria are causes of auto-intoxications, whether they are unknown or known species, whether the intoxication is due to specific or combined actions, and regardless of their chemical constitutions, that auto-intoxications can be relieved by clearing out the gastro-intestinal tract and keeping it cleared out. Also that intestinal antiseptics and diminutions in diets may diminish fermentative processes although exactly why fermentations are harmful is unknown to the person directing treatment.

Cathartics, tonics and other drugs may be effective although ultimate reactions between them and the living tissues are unknown. Sequence of events in clinical histories may show what should be done although most careful clinical tests give no indication of what ought to be

attempted. Accurate applications of well known physiologic principles and biologic conceptions are responsible for many cures although theoretical ideas cannot be proven and sometimes are not employed because they are difficult and theoretical.

CONSIDERATIONS OF HARMLESS QUALITIES OF SUBSTANCES, OF CONVINCING PROOFS FOR THEORETICAL IDEAS, AND CLASSIFICATIONS OF ARTHRITIS.

Harmless or beneficial substances may become harmful ones through changes in conditions which accompany them, and also when there are changes in amounts of the harmless substances themselves under otherwise fixed conditions.

Convincing proofs for theoretical ideas depend upon the keenness of different persons to whom the proofs are offered. The same data may convince one person of the truth of a matter that another remains sceptical about. Stated in another way, varying amounts of proof are required with different persons to convince them of the same identical fact.

Harmless qualities and proofs are met with so frequently in the present paper that the writer thinks it advisable to discuss exactly what is meant by them in the present connections.

Uric acid is a normal product of tissue cell metabolism, and it is found in urine frequently in considerable amounts throughout life among persons who suffer from gout. Indican and ethereal sulphates from bacterial decompositions in the bowel also are present constantly in the urine throughout life, and they may be found in very considerable amounts at times without any symptoms at all. Therefore, it is conceded by many persons that both urates and such bacterial products are harmless.

This error is natural when so many positive striking facts are known, and the mistake arises through neglect of two other, easily forgotten, important points,—variable tissue resistances and variable concentrations in the blood.

These two last mentioned factors constantly have to be considered because they are features of every physiological situation, yet in the reasons just mentioned for considering urates and bacterial substances harmless they are omitted entirely. All joints instead are assumed to be alike, and all blood is considered of constant composition, and these are erroneous conceptions.

It is true that urates and bacterial decomposition products from the intestine are usually harmless because their quantities are so small in the blood in the majority of persons that no tissues are influenced. Harmful effects theoretically can be produced from them only by an increase in the strength of their action through increasing their concentrations, or secondly by weakening the resistances of the tissues upon which they act while they remain constant in strength.

Theories harmonize with clinical observations upon this point for it is proved that concentrations of urates in the blood are increased in gout, and that variations probably exist at times in joint resistances, as in all protoplasmic structures, beyond any reasonable doubt.

Gouty or intestinal toxemic symptoms may appear, therefore, in joints when quantities of circulating irritants are slightly above the average and act upon weak articular structures; also, when excessive quantities in the blood act upon slightly stronger joints. On the other hand no symptoms will exist under ordinary conditions, nor when excessive quantities are acting upon joints that have resistances greatly above the average.

With these two normal waste products of tissue cell and bacterial cell metabolism respectively, harmlessness to the individual depends directly upon concentrations of the substances in the blood and the variable resistances in the tissues; and the mere facts that these bodies are formed all through life and that they are constantly present in the system really have nothing to do with their harmless or harmful activities. The latter depend upon their direct action upon the tissues under varying circumstances just stated, and in gout probably also upon laws governing crystallization, namely, temperatures, rates of circulation of blood and lymph in joints, etc.

Convincing proofs are usually demanded for theoretical ideas. As an illustration they are demanded for the theoretical hypothesis adopted in the present paper which the writer firmly believes treatments should be based upon in all instances.

This practical working basis takes into consideration many important physiological functions of the body, especially digestive and eliminative ones. It includes recognition of the great importance of interactions between various body tissues, and the variable resistances so commonly exhibited by them. It takes into account the effects of mechanical, external, nervous, and vascular influences, and it recognizes that vascular conditions include considerations of abnormal circulating products at times, especially pathogenic bacteria and toxins, also that abnormal quantities of substances usually present in the circulation may cause symptoms at other times. It emphasizes quantitative as well as qualitative sides of treatments,—that success depends almost as much upon how a selected remedy is used as upon selection of the correct kind. In brief it is a summary of many well known physiological, anatomical and biological facts and probabilities.

Differences observed when it is used and when hap-hazard, incomplete methods are tried, the latter depending upon selection of single remedies and consideration of only a few of the causes contributing to the defective states, unfortunately at times are not very striking. Confusion arises from the fact that incomplete

methods are sometimes successful, and that patients may even get well occasionally without any medical treatment although a physician is in constant attendance.

These latter recoveries obviously are not due to medical skill, and must be thought of as accidents mainly, or to the healthy reactions of patients which go on when the attending physician does not appreciate their existence. Therefore they cannot be advanced as arguments against a hypothesis which attempts better understanding of conditions and acquisition of increased skill from more correct conceptions of the disease. While admission is freely made that some relief often is obtained from poorly understood methods, emphatic insistence also is laid upon rational ones as the only sure ways of making continuous progress.

Learning to apply a working hypothesis such as has been outlined, means familiarizing one's self with the fundamental facts of physiology, biology and anatomy, and this is a slow process. Improvements in results are correspondingly slow to obtain, yet upon looking through the long list of special remedies that have been suggested for rheumatisms, gout, and joint conditions in recent years, and upon following up the results from such measures, there certainly is no great encouragement for continuing such experiments alone.

On the other hand the writer knows from personal experience, as he has become more familiar with the above-mentioned working basis, that he has been able to recognize and correct defects with increasing success which previously had escaped detection.

And anyone, who will spend the time to learn thoroughly the theoretical possibilities associated with development of joint diseases, will find that many of the obscurities disappear as increased knowledge is gained, and that the degree of success in treatment depends directly upon the degree of experience and familiarity with theories and with their practical applications.

The most serious and discouraging thing that happens is the demand for easy methods of treatment exclusively, and those whose accuracy is easily proven. The conception that easy ways will be discovered for treating all complicated defects of an extremely complex human mechanism is fundamently wrong, and it seems greatest progress instead now depends upon abandoning these demands for simplicity alone, and that it is accelerated by acceptance of additional complicated truths and methods of treatment.

Comparatively simple details of any very complicated entity also are very difficult or impossible to prove directly. For illustration, convincing proof is practically impossible for the belief which the writer has advanced that too great concentrations in the blood of comparatively harmless bacterial products from the intestinal tract at times are capable of causing lesions in the joints.

To do so it would be necessary first to select a susceptible person, one with healthy articular resistances of low enough degree to be overcome by the mild irritations of excessive quantities of circulating bacterial substances. This would be no easy task as the majority of persons with intestinal toxaemias do not exhibit joint symptoms.

Secondly, after such a person was found he would have to be subjected to slight degrees of irritations for a long time, not strong ones for brief periods, as there are great differences between acute and chronic processes. The determination of the exact amount of irritation and exact lengths of time of administrations that would yield positive results also would be a rather difficult matter.

Thirdly, provided a favorable case was found that exhibited simultaneously arthritis and intestinal toxaemia in degrees that were pronounced enough to be easily measured, and the individual were willing to submit to experimental treatment—perhaps to long continued measures with enemata of bacterial cultures prepared from his own digestive tract,—such experiments would be entirely unjustifiable.

Under these circumstances the question arises whether theoretical probabilities shall be acted upon in directing therapeutic measures as though they are established facts, or whether treatments shall be carried on as though the probabilities do not exist, and until they are definitely proven.

Decisions upon this matter are easy for pure scientists who are building up scientific knowledge upon proven ideas. They are compelled *not* to accept probabilities although they may be true. The attitude of clinicians, however, is distinctly different, and it is their duty to utilize in treatment many ideas that are too complicated to be directly proven if applications of the latter will help in the relief of human suffering. Judgments with clinicians ought to be passed upon the degrees of probability of matters, and insistence not made upon absolutely undeniable proofs for extremely complicated truths.

The assumption which has been made in the given example that "harmless" intestinal substances cause joint lesions, seems to the writer to be probably the correct explanation for the obscure clinical appearances described. In practice this assumption has justified itself so far as it has been tried, and therefore it is made a part of the writer's working hypothesis and possesses really the weight of an actually proven fact when treatments of patients are directed.

Such an attitude tends toward conservatism and avoidance of new or improbable ideas. This is in direct contrast to the method of selecting remedies because of their new, untried character or for peculiarities that appeal largely to the imagination.

To summarize, convincing proofs are absolutely impossible for many complicated, extremely important truths owing to their dependence upon many complex physiological actions and interactions of living organs. Conditions

cannot be regulated accurately enough to trace causes to their effects by direct controlled experiments probably even by persons of keenest intellect and greatest experience, and this state of affairs presumably will exist indefinitely for many important conditions.

Probabilities and proofs together, not absolute proofs alone, therefore, are what clinicians must utilize in their working hypotheses when attempting to restore health of their patients.

Classifications of arthritis usually are based upon fixed structural changes in the tissues, but it is possible to treat joint conditions very successfully with very little knowledge of these more or less incomplete groupings; and emphasis is not laid in the present paper upon classifications of gross or microscopic appearances, although the importance of knowledge and recognition of pathological changes is fully appreciated.

When correcting physiological defects that are acting as causes for joint lesions it is more important to keep in mind all normal physiological processes concerned in normal function of joints, or that can contribute to defective function, and also all possible external or infectious causes for arthritis.

Joint lesions may be classified physiologically according as their origins lie in one or several of the following defects:—intestinal, hepatic, renal, cardiac, neural, splenic, internal secretory, articular, and other organic defects; or in postural, mechanical, external physical, and many infectious contributory causes.

There is no antagonism between the two classifications. Physiological ones are based upon origins and anatomical ones are based upon the effects observed in the joints resulting from physiological causes. Physiological conceptions and classifications, however, are most accurate for use when functions of living tissues are being dealt with, and when their treatments are being directed.

COMPARISON OF MILD INTESTINAL TOXEMIAS OF BACTERIAL ORIGIN AND GOUT.

Sodium urate in the blood may be derived from absorptions from the bowel like bacterial substances of intestinal origin in the circulation. Uric acid undergoes changes in the liver and other body tissues, as bacterial substances probably do, and like them it is excreted in the urine in small amounts.

The two sets of physiologic phenomena associated, respectively, with the passage of urates through the system, and with the passage of harmless intestinal bacterial products is strikingly alike upon close examination, although there are very many important minor differences between the two.

Pathological changes associated with both conditions presumably represent the effects of retention of normal, ordinarily harmless metabolic substances. The two kinds of waste products when they accumulate in the circulation in undue amounts, as has been stated, gradually set up irritations and changes in various tissues according to the variable resistances of the latter and according to the degrees of concentrations in the blood.

Concentrations of urates in the blood in gout depend upon all of the theoretical variable conditions that intestinal toxaemias do. This is true although in gout there is a very important additional source for urates from tissue cell metabolism. The effect of this additional source is to make regulation of concentrations in the blood less perfectly adjustable therapeutically in gout than in intestinal toxaemias in which the alimentary tract is the sole source of supply of circulating waste products.

Other important features relating to vascular concentrations correspond closely in the two conditions; namely, the variabilities in kidney function, probable variabilities in destruction of the circulating substances of the body tissues; importance of the ratio of the rate of absorption from the bowel or formation by the tissues to the rate of excretion; variabilities in joint tissue resistances; significance of the ratio of the latter to the degrees of vascular concentrations rather than the importance of joint resistance or vascular concentrations independently.

Sodium urate produces somewhat different clinical symptoms from those resulting from bacterial substances, owing to its different chemical nature and to its tendency to crystallize out upon weakened tissues. It has been studied more carefully than bacterial products, and data concerning it are much more definite and abundant than about the latter. A few of the facts concerning urates therefore will be presented to support the theory which has been urged for the action of these two vascular constituents.

Magnus-Levy[7] in a lecture has presented in concise form some of the important points about uric acid in gout, and facts from this reliable source of information will be introduced by the writer.

"Normal blood is practically free from uric acid. In gout it can contain 5 to 10 mg. per 100 c. c. after a mixed diet has been taken; following a purin-free diet the amount is lower, being from 2 to 4 mg. but in no case is absent."

"There is increased formation of uric acid in leukaemia and pneumonia associated with increased destruction of nuclear material, also there is increased production after ingestion of sweet breads, &c. In these conditions there may be as large a quantity of urates in circulation as in gouty patients and yet without gouty manifestations. Persons who do not suffer from gout will eliminate the excess of urates within a few days, and, even when adhering to a mixed diet, their blood will soon be free from urates. In gout, on the contrary, notwithstanding the ingestion of a purin-free diet, uric acid will by no means disappear from the blood."

"In nephritis elimination of uric acid is mark-

edly disturbed. During favorable periods when no other substance is retained in any amount worth mentioning, some milligrams of uric acid, however, are always present in the blood of the nephritic patient."

"Gudsent has shown by physico-chemical methods that sodium urate in the blood exists in two modifications which differ only in their solubility."

"Investigations of the blood show that prolonged circulation of urates at times occurs in gout. In a great number of observations the output of uric acid after feeding sweetbreads or other nuclein-containing material was less than in healthy persons. Different gouty persons do not behave alike, however, and there are some in whom destruction and elimination are performed in the same length of time and to the same extent as in healthy persons."

"Many organs at times may be concerned either in yielding or destroying uric acid, and there have arisen in the past conceptions of gout based upon faulty conditions found in individual organs, liver, spleen, bowels, &c."

"Indirect influences may modify symptoms at times, and if muscular work prevents paroxysms or lessens their violence this need not be referred to an increased destruction of uric acid, but rather to an immediate action on the joints, changing the quantity of synovial fluid or its composition, or the rapidity of its circulation. The actions of other organs too might be indirect."

A. Magnus-Levy himself "found 4 and 6 milligrams of uric acid in 100 c. c. of the fluid aspirated from inflamed knee joints. But in spite of this saturated state one rarely finds crystals in suspension, and when such are encountered they may, perhaps, have originated from the impregnated cartilages which have undergone destruction, or from tophi which have forced a way into the articular cavity.". . . "As a rule, crystallization takes place only in the organized tissue."

"Roberts and Gudsent noted that cartilage, tendons &c. are richer in sodium salts than blood serum. Their sodium content reckoned as sodium chloride rises to 0.9 per cent., while in serum it is only 0.7 per cent." "The theory of solution agrees fully with actual experiment. An addition of 0.2 per cent. of sodium chloride to a saturated solution of urate of sodium brings about precipitation. Roberts conceived the idea that it is the high amount of sodium salts in the connective tissue which very likely determines the place of crystallization of urates."

"Contrary to the opinion of Ebstein," Magnus-Levy thinks "we may at present take for granted that the deposition of urates does not occur in necrotic; but only in living tissue."

It is impossible to harmonize all the confusing, and at times apparently contradictory, observations that have been made concerning uric acid and its manifestations except by a theoretical assumption. It is impossible also to prove any satisfactory theory of gout directly owing to the utter hopelessness of measuring so many variables accurately and simultaneously.

However, there are no doubts about the sequence of physiological events,—the ingestions, absorptions, formations of urates in the body, direct actions and reactions between circulating substances and body tissues, of interactions between the various tissues, and of excretions.

Since it is perfectly clear too that each physiological process, and each tissue activity may vary considerably at times, the writer cannot see the advantage of remaining skeptical of a working hypothesis which is based upon sound anatomical and physiological knowledge even though it is complicated. It can never be directly proven, and as stated previously, time will furnish proofs from applications in practice while inertia or skepticism can lead frequently to worse practical results than possible errors in carefully considered theoretical conceptions.

The writer can see only a distinct advantage in supposing that joints exhibit roughly similar variations toward the influence of urates that they show toward tubercular, gonococcic, pyogenic and other infections.

It is reasonable to suppose that the majority of joints will withstand circulating urates in very considerable amounts for some time. Facts show that urates appear in the blood in unusual amounts at times in nephritis, leukaemia, pneumonia, and after excessive eating of nuclein containing foods; and yet that such patients need not have gouty symptoms. These unusual conditions do not cause gout necessarily because most joints presumably have strong vital resistances against circulating urates.

There is no antagonism between this idea, and the fact that some persons show decidedly gouty manifestations when their blood presents no greater variations from normal than are shown in non-gouty persons with nephritis, leukemia, etc. The healthy resistance of the joint tissues is the determining factor in development of pathological changes in gout as in other articular diseases.

When concentrations of substances in the blood are thought of as representing a balanced state depending upon amounts of eliminations, upon formations and absorptions, and upon clinical changes taking place in the tissues whereby the specified substances are altered or destroyed, theoretically the degrees of vascular concentrations of urates, as of bacterial products, can be varied in several ways.

If the amounts eliminated are diminished, and the supply continues unchanged, there will be an increased concentration in the circulation owing to changes in kidney conditions. Gouty manifestations then are due to kidney defects.

When kidney functions represent an average capacity, and the supply instead is very much increased so that the kidneys cannot eliminate the large amounts fast enough, there will be accumulations and possibly manifestations which

should not be considered necessarily of renal origin. These latter can be ascribed to several defects,—to physiological defects in liver and body tissues in destroying urates; to abnormally large formations in the tissues, or to excessive absorptions from the food. At other times kidney functions and converting powers within the body both may be of average capacity at the same time, and yet not be quite sufficient to meet the unusually great demands made upon them by excessive absorptions or formations or combinations of the latter two.

When the origin for excessive quantities in circulation is mainly within the tissues therapeutic measures must be directed toward increasing eliminations, toward stimulating converting powers of the tissues and toward diminishing such formations of urates. Theoretically and practically regulations of these kinds are very much more difficult than regulation of absorptions from the digestive tract.

The foregoing details are all perfectly possible theoretical situations in the normal anatomical sequence of normal physiological actions of organs and of biological variations among tissues. Combinations only of these well known biological, physiological and anatomical facts will account for the confusing variations in symptoms and results of tests clinically observed in gout.

They are able to harmonize every clinical fact that has yet been described and therefore they should be accepted, it seems to the writer, as a satisfactory working basis upon which to direct curative measures and to interpret patients' conditions.

Turning from causes to effects of too great concentrations of circulating urates, it is possible often by the crystalline deposits to show conclusively the regions that may be affected.

Urates produce characteristic changes in joints which need not be mentioned at length.

Haig[8] describes gout of the intestine as a catarrhal process first affecting the mucous coat, and says at times that these accumulations of deposited urates are visible to the naked eye, also that interstitial accumulations found by chemical analysis are not uncommon.

Urates also produce at times severe gastro-intestinal symptoms which are described in text-books of medicine. Osler[9] speaks of "retrocedent or suppressed gout" as "applied to serious internal symptoms, coincident with a rapid disappearance of improvement of the local signs. Very remarkable manifestations may occur under these circumstances. The patient may have severe gastro-intestinal symptoms—pain, vomiting, diarrhea, and great depression—and death may occur during such an attack.

Deposits of urates not infrequently occur in the kidneys. Tophi are found in cartilages of the ears, nose, eyelids and larynx. Deposits have been described as rarely occurring upon vocal cords and upon valves of the heart.

The only alternative choice, apart from this theory, is one of confusion and skepticism, which has less justification than the idea that, in these harmless waste products about whose existence there can be no doubt and whose frequent presence in abnormal amounts is acknowledged, there is a possibility of explaining all clinical appearances, provided the other well established fact, that of physiological variabilities of living tissues, is kept in mind and applied to the confusing situations which are encountered. As stated before, no other theory will so completely account for everything as this simple grouping of known biological, physiological and anatomical facts.

This conception is a very general one but does not antagonize any details that have been, or are likely to be discovered. It is a rough outline that is easily lost sight of, but, although vague and general, it is correct as far as it goes, and is needed badly to give physicians proper balance and sense of proportion when directing treatments. Without it therapeutic measures are very likely to be entirely inadequate on account of their qualitative and quantitative defects, although they may be at the same time of most painstaking and elaborate kind.

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(*To be continued.*)

New Instruments.

BALL-VALVE APPARATUS FOR THE ADMINISTRATION OF SALVARSAN.*

BY L. L. ALBERT, M.D., BOSTON.

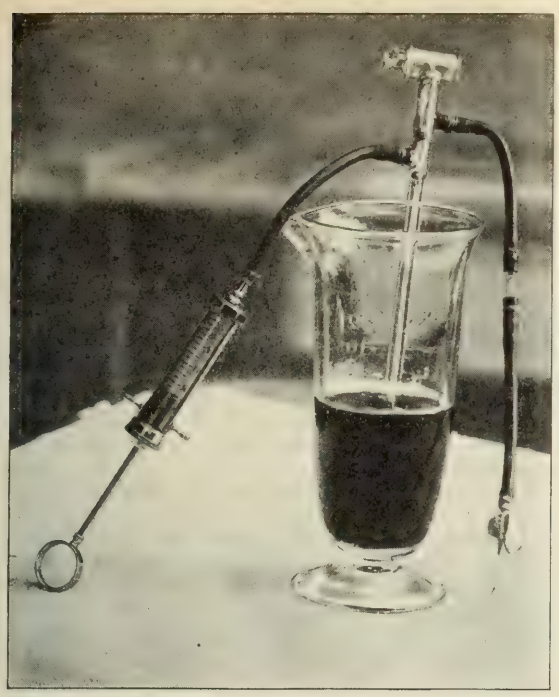
THE object of this communication is to describe and bring into more popular use the ball-valve apparatus for the administration of salvarsan, advocated by Wechselmann of Berlin and widely used in Germany.

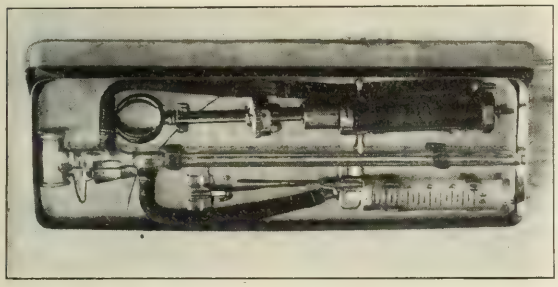
At the Long Island Hospital, Boston Harbor, I have given fifty-five doses, by means of this instrument, at an average of seven minutes for each dose. It is quicker, easier to use, more reliable, and less complicated than other instruments ordinarily used.

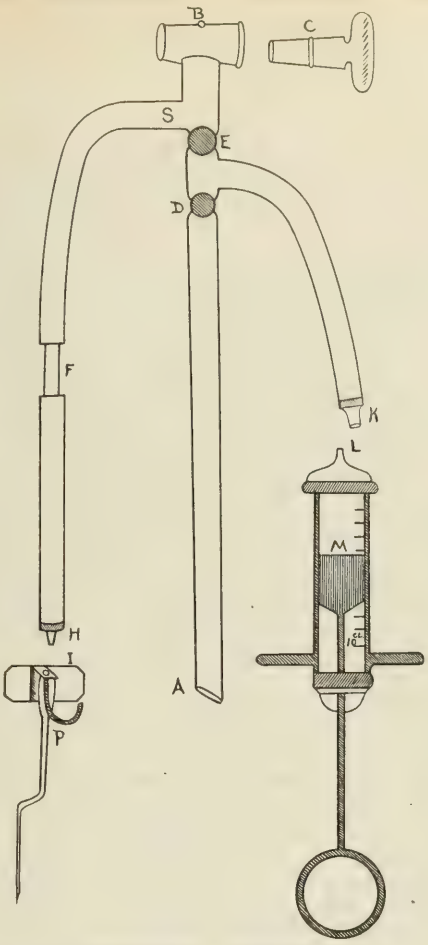
The method of procedure is as follows:—

After boiling, the parts are put together and the apparatus is made air free by filling with salt solution. When the tourquinet has been

* From the Service of John H. Cunningham, Jr., M.D., and James S. Tomkies, M.D., Resident Physician, Long Island Hospital.







BALL-VALVE APPARATUS.

A—glass-centre piece.
B—opening for valve C.
C—glass valve.
D—small metal ball valve.
E—large metal ball valve.
F—glass window for blood.
H—slip joint for needle.
I—intravenous needle.
K—slip joint for syringe.
L—glass syringe with metal joint.
M—metal piston.
S—glass arm to needle.
P—where needle should have slip joint.

applied the needle is inserted into the vein. If the vein is properly penetrated blood will invariably appear at the window F if valve C is opened. Valve C is now closed. The salvarsan is then sucked up past the small valve D into the syringe L, and from here up past the large ball-valve E and into the glass arm S, whence it passes into the needle and vein. The valve D prevents the salvarsan from passing back into the graduate. The needle is so constructed as to be self-retained. The remainder of the procedure consists in filling the syringe and injecting the solution up to the required amount.

Several improvements might be made in the apparatus as follows:—

1. A 20 c.c. syringe, instead of one holding 10 c.c.

2. A less curved needle.

3. A slip joint in the needle at P to simplify cleaning and the insertion of new needles.

4. The glass window F should be nearer the needle.

5. The rubber tubing should be much longer to allow greater freedom.

Reports of Societies.

AMERICAN CLIMATOLOGICAL ASSOCIATION.

THE TWENTY-NINTH ANNUAL MEETING WAS HELD AT THE HUNT MEMORIAL BUILDING, HARTFORD, CONN., ON JUNE 10, 11, 12, 1912.

(*Concluded from page 357.*)

DR. VINCENT Y. BOWDITCH, Boston, Mass., read a paper entitled,

MEMORABILIA: EXTRACTS FROM MEDICAL NOTES OF THE LATE DR. HENRY INGERSOLL BOWDITCH.

Reminiscences of teachings of the great Louis. The development of the ova of the snail under the microscope. Diaphragmatic hernia. A therapeutic suggestion by Dr. Amos Twitchell, of Keene, N. H.

Personal reminiscences of the introduction of paracentesis thoracis.

DISCUSSION.

Dr. James M. Anders, Philadelphia, said the paper was of unusual interest and of great historical value not only as it related to internal medicine and surgery but also as it tended to show what great leaders in internal medicine thought. The law of Milne Edwards, namely, that function precedes the development of organs in the animal kingdom, seems to have been anticipated by the late Dr. Bowditch.

Dr. J. H. Pratt, Boston, said that during the last year he had been interested in studying the influence of Louis on medical thought and practice in Boston. He came in close touch with the writings on medicine by Henry I. Bowditch in this work. There was a freshness about the writings that would appeal to all readers today. It seemed as if they must have been written in recent years they were so modern in tone. There was something in them that made one think of the modern writings. In Dr. Bowditch's writings one saw the results of very careful observations. Furthermore there was a very careful weighing of facts There appeared a great modesty in his statements in drawing conclusions.

He recently found in the Boston Medical Library a volume that Dr. Bowditch had presented including his collected reprints. He found in it a memoir of Louis and no more vivid description of Louis was ever published and he wished that this paper might be reprinted in some American journal.

Louis had great influence upon the teachings in the Massachusetts General Hospital and he had heard Dr. Osler say that Louis was the patron saint of that hospital. Dr. Pratt read some of the records of cases there and before the influence of Louis was felt there were no records of physical examinations, only histories and the treatment employed. The first autopsy record he found was a careful detailed and objective description and was by Dr. Bowditch and nothing could show more convincingly how deeply the scientific spirit of Louis had been instilled into his young American student.

Dr. Vincent Y. Bowditch, Boston, Mass., and Dr. W. A. Griffin, Sharon, Mass., read a paper entitled,

SUBSEQUENT HISTORIES OF TUBERCULOSIS CASES TREATED DURING TWENTY YEARS (1891–1911) AT THE SHARON SANATORIUM.

DISCUSSION.

Dr. James M. Anders, Philadelphia, said that sanatorium treatment did not cure tuberculous patients but often carried them well along toward recovery. He thought that after the patients left the sanatorium we still had a very important duty to perform in instructing them how to continue a proper mode of life; if they were taught this, particularly if they were symptom-free when discharged, there would be little danger of recurrences. They should be made to understand the necessity for keeping themselves in a condition of good muscular development. The condition of the muscles was the standard of physical efficiency,—the degree of resistance possessed by the patient. That meant that the patient, although practically well, should take systematic, graduated, physical exercises and he was quite sure if physicians insist upon this, they would be doing their patients a great service. It should be remembered that a man at exercise breathes four or five times more oxygen than while at rest. The so-called "internal respiration" was thereby favored for the exchange of oxygen and CO_2 took place in the muscles themselves. The rate of these changes stood in direct relation to the nutrition of the patient. In other words there was no way by which one could promote the nutritive changes so well as by the employment of systematic physical exercises alternated with sufficient rest. During exercises they were expending much more energy than they were storing; it followed, therefore, that they should be instructed to take systematic rest as well in order to keep the muscles in a condition of nutritive equilibrium. All these patients required muscular exercises, walking, games, rest and recreation. The point Dr. Anders wished to emphasize and to maintain was that in attempting to secure the desired resistance their efforts should be directed toward obtaining good muscular development which was synonymous with the highest type of physical development.

Dr. Linsly R. Williams, a member of the Metropolitan Sewerage Commission of New York, read a paper on

THE POLLUTION OF NEW YORK HARBOR.

It was estimated that amount of fecal matter entering the harbor amounts to about 625 tons daily. That from horses and mules, 40 tons daily. No estimate is made of the amount of urine. The ratio of volume of sewage to the volume of water flowing out of the harbor in each twenty-four hours was as one to twenty-eight. There is an increasing difficulty for the harbor to dispose of the present amount of sewage being emptied into it, this being estimated at one hundred million cubic feet per day. Experiments on the movement of objects floating in the water were made; the oxygen content of the water was estimated and the method of its renewal; the presence of the bacterium coli, etc. The danger of continued and increasing pollution was noted and suggestions made for avoiding it.

Dr. W. D. Robinson, of Philadelphia, read a paper on

COLDS AND PNEUMONIA.

The bacteria causing colds are usually some strain of the same as those causing pneumonia, or in more or less activity mixed with them. Colds, especially in the very young and old, lead to the development of bronchopneumonia. In pneumonia an acid blood was said to be desirable to reduce the coagulability of the blood and to inhibit the multiplication of pneumococci; in colds, if an active alkalinity of the blood is induced early in the history, a prompt termination of the attack is secured. Dr. Robinson advocated the use of alkaline baths containing two pounds of sodium carbonate to the full tub at a tepid temperature for fifteen minutes. He advocated the use of magnesium sulphate in ten-grain doses internally and as a spray in one or two per cent, solution to the nasopharyngeal membrane.

DR. MORRIS MANGES read a paper on

THE AUSCULTATION OF THE WHISPERED VOICE.

This has the same physical basis as bronchial breathing, its homologue, and has exactly the same significance as a physical sign. It gives valuable evidence when the patches of infiltration are small and scattered, when changes are heard in the whispered voice long before the breathing becomes bronchial. For some special reason bronchial breathing cannot be elicited in some cases because deep breaths cannot be taken by the patient, either because we are afraid to let the patient breathe deeply, as in recent hemorrhages, or when severe pain or abdominal distention prevent. The whispered voice is not transmitted to the sound lung and cannot mislead us. Dr. Manges considered the use of the whispered voice in tuberculosis and pneumonia.

DISCUSSION.

DR. JUDSON DALAND, Philadelphia, said that the main point was the usefulness of auscultation of the whispered voice in small consolidations and also where one did not wish to disturb the patient more than was necessary, particularly in cases of hemorrhage.

Dr. Daland thought that the whispered voice was specially useful when they were dealing with disseminated consolidations which were so easily overlooked. He had overlooked many of them. These findings should be checked up by the skiagraph.

DR. J. M. ANDERS, Philadelphia, Penn., said much might be obtained by careful inspection. He had never known of one side being affected by a pneumonic process, that the opposite side did not show a greater mobility. Inspection was very important.

DR. H. F. WILLIAMS, of Brooklyn, read a paper entitled,

AN EXPERIENCE WITH HISS' LEUCOCYTIC EXTRACT IN A CASE OF PNEUMONIA.

The patient was a man of 35 in whom the lobar pneumonia was associated with an extensive hemic murmur with marked toxemia. The first injection was 10 cc. and was repeated in a few hours and was continued twice daily until a total of 90 cc. was given. Recovery followed.

DISCUSSION.

DR. CLEAVELAND FLOYD, Boston, Mass., said that three years ago he had the pleasure of seeing some of the work done in New York with Hiss' extract. Dr. Lucas and Dr. Floyd had treated thirty cases of pneumonia at the Massachusetts General Hospital with leucocytic extract and many of these patients were alcoholics. He did not remember the effect upon the hemic murmurs, but the mortality was lowered to 12 per cent. as compared with the general mortality of 20 per cent. In this group of cases the results of this treatment were very striking. They then tried it in a number of cases where there was a general infection with localization in the lungs and no results were obtained whatever. One striking case occurred in a child with signs of pneumonia and signs of infection of the pleura and all cleared up after several injections of the leucocytic extract.

DR. J. H. PRATT, Boston, Mass., said that there are two medical services with an equal number of beds in the Massachusetts General Hospital. Dr. Floyd treated the cases of pneumonia on one service with the leucocytic extract. The mortality was very low, but on the other service that year the death rate among the pneumonia cases were equally low although the leucocytic extract was not used. Of course, this might throw a different light upon the situation. The mortality from pneumonia differed from year to year.

DR. CLEAVELAND FLOYD, Boston, Mass., said there were 30 cases and 27 of these were distinctly cases of lobar pneumonia and three broncho-pneumonia occurring in children with severe infections.

In answer to Dr. Pratt's question, all the cases were treated on one service. The mortality on the hospital service on which the leucocytic extract was not used he did not know. During that winter the cases outside the hospital had a mortality that was very high. There were a number of cases that presented an infection that was general. They all realized that the mortality rate in pneumonia changed from year to year.

DR. WILLIAMS closed the discussion. He said he wished to have it understood that those were desperate cases and not hospital cases, cases that were well nigh hopeless. The giving of 10 cc. of fluid into the subcutaneous tissues was a painful operation and, therefore, he used a hypodermic of morphine together with a local anesthetic.

DR. CLEAVELAND FLOYD, of Boston, read a paper on

THE RESULT OF DISPENSARY WORK IN THE CONTROL OF TUBERCULOSIS.

The field of the dispensary lies largely between those efforts directed towards the cause of tuberculosis on the one hand and its isolation on the other. Statistics were given of the first five thousand patients examined at the Boston Consumptives' Hospital Clinic, 1907-1909. Dr. Floyd made a plea for co-operation of sanatoria, dispensaries and hospitals in antituberculosis work.

DISCUSSION.

DR. CHARLES L. MINOR, Ashville, N. C.: A great many patients would think that when discharged they were cured. It was easy to make it plain to a patient of intelligence what would happen if he failed to follow out instructions after discharge from the sanatorium. However intelligent a patient might be he ought to be seen at first every two weeks, then every month, then every three months for at least three years. They should be specially watched by their own or by the dispensary doctor, or by the visiting nurses at shorter intervals. They should drill into their brains the fact that they were not absolutely well and that they must live the right kind of a life.

DR. THOMAS W. HARVEY, of Orange, N. J., presented a paper on

SANATORIA AND HEALTH RESORTS AND THE GENERAL PRACTITIONER.

He classified patients according to their financial resources and their varying temperaments. He discussed the selfish egotist who goes through life living off other people; also the man who has sacrificed himself all his life for the sake of his family and

finds himself banished from home to a health resort or sanatorium and knows that his family are in straits. In such a case anxiety and worry more than counterbalance any benefits he may receive. Dr. Harvey commented on the general lack of occupation for patients; their tendencies toward introspection and the incubus of the scales and thermometers were also discussed. The exaggerated ego is common at sanatoria.

Dr. Thomas A. Claytor, of Washington, D. C., read a paper on

THE MORE COMMON FORMS OF CARDIAC IRREGULARITIES WITH A REPORT OF A CASE OF HEART-BLOCK.

The paper was illustrated by lantern slides. These showed sinus or youthful arrhythmia; extra systole; heart-block, partial or complete; auricular fibrillation; and the pulsus alternans. Dr. Claytor urged the graphic study of the pulse and recommended Dr. Thomas Lewis's book on the "Mechanism of the Heart Beat" as the most complete collection of data bearing on the whole subject. Dr. Claytor used a Dressler apparatus (made in N. Y.). He thought that the art of taking tracings should be taught in the schools because without a previous experience with either the polygraph or the electrocardiagraph it would be very difficult to appreciate the various forms of irregular pulse.

DISCUSSION.

Dr. J. H. Pratt, Boston, Mass., asked what apparatus he used in getting his tracings. Personally he had had some experience with both the Mackenzie instrument and that of Jacquet. He had found that it was quite easy to acquire technical skill with the Mackenzie instrument. In the majority of cases one can distinguish between the arrhythmia due to extrasystoles and the absolutely irregular pulse of auricular fibrillation, sphygmographic record of the radial pulse. It is a very difficult thing to decide whether you were dealing with extrasystole merely by feeling the pulse.

Dr. Robert H. Babcock, of Chicago, contributed a paper on

CARDIAC SYPHILIS WITH SPECIAL REFERENCE TO AORTIC ANEURYSM AND REGURGITATION AND THE NATURE OF THE WASSERMANN REACTION IN DETERMINING THEIR ETIOLOGY AND TREATMENT

The inestimable value of this test is shown not alone by its being a means of diagnosis but in its demonstration of the fact that treatment supposed to have eradicated the disease has in many cases only prevented the development of obvious lesions and thus lulled the victim into fancied security. Dr. Babcock showed a table of ten cases of aneurysm in which there was a positive Wassermann in five, negative in one, not made in four, of which two give a history of syphilis and two no record of syphilis. In sixteen cases of aortic regurgitation there was a positive Wassermann in eleven, not made in five, of whom four admitted syphilis, one, no history.

DISCUSSION.

Dr. De Lancey Rochester, said that last year in Buffalo among their hospital cases out of 12 patients with aortic disease seven gave a positive Wassermann reaction. Two of the seven gave a previous history of rheumatism. This year they practiced giving the Wasermann test in every cardiac case that entered his service.

Dr. Rochester had always had excellent results from intramuscular injections and would like to add his testimony to the value of the procedure in this use of mercury rather than the giving of it by mouth. When patients had been taking this treatment and left before it was completed, they were ordered inunctions of mercury and told to be sure to return and report. Sometimes they did and sometimes they did not.

Dr. James M. Anders, Philadelphia, said that syphilis undoubtedly showed a selective action for the myocardium. Both the endocardium and the pericardium might be secondarily involved as a direct extension of the morbid process. The root of the aorta was the seat of syphilitic lesions which led to dilatations or aneurysms. Formerly the diagnosis of cardiac syphilis was extremely difficult and so far as he personally was concerned it was made by exclusion. But since the introduction of the Wassermann reaction, a reliable means for recognizing syphilis of the viscera was available and the diagnosis was much more readily made than formerly. He agreed with Dr. Babcock that cardiac syphilis was, as a rule, a late or tertiary manifestation, occurring five or ten years after the initial infection. It might be an early manifestation, but this must be rare.

In cases of aortic regurgitation Dr. Babcock mentioned that after excluding rheumatism as the probable cause of the condition one might safely infer that the chief causative factor was syphilis. But he thought that in cases of this kind they should not only exclude rheumatism but the effect of occupation as well. Occupation was one of the leading causes of aortic regurgitation. This was also the view of other clinical observers.

There was another interesting group of cases in which angina pectoris occurs in patients above forty years of age; these were due to syphilis as a rule. Even before the introduction of the Wassermann test the treatment of these cases for syphilis yielded good results.

Not all cases of sacculation of the aorta were due to syphilis, but the majority of them were. He recently saw a case in which there was a history of previous infection; the subject was a young individual. The man had tertiary syphilis and yet the Wassermann reaction test was negative while after salvarsan was given intravenously the reaction became positive. It seemed that the spirochaetae were too few to bring about the reaction.

Dr. Judson Daland, Philadelphia, Penn., said that aneurysm, especially sacculation, was not an ordinary dilatation. With regard to syphilis of the heart, and that it was the heart where the spirochaetae pallidae collected, he wished to lay stress upon syphilis of the vessels themselves. There seemed to be a predisposition for the spirochaetae to endanger the circulatory apparatus even more than the heart itself.

Dr. Babcock's statistics were very closely in accord with those expressed by most observers in Europe. Since the introduction of the Wassermann reaction he had studied the question more carefully and he had not been able to absolutely confirm the statements made in Philadelphia that cardio-vascular diseases syphilitic in origin were more frequent here than in Europe; he compared their statistics with European. Diseases of the heart and blood vessels were extremely common and

he was surprised to find, however, that they were less common in his experience here than in experience gained abroad. In the United States occupation played an important rôle.

Another point was the frequency of cases with hypertension causing changes in the heart and circulatory system. Syphilis is a common cause of aortic disease and less common in the United States than in Europe.

He referred to the intramuscular injection of salvarsan being given in one case with benefit, and also pointed out the dangers arising from the use of salvarsan. Of the number of deaths from the use of salvarsan the majority occurred in those who suffered from myocardial degeneration. Sometimes the diagnosis was made prior to the injections and sometimes not.

Dr. Daland felt that intravenous injection of salvarsan was hazardous and dangerous in cardio-vascular syphilis and he practically had forbidden its use. There were a few cases, however, in which it might be given in small quantities, injected into the gluteal muscles, but even this he allowed with reluctance. It was only very occasionally that he allowed such procedures to be resorted to, and only in exceptional cases. One could not lay too much stress upon the possibility of death occurring either suddenly or after a few days after the intravenous injection of salvarsan in advanced cases of cardiac disease of syphilitic origin.

Dr. Arthur K. Stone, Boston, Mass., said that he had shown to the society in 1909 specimens of syphilitic aortitis which showed the spirochaetae in large numbers. Dr. Wright made a number of similar preparations from a number of cases demonstrating the presence of spirochaetae in them all. It had become axiomatic at the Massachusetts General Hospital that all cases of aortitis and aortic valvular disease coming on after the age of forty without acute infective cause were, practically, syphilitic. The results in two cases from the use of salvarsan were very satisfactory and there were no ill effects in either case, except a localized edema of the arm. One of them had already died but after several months of relief.

Dr. J. H. Elliott, Toronto, asked Dr. Babcock if he believed that occupation played any rôle in the development of these aneurysms.

In many of these cases the Wassermann reaction would be positive when done by competent men, but the technic must be perfect.

With the use of salvarsan in these cases he said he had had very little experience although they used it in the hospital in various forms of syphilis. He said he was surprised to hear Dr. Babcock speak against its use intravenously and advise it intramuscularly. The pain caused by intramuscular injections of salvarsan was often intense and sloughing might follow, but he had seen no ill effects from the intravenous use of it.

Dr. Robert H. Babcock, Chicago: As to occupation being a cause af aortic aneurysm, he said that he had never seen a case of aortic aneurysm in which occupation was recognized as being the sole cause, although he said he could already understand that in old people with an aortic sclerosis of deforming type aneurysm of the aorta might result from a strain. But he doubted seriously that the aortic wall would give way in young individuals without some pathological lesion underlying it. The healthy aorta can withstand any internal pressure from physical exertion. The possibility, or the probability even, of occupation alone as a cause of aortic aneurysm did not appeal to him as rational.

Regarding the young individual getting the Wassermann reaction with negative results he questioned the accuracy of the reaction. The Wassermann reaction is reliable in its positiveness but not in its negativeness. An individual may still have syphilis and yet the Wassermann reaction be negative. This reaction should never be undertaken except by a worker whose methods are absolutely reliable. A course of antisyphilitic treatment would not help all cases. One could not expect any treatment would cure an area of fatty degeneration in the heart muscle to be replaced by normal elements. The same applied to the aortic walls. Vigorous treatment sometimes relieves these patients subjectively and gives a chance for possible restoration or possibility for compensation when employed in conjunction with rest and the administration of other remedies.

As to the use of salvarsan Dr. Babcock said he had grown more conservative and timid than formerly. It would be very unpleasant to have a patient die after the injection of this agent and he had never advised the intravenous injection of salvarsan in cases of heart or aortic disease. Many cases of intramuscular injection had been followed by bad sloughs of the buttocks. If he was to use salvarsan he would first tell the patient what the dangers were and would make him sign a paper that he knew the danger and that he voluntarily chose this form of treatment.

Dr. John D. Thomas reported

TWO CASES OF RECURRENT LARYNGEAL NERVE PARALYSIS COMPLICATING MITRAL STENOSIS.

Dr. Thomas said that these cases should be classed not necessarily as following or complicating mitral stenosis alone, this being the lesion most often causing the paralysis, but as due to any of the cardiac lesions which bring about the same pathologic condition excluding, of course, aneurisms. Several cases besides the author's were cited.

Dr. E. J. A. Rogers, of Denver, presented a paper on

THE INFLUENCE OF MENTAL ATTITUDE IN THE TREATMENT OF DISEASES OF THE ORGANS OF RESPIRATION AND CIRCULATION.

The author endeavors to produce in the patient a confident expectant attention with an entire suppression of the anticipation of failure and the constant presence of a subjective sense of physical control. This method he applies to patients suffering from tachycardia and purely emotional disturbances of every class and even in organic heart lesions he finds that the attitude of constant fear and the anticipation of disaster give place to a state of physical comfort and confidence in the ability to control the organ. Several cases were cited.

Before adjourning the following officers were elected: President, Dr. Charles L. Minor, Asheville, N. C.; vice-presidents, Dr. James M. Anders, Philadelphia, and Dr. C. D. Alton, Hartford; secretary and treasurer, Dr. Guy Hinsdale, Hot Springs, Virginia. The next meeting will be held in Washington, D. C., May 6 and 7, 1913, in connection with the Ninth Congress of American Physicians and Surgeons.

Book Reviews.

Kidney Diseases. By W. P. Herringham, M.D., F.R.C.P., Physician to St. Bartholomew's Hospital, etc., etc. With Chapters on Renal Diseases in Pregnancy by Herbert Williamson, M.D., F.R.C.P., Assistant Accoucheur to St. Bartholomew's Hospital, etc., etc. London, Henry Frowde, Oxford University Press; Hodder & Stoughton, Warwick Square, E. C. pp. 378, illustrated. 1912.

In this volume the attempt is made to set forth the different disorders of the urinary system, both according to established teachings and in the light of the personal observations of a large hospital experience. It is an exposition of the subject which may be read with profit by those who desire a discussion not too advanced or detailed of what is known upon the many abnormal conditions included, since the list of these comprises not only the commoner diseases, but also the rarer conditions, such as chyluria, albumosuria and paroxysmal hemoglobinuria. Of nephritis no minute histological subdivisions are distinguished, although the pathological findings corresponding to clinical types are described. The matter based upon personal experience and upon hospital statistics is illustrative rather than productive of original conclusions. The description of individual cases and the tabulation of small series of cases forms too great a proportion of the book to sustain its interest except for elementary students. The weight of this criticism, however, is lessened by the ease and clearness of the literary tyle. The perusal of an occasional chapter gives one the impression of having been to a clinical lecture of great merit.

Diseases of Women. By A. Martin, Professor of Gynecology and Director, the Gynecological Clinic of the University of Greifswald; and Ph. Jung, Professor and Chief Attending Physician to the Gynecological Clinic of the University of Greifswald. Translated by Henry Schmitz, M.D., Professor of Gynecology, Chicago College of Medicine and Surgery. Royal octavo; pp. 500; 185 illustrations, many in color. New York: Rebman and Company. 1912.

The desire to familiarize English-speaking students and gynecologists with A. Martin's text-book of gynecology is most natural to any one who is familiar with Martin and his work, and the effort to do so by a translation is most commendable. The work is well known in Germany where it has reached its fourth edition. The third edition, issued in 1893, was exhausted in three years. In 1906 the present edition appeared, bearing on the title page the name of Jung as collaborator with Martin. The work was largely rewritten and embodied the great progress made in gynecology in the interval which had elapsed since 1893. Of the quality of the work itself little need be said; the name of the author is sufficient guarantee of its high merit. It is from the pen of a master and is in a clear and distinctive style. The subject is presented comprehensively and briefly.

The translation is not so fortunate. A text-book is, of necessity, a little behind the forefront of progress, for it should contain the more generally received teachings and procedures and cannot hope to keep abreast of the periodical literature. But a translation appearing six years after the original, as this does, may well expect to find itself falling to the rear, through no fault of the author. In this case the English work does not fairly represent the original. The translation has been made with care, the text being followed almost word for word. The result, though intelligible, is not English: the words are English, but the structure is German. Every page suffers from this defect. As an example of the bookmaking art, the German work is superior to the translation, especially in the printing of the excellent illustrations which are the same in both.

A Text-book of Practical Therapeutics. By Hobart Amory Hare, M.D., B.Sc., Professor of Therapeutics and Materia Medica in the Jefferson Medical College of Philadelphia, Physician to the Jefferson Medical College Hospital. Fourteenth edition, pp. 984. Illustrated. Philadelphia: Lea and Febiger. 1912.

It may safely be said that few medical books reach a fourteenth edition. The reason that Dr. Hare's Text-book of Practical Therapeutics has had this distinction is no doubt due, essentially, to its extremely practical character, to its general arrangement and to its brevity in the discussion of individual drugs and methods of treatment. These qualities render it useful not only as a text-book but also as a ready volume of reference for physicians in practice. The book has been revised to meet the advances in therapeutics. The author has managed to compress into about three pages the subject of Salvarsan, but in that space he gives the essential facts at present known about this drug and its uses. In general we commend the book in its present form as we have the previous editions. The size of the volume has not been materially increased.

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MALARIA AND MATERIAL WELFARE.

The rather cynical view has been held that considerations of pounds, shillings and pence have, more than altruism, advanced sanitary science; that wherever business undertakings are waiting, health measures are bound to be formulated and to be rigorously enforced. It would seem indeed that those diseases which have impeded commerce have been the first to disappear. No infections have been brought so near the vanishing point as typhus, small-pox, yellow fever and the tropical malarias and dysenteries. The sanitarian's authority waxes great in the community which grasps the idea that progress in hygiene is essential to assured and profitable business development. On the Amazon the doctor is paramount. International quarantines have been established very largely (though not of course entirely) as a help to business. If great commercial interests were involved in the activity of the tubercle bacillus, consumption might already have been much more diminished. Typhoid fever, the American disease, will no doubt become extinct as soon as our people grasp the meaning of its economic destructiveness.

In view of such facts of political economy it is interesting to review the malaria situation in the United States. This disease was probably always endemic in our own land. The failure of the early colonists in Virginia seems to have been largely due to it. Certain it is that the plasmodium markedly retarded the white man's advance over the North American continent, especially throughout the Middle West, the Gulf States, and thence to the Mississippi and beyond. In many larger regions once malarious the disease has lessened greatly in frequency and virulence owing to the reclamation of swamp areas, and the lessening of the number of possible breeding places of Anopheles; but the disease is still enormously prevalent, especially in the South. The effect of malaria in lessening or destroying the productive capacity of its victims among the people, is enormous. The estimate is probably very conservative, that one-fourth the earning capacity of a malaria sufferer is lost, and our loss by reason of undeveloped regions owing to the presence of malaria is very great; territory containing most fertile soil is practically abandoned. With comparatively inexpensive and perfectly effective drainage measures and other anti-mosquito work, millions of acres of inestimable richness could be utilized.

The Delta region in Mississippi, which extends from the mouth of the Yazoo nearly to the Tennessee line, is the second best farming land in the world, having only one rival—the Nile valley. Ten years ago Prof. Herrick[1] wrote that much of this land could be bought at from $10 to $20 an acre. Thousands of acres were then still covered with the primeval forest. This land is capable, without artificial fertilization, of producing two or more bales of cotton to the acre; a bale to the acre can be produced for $13, leaving a net profit of from $20 to $40 for each bale, or $40 to $80 or more for a two or three bale acre. Such land should be an excellent investment at even $300 an acre; yet the market price for land in that Delta region does not (or did not ten years ago) approach anywhere near that figure, largely because whites object to living on it by reason of the malaria they would have to suffer. When the Delta is made malaria free "it will be the richest and most populous region in the United States."

Dr. Howard[2] believes that with a general popular appreciation of the industrial losses caused primarily by Anopheles "it is inconceivable that the comparatively inexpensive measures necessary should not be undertaken by the general governments, by the state governments, and by the boards of health of communities, just as it is inconceivable that the individual should suffer from malaria when he has individual preventives and remedies at hand." Large scale drainage measures by the general government, involving large sections of valuable territory,

[1] Herrick, G. W. The Relation of Malaria to Agricultural and Other Industries of the South. Pop. Science Mo., April, 1913.

[2] Howard, L. O.: Economic Loss to the People of the United States Through Insects that carry Disease. Bull. 78 (Revised) Bureau of Entomology, U. S. Dept. Agriculture.

have been planned and are practically under way; New Jersey, New York and other states are beginning to work; communities throughout the country, by their boards of health, are showing signs of activity; and anti-malaria literature is educating the people. All this interest should be intensified, the importance of the work should be emphasized, and universal relief from malaria should follow as the day the night.

A CENTURY OF MEDICAL SERVICE.

The recently published ninety-ninth annual report of the trustees of the Massachusetts General Hospital records the work of this institution for the calendar year 1912. During this period, 6629 patients were admitted to the hospital, and 22,629 new cases to its out-patient department, where a total of 136,095 visits were made. In the medico-mechanical department 888 new cases were treated. At the McLean Hospital, the whole number of patients under treatment was 380, and at the Convalescent Hospital 712. From the General Hospital Training School 34 nurses were graduated, and from the McLean Hospital Training School 16.

During the year a general reorganization of all the medical services of the hospital, previously inaugurated by the reorganization of the surgical staff, was established, so that there are now two services in the medical department, with a subsidiary department of pediatrics. Each of these has a staff of physicians, presided over by a chief with continuous service. There are also special departments of neurology, laryngology, dermatology, and pathology. This arrangement of services has proved highly satisfactory and efficient.

The report makes particular mention of the great loss sustained by the hospital in the death of Dr. Maurice Howe Richardson and of Dr. Arthur Tracy Cabot, of whom it is said that "their lives were an incentive to their profession and a blessing to humanity."

Attention is called to the new Nurses' Home now in process of erection on Fruit Street. Especial emphasis also is laid on the great need for an administration building and of suitable quarters for the orderlies and men employees of the hospital.

This report marks the close of one hundred years' service of the Massachusetts General Hospital, whose first board of trustees was elected in February, 1813. As that time the hospital received from the State the gift of the Province House, valued at $40,000, and some cut stone worth about $35,000.

"During the one hundred years' existence of the hospital that is all the assistance the Commonwealth has given. The impression abroad is that it is a state hospital and receives state aid, and the trustees in making this report wish to impress upon the public that while it is to all intents and purposes a state hospital, inasmuch as it receives patients from all over the state and never questions their residence in emergency cases (even if they are residents of other states) yet so far as receiving assistance is concerned it is not a state institution."

The century of service thus concluded has been memorable in the annals of medical history. All loyal friends of the institution may well wish that its second century, now auspiciously begun, may prove equally distinguished in scientific progress and in service to the community and the profession.

THERAPEUTIC VALUE OF WAR.

The following is an authentic copy of a letter recently received at a large Boston hospital in response to a note of inquiry addressed to a former patient:—

"Dear Sir:

"In regards to your letter from 20 inst., about George K———, who was sick last year and was discharged from this Hospital by the means, to transfer at ———— Hospital to die there, but we did not. I brouth him over Greece and he is all right and fighting in Balkan State against Turkey and according to his letter which I received today he claims he has killed more than two hundred Turks.

"I expect him to be here after the war settled there and then I will bring over.

"Me Remain, "Respectfully yours."

Despite its defiance of medical prognosis, there is something delightful in the suggested spectacle of this valorous Greek, supposedly transferred to another institution to die among aliens, but instead transported to glorious action on his native heath, meting out to countless and unspeakable Turks the death to which he had been consigned. It is sincerely to be wished that he may indeed return to put his physicians to the blush. The tale of his exploits would be well worth the hearing, even though he "remember with advantages what deeds he did." Perhaps more incurables would recover, if, like this militant, they were sent to the battlefield instead of the sanatorium.

MEDICAL NOTES.

London Death-Rates for January.—Statistics recently published show that the total death-rate of London for January, 1913, was 17.8 per 1000 inhabitants living. Among the several districts and boroughs the highest rate was 26.0 in Shoreditch, a crowded eastern slum, and the lowest was 13.1, in Lewisham, an open suburb on the south.

A Prolific Parent.—Report from St. Louis on March 2 states that Mrs. Ida Hurry, of that city, though only 35 years old, is already the mother of 26 children. During her married life of 20 years, she is said to have passed through an equal number of pregnancies, six of which were of twins.

A Living Centenarian.—Mrs. Anna E. Rutan, of Newton, N. J., celebrated recently the supposed centennial anniversary of her birth. She has 23 living descendants, including two great-great-grandchildren. Her health is said to be excellent.

Death of a Centenarian Bride.—In the issue of the Journal for Jan. 30 (Vol. clxviii, p. 176), we noted the intended marriage of Mrs. Marcellina Elisalda, said to be 105 years of age. This marriage took place, but we learn with regret that the bride, Mrs. Leon, died five days later.

Seizure of Adulterated Butter.—Report from Chicago on Feb. 28 states that federal revenue officials have recently seized in the cold storage warehouses of that city 25,000 pounds of butter alleged to be adulterated with over 16% of water.

BOSTON AND NEW ENGLAND.

Lecture by Dr. Cabot.—At a meeting held in Boston last week under the auspices of the committee on public health education among women of the American Medical Association and the department of public health of the Women's Municipal League, Dr. Hugh Cabot delivered a lecture on "The Responsibility of the Community for the Prevalence of Social Diseases."

Cambridge Visiting Nursing Association.—The ninth annual meeting of the Cambridge Visiting Nursing Association was held in that city last week.

"The secretary reported 19,210 visits to 2216 patients during the year. There were 789 maternity cases and this work has been found to be of the greatest value. There have been nine nurses in residence at the headquarters, 35 Bigelow Street.

"The treasurer's report showed an expenditure of $8549.14 and a balance in the treasury of 73 cents. Sixty-one per cent. of the cost of maintaining the service has been met by payments from patients and the remainder by subscriptions and donations from members of the Association. There is a sliding scale of charges and patients pay according to their means, and all destitute cases are taken free.

"The president made an appeal for increased interest and support by the public, in order that the Association may not be hampered in the extension of its usefulness by lack of funds."

American Academy of Dental Science.—At a meeting of the American Academy of Dental Science, held in Boston on Wednesday, March 5, Dr. M. C. Smith, of Lynn, Mass., presented a paper on "The Relation of Some of the Ductless Glands to the Development of the Face and Oral Cavity," which was discussed by Dr. William J. Mixter and Dr. Isadore H. Coriat, of Boston.

Gift to the Noble Hospital.—On Feb. 27, the trustees of the Noble Hospital, at Westfield, Mass., announced the gift of an administration and training school building to the hospital by Mrs. James Arthur Crane as a memorial to her late husband.

Lawrence General Hospital.—The recently published thirty-seventh annual report of the Lawrence (Mass.) General Hospital and Children's Home records the work of these institutions for the year ending Aug. 31, 1912. During this period 1487 patients were admitted to the hospital, and 1575 were treated in its out-patient department. In June it was found necessary to discontinue the Children's Home, to enable the opening of a ward for sick and crippled children in the city. In the maternity department 128 women were cared for. The district nurse made 4509 visits to 335 patients. Seven pupil candidates were graduated from the training school.

Seizure of Illicit Drugs.—Considerable quantities of morphia, heroin, and cocaine were seized at a raid made on an apartment house by the police in Boston last week.

BOSTON MORTALITY STATISTICS.—The total number of deaths reported to the Board of Health for the week ending Saturday noon, March 1, 1913, is 284, against 272 the corresponding week last year, showing an increase of 12 deaths, and making the death rate for the week 20.14. Of this number 145 were males and 139 were females; 276 were white and 8 colored; 170 were born in the United States, 110 in foreign countries, and 4 unknown; 59 were of American parentage, 189 of foreign parentage; and 36 unknown. The number of cases and deaths from infectious diseases reported this week is as follows: Diphtheria, 55 cases and 4 deaths; scarlatina, 61 cases and 2 deaths; typhoid fever, 6 cases and 2 deaths; measles, 257 cases and 4 deaths; tuberculosis, 47 cases and 27 deaths; smallpox, 0 cases and 0 deaths. The deaths from pneumonia were 39, whooping cough 3, heart disease 48, bronchitis 2. There were 15 deaths from violent causes. The number of children who died under one year was 53; the number under five years 71. The number of persons who died over sixty years of age was 88. The deaths in hospitals and public institutions were 105.

Included in non-residents are 3 cases of diphtheria, 9 cases of scarlet fever; and 1 death from typhoid fever brought to Boston for treatment from outside cities and towns.

Cases of infectious diseases reported to the Boston Board of Health for the week ending March 4, 1913: Diphtheria, 54; scarlatina, 62; typhoid fever, 4; measles, 262; smallpox, 0, tuberculosis, 56.

The death rate of the reported deaths for the week was 20.77. Non-resident cases are included in the total cases.

NEW YORK.

DISTRICT HOSPITALS FOR TUBERCULOSIS.—In a formal statement just issued on the subject of tuberculosis the State Board of Charities has recommended that the state should establish district hospitals, on the plan of the Raybrook Sanitarium in the Adirondacks, for the early and curable cases of the disease, leaving to the local authorities, as a rule, the care of the more advanced cases. This plan would permit of enlarged facilities for the care of all classes of tuberculous patients, and of a most desirable classification, which the Board says, appears impossible to secure in the smaller local institutions as at present planned or constructed.

ABUSE OF DISPENSARIES.—At a meeting of the New York County Medical Society, held on February 24, a committee which had been appointed on dispensary abuse reported in favor of a regulation requiring that all applicants for treatment at dispensaries should give their personal and family incomes, number in family, and amount of rent paid. This recommendation was adopted by the Society after it had been so amended as to require that, except in emergency cases, this information should be given under oath.

CHEMISTS' CLUB BUILDING.—The Chemists' Club, in its building on East 41st Street, has now thrown open to the public on four days of the week its valuable library, said to be the largest chemical library in the country. In addition, it has established a Department of Research, which will be open to the public on the payment of fees.

DR. FRIEDMANN IN NEW YORK.—Dr. F. F. Friedmann, who arrived recently in New York from Germany, has taken an office on Fifth Avenue, and was announced to commence the treatment of patients with his tuberculosis serum on March 3. Dr. J. F. Anderson of the Hygiene Laboratory, representing Surgeon General Blue of the U. S. Public Health Service, was in conference with Dr. Friedmann for three hours on Feb. 27, and is said to have reported on his return that the latter had declined to submit specimens of his cultures for investigation except under certain conditions, one of which was, that any one to whom such were intrusted should consent to receive personal instructions from himself (Dr. Friedmann) for a period of not less than six weeks.

FAILURE OF ANTI-VIVISECTION BILL.—It is gratifying to learn that an anti-vivisection bill was recently killed at Albany, the State Senate judiciary committee refusing to report it. It would seem likely, therefore, that any similar bills presented during the present session of the Legislature would share the same fate.

RECENT HOSPITAL BEQUESTS.—Under the will of the late Mrs. William M. Tailer of New York $25,000 is left to the endowment fund of the dispensary department of the University and Bellevue Hospital Medical College, $7,000 to the Home for Incurables at Fordham, and $5,000 to the New York Orthopedic Dispensary and Hospital.

A Centenarian.—William Redmond of Oakhurst, near Long Branch, N. J., died on Feb. 22 at the age of 103 years. He was a native of Tuckahoe, N. J., and had been a farmer all his life, and it is told of him that he danced a jig on the occasion of his hundredth birthday, in January, 1910.

St. Lawrence State Hospital.—The recently published twenty-sixth annual report of the board of managers of the St. Lawrence State Hospital, at Ogdensburg, N. Y., records the work of that institution for the year ending Sept. 30, 1912. During this period 1102 men and 1222 women patients were under treatment in the hospital, a total of 2324. A class of 22 nurses was graduated from the training school. The hospital is much overcrowded, and attention is called to the urgent need of provision for the addition of two new wings to the Eastwood building.

Cancer Research at Columbia University.—It was announced on March 5 at Columbia University that a sufficient sum is available for the immediate erection of the cancer research laboratory provided under the George Crocker Special Research Fund.

Proposed Legislation for Infant Protection.—Report from Albany, N. Y., states that on March 5 a bill was introduced before the General Assembly providing that all artificial or patented infant foods must be approved by the state health commissioner, and requiring that every certificate of death of an infant under one year of age must be supplemented by the physician's signed statement of the method of feeding employed.

Current Literature.

Medical Record.

February 22, 1913.

1. *Wright, B. L. *The Treatment of Diseases of Vegetable Parasitic Origin by Deep Injections of Mercury.*
2. Freudenthal, W. *Personal Observations with Suspension Laryngoscopy.*
3. Mans, L. M. *The Effects of the Beerless Exchange on the Morals and Health of Our Soldiers.*
4. Gleitsmann, J. W. *Paralysis of the Recurrent Nerve Due to Circulatory Lesions; with Remarks on Recent Therapeutic Measures.*
5. Scripture, E. W. *The Care of Speech Defectives.*
6. *Fischer, L. *Large Doses of Antitoxin Given Early—A Means of Preventing Laryngeal Stenosis.*
7. Vandegrift, G. W. *The Etiology of Iritis.*
8. Pearson, C. B. *A Plea for Greater Consideration for the Opium Addict.*

1. Wright reports a few more cases of infectious disease treated by deep injections of mercury with good results. This time he includes two cases of typhoid fever, one of bronchopneumonia, four of furunculosis, three of gonococcus infection and thirty-two of colon bacillus infection.

6. Fischer believes that large doses of antitoxin given early in diphtheria constitute a means of preventing the complication of laryngeal stenosis. In support of his contention he reports four cases, all of which terminated favorably. He does not state that a bacteriologic diagnosis of diphtheria was made in any of the cases. [L. D. C.]

New York Medical Journal.

February 22, 1913.

1. Hamilton, A. M. *The Diagnostic Significance of Pain in Tabes.*
2. Clark, L. P., and Stowell, W. L. *A Study of Mortality in Four Thousand Feebleminded and Idiots.*
3. *Wolbarst, A. L. *Contradictory Findings in the Wassermann Test.*
4. Francine, A. P. *The Day Camp for Tuberculosis.*
5. Kahn, M. *Maimonides the Physician.*
6. Garretson, W. V. P. *Functional Nervous Conditions.*
7. McLaughlin, A. J. *Sewage Pollution of the Great Lakes.*
8. Bates, M. E. *The Colorado Method for the Examination and Care of Public School Children.*
9. Janeway, T. C. *Nephritic Hypertension.*

3. Wolbarst emphasizes the contradictory findings of different serologists in the Wassermann test and submits that more than one expert should perform the test in cases where the diagnosis depends upon it. All mention of results of the Wassermann test should be accompanied by the name of the serologist who made the test, in order that the measure of accuracy and skill employed may be estimated. The serologist should be selected with the same care as is used in the selection of a consultant in any other branch of medical science. [L. D. C.]

The Journal of the American Medical Association.

March 1, 1913.

1. Pearce, R. M. *The Methods of Appointing Hospital Internes.*
2. Werelius, A. *Nephroptosis and Nephropexy, with Special Reference to the Basket-Handle Operation.*
3. Casamajor, L. *An Unusual Form of Mineral Poisoning Affecting the Nervous System; Manganese?*
4. Lintz, W. *A New Apparatus for Use in Blood-Cultures.*
5. Sluder, G. *A Method of Tonsillectomy by Means of the Alveolar Eminence of the Mandible. A New Guillotine and a Snare.*
6. Oldenborg, H. A. *Exercises in the Treatment of Ptosis of the Abdominal Organs.*
7. Stone, I. S. *The Conservative Treatment of Salpingitis by Uterine and Tubal Injection.*
8. Knox, H. A. *Some Practical Psychotherapy.*
9. Parmalee, A. H. *Epidemic Cerebrospinal Meningitis.*

10. Manges, M. *The Disappearance of Sugar After the Removal of Tumors in Diabetics.*
11. Jenness, B. F. *Burnam's Test for Formaldehyd in the Urine. A Study of Two Hundred Cases.*
12. Maddox, R. D. *A New Apparatus for Filling Pipets.*
13. Zaun, J. J. *An Argyll Robertson Pupil Becoming Normal After Mercury and Salvarsan.*
14. Green, G. R. *Sporadic Cerebrospinal Meningitis: Recovery.*
15. Allan, W. *Thymol for Taenia Saginata.*
16. Allan, W. *The Emetic Treatment of Amebic Dysentery.*

Journal of Infectious Diseases.

January, 1913.

1. Hektoen. *On the Occurrence of an Isolated Antibody in the Cerebrospinal Fluid.*
2. *Wade. *The Laboratory Diagnosis of Glanders.*
3. Waite. *Two Lincoln (Neb.) Typhoid Fever Epidemics of* 1911 *and* 1912.
4. King and Baeslack. *Studies on the Virus of Hog Cholera. Preliminary Report.*
5. Davis. *A Bacillus from Spontaneous Abscesses in Rabbits and Its Relation to the Influenza Bacillus.*
6. Nicoll and Wilson. *General Gonococcus Infection in a Male Child Without Evidence of Urethritis.*
7. *Baeslack. *On the Cultivation of the Treponema Pallidum.*
8. DeWitt. *Preliminary Report of Experiments in the Vital Staining of Tubercle. Studies on the Biochemistry and Chemotherapy of Tuberculosis.*
9. Warden. *Studies on the Gonococcus.*
10. Reichel. *Fixed Hog Cholera Virus.*
11. Dick. *On the Origin and Action of Hemolytic Complement.*

2. Wade uses in the complement fixation test for glanders an unshaken antigen, which has been filtered through a Berkefeld filter. This is believed to be the most stable and reliable compound. Several strains of the B. mallei should be used in the preparation of antigen and material for agglutination purposes. The use of the fixation method, united with the agglutination reaction furnishes a reliable means for early diagnosis of glanders.

7. After pure cultures of the Treponema Pallidum are secured by inoculation and re-inoculation of the testes of rabbits, the material may be grown in bone serum with the addition of pieces of animal tissue. The amount of tissue necessary for the growth of the organism is found to be variable, as is the degree of anaerobiosis to which the culture is subjected.

[L. H. S.]

Surgery, Gynecology and Obstetrics.

February, 1913.

1. *Elsberg, C. A. *Experiences in Spinal Surgery.*
2. Riebel, E. C. *Subcutaneous Rupture of the Diaphragm and Positive Pressure (Meltzer).*
3. Werelius, A. *Do the Parathyroids Functionate in Intrauterine Life?*
4. Sampson, J. A. *The Influence of Myomata on the Blood Supply of the Uterus, with Special Reference to Abnormal Uterine Bleeding.*
5. *Fullerton, W. D. *Typho-Tuberculous Tubo-Ovarian Abscess.*
6. Abbe, T. *How Can We Improve the Results of Our Operations for Cancer?*
7. Packard, H. *A Possible Factor in the Causation of Cancer.*
8. Brennecke, H. A. *Meckel's Diverticulum and Complications.*
9. Luke, H. C. *A Case of Extensive Subcutaneous Emphysema Following Intratracheal Anesthesia, with Recovery.*
10. Williams, E. M. *A Suggestion Tending to Simplify and Make More Accurate the Closure of the Posterior Edges of the Wound Margin after Excision of Saddle Ulcer of the Stomach.*
11. Honan, W. F., and Hasseler, J. W. *Experiences with Intravenous Anesthesia. Preliminary Report.*
12. McCurdy, S. L. *Z-Plastic Surgery: Plastic Operations for Elongate Cicatrical Contractions of the Neck, Lips, and Eye-lids and Across Joints.*
13. Noland, L. *The Whitehead Operation for Hemorrhoids; A Report of 200 Cases.*
14. Fletcher, F. *The Cure of Procidentia Uteri in Elderly Women; A New Intra-Abdominal Technic.*
15. Reder, F. *How to Secure the End of a Subcuticular Suture.*
16. Moran, J. F. *Obstetrical and Surgical Treatment of Puerperal Eclampsia.*
17. Schley, W. S. *Dilatation of Tight Urethral Strictures Causing Retention.*

1. Elsberg's article on spinal surgery is of extreme interest. He believes the mortality of laminectomy should be very low. A wide exposure of the cord is necessary in order to avoid handling of the cord, great respect for which should be observed. The functions of the spine are well preserved by the bodies of the vertebrae, even after the removal of six or seven spinous processes. Very careful closure of the dura and other tissues is necesasry. Paresthesias and root pains are due to bleeding into the subarachnoid space and can be prevented. A laminectomy wound should never be drained. No artificial immobilization of the spine is necessary except in the cervical region. The author does not believe in too long delay of operation for symptoms of spinal pressure even in the face of a positive Wassermann reaction. A glioma may be present in addition to syphilis, or if the syphilitic lesion does not clear up immediately under salvarsan an operation is indicated. There is not the danger generally supposed from the escape of cerebrospinal fluid on opening the dura. Retention of urine is liable to be present for several days after operation; also marked abdominal distention.

5. Fullerton's case proves that in post-typhoid pelvic abscess the B. typhosus probably plays a more important rôle than is usually suspected. Puerperal infections coincident with or following typhoid may be caused by the typhoid organism. [E. H. R.]

Bulletin of the Johns Hopkins Hospital.

February, 1913.

1. *Nuttall, G. H. F. *Lectures on the Herter Foundation.*
2. *Weed, L. H., Cushing, H., and Jacobson, C. *Further Studies on the Rôle of the Hypophysis in the Metabolism of Carbohydrates. The Autonomic Control of the Pituitary Gland.*
3. *Hamman, L., and Sloan, M. F. *Induced Pneumothorax in the Treatment of Pulmonary Disease.*

1. Under spirochetosis, Nuttall includes those diseases of man and animals due to the spiral microorganisms known as spirochetes. In this paper he confines himself to those which produce blood infections—the relapsing fevers. After discussing this disease in birds he describes human relapsing fever in tropical Africa, its transmission by means of ticks, lice and bugs. He describes its incidence in cattle, and finally, the cultivation of spirochetes.

2. In this paper, which represents an immense amount of work on a most difficult subject, the

writers, after describing their experiments and investigations, conclude that the pituitary body—more particularly its posterior lobe—plays a significant rôle in the metabolism of carbohydrates, and its action in this respect is under the control of fibers which reach the gland by way of the superior cervical sympathetic ganglion. Stimulation of this nervous pathway, at the so-called sugar center in the fourth ventricle, at the superior cervical ganglion, and by excitation of the pituitary body itself liberates a chemical substance which causes glycogenolysis and glycosuria independent of any possible nervous impulse, reaching the glycogen-holding cells of the muscles or abdominal viscera.

3. In a fair and judicial article, Hammon and Sloan describe the history of pneumothorax cases, the selection of cases for treatment, the various methods, especially Brauer's method by incision down to the pleura and Forlanini's puncture method. They prefer the latter method. They discuss the dangers of this treatment, the chief of which are air embolism and infection. They describe in detail their apparatus and technic. They describe the pathological anatomy of the collapsed lung, the most striking change of which is the extreme fibrous tissue formation, and consider briefly the clinical symptoms of induced pneumothorax. They review their cases as to (1) whether this procedure was followed by death or a serious complication (3 cases); (2) when it was impossible to produce a pneumothorax (3 cases); (3) when only an incomplete pneumothorax could be produced (7 cases), and when a complete pneumothorax was produced (7 cases). This procedure has a striking effect in reducing cough and expectoration; carefully performed it is without danger; it is of great value in treating pulmonary hemorrhage. In selected cases it offers a prospect of temporary and permanent relief, when the usual methods of treatment have been unsuccessfully tried. [J. B. H.]

British Medical Journal.

February 8, 1913.

1. Hort, E. C. *Vaccines and Fever.*
2. Flower, N. *Apyrexial Typhoid.*
3. Woodman, E. M. *A Simple and Rapid Method for the Administration of Subcutaneous Salines.*
4. Jona, J. L. *Adrenalin in the Emergency Treatment of Non-corrosive Poisoning by the Mouth.*
5. Whole, H. *The Late Vasomotor Paresis Due to Adrenalin.*
6. Hurry, J. B. *The Breaking of the Vicious Circle.*
7. Abercrombie, R. *The Treatment of Muscular Paresis by Means of Eccentric Movements.*
8. Simon, H. *Reynaud's Syndrome and Syphilis.*

Edinburgh Medical Journal.

February, 1913.

1. *Bramwell, B. *On Malingering.*
2. *Turner, A. L., and Fraser, J. S. *Direct Laryngoscopy, Tracheo-Bronchoscopy and Esophagoscopy.*
3. Mitchell, A. P. *Treatment of Syphilis by Salvarsan.*
4. Greig, D. M. *Tumor of Breast Recurrent Six Times During Thirty Years.*

1. Bramwell and others interestingly discuss malingering, with special reference to the National Insurance Act and the greatly increased number of cases likely to result. His discussion as to the relation between traumatic neuroses and true malingering is of value.

2. In a paper with numerous illustrative cases and an excellent plate, the writers describe in detail the technic of the direct method of examining the larynx, trachea, bronchi and esophagus, and the various conditions in which this direct method will prove of value. [J. B. H.]

The Indian Medical Gazette.

February, 1913.

1. Harnett, W. L. *The Differential Blood-Count in Dengue.*
2. *Hossack, W. L. *The Problem of Dengue, Three-Day and Seven-Day Fever.*
3. Lalor, N. P. O'G. *A Teleological Working-Theory of the Asymbiotic Relations of the Malarial Plasmodium to Its Alternative Hosts—Man and the Anopheles Mosquito.*
4. Hehir, P. *Sanitary Organization of Our Army in India in War.*
5. Smith, C. H. *Effect of Overcrowding in Barracks on Tubercular Affections Among Gurkhas.*
6. Rutherford, T. C. *Report on Cases of Leprosy Treated with Leproline During 1911-12 in the Bilaspur District.*

2. Hossack believes that the Calcutta epidemic of 1912 was identical with previous epidemics of dengue, clinically distinguishable from three-day fever, but indistinguishable from seven-day fever. He disbelieves in the theory of its transmissibility solely by a specific insect carrier, the phlebotomus, but considers it probably caused by an ultramicroscopic organism endemic in Calcutta at present. [R. M. G.]

Münchener Medizinische Wochenschrift.

No. 2. January 14, 1913.

1. *Bruck, C., and Glück, A. *Effect of Intravenous Infusion of Aurum-Kolium Cyanatum (Merk) in External Tuberculosis and Lues.*
2. Klausner, E. *Treatment of Syphilis with Kontraluesin: a Finely Divided Mercury.*
3. *Schlayer. *Sources of Permanent Increase of Blood-Pressure.*
4. Haymann, L. *Pathology and Course of Cerebral Abscess Starting from the Ear.*
5. Kienböck, R. *The Sigma Elongatum Mobile (Roentgen-findings.)*
6. Josefson, A. *Experiments on the Transmissibility of Acute Poliomyelitis by Inanimate Things and by Flies.*
7. Hoehl, H. *Effect of Neosalvarsan in Keratitic Parenchymatosa.*
8. Joschke, R. T. *Use of Narkophin in Midwifery.*
9. Pürckhauer, R. *Injury to the Crucial Ligament of the Knee.*
10. Flath. *Subcutaneous Rupture of the Liver.*
11. Grosser, P., and Schaub, G. *Pathology of Banti's Disease.*
12. Harmsen. *Bicycle-riding Using a Stiff Knee Joint.*
13. Herzog. *Shortening of Bone-conduction with Normal Hearing. (Concluded.)*

1. The writers describe good results following the use, intravenously, of "Aurum-Kolium Cyanatum," a new preparation. Having proved by animal experiment that the toxicity of the drug is relatively low, they treated 21 cases of lupus and 7 of syphilis. Most of the cases of lupus showed striking improvement. The effect in syphilis was much like that of mercury, except that in the tertiary stage it acted nearly as rapidly as salvarsan.

3. Schlayer reviews present knowledge of permanent hypertension, emphasizes the fact that autopsy shows a very high percentage of damaged kidneys in these cases, and brings forward evidence indicating an increased irritability of the blood vessels in chronic nephritis. [G. C. S.]

No. 3. JANUARY 21, 1913.

1. *STÄUBLI, C. *Asthma and Its Treatment.*
2. DEYCKE AND MUCH. *Tuberculin and Immunity to Tuberculosis. (To be concluded.)*
3. *GEISSLER, W. *Blood in the Spinal Fluid.*
4. SCHUMACKER, E. *A Group of Six Classical Cases of Botulism, etc.*
5. SIMMONDS, M. *Hypophysis and Diabetes Insipidus.*
6. BUTZENGEIGER. *Mesbé in the Treatment of Surgical Tuberculosis.*
7. *SCHÜFFNER, W., AND VERVOORT, H. *Oleum Chenopodii for Anchylostomiasis and a New Method of Testing Anthelminthics.*
8. HILDEBRAND, B. *Treatment for Oxyuris Vermicularis.*
9. BAER, G. *The Percussion Quantimeter.*
10. BÜTTNER-WOBST. *v. Pirquet's Cutaneous Reaction in the Prophylaxis of Phthisis.*
11. RICHARD AND FELTEN-STOLTZENBERG, F. *Negative Pressure in the Long Bones of Dogs.*
12. v. WERTHERN, F. *Suture of the Bladder after High Incision for Stone in Children.*
13. BOSSI. *Psychiatry and Gynecology.*
14. HAYMANN, L. *Pathology and Course of Cerebral Abscess Originating in the Ear. (Concluded.)*

1. Stäubli discusses the principal theories of the changes which occur in the lungs in attacks of bronchial asthma, emphasizes the fact that complete relief is often experienced at high altitudes and in deserts, even when the disease has resisted all other treatment, and describes a new inhaler which he has found most useful. The inhaler can be used for adrenalin alone or mixed with atropine and cocain, when the attacks are severe enough to require the latter drugs. The principle of the inhaler is to provide adrenalin in a finer spray than can be obtained from other inhalers. Thus, relief can be secured more quickly and with a much smaller quantity of the drug. No ill effects from very frequent use of this form of treatment have been observed. (The danger of arteriosclerosis, which is said to have followed the free use of adrenalin in some cases, is not mentioned by the writer. Perhaps this danger does not exist when the drug is used in the small amounts prescribed by the writer. The beneficial effects described are striking.)

3. The writer groups the findings in spinal fluid with reference to fibrin, blood and cells, and attempts to draw conclusions of diagnostic value from them.

7. The results of the writers are based on careful observation of a large material. They find oleum chenopodii the best, thymol next, naphthol third, and Ol. eucalypti fourth in efficiency against anchylostoma. For ascaris thymol proved slightly better than Ol. chenopodii, whereas Ol. eucalypti and naphthol accomplished little. [G. C. S.]

BERLINER KLINISCHE WOCHENSCHRIFT.

No. 2. JANUARY 13, 1913.

1. NEISSER. *The Principles of the Modern Treatment of Syphilis.*
2. VON NOORDEN, C. *Intestinal Intoxication, with Especial Reference to Polyneuritis.*
3. WIECHERT, M. *Paralysis Following the Extension Treatment of Fracture of the Femur.*
4. SCHLESINGER, A. *The Surgical Treatment of Exophthalmic Goiter.*
5. *SOMMER, A. *Ehrmann's "Frog-eye" Phenomenon, Caused by the Blood Serum of Persons Suffering from Psoriasis.*
6. SCHIPPEN, J. C. *A Case of Acute Non-leukemic Lymph-adenoma.*
7. OFFERGOLD, H. *Synthetic Hydrastinin and Its Use.*
8. DUHRSSEN. *Synthetic Hydrastinin Hydrochloride.*
9. EHRMANN, R. *Diabetic Coma. (Concluded.)*
10. JEGER, E. *An Instrument for Aiding in the Blood Vessel Suturing of Carrel.*

5. The author has tried the effect of the blood serum of psoriasis on a frog's eye, in 21 cases with a constant result. The eyes of a pithed frog are enucleated, and placed in normal salt solution, following which the pupil becomes narrow. The eyes are then placed, one in normal blood serum, and the other in the serum of a psoriasis sufferer. At the end of five to ten minutes, the pupil of the eye in the normal serum dilates, but the pupil in the psoriasis serum always remains contracted. The author has used control sera from various other skin diseases, but gets no such reaction as he finds from the serum of psoriasis. He is now at work trying to find the chemical substance contained in the psoriasis serum, which will so affect the pupils of the frog's eye. He believes that when this substance is found, the etiological factor of psoriasis will be known. [J. B. S., JR.]

Correspondence.

ATHLETICS AND LIFE.

Cambridge, Mass., Feb. 20, 1913.

Mr. Editor: I enclose you a clipping from a recent number of the *American Practitioner* (quoted January 25 by the *Journal of the American Medical Association*) which makes explicit in a striking manner what every physiologist who has to do with athletics knows for almost a scientific certainty in a general but as yet, undemonstrated, way. It is only one more wave on the rising tide of protest; it runs as follows:

"College Athletics in After-Life.—In answer to the question 'Does the physical training of the college athlete better fit the business or professional man for his after-life?' Harlow Brooks, in a paper read before the New York Medico-Surgical Society, says that he has had frequent opportunity to test this question during a period of fifteen years. As medical officer of a regiment of the national guard composed largely of ex-college men, he has had opportunity to examine them and to oversee their military work anywhere from five to fifteen years after they have left college. During one year he examined in this organization twelve different men, all at one time famous as college football players, six of them captains of their teams. These men were subjected to the same work and the same physical tests as men who had passed through their college course without particular athletic distinction or who had never been in college. Of these twelve famous athletes only one could be rated physically up to the average of the men of his own age. This one subsequently died in the early thirties of diabetes mellitus. Brooks says that similar conditions obtain with regard to men who were active in other college sports, and that the defects become even more marked in trackmen and in oarsmen particularly, but appear in the least degree in baseball players. He says that the experience of other physicians connected with athletic clubs is similar to his and that the distinguished college athlete after ten years of severe business life is below the average man physically, and also in the measure of his resistance against disease. He may even fall below the level of the entirely non-athletic man. The defects, as Brooks has observed them, are confined chiefly to lesions or disturbances of the heart and other circulatory organs, to adiposity or to joint-disease. Brooks attributes this largely to the fact that these athletes, when they engage in business, must largely give up their athletic exercises, and it is the law of physiology that a useless tissue deteriorates rapidly. The physical descent of the crack college athlete, Brooks believes, is much more rapid than that of the purely

untrained man who has exercised during his youth for pleasure or for benefit alone and who has had no records to maintain."

College alumni should be made to know and effectively realize these facts, for it is they who support, directly and indirectly, the college games demanding an admission-fee. This matter of latent incapacity and possible early death of course is only one phase of the matter, but it is a phase, a relatively new one, which will appeal, when it is known, deeply and forevermore.

No specialist in the psychophysiology of physical education was ever more certain than myself of the *necessity* of abundant outdoor physical exercise taken systematically throughout life. My physiologic objection here is wholly to the *over*-training brought to most of our varsity players through the ambition (how foreign to scholarly pursuits!) to meet the popularity made possible only by the great public games. In this system the majority of the students get only what they most need to avoid, namely exciting nervous strain of one kind and another, while the almost gladiatorial minority gets *over-training*, and perhaps is strained for life.

The 1912 report of Surgeon-General Stokes of the United States Navy should be read by all who are still inclined to doubt the validity of this general opinion.

Did not nine-tenths of varsity players very soon drop into the *sedentary* mode of life after graduation, of course this very high, over-high, plane of metabolic efficiency would do relatively little harm. As it is, the over-training in most cases leads to dangerous degenerations of the most essential organs, whether with or without fatal effect.

Every college with the long-life interests of its students and their economic efficiency truly at heart will teach the over-enthusiastic minority how to protect their bodies as surely as it will compel the more or less indolent majority to train and develop their organisms—and both to the same end: good health, long life, and happiness.

Truly yours,
George V. N. Dearborn, M.D.

Miscellany.

NOTICES.

Examination of Candidates for Assistant Surgeon.
United States Public Health Service,
Washington, D. C.

A board of commissioned medical officers will be convened to meet at the Bureau of Public Health Service, 3 B Street, SE., Washington, D. C., on Monday, April 7, 1913, at 10 o'clock a. m., f r the purpose of examining candidates for admission to the grade of assistant surgeon in the Public Health Service.

Candidates must be between 23 and 32 years of age, graduates of a reputable medical college, and must furnish testimonials from two responsible persons as to their professional and moral character. Service as internes in hospital for the insane or experience in the detection of mental diseases will be considered and credit given in the examination. Candidates must have had one year's hospital experience or two years' professional work.

The following is the usual order of the examinations: (1) physical; (2) oral; (3) written: (4) clinical.

In addition to the physical examination, candidates are required to certify that they believe themselves free from any ailment which should disqualify them for service in any climate.

The examinations are chiefly in writing, and begin with a short autobiography of the candidate. The remainder of the written exercise consists of examination in the various branches of medicine, surgery, and hygiene.

The oral examination includes subjects of preliminary education, history, literature, and natural sciences.

The clinical examination is conducted at a hospital, and when practicable, candidates are required to perform surgical operations on a cadaver.

Successful candidates will be numbered according to their attainments on examination, and will be commissioned in the same order as vacancies occur.

After four years' service, assistant surgeons are entitled to examination for promotion to the grade of passed assistant surgeon.

Assistant surgeons receive $2,000, passed assistant surgeons $2400, surgeons $3000, senior surgeons $3500, and assistant surgeon generals $4000 a year. When quarters are not provided, commutation at the rate of $30, $40, and $50 a month, according to the grade, is allowed.

All grades above that of assistant surgeon receive longevity pay, 10 per cent. in addition to the regular salary for every five years' service up to 40 per cent. after twenty years' service.

The tenure of office is permanent. Officers traveling under orders are allowed actual expenses.

Fur further information, or for invitation to appear before the board of examiners, address "Surgeon General, Public Health Service, Washington, D. C.

CHANGES IN THE MEDICAL CORPS, U. S. NAVY, FOR THE WEEK ENDING MARCH 1, 1913.

Mahoney, J. A., acting assistant dental surgeon. Detached from Naval Medical School, Washington, D. C., and ordered to Asiatic Station.

Martin, Leon, acting assistant dental surgeon. Ordered to Navy Yard, Philadelphia, Pa.

Johnson, L. W., passed assistant surgeon. Detached from Navy Rectg. Sta., Baltimore, Md., and ordered to Naval Hospital, Washington, D. C.

Pollard, J. B., passed assistant surgeon. Detached from Navy Rectg. Sta., Dallas, Texas, and ordered to Navy Recruiting Station, Atlanta, Ga.

Charlton, C. F., assistant surgeon. Detached from Navy Rect. Sta., Hartford, Ct., and ordered to Naval Hospital, New York, N. Y.

Townsend, W. G., acting assistant surgeon. Detached from Marine Rectg. Sta., Baltimore, Md., and ordered to Navy Rectg. Sta., Baltimore, Md.

Payne, J. H., acting assistant surgeon. Detached from Navy Rectg. Sta., Atlanta, Ga., and ordered to Navy Rectg. Sta., Hartford, Conn.

Littell, J. C., acting assistant surgeon. Detached from Marine Rectg. Sta., Cleveland, O., and ordered to Navy Rectg. Sta., Salt Lake City, Utah.

Whittemore, G. B., passed assistant surgeon. Detached from Navy Rectg. Sta., Salt Lake City, Utah, and ordered to The Receiving Ship at Puget Sound, Washington.

Hale, G. D., passed assistant surgeon. Detached from The Receiving Ship at Puget Sound, Washington, and ordered to the U. S. S. *Yorktown*.

SOCIETY NOTICES.

Boston Society of Medical Sciences.—The next meeting will be held on Tuesday evening, March 18, 1913, at the Harvard Medical School, in the Amphitheater of Building D, at 8.15 p. m.

"Experimental Nephritis and Renal Function." Studies from the Laboratory of the Department of Theory and Practice of Physic, Harvard University, and the Medical Service of the Peter Bent Brigham Hospital, by Drs. Henry A. Christian, Channing Frothingham, Jr., James P. O'Hare, I. Chandler Walker, Reginald Fitz, R. P. Dawson, W. G. Smillie.

I. Introduction (5 minutes).

II. Glomerular Lesions of Experimental Acute Nephritis. (With lantern slides.) (10 minutes.)

III. The Effect of Diuretics in Experimental Acute Nephritis. (With lantern slides.) (15 minutes.)

IV. Some Studies of Renal Function in Relation to Nitrogen Retention. (With the coöperation of Professor Folin.) (15 minutes.)

V. Variations in Nitrogen Ionization of the Urine in Relation to Dieting and Exercise. (10 minutes.)

VI. Experimental Chronic Nephritis Produced by a Chemical and Bacteria. (With lantern slides.) (15 minutes.)

VII. Certain Psychic Disturbances of the Composition of the Urine. (10 minutes.)

VIII. Effect on the Kidney of Temporary Clamping of the Renal Vessels. (The functional studies were made in association with Dr. Rowntree at Johns Hopkins University.) (15 minutes.)

CLEAVELAND FLOYD, M.D., *Secretary.*

ESSEX SOUTH DISTRICT MEDICAL SOCIETY.—The fourth regular meeting of the Essex South District Medical Society will be held Thursday, March 13, 7 p. m., in Lynn, at the Hotel Seymour, corner of Exchange and Broad Streets. Dr. Franklin S. Newell, of Boston, will talk on "The Indications for Cesarean Operation." Dr. Mark Richardson, Secretary of the State Board of Health, will also be a guest, and will talk on "The Care and Control of Typhoid."

H. E. SEARS, M.D., *President.*
H. P. BENNETT, M.D., *Secretary.*

THE NEW ENGLAND HOSPITAL MEDICAL SOCIETY.—There will be a meeting of the New England Hospital Medical Society, March 20, at 7.30, in the Kensington Building, Room 203. Papers: "The Study of the Causes of Juvenile Delinquency," Dr. Edith Spaulding. "What the State of Massachusetts is Doing for Delinquent Girls," Miss Edith Burleigh, superintendent of the Parole Dept. of the State Industrial School.

MARGARET L. NOYES, *Secretary.*

RECENT DEATHS.

DR. KINGMAN B. PAGE, a well-known surgeon, died in New York on February 19, at the age of 49 years. He was graduated from Bellevue Hospital Medical College in 1887, and at the time of his death was genito-urinary surgeon to St. Mark's and the People's Hospitals.

DR. JOHN B. L'HOMMEDIEU, Senior Deputy Health Officer of the Port of New York, died suddenly from cardiac disease on February 21. He was graduated from the medical department of New York University in 1890, and had been connected with the Quarantine service since 1895.

DR. WILLIAM J. CALLAN, of Brooklyn, N. Y., died on February 13, at the age of 47. He was graduated from the Long Island College Hospital in 1892 and was for a time in the service of the Health Department.

DR. GEORGE H. WITTER, of Wellsville, Alleghany County, N. Y., died on February 13, at the age of 54 years. He was graduated from the College of Physicians and Surgeons, Baltimore, in 1885 and served from 1908 to 1910 as State Senator.

DR. J. FREDERICK BABCOCK, who died recently at Bangor, Me., was born in that city in 1845. He practised dentistry there for many years, and was the inventor of several dental appliances. He was not married.

DR. NORMAN B. BAYLEY, of Haverstraw, N. Y., a graduate of the medical department of Yale University in 1871, died on February 20, at the age of 66 years.

DR. FRANCIS HENRY COHAN, a Fellow of The Massachusetts Medical Society, died at Leominster, Mass., on Feb. 13, aged 42 years.

DR. GEORGE FISHER, of Paterson, N. J., a graduate of Würzburg in 1889, died from pneumonia on February 22, at the age of 47 years.

DR. PHILIP HANSON HISS, JR., professor of bacteriology in Columbia University, New York, and an authority on medical research work, died on February 27. He was born in Baltimore, September 17, 1868, was graduated as A.B. from Johns Hopkins University in 1891 and as M.D. from Columbia in 1895, was Alumni Association Fellow to 1896 and Clark Scholar to 1900, and was appointed assistant in bacteriology at Columbia in 1903. Later he was made instructor in bacteriology, and in 1906 full professor. From 1896 to 1899 he was associated with Dr. W. H. Park in the research laboratories of the Department of Health, where he applied his methods of isolating the typhoid bacillus on his special media, and also carried on important investigations regarding immunity. He is survived by his widow and two children.

RESIGNATION.

Report from Albany, N. Y., states that on Feb. 27, Dr. John W. Russell resigned as superintendent of the Matteawan State Hospital for the Criminal Insane, and his resignation was accepted.

BOOKS AND PAMPHLETS RECEIVED.

Medical Ispection of Schools, by Robert W. Hastings, M.D., A.M. Reprint.

The Mulford Digest. January, 1913, vol. i, No. 3. H. K. Mulford Company, Philadelphia.

RECORD OF MORTALITY.

FOR THE WEEK ENDING SATURDAY, MAR. 1, 1913.

CITIES.	Reported deaths in each.	Deaths under five years.	CITIES.	Reported deaths in each.	Deaths under five years.
NewYork	—	—	Pittsfield	19	3
Chicago	847	245	Waltham	11	1
Philadelphia	—	—	Brookline	6	1
St Louis	—	—	Chicopee	10	5
Baltimore	—	—	Gloucester	—	—
Cleveland	—	—	Medford	5	1
Buffalo	—	—	North Adams	7	1
Pittsburgh	—	—	Northampton	6	1
Cincinnati	—	—	Beverly	4	2
Milwaukee	—	—	Revere	1	—
Washington	—	—	Leominster	4	3
Providence	—	—	Attleboro	7	4
Boston	284	71	Westfield	6	—
Worcester	54	14	Peabody	—	—
Fall River	37	11	Melrose	4	—
Lowell	38	13	Woburn	4	—
Cambridge	—	—	Newburyport	7	2
New Bedford	35	16	Gardner	5	2
Lynn	37	8	Marlboro	8	—
Springfield	35	6	Clinton	4	1
Lawrence	—	—	Milford	—	—
Somerville	34	3	Adams	5	1
Holyoke	25	10	Framingham	—	—
Brockton	15	5	Weymouth	—	—
Malden	12	5	Watertown	3	2
Haverhill	6	—	Southbridge	4	—
Salem	17	7	Plymouth	—	—
Newton	12	5	Webster	3	1
Fitchburg	14	3	Methuen	—	—
Taunton	22	4	Wakefield	3	—
Everett	12	5	Arlington	4	—
Quincy	—	—	Greenfield	5	3
Chelsea	13	—	Winthrop	6	—

Addresses.

MEMORIALS TO ARTHUR TRACY CABOT, M.D.*

I.

BY HENRY P. WALCOTT, M.D., CAMBRIDGE, MASS.

Arthur Tracy Cabot was born in Boston in the year 1852, the third son of Dr. Samuel Cabot, a well known physician of this city and a visiting surgeon of the Massachusetts General Hospital. His mother was Hannah Jackson, daughter of Judge Charles Jackson, and a member of a family distinguished in every walk of life that has led to success and the esteem of their fellows in this community.

He was graduated at Harvard College in 1872; entered at once upon the study of medicine and took the degree of M.D. in 1876, having served during the last year of his studies as surgical interne at the Massachusetts General Hospital.

He spent a year in graduate studies abroad, at Vienna, Berlin and London.

He entered upon the practice of medicine in Boston in 1877 and spent here the rest of his life.

He was a lecturer and teacher at the Medical School upon several subjects in surgery until the year 1896 when he was elected a member of the board of President and Fellows of Harvard College, and a teacher of the best quality was lost to the Medical School.

He was for several years surgeon at the Carney Hospital, assistant surgeon and visiting surgeon at the Children's Hospital from 1879-1889; surgeon to out-patients at the Massachusetts General Hospital, 1881-1886; visiting surgeon 1886-1907.

Beginning professional life as a general practitioner of medicine, he early followed the bent of his inclinations and limited himself more and more to the practice of surgery.

His achievements in this field will be adequately presented by another speaker on this occasion.

The honors bestowed upon him, not only by his associates in his own department in surgery, but by the whole body of the medical profession, give evidence of the esteem in which he was held. He was a member of the American Surgical Association, the American Association of Genitourinary Surgeons, and of several foreign Societies of specialists in his chosen line of work.

He was Honorary President of the American School Hygiene Associations, and President of the Massachusetts Medical Society in the years 1905 and 1906, and a fellow of the American Academy of Arts and Sciences.

During his active professional life he enjoyed a reputation second to none in all the qualities that go to the making of a great surgeon. My own intimate acquaintance with Dr. Cabot goes back to the year 1891, when I became a trustee of the Massachusetts General Hospital. The two junior visiting surgeons of that day were Arthur Cabot and Maurice Richardson, and never in any year of its glorious history was that institution more ably served than by these two men—appointed upon the same day. Intimate friends, they lived side by side, one rendering to the other any needed service; unlike in many respects, but alike in all the high qualities that make up the good physician.

They reached the goal of life together—the one in all his magnificent strength and apparent capacity for continued service, even with his characteristic and most generous disregard of himself; the other, mortally hurt, lingered through days of disabling weakness, and maintained to the end the simple dignity and courage which we all had rightly attributed to him.

Dr. Cabot had early in his connection with the hospital attracted the favorable notice of Henry J. Bigelow and had been unhesitatingly assisted by that great master to the performing of important operations not ordinarily transferred to a junior in service. The pupil justified the confidence placed in him and became the legitimate successor of Dr. Bigelow in the special field which Cabot had made his own.

I cannot attempt in this presence to make any statements as to Dr. Cabot's real place as a surgeon. I believe, however, that no man in the long list of names honored in that hospital gave to it a more unselfish or productive service than did he.

He had from the beginning the confidence of the trustees. He did not volunteer his opinions, but he did not avoid the responsibility of expressing them upon proper occasions, and they had always a foundation in conclusions fairly reached by clear thinking. He did not allow himself to be led astray by personal prejudice, and was so careful in allowing for a possible bias that I do not remember an instance when he failed to do justice, whatever his personal relations may have been to the individual concerned.

If he thought the occasion required an expression of opinion upon the administration of the Hospital, he was frank and outspoken in his remarks, which, however, were more likely to be intended for the benefit of an associate than for himself. It seemed to me that no man there had a more precise knowledge of the nature of his work and that with him no emergency could arise which would find him unprepared and disarrange his well-formed plans. His capacity for clear thinking had the assistance of a cool head and steady hand.

It was always evident, however, that he did not find it easy to bring his naturally quick temper into subjection, yet he only relinquished his control of it in the presence of what seemed to him a cowardly or unworthy act.

The story of the life of a great surgeon would

* Read at a meeting of The Boston Society for Medical Improvement, Jan. 27, 1913.

ordinarily end here; not so with Dr. Cabot. He had beyond most of the members of our profession tastes which provided congenial occupations for his retirement from the activities of a lifetime, and he had acquired interests in the great questions of the public measures for the prevention of disease which are only now receiving the attention they deserve.

He had a great and well cultivated interest in the fine arts. He was a trustee of the Boston Museum of Fine Arts and took an active share in the affairs of that institution. He was the sole member of a committee of the Corporation of Harvard College in general charge of the Fogg Art Museum at Cambridge, and his associates on that board were always content to accept his judgment upon all matters relating to that department.

As usual with him, his conclusions were never the result of some momentary appeal to the sense of sight, but were carefully built up from principles of taste which have lived through all the vicissitudes of time and fashion.

During the years 1905-6 he was President of the Massachusetts Medical Society, and in the exercise of one of the functions of that office visited in turn the various district societies of the state. The text he took for his addresses on these occasions was that of the duty of our profession to instruct the public upon the measures that can be taken for the control of tuberculosis. He saw clearly that the influence of the medical profession would be absolutely essential to a correct decision upon the value of the measures which an ill-informed but well-meaning and enthusiastic public sentiment might induce the authorities to adopt. He procured the formation of local associations of physicians for consultation and appropriate action. General meetings were held at the time of the annual meetings of the State Medical Society and the sympathetic interest of the profession was secured.

A not unfriendly critic remarked that this interest on Dr. Cabot's part in the preventive side of medicine was not the usual attitude of mind of the surgeon. I must confess that to me at any rate it seems the logical condition of mind for the modern surgeon.

Dr. Cabot entered upon the practice of his profession fresh from listening to Lister's application of the discoveries of Pasteur. Is there any preventive measure in the whole realm embraced within our art greater or more beneficent than the improvement in the treatment of wounds brought about by the labors of this greatest benefactor of our day?

Dr. Cabot's successful efforts in rousing the interest of the community in measures for the prevention of tuberculosis led to his appointment by Governor Guild as a member of the board of trustees of the Hospitals for Consumptives.

When the board came together for organization he was elected chairman and served in this capacity to the end. Upon no work of his life did he spend more time or energy than upon this. No detail in the selection of proper sites, in the construction of the necessary buildings, or in the administration of the hospital was too minute to escape his attention nor did it fail to receive sufficient care.

The result has been that the treatment of this disease by State agencies has brought to Massachusetts a well earned distinction from all those whose opinions are of much value. Dr. Cabot had probably never appeared before a committee of the Legislature until his service upon this board made his appearance there essential. No man could have made a better impression, quiet, dignified, self-contained, fully informed upon his subject, frankly meeting every criticism, whatever its nature might be, disarming even the noisy demagogue by some plain statement of fact. If he did not obtain everything he wished for the cause he represented he always gained the respect and good will of the body he addressed, and did receive more consideration than ordinarily falls to the lot of those who seek new legislation. The history of State control in connection with tuberculosis would be incomplete if it omitted due notice of Dr. Cabot's intelligent, persistent and generous activities in this cause.

A closely allied subject of public interest for Dr. Cabot was the hygiene of school life. He recognized the fact that the public when it made school attendance compulsory assumed the duty of caring for the tuberculous children who were inevitably to be found in the school population and not yet physically so disabled as to be unfit for school attendance. Hence his interest in the work of the School Hygiene Association.

A congress of those interested in this subject was held at Nuremberg in 1904. It was attended by about 1500 delegates representing nearly all the civilized countries and its influence was early felt in the literature, laws and regulations of many lands concerning health and education. Dr. Cabot was an associate in the second congress of School Hygiene, which was held in London in 1907. Sir Lauder Brunton presided and had, previous to the meeting, written to Dr. Cabot seeking his influence to secure delegates from the United States.

The assembly in London had a success so marked that plans were formed for the purpose of bringing the fourth congress to this country. Accordingly it was decided at the third congress, held in Paris in 1910, to meet in this country in the year 1913.

The city of Buffalo volunteered to serve as the host for the meeting, and measures are now taking to bring this congress together in August of the present year. Dr. Cabot was made chairman of the executive committee of arrangements and some of his latest efforts were bestowed upon this troublesome piece of business. The labor was willingly undertaken by him, for

he had been largely instrumental in obtaining the consent of his friend, Charles W. Eliot, to serve as president of the congress. As the result of Dr. Cabot's correspondence and subsequent interview with Dr. Brunton, it was agreed that there was need of an organization in this country which should be devoted to the promotion of the interests of school hygiene.

Steps were at once taken for the formation of an American School Hygiene Association. The organization was effected at Washington in 1908, with the declared purpose "of bringing into effective service the large amount of practical knowledge concerning school hygiene that has been developed by scientific means during the last few years; of fostering the increase of knowledge upon this topic; and of bringing into helpful relations the scientific investigators and the men occupying administrative positions with reference to education."

He was the leader in the movement, but with characteristic modesty procured the election of an absent friend to the presidency of the Association. He supported his creation most liberally by money and better still by his clear head and unselfish heart.

It would be a work of supererogation here to dwell upon the vital importance of bringing all our knowledge of sanitary questions to bear upon the school life of our children.

While the great leader in the whole movement for reforms and improvements in our educational methods is speaking from his place at Buffalo, we shall inevitably think of the silent friend who labored so earnestly, and, I believe, most profitably for the accomplishment of the same high ends.

There was published in the *Atlantic Magazine,* bearing date of November, 1912, an article which bore the title "Tuberculosis and the School," by A. T. Cabot. It was his final declaration of his belief in the reality of the measures which he had urged most strenuously and which without doubt will prevail.

In 1896 he was chosen a Fellow of Harvard College and became a member of the Corporation. There was already a member of the medical profession upon that board and, important as it was at that time of development in the Medical School to have the aid of Dr. Cabot's interest in scientific medicine, I feel sure that he owed his election fully as much to the qualities of the man as to his rank among surgeons.

He possessed all the good qualities required in this place of many responsibilities. A man of science and cultivated taste, of clear head and honest mind, bold when occasion required it, *firm but not* obstinate, he always showed a due consideration for the opinions of his associates and was devoted at all times to the interests of the University. The minute placed upon the records of the Corporation shows the regard which his associates had for him.

"Arthur Tracy Cabot, a member of the Corporation since 1896, died at Boston on November 4, 1912. He had reached the highest rank in his profession when elected to this body. He had obtained this success by abundant knowledge, by clear thinking, by great industry, and by absolute control of all his faculties in the presence of great perils.

"At this board he showed the same capacity for seeing plainly through any disturbing circumstances, the end to be attained.

"Accurate, firm, courteous and devoted to all the interests of the University, he gave to the questions of its administration the same unselfish care which made him, even to the last, a great leader in the public work of protecting human life."

His slight figure and somewhat grave and thoughtful expression of countenance were imperfect signs of the physical ability and character of the man. He made a strenuous use of his active and well-knit frame; and when he revealed himself to his intimates—how many of us will ever forget the charm of our association with him?

Though a bold rider on the polo field and skilled in many out-door games, he took but little interest in the public spectacles of the stadium and found slight attraction to the athletic exercises which require a professional training or exceptional strength; his concern was more with the well-ordered use of the average body.

When he realized that the end had come of his own participation in the out-door life of the game club, which had given to him some of the most enjoyable diversions of his life, he sold his shares in the property and turned over the proceeds to a body of trustees for the town of Canton for the purchase and maintenance of playgrounds there.

He had an intense love of out-door life and found his highest enjoyment in its simple and primitive form, that of the hunter and fisherman, but here he never yielded to the ignoble desire to capture or destroy animal life beyond just measure. He believed in vivisection, for he knew how much it had done to protect human life, and that experiment must of necessity be made upon the human patient if the use of an animal could not be had.

He viewed with aversion all forms of cruelty to animals wherever unnecessarily practiced, but had little patience with the sentimentalism which seeks to abolish the biological laboratories. His own familiarity with them had taught him that cruelty in the majority of instances defeats the proper objects of the experiment, and here, at least, is forbidden.

Cherry Hill in Canton had been the summer residence of his father, and the old tavern on the highway, turned to a private use, had been with its ample fields, the scene of his own youthful country life. In his later years Dr. Arthur Cabot had built an attractive house for himself upon a portion of the property withdrawn from the ever-increasing noise and dust of the high-

way. All of the surroundings contributed to make the place most grateful to one of his tastes. When you looked from its western porch across the pleasant garden in front, and through the over-arching trees at the quiet landscape, beyond where there was nothing to suggest the great city only a few miles away, you felt that here at last might be spent the evening to a busy and toilsome life in occupations still helpful to his fellows and full of enjoyment for himself. It was not to be.

Hoping against hope, he resigned himself to the skilful hand of the friend of a lifetime, whom unseen fate was even then leading to the other world which both were so soon to enter.

In the disposal of his property he kept in mind the interests to which his life had been devoted; he made provision for a fund of $100,000 to be placed at the disposal of the President and Fellows of Harvard College, the income of one-half of this sum to be used for the purchase of books upon the fine arts and allied subjects, for the College Library and the Fogg Art Museum, the income of the other half to be used for the general purposes of the Medical School. He also remembered the interests of the Massachusetts General Hospital, which he had so steadily promoted through life, and gave for the support of the hospital laboratories the sum of $20,000.

Dr. F. C. Shattuck and his wife on August 9, 1912, gave to Harvard College the sum of $25,000 for the establishment of the Arthur Tracy Cabot Fellowship in Surgery, in testimony of affection for the man, grateful admiration of him as a surgeon, and appreciation of his services to medicine.

This gift to the College from his much valued friends was a source of great satisfaction to Dr. Cabot. It came at the time when he knew that his own work was done, and he saw in it a happy and permanent memorial of his own activities in this department of medicine.

II.

BY PAUL THORNDIKE, M.D., BOSTON.

ARTHUR TRACY CABOT was a man of such activity of mind and such catholicity of interest and sympathy that even a brief chronicle of his efforts and accomplishments is for no one person to attempt, and it is of Arthur Cabot the Surgeon that we would speak.

Born in 1852, the third son of Dr. Samuel and Hannah (Jackson) Cabot, he passed his boyhood in Boston, his undergraduate life in Cambridge with the class of 1872, and studied medicine at the Harvard Medical School, from which he graduated at the head of his class to serve as surgical interne at the Massachusetts General Hospital. From there he went abroad and remained away from August, 1876, to October, 1877, studying chiefly in Vienna and Berlin, but nowhere, as he says, "seeing anything adequate in the way of antiseptic treatment." He continues: "I passed one month in London, visiting King's College Hospital, to which Lister had just been appointed, and I listened there to his inaugural address when installed. I got there a better idea of antiseptic dressings as Lister understood them."

On his return to Boston in 1877, he began the practice of his profession, and from the first his surgery was clean surgery, at first antiseptic in technic and later aseptic, and always was he found the leader in the band of men who were gradually making modern surgery what it is today. So, although the earlier years of his professional life were occupied with general practice, it is evident that he was at heart a surgeon from the first and he became ere long an eminent one, gradually withdrawing from all but surgical practice.

Shortly after he began to practice he was appointed surgeon to the Out-Patient Department at the Massachusetts General Hospital and he became a full visiting surgeon in 1886. Here he remained, doing brilliant work, for twenty-one years, resigning in the spring of 1907, to be at once placed upon the Hospital's board of consulting surgeons.

He was surgeon to the Carney Hospital for a number of years and was on the surgical staff of the Children's Hospital for the ten years from 1879 to 1889. At the death of Dr. Thomas B. Curtis, in 1881, who had identified himself with the teaching and practice of genito-urinary surgery in Boston, Dr. Cabot avowedly allied himself with this work, although he never ceased to consider himself a surgeon and to practice general surgery. In the field of genito-urinary surgery he attained great distinction and universal recognition, and he practically succeeded Dr. Henry J. Bigelow as the leading advocate and exponent of litholapaxy, an operation which Dr. Cabot utilized and championed always, even after the suprapubic operation for stone was disputing the supremacy of the older procedure.

In 1886 he was the Boston representative of a little band of surgeons who gathered in New York to form the nucleus of what is now the American Association of genito-urinary Surgeons, and he was one of its first presidents. Some of the others associated with him in the organization of this society were Sir William H. Hingston of Montreal, Drs. Edward L. Keyes and Fessenden N. Otis of New York, Drs. S. W. Gross and J. William White of Philadelphia, Dr. Roswell Park of Buffalo, Drs. Moses Gunn and Nicholas Senn of Chicago, Dr. John P. Bryson of St. Louis, and Dr. George Chismore of San Francisco. He always had the interests of this society very near his heart, and his important contributions to its work, his constant loyalty to all its interests and his attractive personality made him perhaps it most influential and sought after member over a period of years.

In 1905 he became president of the Massachusetts Medical Society, holding office for two years and he did such distinguished work in the fight against tuberculosis that he was appointed in the following year (1907) one of a commission to locate and build three hospitals for tuberculous patients in Massachusetts. Soon after he was elected chairman of this board.

An appreciation of Dr. Cabot, published in a recent number of the Boston Medical and Surgical Journal, speaks as follows of the character of his work for this great cause: "Only those on the inside fully know how much of the conspicuous success of this new departure was due to the compelling wisdom and unremitting labor of Dr. Cabot. In this, as in all his other work, its quality was only matched by his modesty. . . So deeply did he become interested in this line of work that in the spring of 1910 he retired from all practice and its emoluments that he might husband his strength for public work alone." Today there are few citizens of the Commonwealth of Massachusetts who do not recognize and thankfully acknowledge the value of that work.

Dr. Samuel Cabot performed in 1874 and 1875 the two first successful laparotomies at the Massachusetts General Hospital, although the operations performed upon Hospital patients were conducted in a neighboring house on Allen Street. Dr. Arthur Cabot assisted his father in these operations. He, himself, did the first successful abdominal operation within the Hospital walls in 1884, upon a long strangulated umbilical hernia. A description of the circumstances and difficulties attending the performance of this operation, as described in the recent appreciation in the Boston Medical and Surgical Journal, gives the younger surgeons of today an insight upon the surgery of a quarter of a century ago.

In the spring of 1876 he succeeded in getting a thoroughly aseptic result in a compound fracture of the lower leg which he dressed with cotton batting wrung out in a strong carbolic solution and then dried.

About 1886, he, with his brother Samuel, a Boston chemist, established a fund at the Massachusetts General Hospital to pay a pathologist, who should be present on each operating day to make such examinations as the surgeon required. This was probably the first effort to make a pathological study and a surgical operation go hand in hand. The fund so started was soon raised to $10,000 by Dr. Cabot and his brother, and is now the Samuel Cabot Fund for Pathological Research. It was largely through Dr. Cabot's efforts that a clinical laboratory in pathology and chemistry was added to the equipment at the Massachusetts General Hospital.

Dr. Arthur Cabot was a prolific writer upon surgical topics and one of the chief values of his writing was due to his ability in making clear the pathological importance of the clinical facts with which he was dealing. Had he chosen to devote his energies to pathological science he would have gone far and accomplished much.

Of his contributions to medical literature it may be proper to mention a few that he himself regarded as interesting and, so far as his modesty permitted him, important. In 1880 and 1883 he made a full report of a series of cases of empyema which he treated after operation with a water-proof dressing, so obtaining a very perfect valvular action, which greatly aided the expansion of the lung during convalescence. During 1884 and 1885 he began the use of posterior wire splints in the treatment of fractures of the lower leg, and from that time the old fracture box, which had been the surgeon's main dependence in the treatment of such cases, was doomed to oblivion. In genito-urinary surgery, as has been said, he was a leader and his influence was widely felt for many years. He was a constant champion of litholapaxy. His publications on "Rupture of the Bladder" in 1891, and on "Rupture of the Urethra" in 1896, were milestones on the road of surgical progress. In 1893, when Dr. J. William White of Philadelphia so warmly advocated castration for the relief of obstruction due to hypertrophy of the prostate, the surgical world was stirred to its depths with excited hope and anticipation of a great new panacea for these cases at that time so often desperate and impossible of palliation. Dr. Cabot was appointed by the American Association of genito-urinary surgeons as one of a commission to collect evidence concerning this procedure, sift it and report to the society a year later. His tireless industry, his wise judgment in digesting the material after its collection, and his clear, just and convincing summary of the conclusions reached was as absolutely characteristic of the mental qualities which made him what he was as any work he ever did. He was also one of the earlier advocates of the more modern operation of prostatectomy, although his publications on this subject came a few years later, after his experience with it had matured.

In the history of surgery his name will long be remembered and his work has made for him an enduring place. His was a versatile and many sided nature. Of its interests and enthusiasms many lie outside of the intended scope of this brief consideration of him. His appreciation of all things beautiful in nature and in art, his love for animals, his joy in wholesome sport, and his sincere affection for his many friends, an affection that he was better and better able to express as the years with their mellowing passed by—all these it would be pleasant to consider but here we must leave him as he was—Arthur Tracy Cabot—eminent surgeon, with brain and hand always ready to do the best work known to his art; wise counsellor, with judgment always keen and never impetuous; faithful friend, ever ready with affection, sym-

pathy and understanding; true-hearted gentleman in every thought and every act. Many men respected his ability; many men loved his personality; many men will find it hard to bear his loss.

III.

BY JOHN B. HAWES, 2ND., M.D., BOSTON.

My intimate acquaintance with Dr. Cabot began in the fall of 1907, when he asked me to act as secretary of the recently appointed Board of Trustees of Hospitals for Consumptives. At the first meeting of the Board Dr. Cabot was elected chairman and immediately took active charge of our work in selecting sites and making plans for the three sanatoria we were asked to build. Although many of my friends had told me that my position as secretary under Dr. Cabot would be no sinecure, I soon found out that as long as I did my work promptly and well I need not worry. We naturally did not agree on all points; when the question was a medical one and one concerning which I thought my own opinion of some weight, if it did not happen to agree with his, I did not hesitate to say so. I must frankly confess, however, that during the early years that we worked together he was nearly always right and I usually wrong. He had a remarkable memory for details. Again and again he would refer me to some action taken at a preceding meeting, concerning which I had not the slightest recollection and would say so, only to find on looking it up that he was correct in every particular.

We spent many pleasant hours together looking over the country for sites for hospitals. One after another was examined and discarded, sometimes for reasons that did not at first appear clear to me. After the locations for the three new sanatoria were finally selected, the Board began work on plans, specifications and contracts. In this Dr. Cabot put great reliance on the opinions of two members of the Board, Alvah Crocker of Fitchburg and William C. Godfrey of Springfield. Each of these men was at the head of a large manufacturing plant and well acquainted with the details of construction. It was a constant source of wonder to me to note how often Dr. Cabot's opinion as to the most technical of details agreed with that of these gentlemen. Dr. Cabot took an intense personal interest in the building of each institution. He was chairman of the Board in fact as well as in name. He had himself placed on the building committee of each institution while in the process of construction and later on each visiting committee as well. From the very start he gave a great deal of his time to the work, although for the first few years he carried on an extensive surgical practice. He knew every detail of construction and management, and demanded the same knowledge of each superintendent. Nothing irritated him more during the early days of construction and later in the administration of the completed buildings than to talk with one of the superintendents and find him vague or forgetful in regard to the smallest details of his work. There was nothing superficial about his visits to the sanatoria; he did not say much but he took in everything; he never made any criticism in public, while nurses, attendants or patients were around, but always waited until later, when in the office or sitting-room he would quietly and judicially go over the situation and call attention to certain matters needing improvement.

It was his pride to keep the cost of the three hospitals within the appropriation granted for this purpose. Although this was a difficult task, he accomplished it by the most painstaking efforts in economy and watchfulness. At an early date he determined that the workings of the Board should be kept out of politics; up to that time it had seemed as if admission to certain State institutions had not always been on a basis of pure merit. Dr. Cabot found great obstacles at once thrown in his way when he made it the policy of the Board that patients be admitted to the four state sanatoria purely in order of their application. As secretary of the Board and the one who decides as to what institution patients shall be admitted and in what order, nothing gave me more satisfaction when talking to this or that senator or representative interested in some constituent, than to feel that Dr. Cabot and the Board were strongly back of me in ruling out all political influence as a factor in admission of patients. It was by no means an easy task to do this. So strong was the feeling at the State House that it was right to grant certain favors of this kind to members of the Legislature and to others in authority that at first many stormy interviews resulted. I did my best not to bother Dr. Cabot with such matters as these, but in those few instances in which I was forced to refer the case to him, he invariably supported me in every way and ended by saying, especially when he saw I was intensely irritated, "Hawes, don't let these things bother you; simply tell them you'll do the best you can." This simple formula I have since used many times, with excellent results.

One of Dr. Cabot's important duties was to represent the Board at hearings concerning our appropriations and other measures before legislative committees at the State House. He was not a ready or a fluent speaker; he was slightly deaf but did not like to be reminded of the fact, and the slightly built man, with the thoughtful and often gloomy countenance, the somewhat hesitating manner of speaking and a somewhat quick temper did not at first make a very marked or favorable impression on many members of our Great and General Court. On the other hand, they were apt to be deeply impressed by certain persons possessed of a grandiloquent style of oratory who regularly

appeared in opposition to most of the measures introduced by our Board. Gradually, however, Dr. Cabot's real worth made itself felt. Legislative committees, State boards, and others before whom he appeared came to realize that he was a big man; that he was giving invaluable services to the State; that his opinion was always based on facts, and that he never favored any project nor asked for any appropriation until he had made it a subject of painstaking and prolonged study and investigation and believed it to be necessary for the welfare of the State. He never said much about this change in point of view, but I am sure it was as gratifying to him as it was to me. Last winter, the last in which he appeared at the State House, I saw no one whose words were listened to with greater attention and respect than were those of Dr. Cabot.

His interest was not confined solely to the work of our Board. He was chairman, and I again secretary, of the Tuberculosis Committees of the Massachusetts Medical Society. This brought him in touch with many physicians all over the State and drew him into tuberculosis problems of all kinds. School inspection, outdoor schools and fresh air rooms deeply interested him; welfare work in factories was a project he was constantly working at. Much of the best health work of this kind in Massachusetts is directly due to his personal influence with boards of directors, presidents and other officials of large concerns.

He gave an increasing amount of time to the work of the Board up to his last illness. When he was not traveling over the country visiting the sanatoria, he was usually to be found at our office on Joy Street. He rarely used the elevator, but came up the stairs quickly and quietly; many times the first thing to make me aware of his presence in the office was his grave voice asking me about certain matters. These occasions were at first a great source of embarrassment. He sometimes stayed for hours not speaking, but apparently thinking things over in his mind. I did not know whether to sit and wait until he chose to speak or to keep on with my work. Gradually, however, I became more at ease, and at such times went on with what I had to do, writing or dictating, until he was ready to talk things over.

He was always a hard worker. Most of our annual reports he chose to write himself, in long hand, with much labor and effort, for he was afflicted with writer's cramp. After he had written anything it rarely needed correction, although up to the last he and I could never agree on the subject of "split infinitives," of which he was very fond and which I had been taught to abhor. My own method of writing, the reverse of his, which was to think a subject over in my mind and then to dictate it to my stenographer, as fast as she could take it down, I think irritated him a little. I constantly tried to make the work easier for him by relieving him of details which I could perfectly well attend to; this was a very difficult task, for when interested in any one piece of work no detail was too small to absorb his entire attention. The result was that the work was well done, but at considerable unnecessary cost to him. He despised all forms of "red tape"; he insisted that the machinery of our Board should be as simple as possible and that no useless formalities should stand in the way of attaining any worthy end.

I can imagine no greater monument to a man than such a one as has been erected to Dr. Cabot. In 1907, when he first took hold of the work there was much chaos and little or no order or system in the anti-tuberculosis forces of this State. There was great and urgent need of a firm guiding hand to direct and control all that was being done. Dr. Cabot gave the State such a guiding hand and master mind. Before his death he saw three great sanatoria added to the one already established; he saw local tuberculosis associations grow and multiply; he saw municipal hospitals for sick and dying consumptives increase, and the death-rate from tuberculosis diminish; he put school inspection on a proper basis by the introduction of school nurses; he was influential in establishing fresh air rooms and schools for children; he persuaded manufacturers that to keep their employees well was better economy than to let them get sick, and he made them see that a nurse and medical inspection for their employees was a necessity and not a luxury. He developed a united spirit against tuberculosis in the medical profession, and he more than any one man I know of in this State, has been responsible for the great strides made in eliminating this disease during the last six years. Neither he nor any of us will see the completion of the work that he began so wisely and so well. But I am very sure that it was a deep sense of joy to him to witness the advances that have been already made. To me, my experience as a young man thrown into most intimate contact with Dr. Cabot for these years has been one of the greatest privileges of my life. Now that he has gone, and much of what he was doing is thrown on my shoulders, I can only hope and strive to act as I think he would have acted were he still with us.

Robbery of a Centenarian.—Peter Morrison, of Albany, N. Y., who is locally reputed to have been born on March 11, 1813, went recently to San Francisco, Cal., to celebrate his supposed centennial anniversary with some relatives in that city. Unfortunately on March 7, it is reported, he fell among thieves, and the thieves sprang up and robbed him of $87, his entire worldly supply of cash. Men who would perpetrate such a deed on a defenceless centenarian, might be expected to rob the very dead.

Original Articles.

THE REGISTERED MIDWIFE: A NECESSITY.*

BY EDMOND F. CODY, NEW BEDFORD, MASS.

WE are agreed that the expectant mother should be safeguarded through her pregnancy by all that scientific medicine can guarantee; that her delivery and convalescence should be under the strictest surgical aseptic precautions, aided by skilled nursing; and at all times she should receive the fullest measure of sympathy. We further wish that this could be the lot of every parturient woman. This is the obstetric ideal. But we are to consider a condition, not a theory.

The women at the opposite social extremes receive these; those with the money to purchase can have all the necessities and refinements of obstetric science and the very poor, through the increase of charitable and philanthropic societies, co-operating with visiting nursing associations and other agencies of relief, including in Boston the work of advanced medical students, can receive equally efficient service.

So it is the middle group or stratum of our people we are to study in approaching the midwife problem, the foreign born who can pay a small fee for the service. For the midwife is not the accoucher of the pauper. She is not a philanthropist, but a wage earner.

Until the end of the 16th century, the midwife was almost absolute in the field of obstetrics and conditions akin to it. In 1588 Louise Bourgeois, midwife at the court of Henry XIV, published a collection of observations on sterility, fecundity, abortion, accouchement, and diseases of women and children generally. The Chamberlaines, midwives also, furnished the first rude instrument, which later modified by Palfyn of Ghent and re-modified by almost every professor of obstetrics since, has developed into our forceps of the present day.

It was Paul Portal of France who first proposed version by the foot, and to Justine Siegemund, daughter of a minister and Court midwife of Germany, belongs the distinction for the first published suggestion of bimanual version and for puncture of the membranes for induction of artificial labor.

With the extension of medical education and medical literature at the beginning of the 17th century, obstetrics began to occupy the attention of physicians and students, the midwife began to lose her place in the higher ranks of life and man midwives being fashionable in France, the influence extending gradually, forced her lower to the level of her services today. Her past had been honorable, and as shown by these examples, often of distinct contributive value.

Dr. S. Josephine Baker publishes a table from Prinzing and other sources which gives the number of midwives and their incomes in 9 of the principal European countries.

In England, registered in 1909, there were 27,238 midwives, or 7.3 to every 10,000 inhabitants, these averaging 38 births per year. Switzerland in 1903 had the largest proportion of midwives, 10.1. Average births, 29. Russia, with 14,000 midwives, or 9 to every 10,000, averaged 550 births each. Their incomes also vary considerably. The English midwife averages $1 to $4 per case; the Austrian, $2; annual income, $60 to $75; and the German $.50 to $4; annual income, $75 to $100. Switzerland averages $6 per case, annual income of $80; while in Russia no average fee is given, but annual income is given as $80.

Training schools for midwives exist in most European countries. The length of training varies from six to nine months in England and Prussia, to one or two years in France, one in Switzerland; Italy, two or three; Netherlands, two; Russia, three; Belgium, two; Scandinavia and Japan, one year.

Germany has 43 institutions for training midwives, 27 in Prussia, four in Bavaria, three in Baden, two in Saxony, and one in each of the remaining provinces.

The requirements for admission differ in different countries, but the general requirements prevail, such as age limit, health, character and general education. The teaching is practical and didactic. In Prussia, all graduate midwives are expected to be examined once in three years. Inspectors are assigned to supervise midwives in Germany, Austria and England, a definite number to each.

So we find that the midwife has been an integral unit of European life for centuries, a functionary, trained, licensed and supervised by the governments. Her income shows that she is an important economic factor.

On accepting the invitation of the Society to read on the midwife, my first intention was to study the records of the city clerk's office and the hospital records of New Bedford for suitable material. Later, it seemed better to extend the inquiry to include the other large cotton cities of the state, Fall River, Lowell, and Lawrence. In these four cities we find by the last census, 408,433 people. Most of these people are foreign born and work in the mills.

Our foreign population may be grouped essentially as follows: Most numerous, the French Canadian, estimated about 100,000 in the four cities. They have been with us for at least forty years. They marry young, have large families, are distinctly racial in language, and customs; are thrifty and send much of their earnings to Canada.

The Lancashire English, next in number, the whole number difficult to determine; perhaps

* Read before The Obstetrical Society of Boston, Jan. 28, 1913.

50,000 or 75,000. Portuguese, more properly called Azoreans, have come in the past fifty years. Their largest colonies are in New Bedford, 18,000, and Fall River, while the later and lesser additions are the German, the Russian, the Greek, the Pole, the Italian, and of recent years and in smallest numbers, the Turk.

A list of nine questions was sent to each city clerk, and the questions with the answers follow:—

Question 1. Whole number of births reported in 1912? and,

Question 2. Number of births reported by midwives? Can be answered as follows:—

	Total Births.	Midwife Births.	Midwife Births.
Fall River	4900	1259	25
New Bedford ...	3736	819	25
Lawrence	3000	952	31
Lowell	2700	400	16
	14,336	3430	24¼%

One-quarter of the mothers delivered last year in these cities employed midwives. A difference of 15% between Lawrence, the highest, 31, and Lowell, the lowest, 16.

The high rate in Lawrence might be explained by the poverty consequent on the labor disturbances of last year.

Question 3. Still births reported by midwives?

But one city, Lawrence, had received such reports, 26. Many still births must have occurred in the practice of midwives in the other cities, but the reports did not get on the records.

Question 4. Number of cases of ophthalmia neonatorum reported by midwives?

Fall River ..... 3 cases

Question 5. Greatest number of births reported by one midwife?

Lawrence	259	
Lowell	175	A Polish Austrian.
New Bedford ...	154	Portugese.
Fall River	145	

Question 6. Whole number of midwives?

Fall River	50
New Bedford	34
Lawrence	15
Lowell	13

Question 7. Nationalities of midwives, judged by their names and the number of each?

The number was not given in one return, Fall River.

New Bedford, Eng., 10; Polish, 3; Port., 19; Jew, 1; Afr., 1.
Lawrence, Eng., 2; Polish, 2; Ital., 6; Ger., 2; Unknown, 3.
Lowell, Polish, 3; Jew, 1; Irish, 7; Greek, 2.
Fall River, Eng. Polish. Irish.

Poland is given as the nationality in all four cities, the most distinctly separate in customs and language; England in 3; Portugal, the Jew, and Ireland in 2. The absence of the French Canadian is significant. They alone are adequately served by a sufficient number of physicians of their own race. I understand that they do obstetric work for little remuneration.

Question 8. Number of deaths from puerperal septicemia?

Lawrence	19
Fall River	7
New Bedford	4
Lowell	3
	33

Question 9. Number of deaths from puerperal sepsis known to have been delivered by midwives.

Fall River .....1 case.

To summarize:

Thirty-four hundred and thirty, nearly one-quarter (24¼%) of all the babies born last year, were brought into the world by the services of 112 midwives, representing nine nationalities.

In one city, 26 still births were reported.

In another city, three cases of ophthalmia and one death from puerperal sepsis. The total reported deaths from sepsis being 33.

The second part of the inquiry was in regard to the hospital facilities for obstetrics and for data on complications developing after midwife attendance.

Six letters were sent and five replies received.

Question 1. Number of beds exclusively for lying-in?

New Bedford. St. Luke's	14
Fall River. City Hosp. 7; Union Hosp. 5	12
Lawrence. Gen'l	0
Lowell. Chelmsford St. 3	

A total of 29 lying-in beds for a population of 400,000.

Question 2. Number of free or endowed lying-in beds?

Fall River. City Hospital	7
Lowell. City Hospital	3
Lawrence. All ward beds are free.	

Question 3. Number admitted 1912 to free lying-in beds?

Fall River. City 52; Union 3	55
Lowell	12
Lawrence	22
New Bedford. St. Luke's	44
	133

Question 4. Number admitted attended early in labor by midwives?

Fall River. City Hospital 6

Question 5. Number admitted to hospital of puerperal sepsis who had been attended wholly or in part by midwives?

Fall River	10
City Hospital	8
Union Hospital	2

In a population of 400,000, we find 29 beds set apart for obstetrics. Of these, 10 are free.

One hundred and thirty-three women availed themselves of this privilege, less than 1% of last year's births.

Six women were admitted to a hospital beyond the skill of the midwife to deliver.

Ten women were admitted for treatment for puerperal sepsis, following attendance of midwives. It is of note that these occurred in one city, having the highest number of midwives and midwife births; and the one death from sepsis under attendance of a midwife.

These, then, are the figures of midwife activity in a considerable proportion of our population during last year. No one would claim that the figures are absolute; the number of births in three cities were estimated, and we know that deaths as registered may be misleading or worthless. I believe, however, that these figures of still births, ophthalmia and puerperal sepsis do represent the whole number of palpable cases of each class. Less apparent or clearly defined cases may have escaped observation and consequent recording, but in these we have the established minimum.

The study does show that the midwife is a fixed agent among our newly arrived peoples. She works for a small fee, usually, I am told, among the Portuguese for $5 for attendance on the mother and subsequent daily visits for one week. She is an economic necessity.

We agree that she is a nuisance, a relic of mediaevalism and an unnecessary evil and that she must go. But she does not go. We have ignored her and prosecuted two of her kind in this State, and last year she delivered three thousand women in our cotton mill cities.

Since we cannot abolish the midwife, we can at least teach her cleanliness, the conduct of normal labor, and to recognize the onset of complications. We can secure legislation enabling constituted authorities to adopt rules and regulations for such instruction and for her admission to practice and exclusion from practice and to regulate and supervise her work.

Such legislation exists today in 13 States. Four cities in New York State have special legislation.

Rochester has operated under a special statute since 1895.

Dr. Goler, Health Officer, writing on Jan. 8 of this year says, "In 1912 there were 5,527 births reported, of which approximately 20% were reported by midwives.

"There have been either two or three arrests of unregistered midwives, but no convictions. We have but 16 midwives in Rochester, whose nationality is mostly German, though there are two Italians.

"The Board of Midwifery Examiners have very carefully weeded out undesirable applicants. Of course we believe the midwife an unnecessary evil."

Buffalo has had a special statute for more than 30 years.

Dr. Franklin G. Cram, after outlining the manner of registration, says, "I am glad to state that this has proven entirely satisfactory. These midwives do their work in such a thorough manner and file their birth returns as required by law so that I cannot recollect that we have ever had to take one of them into court.

"As to those who practice midwifery illegally, we have no difficulty whatever. Usually in such a case there is some physician or midwife in the neighborhood who will immediately report the matter to the authorities.

"We have English, Polish and Italian midwives."

BIRTHS IN BUFFALO, 1912.

Total	11,591
Attended by physicians	6,688
Attended by midwives	4,903

THE MIDWIFE IN MASSACHUSETTS: HER ANOMALOUS POSITION.*

BY JAMES LINCOLN HUNTINGTON, M.D., BOSTON.

THE number of midwives existing in Massachusetts is about one hundred and fifty. Many of these women carry on a successful practice. In almost every section of the State there are manufacturing centres where midwives exist. And yet all this is contrary to the Medical Practice Act, for by a decision of the Supreme Court of Massachusetts this Act directly covers the case of the midwife receiving money for the attendance of women in childbirth. In spite of this law, however, the statute book today explicitly states that the fee of twenty-five cents shall be paid to every midwife reporting a birth to the city registrar or town clerk. This certainly is an anomaly! But because public sentiment is too ignorant and too feeble to enforce this law, are we to believe that the law is bad and needs modification? How can this law be modified so as to benefit the community? I maintain that no change in legislation in this regard can be of the slightest benefit to the Commonwealth of Massachusetts at the present time. The only change which must be made some time is to strike from the laws concerning the Reporting of Births the word "midwife," and the demand for such a change is not sufficiently great to make it advisable to bring before the Legislature the midwife question until

* Read before The Obstetrical Society of Boston, Jan. 28, 1913.

the general public has been educated to realize the importance of obstetrics.

The change now proposed, however, is not to strengthen the Medical Practice Act, but to weaken it. The law as it now stands is a serious blot on the statutes of the State. Massachusetts is one of two States in the Union not requiring the degree of M.D., before the candidate is allowed to take the examination before the State Board of Registration in Medicine. Massachusetts further let down the bars last year and recognized the optometrists. If the midwives are now to be recognized we may fairly ask, where is it going to end?

The effect of recognizing the midwife would be dangerous in three ways.

First, in its influence upon the general public. There is probably no other branch of medicine about which so much ignorance exists in the lay mind as the subject of obstetrics. The average American, and immigrant, too, for that matter, realizes where to seek and how to find competent medical skill for the illnesses and emergencies that beset his path, but has no idea of the importance of adequate medical attention during pregnancy, labor and the puerperium. Since the child comes into existence and later into the world by natural processes in the vast majority of cases, the need of any intelligent supervision is not recognized. The deaths and invalidism resulting from incompetent care are not traced to their source.

In many families nothing is done until the advent of the child is imminent, and then the nearest doctor or midwife is sumoned by the excited neighbor or husband, much as the fire department is called when the kitchen lamp is overturned. Any effort to introduce midwife legislation at the present day would probably meet with prompt support by the majority of our citizens who would have the feeling that the more persons available to render assistance in such emergencies the better, not realizing the vital importance of the quality of that service. Thus any effort at legislation would have an injurious effect upon the minds of the general public. It will definitely lessen the importance of proper obstetrical observation and care. They will argue (and with considerable reason) that if the State recognizes and indorses the midwife then she must be good enough for most people, and certainly if she isn't quite all that might be desired after her six months' training, why any physician after four years in the medical school must be all that the most anxious could wish for, and so with this sense of security they will call upon the general practitioner without any regard for his obstetrical training.

Second. The physician practicing medicine at the present time in Massachusetts will be seriously injured by admitting the midwife to legitimate practice. One class of practitioners will be greatly pleased and relieved if this comes about for it will immediately wash the hands of those who have been practicing in close relation with the midwives. It will show them that they have been acting wisely and well in signing birth certificates in cases they have never seen much less attended. It will make them realize even more fully that the stethoscope and the pelvimeter are no longer necessary in obstetrics. They will, with their medical diploma, naturally feel superior to the midwife and will have no pressure brought to bear upon them to improve their obstetrical knowledge. Legalizing the midwife will also work a definite hardship to those physicians in the state who have become well trained in obstetrics, for it will have a definite tendency to decrease their sphere of usefulness. When the general public is informed by its body of law-givers that any woman, after a six-months' training, is competent to take charge of an obstetrical case, the demand for the expert cannot easily be understood.

But the third and most important harm that this proposed law is capable of doing will be its effect upon the teaching of obstetrics. There is a very definite move on foot in America to strengthen the courses in obstetrics, to teach the students, by having them deliver not six cases but thirty, forty or fifty under careful supervision during their medical school days—not only that but to teach them further that no man should consider himself competent to cope with the complications of pregnancy and labor until he has rounded out his course by an internship in a lying-in hospital. In other words, the modern tendency is to lift obstetrics to the level of medicine and surgery. There is less and less talk of the "normal case" so frequently spoken of by those in favor of the midwife as a practitioner. The trained obstetrician knows that no case is normal until it is over. At any moment complications are liable to arise capable of taxing the skill of the obstetrician to the utmost. In these emergencies time is a great factor and while often medical aid may be summoned in time to render service, in a certain definite number of cases, unless a trained man is within easy reach the resulting delay means certain death for infant or mother, sometimes both. This modern teaching of obstetrics is directly in accord with the principles of preventive medicine. The obstetrician, by his care of the pregnancy, tends to prevent miscarriage, premature delivery and toxemia, and by his preliminary examination, selects the operation that he may have to perform, to give the surest chance for a strong living infant and a healthy mother. This the midwife obviously cannot do. She must, of necessity, be dependent upon the physician when trouble arises. Thus any logical method of developing a midwife system must include some definite standard of obstetrical ability on the part of the medical profession, else the midwife will call in vain for help.

If the midwife is to be trained, she must have that training in schools where she can be brought in contact with the patient in labor. At the present time Boston, while better off than

many medical school centres, is not over-equipped for teaching the students that come here for instruction in the out-patient departments of the different hospitals. Needless to say, any such considerable decrease in the number of cases as would follow the establishment of midwife schools, to say nothing of the activity of these graduates, must seriously injure the teaching facilities here in Boston.

Another phase of the effect of midwife practice on medical education must be considered. If it is true that fifty per cent. of all the labors in this country are conducted by midwives, then it must also be certain that the details of half the obstetrical cases of today are forever lost. The midwife contributes nothing to the knowledge of obstetrics.

The midwife exists only for the immigrant portions of our population. It is hard to see how she can make much progress among our native-born population. The physician exists for all classes and it is much more important to have the medical student receive the first consideration in any plans for education.

Let us see how the trained obstetrical teachers of America regard this question.

Williams,[1] professor of obstetrics in Johns Hopkins, urges among other obstetrical reforms "Gradual abolition of midwives in large cities and their replacement by obstetrical charities. If midwives are to be educated, see that it is done in a broad sense and not in a make-shift way. Even then disappointment will probably follow."

De Lee,[2] professor of obstetrics in Northwestern University Medical School, writes, "When public opinion has been raised and educated regarding obstetrics the midwife question will solve itself. With an enlightened knowledge of the importance of obstetrical art, of its difficulties, of its high ideals, the midwife will disappear; she will have become intolerable and impossible."

Dr. Paul Titus[3] of the Elizabeth S. Magee Infirmary of Pittsburgh, who was on the staff of Prof. Menge, writes, "I worked in the Frauenklinik in Heidelberg long enough to become thoroughly acquainted with midwife education and I feel that midwives educated or uneducated are unnecessary and vicious. 'Education' improves their *obstetrical ability but very little* but it does do this one thing—it makes them dangerous abortionists since it gives them an idea as to the value of asepsis and thus makes them more successful in that criminal field, and in direct proportion to their success and sense of self-security increases their business in this respect."

Dr. Skeel[4], of Cleveland, writes, "If obstetrics has any right to a place with the other branches of medicine; if its correct practice requires the wide knowledge and the skilled technic of the educated physician; if modern science has placed it on a coördinate plane with surgery, pediatrics, etc., then the proper solution of the midwife problem is not her education but her elimination."

Davis,[5] professor of obstetrics, Jefferson Medical College, Philadelphia, says, "It is my belief that midwives are a menace to the health of the community, an unnecessary evil and a nuisance. It is true that they furnish interesting pathologic cases, but this is no excuse for their existence."

Dr. J. R. Freeland,[6] obstetrician to West Pennsylvania Hospital in Pittsburg; former assistant master Rotunda Hospital in Dublin, writes, "In Great Britain, with 30,000,000 inhabitants, there are approximately 37,000 cases available annually for the instruction of midwives. The United States would need about 110,000 cases annually to train midwives to the standard required in Great Britain *which would still mean very unsatisfactory work.* The students would suffer and midwives would have to call as consultants men whose training in obstetrics had been much inferior to their own. Therefore it seems advisable to use the available material for the training of students, gradually raising the standard of obstetrics and by this means the elimination of the midwife would be only a matter of time."

Ziegler,[7] professor of obstetrics in University of Pittsburgh, writes, "I am opposed to educating and licensing midwives to practice obstetrics in this country for several reasons; first, because I believe it unnecesary, since I am convinced that a plan can be evolved and practically carried out which will give to every child-bearing woman in the country competent medical attendance; and second, because I do not believe it possible to train women of the type of even the best of midwives to practice obstetrics satisfactorily."

We are not satisfied with the present situation here in Massachusetts or anxious to allow it to continue. We feel that there ought to be a tremendous campaign started in our medical schools, and in every city and town in Massachusetts where midwives exist or where obstetrics is practiced in a make-shift way. We believe that in every town or city equipped with a District or Visiting Nursing Association and with a hospital that could devote a few beds to this cause, the problem would be simple, effective and self-suporting. The factors in the complete scheme should be (1) a pregnancy clinic, (2) a social service worker, (3) the visiting nurse, (4) the hospital beds for the serious complications,—all these under the charge of the obstetrically trained physician. To this might be added handy women and wet nurse directories.

The patient applies to the pregnancy clinic, the family is visited by the Social Serce worker and an estimate is made what the patient should contribute to support of the institution, or where povel exists, what charity the patient needs. At time of application the patient's history taken, and physical examination made; t vis is measured and exam-

ined; the blood-pressure is taken and the urine tested, and if all is normal the patient is turned over to the visiting nurse, who makes monthly and later weekly visits, taking the blood-pressure and doing the rough test for albumin, seeing that the patient is following out the directions for the hygiene of pregnancy as outlined for her at her initial visit. Should all progress normally, the obstetrically trained physician is summoned when the patient is in labor; this he conducts with the assistance of the nurse. The nurse makes the visits during the puerperium, reporting daily to the physician, and if all goes well the patient is only seen by him when ready for discharge. That such a clinic could be run as a self-supporting institution seems certain, even the physician should in most cases receive some compensation for his time. In 1910 the out-patients of the Boston Lying-in Hospital, contributing on the average $1.28 per patient paid all the expense of the Out-Patient Department, with a surplus of $807.82. In 1911, with an average of $1.27 per patient, the Out-Patient Department turned over a surplus of $833.31. Certainly it would seem that this answered the question of the economic necessity for the midwife.

A recent writer[8] on this subject has said: "We are totally indifferent as to what becomes of the midwife as compared with the vitally important question of how we shall provide competent medical service for the hundreds of thousands of the very best of our women while they are fulfilling the sacred obligations of maternity." I feel, however, that it would be perfectly possible to provide for the midwife and at the same time follow out our scheme for the Lying-in Dispensary. The midwives in the community should be informed that they can choose between giving up their livelihood or cooperating with the Dispensary, but that in either case they can no longer deliver women in labor. Then those midwives who show evidence of education and are able and willing to follow the aseptic precautions of the obstetrical nurse can be employed in that capacity by the Dispensary, while the others can in many cases be employed as handy women, going into the house and taking charge of the work and waiting upon the mother during her period of incapacity. Such a scheme could be developed in a community where the law was in the hands of men of sufficient education in this regard to see that the law was enforced.

It would seem as if we had reached that stage of social education where the rights of all should be recognized and respected. How can we with any justice suggest one class of service for the poor and ignorant and another for the well to do and educated? No other branch of medicine tolerates this dual standard—two classes of practitioners, one semi-trained and the other thoroughly educated. This is a problem to be solved by the obstetrically trained physicians and not by pediatricians, statisticians and board of health men unassisted by expert obstetrical advice. No man unless he is thoroughly trained in obstetrics is likely to realize the utter hopelessness of ever solving the obstetrical problem of the poor by the services of the midwife.

The course lies open. Massachusetts is in a position where public ignorance and apathy will readily allow the adoption of the midwife system—a system which has never proved successful in any country. But if we as obstetricians will firmly stand our ground and by exerting every effort educate the community in the importance of obstetrics, we can by the aid of our present law gradually solve the anomalous position of the midwife and place Massachusetts at the forefront in the march of Preventive Medicine.

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[5] Journal American Medical Association, July 6, 1912.

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[8] Ziegler: Journal American Medical Association, Jan. 4, 1913.

SEASONAL VARIATION OF THE SYMPTOMATOLOGY OF PULMONARY TUBERCULOSIS.

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It is by no means a novel observance by those engaged in the study of phthisis that certain phenomena of the symptoms complex of this disease vary in intensity as each new season of the year advances. For instance, in the matter of weight, Minor in Ashville noticed that the chief gains were made in the winter months, the most favorable cases gaining from October to May, and falling off to a moderate degree during the summer, to recommence gaining again in October. Published reports of several institutions have made mention of this seasonal tendency as affecting the symptomatology of pulmonary tuberculosis.

This variation, so suggestive of meteorological influence, semed most strikingly discernable at North Reading during the spring months of the year 1912, and of such importance as to merit an investigation. Accordingly, clinical records of a thousand patients treated at the State Sanatorium in the past three years were examined and such data selected as pertained to weight gain, weight loss, and incidentally, but for one year only, some of the facts relating to superalimentation as a remedial measure in dealing with emaciation. Results of the findings have been arranged as follows:—

TABLE ONE.

PER CENT	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
PATIENTS GAINING	64.5	59.4	42.7	47.2	42.0	44.2	46.9	71.9	74.9	66.4	60.7	64.9
PATIENTS LOSING	27.9	35.4	50.2	44.5	50.7	50.4	47.6	27.3	17.3	25.5	29.8	27.8
PATIENTS STATIONARY	7.6	5.2	7.1	8.3	7.3	5.4	5.5	0.8	7.8	8.1	9.5	7.3

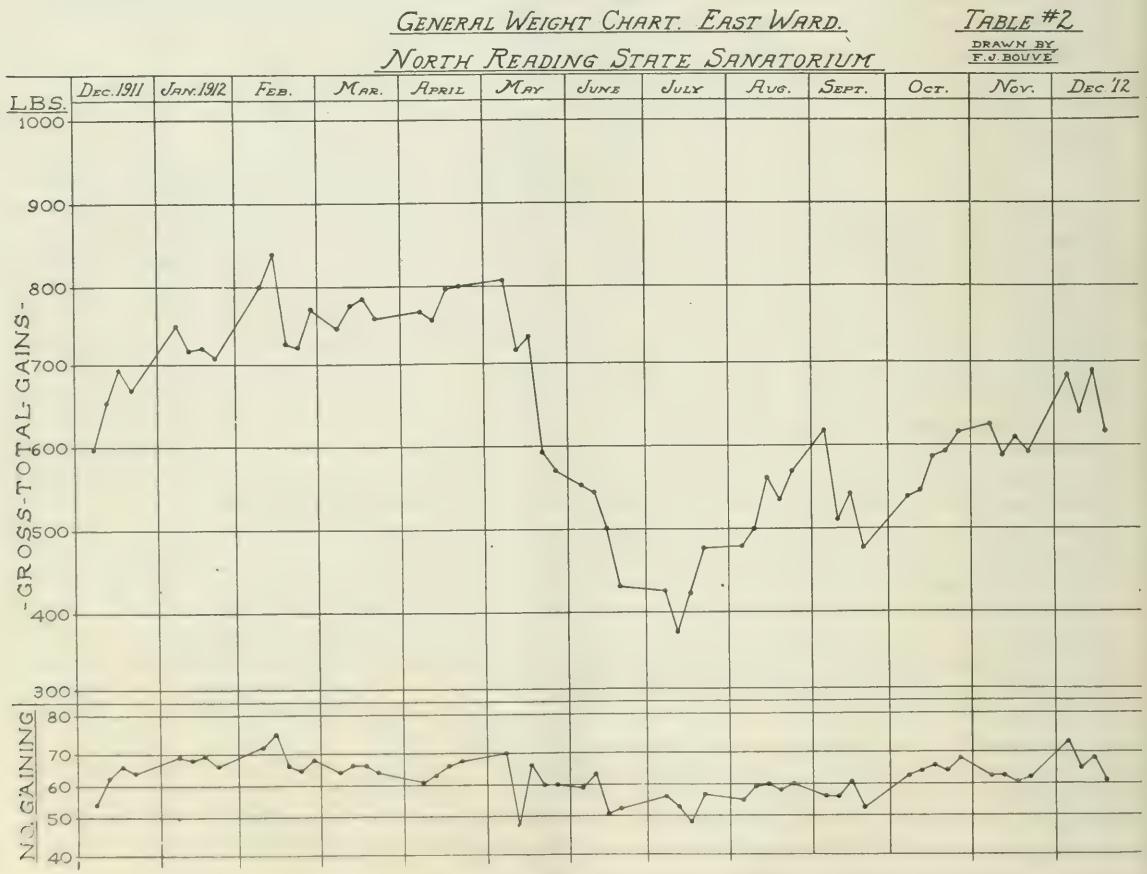
A table exhibiting the percentage of patients gaining, losing, and showing no change in weight from month to month, the basis of which consisted of statistics gathered from the weight charts of 500 cases averaging ten months' continued residence. About 5000 "patient months" were tabulated.

In Table 1 it should be noted that August, September and October show the largest percentage gaining, while the three months immediately preceding are notable in the opposite respect. The quarter including November, December and January maintains an even ratio, and the stationary rate is better sustained and at a higher level than for any other three months. For that matter the next highest is for March, April, and May, when it may be supposed to cover cases at a standstill in the cross-over from the gain to the loss column.

It may occasion some surprise that the percentage number of patients losing weight should run in so large figures. Account may be made for this by knowing that fully forty per cent. of cases admitted at North Reading since the institution was opened in 1909 were of the far advanced and progressive type.

There is much in Table 1 which speaks for itself; suffice it to say that the figures seem to fall into four main divisions corresponding roughly to the four seasons of the year.

TABLE TWO.



Tabled in the form of an index chart is the aggregate gain in pounds of the male patients treated at North Reading December, 1911, to December, 1912, inclusive. As these patients were weighed once weekly and their individual weight gains or losses recorded, the gains, based from the time of patients' admission, were totaled and the lump sum figure made to determine the course of the index from week to week. A sub-index registered the number of patients gaining each week. The greatest number in the summer months was 95, the lesser in the winter, 85. Thus the main index has indicated the gaining power for a group of approximately 90 patients, of the whole, and the sub-index the number of individuals disposed to continue taking on weight, and both indices carry through the four seasons of the year with four quite extraordinary fluctuations.

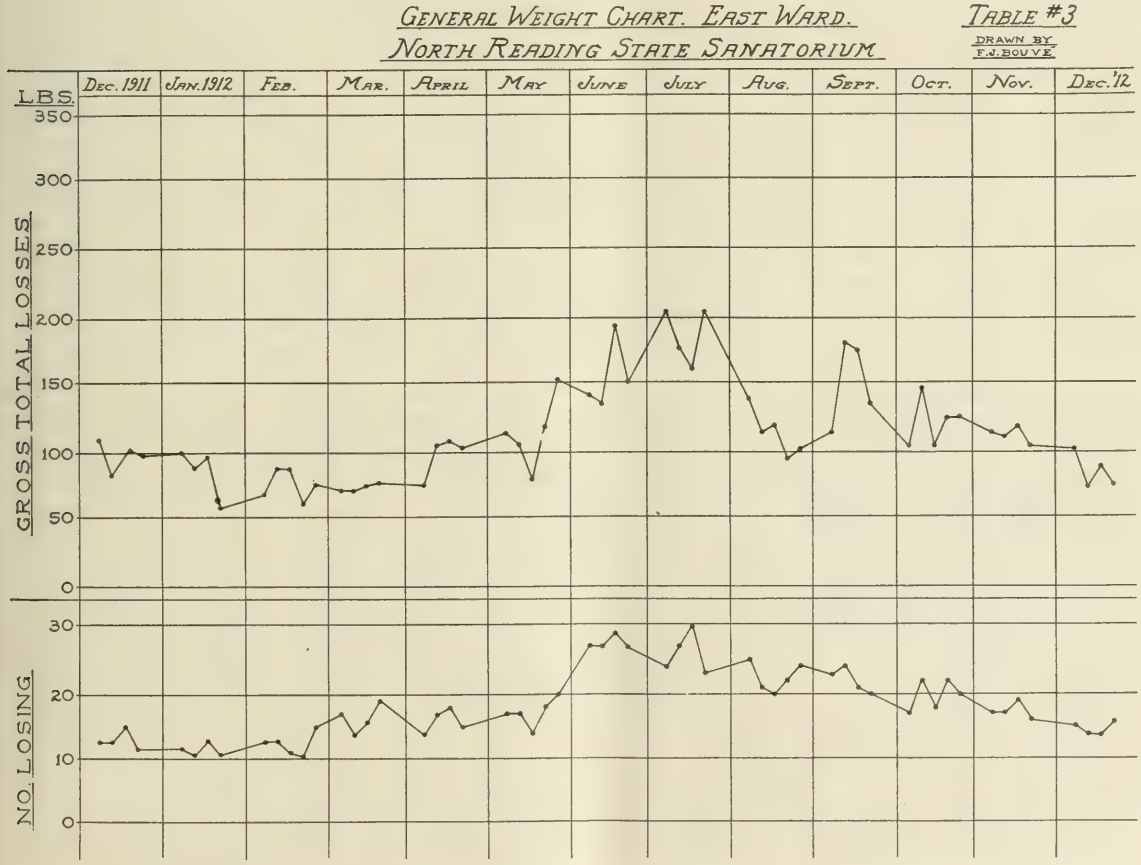
Namely, beginning with the rise in January and February, 1912, to 850 for 76 patients, which was maintained within a range of 150 pounds for about the same number throughout March and April, there was a subsequent sharp decline in May, the main index dropping 250 points. This fall continued without interruption in June to culminate on July 11 at the low point for 1912. A proportional decline occurred in the sub-index at the same time, it reaching the 1912 low point that same week.

Thereafter, the two indices record two more fluctuations, perhaps less distinct than the two already stated, but nevertheless apparent. These are seen in the quick rebound in August and September, which movement was separated by a mild reaction from the steadier and more gradual upward movement taking place as the winter months were entered.

In considering the main index of Table 2 it should be understood that patients discharged from the institution with large gains to their credit, and also that any increase or decrease in the census of the male wards caused the index to deviate somewhat from its normal course. With respect to the former factor, mention should be made that some diminution in gross gain in June and July was due to an unusually large number of discharges, patients 15 to 35 pounds above their admitted weights and therefore valuable contributors to the general gain index. For example, the week of May 23, when there were discharged gains of a total 123 pounds. The last week in December, 1912, 115 pounds were discharged in that one week.

However, after making due allowance for this loss, there is still a deficit as compared with the previous week, indicating, supposedly, as a seasonal tendency the phthisical patients' lessened ability to overcome that important symptom of progressive disease, emaciation.

TABLE THREE.



This exhibit, also in the form of indices running through the year 1912, is based upon the weight data of such male patients as were under their admitted weights. For this class and for any given week the main index marked the sum total of net losses per patient, and the subindex the number of patients. The male patients numbered between 85 and 95 through the year, as stated before. Following the course of the main index from its low point at 61 in February, a rise is met in March and April. About the same level is held until the last of May, when another decided rise began, attaining 193 in June. The greatest loss was registered in the first week in July, at 203.

Thus it appears that in the same months in which the gain index dropped in an extraordinary way the loss index rose almost proportionately. Furthermore, there is a correspondence in action of the two indices for the remainder of the year, again suggesting seasonal influence in the matter of emaciation.

TABLE FOUR.

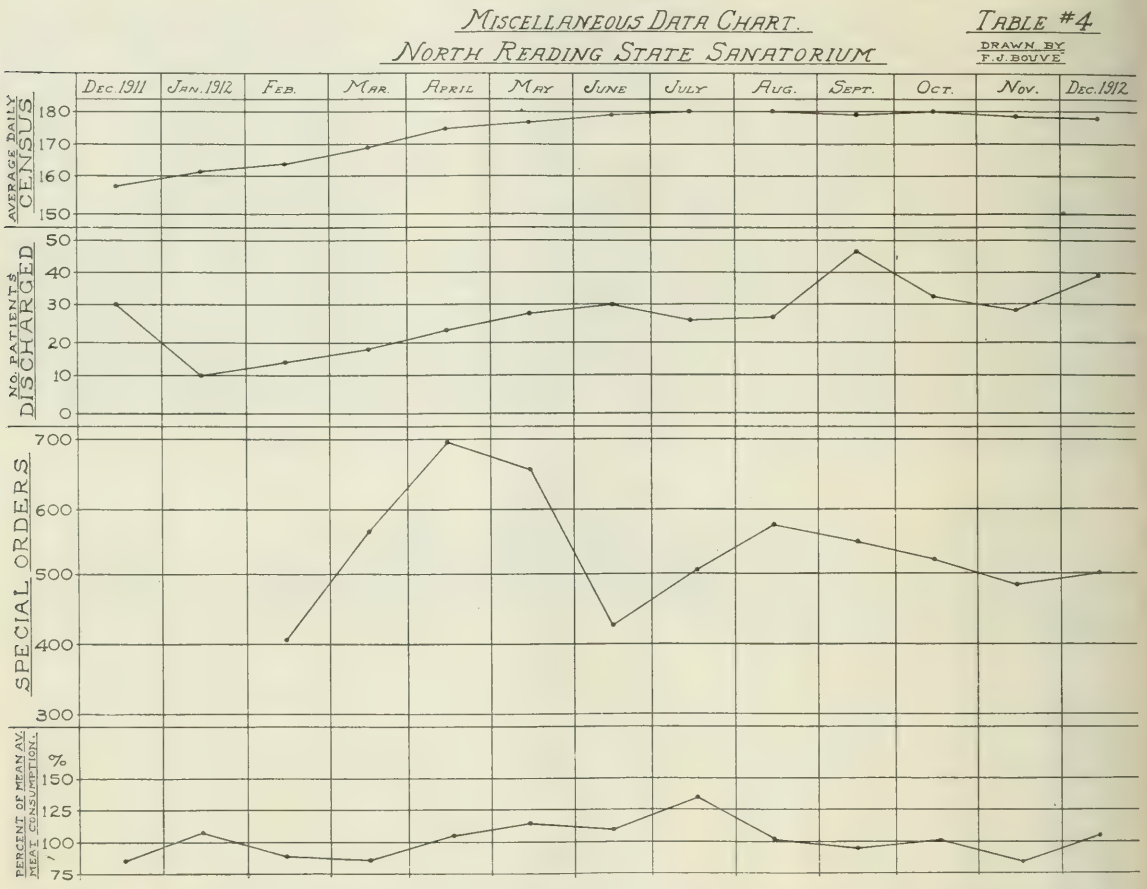


Table 4 represents separate indices composed of miscellaneous data bearing on the foregoing tables. The total male and female daily census averaged by months is shown first and offers a means of speculation as to how much the courses of Tables 2 and 3 indices may have been affected by the census variation. The male patients have numbered approximately one-half the total patient population for any one time, hence the index curve may stand for either male or female wards. Since the census increased in those months when the patients' gaining power was failing, and in view of the fact that a large majority of patients admitted gain in their first few weeks of residence, it would seem conclusive that the increased census factor minimized rather than exaggerated the true intensity of action of the seasonal influence.

The curve picturing the number of male patients discharged per month has a rather more important effect upon Table 2 main index, some discussion of which has already been made.

A consideration of the third and fourth indices of Table 4 entertains the matter of employing superalimentation as a remedial measure in treating progressive emaciation. As a matter of fact the last named indices are significant principally in their application to the fluctuations on Tables 2 and 3, for therein has appeared the necessity, according to the accepted tradition, to tempt the progressive patient to over indulge in nourishment. At any rate, the indications for forced diet have been met thoroughly, but, unfortunately, without avail in a quite considerable number of cases. With broad variety and an abundance of sup-

ply, there has always been at hand the opportunity to prescribe almost any kind of nourishment approved by authority or fancied by the patient.

In order to simplify and make more exact the method for providing forced feedings, a system was effected and successfully carried out of entering in writing all prescriptions or orders for special diet on duplicate blank forms provided for that purpose. This not only insures that the patient shall receive the prescribed nourishment, but also serves as a record for future reference, and in the latter instance is finally filed at the main office. It should be explained that all cooked and prepared foods outside of the regular dining room and ward fare come within the province of the special order rule. Of course the latter does not include the mid-forenoon and afternoon lunches provided for all patients and consisting of milk, uncooked eggs, malted milk, beef tea, etc.

The special order records are the basis for the third index of Table 4. Comparing this index with Table 2 index, one gains at first the impression that they are quite out of joint with one another. In February, the month of greatest gaining power, the number of special orders served was at a minimum, while in May, the month characterized by the greatest loss in weight, amount of forced feeding reached nearly the maximum point for the year. From a further study of the two charts it would appear that the time when forced feeding apparently accomplished some material benefit, was in the month of August. This evidence is in accord with the writer's clinical experience, for clearly in mind is the sharp distinction between the bona-fide and substantial appetites of patients in August, and the fickle and fastidious tastes of even the same individuals in May and June. The food waste in either of the latter months tended to increase unless the dispensing was carefully watched and discretion exercised in prescribing orders. On the other hand, very little difficulty was experienced after the middle of July in carrying out serving economy. The patients were then taking care of all nourishment provided.

Meat consumption amounts to thousands of pounds per month at North Reading and varies according to the needs of the patients. This variation is shown by the curves of the last index in Table 4. In a general way the course of this index may be interpreted similarly to the one just mentioned in that it reached its minimum in the colder months, when almost every patient was gaining weight quite satisfactorily, and thence advanced to the maximum in the warmer months, coincidentally with greater weight loss.

SUMMARY.

Phthisical patients are apt to lose rapidly in weight and general condition in May, June, and the first two weeks in July, which season constitutes an unfavorable and critical period.

Phthisical patients make an extraordinary recovery in weight and general condition in the month of August, which is a surprisingly favorable time of the year.

August, September, January and February are the most propitious months for obtaining successful results in treating pulmonary tuberculosis.

Forced feeding in the unfavorable season, as mentioned above, seems to have availed very little in the limited number of cases studied at North Reading.

A COLLECTION OF FACTS, IDEAS, AND THEORIES RELATING TO THE DIVERSE ELEMENTS THAT CONTRIBUTE TO SUCCESS IN TREATMENT OF JOINT DISEASES. RELATIONSHIPS BETWEEN VISCERAL PTOSIS AND ARTHRITIS. COMPARISONS BETWEEN MILD INTESTINAL TOXAEMIAS AND GOUT.

(*Continued from page 392.*)

BY H. W. MARSHALL, M.D., BOSTON.

FURTHER DISCUSSION OF ACTIONS OF VASCULAR CONSTITUENTS UPON KIDNEYS, INTESTINES, LIVER AND NERVOUS SYSTEM; AND CONSIDERATION OF THE FUNCTIONS AND REACTIONS OF THESE ORGANS.

Returning again to the biological sequence of events, there remain to be noticed further actions and reactions between the blood and the above named organs.

Kidney excretions cannot be studied directly, as intestinal absorptions can be, from experimental loops of bowel. The exact conditions in the kidney at the renal epithelium, together with all minor changes in the circulation through the kidneys, cannot be told as precisely as the state of affairs at the intestinal epithelium of a Thiry-Vella loop which permits direct inspection and perfect control of experimental conditions.

Consequently there have arisen different theories of kidney function, but the weight of physiological evidence is in favor of renal epithelial cells possessing unknown secretory functions analogous to the vital absorptive, secretory, and excretory functions within intestinal cells. Readers are referred to text-books of physiology for full particulars concerning the data and interesting details of theories of excretion by the kidneys.

The extreme importance of variations in blood-pressures in the maintenance of normal circulatory relations is shown by the fact that low pressures accompanying hemorrhage and surgical shock lead to temporary suppression of the urine and its constituents, thus influencing

vascular concentrations very materially at times. Probably normal absorptions from the bowels are interfered with as seriously by abnormalities of blood-pressures as normal excretory functions are, and herein may lie the merit of certain glandular products, for example, powdered thymus gland, when it is employed in treatment of arthritis,—blood-pressures altered from its administration may indirectly change vascular conditions.

Magnus-Levy believes single functions of the kidney, for example, the excretion of urates, may vary independently, while other functions, like those of urea and water elimination, remain constant. This seems likely, but the many variations and causes which lead to varying proportions of urinary constituents among different persons cannot be discussed. They may be ascertained from perusal of books dealing with urinary analyses and their interpretations.

The gastro-intestinal tract as an excretory organ still has to be studied a great deal. It is known that certain drugs, like morphine, are excreted mainly into the stomach and intestines; and certain recent experimental studies upon animals show that substances excreted or secreted by the epithelial lining of the intestine may have strong toxic properties. These experiments are so suggestive that they will be described briefly, and the summary of the authors given, although the results do not bear directly upon gout, ptosis, or the particular intestinal toxemias that are due to harmless intestinal bacteria.

Stone, Bernheim and Whipple operated upon dogs and tied off a loop of the small intestine 12-15 cm. long, beginning just below the pancreatic duct and ending just above the jejunum. At the same time an anastomosis was made between the portions of gut above and below the occluded loop. Food could thus pass as usual, and the continuity of the tract was restored simply with the additional feature that a small, important section was entirely closed off with its blood supply intact, so that the function of the intestinal mucosa could continue in the closed sac.

Previously to occluding the loop by tight double ligatures at either end, the lumen of the occluded section was washed out thoroughly to remove food materials and bacteria. In this closed portion of the gut there collected a substance which was very toxic to the animal producing it, and to other animals when it was introduced into them.

The writers summarize their paper as follows[10]:—

High loop obstruction in dogs causes very rapid death, 24 to 60 hours as a rule, even when the loop contains no food material nor secretion from the stomach, liver and pancreas. Low loops (ilium) of similar nature are much less rapidly fatal.

Surgical drainage of this loop will save the dog's life.

Excision of this duodenal loop does not necessarily disturb the animal's health.

The material introduced into normal animals produces many changes similar to those found in the animals with closed duodenal loops, namely, low blood-pressures and temperature, excretion of large amounts of fluid into the intestinal canal and fatal shock. This toxic substance given in a single injection causes a reaction in the dog which is almost identical with the picture of anaphylaxis in this animal.

The toxic material is not injured by heating at 60° C. for any length of time, centrifugalizing and filtering in any manner. It is not impaired by prolonged autolysis, by pancreatic digestion and bacterial fermentation. Hydrolysis with dilute acids probably destroys it.

No such toxic substance may be obtained by autolysis, digestion or putrefaction of the normal intestinal mucosa.

Whether the toxic symptoms are due to purely excretory products, or to normal useful secretions of the duodenal epithelium that pass along the lumen of the intestine with the food without being absorbed, these experiments do not show. They suggest, but do not prove, that retentions of excretions by the alimentary tract may possibly cause symptoms just as retentions of normal waste products by the kidneys are known to do.

Dr. Herter approached the subject of indol excretion in animals by operating upon them, turning up an experimental intestinal loop to the surface of the abdominal wall, and then examined its contents for indol when he injected subcutaneously large quantities of indol into another part of the animal. No indol was demonstrable in the excretions of the intestinal epithelium.

The writer knows of no experimental data regarding the excretion of urates by the bowel, although they can be demonstrated deposited in the intestinal mucosa of gouty patients.

The liver and spleen are important organs which occasionally show pronounced defects accompanied by arthritic symptoms, and because they play important, although imperfectly understood, physiologic rôles in the maintenance of health, their defective functioning may be thought plausibly to be related to the origin of arthritic manifestations in those instances where joints and liver or spleen are both affected.

One patient whom the writer had the opportunity of seeing with another physician, presented the waxy appearance of a severe anemia, and the blood had a marked diminution in hemoglobin but exhibited no abnormally formed elements in it. There was a greatly enlarged spleen and also enlarged axillary and inguinal lymph glands. The spleen was examined later at autopsy. It was large and soft and showed under the microscope only a proliferation of the normal splenic elements.

Kidneys of this person at autopsy were of average size and of normal appearance. The intes-

tine and stomach were smooth and pale, and no marked visceral displacements were recorded. The liver was not remarkable. The articulations presented multiple periarticular swellings without involvements of cartilage or bone.

Before death bacteriological examinations of the intestinal contents showed large numbers of bacillus aerogenes capsulatus in the loose, frequently evacuated stools, and irrigations of the colon ameliorated symptoms for a brief time. The patient was a young woman of twenty-two years. No other etiological factors besides those mentioned could be made out in the history.

The explanation of this case (which the writer would make) in the absence of any more definite one, is that bacterial products from the intestinal tract—in this instance perhaps largely those from bacillus aerogenes capsulatus—caused irritations and pathological appearances in the spleen and also produced the abnormal joint conditions. The assumption is made that unusual weaknesses occurred simultaneously by chance in the spleen and the joints.

If more were known about the normal physiology of the spleen it would be possible perhaps to pick out instances in which splenic defects could be considered causes as well as accompaniments of arthritic disease, just as visceral ptosis at times may precede and at other times be an accompaniment of joint lesions.

From what is known already about variabilities of tissues and normal physiological sequence of events it would be the writer's inclination to associate the three abnormal conditions in intestines, spleen and joints in a rough general way when they are co-existent.

The function of the liver is quite varied. In it urea is formed to large extent, although urea is excreted mainly by the kidneys, while the bile formed by liver cells does not contain urea. The conversion of urates and of intestinal bacterial products is accomplished perhaps also in large measure in the liver, and the writer can see no objection in considering gout or intestinal toxemias essentially of hepatic origin when this important organ is very defective.

Under such circumstances its abnormal functioning is the most prominent feature among the many factors which determine blood conditions. This seems the logical view, although the kidneys simultaneously may be the direct cause for backing up in the circulation of substances which they cannot take care of, because they do not have sufficient additional capacity, although possessing average activity, to compensate for liver defects.

Details of liver physiology and therapeutics will not be entered into extensively, as, like intestinal conditions they are too numerous and obscure. The remembrance of the existence of the liver when any given condition is considered, and familiarity with the importance of its known functions in the normal sequence of physiological events, may, however, materially modify the direction of treatments.

Treatments of internal organs like the liver and abdominal viscera are comparatively crude, apart from surgery and a few drug treatments, owing to inaccessibility and lack of precise knowledge of the details of normal functions of such organs.

Yet occasionally much may be done by the simplest means, and a forcible example was experienced by the writer recently in the treatment of a case of arthritis of intestinal origin. This patient was recovering at a fair rate, but nevertheless became dissatisfied with the slowness of her progress and consulted another doctor, who simply instituted extremely vigorous abdominal massage, with exercise for spine and limbs. The knees were repeatedly pushed forcibly up toward the chin, and the abdominal viscera were thus subjected to strong alternate pressures and relaxations. The result was that recovery from joint symptoms was very appreciably hastened.

There is no doubt in the writer's mind that this thorough kneading of the viscera mechanically stimulated the flow of lymph in the various organs, helped to empty the gall bladder, and to stimulate peristaltic, absorptive, and secretory functions of the digestive tract. It so changed the environments of the tissue cells of the abdominal viscera that they worked more normally and the indefinite chronic sluggish tendencies were overcome with unusual rapidity.

Since then the importance of direct stimulations by physical agents, heat, light, electricity and mechanical force has been better appreciated by the writer. Occasionally they have been tried with very considerable success.

The same general remarks that were made about treatment of intestinal conditions apply to treatments of liver, spleen and all organs, namely, that the obvious defects in the tissues locally are to be treated directly, and also indirectly by measures directed toward other contributing factors located in other organs.

The influence upon vascular conditions of internal secretions, and of obscure defects in normal function of various body tissues cannot profitably be discussed, although rarely perhaps these contribute to important degrees to the development of arthritis. Gout at times may be due to abnormalities in formation of urates by the tissues in general rather than to defective functioning of the kidneys or liver. Intracellular enzymes, circulating internal secretions, etc., are known to exist, but do not exhibit their defects in a way that can be recognized and consequently cannot be treated except in the most haphazard manner.

The nervous system is the controlling one of the body, and together with the common carrier, the blood, combines and correlates all bodily functions into a harmonious whole. Like all other tissues, the central nervous system shows many functional and anatomic variations. Mental capacities differ as much or more than muscular, digestive, or other functions. And there must be in nerve cells abnormal variations due

to congenital and acquired causes, as well as normal variations in them within physiologic limits. Variations, anatomic and physiologic, occur with nervous tissues as with all others, and are not to be considered identical.

Headaches and mental irritabilities in intestinal toxemias, gout, and other types of joint disease due to circulating products in the blood, presumably show the direct effects of these substances acting upon nerve cells in the brain. Theoretically variable articular pains, when not due to pressures upon the nerves or their terminations, are caused by direct irritations of sensory nerve cells of the spinal cord. If spinal cord cells react easily toward circulating substances then articular pains are prominent features, whereas, when spinal cord cells are very resistant pains may be absent, as is actually the case frequently.

There are no reasons for supposing that variations do not occur in nervous tissues, and, on the contrary, all clinical data are in favor of such variations.

Theoretically, nerve cells and nerve centers may be supposed at times to be congenitally defective, or to have been weakened through some toxic substance. Then the results of such weaknesses, whether they lead to digestive disturbances with resultant intestinal toxemias and in turn to occasional joint lesions, or whether they lead to defects in production or conversion of urates with occasional articular involvements, may be considered the primary cause for the arthritis. In this sense there may be nervous origins variously for gout, different forms of arthritis deformans and intestinal toxemias.

SUMMARY.

This paper represents the results of study of arthritic cases as they have been met in actual practice, and consideration of the various methods of treatment, good and bad, that have been tried by many physicians upon the particular patients that the writer has seen.

In the attempt at fitting together clinical data upon a rational scientific basis into a more perfect hypothesis for directing treatments, there have been made examinations of the successes and failures of others, and trials at explaining these results from various scientific aspects. Finally, there have been applications and confirmations of new ideas thus gained in modifying and amplifying therapeutic measures, as the writer himself has tried the latter upon patients.

Therefore the few new ideas herein presented are derived mainly from exhaustive study of existing conditions, rather than from long series of new laboratory experiments that have led to new conceptions. It has necessitated search, covering a period of several years and carried on fairly continuously, into the facts already known but not thoroughly understood about articular conditions. And it has meant careful weighing of relative values of a great variety of biological, physiological, anatomical, chemical and clinical facts.

In this way largely the writer believes that successes in treatment will increase in the future, for there are already too many kinds of therapeutic agents in use and too little skill in handling them. What is needed most is knowledge how to employ more accurately the ones that are at hand; and this can be obtained only through study, comparisons of results, correlations and re-arrangements of facts, as has been attempted in this paper. Some of the points that this study has brought into prominence are the following ones:—

Anatomical and physiological data are often confused by clinicians owing to the fact presumably that both are encountered always in every situation. It should be clearly kept in mind that they are not identical, but that structural and functional peculiarities of living tissues each are independent variable quantities. For example, that some individuals, some organs, and some microscopic living cells may be relatively small in size, yet possess normal or even unusually great functional activities, while other persons, organs and living cells of the same kinds may be anatomically well developed but functionally weak.

Variations, anatomical and physiological, are exceedingly common in living tissues and not infrequently are of marked degree. This fact is frequently ignored or minimized, with the result that erroneous assumptions of constant or average values for variable factors lead to inaccurate conceptions and failures in treatments among individual cases.

Substances that are harmless ordinarily, and that are present constantly in the circulation, have their complete significance ignored or minimized often owing to the fact that they are so familiar. Variations in amounts of comparatively harmless circulating waste products, like urates and certain metabolic products from intestinal bacterial activity, probably give rise at times to pathological changes in various body tissues.

Etiological obscurities at times are caused by unusual combinations between two or more exceptional variations in well known conditions. Origins in such instances are likely to be attributed erroneously to assumed unknown specific causes which really do not exist. Gout and intestinal toxemias illustrate such etiological obscurities.

The confusing clinical manifestations of gout, and of certain mild intestinal toxemias with arthritic lesions, can be explained satisfactorily only upon the basis that such persons possess unusually non-resistant joints, or that excessive amounts of mildly irritating waste products associated with these conditions circulate in the blood, or that both of these unusual variations in blood and joints simultaneously exist.

Proportions between factors instead of independent single values of any one determine

the development of pathological changes. For example, abnormal concentrations of vascular constituents depend upon the ratio between the rate of absorption and rate of excretion; and again the development of pathological joint changes depends upon the ratio between articular resistances and the degrees of irritation produced by vascular constituents acting upon the joints, rather than upon the absolute quantities of irritants in the blood. The latter may be excessive without symptoms if joints are unusually resistant.

Any single factor may have either large or small values independently without upsetting normal healthy relations, provided other factors vary in the same proportion and in the same direction.

On the other hand when variations among related factors occur simultaneously in opposite directions, and lead to deviations in the blood from normal healthy proportions, then pathological changes make their appearance as soon as tissue resistances are overcome. Comparatively slight variations combined in this way can produce pathological appearances in some instances.

Many grades in severity of arthritic symptoms that are observed clinically can be explained best by remembering the many different values that are possible theoretically in the ratio between variable tissue resistances and variable vascular concentrations in the same person and among different individuals.

In practice it is possible to regulate proportions and ratios therapeutically between contributing elements without knowing their absolute values. Restoration of health is accomplished simply by increasing or diminishing one factor while the others remain unchanged; or more effectively it is done by making the other factors diminish or increase simultaneously in opposite directions from the first one until symptoms subside and healthy balances are regained.

Low resistances to circulating urates and intestinal bacterial substances are likely to occur simultaneously in other tissues besides the joints, and must be acknowledged to exist in order to explain satisfactorily all the other variable clinical appearances that accompany gout and intestinal toxemias.

Among them severe gastro-intestinal symptoms of gout, and visceral saggings associated with intestinal toxemias, must be ascribed primarily to a harmful influence of circulating substances directly upon the tissues of the stomach and bowel.

The products of intestinal bacterial activity which give rise to mild autointoxications are probably derived mainly from the colon group of bacteria because the latter almost always predominate in the intestinal flora.

Other species of intestinal bacteria probably contribute their smaller share at times, and special organisms like bacillus aerogenes capsulatus or streptococci, which not infrequently are present in the intestinal contents in considerable numbers, perhaps produce toxemias dependent upon the substances that are developed only by these organisms. With these latter bacteria the quantitative as well as the qualitative effects of their metabolic products in the circulation ought to be considered of importance in the production of pathological changes.

The chemical nature of circulating bacterial irritants cannot be told from facts known at present, nor whether several substances possess irritating properties when they are in too great concentrations in the blood.

Presumably they are normal waste products of bacterial metabolic activity, and the presence of indican and ethereal sulphates in the urine fix suspicion upon the group of aromatic products of putrefactive decompositions,—phenol, cresol, skatol, and indol. But it must be admitted that so little is known of the concentrations and significances of bacterial substances in the circulation, and even of their presence in the blood, that many others cannot be denied to possess significance also in auto-intoxications.

Many physiological facts, which depend upon interactions of various body tissues, cannot be proven directly by regulated experiments owing to the impossibility of controlling the many variable quantities concerned with them with sufficient accuracy to make results show causes that are producing them. And the difficulties are so great that probably many complicated truths never will be directly proven.

However, many unproven physiological ideas are extremly important in management of therapeutic procedures, and must be employed as long as their use materially assists in the relief of patients. Because satisfactory proofs for many theoretical ideas can only be expected indirectly through results from their use, it should be realized that the only way progress can be made under these conditions is through application of these unproven theories.

Visceral ptosis may be congenital or it may develop from intestinal toxemias. It may follow simple mechanical defects in abnormally relaxed abdominal walls. The latter often originate from stretchings of repeated pregnancies and continued postural defects. Ptosis may arise from pressures of clothing, removal of visceral organs and intrathoracic abnormalities; and finally it may develop from serious pathological conditions,—strictures due to carcinomata, non-malignant strictures associated with ulcerations, intestinal obstructions from adhesions and strangulating bands, etc.

Arthritis of intestinal toxemic origin very frequently is associated with simultaneously developing visceral ptosis, and both then must be thought of as caused primarily by a single defective vascular condition.

Arthritis of this type may exist without much ptosis, and ptosis of pronounced grade may be present without joint changes. Intermediate

variations are observed in other instances, and all combinations between the two depend upon the variable ratio existing between the reaction of the gastro-intestinal tract and the reaction of the articulations as both are acted upon by a common harmful vascular influence.

Gout and intestinal toxemias may have several origins owing to the fact that concentrations of vascular substances are dependent upon several factors.

Because concentrations in the blood are always due to failure of the kidneys to rid the system of excessive quantities of the substances in question some persons are inclined to consider gout and intestinal toxemias of renal origin; but it seems better to the writer, however, to recognize the fact that formations, conversions and destructions of vascular substances in the body may be abnormal and lead to accumulations in the blood stream when the kidneys have average, although insufficient powers of excretion.

Theoretically, any one, or several, of the physiological processes that normally take place associated with the passage of substances through the body may be considered to be the cause, or causes, of joint lesions when they are sufficiently defective.

Therapeutic measures should be controlled by thorough knowledge of the main facts of physiology, physiological chemistry, bacteriology, cellular biology, and anatomy. All these may be included conveniently under the general term of biology.

With this biological conception of each patient it is possible to estimate the defects that are present among the many factors which always regulate each patient's health. Single defects can be treated more successfully from better appreciation of the importance and significance of details, and there also is less chance of omitting treatments of important defects through failure to comprehend the situation as a whole.

When success depends upon treatment of combinations of several difficultly recognized defects, knowledge of general biological principles furnishes the only means by which it can be attained.

The aims of physicians must not be toward securing remedies that are only new, attractive, and easy of application, because efficiency does not depend upon these qualities mainly.

The only reliable way, on the contrary, of increasing efficiencies of treatments is by laboring to become familiar with general biological conceptions. And then it soon becomes obvious that progress must be made by use of practical working hypotheses, and that improvements in results will show themselves as very gradual increments in skill when the latter is gained from better understanding and application of many complicated unproved theoretical ideas.

Pronounced lack of precise knowledge is the most serious obstacle to progress now that is seen very commonly among practicing physicians; and the paramount importance of this defect, which by far exceeds other ones although it is easily overlooked and poorly appreciated, has been forced upon the writer from his own personal experience in making many of the errors himself herein described. The true significance and great importance of these errors, from improved results when they have been avoided, have been learned from actual experience. Therefore, in any fair, impartial discussion they must be given first place although they are not quite as attractive as new discoveries.

From past experience it seems to the writer a safe prediction that greater success in treatment of patients in the future will depend as much upon improvements in the understanding of the biological *combinations*, which always control health, as upon increased knowledge of important details of single factors that contribute to it; and that increased knowledge both of single features and of combinations, not increased numbers of agents, will be responsible mainly for improvements.

[10] Intestinal Obstruction: A Study of the Toxic Factors. Bulletin of The Johns Hopkins Hospital, June, 1912, Harvey B. Stone, Bertram M. Bernheim and George H. Whipple.

Reports of Societies.

AMERICAN SOCIETY OF TROPICAL MEDICINE.

Ninth Annual Meeting, Atlantic City, N. J., June 3, 1912.

PRESIDENT'S ADDRESS—THE ERADICATION OF MALARIA.

Dr. Joseph H. White, New Orleans: Malaria possesses a wider interest than any other of the tropical diseases in the United States—particularly in my native South. There have, however, been countless deaths charged to malaria that do not belong to it. Many of us know cases in which general physicians, through ignorance, will make a diagnosis of malaria and sign a death-certificate giving that as the cause, yet in which the cause is absolutely foreign to this disease. Again, physicians will charge up knowingly even such things as syphilis to malaria; because they are afraid to wound the sensibilities of the patient or his family. The morbidity of malaria, rather than the mortality, is the question that makes it of importance; and particularly in the South. I do not think the morbidity is over-estimated, although the mortality is largely so. We all know the importance of doing away with conditions that sap the vitality of the race. The filling up of our country with inhabitants has accomplished the desired result in many parts of the Northern and Middle States, practically obliterating malaria, without interference on the part of the physicians. There are many places where this is not so; and the remedy is first to be applied in a palliative way, by excluding the mosquitoes from

houses, draining small pools of water near at hand, and oiling those which cannot be drained, using for the purpose an oil that has been devised by Colonel Gorgas, which is composed of resin, caustic silver, and some other things that are cheaper and more effective than the oil. The main point is the elimination of the swamps, in the South particularly. To arrive at the proper remedy we must appeal to the state and the nation, as well as to the citizens; so as to get in more people and to expend more money and energy in draining these swamps, and so do away with this curse of malaria. I have seen the gradual recession of swamp land before population in my own state and Florida, and the gradual dying out of malaria before the advent of population. In the last fifteen years, there has been tremendous recession of malaria all around along the Mississippi River, where it used to be impossible for a white man to live. That is due to the fact that the people have been clearing a belt three hundred yards wide around their houses, living in the second story, and keeping the people in the house until the dew is off the grass in the morning. Now, if we apply, alongside of these measures, scientific measures, by wiping out the swamps, we will ultimately wipe out malaria in the entire country. Can we not interest the state and the nation in the obliteration of the big swamps? Is this not an integral part of the movement started for the improvement of waste lands? Should not national drainage go alongside of national irrigation, and is it not as important? Irrigation led only to public wealth; this leads to both health and wealth. In the low-lying coast lands of South America, neither the mixed breed of Indian and white, nor the pure white, can live; but the negro can, and he has taken possession of the coast lands, pushing the white people back. The same thing threatens us; but we can remove a part of the threat, if we can remove the prime cause of negro supremacy. It is by right of inheritance that the negro can stand the malarial climate. If we do not remove malaria from the South lands, we shall find the negro race the only man who can stand it. I do not mean any ill will to the negro; and I should not have mentioned the South at all, except for the fact that my own native land is the most afflicted with this scourge.

DISCUSSION.

Dr. M. P. Ravenal: Madison: My boyhood home was at Charleston, South Carolina; and I was brought up on the idea that "country fever" (as malaria was called in that region) was invariably fatal; and that for a white man to spend the night at St. Andrew's Parish, which was across the river from Charleston, would be an act equal to shooting himself. My father always had a strip of land, three hundred feet wide, that he did not allow to be cleared, bordering every piece of water on his grounds. This made a barrier of trees between the water and the house. All through the lower regions of the South it is the habit for people to leave their plantations on the fifteenth day of May, and not to go back to them until after the first frost in the fall. Many people say that the negro is immune to malaria, but I have seen negroes die like flies of it. The plantation negro is immune to this disease; but the negroes from the foot-hills of the mountains, when taken down to the phosphate fields, are found to be very susceptible. The immunity of the negro race to malaria is an acquired immunity. The result of progress around Charleston has been such that at present the white man sleeps in St. Andrew's Parish with impunity. This is due to the drainage of the swamps. There is no screening of the houses even. An uncle of mine, for the first time last summer, lived on his plantation near Georgetown, South Carolina. He screened his house, and the whole family lived there throughout the summer without having a touch of malaria. The poor whites of the South are generally accused of laziness; but the fact is that they are as energetic as any people, when they are well. Malaria, together with hook-worm disease, has, however, been a primary factor in keeping back certain parts of the Southern country. There is no doubt that with the drainage of these malarial districts and the cultivation of areas of land, there has been an enormous material development, so that the public health question is of great importance to this country from that standpoint, as well as the racial one.

Dr. B. F. Royer, Harrisburg: Malarial fever cuts a very small figure today in Pennsylvania. It is a reportable disease in that state, and a placard is put on each premise where it exists. It was common for physicians to speak of indefinite fevers as a touch of malaria, but the reporting of the disease has done away with this loose method of diagnosis. Physicians were formerly in the habit of calling typhoid fever, malaria, because the former was reportable and the latter not; but now they must make the differential diagnosis between these two diseases, and the State Laboratory is available to make the tests. We have a little shipping outfit, which holds three glass slides; and this outfit is sent to the physicians all over the state, so that they may send smears to the laboratory. Our outfit for the Widal test is a slight modification of Wright's tube, so that we send the blood in a sealed tube. I do not know the details used in the laboratory itself.

Dr. E. H. Hume, Changsha, China: In Central China, where we have a great deal of rice raised, there is none of the anopheles within hundreds of miles; yet in other sections of rice country there are crowds of them. The studies now seem to indicate that the presence of anopheles has something to do with the kinds of fish, etc., contained in certain waters. We hope within the next few years to find the solution of this problem. The distribution of malaria is being worked out in China as a problem of much importance, because the disease is so scattered in that country.

Dr. William H. Jeffries, Shanghai, China: There has been a bill passed in the State Legislature of Maryland providing that the state will pay two-thirds of the cost of draining any swamps, if the land owners will pay the remaining third. So far, very few land owners have taken advantage of this law, therefore the draining of swamps on a big scale will have to be done by the State and Congress. I do not think that individual enterprise will do a great deal in that direction.

COMPARATIVE OBSERVATIONS ON THE BIOLOGICAL CHARACTERISTICS OF SPIROCHETA PALLIDA AND SPIROCHETA PERTENUIS.

Dr. Henry J. Nichols, Washington, D. C.: The differences in morphology are slight; the same is true of the cultural characters so far observed. No

specific antibodies have as yet been demonstrated. Group reactions occur in the complement fixation tests with culture. Distinctive lesions occur in experimental lesions in the rabbit and the action of salvarsan is distinctive. A review of our present knowledge of the biological characters of Spirocheta pallida and Spirocheta pertenuis throws but little light on their distinctive pathogenic properties, and shows the need for further investigation along some of the lines indicated.

DISCUSSION.

DR. CREIGHTON WELLMAN, New Orleans: An attempt to work out exactly some of these relationships by means of a complement deviation or by other means is a thing that, while involving a great deal of work, is very much worth while. I discovered Pertenuis and published my paper dealing with this discovery a few weeks after Castigliani's discovery. It, therefore, served merely as a confirmation of his; but I worked out the Spirocheta and sent my paper away long before I saw his paper. He believes that there are morphological differences between this and the other form of spirochetae, the Pertenuis being blunt at one end and sharp at the other. I believe this difference to be due to faulty technic. I consider them to be entirely distinct, and I do not agree with those who seek to unite the two diseases or the two parasites. If you see a good case of yaws and one of syphilis, you get the two kinds of cases settled in your mind. We need more scientific care in solving the question of the tropical diseases.

DR. NICHOLS: One drawback to this sort of work in tropical diseases is that laboratories in the tropics are not so well fitted up as they are in the temperate zones. You may see many cases of the yaws in the backwoods of the tropics, and have no facilities to work with; while here we have the facilities, but not the cases. Therefore the work is slow.

CULTURAL STUDIES OF MALARIAL PARASITES.

DR. CREIGHTON WELLMAN, New Orleans, for DR. C. C. BASS, New Orleans: Dr. Bass has gone on a scientific expedition, sent out by the Tulane University School of Tropical Medicine, at New Orleans, and is now in Central America studying malaria. He has succeeded in cultivating the malarial parasite and following out the entire cycle of schizogeny, not only in culture, but in transplants. This work was begun some months ago; and some of you may remember his preliminary announcement in the *Journal of the American Medical Association*, stating that the malarial parasites had been kept alive for seven weeks. His later work was done by the same method as described in that article. I believe this discovery made by Dr. Bass is worthy to stand beside the former discovery, that the mosquito is the host of the malarial parasite.

A SIMPLE METHOD OF DIFFERENTIATING DISEASE-BEARING INSECTS.

DR. C. S. LUDLOW, Washington, D. C.: I shall first discuss briefly the general external resemblances and differences between ticks and bed-bugs, lice and fleas. Wing venation offers a good means of differentiating groups of flies. The family is always indicated, and sometimes even the genus made evident, by this means. The differences are easily recognized and are available to every one on account of their simplicity. The classification of the mosquito is in almost inextricable confusion.

DISCUSSION.

DR. CREIGHTON WELLMAN, New Orleans: The classification of mosquitoes is in complete confusion, as Dr. Ludlow has said. In no other group of arthropods is there such a great number of people rushing in to describe new species, as in mosquitoes. I would also deprecate the attempt to name animals and insects by people who are general entomologists and not specialists. If you wish to work with a species of mosquito, first find out just what it is by sending specimens of it to someone especially working with mosquitoes. The same thing holds true of other kinds of insects. Another thing that I deprecate is the guessing at the rôle played by every blood-sucking insect. In order to play a pathological part, the insect must be a common one, be closely associated with man, and suck blood repeatedly. So far as the philogenetic significance of this wing venations is concerned, I am not so sure of the final state of that question; but there is no doubt of their taxonomic value. There are hiatuses in the life-history of almost all these insects, and the filling up of some of these gaps requires the gathering of data, which students in tropical medicine might help us with. The best manner of clearing up the habitat of the tsetse fly, the glossina, is based on the fact that a peculiar degree of shade and humidity is necessary for its reproduction. The clearing away of the timber in the fly-belts, allowing the sun to shine there, is efficacious, because these flies wander only a few yards, at most, from the belts. The problem of mosquito destruction, as our honored President tells you, is a live one in the city from which we both hail. We want to make a mosquito survey, similar to that which was made by Dr. White and his associates in the far-famed yellow-fever times. The conditions have changed since that work was done, and I believe that the task of collecting carefully and patiently exact data, getting a foundation of facts from which to draw a deduction, will be of more benefit at the present stage of the problem than making a great many ingenious suggestions and hypotheses which have little basis in fact.

DR. JOSEPH COLDBERGER, Washington, D. C.: I think there is a great deal too marked a tendency, not only in entomology, but also in all of the branches of medical zoology, to a very broad, superficial study. The number of species and genera is appalling. The time has more than come when we need intensive study, rather than a superficial layer of poorly recorded facts. We need to know more about the life histories of the animal, and the way in which it breeds, lives, and has its being; and instead of rushing madly after new species, we should try to learn something more about those we know already.

DR. LUDLOW: So far as the study of flies is concerned, the study is surrounded with more difficulties than are usually recognized. The anopheles are especially shy, and many people insist that they have no anopheles in their vicinity, when more care

would show that they do have them. The question of whether one should name a new form depends upon several conditions. If you have a form that you cannot find described anywhere, you must describe it; but you may find it again, and you may not. That is why it is hard to base a classification on the male sex.

BACTEREMIC NATURE OF LEPROSY.

Dr. Damaso Rivas, Philadelphia: The work is based upon the fact that Bacillus Leprae are easily found in the blood of cases of leprosy. The method consists in collecting 0.1 to 1.0 cc. of the patient's blood, from the tip of the finger or toe (free from lepra lesions), or from the vein, in about 5 to 20. cc. of a 2% solution of acetic acid, in which the erythrocytes are dissolved. The mixture is centrifuged for about fifteen minutes and the sediment is examined for alcohol acid-fast bacilli. The method of staining is one usually followed in the examination for tubercle bacilli. The sediment is spread on a slide, dried, fixed, stained with carbol fuchsin, decolorized with 30% hydrocholoric-acid solution in 95% alcohol, and counterstained with methylene blue. In the original paper plates are given illustrating the Bacillus lepra found free in typical agrupation or scattered, as well as in the form of lepra cells; that is, endothelial cells or lymphocytes filled with the bacillus, also a few bacilli phagocytized by lymphocytes, are shown as evidences that the Bacillus lepra is found in the circulating blood. This method is advantageous in demonstrating the bacteremic nature of leprosy and also as a means of diagnosis of the disease.

EARLY DIAGNOSIS OF FILARIASIS.

Dr. Damaso Rivas, Philadelphia: This method is based upon finding the microfilaria in the blood in the early stage of the disease, that is, before the symptoms due to obstruction in the flow of the lymph, such as lymphangitis, elephantiasis, etc., are manifested. The procedure consists in collecting from 0.1 to 1.0 cc. of the blood, from the finger, in about 5 to 10 cc. of a 2% acetic acid solution, in which the erythrocytes are dissolved. After shaking, the mixture is centrifuged for about five minutes, and the sediment examined. Either fresh cover-glass, or dried and stained preparations, are made from the sediment. With the acetic acid method, it is immaterial at which hour of the day or night the examination is made. If the case is positive, the microfilaria will be found in the sediment. Four comparative tables are given in the original paper, and the advantage of the acetic acid method over the common fresh blood cover-glass preparation, as usually recommended, may be summarized as follows: (1) Microfilaria of F. nocturna or F. loa are found in the peripheral blood at all hours of the day or night. In cases of F. nocturna, of course, the greater number is found at night; while in F. loa, the greater number is found in the day. (2) The periodicity of microfilaria in the peripheral blood is related to the relative number of embryos circulating from the blood, and not to an absolute absence of them from the capillaries. (3) The acetic acid method is of special advantage in the early diagnosis of filariasis. By it, the microfilaria can be demonstrated in the blood as soon as the adult filaria reaches maturity and begins to discharge its embryos, which, in all probability, takes place years before the obstructive symptoms of filariasis are manifested.

Dr. Henry J. Nichol:, Washington, D. C.: There should be a more careful investigation of tropical diseases. There has been too much tendency in this branch of research to tell some wonderful story about a disease not clearly known, except to a few. For instance, it is true that the filaria diurna are in the circulating blood in the daytime; but it is not true that they are not at night. For two or three months, I observed several cases of patients who were nightwatchmen; and at the end of this time their periodicity had not changed. They still had more filaria at night than in the day time. There is more need of careful observation on these points before a story is stated as a fact.

SUMMARY OF THE LITERATURE ON THE ETIOLOGY OF BERIBERI.

Dr. John M. Swan, Rochester: Having reviewed the literature of the etiology of beriberi, the author suggests the following definition: So far as our knowledge goes, beriberi is a disease of metabolism, characterized, pathologically, by a polyneuritis, and clinically by an acute stage resembling an acute infection, by a stage associated with marked edema, and by a stage of polyneuritis and paralysis, and due to a diet of which uncured rice forms the principal element.

INVESTIGATION OF LOUISIANA RICE WITH REFERENCE TO THE ETIOLOGY OF BERIBERI.

Dr. Creighton Wellman and Dr. C. C. Bass, of New Orleans, La.

Dr. Creighton Wellman: With the purpose of determining whether or not the experimental results obtained by various writers with the polished rice of the Orient could also be obtained with rice grown in Louisiana, the authors have undertaken a series of experiments with chickens, which are still in progress and of which the following is an account: The best culled Louisiana white rice was obtained at the mill after chaff had been removed, and was designated as unpolished rice. Another sample of the same lot was obtained after culling and finishing ready for the market, except that the final coat of glucose and talcum had not been applied. Only rice used in Louisiana and milled there was studied. Marked nerve symptoms appeared after 17 to 23 days in fowls fed exclusively upon polished Louisiana rice. The same rice unpolished does not produce the disease, and such rice with a general diet promptly cures the disease. A diet of pure cane sugar will produce this characteristic more rapidly and completely than the polished rice. Pure corn starch will also produce the condition rather more slowly than polished rice.

(To be continued.)

New Medical School.—The new medical department of the University of Illinois was opened last week by the presentation of a building from the College of Physicians.

Book Reviews.

The Practice of Gynecology. A Text-book for Practitioners and Students. By W. EASTERLY ASHTON, M.D., LL.D., professor of Gynecology in the Medico-Chirurgical College of Philadelphia. Fifth edition, thoroughly revised. Octavo of 1100 pages, with 1050 original line drawings. Philadelphia and London: W. B. Saunders Company. 1912.

In the preface to the fifth edition of Ashton's Text-book on the Practice of Gynecology, the author expresses his gratification that since 1905, when the first edition appeared, there have been necessary five large editions and five reprintings. It is interesting to enquire into the cause of the popularity of this work of over one thousand pages on a subject which was said some years ago to be "passing" as a specialty. The fundamental idea of the book is "to take nothing for granted in describing diseases and their treatment." But Gynecology is a specialty and should take much for granted. Does not the very demand for such a book make one pause to consider whether the need may not indicate a phase of American medical education not altogether creditable to our methods of teaching medicine? However, there was the need, met frankly, and, judging from the sale of the book, with a considerable degree of success.

There is covered a wide range of topics treated comprehensively, yet concisely. Multiplicity of procedures is omitted in favor of one well recognized and trustworthy method. Each subject is taken up thoroughly and systematically, a commendable method, for scarcely too much effort can be expended in drilling into the mind of the medical student that system is one of the keys to knowledge. An effort is made to leave out nothing which will be of value and the subject is thus extended to include hygiene and dietetics, as well as all forms of non-operative treatment. There are abundant clear line drawings which give an excellent idea of the conditions portrayed.

In a work of this extent, among many points for favorable comment are some which call for unfavorable criticism. The book "endeavors to meet the requirements of practical men"; perhaps this explains its weakness from the point of view of the pathological laboratory, exemplified on page 293 by the terms "epithelial" and "spheroidal" cancer. There is a fondness for irrigation with corrosive sublimate solution, one to two thousands, in many conditions; in the uterine cavity, for example, it is not generally recommended. If the irrigations are to be followed promptly by normal saline, as is advised, they may just about as well be omitted, as the unprotected cells of the body are perhaps even more sensitive to corrosive sublimate than are bacteria. While tuberculosis of the bladder and ureter are discussed, nothing is said of tuberculosis of the kidney which is the essential lesion in the disease, and may be as properly discussed here as movable kidney, to which a chapter is devoted

Numerous minor defects show the difficulty of carrying out a design which is as ambitious as is the author's and there are at least two respects in which the value of the book might be enhanced. The first is the order in which the topics are taken up. Reading the headings of the chapters in the table of contents suggests some obvious changes, for no logical or other principle is evident as being applied throughout. The chapter on antisepsis in hospitals and that on antisepsis in private houses are separated by two chapters on technic, while a third chapter on technic is introduced later. The second respect in which the book might be improved is by a list of references. An exhaustive bibliography would be unwise, but gynecology is a growing science and there are many live problems urgently demanding solution. Some of these problems are finding solution and new contributions are made constantly. To bring the student into direct contact with this fact may be impossible as yet, but a judiciously selected list of references to the literature might do much to make him aware of its existence and modify his point of view accordingly. The many excellences of this edition indicate that it will receive the hearty welcome accorded its predecessors.

Tuberculin in Diagnosis and Treatment. By LOUIS HAMMAN and SAMUEL WALDMAN, Johns Hopkins Medical School, Baltimore. New York: D. Appleton and Company. 1912.

It is a pleasure to review such a book as this, coming from men who, although belonging to the younger generation of physicians, have had wide experience in their particular line of work at the Phipps Dispensary in Baltimore. Did this book accomplish nothing more than a careful resumé and study of the voluminous literature on the subject up to date, it would be a most valuable piece of work. In addition to this, however, the literature is carefully and logically arranged, and each chapter is summarized in a way which makes this very difficult subject far easier than otherwise would be the case.

In the preface the writers state that the book is intended primarily for physicians interested in medicine generally, and for students rather than for tuberculosis specialists. The reviewer would rather take exception to this statement. The book is such a careful and elaborate review of the important contributions to the subject that the average general practitioner will find it far beyond his depth, and were he going to start on the study of tuberculin would need some more elementary volume than this seems to be.

Chapter I is a detailed discussion of the tuberculin reaction, its nature and specificity, and the allied topics of tuberculin hyper-sensitiveness, insensitiveness and immunity.

Chapter II takes up the use of tuberculin in diagnosis, giving the details of administration, preparation, choice of tuberculins, and the various tests. It is a little surprising to find that the writers put so much faith in and still cling to the conjunctival reaction. The reviewer cannot but feel that this test is gradually being discarded as unnecessary and dangerous. He would also feel that the dangers of tuberculin in diagnosis as well as treatment in the hands of general practitioners and others unskilled in its use, are hardly emphasized enough.

Chapter III takes up the use of tuberculin in treatment, giving elaborate account of the work done and results obtained in the use of tuberculin in practically every form of tuberculosis, pulmonary and otherwise. The methods of administration are discussed at length, perhaps too much attention being given to methods of treatment which have been found of little or no value, such as giving tuberculin by mouth or rectum, or by intra-bronchial insufflation. In this chapter and the last, page after page is devoted to charts, which will probably be very little studied; likewise many pages are devoted to case records which could be omitted or summarized with advantage to the book.

On page 17 there is an annoying error which renders an illustrative chart practically useless. On page 19 one finds with surprise a remarkable split infinitive, "to consequentially apply"; while on the top of page 13 is a gross typographical error. One meets here and there certain colloquialisms which seem out of place in this book's otherwise strictly scientific atmosphere.

Despite these minor points, however, this volume is a welcome addition and will prove of the greatest help to anyone who wishes to find the latest and best opinions concerning the subject of tuberculin.

Diseases of the Mouth, for Physicians, Dentists, Medical and Dental Students. By Prof. Dr. F. Zinsser, Director of the Department of Dermatology, at the City Hospital, Lindenburg, etc. Translated and edited by John Bethume Stein, M.D., Professor of Physiology at the New York College of Dentistry, etc., with 52 colored and 21 black and white illustrations. New York: Rebman Company.

This is a handsome book, the object of which is to describe or teach the diagnosis of syphilis and similar diseases of the mouth with the aid of illustrative cases. The first half contains about seventy pages of text, in which the different stages and lesions of syphilis, especially of the mouth, are briefly described, together with other lesions in which differential diagnosis is important. The compilation, arrangement and printing are excellent, and the value of the descriptions much increased by reference to the second half of the book, which consists of about fifty colored plates, illustrating the more typical lesions. Half of these plates show different syphilitic, and the other half different non-syphilitic eruptions of the lips, tongue and fauces. Among the latter may be mentioned, Stomatitis, due to drugs or infection, different eruptive diseases of the mucous membrane, Vincent's Angina, Geographical Tongue, Leucoplakia, Tuberculosis, Lupus and Cancer. There are also a few black and white illustrations of syphilitic teeth and different forms of spirochetae. These plates are well adapted not only to supplement clinical instruction, but also to use in a reflectoscope for illustrating a lecture.

A Laboratory Handbook for Dietetics. By Mary Swartz Rose, Ph.D. Assistant Professor, Department of Nutrition, Teachers College, Columbia University. pp. 127. New York: The MacMillan Company. 1912.

Although primarily designed to facilitate the work of the teacher and student in the Dietetic Laboratory, this little manual of 127 pages will also find a useful place in the armamentarium of the general practitioner. It does not aim to be a treatise upon the subject of nutrition but it puts in easily accessible form the explanations involved in the calculation of food values and food requirements, and a consultation of its twenty-one reference tables will minimize the labor involved in the construction of dietaries without limiting dietary study to a few food materials. Thus beside being a handbook for the student it also serves as a guide to the physician and nurse in the practical preparation of the particular diet which is theoretically indicated. An admirable index enhances the value of the work.

The Vanishing Man. A Detective Romance. By R. Austin Freeman. Dodd, Mead and Company. 1912.

If the merit of a book of this character is to be estimated by its originality this volume should take a high place. As a matter of fact it is an ingenious and on the whole successful attempt to weave into a story of mystery certain of the modern conceptions of medicine, particularly with relation to the use of the x-ray. The central conception is worthy on the whole of a more adequate setting. One expects in a story of this sort rapidity of movement. This the author fails to attain and one's interest flags until the final outcome is reached.

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THE CASE OF THE MIDWIFE

AMONG current legislative matters affecting medical practice and the public health, is a measure (House No. 678) now pending before the General Court of Massachusetts, "to require the registration of midwives by cities and towns." This bill has so important a bearing, perhaps not generally realized, on the conditions of obstetrics and on the consequent welfare of the community, that it seems to deserve extended consideration. The text of the midwives' bill is as follows:—

"SECTION 1. It shall be unlawful for any person to carry on or in any manner to engage in the profession or practice of midwifery in this Commonwealth without first becoming registered with the city or town clerk in which city or town said person intends to carry on or engage in said profession or practice.

"SECTION 2. Said registration shall consist of the full name of such person, his home address, and the address of his office or place of business, if any, and such additional facts as the city or town clerk shall deem necessary for the fulfilment of this act.

"SECTION 3. (Provides penalties for violation of the Act.)

"SECTION 4. This Act shall take effect upon its passage."

Superficially, this Act may seem simple, even trivial in its purport. In reality it involves far-reaching and important consequences; for it involves the official recognition, in this State, of midwives as an institution. In another part of this week's issue of the JOURNAL, we publish two important articles, by Dr. Cody and Dr. Huntington, presenting impartially opposite aspects of this question, and to them we would refer our readers for information and discussion. Incidentally it may be noted that the bill is opposed by the State Board of Registration in Medicine, by the Massachusetts Commission for the Blind, by the Boston Board of Health, by the Instructive District Nursing Association, and by the American Association for the Study and Prevention of Infant Mortality.

It would seem that this measure is as undesirable as the midwife whom it aims to license. If the midwife is a desirable factor in medical practice, her recognition involves the responsibility for her training and supervision. This in itself would mean the establishment of a dual standard of efficiency in obstetrics, a thing recognized in no other department of medicine. What is needed by the community is not recognition and education of the midwife, but her abolition through the better obstetric education of the medical student.

As a matter of fact, the passage of the midwives' bill would essentially nullify the existing law which, by a decision of the Supreme Court of Massachusetts, has made the professional midwife a law-breaker whenever she engages in practice. Some of those who favor the bill admit that the midwife is an undesirable, but argue that, being an inevitable evil, she should be licensed in order to limit the harm she may do. This principle, however, of recognizing an evil by license for the purpose of keeping it within bounds, has proved essentially fallacious in attempts to deal with prostitution. There is no place in the world for half-way measures. If an evil cannot be at once eradicated, it should still be fought, not compromised with by its recognition as an unavoidable necessity.

It seems that many of those who defend the midwife assume and believe that as an institution she has been efficient and satisfactory in European countries, where her activities are regulated by license and supervision. On the contrary, this is apparently not always the case, as is evidenced by data cited in Dr. Huntington's article. In addition to the references which he has given, may be quoted in part the following letter from a correspondent of the *Medical Press and Circular,* in its issue for Nov. 6, 1912:—

"Attention to a parturient woman is one of the most ancient branches of the practice of medicine, and probably owing to its antiquity, still shows a marked example of the survival of the unfit. Obstetrics nowadays, in the hands of competent practitioners, is on a scientific plane, parallel with any other of the healing arts. Unfortunately only a small part of the practice is

in the hands of these men. The rest is carried out more or less successfully by midwives, who cannot pretend to the preliminary education and high technical skill that is universally admitted to be absolutely requisite for the efficiency of any branch of the practice of medicine. This duplication of practice is radically wrong; from a misplaced excuse of expediency we have deliberately adopted a standard we know to be ineffective. To argue that a midwife is competent to deal with a large proportion of cases is analogous to encouraging a pharmacist to prescribe for minor ills, and to call in a physician only when the case is obviously beyond him. In an event which civilization has reduced from a physiological function to something not far from a pathological condition, it is illogical to have an untrained—or worse, a half trained—individual to bear the responsibility of two lives, and only to hand the case over to one able to deal with it when often it is too late. The proper treatment of the midwife is not to educate, but to eliminate her."

The practitioner who wrote these lines had learned from personal experience the evils of the licensed midwife. It would seem wiser for our community to profit by such experience, than deliberately to introduce a system which even temporarily tolerates that which it secretly recognizes as evil and seeks ultimately to destroy.

FISHES IN MEDICINE.

The fish has in all ages been held in some manner sacred, as indeed have most other animals, at some period of history, with the exception of the hog. Many ancient religions included the fish in their mystic symbolism, and a medical significance seems to have been attached to it as early as in the days of Aesculapius. It also became a Christian symbol, partly on account of its association with one of the miracles, partly because of the curious acrostic by which its Greek equivalent, ΙΧΘΥΣ, forms the initials of the name and titles of the Saviour. Lecky, in his "European Morals" (I, 400), tells us that the word "contains also the initial letters of some prophetic lines ascribed to the Sybil of Erythra." Even in our own day and community, the sacred codfish is a familiar symbol, though associated less with sanctity than with the maritime past of Massachusetts Bay Colony.

In medicine the fish has given its Greek name to ichthyosis, that uncanny scaling affection of the skin, which the Germans know by the delightful term of Fischschuppenauschlag. But in materia medica terms of piscine derivation are much more often to be met than in pathology.

First of all, there is ichthyol, a transparent yellow-brown oil, of sea-green fluorescence, the ammonia salt of a sulphonic acid, prepared by distillation from a bituminous shale found in the Cambrian strata of the Tyrol and containing the remains of many fossil fishes. This valuable drug was first introduced into dermatologic practice by Unna in 1882, and has since been adopted as well by gynecologists.

Next there is ichthyocolla, or fish-glue, the isinglass of commerce, a gelatinous substance prepared from the dried swimming-bladders of *Acipenser huso* and several other species of sturgeon. By pharmacists it is dissolved in a mixture of water, alcohol, and glycerine, and when painted on taffeta constitutes court plaster, an agent once much more commonly employed by surgeons than nowadays.

Of Latin derivation is piscidia, the Jamaica dogwood, whose leaves, twigs, and bark are used by the natives to poison or stupefy fish, and thereby facilitate their capture. The root-bark has been employed therapeutically in the form of a fluid extract, as a narcotic, diaphoretic, and laxative, being recommended especially in neuralgia, insomnia, and whooping-cough. The tincture has been used for odontalgia. Its active principle is piscidin, whose pharmacologic action is to paralyze the sensory ganglia of the spinal nerves, excite the motor centres in the cord, and depress the heart.

Last, and by far most important, is the honest English derivative, cod-liver-oil, a familiar and valuable domestic remedy, used by the fisherfolk of the North Sea long before its introduction into medicine early in the nineteenth century. It is a pale, thin, yellow, fixed oil, with a unique flavor, extracted from the fresh livers of *Gadus morrhua* and several other species of cod. It contains traces of iodine, bromine, phosphorus, and cholesterin; but its undoubted therapeutic efficacy is probably due not to these but to its character as an easily assimilable animal fat.

It is not in the departments of pathology and materia medica alone, however, that the fish is of interest to physicians. As an article of diet, fish is a valuable, though unfortunately much neglected, substitute for meat, and should be more extensively employed to this end at other than Lenten seasons. It has been alleged that a fish-diet predisposes to leprosy, but bacteriology and hygiene seem satisfactorily to have refuted this fallacy.

Morphologically, too, the fish is of medical

interest, for it represents a completed evolutionary type, most perfectly adapted to the conditions of submerged animal life in normal saline. Geologically the fish first appeared in paleozoic time, immediately demonstrated its fitness for survival, persisted till the course of progress led upward through amphibians and reptiles to air and the dry land, and remains still the primate of pelagic creatures. The whale, a poor sidetracked mammal, is but a sorry mass of cumbersomeness beside his lithe, elegant cousins, who poise and dart as exquisitely in the water as a bird in the ocean of atmosphere. Embryologically, too, the fish bears testimony of kinship to us,—for the branchial clefts with which every human being is prenatally provided, and which sometimes persist as inconvenient malformations of the neck, are but repetitions of the gills which we have discarded for lungs, one of Nature's many reminders that each of us repeats in more or less syncopated form the biologic evolutionary experience, not of the race alone, but of all animate existence.

There are few pastimes more pleasurable or profitable to a physician than the cultivation and study of fishes. Whether in a tank indoors or in a pond afield, one can to much advantage observe their form, movements and habits of feeding. This is instructive, and good training as well. For what average man, or physician for that matter, previously unschooled, can tell offhand, how many fins a fish has, or how they are disposed and used. One may well keep fishes a six-month before noticing that when they swim they spread the segments of their forked tail as a human swimmer does his legs; or that their eyes not only have no lids, but are even devoid of the nictitating membrane with which birds are provided. Such observations, when first made, bring home the cogency of Agassiz' oft reiterated injunction, "Look at your fish."

For indoor study the goldfish is almost the only available genus, but outdoors one may find many others, especially if a follower of Sir Izaak. A good aquarium, too, such as that opened last fall in South Boston, is a great advantage, for here one may see fish from a new standpoint. In their tanks, behind heavy plate-glass, one looks at them from below, as it were from their own medium, watching their exquisite, delicate, yet vigorous movements and marvelling at the ease of the mechanism by which they rise or sink, apparently without effort, to any desired level. Blessed of all animals, too, the fish, though keen of hearing, is silent. This, and their innocence, seem especially to have impressed John Donne, the poet who has given us perhaps the best descriptive phrase in literature about the fish. Viewed from the vantage point of the air, the fish is indeed a wonderful and mysterious creature. But only when one thus half enters the fish's world, and regards him from the imaginative standpoint of a common denizen of the same medium, does one appreciate fully the felicity in Donne's description of

"The deep
Where harmless fish monastic silence keep."

THE CENTENNIAL OF DR. DAVID LIVINGSTONE.

On March 19, 1913, occurred the one hundredth anniversary of the birth of David Livingstone. The preceding Sunday, March 16, was generally observed in honor of this event throughout Great Britain. The following Sunday has been set apart in various churches of America for memorial services. Dr. Livingstone's prominence as a physician, which is attested by his scientific studies of African diseases, and which was recognized when the faculty of physicians and surgeons of Glasgow elected "that worthy eminent and learned surgeon and naturalist, David Livingstone, LL.D., to be an Honorary Fellow," is somewhat obscured by his reputation in other directions. The plain slab of stone that marks his resting place in the central aisle of Westminster Abbey, indeed, says merely, "Here Rests David Livingstone, Missionary, Traveller, Philanthropist." Yet this plain slab is visited by every physician who enters the Abbey, and no one can read the full inscription on that tomb, nor recall the picture of the lean, brown, worn figure who left England for his last return to Africa, from which there was no home-coming, without a thrill of pride that the medical profession contributed to the world's roll of heroes, this name which stands so near the top of that roll. The tomb is also the goal of journeys by scientific men, philanthropists, statesmen, travelers, students of geography, geology, astronomy and zoology, and Christian missionaries, for to all these groups David Livingstone belongs.

The expedition headed by Stanley, which rescued the body of Livingstone from oblivion, was

one of the dramatic incidents of its decade, and many of our readers will remember the thrilling story of the finding of Livingstone, dead, kneeling alone in the heart of Africa in his desolate tent, as he had knelt in life. No man ever lived and breathed in his religion more fully than Livingstone, and he was known through all the heart of the dark continent as "the man who loves the black man"; for his ideal of missionary work was not to preach any formal doctrine, but to live simply, day by day, what he believed to be the life that was most like that of Christ.

A few times in its history *Punch* has dropped his merry mask and printed serious verse. At the time of Livingstone's burial in Westminster Abbey *Punch* printed these verses:—

"Droop half-mast colors, bow, bare-headed crowds,
As this plain coffin o'er the side is slung,
To pass by woods of masts and rat-lined shrouds,
As erst by Afric's trunks, liana-hung.

"'Tis the last mile of many thousands trod
With failing strength, but never-failing will,
By the worn frame, now at its rest with God,
That never rested from its fight with ill.

"Open the Abbey doors and bear him in
To sleep with king and statesman, chief and sage,
The missionary come of weaver-kin,
But great by work that brooks no lower wage.

"He needs no epitaph to guard a name
Which men shall prize while worthy work is known;
He lived and died for good—be that his fame;
Let marble crumble: this is Living-stone!"

MEDICAL NOTES.

Tuberculosis Sanatorium in China.—The following letter of appeal was published recently in the daily press:—

"The sum of $3000 is asked for, to establish a tuberculosis sanatorium in the province of Shantung, China, one of the most thickly settled portions of Central China. The people are desperately poor and suffer greatly from tuberculosis. Thirty per cent. of the cases in some of the mission hospitals are sufferers from this disease, and nearly every school of any size pays an annual tribute in the shape of one or more bright young students sent home to die from tuberculosis. So far as now known there is no public institution in China designed solely for the treatment of tuberculosis.

"A plan for such a sanatorium, situated at Tsinanfu, the capital of the province of Shantung, has been approved by the English and American missions, which have united for medical education, and also by the council of the Shantung Christian University. Such an institution would have an enormous value as an object lesson in the treatment of tuberculosis, as well as helping to conserve the results of educational and other forms of missionary work. This appeal is made to all who are interested in stamping out tuberculosis wherever it exists, as well as to those who may wish to aid these poor natives of China who possess so many worthy traits of character.

"Contributions may be sent to Dr. Charles K. Roys, physician of the hospital in Shantung, care of the Presbyterian Board of Foreign Missions, 156 Fifth Avenue, N. Y., or to the undersigned.

"Edward O. Otis, M.D.
"381 Beacon Street."

Illness of the Czar's Daughter.—Report from St. Petersburg on March 11 states that the grand duchess Tatiana, second daughter to the Emperor Nicholas, Czar of Russia, is ill with typhoid fever at Tsarskoe-Selo.

Two German Medical Congresses.—Two important medical congresses will be convened during the coming week at Berlin.

The forty-second congress of the German Surgical Association will be held from March 26 to 29, inclusive. The total membership of this Association is 2179.

"Some of the chief papers to be submitted will be Duodenal Ulcer, by Herr Küttner (Breslau); Brain and Spinal Surgery, by Herr von Eiselsberg and Herr Ranzi (Vienna); and the Treatment of Joint and Bone Tuberculosis, by Herr Garrè (Bonn). The president for the year 1913 is Dr. O. von Angerer, München-Harlaching (Willroiderstrasse, 8), and the treasurer is Herr Melzer, Langenbeckhaus, Ziegelstrasse, 10 and 11, Berlin, N. 24.

"The fourth Congress of Physiotherapy will be held at Berlin, March 26-30, 1913, under the presidency of Professor His. The principal subject proposed for discussion is the treatment of disturbances of the circulation. The work of the congress will be divided among four sections: (1) hydrotherapy, balneology, seaside and climatic treatment; (2) electro-therapy and radium-therapy; (3) orthopedics, movement treatment and massage; (4) dietetics. There will be an exhibition in connection with the congress."

Two Centenarians.—Mrs. Polly Trinkle, who died on March 11 at Bristol, Tenn., was said to have been born in 1810.

Thomas Sullivan, of Williams Bay, Wis., is said to have been born on March 10, 1801. He recently celebrated his birthday by going in swimming.

A WESTERN GANG OF OPIUM SMUGGLERS.—Report from Portland, Ore., on March 8, states that on Feb. 7 the leader of an extensive American gang of opium smugglers was arrested at Honolulu, Hawaii, with $75,000 worth of the drug in his possession. Three other members of the gang have recently been arrested in Portland.

BOSTON AND NEW ENGLAND.

A CASE OF LEPROSY IN BOSTON.—A probable case of leprosy was discovered in Boston last week in the person of a Chinaman, Wong Clang, who migrated to the United States in 1904, and who has lived in this city for the past year, serving as a waiter in a Chinese restaurant. The patient, who is about 40 years of age, has been isolated.

MEASLES IN LAWRENCE.—The epidemic of measles at Lawrence, Mass., noted in a recent issue of the JOURNAL, continues unabated. Up to March 8, over 650 cases had occurred in the city since Jan. 1, fifteen new cases being reported on March 7.

SEIZURE OF OPIUM AT LOWELL.—United States customs inspectors last week seized six opium smoking outfits and over $1000 worth of the drug, crude and prepared, at the general merchandise shop of a Chinaman, Chin Ting, in Lowell, Mass. The culprit has been held in $500 bail.

RECENT MEDICAL BEQUESTS.—The will of the late Katharine C. Pierce, of Boston, who died in Algiers on March 2, was filed last week in the Suffolk probate court. Among numerous charitable legacies, it contains a bequest of $10,000 for the endowment of the Harvard Dental School, and bequests of $5000 each to the Hospital Cottages for Children at Baldwinsville, Mass., the Convalescent Home of the Children's Hospital, Boston, and the Perkins Institution and Massachusetts School for the Blind.

The will of the late Mr. C. C. Weld, of Newport, R. I., contains bequests of $125,000 to the Boston Lying-in Hospital, and $100,000 to the Boston Dispensary. It also provides that, if the daughter of the decedent dies without issue, one-half of the residuary estate, now valued at nearly $4,000,000, shall revert to the Massachusetts General Hospital.

OFFICERS OF DENTAL HOSPITAL ASSOCIATION.—At a meeting of the Metropolitan Dental Hospital Association, held last week in Boston, Dr. J. G. W. Werner was elected president, and Dr. Georgina Crosby secretary and treasurer for the ensuing year.

ELLIS MILK BILL.—At the final hearing in Boston last week, before the joint committee of the legislature on public health and agriculture, in regard to the Ellis milk bill, Mr. Myron E. Pierce summed up as follows the case for the advocates of the bill:—

"The consumers of the state ask you to give them reasonable protection from the dangers which come from the careless handling of milk, not only on the farm, but at every stage in the course of its distribution to the consumers. It is for this committee to decide whether the public shall have this reasonable protection to which they are entitled. The responsibility resting upon each member of this committee is a very grave one. Upon your decision and the decision of your colleagues depend the lives and health of many children and adults. No doubt there are many other causes for our high infant mortality, but a portion of this unnecessary mortality is unquestionably due to the careless handling of milk. Wherever an attempt has been made to safeguard the milk supply there has been an immediate reduction in the infant mortality.

"The system of inspection provided for in the Ellis bill is certainly a reasonable one. The framers of the bill have gone out of their way to make it absolutely fair to producers. In many States of the Union the State Board of Health itself now has the power, which our State Board of Health does not have, to pass these regulations and to correct unsanitary conditions. In our bill the producers have a voice in the framing of the regulations and the Governor and Council have an absolute veto on every regulation to be enforced under the bill. It is, therefore, impossible to ask anything of producers under the Ellis bill which will increase the expense of making milk or which will in any way in itself increase the price of milk, although other economic factors may do so.

"If the leaders of the Grange, who are opposing this measure, were wide-awake, modern business men they would recognize the tremendous advertising value to the milk business of a law like the Ellis bill, if it were placed on the statute books, and they would be its warmest supporters. They could then advertise the system of inspection under the Ellis bill as practically guaranteeing the safety of the milk. This would bring to them the confidence of the consuming public in their product and would sell for them three or four times as much milk as they are selling now, thus greatly increasing the profits of the producers."

Improvement in School Hygiene.—A recent report by Dr. Thomas F. Harrington, director of school hygiene in Boston, indicates that there are 1723 fewer pupils with visual defects this year than last, 4325 more with normal vision, and 7484 more with normal hearing.

Wesson Maternity Hospital.—Report from Springfield, Mass., states that on March 5 the number of babies that have been born at the Wesson Maternity Hospital in that city reached a total of 2065. Of these births, 123 have occurred since Jan. 1 of this year.

State Tuberculosis Conference in Holyoke.—The fifth annual session of the Massachusetts State Conference on Tuberculosis will be held in Holyoke, Saturday, March 22.

The session beginning at 11 o'clock will be held in the hall of the Public Library. After introductory remarks by the chairman of the local committee, Dr. Carl A. Allen, the conference will be taken in charge by the presiding officer, Rev. William B. Geoghegan of New Bedford.

The first paper will be on "Open Window School Rooms," by Dr. Allen G. Rice, president of the Springfield Association for the Prevention of Tuberculosis. This paper will be discussed by the Superintendent of Schools of Holyoke, Francis McSherry.

Dr. Ralph B. Ober of Springfield follows with a paper on "Education in Matters Pertaining to Good Hygiene.

At 1 p. m. a sixty-cent luncheon will be served at the rooms of the Young Women's Christian Association. This will give those attending the conference a chance to meet in an informal way workers from different parts of the State. Applications for the luncheon should be sent to the Secretary of the Conference.

The conference will convene again at 2.30 p.m., the first paper, "Efficient Boards of Health," being given by Robert N. Hoyt, lecturer on Public Health at the Massachusetts Institute of Technology, and agent for the Wellesley Board of Health. This subject will be discussed by Dr. J. J. Carroll of the Holyoke Board of Health.

"Control of the Careless and Incorrigible Consumptive" will be treated by the secretary of the State Board of Health Dr. Mark W. Richardson. He will be followed by District Attorney C. T. Callahan of Holyoke, on the same subject.

Another very important topic which has been the subject of very little discussion will be treated in a paper entitled "The After-Care of Sanatorium Patients," by Dr. John B. Hawes, 2nd, of Boston, secretary, Trutees of Massachusetts Hospitals for Consumptives.

NEW YORK.

February Death-Rates.—The death-rate in the city during the month of February, although by no means high for the season of the year, was higher than for any month for a considerable period and also in excess of that for February of last year. According to the weekly reports of the Health Department, this was 16.59, as against 14.46 in January and 15.64 in February, 1912. Among the diseases in which there was an augmented fatality were the following: The weekly average of deaths from typhoid fever increased from 3 in January to 4 in February; the weekly average from whooping-cough, from 5 to 6.25; from diphtheria and croup, from 27.25 to 38.75; from influenza, from 15.75 to 17.25; from pulmonary tuberculosis, from 170.75 to 190.25; from acute bronchitis, from 15.75 to 20.5; from pneumonia, from 167 to 191.25; from broncho-pneumonia, from 107 to 146.25; from diarrheal diseases under five years, from 31.75 to 33.25; from tuberculous meningitis, from 11 to 19; from cancer, from 79.5 to 88; from apoplexy and softening of the brain, from 18.5 to 24.5; from organic heart diseases, from 190 to 220.25; from Bright's disease and acute nephritis, from 125.24 to 139; and from puerperal diseases, from 13.25 to 17.25. Among the diseases in which there was a diminished mortality were the following: The weekly average of deaths from scarlet-fever declined from 14.75 to 13.75; from epidemic cerebrospinal meningitis, from 5.25 to 2.75; from appendicitis and typhilitis, from 12 to 10.75; from hernia and intestinal obstruction, from 16.75 to 13; and from cirrhosis of the liver, from 23 to 18. During the week ending Feb. 15 the deaths reported from cancer reached the probably unprecedented number of 106.

Cancer Research Laboratory.—It is announced that the money has been secured for the erection of a laboratory at Columbia University for the prosecution of the work provided for by the George Crocker Special Research Fund. When the accounting was made in November last

by the executors of the Crocker estate the fund amounted to $1,566,635. The will provided, however, that this should be used solely for research work, and that no part of it should be spent in the erection of a building. While the income of the fund is to be employed primarily for cancer research, should future discoveries render this use of it unnecessary, it may be applied to research in any field.

TREATMENT OF TUBERCULOSIS BY DR. FRIEDMANN.—Failing to secure legal authorization to practice in New York, Dr. Friedmann did not open an office, as was announced, but on March 6, at the People's Hospital, on Second Avenue, he gave injections of his serum to three patients selected by him from a number presented for the purpose. One was a case of supposed tuberculosis of the knee-joint, in which the injection was made intravenously in the arm, and the other two of pulmonary tuberculosis, in which the injections were made intramuscularly in the thigh. Some fifty physicians were present, and they found considerable ground for criticism in his lack of aseptic precautions and manner of making the injections. On March 8, in the presence of thirty physicians, at a private office, he injected seventeen cases of pulmonary and joint tuberculosis. On March 3 the Treasury Department accepted the conditions imposed by Dr. Friedmann and agreed to have the Public Health Service make an investigation of his method, and on March 5 the City Health Department received specimens of his cultures for testing in its research laboratories. The following announcement has been made by the department: "The Commissioner wishes it to be understood directly that he is not in any way hindering any of Dr. Friedmann's efforts to prove the value of his preparation. He hopes, as do all bacteriologists, that Dr. Friedmann's estimate of it value is true. Dr. Lederle will do everything in his power to aid Dr. Friedmann to establish by fair tests any merit which his preparation may have."

HARVEY LECTURE.—The ninth lecture in the current series before the Harvey Society will be delivered on Saturday evening of this week, March 22, at the Academy of Medicine, by Professor Franz Knoop, of the University of Freiburg, Germany, on "Modern Problems of Nutrition."

REGISTRATION OF PHYSICIANS.—Report from Albany, N. Y., states that on March 11 a number of New York physicians appeared at a legislative hearing to oppose the McDaniels bill, which gives the Board of Regents power at any time to revoke a physician's license for unprofessional conduct.

"The bill defines as unprofessional conduct advertising cures for several diseases, announcing professional service free, wilfully betraying a professional secret, habitual drunkenness and addiction to drugs, the employment of a solicitor, and 'any act not consonant with good morals,' or which, in the judgment of the Board of Regents, is inimical to the medical profession."

The opponents object to legislating thus a code of ethics, declaring that it would afford easily an opportunity for calumnious persecution of reputable physicians.

Current Literature.

MEDICAL RECORD.

MARCH 1, 1913.

1. EINHORN, M. *Additional Remarks on Cardiospasm, and Idiopathic Dilatation of the Esophagus.*
2. BALLIN, M. J. *Tibial Bone Transplantation in the Postoperative Mastoid Wound.*
3. GOODHARDT, S. P. *Jung's Modification of the Freudian Theory of the Neuroses.*
4. PILCHER, J. T. *Postoperative Gastroenteric Paresis.*
5. COBURN, R. C. *Warming Anesthetic Vapors Neither Useless Nor Fallacious.*
6. *RYTINA, A G. *The Luetin Skin Test in the Diagnosis of Syphilis.*
7. DUNTON, W. R., JR. *Occupation as a Therapeutic Measure.*
8. GRIFFIN, E. H. *Teeth Growing in the Nasal Fossa.*

6. Rytina discusses the value of the luetin test in the diagnosis of syphilis. This test is entirely harmless, he says, although a little experience is needed in order to apply it properly and to interpret correctly mild forms of positive reactions. The test is generally negative in primary and secondary untreated cases, but positive in a large percentage of such cases receiving previous treatment; it is always positive in tertiary, latent and congenital syphilis, and in a large percentage of cases of parasyphilis. It is, therefore inferior to the Wassermann test for diagnosis, but more valuable for prognosis in primary and secondary syphilis, and superior for both in late syphilis and congenital syphilis. [L. D. C.]

NEW YORK MEDICAL JOURNAL.

MARCH 1, 1913.

1. DERCUM, F. X. *Essential Features of Symptomatology and Prognosis in Dementia Praecox.*
2. BASSLER, A. *The Diagnostician.*
3. GARRISON, F. H. *The History of Blood-letting.*
4. KNAPP, M. I. *Newer Teachings of Diseases of the Gastrointestinal Canal.*
5. ROHDENBURG, G. L. *Family Incidence of Malignant Tumors.*

6. Spencer, H. U. *Otology from a Medical Point of View.*
7. Harrigan, A. H. *Intramural Abscess of the Puerperal Uterus.*
8. Goldstein, H. *Strangulated Hernia.*
9 *Markley, P. H. *Chorea.*

9. Markley reports a fatal case of Sydenham's chorea occurring during the puerperium, and reviews the literature of the so-called gestational form of this disease. Chorea minor is rare after puberty, and is coming to be regarded as an infection rather than a neurosis, although no organic lesion has ever been demonstrated in the nervous system. [L. D. C.]

The Journal of the American Medical Association.

March 8, 1913.

1. Chisholm, A. S. M. *Some Features of the Theory and Practice of Medicine During the Seventeenth Century.*
2. Wathen, W. H. *When is Operative Treatment Indicated in Chronic Dyspepsia?*
3. *Francine, A. P., and Hartz, H. J. *Results with Tuberculin (Dixon's) in Advanced Chronic Ambulatory Tuberculosis.*
4. *Levison, C. G. *Hemorrhage Controlled in Two Cases by Local Application of Horse-Serum.*
5. Cleaveland, S. A. *A Case of Poisoning by Lithium, Presenting Some New Features.*
6. Harris, R. H. *Report of a Case of Fecal Impaction in the Ileum for Fifty-three Days with Recovery.*
7. Verhoeff, F. H. *Treatment of Acute Dacryocystitis.*
8. Carter, W. W. *A Case Showing Restoration of the Entire Nose by Rhinoplasty and Bone Transplantation.*
9. McWilliams, C. A. *Rhinoplasty.*
10. McGlannan, A. *Intestinal Obstruction. A Clinical Study of One Hundred and Eighty-One Cases.*
11. Fishbein, M. *Illuminating Gas-Poisoning.*
12. Warner, A. R. *Dispensary Abuse and Its Elimination by Organization and the Application of Sociologic Methods.*
13. Nelson, R. M. *A Suggestion on Phenol and Ichthyol in External Otitis.*
14. Orr, T. G. *Two Cases of Tonsillectomy.*
15. Clapp, C. A. *Deafness Following the Use of Salvarsan.*

3. Francine and Hartz believe that Dixon's preparation of tuberculin is of mild potency and very safe to use. They describe the technic of preparation. Injections were given once a week. Eleven cases were treated. All but one were of the advanced chronic fibroid type. Every patient was distinctly improved by the treatment, the tubercle bacilli disappearing from the sputum in several cases while under treatment. The lungs showed decrease in râles. Reactions were uniformly mild. The authors strongly recommend this treatment.

4. Leveson cites two very interesting cases of hemorrhage, one from the urinary bladder and one from the gall bladder, in which transfusion and hypodermic injection of serum had failed, but in which horse serum poured directly into the wound stopped the bleeding immediately. [E. H. R.]

The Lancet.

February 8, 1913.

1. *McCarrison, R. *The Milroy Lectures on the Etiology of Endemic Goitre. Lectures III and IV.*
2. *Swan, R. H. J. *A Clinical Lecture on Tumors of the Kidney.*
3. *Harrington, A. W., and Kennedy, A. M. *Bone-Marrow Metastases and Anemia in Gastric Cancer.*
4. *Foulerton, A. G. R. *Some Observations on a Series of Seventy-eight Cases of Streptothrix Infection.*
5. Jones, D. W. C. *A Note on Remission in a Case of Epilepsy.*
6. Gray, S. *A Case of Osteomalacia.*
7. Sequeira, J. H. *Congenital Absence of Both Thumbs.*
8. Banister, J. B. *A Case of Acute Intestinal Obstruction Following Cesarean Section.*

1. In the third and fourth Milroy Lectures on goitre, McCarrison discusses the blood in goitre which is characterized by a considerable lymphocytosis. This is present in simple as well as in exophthalmic goitre. He then considers the pathologic changes which take place, summing them up as follows: The influences causing the goitre first stimulate the organ to increased activity, followed by damage to the secretory epithelium and later by degenerative changes. An enlarged goitre of this kind has always failed to show any traces of bacterial invasion. He believes that the thyroid gland in some way contributes to the body's anti-toxic and anti-bacterial forces. He considers various methods of treatment, notably that of thyroid, with which he has had marked success *curing* 68 out of 82 cases. He has given thyroid in doses up to 10 gr. t. i. d. With lactic acid bacilli in a few cases he has had good results. With vaccines made from colon and other organisms in the intestinal tract he has seen great improvement when used before degenerative changes have taken place. He then describes an elaborate investigation which at least suggests that certain amoebae found in the feces may be a causative agent; he confirms this view by experiments as a result of which he caused thyroid enlargement in goats by feeding them on water contaminated by feces of goitrous humans.

2. Swan briefly considers the various tumors of the kidney, as to symptoms and treatment.

3. The writers describe a case of gastric carcinoma associated with metastases in the bone marrow. In any case of grave anemia the presence of pains and tenderness of the bones should always arouse suspicion of bone marrow carcinoma. If the blood shows characteristics of pernicious anemia, but with an excess of erythroblasts and myelocytes, the diagnosis of metastasis in the bone marrow is still more probable.

4. Foulerton describes 78 cases of streptothrix infection, chiefly of the mouth, neck or lungs. He discusses these cases as to age, sex, occupation and sites of infection. These conditions, while comparatively rare, are of the greatest interest to physicians especially interested in pulmonary disorders, owing to the close resemblance of these infections to tuberculosis. [J. B. H.]

Berliner Klinische Wochenschrift.

No. 3. January 20, 1913.

1. Jones, H. L. *Progress in Electrotherapy.*
2. Tietze, A. *A Double Sided Resection or Single Sided Extirpation of the Thyroid?*
3. Hollander, E. *A Third Method for Plastics on the Nose.*
4. Weichert, M. *Plastics on the Breast.*
5. Baer, G. *Surgery of the Lung Cavities.*
6. Rabinowitch, L. *Blood Findings in Tuberculosis.*
7. v. Czhlartz, E. *Nystagmas in Diseases with Fever.*
8. Burger, M., and Benner. *The Fat Chemistry of the Blood.*
9 Rabinowitch, M. *Protective Inoculation with Diluted Tubercle Bacilli.*

No. 4. JANUARY 27, 1913.

1. *VEIT, J. *Eclampsia and Its Treatment.*
2. LEVINE, C. *A Research Concerning the Biology of 1912.*
3. BOAS, I. *Method and Technic for Finding Blood in the Gastrointestinal Tract.*
4. BETKE. *Resection of Tubercular Bifurcated Lymph Nodes for Tracheal Stenosis.*
5. HORZ. *Transduodenal Liver Drainage.*
6. HARTTUNG, H. *Spontaneous Gangrene of the Index Finger, and Sympathetic Gangrene.*
7. NAGELSCHMIDT, F. *The Electrical Treatment of Obesity.*
8. PLESCH, J. *The Chemical Effects of Thorium-x on Organic Substances, Especially Uric Acid.*
9. SAALFELD, E. *The Use of Radium and Mesothorium in Skin Diseases.*
10. ALEXANDER, W., AND UNGER, E. *The Treatment of Severe Facial Neuralgia by Alcohol Injections of the Casserian Ganglion.*
11. TREITEL. *Clinical Experiences with Adamon in Acute Gonorrhea.*
12. SCHMIDT, G. *Changes in the Sanitary Arrangements of the German Army During the Year*

1. The author believes that the toxin causing eclampsia originates in the albumen in the periphery of the placenta. He believes that this conclusion is justifiable, considering the last work of Abderhalden on the serum diagnosis of pregnancy. He believes that as soon as the toxin is definitely found, an antidote will be forthcoming at once.

He then reviews the more modern ideas for the treatment of eclampsia, urging the rapid evacuation of the uterus if the toxemia continues to increase under treatment, and laying especial emphasis on the advantages of vaginal hysterotomy as a means to this end. He cites statistics showing that the use of narcotics alone for the control of the toxemia is not entirely efficacious, but believes that the use of morphia in fairly large doses may be combined with operative treatment to advantage. He further believes that bleeding is important if the blood pressure remains high. [J. B. S., JR.]

No. 5. FEBRUARY 3, 1913.

1. LAUDER, B. *Functional Diseases of the Arteries.*
2. HESS, W. R. *The Influence of the Blood Pressure on the Coefficient of Its Viscosity.*
3. HAHN, M., AND HEIN, R. *The Determination of Carbonic Acid Gas in the Alveolar Air by Means of the Interferometer.*
4. GLASER, H. *The Histology of the Blood in Severe Cases of Infantile Scorbutus.*
5. SEEFELDER, R. *Degenerative Diseases of the Cornea.*
6 SCHISCHLO, A. *The Cure of Pruritus by Means of Autogenous Vaccines.*
7 BECKEN, W. *The Dose of Medicines in Drop Form.*

MÜNCHENER MEDIZINISCHE WOCHENSCHRIFT.

No. 4. JANUARY 28, 1913.

1. *V. BERGMANN, G. *Ulcus Pepticum Originating from Spasm.*
2. STURSBERG, H., AND SCHMIDT, H. *Measurements of Blood Pressure after Physical Exertion, and Their Significance as to Fitness for Work.*
3. STOFFEL, A. *Rational Surgery of Nerves.*
4. BRUEGEL, C. *Movements of the Diseased Stomach Studied by Roentgenological Methods.*
5. REICHMANN, V. *Acute Poisoning with Sulphuric Acid and Copper-Sulphate; the Blood.*
6. EICHMANN, E. *Toxicodemias of Pregnancy Cured with Ringer's Solution.*
7. HÖRTEL, E. *Salvarsan in Cholera Gravidarum.*
8. HERXHEIMER, K. *Note on My Paper "Cure of a Case of Sarcoma of the Skin with Thorium-x."*
9. WOLFF. *A New Simple Ray-lamp for Constant and Alternating Current.*
10. BUCKY, G. *A Combined Electrode and Irrigator for the Eye.*
11. SCHILLING, V. *The Question of the New Ross Development of the Organism of Syphilis.*
12. ESCH, J. *Demonstration of Tuberculosis by Hostine's Animal Test.*
13. MARESCH, R. *The Lipoid-content of the So-called Carcinoma of the Appendix.*
14. VAN DEYCKE AND MUCH. *Tuberculin and Immunity to Tuberculosis. (Concluded.)*

1. The origin of peptic ulcer is traced by the writer to localized spasm with ischemia on the basis of hypersensitiveness of the autonomic system to stimuli of various kinds. He emphasizes the view that patients having ulcers show various neuroses as a general rule, and that the old belief that those having organic lesions in the stomach and duodenum do not have multiple neuroses, is an error. The neuroses can be grouped as originating from disturbance of the vagus or of the sympathetic system, the former generally predominating. The symptoms of ulcer, moreover can be explained on this theory, and during the attacks of pain spasm in the stomach or at the pylorus has been observed by x-ray. (The evidence adduced in favor of the theory above stated cannot be briefly summarized.) The logical conclusion is reached that atropine will relieve the symptoms, and the fact is stated that it does, and a systematic course of atropine is advised, not only as a palliative, but also as a curative measure. [G. C. S.]

No. 5. FEBRUARY 4, 1913.

1. V. HOFMEISTER. *Surgery of the Gall Ducts.*
2. *SAATHOFF, L. *Thyreosis and Tuberculosis.*
3. FLATOW AND BAÜNELL. *A Simple Clinical Method of Estimating Urobilinogen.*
4. LINDEMANN, W. *Simplification of Anaerobic Cultivation and a New Method of Cultivation.*
5. PLAUT, H. C. *Value of the Breudel-Müller Reaction.*
6. BEYER, W. *Diphtheria Bacilli in the Urine.*
7. KÜSTER, H. *Indications and Results of Abdominal Tampon Drainage.*
8. HEGAR, A. *Sterilization on Grounds of Race Hygiene.*
9. FEIBER. *Lithotripsia or Lithotomy?*
10. CHIARI, H. *Family Chondrodystrophia Fetalis.*
11. RIGLER. *Neubornyval.*
12. SCHIFF, E. *Distribution of Radium Preparations from Open Stations for the Treatment of Private Patients.*

2. Saathoff discusses the concurrence of tuberculosis and thyroidism, which has been observed by various writers, as well as the similarity of symptomotology which may obscure the diagnosis between them. He believes that tuberculosis is generally present in hyperthyroidism, that uncomplicated hyperthyroidism is free from fever, that closed tuberculosis is particularly common with hyperthyroidism, and that it has etiological importance. When phthisis is believed to be present, treatment of it in the usual way may cure both conditions, and in every case in which hyperthyroidism is suspected tuberculosis should be looked for. Surgery may be indicated in obstinate cases as a means of breaking the vicious circle.

[G. C. S.]

DEUTSCHE MEDIZINISCHE WOCHENSCHRIFT.

No. 1. JANUARY 2, 1913.

1. FOERSTER, O. *The Analytic Method of Compensatory Exercise Treatment in Tabes Dorsalis. I. Standing. (To be continued.)*

2. Bashford, E. F. *The Cancer Problem. (To be concluded.)*
3. *Ribbert, H. *Contribution on Rickets.*
4. *Schieck, F. *The Significance of Choked Disc.*
5. Denker, A. *The Technic and Applicability of Intercricothyrotomy.*
6. Hoffmann, E. *Duration of Contagiousness in Syphilis, and Permission for Marriage in the Light of Recent Research.*
7. Braun, H. *The Employment of Local Anesthesia for the Reposition of Subcutaneous Fractures and Dislocations.*
8. Lissauer, M. *Experimental Cirrhosis of the Liver after Chronic Alcohol Poisoning.*
9. Langbein, R. *Contribution to the Treatment of Sciatica with Epidural Injections.*
10. *Erlenmeyer, E. *The Blood Picture in Variola and in Vaccinia.*
11. Benedek, L., and Deák, S. *Differences Between the Blood Serum in Paralysis and in Dementia Praecox with Regard to the Extraction of Immune Hemolysins.*
12. Hering, W. *Perirenal Hematoma after Scarlet-Fever.*
13. Becker, J. *The Latest Attempts at Surgical Prophylaxis and Treatment of Diffuse Peritonitis.*
14. Halle. *A Practical Antiphon.*
15. Gruff. *Representations of the Blind in Japanese Art.*

3. From the circumstance that in rickets necrotic cartilage cells are found in the cartilage from the medullary cavities, Ribbert concludes that the disease is produced by toxic influences, from metabolic disturbances following improper nutrition, acting upon the skeleton.

4. Schieck considers that choked disc arises by the pressing of the cerebrospinal fluid into the preformed perivascular lymph-spaces of the axillary strand in the optic nerve, and that the fluid producing the characteristic edema of the optic nerve sheath is fluid pressing forward along the central vessels.

10. Kämmerer has described the blood picture of variola as characterized by a great increase of lymphocytes. Erlenmeyer confirms this observation, but finds that in vaccinia there is no such increase. He believes, therefore, that blood examination may be employed for diagnosis in cases of suspected variola and in revaccinated persons. [R. M. G.]

No. 2. January 9, 1913.

1. Foerster, O. *The Analytic Method of Compensatory Exercise Treatment in Tabes Dorsalis. II. Walking. (To be Concluded.)*
2. Bashford, E. F. *The Cancer Problem. (Conclusion.*
3. Schmidt, M. B. *Calcium Metastasis and Calcium Gout.*
4. *Huntmüeller and Paderstein. *Finding of Chlamydozoa in Swimming-Pool Conjunctivitis.*
5. Conradi, H. *Typhoid Bacilli Carriers.*
6. *Port, F. *Hypertension and Blood Sugar.*
7. Ebers, P. *Case of Operated Spinal Cord Tumor.*
8. Rimine, E. *The Influence of Salvarsan on the Organ of Hearing.*
9. Hartung, E. *Case of Paralytic Dementia and Childbirth.*
10. Meder. *Two Cases of Delayed Healing of Inoculation Pustules.*
11. Credé-Hörder, C. *Non-Gonorrheal Ophthalmoblennorrhea of the Newborn and of Infants.*
12. Pertirk, T. *Idostarin and Iodine Preparations in the Treatment of Phthisis.*

4. The authors have found typical chlamydozöid cell-inclusions, similar to those found in trachoma by Halberstädter and Provazek, in swimming-pool conjunctivitis, which they regard as an infectious disease capable of transmission to monkeys. They suggest that the condition may be an attenuated trachoma.

6. Port finds that an increase of the blood sugar content often, though not always, occurs in cases of nephritis complicated by uremic symptoms or apoplexy or eclampsia. If the blood-pressure is simultaneously elevated, however, it does not follow that adrenalinemia is necessarily the common cause of the hypertension and the hyperglycemia. [R. M. G.]

No. 3. January 16, 1913.

1. Foerster, O. *The Analytic Method of Compensatory Exercise Treatment in Tabes Dorsalis. III. The Upper Extremity. (Conclusion.)*
2. Bruns, O. *The Blood Circulation in Breathing and in Atelectatic Lungs.*
3. Rabinowitsch, L. *Investigations on the Question of Tuberculosis.*
4. Behrenroth, E. *The Sexual Psychogenic Cardiac Neuroses, "Phrenocardia."*
5. Kulenkampff, D. *The Early Diagnosis of Acute Gastric Perforation.*
6. Wolfsohn, G. *A Modification of Staphylococcus Vaccine.*
7. Erlacher, P. *Causal and Symptomatic Treatment of Gonorrheal Processes in Man, with Special Reference to Menzer's Original Gonococcus Vaccine.*
8. Opitz, H. *Determination of Free Hydrochloric Acid in the Gastric Contents Without the Stomach-Tube.*
9. Loeb, S. *Hemicanities in Hemiplegia.*
10. Pfister, E. *Prostatic Elements in Urethrorrhea Libidinosa.*
11. Virchow, H. *A Preparation of the Heart Valve Curtains.*
12. Schlesinger, A. *Latent Erysipelas.*
13. Elsaesser. *Hot Air Inhalation.*
14. Herrins, M. *The Present Status of Functional Renal Diagnosis.*
15. Schall, M. *Technical Novelties in the Domain of Medicine, Public Sanitation, and Care of the Sick.*
16. Gettkant. *Class Epidemics of Diphtheria.*

Wiener Klinische Wochenschrift.

No. 5. January 30, 1913.

1. Ollman, K. *The Question of the Parasitotropism and the Toxicity of Salvarsan (Neosalvarsan).*
2. Breus, C. *The Etiology and Genesis of Otto's Protrusion of the Acetabulum.*
3. Schwarz, G. *Direct Irrigo-Radioscopy of the Colon.*
4. Baumgartner, E. *Caries of the Teeth—a Streptomycosis.*
5. Pach, H. *A New Source of Industrial Eye Injury.*
6. *Brosch, A. *The Internal Treatment of Stenosis of the Large Intestine.*

6. The author discusses the methods of intestinal irrigation used in the treatment of stenosis of the large intestine. He cites a case showing the advantages to be derived from intestinal lavage. These are a lessening of the symptoms of obstruction, a reduction in the surrounding induration, together with a consequent improvement in general condition and gain in weight. The limitations of the present methods of lavage are discussed, and the need shown of a method by which the action of the intestinal lavage may be prolonged. [F. S. K.]

Deutsche Zeitschrift für Chirurgie.

Band 120. Heft 1-2. December, 1912.

1. Payr, E. *Lister's Death. An Appreciation of His Life-Work.*

2. Fritzsche, E. *Fractures of the Odontoid Process of the Axis.*

3. Sievers, R. *Transplantation of Pedunculated Skin Flaps from the Front of the Thorax to Finger Defects.*

4. *Lange, E. *Static Hemorrhages Following Traumatic Loin Compression.*

5. Molineus, *The End Result in Double Malleolar Fractures.*

6. Bayer, E. *A Tumor of the Gluteal Region with Peritheliomatoid Structure.*

7. Rittershaus. *Cases of Heart Injuries.*

8. Gärtner. *Primary Lymphosarcoma of the Small Intestine.*

9. Fritzsche, E. *Addditional Note on Fractures of the Odontoid Process of the Axis.*

10. Rousseau, T. *Total Exarticulation of the Mandible and Its Prosthetic Repair.*

4. Lange reports from Payr's surgical clinic at Leipzig seven cases of severe crush of the trunk, and from a study of them and of the literature concludes that in such cases the increased intrathoracic and intraäbdominal pressure produces in the large veins a back flow of blood, which is propagated in great measure toward the upper part of the body. The always constant distribution of the cutaneous ecchymoses near the base of the common facial vein proceeds from the latter's destitution of valves. When the reversed blood-stream reaches a great height, ordinarily functional valves may become inefficient, as in the subclavian vein and its branches. The relative rarity of intraocular blood-effusions, and the complete absence of cerebral hemorrhages, are due to the normally existing intraocular and intracranial tension, which are sufficient to counterbalance the retrograde blood-wave produced by the injury. [R. M. G.]

Band 120. Heft 3-4. January, 1913.

1. de Cortes, A. *Alleged Orchitis of Effort, from the Pathologic, Clinical, and Legal Standpoint.*

2. Dilger, A. *Tissue Cultures in Vitro, with Especial Reference to the Tissues of Adult Animals.*

3. Keppler, W., and Breslauer, F. *The Question of Intravenous Narcosis.*

4. Kroh, F. *Contributions to the Anatomy and Pathology of Striated Muscle Fibers. (To be Continued.)*

5. *Krabbel, M. *Tubercle Bacilli in the Circulating Blood of Surgical Tuberculates.*

6. *Nobe. *A Rare Case of Dislocation in the Calcanco-Scaphoid Articulation.*

7. Saalmann. *Case Contribution to the Knowledge of Spina Bifida.*

4. Kroh presents a useful series of experimental studies on the theory of ischemic muscle paralysis and muscle contracture.

5. Krabbel believes that in cases of suspected surgical tuberculosis, in which there is no clinically demonstrable pulmonary focus as a cause for bacillemia, the positive demonstration of tubercle bacilli in the blood is of great significance and importance for confirmation of the diagnosis.

6. Nobe reports, with excellent illustrative skiagrams, a case of this rare injury, of which he collects from the literature 11 other examples. [R. M. G.]

Obituary.

EDWARD ADRIAN WILSON, B.A., M.B., CANTAB.

Dr. Edward Adrian Wilson, who in March, 1912, died at the post of duty with his comrades of the British National Antarctic Expedition, was born at Cheltenham, England, in 1872, the son of a physician. He was educated at Cheltenham College, whence in 1891 he entered Caius College, Cambridge. Here he won distinction as a scholar in natural science, receiving the degree of B.A. in 1894. He then entered St. George's Hospital Medical School, obtaining the degree of M.B. in 1900. In 1898, however, he had been found to have pulmonary tuberculosis; and though he apparently recovered under a careful regimen, it seemed wisest that he should relinquish his intention of engaging in the urban practice of his profession, and should pursue an outdoor life.

Accordingly in 1901, Wilson joined Captain Scott's first Antarctic expedition as surgeon and naturalist on the *Discovery*. His sterling manliness, great endurance, and high scientific ability caused him to be selected to accompany Scott and Shackleton on the final sledging-trip, which reached the farthest point south that had then been attained. From this expedition he brought back data of great value, particularly in his water-color sketches of Antarctic fauna and flora. On his return to London in 1904 he spent much time arranging and describing his collections in the British Natural History Museum, and in lecturing and publishing reports on topics connected with his observations and discoveries. In 1905 also he served on the departmental inquiry into the diseases of grouse, and in this important work evinced his habitual thoroughness and scientific acumen.

When Scott's second Antarctic expedition sailed in 1910, Wilson was again selected as surgeon and head of the scientific staff. On this expedition he made a special study of the development of the penguin chick, of the embryology of seals, and of the identification of certain varieties of whales. In the pursuit of these investigations he encountered incredible hardships, which he endured with fortitude, and through which he succeeded in securing valuable material which has been preserved for the enrichment of science. In November, 1911, he was one of sixteen selected to constitute the South Polar party, and was one of the four who accompanied Scott on the final successful dash to the pole. He died with his comrades on the return journey, as fearlessly and gallantly as he had lived.

Dr. Wilson was a man of ascetic purity of life, simple, honorable, straightforward, of intense energy, loyalty, and persistence, with a singularly charming and genial personality, an

artist as well as a man of science. It is matter for gratitude that such a man should have shared in Scott's final sacrifice, not only as a representative of our profession, but as a fine type of the high fitness and nobility of character bred in the intellectual pursuits of science. To the widow and father who survive him, to his native town, to his college, his hospital, his nation, and to the world, his memory will be more precious than it is sad; for he lived and died with his peers, an earnest Christian gentleman and hero, justifying the highest ideals by which human achievement is measured.

Correspondence.

POLISHED RICE vs. UNPOLISHED RICE.

Boston, March 7, 1913.

Mr. Editor: Lest certain facts relating to the preparation of rice for market may be unknown to your readers and because some grocers are still supplying polished rice to their customers even though unpolished rice is asked for, I beg to submit this communication.

The term "unpolished rice" is generally accepted by the medical profession as meaning rice which is "whole" or rice which has not been subjected to any milling process for removal of the mineral-bearing outer layer or pericarp.

Recent investigations, proving the value of this mineral-bearing portion in the maintenance of health, strength, and resistance to disease, are well known to the medical profession and have filtered through the press more or less to the general public; with the result that thoughtful people are asking for unpolished rice, and health boards are requiring that polished rice shall not be offered for sale.

Let us see how this works out. The method of milling rice for commerce, which has prevailed up to a recent date, is substantially as follows: The rice grains as they come from the threshing are put through a milling process which grinds off all the brownish outer layer until the grains show pure white. Then a coating consisting of glucose and talc is applied which makes a sort of varnish and in the further process of milling gives the grains a high lustre. In the language of the "trade" this last step of coating with talc and glucose is called "polishing." The first step whereby the grain is robbed of its "food salts" is lightly considered and the product is placed on the market as "unpolished rice."

What we get when we call upon our grocer for unpolished rice is exactly what we have heretofore received except that it has not the coating of glucose and talc. At the present time it is impossible to obtain in Boston any real unpolished rice because of the method above described which is practised by the dealers. This is not wholly the fault of the grocers, for plausible circulars are sent them by the rice producers throwing ridicule upon those who are "railing against unpolished rice," that "polished rice is obviously just the same as unpolished rice except that it hasn't the coating of glucose and talc and that these are harmless anyway" and "that the first process of milling takes away only insignificant quantities of protein, fat, and disfiguring coloring matter, making the product more digestible and much more pleasing to the eye."

Thus the influence of the producers and manufacturers is directed against the efforts of the medical profession to teach the world that in eating polished rice they are consuming material which consists of little more than rice starch—a food product which has been robbed of its valuable mineral elements and salts, which are the real life and health-givers and which furnish material for growth of bones, muscle, teeth, hair, nerves and brain, and maintain resistance to disease.

In Boston genuine unpolished rice may be obtained of S. S. Pierce & Co.: but to make sure of getting it, the buyer must ask for *Natural Yellow Rice.*

Truly yours,

Horace Packard, M.D.

WORKMEN'S COMPENSATION.

Lawrence, Mass., March 7, 1913.

Mr. Editor: The letter of Mr. Carroll, Chairman of the Industrial Accident Board, in your issue of March 6, clearly defines the attitude of the Board toward freedom of choice of medical attendance under the Workmen's Compensation Act.

Unless the insurance companies and the Industrial Accident Board develop a broad view, an almost intolerable condition will be created. Even with the broadest possible construing of such a law, when insurance against industrial disease is added, as it is likely to be, it is not conceivable the American spirit will consent to such a restriction of liberty. Either this restriction will be removed or the source of power transferred from purely commercial interests to the State.

The recently enacted Federal Compensation Act for the Panama Zone, while providing that the insurance company may furnish medical and hospital attendance, retains the employee's right to seek attendance elsewhere without forfeiting his claim. This act, I understand, is endorsed by the American Association for Labor Legislation as the best one yet enacted in America, and is expected to be a model for standardizing future state legislation. It distinctly recognizes the right of freedom of choice.

The following paragraph in Mr. Carroll's letter is significant for what it omits: "The Industrial Accident Board is doing its utmost to adjust this question of medical fees under the law in a manner which will be fair to the employers and insurance companies and at the same time be just and satisfactory to employees. . . "

With all the desire and solicitude that fairness and justice and satisfaction shall be rendered the employers, insurance companies and employees, the medical profession would seem to be entirely forgotten, or ignored.

Very truly yours,

W. H. Merrill, M.D.

THE EARLY RECOGNITION OF SYPHILITIC INFECTION OF THE WET NURSE.

Mr. Editor: It is not generally known at what an early date syphilitic infection of the wet nurse by a nursing child was recorded.

Janowsky in his most interesting monograph "La Femme Syphilitique et la Descendance" (1904), mentions the fact that Brassarotta in 1550 recorded a case of congenital syphilis where the infant infected its wet nurse.

This was ten years before the famous saying of Rondelet, professor at Montpelier, 1560, "Ego vidi puerum nasci totum coöpertum pustulis Morbi Gallici," and was only 57 years after the first cases of syphilis in the old world were supposed to have been treated by Diaz de Sala among Columbus' crew in 1493.

Very truly yours,

Wm. Pearce Coues, M.D.

Boston, March 10, 1913.

Miscellany.

SOCIETY NOTICES.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.—A meeting of the Society will be held in Sprague Hall, Medical Library Building, on Monday, March 24, 1913, at 8.15 p. m.

Addresses: "Remarks on Dr. Hughlings Jackson and Certain of His Views," Dr. James J. Putnam. "The Rise of the Medical School of Salerno," (illustrated with lantern slides), Dr. Edward C. Streeter.

Members of the Suffolk District Medical Society are cordially invited to attend.

ROBERT M. GREEN, *Secretary.*

78 Marlborough Street.

NEW ENGLAND PEDIATRIC SOCIETY.—The twenty-sixth meeting of the New England Pediatric Society will be held at the Boston Medical Library, at 8.15 p. m., on Saturday, March 29, 1913.

The following papers will be read:

1. The Use of Strychnin in Heart Failure and in Vaso Motor Insufficiency. A Preliminary Report. L. H. Newburgh, M.D., Boston.
2. Diabetes in Early Infancy. J. H. Mason Knox, M.D., Baltimore.

The members of the Suffolk District Medical Society are cordially invited.

Light refreshments will be served after the meeting.

FRITZ B. TALBOT, M.D., *Secretary.*
JAMES S. STONE, M.D., *President*

THE NORFOLK DISTRICT MEDICAL SOCIETY.—A regular meeting of the Society will be held at Masonic Temple, 171 Warren Street, Roxbury, Tuesday, March 25, at 8 o'clock.

Business: The meeting will be devoted to a discussion of "The Workingmen's Compensation Act," as it affects the doctor.

The following gentlemen will address the Society: John C. Johnston, Esq., of the Suffolk Bar, Robert M. Merrick, M.D., of The Norfolk District Medical Society; Dudley M. Holman, Esq., of the Industrial Accident Board.

BRADFORD KENT, M.D., *Secretary,*
798 Blue Hill Ave., Dorchester.

[In view of the peculiar present importance of this subject, which has already been considered editorially in the JOURNAL, an abstract account of this meeting will be published in an early issue.—EDITOR.]

CHANGES IN THE U. S. NAVY MEDICAL CORPS.

The following changes have been made in the Medical Corps, U. S. Navy, for the week ending March 8, 1913.

HALLECK, J. D., acting assistant dental surgeon. Ordered to Receiving Ship at Mare Island, Cal.

MCCREARY, A. F., acting assistant dental surgeon. Ordered to Naval Training Station, San Francisco, Cal.

CRANDALL, J. W., acting assistant dental surgeon. Ordered to Receiving Ship at New York.

HEINER, R. G., passed assistant surgeon. Ordered to Guantanamo Naval Station, Cuba.

Irvine, W. L., assistant surgeon. Detached from Guantanamo Naval Station, Cuba, and ordered to *Connecticut.*

KAUFMAN, J. B., passed assistant surgeon. Ordered to Atlantic Reserve Fleet.

APPOINTMENTS.

DR. FRANCIS H. MCCRUDDEN, Physiological Chemist of the Rockefeller Institute in New York, has been appointed Laboratory Director to carry on the physiological chemical work at the Robert Bent Brigham Hospital, Boston.

DR. M. H. NEILL, a graduate of the Harvard Medical School in 1909, has been commissioned assistant surgeon in the United States Public Health Service.

MR. FRANZ SCHNEIDER, JR., instructor in the Department of Biology and Public Health at the Massachusetts Institute of Technology and Research Associate in the Sanitary Research Laboratories has been appointed Sanitarian to the Department of Surveys and Exhibits of the Russell Sage Foundation.

MR. GEORGE RUST BEDINGER, of Salem, Mass., has been appointed director of the Boston Milk and Baby Hygiene Association.

RECENT DEATHS.

DR. FREDERICK WILLIAM ALEXIS BERGENGREN, who died recently at Lynn, Mass., was born in Backgorden, Sweden, on Dec. 5, 1841. After receiving his education at the University of Upsala, he emigrated to the United States, where he practised his profession for a time in Brooklyn, N. Y., and after 1889 in Lynn. He is survived by his widow, one daughter, and three sons, one of whom is also a physician.

DR. HOWARD CLAPP, who died last week in Waverly Mass., was born at Lynn, Mass., in 1878. He was a graduate of Harvard College and of the Harvard Dental School. He is survived by his widow and by one daughter.

RECORD OF MORTALITY.

FOR THE WEEK ENDING SATURDAY, MAR. 8, 1913.

CITIES.	Reported deaths in each.	Deaths under five years.	CITIES.	Reported deaths in each.	Deaths under five years.
New York	—	—	Pittsfield	18	1
Chicago	835	282	Waltham	8	—
Philadelphia	—	—	Brookline	8	1
St Louis	—	—	Chicopee	6	2
Baltimore	—	—	Gloucester	8	—
Cleveland	—	—	Medford	6	1
Buffalo	—	—	North Adams	6	—
Pittsburgh	—	—	Northampton	10	5
Cincinnati	—	—	Beverly	5	1
Milwaukee	—	—	Revere	7	1
Washington	—	—	Leominster	5	2
Providence	—	—	Attleboro	4	1
Boston	279	69	Westfield	10	1
Worcester	69	20	Peabody	—	—
Fall River	—	18	Melrose	3	1
Lowell	40	9	Woburn	6	1
Cambridge	26	7	Newburyport	3	2
New Bedford	34	19	Gardner	—	—
Lynn	27	4	Marlboro	5	1
Springfield	34	7	Clinton	1	—
Lawrence	—	—	Milford	—	—
Somerville	22	4	Adams	—	—
Holyoke	28	17	Framingham	—	—
Brockton	14	8	Weymouth	—	—
Malden	—	—	Watertown	—	—
Haverhill	16	6	Southbridge	1	—
Salem	20	4	Plymouth	—	—
Newton	12	1	Webster	8	2
Fitchburg	18	5	Methuen	—	—
Taunton	18	1	Wakefield	6	—
Everett	6	2	Arlington	3	—
Quincy	—	—	Greenfield	3	—
Chelsea	21	6	Winthrop	—	—

Original Articles.

A FEW IMPORTANT POINTS IN X-RAY EXAMINATION OF THE DIGESTIVE TRACT.*

BY FRANKLIN W. WHITE, M.D., BOSTON,

Instructor in Clinical Medicine, Harvard University; Second Assistant Visiting Physician, Boston City Hospital.

This method can tell us so many things about the digestive tract that we must all use it and become familiar with it. I do not mean that we must all become radiologists, but that we must have x-ray plates taken of many of our patients and examine these plates and become familiar with their interpretation.

The study of the chemical factors of digestion has made little progress of late; the study of the mechanical factors has made very rapid strides, chiefly as a result of x-ray work.

It is by far the most valuable method of examination of the digestive tract recently developed.

The wonderful results which have been obtained by this method, its unquestioned high value in the diagnosis of the position, size and shape of the esophagus, stomach and bowel, its importance as a test of motility of these organs and as a discoverer of disease has led to the greatest enthusiasm for the method by those who have used it.

In the following statement appearing in a leading x-ray journal, "In all diseases of the stomach a Roentgen examination has entirely supplanted laparotomy as a means of diagnosis and as a guide to operability," we see the pardonable enthusiasm of experts for a new method, but such conclusions are likely to meet with some doubt and some just criticism.

The x-ray investigation of the digestive tract is not easy. The interpretation of the plates especially requires large experience and caution. Artifacts are abundant, false interpretations are easy, and there is much debatable ground. In building up a system of diagnosis on x-ray signs, we must carefully gather our data and revise it constantly with growing experience.

I believe the best work in this field will be done with the close coöperation of radiologists and clinicians. The radiologist has gathered his data with great skill. The clinician must study this data with care and help in interpreting it; each has much to learn from the other about the diagnosis of diseases of the digestive organs. We will leave matters of technic to the radiologist (such things as which position, vertical or horizontal, gives the best distribution of bismuth and avoids undesirable pressure upon the organs to be examined; the relative advantage of plate or screen, etc.) and content ourselves with the examination and interpretation of some of the results obtained, and their comparison with older methods of examination.

The old methods of determining the size, shape and position of the stomach and bowel by inflation with air or water are left hopelessly behind. They were very crude, and gave at most a rough idea of the size and position of the stomach and sometimes of the colon, in a distended state. The x-ray method gives us a wealth and accuracy of detail heretofore undreamed of. It has given us entirely new ideas of the shape and position of the living stomach and of its appearance when partly or wholly filled with food, the positions of the lesser curvature, pylorus, etc. Contractions, adhesions, peristalsis, the size and position of ulcers and tumors are often shown with great accuracy. The exact outline of the entire large intestine is given in a way which is hopeless of imitation by any other method. If we wish *exact detailed* information about the size, shape and position of the esophagus, stomach and bowel, we all realize that it cannot be obtained during life except by an x-ray examination.

We will pass over much of the valuable data gathered in this field, and speak only of a few points.

SHAPE AND POSITION OF STOMACH.

In comparing the shape of the stomach obtained by inflation, with the x-ray picture after a bismuth meal, we find a large, rounded outline of inflation, and a smaller outline with the x-ray, with much greater variety of form, a lower position of the lower border, and more variation in position with the patient standing or lying. It is not necessary to give up using the inflation method now that we have found one which is so much better. Inflation is very simple and easy and inexpensive and gives us a certain amount of information.

In studying the shape of the stomach with the x-ray, it is rarely safe to base a diagnosis on a single plate. Where so much stress is laid on minute details of outline, it is usually necessary to take a series of plates in which accidental changes and artifacts are ruled out and we are able to decide which changes are constant and important.

Artifacts are easily produced. The pressure of the patient against the table will shove the stomach all about, pseudo hour-glass stomach is easily produced with a patient lying on the belly or back by the pressure of the spine across the stomach. The best position seems to be either erect, or prone, with the chest and abdomen supported to avoid pressure.

There is much variety in the shape and position of normal stomachs,—hook-shaped, horn-shaped, and so-called text-book stomachs. As most of these details are well known to you, I will pass over them briefly.

The normal appearance of the pylorus and the first portion of the duodenum, the so-called

* Read at the Fifteenth Annual Meeting of the American Gastro-Enterological Association at Atlantic City, June, 1912.

"cap," are very important in the diagnosis of cancer and ulcer at the pylorus, which deform the shadow. We will speak of this later.

The tone of the stomach is indicated by the form and the distribution of the contents. While the normal stomach embraces its contents and always fills up to the cardiac portion and gradually widens on filling, the atonic stomach is like a flaccid bag, with the contents entirely at the bottom and with the median part of the stomach more or less collapsed, and gradually fills up from below.

In so-called gastroptosis, we find that the stomach as a whole does not drop down. The cardiac end of the stomach is fixed and we have simply a ptosis of the middle and pyloric end of the stomach, which is unusually mobile and swings downward and to the left, dragging the first portion of the duodenum after it, so that we find many patients whose pylorus is in the median line, or even to the left of it. In atonic dilatation, the stomach sags vertically down into the pelvis. In chronic dilatation from obstruction of the pylorus with hypertrophy of the muscle wall, the stomach is more globular in outline.

With reference to the size of the stomach, increase in vertical length is always due to ptosis and atony. Increase in all dimensions to stenosis or the swallowing of air, or inflation for diagnosis. Decrease in size may be due to many causes; to disuse in inanition or starvation, or stenosis of the esophagus, to rapid emptying from gastroenterostomy, or insufficiency of the pylorus associated with sub-acidity, or from shrinkage of the wall from infiltration with cancer or ulcer, or to hyper-tonicity. This contraction frequently converts a normal hook-shaped stomach into the horn-shaped.

In gastric ulcer we may get many changes. A displacement of the pylorus upward and to the left, due to a shrinkage of the wall with shortening of the lesser curvature; intermittent transverse contractions associated with florid ulcer; permanent transverse contractions due to scar tissue, forming the hour-glass stomach,—this latter is one of the most brilliant demonstrations of the x-ray. Adhesion of the stomach to the liver may be shown by an absence of palpatory mobility with good respiratory mobility.

The use of a local tender point in connection with the x-ray examination easily leads to error. The tender point is often found to lie outside the filled stomach.

A shadow due to the sticking of bismuth to the surface of a flat peptic ulcer seems to be a rare event of little diagnostic value. Haudek has not seen it once in ten years' experience in his clinic, where more than 2000 stomach cases are yearly examined. This seems to be the almost universal experience of radiologists in this country. Even with the ordinary crater-formed ulcer, it is rare that any remains of bismuth are seen after the stomach is empty. An ulcer which has penetrated through the gastric wall may give rise to a special appearance, an outgrowth or pouch of the bismuth shadow with an air bubble at its summit, with retention of bismuth and immobility to palpation and pressure.

In cancer of the stomach an early diagnosis by the x-ray seems almost impossible. In clearly defined cases it gives us much information about the site and extent and operability of the growth. The most typical appearance is a marked irregular defect in the gastric shadow.

The examination of the duodenum is very important and frequently unsatisfactory. The first portion may point backward or be hidden behind the stomach, or may be deformed by tension upon it, and the second and third portions are often not easy to identify as intestinal peristalsis is so active that they are found empty. The duodenum, contrary to our previous ideas, is a relatively mobile organ, and in ptosis of the pylorus the first portion elongates remarkably.

Cole has called especial attention to the first portion of the duodenum which is dilated into a so-called "cap," which sits, as it were, on the pylorus, and radiologically should be considered part of the stomach since its contraction corresponds with the gastric cycle, and is entirely unlike the small rapid peristalsis of the bowel. The acidity of its contents and the location here of 90% of the duodenal ulcers indicate its surgical importance. The so-called "cap" varies in size, shape and position in different persons. The pyloric sphincter is shown in clear pictures as a clear space an eighth to a quarter of an inch wide between the lower end of the stomach and the "cap" of the duodenum, through the middle of which a slender thread of bismuth runs. During diastole of the stomach the food may drop away from the pylorus. This clear space must not be interpreted as adhesions or obstruction.

SHAPE AND POSITION OF INTESTINES.

It is difficult to get clear outlines of the small intestine owing to the rapid passage of bismuth through it, but brilliant pictures of the colon are easily obtained either by giving the bismuth by mouth or enema. The first is the method of choice for studying the rate of passage of the bismuth through the stomach and intestine, and the second is the method of choice for quickly outlining the large intestine. An enema of one pint will pass up the large bowel to the ileocecal valve in from two to five minutes, and is easily retained. The position of every portion of the large bowel is wonderfully shown, and the exact position and degree of stenosis may be brilliantly demonstrated. The cecum is shown to be an organ of great mobility and frequent low position. It often crosses the sacroiliac line and may reach the median line. The bismuth enema seems to me the most valuable method we have of detecting and locating stricture, cancerous and benign, of the sigmoid and colon. On the other hand, I know from personal experience that partial or intermittent obstruction by adhesions and bands,

even where the whole sigmoid is tied up in a mass of adhesions, may entirely escape detection by the x-ray. This is probably not true of obstruction due to tumors or annular strictures. On the other hand, artifacts and accidental outlines are easily obtained and may mislead the unwary. The picture in the colon may be modified by impacted feces, which give abnormal contours, prevent filling of the cecum, etc. There is frequently an empty or apparently narrowed place where the free sigmoid joins the firmly attached ascending colon. This must be remembered in trying to diagnose obstruction to the lower bowel. The angulation of the splenic structure is often surprisingly sharp, and pseudo Lane kinks are not rare; I have several times had occasion to advise against operation which was proposed as a result of misinterpretation of x-ray pictures of the bowel. Conservatism is needed until our data are more definite.

In many cases the x-ray can give us only an indication for exploration; in occasional cases we may perhaps expect a really early diagnosis of cancer of the bowel, and in other cases an accurate localization of stenosis. It will surely be of much aid in the differential diagnosis of tumors, spasm, and adhesions as a cause of obstruction of the bowel. It is of great help in the study of chronic constipation in separating the atonic from the organic obstructive cases and in showing us in just what part of the intestines the delay in the passage of feces occurs.

SECRETION.

When we come to a study of the *functions* of the stomach and bowel, our older methods make a far better showing. Tests of secretion are very important in diagnosis. Secretion, absorption, fermentation, must still be studied by examination of stomach contents and of the feces. The x-ray tests of secretion thus far proposed are rough and unsatisfactory. Schwartz' method of testing the time of digestion of a fibroderm pepsin bismuth capsule, or Schlesinger's method of measuring the amount of free HCl by giving a dose of sodium bicarbonate and estimating the amount of gas produced, are very crude and seem unlikely to replace the older methods of test meals and examination of stomach contents.

MOTILITY OF THE STOMACH.

The x-ray can give us much valuable information about the motility of the stomach, and many of its advocates proclaim it as the only satisfactory test of motility and regard tests with the stomach tube as inaccurate since small residues in the stomach may be neglected.

The motility of the stomach may be measured by the size of the residue in the stomach two, four, six, twelve or twenty-four hours after a Bismuth meal, or by comparing the size of the stomach residue with the amount in the bowel; or when the stomach is empty, the position of the head and tail of the bismuth column gives valuable indication of the motility of the stomach and bowel.

The normal stomach may be counted upon to empty itself of a bismuth meal in six hours or less, therefore bismuth residue at the end of six hours is important in diagnosis. Large residues usually mean stenosis of the pylorus, small residues are usually due to atony or spasm associated with ulcer.

There seems to be considerable variation in results and some uncertainty of conclusion here, which is perhaps only natural since the amount of bismuth used and the amount and kind of food given must affect the results with different technic. A standard bismuth meal, like the standard Ewald-Boas test breakfast, would no doubt clear up some minor differences. There is a close relation between the tonus and motility, as we might expect, but much difference of opinion exists about details. The hyper-tonic stomach may empty in two or three hours, the normal stomach in from three to five hours, and the atonic in from four to eight or more hours, variously estimated. Haudek's statement that simple atonic delay in emptying never lasts as long as six hours, does not agree with my own recent experience that fully half the cases of simple ptosis have an eight to ten hour residue.

In ulcer a similar difference of opinion exists. Haudek finds that almost every florid gastric ulcer disturbs the motility of the stomach by causing spasm of the pylorus. He has never found a gastric ulcer without this delay and considers a small residue after six hours with hyperacidity almost characteristic of ulcer. Ulcer in other parts of th stomach may cause such spasm of the pylorus that the bismuth is retained two to four times the normal period, even up to twenty-four hours, while operation shows the pyloric walls perfectly normal. Haudek finds no case of spasm of the pylorus and no case of six hour delay of bismuth residue without serious alteration of the stomach wall. Eppinger and Schwartz, on the contrary, report a case of a tubercular girl of sixteen, with much vomiting and a spastic hour-glass shaped stomach, which contained a bismuth residue at the end of twenty-four hours in the fundus. When this spasm was relieved by atropine, the stomach took a normal shape and emptied itself of bismuth in two hours. The autopsy showed that the mucous membrane of the stomach was normal, without ulcer, erosion or scar. The short duration of the case, only a few weeks in all, gave no chance for an ulcer to heal and disappear.

Bardachzi, in contrast to Haudek's work, has recently reported a series of twenty-eight cases of proved peptic ulcer, in more than half of which the stomach was found empty in six hours after the bismuth meal.

Hypermotility of the stomach is almost always associated with achylia, if the pylorus is free.

Cases with marked stenosis of the pylorus

usually show delayed motility, and if the stomach is empty in six hours, stenosis can usually be ruled out, but even here there are exceptions. I know of two cases of stenosis of the pylorus down to lead pencil style, one of which emptied in five and the other in five and one-half hours.

Even a little residue after twenty-four hours is considered absolute proof by many of organic stenosis, but I have one patient at present under observation, well nourished and almost without symptoms, whose stomach empties itself entirely of a coarse test supper in twelve hours, and yet the stomach shows a well marked bismuth residue after twenty-four hours. I have seen several other cases of twenty-four bismuth residue, unexplained even at operation. Residues after shorter intervals, from six to twenty-four hours, are frequently regarded as lesser grades of stenosis, so-called relative stenosis. This group will include many cases of simple atony.

In cancer of the stomach there is usually delayed motility, if the tumor is near the pylorus, but we may have good motility even with advanced tumors of the pylorus, especially if they are ulcerating.

In the face of so much variability in results in the same disease, the results of x-ray tests of motility must be interpreted with great caution. Typical changes of motility, *together with other changes* are very valuable and give us clear indications. Slight changes in motility, or apparently normal results, may lead to great difficulties in diagnosis.

Comparisons between the x-ray and other methods of testing the motility of the stomach, such as the use of a test supper, and the aspiration of fasting contents, are very interesting. In making this comparison, we must consider the power of the stomach to pass on ordinary food as our standard, and if the power of the stomach to empty itself of bismuth paste differs widely from this, so much the worse for the bismuth method. Fortunately, both methods give the same result in the majority of cases. There are many interesting differences, however, which may be explained in different ways, and which need further study.

In cases with large gross fasting residue after twelve hours, there is usually marked disturbance of motility in the x-ray examination. In cases with small gross residue, the x-ray usually shows disturbed motility, but sometimes in cases with marked fasting residue, characteristic vomitus, visible peristalsis, a clear clinical picture of obstruction, bismuth passes along relatively rapidly, and the stomach is found empty within six hours.

How are we to explain these differences in the passage of bismuth and of ordinary food? Perhaps by the different kinds and amount of work which they give the stomach to do. The muscle may be capable of passing out the smooth bismuth paste, and incapable of passing out the coarse mass of ordinary food. It has been suggested by one radiologist that the bismuth may act like a foreign body and stimulate muscular contraction.

On the other hand, how shall we explain the long delay of bismuth in a stomach which passes, or appears to pass, on ordinary food in a normal time? Is it possible that the bismuth remains sticking to the wall, while ordinary food passes on, or is it possible, as has been recently suggested to me by a radiologist, that in such cases the bismuth test is really more delicate and reliable, and that we actually miss food residue in our twelve hour tests with the stomach tube through our inability to get it out through the tube, and call these stomachs empty and normal when they really are not? Personally, I do not believe this is the case, as I always thoroughly wash out these fasting stomachs, and it seems hardly credible that food residue could be missed where this precaution is taken.

PERISTALSIS OF THE STOMACH.

Peristalsis is best studied by the screen, and hence will not be seen by most of us, but it is often well indicated on the plate, and thus deserves a few words.

This is a sign which can practically only be studied by means of the x-ray, and is a very variable factor in digestion, depending, as it does, on emotion and appetite and kind of food; and mistaken conclusions are very easy. Abnormal peristalsis alone is not enough for diagnosis.

The normal peristalsis in the stomach is unobstructed, commonly three to six waves, which seem suprisingly deep at times. Normal peristalsis may be obstructed by anything which deforms or stiffens the stomach wall, such as cancer, ulcer or adhesions. We usually get diminished peristalsis in atony. Increased peristalsis is often found in hyperacidity, ulcer, and obstructed pylorus.

MOTILITY OF THE BOWEL.

The duodenum, as a rule, empties rapidly, and marked stasis of the bismuth meal is so unusual that it is always striking and significant.

It may be due to the deformity caused by chronic ulcer, adhesions, or cancer, or sharp kinking over the peritoneal band at the duodenojejunal junction.

The presence of *simple* duodenal ulcer has little effect on the passage of bismuth through the duodenum; its rate may be normal or more rapid than normal.

In the duodenal cases I have seen, the x-ray has been of greatest help in demonstrating the deformity of the first portion of the duodenum due to chronic ulcer and in showing stasis in the duodenum due to adhesions.

The time of passage of the bismuth meal through the intestine is very important and interesting in connection with the diagnosis and location of the causes of chronic constipation,

and chronic intestinal obstruction. The "time table of the bismuth train" is easy to understand. Naturally there is much normal variation in different individuals and with different kinds of food and different amounts of bismuth.

The head of the bismuth column normally reaches the cecum in four to five hours, the hepatic flexure in five to eight hours, and the splenic flexure in seven to twenty-four hours. The end of the bismuth column follows four to five hours behind. The bismuth meal has normally left the stomach entirely in six hours and wholly passed the small intestine in nine hours; in eight to sixteen hours practically all the bismuth should be in the descending colon and in twenty-eight to thirty-two hours in the pelvic colon, where it remains till emptied out by defecation.

It is interesting to find that most cases of constipation do not depart from the normal schedule till the colon is reached, and many not till the pelvic colon is reached. In the majority of functional cases constipation means faulty defecation, not sluggish bowels as a whole; and it is obvious that enemas are usually more needed than cathartics, which often hurry the food through the whole bowel with unnecessary irritation, and disturbance, merely for the sake of emptying the rectum.

There are several contributory causes in atonic constipation, such as abnormal length and sagging of the transverse colon, rarely of the sigmoid, and simple kinking of the flexures. The latter has been much emphasized as a cause of constipation, but I have not been sure of it in any cases I have seen. The kinks have often appeared very sharp in the pictures, especially the splenic, but have been passed on time by the bismuth. (I am referring here to simple kinks due to the sagging of the bowel from its attachment, not to the kinks due to adhesions.)

In atonic constipation of the ascending colon, which type is less common, there is stagnation of bismuth in the cecum and ascending colon with dilatation and pouching; this is also a favorite site for adhesions starting from chronic appendicitis.

In my own experience, the x-ray has proved most useful in separating the medical from the surgical cases of constipation or obstruction, those due to atony of faulty diet from those due to adhesions or tumors.

In one patient who had had several years of unsuccessful medical treatment for severe constipation and debility by one of our best physicians, an x-ray examination gave an immediate diagnosis of marked constriction and deformity of the ascending colon due to adhesions. An operation confirmed the diagnosis and promptly relieved the condition.

At first it was a little disappointing to send a patient with chronic constipation for x-ray examination and get a normal report, but I soon appreciated the value of ruling out an organic cause in such cases.

It does not seem to me necessary to make the x-ray a part of the routine examination in all digestive cases, nor to dispense with any of the older forms of examination because we have a new and valuable one.

In the majority of cases the clinical history and the ordinary physical examination, including the stomach contents and feces are all that we need for diagnosis, and there is no need to put our patients to the trouble and expense of a further special examination, but in many even of these cases where expense is not a great object, the x-ray gives interesting and valuable confirmatory evidence.

We must remember that several plates must be taken as a rule in abdominal cases, and often quite a series, for only constant variation from the normal outline has value in diagnosis.

On the other hand, in many cases the x-ray is a very essential part of the examination and gives us clear and definite information not otherwise obtainable, and occasionally may be worth more than all the rest of the examination put together and far more than the price paid for it.

I have seen cases wrongly diagnosed by careful and expert physicians, undergo months of useless treatment, and then have the right diagnosis made by a single x-ray examination with prompt recovery of the patient.

The examination in cases of disease of the esophagus is not complete in my opinion without the use of the x-ray.

I now use the x-ray habitually in all cases of disease of the stomach where the diagnosis is in doubt, or where the result of careful treatment is unsatisfactory without obvious cause. I believe that most cases of marked chronic constipation, especially those which do not yield to treatment, should have an x-ray examination.

We must not be disappointed if the x-ray occasionally shows us nothing at all in very troublesome cases. This frequently happens in functional cases with most trying symptoms of long duration.

None but experienced radiologists with absolutely first-class apparatus can be relied upon to take uniformly good abdominal pictures. Men who take good bone, joint and chest pictures, may utterly fail below the diaphragm.

The hope has been expressed that the x-ray will take the place of the stomach tube, since most people would rather swallow bismuth paste than a tube. We still need the tube since the x-ray can give no information about secretion, pathological products of the wall, such as mucus, blood, etc., data essential to diagnosis; and, furthermore, x-ray data about motility, while usually reliable, are sometimes confusing.

The x-ray is a part of the physical examination, and needs to be so used to give best results. The x-ray alone would leave us hopelessly in the lurch in the vast number of gastric and intestinal neuroses, which make up the majority of our digestive cases (gastric hyperacidity and

achylia, nervous vomiting, hyperesthesia, gastralgia, intestinal neuroses, nervous diarrheas, enteralgia), as well as in acute and chronic catarrh of the stomach and bowel, simple peptic and intestinal ulcer, parasites, etc.

We must recognize the limitations as well as the value of this remarkable method of examination.

In closing, I wish to thank Dr. Ariel W. George, of Boston, for the opportunity to examine and discuss many excellent x-ray plates.

THE EXPERIMENTAL PRODUCTION OF LESIONS RESEMBLING PELLAGRA.*

BY HERMAN M. ADLER, M.D., BOSTON,

In presenting this account of certain observations that were made in the course of experiments conducted during the past three years, it should be understood that it is not my intention to enter the lists for or against any of the present theories of the causation of pellagra. The small number of clinical cases of pellagra that we in the North are given the opportunity of seeing preclude our arriving at any very complete conception of this disease. On the other hand, the very fact that cases do occur in the North under conditions which at first sight seem radically different from those which are believed to be predisposing to the occurrence of pellagra should lead us to consider that this disease may be of more general and fundamental importance than is usually conceded.

In the course of the past two years, without any special effort on my part, four cases of pellagra have come to my notice, all inmates of Massachusetts institutions.[1] Undoubtedly, as the interest in this disease is further aroused, more cases will come to our attention. It is clear, then, that pellagra is not without considerable importance for us in the North, as has been pointed out by many authors, and it becomes necessary to inquire into its significance. The question that immediately presents itself is perhaps comparable to the question that is raised by the occurrence of such diseases as pernicious anemia, the results of arteriosclerosis, et cetera, in the insane.

In all diseases we are accustomed to consider two main factors: the one, the causative factor; the other, the reaction of the individual to the causative agent. The importance that has been given to the infectious diseases on account of the remarkable advances in this branch of knowledge during the past decades has, perhaps, diverted the attention of most investigators to a more or less degree from the consideration of the second factor, that of the reaction of the individual to the causative agent. When, however, we undertake the investigation of the chronic diseases, of which arteriosclerosis and various forms of insanity are perhaps the most striking examples, the importance of the particular causative agent in any individual case is often overshadowed by that of the reaction of the individual. In a case of arteriosclerosis, for instance, it is not enough to discover that the pneumococcus has infected the lungs and is causing pneumonia, but the all-important point is, what is the individual's reaction to this organism. In one case we may find that the result is a typical, straightforward lobar pneumonia; in another case we may find practically none of the symptoms of lobar pneumonia, but indefinite symptoms and signs of a low-grade septic infection running a more or less rapidly fatal course with or without mental symptoms, and offering at no time a clinical picture which can in any sense be called specific for the pneumococcus. It is this point of view which is essential in considering the mechanism of most chronic diseases, and, in my opinion, it is this point of view which is of importance in attempting to determine the clinical significance of pellagra.

In the course of an investigation conducted with the object of determining the reasons for emaciation and anemia in many chronic diseases found among the insane and senile, the following main points have been made.[2] It has been found that certain cases of emaciation were suffering from the effects of a fat intoxication. This is a condition which has long been the object of attack by pediatricians. While in the realm of infant diseases the main stress has been laid on the intoxications with foreign proteins, there are a number of instances on record where loss of weight, gastrointestinal disturbances and anemia, often approaching the pernicious type, have been observed as the direct effect of intoxication by foreign fat.

A similar condition has been shown to exist in certain cases of extreme emaciation due to general paralysis.[3]. In these cases it was possible to demonstrate an autohemolysine in the serum after overfeeding with fat in the form of milk or cream. The autohemolysines disappeared regularly when the fats were reduced. These experiments pointed to the existence of a defect in the ability of the individual for handling what under normal conditions was a food. It is an instance of an intoxication by a substance which ordinarily should help rather than harm the organism. The work of Faust and Tallquist[4] leads us to assume that the hemolysine in this case was oleic acid or some similar chemical substance.

Experiments on the production of pernicious anemia in rabbits by overfeeding with olive oil, cotton-seed oil, chemically pure triolein, etc., have brought out the facts that an excess of fat may be absorbed by the intestines; that, having been absorbed, it will produce at times the symptoms of acute enteritis, loss of weight and in time a varying degree of anemia, which may be severe enough to closely resemble the pernicious type. In these experiments ten rabbits were subjected to chronic poisoning with oil. Of

* From the Laboratory of the Danvers State Hospital. No. 25 of the Danvers State Hospital Series.

these, three had previously been fed daily for about a year with 0.3 gram of quinine. Three rabbits had been treated for three months with intravenous injection of 0.01 gram of quinine daily. The remaining four received daily feedings of olive oil without previous treatment. Five cubic centimeters per kilo weight of olive oil was the dose given to all of the rabbits.* All of these rabbits developed the blood picture of a secondary anemia within a few days. In four the blood picture of pernicious anemia developed in from two to three months and lasted for a few days. The weight curve followed approximately the appearances in the blood, dropping sharply as the anemia became marked, rising as the anemia improved. The weight and anemia improved markedly whenever the feeding of oil was temporarily suspended.

In six out of these ten rabbits there appeared during the latter part of the experiment, four months or more after oil feeding was commenced, a skin eruption on the inner surface of the ears. This condition was in the nature of a diffuse lesion, characterized by intense congestion and thickening of the entire ear. The ears would become so much thickened that they could be folded over with difficulty, and the congestion caused them at times to appear dark purplish in color. This appearance of the ears was invariably accompanied by acute enteric symptoms, profuse diarrheas and bloody stools. At the same time the weight of the animal dropped rapidly. The oil feedings were discontinued and the symptoms lessened in severity and disappeared. The ears gradually improved until little remained except a few crusts. On feeding the oil again, frequently the intestinal symptoms returned, but only in one case has the eruption in the ears increased in severity a second time. Five out of the six rabbits showed the ear lesion during the months of June, July and August, improving through the fall. One animal showed the ear lesion in May and improved in the course of the summer. The three rabbits that had been fed quinine for a year previous to the oil feedings at no time showed any signs of an eruption or inflammation in the ears. The fourth rabbit that failed to show these symptoms was one of the three that had been treated with the intravenous injection of quinine.

During the entire experiment the animals were kept in all other respects under the same conditions as they had been previously, and under the same conditions and in part in the same cages with control rabbits that were not under experimentation. Not a single rabbit in our entire animal house at Danvers, out of some 25 to 30 animals, showed anything resembling this eruption, except the rabbits mentioned. The rabbits were not kept isolated in any sense, and all were fed alike, the same food, in the same amounts, from the same stock. The only difference between the animals under experimentation and those not, lay, so far as could be ascertained, in the feedings of oil.

It would seem that there were several factors involved in the production of this condition. In the first place, we have the introduction of a large amount of oil, the chief constituent of which is triolein. This triolein is split up in the intestine, in part at least, into glycerine and oleic acid, and the oleic acid is absorbed. Oleic acid is a hemolytic agent, and, unless neutralized in some fashion, will cause destruction of red cells. It appeared, furthermore, from experiments conducted upon the brains of cats[5] that oleic acid is a neurolytic as well as a hemolytic agent, that is, it will destroy by lysis the nerve cell in the same way that it destroys the red blood cell. It is very probable that this lytic action of oleic acid is not confined to these two types of cell.

In the second place, we have to consider here the effect upon the intestine. This seems to be due to the irritating action of the hemolytic oleic acid, probably not only upon the red cell but also upon the smooth muscle coats of the intestine. At autopsy an intestine in this condition shows a marked congestion of the mucosa and submucosa, especially in the region of the lymphoid cells beneath the epithelium of the villi. The cathartic action of olive oil has long been known to the clinician. Its absolute harmlessness in all doses, however, may be doubted in view of these findings.

In the third place, we have to consider the production of a superficial eruption on the skin in one part of the rabbit, namely, the ears. The only immediate reason that I can assign for this site is that it is the only place on the body of a rabbit which is not covered by fur. Attempts to prove this point by shaving parts of the body, failed on account of the length of time required for the reaction and the practical difficulties of keeping the animal shaved closely for such a period. This part of the work is at present being repeated. There were at no time in any of these animals any symptoms pointing to an involvement of the central nervous system, nor were any lesions discovered post mortem.

These experiments seem to be presumptive evidence that a condition which is characterized by a dermatitis and acute enteritis need not be necessarily a clinical entity in the sense of being a specific reaction to a specific causative agent, but that this may be a more or less general reaction common to a large number of pathological conditions. If we assume that the mechanism of this sort of disease includes on the one hand a causative agent of the general nature of the chemical used in these experiments, on the other hand a protective apparatus which has a greater or less degree of strength, we can conceive the production of the same symptoms as a result of considerable variation in the exact mechanism.

* This dose was determined upon after experiment in which it was found that a dose of 10 c.c. of oil per kilo of body weight produced experimentally violent diarrheas, and rapid loss of weight, and death after from 24 to 48 hours. One dose of 10 c.c. per kilo of body weight suffices to kill occasionally, two or three doses invariably.

In the first place, the causative agent may be so powerful as to overwhelm the protective apparatus of the best equipped individual. This powerful effect need not depend upon quantity. For instance, it is accepted that the hemolytic action of oleic acid depends on the fact that it is unsaturated. Oleic acid, however, contains only one double bond or unsaturated bond in its molecule. There are substances of the general chemical and physical nature of oleic acid which are unsaturated, which contain two or more double bonds in the molecule and which are, therefore, more toxic, more hemolytic, so that the dose required of such a substance may be actually very much smaller than that of oleic acid and still act pharmacologically more powerfully. It is well known that a great variety of such unsaturated fats or fatty acids occur in nature. Such unsaturated fatty acids, which in general are classed with the drying oils or the semi-drying oils, are frequently constituents of our foods, as Mizell[6] and others have pointed out. This is true of the North as well as of the South, where the butter substitutes are in use in considerable quantities. These facts do not, however, preclude the possibility of the introduction or production of such a substance by means of parasites or bacteria, and thus the reaction would be rather to a chemical substance regardless of where it came from, than to the particular living thing that produced the fat.

On the other hand, we have the other factor of the defense of the organism. It has been shown by Stheeman[7] that the chief defensive apparatus for toxic fats is the lymphoid tissue. This lymphoid tissue is found in the body arranged in the lymph glands and spleen, and distributed through the various organs to a greater or less degree, notably in the submucosa of the intestine. Now, it has been observed that the lymphoid tissue of certain cases of insanity and the lymphoid tissue in senescence is diminished quantitatively. The experiments quoted above, in which hemolytic substances were introduced into the blood stream by overfeeding with fat, were carried out successfully only in cases in which the emaciation suggested a partial atrophy of the lymphoid tissue.

There is one point which is, perhaps, of the most striking importance in connection with this disease, namely, the relation of sunlight to the production of the eruption. While my experiments have not yet progressed to the point where I can speak with any degree of certainty upon this matter, I am inclined to the belief that sunlight is merely the exciting irritant, but has nothing to do with producing the condition of irritability in the skin. Instead of an ordinary sunburn, the individual is injured to the extent of inflammation, just as some fair-haired people with little pigment in their skin may suffer from an acute inflammation as a result of a slight exposure to the summer sun, which in a brunette would cause little inconvenience. Just what is the mechanism of the production of this state of irritability remains still to be determined. There is, however, considerable evidence in support of the conception that the same condition which produces congestion and peristalsis in the intestine will predispose the skin to harmful attack by light. I hope that in the near future I may be able to report further on this phase of the problem.

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THE PRESENT POSITION OF ABDOMINAL CESAREAN SECTION IN ECLAMPSIA.*

BY JOHN T. WILLIAMS, M.D., BOSTON.

THIS article represents the result of an unprejudiced inquiry into the actual value of Cesarean section in eclampsia as shown by the reported cases in which it has been performed. In spite of the recent wave of conservatism in the treatment of eclampsia which has swept over the obstetrical world, there are still many who hold that immediate delivery is the first essential in successfully coping with this condition.

For rapid delivery in eclampsia there are three methods from which to choose:

1. Manual or instrumental dilatation of the cervix.
2. Vaginal Cesarean section.
3. Abdominal Cesarean section.

The chief obstacle to the delivery of eclamptics is the boardlike rigidity of the undilated cervix, which seems to be especially marked in eclamptics; and although the majority of the patients are primigravidae, it often occurs in those who are multigravidae as well.

The dilatation of such a cervix is difficult, tedious and exhausting, and accompanied by considerable shock, and the danger of serious laceration of the cervix and lower segment of the uterus.

To overcome these disadvantages, Dührssen devised the operation of vaginal Cesarean section. The technical difficulties of this operation are considerable. Its performance requires a considerable degree of skill and experience in vaginal operating, at least two assistants, and good illumination; conditions difficult to obtain except in a hospital.

* Part of a paper read by invitation before the Everett Medical Society, May 8, 1912

OPERATOR	GRAVIDA	MONTH OF PREGNANCY	CONVULSIONS	ALBUMEN	MECHANICAL INDICATIONS	RESULT MOTHER	CAUSE OF DEATH	RESULT BABY
van den Axxer [1]	I	10	Several	?	Conj. vera 6.3 c.m.	Lived		Lived
Halbersma [2]	I	9	9	?	0	Died	Peritonitis 2 Days	Lived
Ibid	I	10	8	?	0	Lived		Lived
Ibid	I	10	Several	?	0	Lived		Lived
van der Hoeven [3]	I	7	7	?	0	Lived		Died
van der Mey [4]	I	7	Several	?	0	Lived		Died
v. Herff [5]	I	9	20	?	0	Lived		Lived
Müller [6]	I	9	20	?	0	Died	Cerebral Hemorrhage 2 Days	Stillborn
van der Poll [7]	I	10	11	?	0	Died	Oedema of Lungs	Stillborn
Reijenser [8]	IV	9	Several	?	0	Lived		Died
Staude [9]	I	?	20	Much	0	Died	Praemia 11 Days	Stillborn
Czempin [10]	I	10	1	Much	0	Died	Oedema Lungs 36 Hours	Stillborn
v. Swiecicki [11]	VII	10	Several	?	0	Died	Oedema Lungs	Stillborn
Wertheim [12]	I	9	14	Much	0	Died	Miliary Tuberculosis 12 Days	Lived
Ibid	I	10	8	?	0	Lived		Lived
Schauta [13]	I	10	22	?	0	Lived		Died
Kaltenbach [14]	I	10	2	?	0	Lived		Died
Doderlein [15]	I	9	21	?	0	Lived		Lived
Decio [16]	I	?	?	?	0	Lived		Lived
Everke [17]	I	?	?	?	0	Died	Eclampsia 15 Hours	Lived
Zweifel [18]	I	10	2	Much	0	Lived		Lived
Gusserow [19]	II	10	1	Much	Previous Vers. Fractur Version Failed	Died	Perm. Hemorrhage from Broad Lig.	Stillborn
Graefe [20]	III	10	?	Much	0	Lived		Lived
Leopold [21]	I	?	9	1/3%	0	Died	Peritonitis 8 Days	Died
Ibid	I	?	5	7/10%	0	Died	Exhaustion 28 Days	Stillborn
Fehling [23]	III	10	0	8%	0	Died	Oedema Lung 7 Days	Died
Schatz [24]	II	9	8	Small Amount	0	Died	Cerebral Hemorrhage Few Hours	Died
Ibid	I	10	18	3/4 %	0	Lived		Stillborn
Bäcker [25]	II	10	0	?	Contr. Pelvis Previous Craniotomy	Lived		Lived
Küstner [26]	I	9	8	1/8%	0	Died	Oedema Lungs 4 Hours	Died
Burmeister [27]	I	10	8	Much	0	Lived		Lived
Kemarsky [28]	I	?	Frequent	?	Contr. Pelvis	Lived		Lived
Kerting [29]	I	?	Frequent	High Percent.	0	Lived		Lived
Kötschau [30]	?	?	?	?	0	Lived		Died
Ibid	?	?	?	?	0	Lived		Lived
Konig [31]	I	10	1	1½%	0	Died	Eclampsia	Lived
Everke [32]	?	?	?	?	0	Lived		Lived
Ibid	I	9	10	Much	0	Lived		Lived
Ibid	I	10	Frequent	Much	0	Died	Not Stated	Lived
Ibid	I	8	Frequent	Much	0	Died	Not Stated	Lived
Ibid	?	?	?	?	0	Died	Not Stated	Died
Ibid	?	?	?	?	0	Died	Not Stated	Died
Müller [33]	I	10	Many	?	Flat Pelvis	Lived		Lived

OPERATOR	GRAVIDA	MONTH OF PREGNANCY	CONVULSIONS	ALBUMEN	MECHANICAL INDICATIONS	RESULT MOTHER	CAUSE OF DEATH	RESULT BABY
Biermer [34]	I	7	7	½%	0	Died	Eclampsia	Lived
Olshausen [35]	I	?	14	Present	0	Died	Eclampsia	Lived
Ibid	I	10	?	?	0	Lived		Lived
Sippel [36]	I	9	0	1 9/50	0	Died	Rectal Hemorrhage 7 Days	Lived
Herting [37]	I	10	0	?	0	Lived		Lived
Treub [38]	II	9	1	Present	0	Lived		Lived
Martin [39]	I	9	?	Present	0	Lived		Lived
Brunner [40]	I	10	?	Much	Contr. Pelvis	Died	Peritonitis 3 Days	2 Died
Ibid	I	10	12	?	Contr. Pelvis	Lived		2 Lived
Streckeisen [41]	I	9	5	?	Contr. Pelvis	Died	Sepsis 4 Days	2 Stillborn
Ibid	?	9	5	?	Contr. Pelvis	Lived		2 Lived
Lowenstein [42]	I	10	5	7%	0	Died	Sepsis 5 Days	Lived
Ibid	I	9	2	Present	0	Died	Eclampsia 1 Day	Lived
Ibid	I	7	12	?	0	Died	Not Stated	Stillborn
Hammerschlag [43]	?	?	?	?	0	Died	Not Stated	Died
Ibid	?	?	?	?	0	Died	Eclampsia 3½ Hours	Died
Herrenschneider [44]	I	10	4	Much	0	Lived		Lived
McCann [45]	I	9	4+	Solid. on Heat	Dilatation Failed	Lived		Stillborn
Croom [46]	I	9	Numerous	Large Amount	Contracted Pelvis. Dilatation Failed	Died	Eclampsia 6 Hours	Lived
Ibid [47]	I	10	Numerous	?	Contr. Pelvis	Died	Pneumonia 3 Days	Lived
Batchelor [48]	I	10	2	8 %	Contr. Pelvis	Lived		Lived
Klots [49]	I	9	Numerous	4 ½%	0	Lived		Lived
Smith [50]	III	8	Several	Large Amount	Conj. Vera 2¼ Inches	Lived		Died
Brothers [51]	I	10	Several	1/4 %	Dilatation Failed	Died	Eclampsia 11 Hours	Stillborn
Woodbury [52]	I	10	2	1/8 %	Forceps Failed	Died	Sepsis 7 Days	Lived
Boldt [53]	I	10	7	Solid. On Heat	Contr. Pelvis	Died	Oedema Lungs Few Hours	Lived
Johnson [54]	I	9	7	Solid. On Heat	0	Lived		Lived
Tomkins [55]	I	8	5	Large Amount	Dilatation Failed	Lived		Lived
Schell [56]	I	8	Several	?	0	Lived		Died
Burns [57]	I	10	4	Solid. On Heat	0	Lived		Lived
Gamble [58]	I	10	Several	?	Dilatation Failed	Died	Anuria 5 Days	Lived
Markoe [59]	I	10	3	Solid. On Heat	0	Died	Eclampsia 24 Hours	Lived
McPherson [60]	?	?	?	?	?	Lived		Lived
Ibid	?	?	?	?	?	Lived		Lived
Ibid	?	?	?	?	?	Lived		Lived
Ibid	?	?	?	?	?	Lived		Lived
Ibid	?	?	?	?	?	Lived		Lived
Ibid	?	?	?	?	?	Died	Not Stated	Lived
Ibid	?	?	?	?	?	Died	Not Stated	Lived
Ibid	?	?	?	?	?	Died	Not Stated	Lived
Mullaly [61]	Multipara	7	A Number	?	Dilatation Failed	Died	Eclampsia Few Hours	Stillborn
Ibid	?	10	A Large Number	?	0	Lived		Stillborn
v. Guérard [62]	I	8	1	?	Cervix 5 C.M. Long	Died	Eclampsia 1 Day	Stillborn

The advantages of abdominal Cesarean section over the two former methods are obvious: its physical ease of performance, simplicity of technic, rapidity of accomplishment, avoidance of tears of the cervix and rupture of the uterus, and smaller amount of shock.

On the other hand, Cesarean sections throws upon a patient with damaged liver and kidneys the strain of a major abdominal operation.

The problem which I have attempted to solve, therefore, is whether the advantages of abdominal Cesarean section outweigh the dangers from it. It seems to me that this question is best answered by a study of the results in cases in which it has been employed, and a comparison of these with the results where the other methods have been used.

In this paper I shall purposely ignore the more conservative treatment of eclampsia, because the point at issue is the relative value of abdominal Cesarean section and other methods of rapid delivery, and not a comparison of radical and conservative procedures.

Abdominal Cesarean section was first performed in eclampsia by van den Akker[1] in 1875 and by Halbertsma[2] in 1889. Excluding operations performed post mortem and on the dying, I have been able to collect in all 85 cases from the literature. It is fair to state that in 21 of these there existed a mechanical indication as well for Cesarean section, but as this in no way influenced the actual result of the operation, such cases are equally as available for our consideration as those in which eclampsia alone furnished the indication for this method of delivery.

It will be observed that these were all cases of well developed eclampsia, therefore deductions drawn from them do not of necessity apply equally to threatened eclampsia.

The following table presents a brief resumé of the reported cases. The omission of blood pressure observation is not an oversight, but it is because no mention was made of it in any reported case.

Among the 85 cases there were 41 maternal deaths, a mortality of 48.2%. This mortality is distributed as follows: From sepsis, 7 deaths; from hemorrhage from broad ligament after Porro operation, 1; from rectal hemorrhage, 1; from tuberculosis, 1; from exhaustion, 1; from pneumonia, 1; from eclampsia, 20. In 9 cases the immediate cause of death was not stated, but presumably was eclampsia.

Now let us compare these figures with the results obtained by a few leading operators with the two other methods of rapid delivery in eclampsia.

Manual or Instrumental Dilatation.

Zweifel[63]	80 cases	15% mortality
Glockner[64]	143 cases	15.49% mortality
Ferri[65]	82 cases	7% mortality
Newell[66]	79 cases	26.5% mortality

Vaginal Cesarean Section.

Dührssen[67] ...	112 cases	15% mortality
Beckmann[68] ...	43 cases	18% mortality
Veit[69]	33 cases	3% mortality
Fry[70]	13 cases	6 2-3% mortality

It will be seen at once that in none of these figures does the mortality approach that of abdominal Cesarean section. This seems to the writer to demonstrate that abdominal Cesarean section is a dangerous procedure in eclampsia, and not to be resorted to indiscriminately, but to be reserved for those cases where an absolute pelvic indication for the operation exists as well, and possibly those cases of threatened eclampsia, at or near term, where the amount of urinary secretion is not too greatly diminished, and the risk of the added strain upon the excretory functions is overbalanced by the danger of profound shock from a vaginal delivery.

The high mortality from abdominal Cesarean section results partly from peritonitis and other forms of sepsis, but mainly from the added strain thrown upon the liver and kidneys.

The fetal results demand some mention. In examining the literature it has been extremely difficult to find out the cause of fetal deaths or even to separate still-births from deaths occurring soon after birth. Friedemann[71] gives as the general fetal mortality in 1,601 cases of eclampsia 75.4%, and Goedecke[72] 48% in 330 cases.

As would be expected, the fetal results are better after Cesarean section (42.2% mortality); but so many factors,—prematurity, the effect of convulsions and the toxines of eclampsia on the child,—influence unfavorably the outcome that the fetal results must be poor under any treatment.

CONCLUSIONS.

Abdominal Cesarean section in eclampsia has a maternal mortality of 48.2%.

Vaginal Cesarean has a mortality ranging from 3% to 18%; and dilatation of the cervix from 7% to 26%.

Therefore, abdominal Cesarean section in eclampsia should be restricted to those cases in which there is a pelvic contraction sufficient in itself to demand it, and possibly also early cases of threatened eclampsia at or near term, where the shock of a vaginal delivery seems to offer much greater danger than the added strain imposed upon the excretory organs by Cesarean section.

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The Massachusetts Conference on Tuberculosis held a session at Holyoke, Mass., on March twenty-second. Dr. Carl A. Allen of Holyoke presided. Among the speakers were Dr. Allan G. Rice, president of the Springfield Association for the Prevention of Tuberculosis; Secretary Mark W. Richardson of the State Board of Health and Dr. Frank A. Woods of Holyoke. The papers and discussions dealt with all phases of the movement, ranging from methods of prevention to the care of sanatorium patients.

Clinical Department.

AN UNUSUAL OBSTETRICAL HISTORY.*

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I am reporting the following case in some detail, hoping that the members of this Society may be able to make suggestions which will be of benefit to the patient.

There has been such a series of obstetrical misfortunes in this case that it has seemed to me unique.

I first saw the patient in October, 1906. She was then twenty-six years old and a few months along in her first pregnancy. There was nothing of any special note in her previous history. Some years before she had had typhoid fever. Since then her periods had been irregular. There had been considerable nausea and vomiting during the early part of her pregnancy, but when she came to me she felt very well. She passed through the following months of pregnancy in a perfectly normal way, and there is nothing to note until the labor started in March, 1907. Very little progress was made in spite of hard, satisfactory pains, so that finally the baby was delivered with considerable difficulty by high forceps. The baby was rather limp at first, but soon responded. The vaginal wall was cut during the delivery. The perineum was torn sufficiently to require two stitches. During the next day the patient was unable to urinate, and the urine drawn by catheter contained blood. The urine after that was clear. Convalescence went along uneventfully. The baby was nursed and has grown up into a fine healthy child now of almost six years.

About six weeks after the baby was born I examined the mother and noted that the perineum gave good support. The cervix had a bilateral tear of moderate size in it with a scar running out to the left side of the vagina. The uterus was all right.

In July, 1908, without any particular reason, she miscarried at about three months. She was curetted and a packing was left in the uterus because of excessive bleeding. It was removed the next day. There was nothing peculiar in any way about the miscarriage. She became pregnant again in September of the same year, 1908. In November I found that the uterus was retroverted and therefore under gas and ether anesthesia. I replaced it and put in a pessary. There was, however, not sufficient support to hold the pessary, and a packing had to be substituted. This, in conjunction with the knee chest position, kept the uterus forward. There was nothing of any note during this pregnancy until a few days before labor started, and several days after spontaneous rupture of the membranes, when she developed tenderness over both saphenous veins with swelling of the legs. It seemed probable that there was a thrombosis of the vessels from some cause. She was put to bed and in a couple of days labor started, the membranes having ruptured a week previously. The baby was easily delivered by low forceps. There were two stitches in the perineum. The baby did

* Read before the Obstetrical Society of Boston, November, 1912.

not cry quite normally. The sound was suggestive of pain. The baby was born at night. When daylight came it was noticed that he was jaundiced. In the evening the nurse thought that his movements contained blood. The temperature was 101. There had been a little slight leaking from the cord. Dr. Morse saw him with me and found what he considered a large, hard spleen, and a questionable enlargement of the liver.

(Dr. Morse reported this case in an article called "Jaundice of the New Born" in the BOSTON MEDICAL AND SURGICAL JOURNAL, February 24, 1910.) I take the liberty of quoting somewhat extensively from his report.

He was deeply jaundiced. There was a slight tinge of cyanosis in the face. The abdomen was noticeably large, especially in the upper portion. The superficial abdominal veins were large, especially in the upper half. The liver was felt somewhat indistinctly, running from the anterior superior spine just above the naval, and under the ribs in the left nipple line. The spleen was palpable 3 or 4 cm. below the costal border. The edge was sharp, the consistency firm. The examination was otherwise negative.

The temperature dropped to normal after two or three days and remained there. The jaundice diminished a little, but slight cyanosis continued. The size of the liver remained unchanged, but the spleen diminished a little in size. The urine after the first day or two stained the napkins yellow, but, unfortunately, was not examined as to the presence or absence of bile. The baby was breast fed and seldom vomited. It never had diarrhea. The movements were never clay-colored. They were usually yellow, sometimes brownish, at other times greenish. They at all times showed a large excess of fat in one or another form. They were examined twice for the bile with nitric acid. In one instance the test was negative, in the other questionable. This test is, however, not a very reliable one. The contents of the small intestine at the autopsy showed the presence of bile by the iodine test. Ecchymoses appeared when the baby was nine days old and a few days later bleeding from the mouth and nose began. The loss of blood, however, was not great. The general condition steadily failed and the baby died July 9, when twenty days old.

Autopsy by Dr. Rhea. Except for jaundice and a few ecchymoses, nothing abnormal was found except in the liver and spleen. The spleen weighed 13 gm. (normal, 7.7 gm.). The surface was smooth, the pulp rather firm and dark red. The Malphigian bodies were just visible as grayish points.

Liver.—There was no evidence of obstruction of bile passages either from within or without. Bile was easily pressed from the common duct into the intestinal tract. The gall bladder contained a small amount of thick bile. The liver was very deeply stained with bile, and the markings were indistinct. It was somewhat firmer than normal and thin sections of it felt tough. Histologically, there was no evidence of cirrhosis, the sections showing jaundice without cirrhosis, the jaundice being of the obstructive type. The finer bile passages were, however, no smaller than normal and showed no evidence of obstruction. Cultures from the liver, both aerobic and anaerobic, were negative.

Feces taken from the upper part of the small intestine at the autopsy contained bile, as shown by the iodine test.

My examination of the patient in September, 1909, after this confinement, was as follows: Cervix felt hard; uterus was so far retroverted that it was impossible to reach the fundus bimanually. By November the scar on the left side of the cervix, running to the left vault of the vagina, had contracted sufficiently to form a very definite band, which appeared to prevent the cervix from going sufficiently backward to allow the fundus to come up to a normal position. A pessary was put in, which held the uterus only in what I call the axis of the vagina. As the patient was again pregnant this was all that was necessary to keep the uterus from becoming incarcerated below the promontory of the sacrum. Pregnancy was uneventful until within a few weeks of full term, when the patient began to grow larger, and it was perfectly obvious that there was a condition of hydramnios. The urine was at this time said to contain albumen, with nothing of any note in the sediment. For two weeks before labor started, uterine contractions came intermittently off and on. Labor really started on June 24, 1910, and when I saw her the os was fully dilated with the membranes ruptured. Low forceps were applied, and the head and arms of the baby were easily delivered, but it was impossible to extract the abdomen until it had been tapped and a clear fluid allowed to run out. The extraction then was easy. The placenta was large and thick, and rather soft, with deep furroughs through it. The convalescence was uneventful.

The autopsy was performed by Dr. Rhea, in a very thorough manner. Organs were examined and nothing abnormal found. There was fluid in the abdominal cavity. The umbilical cord was large and contained three twists. The blood vessels of the cord were patent. There were no thrombi at the point where the twists were present. It would, therefore, seem that the circulation easily passed along. The placenta was large, weighing 800 grams. There were no infarcts and no areas of degeneration in it. Tissue was friable and contained a large amount of blood and serum. The anatomical diagnosis was:—

Fluid in the abdomen and twisted umbilical cord. In other words, no cause for the ascites was found. The liver in this baby was normal, as well as the bile passage.

In August of the same year, some six weeks after the baby was born, the vaginal examination showed a condition like that before she became pregnant the last time. In other words, the band on the left side of the vagina through the cervix held the cervix in such a way that it was impossible to put the fundus into its ordinary normal position. A pessary, however, was put in place to prevent the uterus from becoming any more retroverted.

Being very anxious for more children she was seen by Dr. Reynolds in consultation, and it was decided to divide the band in order that the uterus might be replaced. It was thought best to do nothing to the uterus itself in way of shortening of the round ligaments or ventral suspension. In October of that year she was, therefore, operated upon, and the band divided, and the mucous membrane of the vagina sutured over the incision in the band. Division of the band allowed the uterus to be placed in good position. The tears in the cervix and perineum were at the same time repaired. Convalescence from this operation was uneventful. She then developed an acute sacro-iliac joint, and was treated by Dr. Dane. By March, 1911, it was found

that the uterus was retroverted again. It was thought best, therefore, to do a more radical operation on the band and to replace the uterus. Therefore in May, 1911, a plastic was done in the vagina, doing away with the band as much as possible, and a Mayo's operation on the round ligaments. The perineum was also snugged up, as the first operation had left a slight cystocele. Convalescence from this operation while she was in the hospital was surgically satisfactory. When she got home, however, she developed a pyelitis, which persisted off and on during the following summer. The result of the operation was satisfactory, and the uterus stayed forward where it belonged, and the band was no longer tense.

Early in 1912 she again became pregnant. The pregnancy appeared to follow a perfectly normal course until late in October, when the patient thought that she began to grow quickly larger. As far, however, as I could determine there was nothing abnormal with the mother or the baby, except that I was unable, except on one occasion, to hear any fetal heart.

Inasmuch as the parents wished to take no chances whatsoever with this baby, or to leave undone the repair work, it was determined to do a Cesarean section. I heard a fetal heart about two weeks before labor, and a week before the Cesarean section was done I heard a placental souffle, but no fetal heart. I questioned somewhat in my own mind whether the baby was alive or not. This question, however, did not appear to me to alter the method of delivery in the least. Therefore, as soon as there was a suggestion of a labor pain, a Cesarean was done. The baby was found mascerated with ascites. The placenta was thick, soft and friable. There was nothing abnormal to be seen about the uterus, tubes, or ovaries. An autopsy was not performed on this baby. Immediately following the Cesarean the patient flowed normally for about six hours; after that there was scarcely any flow. Severe after-pains and a uterus which seemed to be getting larger, seemed to me to warrant the passage of a curette into the uterus to be sure that the cervix was not blocked. A number of clots were removed. The patient after that flowed scarcely any for several days and then flowed normally, convalescence being uneventful.

The interesting question to the doctor as well as to the patient is, what is the matter which causes these congenital abnormalities. The autopsies on the babies have thrown no light on the facts. The parents have had no specific disease, and the fact that the first child was a normal baby and has developed into a well child seems to throw out any question of syphilis. It is true no Wassermann reaction has been taken, partly because the history of the misfortunes began before Wassermanns were being done, and now it seems scarcely worth while. The mother comes from a family of eight children. One sister has been pregnant only once. The baby was lost during delivery. She has never been pregnant again. Another sister has had one child and is now pregnant for the second time. Another sister, whose periods have always been very irregular, is now pregnant. There appears to be nothing in the history on the father's side to throw any light on the matter.

In a few words let me summarize the case:—

1. Pregnancy, normal baby.
2. Pregnancy, miscarriage.
3. Pregnancy, baby with congenital jaundice.
4. Pregnancy, baby with ascites.
5. Pregnancy, baby with ascites.

Medical Progress.

REPORT OF PROGRESS IN ORTHOPEDIC SURGERY.

Tuberculosis.—Arthritis.—Paralysis: Infantile, Spastic, and Obstetrical.—Congenital Dislocation of the Hip.—Foot Conditions.—Rickets and Syphilis—Bursae.—Muscle Atrophy. — Tendon and Muscle Surgery.—Joint Surgery.—Bone Surgery.—The Regeneration of Bone.—Fractures.

BY ROBERT B. OSGOOD, M.D.; ROBERT SOUTTER, M.D.; HERMANN BUCHOLZ, M.D.; MURRAY S. DANFORTH, M.D.; H. C. LOW, M.D.

TUBERCULOSIS.

Dresel reports no noticeable improvement in surgical tuberculosis from the treatment with Koch's old tuberculin. Stern concludes that subcutaneous injection of Koch's old tuberculin is the most reliable diagnostic test for bone or joint tuberculosis. He warns against the danger of too large an initial dose. Our own practice is to start with children with 1-100 of a mg., increasing it to 1-10, 1, and 3; in adults with 1-10 of a mg., increasing it to 1, 3 and 5, or even 10.

Brackett for over two years has been employing a four per cent. iodoform olive oil solution in cases of tuberculosis of the knee joint in which no bone lesion was demonstrable either by the x-ray or at operation. Arthrotomy has been performed in all cases and tissue removed for pathologic examination. Emphasis is placed on the necessity of avoiding any traumatism of the synovial cavity, except for gently breaking up adhesions with the gloved finger. The capsule is closed except for a small space in the centre of the incision, through which the nozzle of a large glass syringe is inserted. A special mattress suture is then placed and drawn tight about the nozzle. The oil is then injected under tension, this being in Brackett's opinion very important, and the capsule closed tight. No weight bearing is allowed for six months. Several subsequent injections are made at intervals of two to four months, depending upon the symptoms and signs. Large quantities of oil have been found at operation in joints two months after the initial injection. He feels it is too early for a positive statement of the value of the method, but is greatly encouraged at the

subsequent course of many of the cases. None have shown untoward results from the oil.

Heliotherapy.

The best results are reported by Rollier at Leysin, which is very high (4000 ft.). As a rule Rollier does not use plaster casts or braces, but carries out careful traction in recumbency. He begins with a five-minute direct exposure to the sun's rays, and increases it up to three hours. The whole body except the head is exposed. On cloudy days certain of the patients are treated with Finsen light. He has convinced many of the most prominent German surgeons that operative procedures are not necessary, Bardenheuer of Cologne sent him five very unfavorable cases, in which sinuses had persisted in spite of repeated operations. After a few months at Leysin all sinuses were closed.

Armand-Delille is enthusiastic over Rollier's results at Leysin.

De Quervan and Witmer report 546 cases with different localizations, and believe heliotherapy has been of benefit in all but 23. Austin believes that altitude is important in heliotherapy, pointing out the fact that 25 to 30% of the efficiency of the sun's rays is lost at sea level and only 6% is lost at the top of Mt. Blanc. Spitzmueller and Peterka have observed no difference in the behavior of tubercular patients treated in the open air and in those "exposed frequently" to sunlight.

Wilms in Heidelberg and Lange in Munich have used Roentgen rays in the treatment of tubercular sinuses and believe that they have seen very beneficial results and have observed closure in a considerable number of cases which had not yielded to other methods, including Beck's paste.

Blanchard, in an article entitled, "Passing of Bismuth Paste," reports 100 cases of the use of Beck's paste and 152 with a paste of his own made of white wax and vaseline. He does not inject in primary new opened sinuses, nor when the x-ray shows sequestra. He believes in not obstructing necessary drainage, and uses the paste only when the discharge is serous.

Bone Plastic Operations for Caries of the Spine.

Late results seem to show the value of the Hibbs and Albee operations in many cases of Pott's disease. Albee has modified his technic by the use of the motor saw, which greatly facilitates the removal of the tibial graft, and his operation is surely the simper of the two, and preserves the leverage of the spinous processes. Hibbs' operation seems, in his hands at least, to be productive of splendid results, and with a kyphos of considerable size, has the advantage of diminishing the apparent deformity, a cosmetic effect not to be lost sight of, especially in women.

Menne has been looking up the results of laminectomy for paraplegia in tuberculosis of the spine, and has collected 132 cases. He finds that 56% have been cured or improved and about 18% temporarily improved.

ARTHRITIS.

Senator reports three cases in which minor operations on the nose were followed within three or four days by an arthritis. This coincidence he believes to be significant in relation to the etiology of certain forms of arthritis.

Bering has observed eleven cases of acquired syphilitic joint disease. In ten cases the Wassermann was positive. In seven of the cases there was no other syphilitic manifestation. In nine cases the onset was slow and insidious, in two sudden and painful. The general symptoms were slight, and there was little interference with motion.

PARALYSIS—INFANTILE, SPASTIC, AND OBSTETRICAL.

In light of recent developments, the observations made by Reece in a clinical and epidemiological study of 224 cases of poliomyelitis in Devon and Cornwall, in England, are interesting. (1) The increased prevalence in hot weather. (2) The cases seemed to be grouped in a way consistent with case to case infection or possibly by way of insect carriers. (3) He believed that a healthy carrier might serve, and (4) there were apparently frequent abortive types which might infect.

Kling, Weinstedt, and Pettersson have succeeded in producing typical experimental poliomelitis from the filtered secretions of the mouth and nose of acute cases, obtained by syringing out the nares with salt solution. They have also transmitted the disease by injections of filtrations of the intestinal mucus, obtained by washing out the sigmoid after an enema. The injections were made into the peritoneal cavity and the sciatic nerve of monkeys.

At the Congress of Hygiene and Demography, Prof. Rosenau reported that he had succeeded in transmitting the disease to monkeys by the bite of the common stable fly (*Stomoxys Calcitrans*). Monkeys infected with poliomyelitis were exposed to the bite of the stable fly, and these flies were later allowed to bite healthy monkeys, who came down with typical poliomyelitis. These experiments were confirmed by Anderson and Frost, who succeeded in transmitting the disease to a third generation from the spinal cord of monkeys infected by the flies.

Flexner has reported the discovery of the virus in the nasopharyngeal secretions of apparently healthy persons. Washings of the nasopharynx were obtained from the mother and father of an acute case, and from these the disease was transmitted to monkeys and passed on to a third generation. These pieces of research have thrown much light on certain possible methods of transmission of poliomyelitis.

Delrez reports 51 cases in which the so-called Foerster's operation of division of the posterior nerve roots has been tried. There were four fatalities and four showed no improvement.

Twenty-three of thirty-one cases of Little's disease showed good result.

Hunkin reports 16 cases in which he has performed the Foerster operation, with one death in a hydrocephalic child. The time of the operation in his hands is forty minutes. This he considers an important factor in his low mortality. He has been favorably impressed with results.

Vulpius believes that only the most severe cases of Little's disease are suitable for this operation. Owing to the danger to life, he believes tenotomies should always be done first. He has observed the same favorable effects on the intelligence which has been noted after the Foerster operation, to have followed thorough tenotomies. He reports that an examination of the cases operated on by Stoffel's method of neurectomy has shown a recurrence in all cases.

Lange believes that many cases of shrinking of the anterior capsule of the shoulder joint from distortion following inflammation are mistaken for obstetrical paralysis. For this distortion, the patient is put in a plaster bed with a cast fixing the arm in 90° of abduction and marked outward rotation. This redressment is all that is necessary in children under two years. In older children Lange performs an osteotomy in the middle of the humerus and twists the peripheral fragment outward. In early cases of true obstetrical paralysis Lange believes in nerve freeing and repairing operations.

CONGENITAL DISLOCATION OF THE HIP.

Lange reports very favorable results from the use of Bradford's apparatus and of a modified special table of Weber's. Since the employment of these machines, he has seen no disturbances of the sciatic nerve, and he reports 90% of cures. The first cast is applied in 40° of abduction, marked inward rotation, and full extension in the hip and knee. This cast remains on without weight bearing for from two to three months. The second cast is applied in 20° abduction and the patient is allowed to bear weight.

In the last report of Progress in Orthopedic Surgery, we gave Dr. Bradford's views on this subject. This note from a famous German orthopedic surgeon is a striking confirmation of his opinion.

FOOT CONDITIONS.

Kellar has described an operation for hallux valgus, which as an army surgeon he has for many years performed and which has been extremely satisfactory as to relief and subsequent painless function. He aims to retain a portion of the head of the first metatarsal and especially the sesamoid area for weight bearing. After exposing the head he makes an oblique cut through the bone downward, forward, and outward (as regards the median line of the body). This removes the greater portion of the head and especially that portion on which the exostosis is most likely to occur.

Sever has called attention to the fact that apophysitis of the os calcis is (1) not an unusual condition; (2) it may occur from muscle strain in rapidly growing children; (3) it may occur from direct trauma, but less frequently and presenting the same clinical picture; (4) it never occurs after puberty; (5) with rest and protection an eventual cure in all cases.

RICKETS AND SYPHILIS.

The Wassermann reaction has revived the old question of the relation of lues to rickets. Caffarena reports a positive Wassermann reaction in 30% of twenty rachitic children and in some other member of the family in 40%. He has observed the rickets to improve under specific treatment and considers that his findings confirm Marfan's assumption of a causal relation between syphilis and rickets. Much more work needs to be done before we are prepared to accept as proven this relationship, but it would seem as if the question might be settled in a fairly satisfactory manner with the aid of the blood reactions and microscopic findings.

In a discriminating article, Fitzwilliams describes and illustrates the syphilitic bone lesions of childhood, pointing out the rarity of the supposedly common dactylitis and its occurrence in the phalanges near the ends and not in the centre of the shaft, as in tuberculosis. The common lesion of calcium deposit in or beneath the periosteum is rarely seen before four years and usually after six. He has noticed an occasional increase in the length of a syphilitic bone and a resulting asymmetry. The syphilitic osteomyelitis may closely resemble a sarcoma, especially if bone destruction goes on more rapidly than new bone formation takes place in a localized area. Fitzwilliams does not consider cranio tabes as always syphilitic, but as occurring in various marasmic conditions.

BURSAE.

Lance, in a valuable article on the lesions of the subacromial bursa and the rupture of the tendon of the supraspinatus, confirms Codman's investigations and is in entire accord with his ideas as to treatment.

MUSCLE ATROPHY.

Lovett reports cases of atrophy of muscle and bone resulting from joint disease, injury, and fixation. He calls attention to the characteristic x-ray signs of "pencilling" of the bony outline, due to thinning of the cortex and the atrophy of spongy and trabecular structure. He urges against rough and excessive massage, advising passive congestion, and active exercise, very slight at first, but followed by active, progressive use of the joint.

We have noted a punctate atrophy most commonly observed in the ends of the long bones and the small bones of the carpus and tarpus, which seems to have some neurotrophic origin in relation to a previous trauma, often surprisingly slight. Continued pain, usually out of proportion to the discoverable lesion, often accompanies this condition.

Luff and Zach have conducted an experimental research on the "Arthritic Atrophy of Muscles." They found that (1) irritative infections into a joint lead to a rapidly progressive atrophy involving all the muscles of the extremity. (2) Other procedures leading to inactivation, such as fixation or tenotomy, produced an equally rapid and intensive atrophy. (3) Unilateral posterior root section with or without simultaneous joint infection, produced slight inactivation atrophy. They conclude that experimental arthritic atrophies are explicable by inactivity.

TENDON AND MUSCLE SURGERY.

Putti believes that one of the causes for unfavorable and delayed results in tendon transplantation is the long continued immobilization following the operation with its accompanying muscle atrophy and the adhesions in the tissues through which the tendons have been passed. He has sought to obviate this difficulty by fastening the tendon so securely that no subsequent immobilization is necessary. This he accomplishes by passing the tendon all the way round the bone into which it is to be inserted, and sewing it to itself. If it is a tarsal bone he makes two channels in the bone and passes the tendon down through one and up through the other. In one of his cases, the patient began to walk in fifteen days after the operation.

Hunkin reports "An Improved Method for Treating Claw Foot." He first corrects the equinus and maintains the foot in over correction during and after the operation. He next divides the tendon of the tibialis posticus at its insertion and withdraws it through an opening near the origin of the muscle. Then making a new channel for it beneath the annular ligament he secures it subperiosteally together with the tendon of the extensor hallucis in a hole drilled in the head of the first metatarsal. The tendons of the common extensor are in like manner secured in holes drilled in the heads of the metatarsals. One of the peroneal tendons is divided at its insertion, pulled out like the tendon of the tibialis posticus higher up on the leg, passed beneath the anterior annular ligament and fastened to the cuboid. Weight bearing is allowed in a brace after six weeks and muscle training is begun.

Galli has devised an ingenious method of correcting foot drop and other paralytic deformities by using the tendons of the paralyzed muscles as ligaments. He isolates the tendons, *e.g.* the anterior tibial, above the annular ligament, and making an incision down to the bone divides the periosteum longitudinally, and pushing it away on either side makes a small gutter in the bone. He then draws on the tendon until the foot is in the desired position, and placing it in the gutter, sutures the periosteum over and through it. If for dorasl flexion, the peroneal tendons are made dorsal flexors by displacing them in front of the external malleolus. Galli's excellent results have been observed and the method would seem to have certain obvious advantages over artificial silk ligaments in the foot.

Lexer employs the following operation for the cure of habitual luxations of the peroneal tendons. With a gouge a small furrow is made on the back side of the outer malleolus. Next a hole is drilled through that bone and the excised tendon of the palmaris longus taken from the hand is looped through so as to form a retaining noose about the peroneal tendon, which is thus held in place.

Since the end results of tendon transplantation are difficult to estimate at operation and success is not as universally attained as we might wish, Drew's report of the end results of transplantation of the peroneus brevis into the tibialis posticus for valgus following poliomyelitis is valuable. The cases were none of them operated on less than a year from the onset of the paralysis and in all of them a varus developed within two years of the operation. The varus was not entirely corrected by the separation of the peroneus brevis from the posterior tibial.

Willemer has examined the end results of twenty-four cases of torticollis operated on at Mueller's clinic in Rostock. Twenty-two of the twenty-four were operated on by the method of von Mickulicz, *i.e.* partial excision of the affected sternomastoid. These had no systematic after-treatment by apparatus or exericses, and the results were uniformly good as regards function, cosmetic effect, and correction of the deformity. The results were less good in the two cases in which tenotomy alone was performed. The results of thorough tenotomy through an open incision where a careful after treatment with braces and exercises has followed are, in the congenital type, in our experience, entirely satisfactory.

JOINT SURGERY.

Short reports the end results of forty-one operations for internal derangements of the knee joint. In the torn and very loose cartilages the results of removal were almost uniformly excellent. As these results are in accord with our own observations we believe that in a frequently recurring slip of the cartilage threatening to "throw" the patient perhaps in dangerous situations the risk of the carefully performed operation is less than that from the possible accidents of slipping.

Payr has operated upon twelve stiff knee joints. Five cases which he believes he did with

insufficient technic have become stiff again. Four cases are still under treatment. Three cases show good results with freedom of motion of 90, 130, and 140 degrees. He says nothing concerning the lateral mobility of the joints.

Lorenz, in an article on arthrodesis and arthrolysis, advises against arthrodesis in children. He believes that the ankle and shoulder are the joints of choice. As regards arthroplastic operations he believes that they never should be undertaken on old tuberculous or osteomyelitic joints because of the danger of recurrence. He reviews the results thus far, and while hoping for better results in the future, he emphasizes the advantages of stiff, stable, painless joints, over mobile, unstable, painful ones. He thinks that the elbow and the jaw are the only joints which should be subjected to these operations.

We feel that the technic of these arthroplastic operations is still too imperfectly worked out to offer sure success in any joint. The occasional good results in the knee and hip seem to us to warrant their trial in at least all cases of double ankylosis. The results in the elbow and the jaw are much more uniformly good.

Natzler reports the case of a teamster of 54, unable to work because of an hypertrophic arthritis of both hips. An excision of both femoral heads has allowed him to return to his former occupation. A second case had a similar good result.

Baer has excised a part or the whole of the femoral head in 18 cases and placed the neck in the acetabulum. The results have been almost uniformly good as to freedom from pain and betterment of function.

We believe this operation should be carefully considered in all cases of painful hypertrophic arthritis of the hip.

BONE SURGERY.

Well illustrated and valuable articles on the surgery of bones, joints, and tendons, by Murphy have appeared and do not lend themselves to abstract. It is clear that the field of transplantation of bone has been greatly widened and many conditions heretofore considered beyond the pale of surgery may be safely approached by those who, by experimental and long technical training have fitted themselves for these operations. We feel that much harm may be done by too general attempts to attain the reported excellent results and that *primum non nocere* is still a chief concern of surgery.

Putti reports three interesting cases of bone cyst. In one, operative interference resulted in a return to normal conditions. In the other two operative interference was refused, and in both, although in one a spontaneous fracture had occurred, the cysts disappeared spontaneously and were replaced by normal bone. Putti also draws attention to the fact that the surgical treatment of these bone cysts need not be radical like the treatment of malignant tumors. Further, that fractures through a cyst may heal well and that the fracture itself, through giving vent to the contents of a cyst, may aid in the healing of the primary lesion.

Bloodgood, in a series of 53 cases of giant celled sarcoma, reports that he has been unable to find a single case of metastasis, and that, although certain ones have required a second operation, all have been cured. He emphasizes the importance of the relation of trauma, and makes a plea for x-ray examination in all cases where symptoms from an injury do not quickly subside. Early recognition will prevent the necessity for amputation or mutilating operations. He employs Coley's serum in all inoperable cases and before and after operation in all very malignant types of sarcoma, but he feels there is no more reason for its employment in the giant cell type than in a lipoma or an exostosis. After curetting out the cavity he disinfects with pure carbolic followed by alcohol. If there is no "splinting" bone, he transplants bone directly into the cavity after curetting.

THE REGENERATION OF BONE.

Buedinger, in a careful paper based on experimental research, concludes that "Wolff's law is justified, but that at present we are neither able to explain the real nature of the changes nor calculate the influence of weight bearing strains."

Trinci believes that the ability of the periosteum to regenerate bone is slight. His experiments tended to show that pedunculated flaps have greater vitality than free flaps, and that the formation of bone tissue is induced either by a thin layer of bone tissue attached to the periosteum or by a hematoma beneath. In case of the absence of both no bone formation can be expected. He advises against a simple periosteum transplant in cases of bony defects of large size.

Galli has been able to confirm almost completely MacEwen's observations on osteogenesis, and believes that the periosteum alone is unable to form new bone. Many of his experiments seem to show that growth takes place from the bone cells themselves and not from the periosteum. If MacEwen's experiments can be repeated it would seem as if we must change our conception of the importance of the periosteum in new bone formation.

FRACTURES.

Putti continues to report excellent results in fresh fractures of the lower leg from traction applied by means of a nail driven through the os calcis. He limits its use to (1) those cases in which continuous traction by other methods has not given a satisfactory result; (2) cases which on account of their gravity or special clinical type presuppose that other methods will be unsuccessful; (3) compound fractures in

which traction by the nail is the only method that will allow proper treatment of the accompanying wounds. During the period of traction the extremity is kept in a position of semi-flexion of the hip and knee.

Michaelis believes that there is danger from the use of this nail extension, chiefly from secondary infection, especially if the nail is left in too long, and reports two cases of long continued suppuration from its use. His indications for its use in the main coincide with those of Putti, given above.

P. Mauclaire and Burnier have found in the literature 98 cases of the so-called Kuemmel-Verneuil's disease and report two cases of their own of this tardy traumatic deformity of the spine. The symptoms coming on from two months to a year after the accident, are repetitions of the initial discomfort following the traumata, chiefly falls from ladders, etc. These consist of pain, radiating to the costal spaces, the abdomen, and legs, with sometimes exaggeration of the reflexes, paresis of certain groups, and muscle atrophy. A large well rounded kyphos develops. These are evidently the cases grouped by Leri under the heading of traumatic kyphosis and of the von Bechterew type. The advocated treatment is fixation as in caries of the spine. The etiology and pathology is not to our minds fully explained, and the danger of confusion with certain atypical cases of Pott's disease and hypertrophic arthritis is evident, but there is surely a clinical group of this sort, whether we consider them as unrecognized fractures or not.

Gangolphe is convinced that the so-called fractures of the epiphysis in the hip joint associated with coxa vara are due to disturbances of growth at the epiphyseal line. He reports a case of this separation of the epiphysis on one side and at a later date the development of a coxa vara on the other side, which never went on to epiphyseal fracture, owing to its early recognition and immobilization.

We have for a long time felt that this form of coxa vara and epiphyseal separation represented a pathologic condition of the bone growth, and that special trauma played a small part in its production. The type of adolescent in whom these lesions occur, fat, with small genitalia, is fairly consistent and not difficult to recognize. Whether these adolescent rickets have the same etiology as the infantile variety we do not yet know.

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AMERICAN SOCIETY OF TROPICAL MEDICINE.

NINTH ANNUAL MEETING, ATLANTIC CITY, N. J., JUNE 3, 1912.

(Concluded from page 433.)

THE PUBLIC HEALTH PROBLEMS IN CONNECTION WITH BERIBERI.

DR. R. H. CREEL, Ellis Island: In the United States beriberi has been confined to sporadic outbreaks in various parts of the country during the last twenty years. There is no evidence of any increase, and in this country the disease has not assumed public health proportions. The origin of beriberi is not known, but the great epidemicity of the disease during the last thirty years has been coincident with the increased output of steam milled or polished rice. Beriberi in Manila has steadily increased. In the fiscal year 1903-4 there were 318 deaths from this disease. A steady yearly increase in its mortality resulted in 1480 deaths in 1910-11. In the period 1903-1911, twice as many deaths resulted from beriberi as from cholera, in Manila. The disease has been practically suppressed in goverentment controlled institutions in the Philippines, but in the population at large beriberi is on the marked increase, both in Manila and in the Provinces. The mortality incidence of the year 1910-1911 for the archipelago was 55 per 100,000; this in contrast to our admittedly disgraceful typhoid rate of 22 deaths per 100,000 in the United States. The prevention of beriberi lies in government control of the milling process of rice, enforcing an undermilled product, with a standard of .4% P_2O_5 requirement. A rice law similar to the corn law of Italy would enforce this requirement on all rice imported or milled locally. Rice for sale in places of retail or wholesale would have to come up to this standard. A fine and confiscation of polished rice, whether imported or for sale locally, would undoubtedly result in the desired quality of undermilled rice in the markets. The culture of rice having a white pericarp instead of red, will materially reduce prejudice against unpolished rice. The results obtained in a practical way among the scouts and in the government institutions in the Philippines, basing the measures on the assumption of polished rice as the cause of beriberi would seem to justify the enactment of a rice law.

DISCUSSION ON THE BERIBERI PAPERS.

DR. WILBUR, San Francisco. I feel that we must make a distinction between polyneuritis due to inanition and that due to infectious micro-organisms. It is particularly difficult for me to understand why on ship board a number of sailors and officers should all come down, within the space of a few days, with acute symptoms of beriberi, and even die within a day or two. Certainly one would expect if it is entirely due to food, that we would get much more scattered cases, rather than epidemic.

DR. JOHN M. SWAN, Canton, China. In the province of Canton, and more particularly in Canton, practically outside of the zone where beriberi is very prevalent, we had, in 1907, a very severe outbreak of beriberi in the military camps, east of the city. There were about 6000 troups, and during that spring season there were about 600 cases of beriberi, with a mortality of something like 20%. It has seemed to me, from my observations and experience at the hospital, that the use of polished rice is a pre-eminent factor in the etiology of beriberi. It occurs to me that I might give you the consensus of opinion taken in this connection by the Far Eastern Association of Tropical Medicine, a meeting of which was held in Hong Kong in February last, just before I left. The results of the work submitted to this meeting of the Far Eastern Association of Tropical Medicine have been such that we feel there is little question now as to the causation of beriberi. The question was whether it would be practicable or possible to overcome the difficulties which would arise in recommending laws or taxation, or the adoption of such measures by the different governments, as would control the product of this polished rice. Years ago we were very careful in handling these cases of beriberi. We supposed then that they were contagious; but in recent years, owing to more careful investigations, we have not isolated these cases, and we have never seen any indication of contagion.

DR. W. H. JEFFREYS, Shanghai, China: It is hard to accept the polished rice theory because of the fact that it does appear, apparently, epidemically. I am entirely convinced that the epidemicity is due to the fact of the use of certain brands of rice. Shanghai and Hong Kong are the places where beriberi is most pronounced in China. In St. Luke s Hospital we have paid a very high price for rice and have had a great deal of beriberi. Before the theory was established, we used to add dried beans to the diet as a regular thing, and that kept away beriberi more or less. I think the reason is self-evident. With the removal of the beans and a diet of white rice, beriberi used to break out almost like an epidemic in the ward.

DR. JUDSON DALAND, Philadelphia: Ten years ago none of us accepted the actual cause of this disease, but even then the relation of beriberi to rice was referred to. The majority then considered it of bacterial origin. We want to be very careful regarding diagnosis from the standpoint of etiology. At the same time, the epidemic phase, I do not think, is to be strongly considered in the face of the evidence before us. The polished rice theory seems to be conclusive. Recent experiments show undoubetdly that animals fed on polished rice lose weight, become paralyzed, and eventually die. If unpolished rice and other articles of diet are added, this is prevented. One of the most interesting things in the demonstration is that when you remove from rice certain substances usually connected therewith, the patient shows symptoms of polyneuritis. When you add these elements to the rice, the patient recovers from the symptoms. It seems to be connected in some way with metabolism. If in beriberi we have an example of an individual whose food supply depends entirely upon the carbohydrates contained in rice, and from it you subtract phosphorous, in consequence of which certain unknown changes take place in his body, by which we have polyneuritis, we have a condition closely approaching another which brings about neuritis, namely, inanition. Rice which has less than .4% of pentoxide should be looked upon as a prejudice to health, and those disposing of such rice should be dealth with accordingly.

DR. HENRY J. NICHOLS, Washington, D. C.: Dr. Wellman's experiment brought out one interesting point about this same phenomena—that this condition can be produced by the feeding of corn starch or molasses or cane sugar. The incubation period of these symptoms of paralysis in the chicken is much shorter than in man. Man will die of starvation before these symptoms are developed. Either on a diet of polished rice, or no diet at all, you have this same lack of phosphorous, or whatever it is. Cane sugar, or a thousand other things, might give the same results. I have no sympathy with Dr. Wilbur's suggestion as to the infectious theory. It seems to me that beriberi, as we have it in the East, is established as fully in connection with polished rice as scurvy is with the lack of fresh vegetables. I think we are only adding to the problem to keep harping on the infectious theory.

DR. R. H. CREEL, Ellis Island: In the Java possessions, containing a quarter of a million people, among whom there were 90,000 persons fed entirely on red rice, there were only nine cases of beriberi—one to every 10,000. Whereas in those persons fed on white rice there were 280 per every 10,000. It seems to me that this is most conclusive.

DR. JOHN M. SWAN, Rochester: In regard to the infectious nature of the disease, from my reading I have never been convinced of it. Many statements have been published in which beriberi and pellagra are said to be similar, but it seems to me that beriberi is more like scurvy.

DR. CREIGHTON WELLMAN, New Orleans: The fact that we have been able to reproduce a perfectly identical condition by feeding our fowls on cane sugar and starch, is possibly more significant than simply being a starvation, although I am very strongly inclined at present to the opinion that this polyneuritis galvanarium is likely an inanition condition, and I am not entirely convinced that it has anything to do with beriberi. The whole condition of beriberi, in my mind, is rather more unsettled than it was when we began these experiments. While it is true that the most of the evidence gotten together is in favor of the rice theory, still I would disagree with Dr. Nichols when he says we have no right to consider any other theory. Some facts should really be explained. For instance, I was asked to investigate an epidemic of beriberi in the Islands of the Gulf of Guam, where there were 30,000 cases. In some cases where no rice was eaten, I found a disease clinically undistinguishable from beriberi. In other cases, where what appeared to be polished rice was eaten, beriberi was much less prevalent than it was in the vicinity just referred to. Again, I think some of the anomalies of geographical seasonable distribution are not fully explained. The attacking of young, strong adults, too, is a question which is not clear in my mind. So far as the phosphorous contents of the rice is concerned, there are also objections to that, for instance, the so-called infantile beriberi. If one thinks physiologically one would expect these children to take the phosphorous out of their bones. The result would be very easy to see in the children.

DR. CREEL: If we are going to recognize the polished rice as causing beriberi, it is more logical to enact a rice law than it is to tax the rice.

SOME INVESTIGATIONS IN LEPROSY.

DR. CREIGHTON WELLMAN, New Orleans: I became interested in the therapy of leprosy several years ago, and I tried salvarsan in a series of cases of leprosy in California. The clinical findings I presented at our last meeting. I was not oversanguine about the results there obtained, but later I was interested to find—from the histo-biology of the cases—that something more than clinical amelioration, which might be attributed to the clinical effect of arsenic, might be demonstrated. Salvarsan is of great value in the early treatment of the disease. During the past nine months Dr. Duval and myself have been working on the cultivation of the bacillus of leprosy. We have recently come to the conclusion that the chromogenic acid—fast bacillus—first described by Clegg, is to be regarded as the etiological factor in leprosy. We have isolated from a leprous lesion a slow-growing, non-chromogenic bacillus, without the polymorphism of the Clegg bacillus, which, with two exceptions, can hardly be told from tuberculosis. First, it will not grow except upon a special medium, either in the beginning of isolation or in later transplants. It cannot be coaxed into saphrophytic media, but can grow only on special media.

This culture has been cultivated on a medium devised by myself. It is made by taking human placenta and infusing at refrigerator temperature for two hours. Human placenta at term is very rich in amido-acids before putrefaction has taken place. You have in this media a very close reproduction of the habitat of the leprous bacillus in infected tissue. We have aso succeeded in isolating pure cultures of tuberculosis from lesions, from sputum, from urine and from cerebro-spinal fluid within 72 hours. We have found placenta media very valuable. We can isolate, not only acid-fast organisms from leprosy, but the bacillus tuberculosis from lesions and exudates, and we believe it will prove of great value in bacteriology.

DISCUSSION.

Dr. Judson Daland, Philadelphia: If it turns out to be true that Dr. Wellman has found a bacillus that is the etiological factor in leprosy, this will be a remarkable and extraordinary step forward in our study of that disease. We are all acquainted with his remarkable co-worker, Dr. Duval. Therefore any statement that he makes is of interest to those who are working along this line.

Dr. Wellman: By cross reactions done carefully and in great detail we believe that the non-chromogenic slow-grower and the Clegg chromogenic rapid-grower are very distinct from each other. We have tried to coax non-chromogenic onto other media. When isolated on this placenta media it grows luxuriantly, but if you dilute the placenta agar with nutrient agar, it stops growing. I do not say that the Clegg bacillus has nothing to do with leprosy, nor that the slow-growing non-chromogenic bacillus is the only factor, but we hope, by the next meeting, to complete our investigation so as to give you something more definite.

GANGOSA.

Dr. G. L. Angeny, Philadelphia: Gangosa has been prevalent in Guam for more than a century. It is destructive, showing ulcerations of the oral and nasal mucous membranes. It begins as ulcer of the nose, mouth or pharyngeal wall, with no pain or other symptom. The patient is not aware of its existence until the ulcer has reached considerable size. The process may advance until the bone is destroyed. The duration varies from a few months to many years. The general tendency is to recovery. Death is usually due to some intercurrent disease. The etiology is obscure. There are three theories: (1) Distinct entity; (2) tertiary manifestation of yaws; (3) hereditary syphilis. The entity theory is reached by exclusion. The theory that it is a tertiary manifestation of yaws has not been established. There is no evidence that it is due to syphilis or that it is transmitted by the sexual relation. The population of Guam is approximately 11,000, and 4% have gangosa. The administration of iodides and mercury is reported by one writer with 25% of cures. Mercury succin, in a large number of cases, produced no result.

DISCUSSION.

Dr. Wellman: In California I had an opportunity to study some half dozen cases of what had been diagnosed as gangosa in the navy hospital at Mare Island. All the cases which I saw looked very much like lupus. There was one case, however, which I remember, in which the involvement of the hard palate was puzzling. At this time of which I speak, Dr. Garger had isolated a bacillus which he believed to be closely identified with gangosa, and by the use of autogenous vaccines he had effected an apparent cure of one or two of the worst cases. Cases which he treated with this autogenous vaccine had been treated for syphilis and grown steadily worse. The bacillus which Dr. Garger isolated was a diphtheroid. I was never able to draw any conclusion from my study of the bacillus, which extended over one summer, and I had no experience with the autogenous vaccines which had apparently secured such brilliant results with Dr. Garger. The fact that these diphtheroids are so easily isolated from any sore throat makes it probable that this bacillus of Garger is the etiological factor.

A MALARIAL HOTBED WITHIN SIGHT OF THE NATIONAL CAPITAL.

Dr. Thomas W. Jackson, Fort Washington, Md.: I should like to call attention to the continued existence of malaria within fifteen miles of Washington. The disease continues to prevail annually, but in a greatly diminished degree, owing to improved sanitary condition and the extermination of the mosquito. The medical phases are: (1) Advisability of quinine prophylaxis; (2) the duration of the treatment period; (3) the cause and percentage of recurrences; (4) the management of civilian cases occurring near military stations; (5) anti-mosquito. Quinine prophylaxis has been disappointing; practically a failure. It is a false and dangerous doctrine.

DISCUSSION.

Dr. Damaso Rivas, Philadelphia: My experience has been that it is very difficult to get patients to take the quinine faithfully, and that it is most efficacious to give it one hour after the temperature begins to fall. We know that at that time the parasite is very young, and is apt to take more quinine then than he will later. The doses are about ½ gr. to 7½ gr., always diluted with hydrochloric acid. In regard to the recurrences of malaria, unquestionably these are attributable to bad management, that is, giving quinine at the wrong time.

Dr. William Kraus, Memphis: About a year ago I had a patient referred for the administration of salvarsan. On the day he arrived he had a chill. The result of the salvarsan was partial disintegration of rings—pseudo-autumnal form—and no subsequent paroxysm of this same fever. On the day following, however, the malaria became more active, but coincident with that there was the disappearance of parasites and since that time the patient has not had any further recurrence. It is possible that this remedy may have a differential effect, which is the very thing we have been unable to obtain with quinine.

Dr. Charles Craig, Washington, D. C.: I am surprised that Dr. Jackson took so strong a stand about quinine prophylaxis. I do not think that it can be compared for a moment with mosquito extermination. Certainly, however, no one can doubt for a moment that quinine prophylaxis has had a great deal to do with the eradication of malaria. I believe Dr. Jackson's experience at Fort Washington is unfortunate. I had an experience at Fort

Stoltzenburg which was the opposite. Stoltzenburg is supposed to have the worst record for malaria of any post in the United States Army. We tried every way we could to exterminate malaria, and finally started on a thorough quinine prophylaxis. We had the patients come to the hospital twice a week, and made them take it in the presence of an officer. When we did that, the numerical ratio went down over 50%.

DR. JOHN M. SWAN, Rochester: I used to teach my students that it was necessary for them to administer quinine to their patients after their clinical recovery for at least two years. My reasons for teaching that was that I accepted the theory that the recurrences of relapses were due to parthenogenesis. There always seemed to me to be a parallel between this disease and another that I think is due to an animal parasite, namely, syphilis. We know well that after the clinical manifestations of syphilis are gotten rid of, it is necessary to continue treatment for a long period to prevent symptoms. I believe the administration of quinine will probably prevent relapses. Referring to the diagnosis of unique carriers by means of the microscope, I would like to recall to your mind a case I reported in 1910. A patient who reported being perfectly well, with a normal temperature and a normal picture in regard to red cells, differential leucocyte count, etc. In March, when there were no mosquitoes in the place, he had a case of a typical attack of malaria with the organisms in the blood. It is possible for a person with the parasites in the blood to present a perfectly normal blood picture until he relapses.

DR. JUDSON DALAND, Philadelphia: Two years ago I happened to have an opportunity of seeing a case which clinically had the same result as the one which Dr. Kraus reports.

DR. JOSEPH H. WHITE, President: I feel that proper prophylaxis demands not only the destruction of the mosquitoes and the destruction of the unique carriers, but also the use of quinine as a prophylaxis. Just one instance with regard to a unique carrier: Four years ago I was called up at midnight by a gentleman and asked if I would not go to a certain town where he thought he had found a case of yellow fever. I went, very much afraid of finding yellow fever, and looked the patient over carefully—I cannot say that he had malaria. I examined this man's blood for about an hour, taking two or three specimens, and got nothing. I went back and looked him over again, after being away two hours in the laboratory; found him with a rising temperature; took another specimen, and found organisms.

DR. JACKSON: I do not by any means condemn quinine prophylaxis generally, except that it could not be substituted for mosquito work. As to the results at Camp Stoltzenburg, I believe that where a certain procedure can be carried out effectively, year after year, anti-mosquito work is far more effective. The principal objection I have to the widespread, indiscriminate use of quinine is that it undoubtedly vitiated blood diagnosis. Under those conditions, you may frequently be badly put about for a diagnosis, when the quinine taken has been sufficient to drive the parasite from the peripheral circulation. As to the reaction, I do not think that any of us are in a position to lay down a dogmatic length of time over which medicine shall be given, but I think we often make the period too short. I have little fear of the drug quinine. I think we can use it, without fear of injury, over a long period of time. Usually our treatment is resumed and our blood researches are not kept up, and that is the very reason why we have recurrences year after year. I believe that the only guide we have is repeated examination of the blood.

The following resolutions were presented by Dr. Craig:

Resolved, That the American Society of Tropical Medicine endorse the creation of a United States Comission for the Study and Prevention of Malaria.

Resolved, further, That Congress be called upon to appropriate funds for this purpose. Seconded and carried.

DR. RIVAS showed some microscopic pictures of lesions of leprosy cells.

The following papers were read by title:

"Pellagra in Hawaii, Report of a Case," by DR. E. S. GOODHUE, of Honualoa.

"Ulcero-Membranous, or Vincent's Angina," by DR. ELMER S. TENNY, Zamboanga, Mindanao, Philippine Islands.

"Tuberculosis Amongst the United States Troops Serving in the Tropics," by DR. ISAAC W. BREWER, Fort Niagara, N. Y.

The following were elected as officers for the ensuing year: President, Dr. Edward R. Stitt, Washington, D. C.; First Vice-President, Dr. Richard P. Strong, Manila, P. I.; Second Vice-President, Dr. Creighton Wellman, New Orleans, La.; Secretary, John M. Swan, Rochester, N. Y.; Assistant Secretary, Dr. Allen J. Smith, Philadelphia, Pa.; Treasurer, Dr. C. Lincoln Furbush, Philadelphia, Pa.

The next meeting will be held in Washington, D. C., in May, 1913.

ESSEX SOUTH DISTRICT MEDICAL SOCIETY.

The regular meeting of the Essex South District Medical Society was held at the Hotel Seymour Lynn, on Thursday evening, March 13.

DR. FRANKLIN S. NEWELL addressed the Society on

THE INDICATIONS FOR CESAREAN OPERATION.

The speaker emphasized the importance of recognizing the probable necessity of operation before the onset of labor. The value and the methods of pelvic measurement were given, with recognition of their limitations, since all measurements must be of the false pelvis rather than of the diameters of the pelvic canal proper. Methods of examination and matters which must be considered in each patient in determining any decision for Cesarean operation were considered. Conditions practically forbidding or contra-indicating Cesarean operation were discussed.

In the discussion which followed, answering inquiry of Dr. Reed, Dr. Newell described the method and gave the results of tests which had been made of scar tissue following uterine section.

Answering inquiry of Dr. Bennett, the speaker gave in detail method of treating patients with eclampsia and contracted pelvis, presenting views of the most eminent obstetricians, and his own method of treatment, citing cases which showed different conditions. The value of careful observation of

blood pressure, following the delivery, and recourse in many instances to liberal bleeding was considered in detail.

Dr. Mark W. Richardson, Secretary of the State Board of Health, spoke on

THE CARE AND CONTROL OF TYPHOID.

The general decline of typhoid was shown in statistics. The willingness of the State Board to cooperate with physicians in diagnosis and limitation of typhoid was pointed out, and a new device, known as "The Ox-Bile Outfit," was exhibited. A test-tube of ox-bile, with cotton pledget on a glass rod, will be mailed, in a double carrier, upon application by any physician, and upon its return the State Board will make proper examination and report. Dr. Richardson dealt with carriers, discussed the value of urotropin, and the great difficulty of controlling carriers, particularly intestinal carriers. Prophylactic treatment was thoroughly dealt with, the experiences of the U. S. Army and of large hospitals in the treatment of its nursing staff, were described, and a vaccine outfit furnished by the State Board of Health exhibited.

In the subsequent discussion the legal rights of local Boards of Health in the control of carriers were presented and the immediate effects in typhoid inoculation described.

Book Reviews.

A Practical Treatise on Fractures and Dislocations. By Lewis A. Stimson, B.A., M.D., LL.D., (Yalen), Professor of Surgery in Cornell Medical College, New York; Consulting Surgeon to New York, Bellevue, St. John's and Christ Hospitals, Corresponding Member of the Sociètè de Chirugie, Paris. Seventh edition, revised and enlarged, with 459 illustrations and 39 plates in monotint. Lea and Febiger. 1912.

In the preface Dr. Stimson says: "The principal additions to this edition have been made in connection with the subject of treatment, especially in that of old dislocations, and in respect to the operative treatment of recent fractures. . . Three new sections on some fractures of small bones of the hand and foot, and one on fracture of the external tuberosity of the femur, have been added. More than one hundred new illustrations from photographs and skiagrams, have been added."

The book is now a well made volume of more than 900 pages. Type impression, paper and pictures are excellent; the illustrations as a rule are well chosen and helpful. The arrangement of the subject matter varies but little from previous volumes. It would seem that every variety known of fracture or dislocation receives detailed attention; as a reference manual, the book is especially valuable.

Dr. Stimson is a man of ripe age, wide experience and mature judgment. He has lived to see many methods of treatment strenuously advocated, enthusiastically adopted, modified, and often abandoned for cause. In spite of this, his advice is sane and progressive in questions of treatment in general and the operative treatment in particular. For instance, in relation to open treatment of fracture of patella, a popular and necessarily dangerous procedure, he says, "The general practitioner, and even the occasional surgeon, is not only justified in using a non-operative method, but he ought to do so." Stimson himself had operated for this condition 250 times up to 1909. He justly condemns permanent sutures, and all methods which require drilling the bone; allows his patients to leave the hospital with posterior splint, plaster and crutches in about two weeks; cuts the dressing down in the middle in front and has it removed at night after a month; and in less than three months expects 90° flexion and the abandonment of all apparatus. He has not had infection in any of these 250 knee joints.

In fracture of the neck of the femur, Whitman's correction and abduction method does not appeal to him, except possibly "in relatively young and robust patients with fracture at or near the base of the neck." though further on he seems to admit that traction produces abduction, and that this in moderation (30-40°) is good. Since Whitman deliberately produces abduction and maintains it without traction, it is not quite obvious why Whitman's method should not be worthy of careful trial, even in old patients.

As a whole the book is admirable. Bibliography is extensively noted; treatment is described in detail. He is distinctly opposed to open treatment of simple fractures, unless the indications for it are unmistakable, definite and compelling. The volume will continue to hold its place as an admirable classic.

Safeguarding the Special Senses. General Advice Regarding the Use and Preservation of the Eyes, Ears, Nose and Throat. By Henry O. Reik, M.D., formerly Associate in Ophthalmology and Otology in the Johns Hopkins Hospital, etc. pp. 123. Illustrated. Philadelphia: F. A. Davis Co., 1912.

Dr. Reik has undertaken a practical and useful task in presenting from the point of view of an expert certain facts regarding the special senses and the care of the organs subserving them. Such a book as this should find an especially useful place among the laity as well as in the profession. In fact, the simplicity of style is such that persons of small medical training would find it entirely understandable. As a means of prophylaxis of many common and at the outset trifling affections the small volume should find an acceptable place. An index adds to its value.

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THE DEATH OF QUEEN ELIZABETH AND OF KING JAMES THE FIRST.

DURING the current week occur the anniversaries of the death of two English sovereigns, Queen Elizabeth and her immediate successor, James I.

The last illness of good Queen Bess apparently began with a cold which she caught at London in January, 1603. Partly recovering, she went to Richmond; but in the latter part of February was again taken ill and from that time grew steadily worse until the end. Always noted for her independence and obstinacy, the queen was evidently a very unruly patient. She declined medical treatment and refused all food but manchet bread and succory pottage. Lady Southwell, one of the maids of honor in attendance upon her majesty, wrote in her diary:—

"She kept her bed 15 dayes, besides 3 daies she sat upon the stole, and one day, being pulled up by force, stood on her feet fifteen hours. Her Majesty understood that Secretaire Cecil had given forth that she was madd; and therefore in her sickness did manie times say to him, 'Cicell, know that I am not mad.' And, although manie reports by Cicell's meanes were spread how she was distracted, myself nor anie that weare about her could never perceive that her speeches soo well adapted proved for a distracted mind."

The queen became rapidly emaciated. Under date of March 19, 1603, Beaumont, the French ambassador to the court of St. James, wrote to his sovereign:—

"Queen Elizabeth had been very much indisposed for the last fourteen days, having scarcely slept at all during that period, and eaten much less than usual, being seized with such a restlessness that, although she had no decided fever, she felt a great heat in her stomach, which obliged her every moment to take something to abate it, and to prevent the phlegm, with which she was sometimes oppressed, from choking her."

Thus the dauntless old lady struggled on against her growing infirmity, finally lapsed into recurrent unconsciousness, and died in coma on March 24, 1603, in her seventieth year. Beaumont writes of her end:—

"The Queen was given up three days ago; she had lain long in a cold sweat, and had not spoken. Yesterday, and the day before, she began to rest, and found herself better, after having been greatly relieved by the bursting of a small swelling in her throat. She takes no medicine."

The actual cause of Elizabeth's death is unknown, as no autopsy was performed. From the rather meagre, lay clinical history of her case, however, it seems likely that she died of anile broncho-pneumonia, though she may well of course have had some deep-seated organic malignant disease. Surely not the least characteristic or heroic aspect of her career was the stubborn fight which the indomitable queen made against her unwelcome malady.

Elizabeth was immediately succeeded by her nephew, James VI of Scotland, whose life, like Pope's, seems to have been one long disease. He was popularly supposed to have derived his infirmities from the circumstances attending the pregnancy of his mother, Mary Queen of Scots. He was, in fact, a backward child, not learning to walk until his sixth year. He was suckled by a drunken wet nurse. He had adenoids, with the high palatal arch, narrow fauces and typical facies associated therewith. He was easily affected by cold and damp, subject to catarrh, always blowing his nose; and his lungs, says Sir Theodore Mayune, one of the royal physicians, "were often attacked by fluxion."

At an early age James lost all his teeth, from neglect, and thereafter formed the habit of bolting his food whole, which he did in inordinate quantities. Naturally he suffered much from biliousness, colic, flatulence, occasional jaundice, and habitual constipation, alternating with periods of diarrhea. He had hemorrhoids which bled almost daily. His legs, which were slender and poorly developed, were made still further unequal to the support of his large body by frequent attacks of arthritis.

King James was not only a glutton, but was also grossly intemperate in his use of alcoholic beverages. "In the matter of drink, he erred in

quantity, quality, frequency, time, and order. He drank beer, ale, Spanish wine, sweet French wine, white wine and muscatelle. He loved all sweet wines and hated all water and watery drinks." Naturally he suffered much from gravel, and sometimes passed friable calculi. He also had occasional hematuria. In view of these dietetic excesses, his famous diatribes against the use of tobacco seem all the more inconsistent.

Finally, on March 5, 1625, the king was seized with a so-called tertian ague. Evidently the diagnosis was in some doubt, for his physician, Lingard says, subsequently called the malady "gout in the stomach." James was as obstinate as Elizabeth in refusing medicine. Perhaps there may have been at their time a popular revulsion against the polypharmacy of the Tudor age, which may well have led Shakespeare to put in Macbeth's mouth the famous phrase, "Throw physic to the dogs, I'll none of it."

Whatever his malady, King James grew rapidly worse, and died on March 27, 1625, two hundred and eighty-eight years ago today. The manner of his death was as pious and full of godly edifying apophthegms as his life had been of excesses at the table. George Eglisham, one of the royal physicians, writes that before his death, "the King's body and head swelled above meassure, his haire with the skin of his head stuck to the pillow, his nailes became loose upon his fingers and toes." There was a rumor that he had been poisoned, but this seems quite unfounded; the manner of his life would surely account for the symptoms of his last sickness. He finally lapsed into coma, and "ceased upon the midnight without pain."

The autopsy was performed on March 29. Joseph Mead states that "when his body was opened by the physicians, they found his heart of an extraordinary bigness, all his vitalls sound, as also his head, which was very full of braines, but his blood was wonderfully tainted with melancholy, and the corruption thereof supposed the cause of his death."

Another quaint account of the autopsy is found in a letter from Mr. William Neve to Sir Thomas Hollandem:—

"The King's body was disbowelled, and his heart was found to be great but soft, his liver freshe as a young man's, one of his kidneys very good, but the other shrunke so little as they could hardly find it, wherein there was two stones. His lites and gall black; judged to proceed of melancholy. The semyture of his heade so stronge as they could hardly breake it open with a chesill and a sawe; and soe full of braynes as they could not, upon the openinge, keepe them from spilling; a great mark of his infinite judgement."

With this naif statement, and the knowledge of his clinical history as it has been given, it seems fair to conclude that James probably died in uremic coma from chronic cardio-renal disease. The items about his abundance of brains, and the admiration excited thereby, seem peculiarly amusing. Perhaps, taken in conjuction with the known facts about his habits of life, they may be held to justify the statement of his tutor, George Buchanan, that King James I was "the most learned fool in Europe."

EXTERMINATION OF THE RAT.

The idea of civic spring cleaning is in the air. A most important item in such housecleaning is rat extermination, for this pest, while occasioning an enormous economic loss to civilization, is a serious menace to health. A crusade against the rat is reported to be under way in Washington; the Housewives' Leagues of New York City is contemplating the like; and it is to be hoped the movement may become national. If things have not changed very materially in the Mississippi Valley since Mark Twain wrote "Huckleberry Finn," that region would seem in great need of an anti-rat campaign.

Besides householders, the Metropolitan Retail Grocers' Association, storekeepers, restaurant and hotel men, and tradesmen generally are anxious for rat riddance Mrs. Julian Heath, the President of the Housewives' League in New York, City describes the conditions of things in a single market, which is so overrun with rodents that dogs and cats have to be maintained for their destruction, else the rats would take entire possession of the market. "And of course it is not pleasant to know that the places from which our food comes are infested with rats and with other animals retained to drive them out." The League first sought to exterminate the store cat, which likes to sleep on sugar barrels or on vegetables; but the storekeeper declared he had to keep the cat for destroying the rat. The League believes both cat and rat should go, and that the ferret should do the cat's work. Housekeepers who keep their foodstuffs properly covered do not have rats.

It is really startling to consider how prolific

the rat is. Were it not for the law of the survival of the fittest, and that other law of nature by which sentient things are constantly preying on one another, the rat would within a few years make the globe absolutely uninhabitable for man. The female has three or four litters a year, beginning to breed when they are four or five months old. The average litter is ten, but it oftentimes numbers fourteen or more. It is consequently estimated that a single pair, breeding without check or life losses, three litters of ten a year, would soon have a progeny numbering upwards of twenty millions. The roof or Egyptian rat usually infests ships; and is more common along our coast, especially in the South. The brown rat is the inland pest, destroying more property than all other noxious animals combined. "If for each cow, horse, sheep and hog on the farm of the United States our farmers support one rat on grain, the toll levied on the cereals by these rodents would reach one hundred million dollars a year"; so states the Farmer's Bulletin 297 of the Departmen of Agriculture at Washington.

Both rats and mice are probably much more frequent disseminators of disease than is generally accounted. Rats seem to have been almost entirely responsible for the propagation of bubonic plague from port to port. "They have brought forth from their sunless and foul hiding places the germs of typhus and typhoid fever, and no doubt also of tuberculosis."

In Chicago stock yards hogs have been seen to catch and eat rats, and rats to devour the tainted, diseased flesh of the hog; there must in such circumstances be a mutual transference of trichonosis. Rodents, again, are very susceptible to hydrophobic infection; their bite would seem capable of transferring the rabies virus.

Rats may be destroyed by poison, traps, ferrets and fumigation. Barium carbonate and strychnine are the most useful poisons. Traps are very effective if persistently used; the "guillotine" or "breakback" trap, made entirely of metal, is perhaps the best. Ferrets and dogs are useful, but only when employed by persons experienced in handling them. In fumigation a wad of cotton saturated with carbon disulphide is pushed into the burrow, and the opening closed with soil to prevent the escape of gas. This method is, of course, not available in dwellings. Preparations containing hydrocyanic acid gas have been used, the result being loss of human life.

The rat is after all an indicator of unhygienic conditions, of filth and of putrescence; he is oftentimes, under civic conditions at least, one of nature's scavengers. Rats, unless they would starve, must necessarily desert houses properly constructed, well-drained and clean from the foundations, for places more congenial to their alimentary needs. In cities the careful screening of the entrance to sewers and the stopping of all holes in the floors and walls of houses should, in addition to the measures stated, form a part of the sanitary movement which seems now to be in progress throughout the United States.

THE ETIOLOGIC ORGANISM OF POLIOMYELITIS.

IN the issue of the *Journal of the American Medical Association* for Feb. 1, 1913, (Vol. lx, p. 362) Flexner and Noguchi made a preliminary report on their experiments in the cultivation of the virus of poliomyelitis. Employing the method and media successfully used by Noguchi in the cultivation of spirochetes, the authors made cultures, both with Berkefeld filtrates and with tissues in substance from the brain and spinal cord of human patients, dead of epidemic poliomyelitis, and of monkeys the subjects of the experimental disease. The minute anaerobic colonies thus obtained were found to consist of globular or globoid bodies averaging from 0.15 to 0.3 micron in diameter. They occur single, and in pairs, chains, or masses. In older cultures involution forms were observed. The organisms stain a pale reddish-violet with Giemsa's solution. With these cultures, two series of monkeys were inoculated and developed typical experimental poliomyelitis, with the characteristic pathologic findings at autopsy. From their nervous tissues other monkeys were successfully inoculated with the disease and the same organism was recovered in pure culture.

These experiments demonstrated that a filterable virus is not necessarily an ultra-microscopic organism. It seems highly probable that they also isolated the etiologic agent of poliomyelitis. It was not yet, however, definitely proved that the transmission of the disease might not be due to the carrying over, with the cultures of the globoid bodies, of a quantity of the original virus sufficient to cause paralysis in the inoculated monkeys. A third series of experimental inoculations of later generations of the cultures

was therefore instituted to exclude this possibility.

A recent press report from Baltimore stated that the successful completion of this final series of experiments was announced by Dr. Flexner at the Johns Hopkins Hospital on March 14. If this be true, it would appear that the organism of poliomyelitis has at last been isolated and described. The publication of a further official report may be expected from Dr. Flexner. Meanwhile, it seems probable that he and Noguchi have really demonstrated the true cause of poliomyelitis, thereby adding not only to their own important achievements as investigators, but to the deserved credit of American scientific research.

The etiologic and the transmitting agent of poliomyelitis being both known, further experiment should develop effective means for the prevention and treatment of the disease.

MEDICAL NOTES.

Prizes for Essays on Diabetes.—It is announced that one or more prizes have been offered by the Society of Karlsbad Physicians for essays on "The Treatment of Diabetes Mellitus, with Special Reference to Balneotherapy."

"The jury will be Hofrat Professor Dr. Ritter v. Taksch, of Prague; Professor Dr. Luethje, of Kiel; Professor Dr. Ortner, of Vienna; Professor Dr. Schmidt, of Innsbruck; and Dr. Edgar Ganz, President of the Society of Karlsbad Physicians. It remains optional with the judges to award either one prize of 5000 kronen, or two prizes of 3500 kronen and 1500 kronen, or three prizes of 2500 kronen, 1500 kronen, and 1000 kronen. The competition is open to physicians of all countries. Any language may be used. The essays must be presented by Dec. 31, 1913. Any further information may be obtained from the Society of Karlsbad Physicians in Karlsbad."

A British Centenarian Veterinary.—Mr. W. Allison, a veterinary surgeon, who died recently at Harrowgate, England, is said to have been born on Dec. 4, 1812.

A Centenarian Rabbi.—Rev. Abraham Isaac Trager, a rabbi who died recently at Charleston, S. C., is said to have been born in 1807 in Russia. He migrated to New York in 1850. He is survived by two aged daughters, 23 grandchildren, and 30 great-grandchildren.

Three Living Centenarians and Their Habits.—John Munsinger, of Howard, Kan., is said to have been born on Dec. 14, 1812, and to have already 144 living descendants. He attributes his excellent health to his moderation in all things. He has never tasted alcoholic beverage, but has smoked tobacco temperately for the past 80 years.

Charles Weidner, of Sparkhill, Rockland County, N. Y., is said to have been born on March 14, 1811. He can still read without glasses. He eats sparingly, and never uses alcohol or tobacco.

Jean Boudin, of Toronto, Canada, is locally reputed to be 122 years old. He has one living great-granddaughter. His longevity he ascribes to a diet of baked apples, brown bread, and boiled milk. He drinks no alcohol, but smokes tobacco freely.

Birth of Quadruplets.—An unauthenticated report from Scarsdale, N. S., on March 16 states that Mrs. Eisenhauer of that town has recently given birth to quadruplets, three girls weighing six pounds each, and a boy weighing 5½ pounds. Allowing 1½ pounds for the weight of the placenta, this would make a total uterine content of 25 pounds, which seems almost incredibly large.

Dedication of Tuskegee Hospital.—The new John A. Andrew Memorial Hospital at Tuskegee, Ala., erected at a cost of $55,000, has recently been completed and dedicated.

"The hospital is a two-story brick structure and is located west of the old hospital. In plan, it is in the shape of the letter 'E.' The site on which it stands is one of the high points on the school grounds and overlooks almost the entire campus.

"The outside dimensions are 90 by 136 feet, the three wings, or stems of the 'E,' projecting on the rear. On the southwest, or main side, is a one-story porch 10 feet wide and 82 feet long, supported by cement columns. The roof of this porch is flat and built of reënforced concrete to permit using it. The main feature of the front is a colonial porch 14 feet wide, supported by four large cement columns extending the full height of the building and supporting a gable roof. Over the column is a carved stone giving the name of the building.

"The main entrance to the building is from this porch through wide double doors into a hall 8 feet 6 inches wide. This hall leads to the kitchen and dining-room. At the centre of the

building, the entrance hall intersects another hall 8 feet 6 inches wide at right angles. The entrance hall contains a commemorative bronze tablet.

"The first story contains the offices for the medical director and internes, an emergency ward, laboratory, classroom, nurses' rooms, girls and boys' convalescent and detention wards, bedroom for internes, x-ray room, diet kitchen, girls and boys' waiting-room, drug room, kitchen, dining-room, pantry, toilets, closets, etc.

"The second story contains large girls and boys' surgical and medical wards and four private wards, two of which have private bath-rooms, bedroom and sitting-room for the head nurse, children's ward, maternity wards, diet kitchen, operating-room, sterilizer-room, recovery room, anesthetizing-room, toilet-rooms, linen closets, etc.

"The basement contains a large storage room for furniture, medical supplies, etc. Not including the hall, the building contains fifty rooms, the basement containing one, the first story twenty-three, and the second story twenty-six. Generous space is provided for fifty-three beds, sixteen on the first story and thirty-seven on the second story. This does not include the bedrooms which have been provided for the head nurse, assistant head nurse and internes.

"A passenger elevator, five by seven feet, is provided and a dumb waiter for carrying food to the second floor. Two wide stairways lead from the first to the second story. Wide porches are provided on all sides of the building, the roof being flat and made of concrete, as described for that on the front.

"The building is constructed of brick with artificial stone trimmings. The roof is covered with slate. The interior finish is yellow pine, except the floors, which are of birch. The floors of the halls, kitchens, and bath-rooms are terrazzo. The operating-room, sterilizing-room and anesthetizing-room have tile floors and tile wainscoting; other floors are rift yellow pine and maple. A silent nurses' call system, operated by electricity, has been installed, and a complete x-ray apparatus. The building is lighted throughout by electricity, and heated by steam. Modern sanitary plumbing has been installed throughout in bath-rooms, kitchens, etc.

"The aim has been to make the building thoroughly sanitary and to this end mouldings have been omitted, sanitary doors, glass, hardware, and other hospital fixtures and furniture have been used. The walls are finished in hard wall plaster and painted in such a way that they can be washed without injury to the paint. Architecturally, the building is designed in the colonial style and in harmony with the other large buildings on the school grounds. The building is largely the result of students' work from the digging of the clay, the making and laying of the bricks to the installation of the electrical work, the plumbing and steamfitting."

The hospital is the gift of Mrs. Elizabeth A. Mason, of Readville, Mass.

Relics of Dr. Edward Jenner.—Among other historical medical objects of exceptional interest that have been secured for the Historical Medical Exhibition, organized by Mr. Henry S. Wellcome, and which will be opened in London during the meeting of the International Medical Congress in the coming summer, are many personal relics of Dr. Edward Jenner, the discoverer of vaccination. These include the original lancets and scarifiers he employed during his first experiments, his case and account books, his snuff box, medicine chest and many other interesting articles. A large collection of autograph letters of Jenner's, some of unique interest, have also been loaned, together with the armchair from his study and in which he died. Other objects connected with the life of Jenner are also to be exhibited, including many valuable portraits of himself and family, painted at different periods, the illuminated addresses presented to him, together with the freedoms of the cities of London and Dublin, also medals, and other documents of special interest.

Concerning the history of anesthesia, many interesting relics are to be exhibited beginning with the original autograph journal and manuscripts of Henry Hill Hickman, F.R.C.S., the discoverer of the application of the principle of *anesthesia by inhalation for surgical operations,* which he proved by actual experiments on animals in 1823. Personal relics of Sir James Simpson, and some of the earliest forms of apparatus for administering chloroform and ether will constitute an exhibit of more than usual interest.

Those who may possess any objects of a similar character connected with the history of medicine and the allied sciences, and who would be willing to loan them, should communicate with the Secretary, 54a Wigmore Street, London, W., England, who will be pleased to forward a complete illustrated catalogue to anyone interested.

Medical Society of the Missouri Valley.—The spring meeting of this Society was held at the Coates House, Kansas City, March 20, 21, 22, with the third day devoted entirely to clinics in the various hospitals. The Jackson County Medical Society was the host, and a committee of arrangements was appointed, comprising Drs. H. E. Pearse, R. L. Sutton and E.

G. Blair. A symposium on cancer, a dinner at the Coates House, and an address by Surgeon-General Rupert Blue were features of the first day.

An Adult Parthenogenetic Female Frog.—On Feb. 28, a reception was given by the Manhattan Medical Society, New York, to Dr. Jacques Loeb, of the Rockefeller Institute for Medical Research, at which he spoke on "Some Recent Experiments in Artificial Parthenogenesis." He is reported to have stated that a female frog, thus produced from an artificially fertilized egg, had reached adult life and, on examination after accidental death, had been found to have normally developed organs throughout, including ovaries containing apparently normal ova.

A Heavy Woman.—Melissa Cooper, a negress, who died on March 15, at Grayson, Gwinnett County, Ga., is said to have weighed 613 pounds at the time of her death. Presumably some pituitary lesion accounted for this phenomenon.

An Expedition to the Amazon.—On March 19 the steam yacht *Pennsylvania* sailed from Philadelphia on a three years' trip of exploration up the Amazon River. Dr. Franklin Church, of New York, is physician to the party, and will make a special study of tropic disease. The expedition is sent out by the University of Pennsylvania.

Stanford University Medical School.—The clinical and laboratory building of the Stanford University Medical School at San Francisco, formerly used by Cooper Medical College, has recently been remodeled at a cost of about $40,000.

"The lower floor of the building is devoted entirely to the surgical out-patient clinic, the surgical specialties and the history room and drug store, the second floor to the medical out-patient clinic and the clinics of pediatrics, neurology and dermatology. The three upper floors are devoted to the pathological museum and the laboratories of experimental medicine, pathology, pharmacology and experimental surgery. Reading rooms have been provided for the students in close connection with the clinical laboratory. This laboratory and the out-patient department are separated by only a short corridor from the clinical wards of Lane Hospital so that both in- and out-patient material is equally available for purposes of teaching. The front part of Lane Hall has been converted into a modern amphitheater suitable for demonstrations. About 12,000 patients were received by the out-patient department during the past year, with a total number of visits of over 60,000."

Assassination of King George of Greece.—The assassination of the King of the Hellenes on March 18 at Salonica by a feeble-minded fanatic brings a brilliant, diplomatic, and successful reign to an untimely though dramatic end. The king died within a few moments of hemorrhage from a gunshot wound of the heart. Like his father, the late King Christian of Denmark, King George was strongly democratic in his habits, and was idolized by the people. He died by "one of the risks of his trade,"—to use King Humbert's phrase—but that does not at all mitigate "the deep damnation of his taking off."

BOSTON AND NEW ENGLAND.

Massachusetts Homeopathic Hospital.—The recently published forty-third annual report of the Massachusetts Homeopathic Hospital records the work of that institution for the calendar year 1912. During this period 6007 patients were treated in the wards of the main hospital; and to the out-patient department 12,144 patients made 40,850 visits. The externes made 7445 visits and the nurses 6297 visits at patients' homes. In the Haynes Memorial 270 cases of contagious disease were treated, and 850 children at the Clark ward. From the training-school 27 nurses were graduated.

Danvers State Hospital.—The recently published thirty-fifth annual report of the trustees of the Danvers State Hospital records the work of that institution for the year ended Nov. 30, 1912. During this period 985 male and 1177 female patients have been under treatment in the hospital. Of these, 66 were discharged as recovered. Death occurred in 169 cases, in 80 of which complete autopsies were performed. From the training-school 14 nurses were graduated. A special appropriation of $45,000 is needed for the erection and equipment of a suitable building for male attendants and married couples now housed in attics and hospital wards.

Pure Food Fines.—Before the Boston Municipal court last week 18 defendants, dealers in this city, were fined sums aggregating $265 for

various violations of the pure food laws, chiefly in regard to the sale of milk, butter and vinegar.

HART HOSPITAL TRAINING SCHOOL.—The third annual graduation exercises of the Hart Hospital training school were held last week in Roxbury. Dr. Harold W. Baker, of Boston, presented diplomas to five pupil candidates.

RECENT HOSPITAL BEQUESTS.—The will of the late Freeman Ballard Shedd, of Lowell, Mass., who died recently in Miami, Fla., was probated at Lowell on Mar. 17. It contains a bequest of $100,000 to the Lowell General Hospital, which is also a reversionary legatee of the estate.

The will of the late Helen M. Turner, of Brookline, Mass., which was allowed on Mar. 19 in the Norfolk probate court at Dedham, Mass., contains bequests of $1000 each to the Boston Floating Hospital and to the Industrial School for Crippled and Deformed Children, Boston.

NEW ENGLAND BAPTIST HOSPITAL.—The recently published nineteenth annual report of the New England Baptist Hospital records the work of that institution for the calendar year 1912. During this period a total of 778 patients received 12,776 days of treatment in the hospital, and 9 nurses were graduated from the training school. The completion and occupation of the new bungalow and the installation of electric light during the year have added notably to the comfort and efficiency of the hospital. A larger proportion of free service to the poor has been rendered than in any previous year of the institution's history.

APPROPRIATION FOR CONSUMPTIVES' HOSPITAL.—In their recent report, the trustees of the Boston Consumptives' Hospital, Mattapan, Mass., recommended an appropriation of $125,000 for the construction of a new hospital pavilion and two cottage wards. The president of the Boston Association for the Relief and Control of Tuberculosis, in a public letter to the Mayor, supports this recommendation as follows:—

"In the latest report of the trustees, attention is called to the fact that there are about 500 patients suffering in their homes with tuberculosis in a sufficiently advanced stage to call for hospital care. The Mattapan Hospital is full, as are also the 100 beds which the trustees are allowed by law to hire for the use of city patients. Legislation has been passed which prohibits the trustees from hiring beds in private hospitals after the year 1916, so that it seems eminently desirable that some permanent provision should be made before that time."

NEW YORK.

SPRING HOUSECLEANING.—Some time ago, in a letter to Mayor Gaynor, Health Commissioner Lederle proposed a "spring housecleaning" for all of Greater New York, and the mayor promised the active co-operation of the various city departments. The commissioner now announces that he has detailed Dr. M. B. McMillan, Assistant Sanitary Superintendent, who when an army surgeon had charge of the "cleaning up" of the central portion of Cuba, to take personal direction of this campaign for a cleaner city and the reduction of mortality. In this he will have the assistance of the Babies' Welfare Association, the Charity Organization Society, and many other societies, in addition to the city departments, and he also solicits the voluntary co-operation of all citizens. The first meeting of the central controlling committee, of which Dr. McMillan is executive officer, was held at the offices of the Health Department on March 14, and it was decided to appoint an executive committee in each of the boroughs of the city, with the borough president as chairman.

RECENT HOSPITAL BEQUESTS.—Under the will of the late Ferris Thompson of New York, bequests amounting to about $3,000,000 are left to Princeton University. Among other bequests are $200,000 to Mercy Hospital, Chicago; $155,000 to St. Luke's Hospital, New York, on the death of certain beneficiaries of trust funds; $25,000 to the Woman's Hospital, New York, with $70,000 additional on the death of certain beneficiaries; a like sum to the American Hospital, Paris; $10,000 to the New Bedford Anti-Tuberculosis Sanitarium; and two-fifths of his mother's estate (amount not stated) to the New York Skin and Cancer Hospital.

HARVEY LECTURE.—The last lecture of the current series before the Harvey Society will be delivered on Saturday evening of this week, March 29, at the New York Academy of Medicine, by Professor John Howland, of Johns Hopkins University, on "The Scientific Basis for the Artificial Feeding of Infants."

LEGAL RESPONSIBILITY FOR TYPHOID.—Report from Rochester, N. Y., states that a resident of that city has recently been awarded $475 on the

second trial of his action to recover damages from the municipality on account of an attack of typhoid fever which he alleged was due to impure drinking-water.

"Negligence on the part of the city was averred in the removal of a check valve. As a consequence, the river water polluted the supply of drinking water, which is drawn from Hemlock Lake. The city will probably take an appeal, as ten other damage suits are based on the same evidence. If the first verdict is affirmed, then a settlement of the other cases may be attempted.

"So far as is known, this case is the first in which a verdict for the plaintiff has been given because of typhoid fever resulting from polluted water supply. Other similar cases are pending in the Ohio courts. The decision in the Rochester case will be important if the higher courts allow the verdict to stand as a precedent."

Current Literature.

Medical Record.

March 8, 1913.

1. Eccles, R. G. *The Scope of Disease.*
2. Sutter, C. C. *Ulceromembranous Angina (Vincent's) and Its Treatment; with Report of Cases.*
3. Mittendorf, W. K. *Gonorrheal Ophthalmia Treated with Gonococcus Vaccines.*
4. Park, F. E. *Thorium-x in the Treatment of Pernicious Anemia, with Report of Case.*
5. *McCord, C. P. *The Rationale of the Use of Adrenalin in the Treatment of Asthma.*
6. Gordon, A. *A Study of Fourteen Cases of Alcoholism in Children Apparently Free from Morbid Heredity.*
7. Barnes, F. H. *The Necessity of Early Institutional Treatment in Mental and Nervous Diseases.*

5. McCord discusses the literature of adrenalin therapy in asthma. He finds that this drug has a transient but powerful effect on the bronchioles, relieving the spasmodic contraction of the attack. This dilator action is observed whether the drug is administered subcutaneously, intravenously or endobronchially. The effect is most transient when it is given subcutaneously. No injurious results follow the use of adrenalin in asthma. [L. D. C.]

New York Medical Journal.

March 8, 1913.

1. Morse, J. L. *Infant Feeding.*
2. Pedersen, V. C. *Urethral and Peri-urethral Lithiasis.*
3. Cunningham, W. P. *Scleroderma Inusitatum.*
4. Maverick, A. *Indurative Headache.*
5. Powell, T. *The Metamorphosis of the White Blood Corpuscle.*
6. Herrman, C. *Teething as a Cause of Disease in Infancy.*
7. Garrison, F. H. *The History of Blood-letting.*
8. Duncan, H. A. *Postoperative Dilatation of the Stomach.*
9. Skillern, P. G., Jr. *Cultivation of Bacillus Typhosus from a Spot in a Luetic Typhoid Subject after the Fastigium.*
10. Siter, E. H. *Infection of the Genitourinary Tract by Micrococcus Catarrhalis.*

The Journal of the American Medical Association.

March 15, 1913.

1. *Deaver, J. B. *Review of Five Hundred and Thirty-Four Operations on the Mammary Gland.*
2. Belfield, W. T. *Skiagraphy of the Seminal Ducts.*
3. Bassler, A. *Two Uncommon Esophageal Cases.*
4. Bishop, L. F. *The Prevention of Arteriosclerosis and Heart Disease in Otherwise Healthy Individuals Past Middle Life.*
5. Overlander, C. L. *Medical Practice in the Canal Zone.*
6. *Blatteis, S. R., and Lederer, M. *An Analysis of Four Hundred and Twenty-Six Cerebrospinal Fluids from Various Pathological Conditions.*
7. Colliver, J. A. *A New Preparalytic Symptom of Poliomyelitis.*
8. Chisholm, A. S. M. *Some Features of the Theory and Practice of Medicine During the Seventeenth Century.*
9. Dubois, P. L. *Differential Diagnosis and Treatment of Epidemic Cerebrospinal Meningitis.*
10. Milne, L. S. *An Unusual Case of Leukemia.*
11. Abramovitz, M. *A Combined Gravity and Syringe Method for the Intravenous Injection of Salvarsan.*
12. Oliver, P. *A Case of Pseudohermaphroditism.*
13. Salzer, M. *A New and Inexpensive Intratracheal Insufflation Outfit.*
14. Sheahan, F. J. *Anuria—Perhaps Hysteric.*
15. Edwards-Schenck, W. *A New Tonsillectome.*
16. Hirsch, D. I. *Irrigation of the Spinal Canal as a Preliminary to Introduction of Flexner's Antimeningitic Serum.*

1. Deaver states that the death rate from cancer has risen from 47.9 per hundred thousand in 1890 to 73 per hundred thousand in 1907. In breast cancer an antecedent mastitis is present in from 30 to 39% of cases. Benign tumors are said to constitute only 11% of breast tumors. With our knowledge of precancerous states, we must consider trauma and inflammation as factors predisposing to cancer through the destruction of the normal fibro-epithelial relationship. Operation should always be advised at the very onset of the trouble. To wait for obvious signs of cancer causes delay until a stage when the disease is very likely to become inoperable. Pain is not an initial symptom of operable cancer. The opportune time for surgery in breast cancer is in the presence of a symptomless, freely movable tumor, without glandular metastasis. The upper outer quadrant of the breast is most often involved. Palpably enlarged axillary or supraclavicular lymph nodes in the presence of a mammary growth do not necessarily, however, mean carcinomatous involvement. About one patient in five is cured permanently by the radical operation.

6. The authors, studying the cerebro-spinal fluids in 426 specimens, draw the following conclusion: Turbidity of the fluid, when not due to the presence of blood, means an acute infection of the cerebro-spinal system, and bacteriologic examination reveals the organism. Rarely, however, chronic inflammation or tuberculosis gives a turbid fluid. A clear fluid, with failure to reduce Fehling's solution, a positive globulin reaction, and abundant lymphocytosis, usually means tuberculosis. Cases of intestinal auto-intoxication, with meningeal symptoms, may yield fluids chemically and cytologically resembling that of tuberculosis. In cerebro-spinal syphilis one may ob-

tain a positive complement fixation test, when the blood serum gives a negative reaction. The presence of blood renders the fluid valueless for chemical and cytologic study and may interfere with the bacteriologic examination. [E. H. R.]

THE ARCHIVES OF INTERNAL MEDICINE.

FEBRUARY, 1913.

1. *ROWNTREE, L. G., FITZ, R., AND GERAGHTY, J. T. *The Effects of Experimental Chronic Passive Congestion on Renal Function.*
2. *VON ADELUNG, E. *An Experimental Study of Poison Oak.*
3. *HERRICK, W. W. *Experimental Eosinophilia with an Extract of an Animal Parasite. Its Relation to Anaphylaxis and Certain Clinical Problems.*
4. *ADLER, H. M. *Unsaturated Fatty Acid as a Neurolytic Agent.*
5. HALL, M. C., AND MUIR, J. T. *A Critical Study of a Case of Myiasis Due to Eristalis.*
6. EYSTER, J. A. E., AND MEEK, W. J. *The Interpretation of the Normal Electro-cardiogram. A Critical and Experimental Study.*

1. Rowntree, Fitz and Geraghty produced chronic passive congestion of the kidney in dogs, in order to study its effect on renal function, and used the same functional tests (phenolsulphonephthalein, lactose, salt, potassium iodide and water) in a large number of cardiac, cardio-renal and renal cases. They find that albuminuria is an almost constant accompaniment of experimental passive congestion, casts are usually present, and red blood cells appear if the congestion is considerable. Lactose excretion is the first to become affected by increasing grades of chronic passive congestion, that of phthalein the last. The phthalein test gives the most reliable information concerning the degree of renal insufficiency. A marked decrease in phthalein excretion has invariably been associated with the development of clinical manifestations indicating renal inadequacy, and followed by death. The phthalein test is, therefore, the test of greatest prognostic importance in chronic passive congestion. Lactose is of the greatest diagnostic value.

2. von Adelung reports on an experimental study of poison oak, poison ivy and poison sumach. These three plants differ botanically, but their juices seem to be chemically identical and the dermatitis caused by them clinically identical. The toxic principle of rhus, while non-volatile, can poison at a distance by means of mechanical carriers. It is not destroyed by a temperature of 100° C., and is carried, potent, by the smoke from burning rhus plants. The dermatitis is purely a local affection, and is not spread by the blood or lymph, or by the serum of the blebs. Absolute immunity in man is improbable, and experimental immunity in animals is not yet demonstrated. A permanent aqueous suspension of the alcoholic solution of the toxin can be prepared and remains toxic. As animals cannot be killed by the pure toxin it is impossible to demonstrate antitoxic effect by the serum of animals that have received repeated doses of the toxin. The writer was unable to demonstrate antibodies in the sera of animals so treated. The simplest prophylactic measure against rhus poisoning is to wash well with soap and hot water as soon after exposure as possible. The use of cotton-seed oil on the skin before exposure renders prophylaxis fairly certain; it should be washed off within a few hours. For treatment, ichthyol collodion, potassium permanganate, magnesium sulphate and tincture of iodine are of value.

3. Herrick, in experiments on guinea-pigs, studied the relation of eosinophilia to intestinal parasites, bronchial asthma, anaphylaxis and other clinical problems. He was able to produce a notable eosinophilia of the blood by the intraperitoneal injection of an aqueous extract of Ascaris lumbricoides. The substance causing eosinophilia he proved to be a protein, for when the extract was made protein free the filtrate injected into guinea-pigs previously sensitized with the original extract had no influence on the eosinophiles of the blood. Previous sensitization is always necessary to the development of this eosinophilia, and it is impossible to produce it while the animals are immune to the extract.

4. Adler reports some experiments undertaken to study the effect of unsaturated fatty acid on nerve cells. In five cats, injections were made into the brain; in two oleic acid was used, in three triolein. Oleic acid is hemolytic, triolein is not. They find that unsaturated fatty acid, of which oleic acid is the type, is a neurolytic agent. This action probably depends on the same properties as the hemolytic action of these substances. Perivascular proliferation may be associated with pathological processes in which lytic fatty substances play an important part. An intracerebral hemorrhage may be produced experimentally without altering the blood-pressure and without trauma by chemical action alone. [L. D. C.]

THE LANCET.

FEBRUARY 15, 1913.

1. *WALKER, K. M. *Hunterian Lecture on the Paths of Infection in Genitourinary Tuberculosis.*
2. OWEN, E. *Appendicitis: A Plea for Immediate Operation.*
3. *WHOLE, H. *The Remote Results of Tonsillotomy and Tonsillectomy: An Analytical Scrutiny of Two Hundred and Twenty Unselected Cases.*
4. EDMUNDS, A. *An Operation for Hypospadias.*
5. LANGMEAD, F. *On a Case of Addison's Disease in a Boy Aged Ten Years.*
6. RISCHBIETH, H., AND DECRISPIGNY, C. P. C. *Polycystic Disease of Kidneys: Remarkable Persistence of Functions in Two Cases in Adults.*
7. RAE, J. *Note on a Case of Chronic Internal Hydrocephalus.*
8. BARRATT, J. O. W. *The Action of Sharlach R upon X-rayed Skin.*

1. Walker, in the Hunterian Lecture, first considers tuberculosis of the testis. This is almost always a secondary lesion to a process in lungs, glands or elsewhere. It is also usually secondary to an earlier process in the prostate, and thus represents a descending infection in which the epididymis is the part first affected. He discusses the experimental and post-mortem evidence on which these assertions are based. Tuberculous disease of the testicle is analogous to acute infections which are known to have been produced by extension from the urethra.

As to the paths of infection of the prostate, the organ most frequently attacked by tuberculosis of the genitourinary tract, he believes that examples of infection by the blood stream, by direct extension, by infection from the urethra, and through the agency of the urine are all often met with. He discusses these various modes of infection. He believes that in cases of tuberculous infection there is apt to be found a condition of abnormal permeability of the kidneys, which in part accounts for the frequency with which the genitourinary tract is attacked.

3. Whole, discussing the relative merits of tonsillotomy and tonsillectomy, concludes that the latter is the more dangerous operation, but with the single exception of voice troubles it is more likely to permanently cure the complaint for which advice is sought, especially in tonsillitis or lymphadenitis. [J. B. H.]

FEBRUARY 22, 1913.

1. ZODLEE, R. J. *The Hunterian Oration.*
2. *MCINTOSH, J., AND TURNBULL, H. *Transmission to Monkeys of Virus Obtained from English Cases of Poliomyelitis.*

3. CHOLMELEY, W. F. *Two Cases of Pancreatic Cyst.*
4. FRANKAW, C. *Two Cases of Pancreatic Cyst with Acute Symptoms.*
5. DREW, D. *Large Renal Calculus Associated with Sarcoma of the Kidney.*
6. HENDERSON, J. *Note on a Case of Bence-Jones' Proteinuria.*
7. BERTRAND, D. M., AND BERTHELOT, A. *Ptomaine—Producing Bacteria in the Human Intestinal Tract.*
8. HARROWER, H. R. *The Therapeutic Action of Splenic Extract and Its Application in the Treatment of Tuberculosis.*

2. McIntosh and Turnbull describe in detail their work, which confirms that of Flexner in this country, in transferring the virus of human anterior poliomyelitis to monkeys. [J. B. H.]

BRITISH MEDICAL JOURNAL.

FEBRUARY 15, 1913.

1. OWEN, E. *Appendicitis: A Plea for Immediate Operation.*
2. CORNER, E. M. *The Function of the Appendix and the Origin of Appendicitis.*
3. CUNNING, J. *A Lecture an Carcinoma of the Colon.*
4. MORTON, C. A. *The Results of Excision of the Hip Joint in Thirty-four Cases of Suppurating Tuberculous Disease.*
5. FULLERTON, A. *Note on a Series of Fifty-five Cases of Suprapubic Prostatectomy with Four Deaths.*
6. *THOMSON, F. G. *Some Problems Connected with Rheumatoid Arthritis.*
7. WEBER, F. P. *The Occurrence of Acute Pneumonia During Treatment with Arsenic.*
8. REID, J. *Three Cases in Midwifery Practice.*

6. Thomson describes various phenomena and pathological conditions associated with what he calls rheumatoid arthritis, which disease is characterized by more or less symmetrical spindle-shaped inflammatory swellings of the periarticular structures, affecting first the smaller joints of the hands and feet and accompanied by wasting cramps and contractures of muscles. There is room for doubt as to whether he refers to the hypertrophic, atrophic or infectious form of arthritis. Among other things, he speaks of vasomotor instability as being frequently present, cramps and increased reflexes. [J. B. H.]

FEBRUARY 22, 1913.

1. ZODLEE, R. J. *The Hunterian Oration.*
2. *SHAW, C. E. *Aches and Pains Connected with the Eye and Nose.*
3. COLLINS, W. *Tumors of the Orbit: A Plea for Operation.*
4. COTTERELL, J. M., AND MACKAY, G. *Hematoma of the Left Orbit Treated by Modified Krönlein's Operation.*
5. *LANG, B. T. *The Influence of Septic Infection in the Causation of Eye Disease.*
6. DOWDEN, J. W. *Recurring Torsion of the Spermatic Cord; Operation.*
7. NICOLL, J. H. *Six Cases of Hydrocele in Infants Treated by Operation.*
8. SHATTOCK, S. G. *Occlusion of the Inferior Vena Cava, as a Result of Internal Trauma (Dissecting Varix?).*
9. *GILLETT, H. T. *Vaccine-Therapy in Chronic Bronchitis.*
10. NEIL, W. F., AND CROOKS, F. *Supraclavicular Anesthetization of the Brachial Plexus.*

2. Shaw, in a short paper, takes up and considers what may be the causes of aches and pains connected with the eye and nose. Among other conditions, he goes over acute iritis, glaucoma, gout in the eye, sphenoidal sinusitis, malignant disease, enlargement of the middle turbinates, chronic suppuration, syphilis and errors in refraction.

5. Lang considers the influence of foci of septic inflammation elsewhere in the body as causes of eye disease. In the respirato-alimentary tract such foci may be due to empyema of the antrum of Highmore, otitis, pyorrhea alveolaris, chronic tonsillitis, tuberculosis of the lungs, gastritis, typhoid fever, chronic appendicitis, colitis and constipation. In the genito-urinary tract urethritis and bacteriuria may cause eye disease, while from the skin or a sinus leading from it, foci may arise, such as varicose ulcer, etc. He urges the consideration of the general condition of the patient in every eye disease.

9. Gillett reports eight cases of chronic bronchitis which he has treated with autogenous vaccines made from fresh sputum. He urges that doses be given large enough to produce a reaction. In his eight cases no other treatment was given. There was no opsonic control. Three of the eight cases recurred. His results, though apparently favorable, hardly warrant any definite conclusions. [J. B. H.]

DEUTSCHE MEDIZINISCHE WOCHENSCHRIFT.

No. 4. JANUARY 23, 1913.

1. KLINGMÜLLER, V. *The Treatment of the Dermatomycoses.*
2. MÖLLERS, B., AND WOLFF, G. *Experimental Investigations with Zenner's Tuberculosis Preparation "Tebesapin."*
3. *ROEPKE, O. *Experiences with Mesbé in Pulmonary and Laryngeal Tuberculosis.*
4. *MALIVA, E. *Congenital Familial Icterus.*
5. BIERMANN. *Metapneumonic Brachial Plexus Neuritis and Polyneuritis.*
6. *SASAKI, T., AND OTSUKA, I. *Experimental Contribution to the Knowledge of Putrid Sputum.*
7. MELCHIOR, E. *The Increased Dangers of Operative Losses of Blood in Congenital Narrowing of the Aortic System.*
8. SCHLESINGER, E. *The Dilation Value of the Pupil Reaction and the Extent of the Pupillo-motor Area of the Retina. Investigations on the Basis of a New Method.*
9. FRIED, R. *Toxic Symptoms After Repeated Subcutaenous Embarin Injections.*
10. LUCAS, H. *Cardiac Surgery.*
11. LOEB, H. *Care of Verruca Plana by Salvarsan.*
12. MEYER, P. *Syphilis of the Internal Genitalia in Woman.*
13. OPPENHEIMER, E. H. *Small Private Hospitals.*
14. MARTIN, A. *New Points of View on the History of Bathing and Morality in Germany (To be concluded.*

3. Mesbé is an extract from *Sida rhombifolia Cubilguitziana*, a sort of American mallow. It is a new agent of unknown composition and action. Roepke considers that it is no true curative agent for tuberculosis. He reports its use in 21 cases. He finds that it fails completely in pulmonary tuberculosis, and that its local application in laryngeal tuberculosis often makes the patient subjectively and objectively worse. He, therefore, considers Mesbé as worthless.

4. Maliva reports a case of congenital familial icterus which he concludes should be regarded as a primary blood disease, which proceeds with anemia and typic changes in the erythrocytes. These changes consist in diminution of the resistance capacity and in the appearance of vitally differently stainable elements. The associated icterus is to be regarded as pleiochromous, the splenic enlargement as spodogenous.

6. As a result of their bacteriologic study of a case, which they report, the authors conclude that, for the formation of skatol in putrid bronchitis, there is need of the action of bacteria, like *pyocyaneus*, in addition to the energic enzyme, especially so-called aurinazidase. [R. M. G.]

No. 5. JANUARY 30, 1913.

1. KASSOWITZ, M. *The Pathogenesis and Etiology of Rickets.*
2. *JOSEPH, M. *The Wassermann Histopin Therapy in Dermatology.*
3. ZWEIG, L. *The Treatment of Furunculosis and of Sycosis Coccogenes with the Staphylococcus Vaccine "Opsonogen."*
4. HERZBERG, S. *Clinical Experiments with the Isolated Active Substance of the Hypophysis.*
5. v. ZUBRZYCKI, J., AND WOLFSGRUBER, R. *Normal Hemaglutinins in Woman's Milk and Their Transfer to the Child.*
6. *BAUMM, P. *Experiences with Extraperitoneal Cesarean Section.*
7. JAROSCH. *Mesbé in Pulmonary Tuberculosis.*
8. HOLMGREN, I. *The Influence of the White Blood Corpuscles on the Viscosity of the Blood.*
9. ELLERMANN, V. *Quantitative Precipitate Reactions in Syphilis.*
10. KREDEL, L. *The Treatment of Cleft Palate and Hare-Lip.*
11. DOBBERTIN. *Length of Incision, Irrigation, and Conflict Against Intestinal Paralysis in Appendicitis with Peritonitis.*
12. LÜDERS, C. *Syphilitic Otitis Media.*
13. DUTOIT, A. *Tuberculosis of the Thyroid.*
14. MARTIN, A. *New Points of View on the History of Bathing and Morality in Germany.*

2. Joseph believes that histopin is a valuable therapeutic agent in dermatology, but that its cost is prohibitive.

6. Baumm believes that the suprasymphysial incision is a valuable obstetric procedure, without great danger, superior to pubiotomy, premature induction, and classic Cesarean section. [R. M. G.]

MÜNCHENER MEDIZINISCHE WOCHENSCHRIFT.

No. 6. FEBRUARY 11, 1913.

1. LEHMANN, K. B. *The Active and Valuable Constituents of Coffee, with Special Reference to "Koffee Hag" and "Thumkaffee." (To be concluded.)*
2. *SCHLOSSMANN, A. *Economy of Metabolism of Energy in Infants.*
3. *LINDIG, P. *Action of Serum-ferments in Pregnancy and in Cases of Tumor.*
4. STOELTZNER. *Larosan, a Simple Substitute for Albumen-Milk.*
5. HAMM, A. *A Rare Case of Coli Pyemia and the Clinical Significance of Bacterial Anaphylatoxin.*
6. SCHNEIDER, H. *Heritability of Atheroma.*
7. RÉTHE, A. *Electrolytic Treatment of Trifacial Neuralgia.*
8. v. NOORDEN. *Indications for and Effect of the Hamburg Mud.*
9. MÜLLER, M. *Necessity of Obligatory Wassermann Tests for Prostitutes to Prevent Syphilis.*
10. VOLL, A. *Painless Delivery.*
11. MAYER, A. *Use of the Electric Pocket-light or the Diagnosis of Doubtful Hydrocele.*

2. Schlossman calls attention to the extraordinary economy of the infant, which enables it to maintain its temperature, and activities, and to gain rapidly in weight with small requirements for sustenance and a minimum waste. He says that ill-nourished infants are, ordinarily, comparatively inactive, and that thus they make the most of what they have; but that swathing healthy children in order to make them gain weight is false economy because the muscles cannot then develop normally. The writer quotes, in conclusion, an epigram of Liebig: "Culture is economy of energy, a needless expenditure of which, whether in agriculture, industry, science or in the State, characterizes rawness or lack of culture." [G. C. S.]

WIENER KLINISCHE WOCHENSCHRIFT.

No. 6. FEBRUARY 6, 1913.

1 *FREUND, E. *The Chemistry of Roentgen and Radium Rays in Relation to Carcinoma.*
2. KAMINER, G. *Surgical Experience from the War in Bulgaria.*
3. EXNER, A. *Surgical Experience from the Bulgarian-Turkish War.*
4. FRISCH, C. *Surgical Experience of the War from Sofia.*
5. FRAENKEL, A. *Observations and Impressions from the Balkan War.*
6. OLLMAN, K. *The Question of the Parasitotropism and the Toxicity of Salvarsan (Neosalvarsan).*

1. The author arrives at the following conclusions: That the removal of a fatty-acid from the tissues and serum, since that fatty-acid is protective against the development of carcinoma cells, allows the growth of carcinoma. That toxic, not therapeutic, use of Roentgen rays removes this fatty acid, and so allows carcinoma to develop. That excessive radium rays set free from the nucleo-globulin of the carcinoma cell, this carcinoma-protecting fatty acid. That neither by radium or Roentgen rays is the carcinoma cell robbed of its pathological selective activity for carbohydrates. [F. S. K.]

ARCHIV FÜR KLINISCHE CHIRURGIE.

VOL. 100. PART 2.

6. MAGNUSSON, G. *Two Hundred and Fourteen Operations for Echinococcus. Pathology and Treatment.*
7. *SPRENGEL. *Clinical Observations on the Diffuse, Inflammatory Diseases of the Retroperitoneum and Their Relation to Peritonitis.*
8. SCHULTZE, E. O. P. *Albert Köhler's Disease in the Os Naviculare Pedis in Children—a Fracture.*
9. SCHULTZE, E. O. P. *Schlatter's Disease, a Symptom of a Systemic Disorder.*
10. *FORSSNER, H. *The Pathogenesis of Congenital Intestinal and Esophageal Atresia.*
11. KREUTER. *Remarks on the Preceding Article by Forssner.*
12. KEPPLER, W. *Anesthetization of the Lower Extremities by Means of Injections into the Great Nerve Trunks.*
13. NEY, E. *The Importance of the Vein in Arteriovenous Aneurysm. Experimental Observations.*
14. WEISHAUPT, E. *An Embryonic By-path of the Parotid Duct and Its Relation to Some Parotid Tumors.*
15. SATO, S. *The Cavernous Angioma of the Peripheral Nervous System.*
16. FESENMEYER, F. *The Employment of the Murphy Button in Posterior Gastroenterostomy.*
17. STAFFEL, A. *The Argument That Arthritis Deformans of the Hip is an Occupational Disease.*

7. This article by Prof. Spengel is a lengthy discussion of the inflammatory diseases of the retroperitoneum, with clear illustrations showing the anatomy involved and with many clinical observations from his own cases. He considers chiefly those infections arising from the bile ducts, the pancreas and the intestines, and those developing about the kidneys and beneath the pelvic peritoneum.

10. Forssner's article is largely a refutation of Kreuter's theory concerning duodenal atresia. The former believes that the process in the duodenum is essentially the same as similar processes elsewhere in the intestines. He describes and illustrates the

several types of congenital stricture or atresia, and attributes the lesion to overdevelopment of the mesenchymal layers rather than to adhesions of the epithelium. [G. G. S.]

REVUE DE MÉDECINE.

JANUARY, 1913.

1. JOB, E. *Paratyphoid Infections. An Etiologic and Epidemiologic Study.*
2. *GELMA, E. *Thyroid Opotherapy and Epilepsy.*
3. *ROGER, H., AND BAUMEL, J. *Headaches of Acute Infectious Disease, Treated and Relieved by Lumbar Puncture.*
4. CONSTAING AND FILDERMAN. *Dental Erosion Regarded from the Point of View of General Pathology.*

2. Gelma has treated two epileptics with thyroid extract with beneficial results. Both cases showed evidence of deficient thyroid activity, so that the result of such treatment not only improved their general condition, but also caused a cessation of epileptiform seizures. He does not recommend the general application of this form of treatment in all cases of epilepsy, but only those in which hypothyroidism is a factor. He holds out the hope in such cases of removing the mental state peculiar to so many epileptics.

3. Fifteen cases of persistent and distressing headache, associated with acute infectious diseases, were treated by Roger and Baumel. Immediate relief resulted in almost all instances, and in only four cases was a second puncture necessary. In only one instance were the leucocytes of the spinal fluid increased in number. That was a case of granular pneumonia confirmed by autopsy. The procedure was devoid of inconvenience on the part of the patient, and was of far greater value and of more prompt result than the ordinary therapeutic measures for the relief of such headaches. [L. H. S.]

Miscellany.

SOCIETY NOTICES.

BOSTON MEDICAL LIBRARY in conjunction with the SUFFOLK DISTRICT MEDICAL SOCIETY.—Medical Section Meeting at the Boston Medical Library on Wednesday, April 2, 1913, at 8.15 p. m.

"Recent Advances in the Roentgen Examination of the Gastrointestinal Tract," James T. Case, M.D., Battle Creek, Michigan. Discussion will be opened by Drs. Franklin W. White, E. A. Codman, and E. G. Martin.

Light refreshments after the meeting.

HERMAN F. VICKERY, M.D., *Chairman*,
263 Beacon Street.
G. C. SHATTUCK, M.D., *Secretary*,
205 Beacon Street.

THE CARNEY HOSPITAL Clinical meeting will be held in the main hospital building on Friday evening, Mar. 28, at 8.15. Members of the medical profession are invited.

TOWNSEND W. THORNDIKE, *Secretary*.
20 Newbury Street, Boston.

APPOINTMENT.

DR. L. VERNON BRIGGS, of Boston, has recently been appointed a member of the Massachusetts State Board of Insanity.

CHANGES IN THE MEDICAL CORPS, U. S. NAVY, FOR THE WEEK ENDING MARCH 15, 1913.

The following have been commissioned Assistant Surgeons in the Medical Reserve Corps, U. S. Navy: J. C. DaCosta, from Jan. 6, 1913; M. B. Miller, from Jan. 14, 1913; J. F. Burnham, Jan. 23, 1913; C. A. Simpson, from Jan. 25, 1913; W. S. Bainbridge, from Jan. 25, 1913; J. J. Richardson, from Jan. 31, 1913; G. T. Vaughan, from Feb. 5, 1913; J. A. Tompkins, from Feb. 13, 1913; S. S. Adams, from Feb. 13, 1913; D. A. Heffernan, from Feb. 13, 1913, W. G. Townsend, from Feb. 7, 1913; C. A. Frink, from Feb. 25, 1913; B. R. Shurly, from Feb. 25, 1913; H. A. Hare, from Jan. 6, 1913; W. C. Lyon, from Jan. 20, 1913; A. B. Bennett, from Jan. 25, 1913; H. C. Fuller, from Jan. 27, 1913; L. C. Lehr, from Jan. 27, 1913; W. G. Morgan, from Jan. 31, 1913; L. P. Shippen, from Feb. 5, 1913; A. E. Gallant, from Feb. 13, 1913; W. S. Thomas, from Feb. 13, 1913; H. D. Meeker, from Feb. 13, 1913; W. W. Wilkinson, from Feb. 25, 1913; E. M. Foote, from Feb. 25, 1913.

LYNCH, C. P., assistant surgeon. Commissioned assistant surgeon from Feb. 19, 1913.

LYON, W. C., assistant surgeon. Detached from Med. Reserve Corps, U. S. N., and ordered to duty Navy Medical School, Washington, D. C.

HARTUNG, F. A., acting assistant surgeon. Appointment as such revoked from Mar. 31, 1913.

WIEBER, F. W. F., medical director. Commissioned medical director from Oct. 23, 1912.

VON WEDEKIND, L. L., medical inspector. Commissioned medical inspector from Oct. 28, 1912.

KENNEDY, R. M., medical inspector. Commissioned medical inspector from Jan. 22, 1913.

DYKES, J. R., surgeon. Commissioned surgeon from Sept. 2, 1912.

SULLIVAN, N. R., assistant surgeon. Detached from Naval Medical School, Washington, and ordered to Asiatic Station.

WENTWORTH, A. R., medical director. Commissioned medical director from Dec. 28, 1912.

HOUGH, F. P. W., passed assistant surgeon. Detached from *Intrepid*, and ordered to Asiatic Station.

ZALESKY, W. J., passed assistant surgeon. Detached from Navy Yard, Charleston, S. C., and ordered to Asiatic Station.

REED, E. U., passed assistant surgeon. Detached from Naval Station, Tutuila, Samoa, and ordered home, waiting orders.

BUCKLEY, JOHN, assistant surgeon. Commissioned assistant surgeon from Feb. 4, 1913.

BOGERT, E. S., medical inspector. Commissioned medical inspector from Dec. 28, 1912.

SPRATLING, L. W., medical inspector. Commissioned medical inspector from Jan. 12, 1913.

RODMAN, S. S., surgeon. Detached from Atlantic Reserve Fleet, to Navy Yard, Charleston, S. C.

ELY, C. F., surgeon. Detached from Naval Proving Ground, Indian Head, Md., and ordered to Tutuila, Samoa.

BACHMANN, R. A., surgeon. Ordered to U. S. S. *Delaware*.

ROSSITER, P. S., surgeon. Commissioned surgeon from Dec. 28, 1912.

GATES, M. F., medical inspector. Command, Naval Hospital, Mare Island, Cal.

RECENT DEATHS.

DR. GEORGE S. ADAMS, who died on March 17, at Stamford, Conn., was born in 1857. He was for 20 years superintendent of the Massachusetts State Hospital at Westboro.

DR. PRINCE A. MORROW, who died in New York City on March 17, was born at Mount Vernon in 1846. He received the degree of M.D. in 1874 from New York University Medical College. From 1884 to 1904, he was attending surgeon at the New York City Hospital.

He made a specialty of dermatology, and in 1888 spent a winter in Hawaii to study leprosy at Molokai. From 1890 to 1904 he was attending physician for diseases of the skin at the New York Hospital. He was a frequent contributor to medical literature, and a member of many medical societies. He had been president of the American Society for Sanitary and Moral Prophylaxis since its foundation in 1905.

DR. SYLVESTER E. STRONG, who died on March 17 at Saratoga Springs, N. Y., was born in 1837. He graduated from Wesleyan University in 1860, and in 1863 received the degree of M.D. from New York University Medical School. During the remainder of the Civil War he served as a surgeon in the Union Army.

DR. JOHN SHAW BILLINGS, formerly Lieutenant Colonel and Deputy Surgeon General, U. S. Army, died of pneumonia in the New York Hospital on Mar. 11. He was born in Indiana on April 12, 1838 and was graduated from Miami University in 1857, and later from the Ohio Medical College. During the Civil War he served as Medical Inspector in the Army of the Potomac, and later had charge of the organization of the library of the Surgeon General's office, which at the time he left was the largest medical library in the world. The monumental Index Catalogue of this library, in more than thirty volumes, remains as a tribute to his bibliographic attainments, and it was largely through his efforts that Andrew Carnegie's gift, enabling the development of the largest book circulating library in the world, was secured. Dr. Billings reorganized the U. S. Marine Hospital Service in 1870, and afterwards was placed in charge of the division of vital statistics of the Eleventh Census. One of his most noteworthy achievements was the development of the Johns Hopkins University Hospital. From 1893 to 1896 he was professor of hygiene in the University of Pennsylvania, a position which he resigned to become director of the great New York Public Library, which he organized. Among the offices he held at various times were, president of the American Public Health Association, president of the American Library Association, chairman of the executive committee of the Carnegie Institute, and vice-president of the American Statistical Association. Dr. Billings is survived by four daughters and a son, the latter also a physician.

DR. ARCHIBALD E. ISAACS, of New York, one of the founders of the Beth Israel Hospital and its honorary secretary from its organization, died from pneumonia on March 14, at the age of 47 years. He was graduated from the medical department of New York University in 1886, and at the time of his death was surgeon to the Beth Israel and Sydenham Hospitals.

DR. AMBROSE TREGANOWAN of South Amboy, N. J., died on March 12, at an advanced age. He was graduated from the Medical and Surgical College, Philadelphia, in 1854, and was three times mayor of South Amboy.

DR. LORENZO WAITE, who died recently at Pittsfield, Mass., was the oldest living graduate of the Berkshire Medical School, from which he received the degree of M.D. in 1854.

DR. WILLIAM A. LITTLE, of Brooklyn, N. Y., one of the founders of the Bushwick Hospital, died on February 24. He was graduated from the medical department of New York University in 1878.

DR. JOHN MORSE WAKEFIELD, who died recently in Warren, Knox County, Me., was born at Lewiston, Me., in 1851. He received the degree of M.D. in 1875 from Dartmouth, and since that time had practised his profession at Warren. He is survived by his widow.

DR. JOHN WARREN WILLIS, who died of pneumonia on March 1 in Waltham, Mass., was born at Belchertown, Mass., in 1832. He received the degree of M.D. in 1861 from the Harvard Medical School, and immediately settled at Waltham, where he continued active in the practise of his profession for fifty years until his retirement in 1911. He was a founder of the Waltham Hospital and a surgeon on its staff. He served for many years as city physician. He was also a founder of the Waltham Nurses' Training School, and at the time of his death was one of its trustees. He was a member of the American Medical Association and of the Waltham Medical Club. He was a Fellow of The Massachusetts Medical Society, and served for 20 years as treasurer of the Middlesex South District Medical Society. He is survived by two sons, both physicians.

DR. MERRITT ALLEN LONG, who died of pneumonia on March 4, at Lowell, Mass., was born at Manchester, Mass., in 1877. He received the degree of M.D. from the Tufts Medical School in 1905, and served as an interne at the Lowell General Hospital. He was a fellow of The Massachusetts Medical Society. He was not married.

DR. HORACE AMOS DAVIS, who died of appendicitis recently at Dorchester, Mass., was born in Roxbury, Mass., on Nov. 14, 1874. He received the degree of Ph.B., from Tufts College in 1897, and that of D.M.D. in 1900 from the Harvard Dental School. Since that time he had practised his profession in Boston.

DR. JOHN D. TREZISE, of Brooklyn, N. Y., died on March 4, at the age of 51 years. He was graduated from the Long Island College Hospital in 1901.

DR. FREDERICK C. JOHNSON, who died on March 5 at Wilkes-Barre, Pa., was born in 1858. He graduated from the University of Pennsylvania Medical School in 1882, but never practised his profession.

DR. CARLTON REVERE THOMAS, of Dorchester, Mass., who died in Boston on March 8, was born in 1877 at Whitman, Mass. After graduating from Boston University Medical School in 1901, he served for a year as interne at the Channing Hospital, Providence, R. I., and then settled in the practise of his profession in Dorchester. He is survived by his widow, one daughter, and one son.

RECORD OF MORTALITY.

FOR THE WEEK ENDING SATURDAY, MAR. 15, 1913.

CITIES.	Reported deaths in each.	Deaths under five years.	CITIES.	Reported deaths in each.	Deaths under five years.
New York	—	—	Pittsfield	14	1
Chicago	—	—	Waltham	6	—
Philadelphia	—	—	Brookline	10	2
St Louis	—	—	Chicopee	11	2
Baltimore	—	—	Gloucester	6	—
Cleveland	—	—	Medford	6	1
Buffalo	—	—	North Adams	7	4
Pittsburgh	—	—	Northampton	14	2
Cincinnati	—	—	Beverly	10	2
Milwaukee	—	—	Revere	2	—
Washington	—	—	Leominster	5	—
Providence	—	—	Attleboro	8	5
Boston	284	67	Westfield	8	3
Worcester	47	15	Peabody	—	—
Fall River	47	23	Melrose	2	—
Lowell	39	11	Woburn	7	1
Cambridge	34	7	Newburyport	9	—
New Bedford	—	—	Gardner	—	—
Lynn	20	3	Marlboro	4	—
Springfield	39	12	Clinton	2	—
Lawrence	—	—	Milford	—	—
Somerville	14	1	Adams	1	—
Holyoke	19	10	Framingham	—	—
Brockton	18	7	Weymouth	—	—
Malden	19	5	Watertown	3	2
Haverhill	14	6	Southbridge	5	3
Salem	16	4	Plymouth	—	—
Newton	7	1	Webster	3	—
Fitchburg	20	4	Methuen	—	—
Taunton	13	2	Wakefield	5	—
Everett	14	3	Arlington	6	3
Quincy	—	—	Greenfield	4	—
Chelsea	12	—	Winthrop	—	—

Original Articles.

SOME FACTORS WHICH INFLUENCE THE EXCRETION OF FORMALIN IN THE URINE OF CHILDREN AND INFANTS TAKING HEXAMETHYLENAMIN (UROTROPIN).*

BY FRITZ B. TALBOT, M.D., BOSTON,

Chief of Children's Medical Department, Massachusetts General Hospital.

AND

WARREN R. SISSON, M.D., BOSTON,

House Officer Children's Medical Department.

(From the Children's Medical Department, Massachusetts General Hospital.)

Our attention was first directed to this subject during the early part of September. At that time we had a relatively large number of cases of pyelitis in our ward. Contemporary with this, the work of Burnam and L'Esperance appeared. These authors found that only about 60% of all adults were able to break down hexamethylenamin. It occurred to us that it would be of interest and of some therapeutic importance to determine if the same fact applies to children. At this time it was our custom in cases of pyelitis to give large doses of urotropin and alkalies.

Burnam's[1] work on adults has added much to our knowledge of the action of hexamethylenamin in the human organism and its properties of supplying formaldehyde. He finds that no more than two patients out of ten show any decomposition of the drug into formaldehyde when given in the ordinary doses of five to ten grains three times a day. Although not more than 10% of the individuals tested showed free formaldehyde in the urine after the smaller doses, 60% showed it when the dosage was made from 20 to 30 grains, repeated every four to six hours. In a few instances in which the formaldehyde was not present after a dosage of 30 grains, the quantity was raised as high as 100 grains at a single dose without causing decomposition of hexamethylenamin. He concluded that there are some individuals who do not break down hexamethylenamin into formaldehyde. He says, furthermore, that "it is his impression that the formaldehyde liberation is due to some specific activity of the renal epithelium. The greatest decomposition has been observed in the highly acid urines. Meyer and Gottlieb[2] say that urotropin is split up slowly in a neutral urine, quickly in acid urines, and not at all in alkaline urines. L'Esperance and Cabot,[3] on the other hand, conclude, as a result of their work on adults, that the reaction of the urine is of no importance and that alkalies taken with or in combination with urotropin, have no effect on the excretion of formaldehyde. They did not find that increasing the doses had any effect upon the excretion of formaldehyde in negative cases. Jordan[4] showed that the antiseptic power of urotropin in alkaline or neutral urine is almost nihil, that this power rises rapidly as the acidity increases, and when the acidity is slightly above normal the urine remains indefinitely sterile. He concluded that urotropin acts as a urinary antiseptic by the formation of formaldehyde. No formaldehyde is formed in an alkaline urine, and, in consequence, the antiseptic action is nihil. In neutral or faintly acid urines, a small amount, probably not exceeding one per cent., is split up and the action is feeble. The percentage of formaldehyde, and with it, the antiseptic power, increases with the acidity up to a point at which the urine remains sterile. He was able to increase the acidity of the urine by administering acid sodium phosphate. He believes that the process of converting urotropin into formaldehyde is a simple chemical one, which occurs in all solutions of urotropin under conditions of dilution, temperature, and acidity which are identical with those in the body. Urotropin or hexamethylenamin is formed by the direct action of four molecules of ammonia on six of formaldehyde gas:—

AMMONIA.		FORMALDEHYDE.		HEXAMETHYLENAMIN.		WATER.
$4\,NH_3$	+	$6\,HCO$	=	$(Ch_2)6N_4$	+	$(6H_2O)$

When acid is added to an aqueous solution of urotropin there is partial decomposition into formaldehyde and ammonia, and on boiling complete decomposition.

The test for formaldehyde used in the following investigation is that described by Burnam and Dunning,[1] and is performed as follows:

To about 10 c.c. of suspected urine in a test tube at body temperature, is added:—

(1) 3 drops of 0.5% aqueous solution of phenyhydrazin hydrochloride.

(2) 3 drops of 5.0% aqueous solution of sodium nitroprusside.

(3) A saturated solution of sodium hydrate is poured down the side of the test tube.

When formaldehyde is present in solutions of 1 : 20,000, or stronger, an intense blue color appears, and gradually changes to green as the sodium hydrate diffuses through the urine. This changes to a brown color in a few minutes. In solutions of less than 1 : 20,000 the first color is an intense green, which passes off into brown. The test is delicate down to 1 : 150,000 or less.

When a urine does not contain formaldehyde the color reaction is as follows: As the solution

* Read at a meeting of the New England Pediatric Society, November 14, 1912.

of sodium hydrate diffuses through the urine in the tube, a reddish color is seen, gradually turning to light yellow.

When a solution is tested and found to be negative, as is the case when urotropin alone is present, it can be acidulated with sulphuric acid, heated to boiling, cooled off and tested. The reaction will then be positive, due to the breakdown of urotropin into formaldehyde.

The urine of forty-four children* and babies in the wards were examined (by W. R. S.), and the results of 400 single specimens have been recorded below. It was found that with two exceptions, all the urines containing formaldehyde were acid, and that all the alkaline urines were negative. There were two faintly alkaline urines that showed the presence of formaldehyde; 127 acid urines contained formaldehyde and 83 did not. There were 56 negative alkaline urines and, with the exception of the two slightly alkaline urines mentioned above, there were no positive ones. Eight neutral urines were negative. Eight alkaline urines showed formaldehyde after they were boiled with sulphuric acid, while three did not. Three faintly acid urines did not contain formaldehyde, but after they were boiled with sulphuric acid, gave the test; while ten definitely acid urines did not contain formaldehyde, even after boiling with sulphuric acid.

These facts indicate that hexamethylenamin is often excreted by children as such, in alkaline or neutral urine, and is almost never broken down into formaldehyde except in an acid urine. The two exceptions may possibly have been acid in the kidney and changed their reaction to litmus paper in the bladder. It should further be stated that we feel that the methods employed to determine the reaction of the urine, is not the the most accurate. In consequence, we have already undertaken to determine this more exactly by use of the hydrogen ionization method. In this way we hope to determine the exact reaction at which the maximum excretion takes place. Several children (ex. Case 2), excreting formaldehyde while the urines were acid, were given enough sodium bicarbonate and potassium citrate to make the reaction of the urines alkaline. The test for formaldehyde disappeared and urotropin was presumably excreted as such. When the urine became acid formaldehyde was found again. Five cases did not show formaldehyde in the urine until the dose was increased, while in others it appeared only after four days (Case 40).

In some cases urotropin and formaldehyde were both absent at one time of day and formaldehyde present at other times of day. This would seem to indicate that there are periods between doses in which all the previous dose had been excreted before the administration of the next one. Formaldehyde may appear in the urine of children one to two hours after the first dose; we were unable to determine how much earlier, but one child (Case 17) did not show any in thirty-five minutes. It has been found sixteen to eighteen hours after the last dose was given, but not later than eighteen hours.

All of the forty-four children and babies tested showed formaldehyde in the urine at some time while they were under observation. These results do not correspond with those reported in adults. Out-patient cases were not used in our series because we were unable to control the doses and could not be certain that the drug was given. If Burnam's assumption that urotropin is broken down into formaldehyde by the renal epithelium is correct, it is possible that these tests may become of value in estimating kidney function.

From our observations we feel that we can safely conclude:—

1. That all children are capable of breaking down hexamethylenamin.

2. That they all consequently excrete formaldehyde.

3. That relatively large doses are often necessary before the excretion of formaldehyde takes place.

4. That, as pointed out by Jordan, "the more acid the urine the greater is the decomposition of urotropin and excretion of formaldehyde." Since it has been shown by other observers that the antiseptic power of urotropin is dependent, not upon the hexamethylenamin, but upon the presence of free formaldehyde, we can further conclude,—

5. That urotropin should not be given with drugs that cause the urine to turn alkaline.

6. Finally, we believe that to insure the efficacy of the drug, specimens of urine after the administration of hexamethylenamin should always be examined for the presence of free formaldehyde.

* While making these observations we had opportunity to examine the bile obtained from a child with a biliary fistula of a number of months standing. Applying the phenylhydrazine test we were unable after repeated efforts to find hexamethylenamin or formaldehyde in the bile. Simultaneously with this, the urine of the same child was examined and found to contain formaldehyde on every occasion. The dose was raised, however, no formaldehyde was found in the bile. The specimens were repeatedly examined in the chemical laboratory of the Massachusetts General Hospital and found by other tests to contain no formaldehyde. Though no conclusion can be drawn from this single case, however, the results are of interest. Crow experimenting on dogs found formaldehyde in the bile. Our observations would seem to confirm the results of Burnam. After studying the bile of adults he believes that urotropin is of no therapeutic importance as a biliary antiseptic.

REFERENCES.

[1] Arch. of Internal Medicine, 1912, vol. x, p. 324.

[2] Die Experimentelle Pharmakologie als Grundlage der Arzneibehandlung. Berlin and Wien, 1911, p. 329.

[3] BOSTON MEDICAL AND SURGICAL JOURNAL, 1912, vol. clxvii, p. 577.

[4] The Action of Urinary Antiseptics, Bio-chemical Journal, 1911, vol. v, p. 279.

	NAME.	AGE.	DIAGNOSIS.	DATE	DOSE.	REACTION.	TEST.
1.	Reese,	6 mos.	Pyelitis	Oct. 20	Urotropin, grs. ii, every 2°	Acid	Positive
2.	Poirier,	7 yrs.	Typhoid fever	Oct. 19	Urotropin, gr. v, 4 i. d.	Acid	Negative
				Oct. 20		?	Negative
				Oct. 28-29 9 A.M., 12 NOON 3 P.M., 6 P.M. (last dose)	Gr. v.		
				Oct. 29, 6 A.M.			Positive
				Oct. 29, 9 A.M.			Positive
				Oct. 29 12 NOON			Positive
				Oct. 29 2 P.M.			Positive
				Oct. 29, 3.30			Negative
				Oct. 31	Grs. vii, every 6°, 4 doses.		Positive
				Oct. 31, 8 P.M.		Alkaline	Negative
				Oct. 31, 11 P.M.		Alkaline	Negative
	Reaction persisted positive when tested 24 hours after urine was passed.			Nov. 1, 10.30 A.M.		Acid	Positive
				Nov. 1, 2.15 P.M.		Acid	Positive
				Nov. 1, 8 P.M.		Faintly Alkaline	Negative
				Nov. 1, 10 P.M.		Neutral	Negative
				Nov. 2, 2 A.M.		Neutral	Negative
				Nov. 2, 10 A.M.		Faintly Acid	Positive
				Nov. 2, 3 P.M.		Acid	Positive
				Nov. 3, 6.45 P.M.		Faintly Alkaline	Positive
				Nov. 3, 3.15		Acid	Positive
	Dose: Hexamethylenamin gr. vii, cont. Nov. 3, midnight, to Nov. 5, midnight, sodium bicarb. gr. xxx given at 12, 4 A.M., 8, 10, 12, 2, also 12, 6, 12 pot. citrate gr. x.			Nov. 4, 1 A.M.		Acid	Positive
				Nov. 4, 3 A.M.		Acid	Positive
				Nov. 4, 1.30 P.M.		Alkaline	Negative
				Nov. 4, 2.45 P.M.		Alkaline	Negative
				Nov. 5, 5 A.M.		Acid	Positive
				Nov. 5, 1.45 P.M.		Faintly Alkaline	Positive
				Nov. 5, 5 P.M.		Alkaline++	Negative
	Note: Sod. bicarb. and pot. citrate omitted November 6th.			Nov. 6, 11 A.M.		Faintly alkaline	Positive
				Nov. 6, 11 P.M.		Alkaline++	Negative
				Nov. 6, 4 P.M.		Alkaline+	Negative
				Nov. 8, 3 A.M.		Acid	Positive
				Nov. 8, 5.45 P.M.		Acid	Positive
				Nov. 9, 5 A.M.		Acid	Positive
				Nov. 9, 10 A.M.		Acid	Positive
				Nov. 9, 5 P.M.		Acid	Positive
				Nov. 12, 6.15 P.M.		Acid	Negative
	Nov. 14, Hexamethylenamin omitted.			Nov. 16, 10 A.M.		Acid	Positive
				Nov. 16, 1.30 P.M.		Acid	Negative
				Nov. 16, 3.45 P.M.		Acid	Negative
	Nov. 16, midnight. Hexamethylenamin, gr. x, every six hours. This reaction was much stronger after urine had been heated with concentrated H2504.			Nov. 17, 4 A.M.		Acid	Negative
				Nov. 17, 5 A.M.		Acid	Positive
				Nov. 17, 10.45 A.M.		Acid	Positive
				Nov. 17, 1.30 P.M.		Acid	Positive
				Nov. 17, 5.30 P.M.		Acid	Positive
	Same urine+H2504+heat, positive.			Nov. 22, 3 P.M.	Urotropin, gr. v, sod. benzoate (gr. v) every 6°	Alkaline	Negative
	Same urine+H2504+heat, positive.			Nov. 22, 3.30 P.M.		Alkaline	Negative
				Nov. 24, 5 A.M.		Alkaline	Negative
	Same urine+H2504+heat, was			Nov. 24, 11 A.M.		Alkaline	Negative Positive
				Nov. 25, 6 A.M.		Alkaline	Negative
				Nov. 25, 10 A.M.		Alkaline	Negative
	Same urine+H2504+heat, was			Nov. 25, NOON		Alkaline	Negative Positive
				Nov. 26, 4 A.M.		Alkaline	Negative
				Nov. 26, 1 P.M.		Alkaline	Negative
				Nov. 27, 2 A.M.		Alkaline	Negative
				Nov. 27, 2 P.M.		Neutral	Negative
				Nov. 30, 11 A.M.		Faintly acid	Negative
	Same urine+H2504+heat, was						Positive

	NAME.	AGE.	DIAGNOSIS.	DATE.	DOSE.	REACTION.	TEST.
	Poirier—Continued.			Nov. 30, 11 P.M.		Acid	Positive
				Nov. 30, 7.30 P.M.		Acid	Negative
	Same urine+H2504+heat, was						Positive
				Dec. 1, 1.30 A.M.		Acid	Positive
				Dec. 1, 10 A.M.		Acid	Positive
3.	Lodzitz,	5 yrs.	Ac. nephritis	Oct. 9	Urotropin, gr. v, every 4°, 3 doses.		Positive
4.	Axtman,	5½ yrs.	Ac. anterior poliomyelitis	Oct. 12	Urotropin, gr. vi, every 3°, 4 times a day.		Positive
5.	Spillane,	4 yrs.	Torticollis	Oct. 24	Urotropin, gr. iii, 3 times a day.	Acid	Positive
				Oct. 24, 4.30 P.M.			Positive
				Oct. 24, 8.30 P.M.			Positive
				Oct. 25, 4.30 A.M.			Positive
				Oct. 25, 8.00 A.M.			Negative
6.	Mayhew,	8 yrs.	Chr. bronchitis	Oct. 24, 9 A.M.	Urotropin, gr. v, every 6°, 4 times in 24° (6 A.M., NOON, 6 P.M., midnight).		Negative
				Oct. 24, 2 P.M.			Positive
				Oct. 24, 4.10 P.M.			Positive
				Oct. 25, 3 A.M.			Positive
				Oct. 25, 4.30 A.M.			Positive
				Oct. 25, 8 A.M.			Positive
				Oct. 25, 10 A.M.		Faintly	Positive
					Gr. v, given at noon.		
				Oct. 25, 1 P.M.			Positive
				Oct. 25, 2 P.M.			Positive
	Stronger tests than previous ones.			Oct. 25, 3 P.M.			Positive
				Oct. 25, 5 P.M.			Positive
				Oct. 25, 6 P.M.			Negative
				Oct. 25, 9.15 P.M.			Negative
				Oct. 26, 5.30 P.M.			Negative
				Oct. 26, 11.30 A.M.			Positive
				Oct. 26, 12.45 P.M.			Positive
				Oct. 26, 1 P.M.			Positive
				Nov. 21, 2 P.M.		Alkaline	Negative
				Nov. 22, 6.50 P.M.		Alkaline	Negative
				Nov. 23, 6 A.M.		Acid	Positive
	Dose increased to gr. vi, ac. sod. phosphate gr. v 2i. d., started to make urine more strongly acid.			Nov. 23, 6 P.M.		Alkaline	Negative
	Same specimen+H2504+heat.						Positive
				Nov. 24, 1.30 P.M.		Alkaline	Negative
				Nov. 25, 8.30 A.M.		Alkaline	Negative
				Nov. 25, 1.45 P.M.		Faintly acid	Negative
				Nov. 25, 4 P.M.		Faintly acid	Negative
				Nov. 26, 1.30 P.M.		Acid	Negative
	Same specimen+H2504+heat.						Positive
				Nov. 27, 5 A.M.		Acid	Positive
7.	Shannon,	6 yrs.	Appendicitis post-operation	Oct. 24, 8 A.M.	Urotropin, gr. iii, 3 times a day. (4 hours after first dose.)		
				Oct. 24, 2.30 P.M.			Positive
				Oct. 25, 10 A.M.	Gr. 3.		Positive
			Dose at	2 P.M.			
				6 P.M.			
				Oct. 25, 10.30 A.M			Positive
				Oct. 25, 5.30 A.M.			Positive
				Oct. 26, 8.30 A.M.			Negative
				Oct. 26, 10.00 A.M.			Negative
				Oct. 26, 11.15 A.M.			Negative
	(It is impossible to say whether these negative reactions are due to lack of excretion or to the reaction of the urine.)			Oct. 26, 3.30 P.M.			Negative
				Oct. 28, 6 A.M.			Negative
				Oct. 28, 3 P.M.			Positive
				Oct. 28, 5.30 P.M.			Negative

	NAME.	AGE.	DIAGNOSIS.	DATE.	DOSE.	REACTION.	TEST.
8.	Block,	3 yrs.	Burn	Oct. 23, 6.00 P.M.	Urotropin, gr. iii.		
			Urine passed	8.30 P.M.			Positive
				Oct. 25, 2 P.M.	Urotropin, gr. iii.		
			Urine passed	6.15 P.M.			Positive
	(In this case formaline was found in the urine 2½ hours after the first dose. The test was found 12½ hours after the last dose but not 19 hours after the dose.)			Oct. 26, 2.30 A.M.			Positive
				Oct. 26, 10 A.M.			Negative
				Oct. 26, 12.30 P.M.			Negative
				Oct. 26, 2.30 P.M.			Negative
9.	Surette,	6 yrs.	Fracture of femur		Urotropin, gr. v, 3 times a day for 2 weeks.		
				Oct. 24, 11.30 A.M.		Acid	Positive
				Oct. 24, 2.15 P.M.		Acid	Positive
				Oct. 24, 3.30 P.M.		Acid	Positive
				Oct. 25, 6.30 P.M.		Acid	Positive
				Oct. 25, 12.00 P.M.			Positive
				Oct. 26, 5.30 A.M.			Positive
				Oct. 26, 10.30 A.M.			Positive
				Oct. 26, 12.30 P.M.			Positive
				Oct. 26, 2.00 P.M.			Negative
10.	Garr,	3 yrs.	Cretinism	Oct. 27,	Urotropin, gr. iii. given		
				Oct. 27, 8.30 A.M.	1-4-7 A.M.		Positive?
				Oct. 27, 1.00 P.M.			Negative
				Oct. 28, 6 A.M.		Acid	Positive
11.	Boyden,	11 wks.	Regulation of feeding		Urotropin, gr. ii, given 1-4-7 A.M.		
				Oct. 27, 1.30 A.M.			Negative
				Oct. 27, 10.00 A.M.			Positive
				Oct. 27, 9.30 P.M.			Negative
	(Formaline is, therefore, excretedin an 11-weeks baby.)						
12.	Keaney,	10 mos.	Scorbutus		Urotropin, gr. ii, given 1-4-7 A.M.		
				Oct. 27, 6.30 A.M.			Positive
				Oct. 27, 3.30 P.M.			Positive
13.	Jacobs,	6 mos.	Regulation of feeding		Urotropin, gr. ii, given 1-4-7 A.M.		
				Oct. 27, 11 A.M.			Positive
				Oct. 27, 10.30 P.M.			Positive
14.	Koplan,	7 mos.					
				Oct. 29	Urotropin, gr. 1½ given at 9-12-3 P.M.		Positive
15.	Zals,	5 yrs.	Fracture of skull		Urotropin gr. iii. 3 times a day at 10 A.M.-2 and 6 P.M.		
				Oct. 30, 1 P.M.		Alkaline	Negative
				Oct. 31, 3.30 A.M.		Acid	Negative
				Oct. 31, 9.00 A.M.		Alkaline	Negative
				Oct. 31, 10.00 A.M.		Neutral	Negative
				Oct. 31, 1.00 P.M.		Weakly Ac.	Negative
	(These acid urines are on the border line of alkalinity.)			Nov. 1, 2 A.M.		Neutral	Positive?
				Nov. 1, 7.30 A.M.		Alkaline	Negative
				Nov. 1, 10.30 A.M.		Weaky Ac.	Negative
				Nov. 1, 1.00 P.M.		Weakly Ac.	Negative
					Dose increased to 7 grains.		
				Nov. 2, 3 A.M.		Faintly Ac.	Negative
				Nov. 2, 7 A.M.		Alkaline	Negative
				Nov. 2, 8.30 A.M.		Alkaline neutral	Negative
				Nov. 2, 11 A.M.		Acid	Positive
				Nov. 2, 2.30 P.M.		Acid	Positive
				Nov. 2, 3.30 P.M.		Acid	Positive

NAME.	AGE.	DIAGNOSIS.	DATE.	DOSE.	REACTION.	TEST.
Zals—Continued.			Nov. 2, 4 P.M.		Acid	Negative
			Nov. 2, 5.30 P.M.		Acid	Positive
				Dose increased to gr. x, given at same time		
			Nov. 2, 8 P.M.		Acid	Positive
			Nov. 2, 1.30 A.M.		Acid	Positive
			Nov. 2, 4 A.M.		Acid	Positive
16. Shean,	7 yrs.	Unbilical hernia		Urotropin, gr. iii, 3 times a day at 10 A.M. 2 and 6 P.M., P. C.		
			Oct. 30, 8.30 A.M.		Alkaline	Negative
			Nov. 3	Dose increased to gr. v, every 6° (*i.e.* 6-12-6-12)		
			Nov. 3, 5 P.M.		Faintly Ac.	Negative
			Nov. 3, 8 P.M.		Acid	Negative
			Nov. 4, 6 A.M.		Acid	Positive
			Nov. 4, 5 P.M.		Acid	Positive
			Nov. 5, 2 A.M.		Acid	Positive
			Nov. 5, 9.10 A.M.		Acid	Positive
17. Fuccio,	5 yrs.	Typhoid fever		Urotropin, gr. iii, every 6°		
			Oct. 31		Neutral	Negative
			Oct. 31, 9 P.M.		Weakly Ac.	Negative
			Nov. 1, 3.50 P.M.		Weakly Ac.	Negative
			Nov. 1, 4 A.M.		Weakly alkaline	Negative
				Dose increased to 6 gr.		
(This tested at 11 P.M., and again 12 hours later. The test was positive in both instances despite the fact that the urine was practically neutral by the second test.)			Nov. 1, 8 P.M.		Alkaline	Negative
			Nov. 2, 4 A.M.		Acid	Positive?
			Nov. 2, 8.30 A.M.		Acid	Positive
			Nov. 2, 3.30 P.M.		Acid	Positive
			Nov. 2, 11 P.M.		Acid	Positive
			Nov. 3, 4 A.M.		Acid	Positive
			Nov. 3, 4 P.M.		Acid	Positive
			Nov. 4, 10.30 P.M.		Faintly Ac.	Positive
			Nov. 4, 4 A.M.		Faintly Ac.	Positive
			Nov. 4, 1.15 P.M.		Faintly Ac.	Positive
			Nov. 4, 4 P.M.	Dose changed to 10 grs. 3 times a day; pot. citrate gr. x 3 times a day and sod. bicarb. gr. xxx. every six hours.	Acid	Positive
			Nov. 4, 8 P.M.		Acid	Positive
			Nov. 4, 11 P.M.		Acid	Positive
			Nov. 5, 8 A.M.		Strongly alk.	Negative
			Nov. 5, 8 P.M.		Strongly ac.	Positive
			Nov. 6, 4 A.M.		Faintly Ac.	Positive
Same spec.+H2504+heat, was positive.			Nov. 6, 8 A.M.		Strongly alk.	Negative
			Nov. 6, 1 P.M.		Acid	Positive
			Nov. 6, 8 P.M.		Acid	Positive
(Midnight alkalies are omitted.)			Nov. 7, 4 A.M.		Faintly ac.	Positive
			Nov. 7, 5 A.M.		Alkaline	Negative
			Nov. 8, 6 A.M.	Urotropin omitted.		
			Nov. 8, 7.30 A.M.		Alkaline	Negative
			Nov. 8, NOON		Acid	Positive
			Nov. 9, 4 A.M.		Acid	Negative
			Nov. 9, 5 A.M.		Alkaline	Negative
			Nov. 9, 2.58 P.M.	Urotropin, gr. vi, 1 dose.		
			Nov. 9, 3.15 P.M.	Catheterized at		
			Nov. 9, 3.15 P.M.		Acid	Negative
			Nov. 9, 3.16 P.M.		Acid	Negative
			Nov. 9, 318 P.M.		Acid	Negative
			Nov. 9, 3.20 P.M.		Acid	Negative
			Nov. 9, 3.30 P.M.		Acid	Negative
			Nov. 10, 7.15 P.M.		Acid	Positive
			Nov. 10, 1.30 P.M.		Acid	Positive
			Nov. 10, 6 P.M.		Acid	Negative
			Nov. 12, 4 P.M.		Acid	Negative

	NAME.	AGE.	DIAGNOSIS.	DATE.	DOSE.	REACTION.	TEST.
18.	Olmstead,	8 mos.	Pyelitis		Urotropin, 10 grs. in 24°		
				Nov. 2, 5.30 P.M.		Weakly Ac.	Positive
				Nov. 4, 3 A.M.		Acid	Negative
				Nov. 5, ?		Acid	Positive
				?		Acid	Positive
19.	Halloran,	3 mos.	Feeding		Urotropin gr. i, at 2-4 and 6		
				Nov. 3, 6.30 A.M.		Acid	Positive
				Nov. 4, 5 A.M.		Acid	Positive
20.	McNeil,	4 yrs.	Bile fistula fol. operation	Nov. 3. Bile collected from fistula and tested immediately. No formaline.	Urotropin, gr. v, 3 times a day, started Nov. 5.		
	(This bile boiled with H2504 and tested for formaldehyde was negative.)			Nov. 5, Bile 4 P.M.			Negative
				Urine 4 P.M.			Positive
				Nov. 12, 2.30 P.M.		Acid	Negative
	Same+H2504+heat						Negative
				Nov. 12, 5.30 P.M.		Acid	Negative
	Same+H2504+heat						Negative
				Nov. 15, 7 A.M.		Acid	Negative
				Nov. 15, 2.30 P.M.		Acid	Negative
				Nov. 16, 4 A.M.		Acid	Positive
				Nov. 16, 8.30 A.M.		Acid	Positive
				Nov. 16, 2 P.M.		Acid	Positive
				Nov. 16, 5.15 P.M.		Acid	Negative
	Same+H2504+heat						Negative
				Nov. 17, 1 A.M.		Acid	Negative
				Nov. 17, 6 A.M.		Acid	Positive
				Nov. 17, 11 A.M.		Acid	Positive
				Nov. 17, 5 P.M.		Acid	Positive
				Nov. 17, 10 P.M.		Acid	Positive
				Nov. 18, 2 P.M.		Acid	Positive
				Nov. 18, 3 P.M.		Acid	Positive
				Nov. 18, 12.30 P.M.		Acid	Positive
				Nov. 18, 8 P.M.		Neutral	Negative
				Nov. 18, 5 P.M.		Neutral	Negative
	Same+H2504+heat						Positive
				Nov. 19, 6 A.M.		Acid	Positive
				Nov. 19, 7.30 A.M.		Alkaline	Negative
				Nov. 19, 12 P.M.		Alkaline	Negative
				Nov. 4.15 P.M.		Acid	Negative
				Nov. 20, 1 A.M.		Acid	Negative
				Nov. 20, 1.30 P.M.		Acid	Positive
				Nov. 20, 5.30 P.M.		Acid	Positive
21.	McCarron,	2 yrs.	Cleft palate		Urotropin, gr. v, every 6°		
				Nov. 4, 5 A.M.			Positive
22.	Hardy,	2 yrs.	Cleft palate		Urotropin, gr. v, every 6°		
				Nov. 4, 5 A.M.			Positive
				Nov. 5, 5 A.M.		Acid	Positive
23.	Hurwick,	7 yrs.	Burn		Urotropin, gr. ? sod. bicarbonate gr.?		
				Nov. 5, 11.30 A.M.		Faintly alk.	Negative
				Nov. 6, ?		Neutral	Negative
				Nov. 7, 5 A.M.		Ac.++	Positive
				Nov. 7, 6.15 P.M.		Ac.++	Positive
				Nov. 7, 3 P.M.		Alkaline	Negative
				Nov. 8, 1 A.M.		Acid	Positive
				Nov. 8, 3 P.M.		Alkaline	Negative
				Nov. 9, 5.30 P.M.		Acid	Negative
				Nov. 10, 4 A.M.		Acid	Positive
	H2504+heat gives negative reaction with all these specimens.			Nov. 10, 3.30 P.M.		Acid	Negative
				Nov. 10, 5.30 P.M.		Acid	Negative

	NAME.	AGE.	DIAGNOSIS.	DATE.	DOSE.	REACTION.	TEST.
	Hurwick—Continued.			Nov. 10, 6.30 P.M.		Acid	Negative
				Nov. 11, 4 A.M.		Acid	Positive
				Nov. 11, 11.30 A.M.		Alkaline	Negative
				Nov. 11, 3.30 P.M.		Acid	Negative
	Same+H2504+heat						Negative
				Nov. 12, 2 A.M.		Acid	Negative
				Nov. 12, 9.10 A.M.		Acid	Negative
				Nov. 12, 1 P.M.		Acid	Positive
				Nov. 13, 12 A.M.		Acid	Negative
				Nov. 13, 3 A.M.		Acid	Negative
				Nov. 13, 8 A.M.		Acid	Positive
				Nov. 13, 3 P.M.		Alkaline	Negative
				Nov. 13, 5.15 P.M.		Acid	Negative
				Nov. 13, 11.30 P.M.		Alkaline	Negative
				Nov. 14, 2 A.M.		Acid	Negative
	Same+H2504+heat						Negative
				Nov. 15, 1.45 P.M.		Acid	Negative
	Same+H2504+heat						Negative
				Nov. 16, 8.45 A.M.		Acid	Negative
				Nov. 16, 4.45 A.M.		Acid	Negative
				Nov. 17	Dose increased to 10 gr., every 6°		
				Nov. 17, 3 A.M.		Acid	Positive
				Nov. 17, 6 A.M.		Faintly ac.	Negative
				Nov. 17, 2.20 P.M.		Faintly ac.	Negative
				Nov. 17, 4 P.M.		Faintly ac.	Negative
				Nov. 17, 8 P.M.		Alkaline	Negative
				Nov. 18, 3 P.M.		Acid	Positive
				Nov. 18, 5.30 P.M.		Faintly ac.	Negative
				Nov. 18, 8 P.M.		Faintly ac.	Negative
	Same+H2504+heat			Nov. 18			Positive
24.	Dellis,	14 mos.	Epilepsy		Urotropin, gr. v, every 6°		
				Nov. 7, 6.30 A.M.		Acid	Positive
25.	Quigley,	4 yrs.	Dislocated cervical vertebrae		Urotropin, gr. iv, every 6° (12-6-12-6)		
				Nov. 9, 6 A.M.		Acid	Negative
				Nov. 9, 1 P.M.		Acid	Positive
				Nov. 9, 6.15 P.M.		Alkaline	Negative
	Same+H2504+heat						Positive
				Nov. 10, 5 A.M.		Acid	Positive
				Nov. 10, 4 P.M.		Alkaline	Negative
				Nov. 11, 6.15 P.M.		Acid	Negative
				Nov. 12, 3.30 P.M.		Acid	Positive
				Nov. 14, 7.30 A.M		Acid	Negative
26.	Smith				Urotropin.		
				Nov. 9, 5.45 P.M.		Acid	Negative
				Nov. 10, 12.30 A.M.		Acid	Positive
				Nov. 10, 4 A.M.		Acid	Positive
				Nov 10, 10 A.M.		Acid	Positive
				Nov. 11, 1 A.M.		Acid	Negative
				Nov. 11, 10.30 A.M.		Acid	Negative
	Same+H2504+heat						Negative
				Nov. 11, 1.15 P.M.		Acid	Negative
	Same+H2504+heat						Negative
				Nov. 11, 5.15 P.M.		Acid	Positive
				Nov. 12, 10 A.M.		Alkaline	Negative
	Same+H2504+heat						Positive
				Nov. 12, 1 P.M.		Alkaline	Negative
	Same+H2504+heat						Positive
				Nov. 12, 4 P.M.		Acid	Negative
	Same+H2504+heat						Negative
				Nov. 12, 6 P.M.		Acid	Negative
				Nov. 13, 11.30 A.M.		Acid	Negative
				Nov. 13, 10 A.M.		Neutral	Negative
				Nov. 13, 2.30 A.M.		Neutral	Negative
				Nov. 13, 3 A.M.		Acid	Negative
				Nov. 13, 4 A.M.		Acid	Negative
				Nov. 13, 6 A.M.		Acid	Negative

	NAME.	AGE.	DIAGNOSIS.	DATE.	DOSE.	REACTION.	TEST.
27.	Anidoc,	10 mos.	Pneumonia		Urotropin, gr. iii, every 6°		
				Nov. 14, 4 A.M.		Acid	Negative
				Nov. 14, 1.30 P.M.		Acid	Negative
				Nov. 15, 1.30 P.M.		Acid	Negative
				Nov. 18, 7.30 P.M.		Acid	Positive
28.	Greenfield,	2 yrs.	Cretinism Pneumonia		Urotropin, gr. vi, every 6°		
				Nov. 15, 11 A.M.			Positive
				Nov. 15, 2 P.M.		Acid	Negative
				Nov. 15, 8 P.M.			Positive
				Nov. 16 11.30 A.M.		Acid	Positive
29.	Harris,	2 yrs.	Pes valgus	Nov. 23		Alkaline	Negative
	Same specimen+H2504+heat						Negative
				Nov. 28		Alkaline	Negative
	Same specimen+H2504+heat						Positive
30.	Sarokioki,	3 yrs.	Acute tonsillitis		Urotropin, gr. v, 4 times a day.		
				Nov. 19			Positive
31.	Vetrani,	15 mos.	Acute otitis media		Urotropin, gr. iv, and sodium benzoate, gr. iii, every 6°		
				Nov. 21		Acid	Positive
32.	Castellani,	3 yrs.	Femoral abscess		Urotropin, gr. iv, 3 times a day.		
				Nov. 23, 5.30 P.M.		Acid	Positive
				Nov. 24, 4 P.M.		Acid	Negative
	Same+H2504+heat						Negative
33.	Marketonio,	3½ yrs.	Osteo-myelitis		Urotropin, gr. vi, at 12 and 3.		
				Nov. 19, 5 A.M.		Acid	Positive
34.	Tobin,	4 yrs.	Appendicitis post operation		Urotropin, gr. vi, every 4°		
				Nov. 19, 1 A.M.		Acid	Positive
				Nov. 27, 1.30 P.M.		Alkaline	Negative
35.	Shrier,	5 yrs.	Pyelitis		Urotropin, gr. v, 4 times a day.		
				Nov. 21		Acid	Positive
36.	Goldberg,	7 yrs.	Pyelitis		Urotropin, gr. v, 4 times a day.		
				Nov. 27, 9 A.M.		Faintly ac.	Positive
37.	Rogers,	3 yrs.	Hydrocephalus		Urotropin, gr. iv, 4 times a day.		
				Nov. 26, 5 P.M.	Dose increased at	Acid	Negative
				Nov. 26, 11.15 P.M.	midnight to gr. viii	Acid	Negative
				Nov. 27, 4 A.M	every six hours (*i.e.*	Acid	Negative
				Nov. 27, 3.30 P.M.	12-6-12-6).	Very ac.	Positive
				Nov. 27, 4.20 P.M.		Very ac.	Positive
				Nov. 27, 5.20 P.M.		Very ac.	Positive
				Nov. 28, 5 A.M.		Acid	Positive
	NOTE: This child did not show the test for formaline until the dose was increased.			Nov. 28, 6 P.M.		Acid	Positive
				Nov. 28, 12.10 P.M.		Acid	Positive
				Nov. 29, 6.15 A.M.		Acid	Negative

	NAME.	AGE.	DIAGNOSIS.	DATE.	DOSE.	REACTION.	TEST.
38.	O'Neil,	10 yrs.	Pyelitis		Urotropin, gr. v, 3 times a day.		
				Nov. 26, A.M.			Positive
				Nov. 27	Pot. citrate, gr. 40 a day commenced.		
				Nov. 27, 4 P.M.		Alkaline	Negative
	Same+H2504+heat.						Positive
39.	Koniar,	9 yrs.	Pneumonia		Urotropin, gr. ?		
				Nov. 27, 4.30 P.M.		Acid	Negative
				Nov. 28, 1.30 A.M.		Alkaline	Negative
	Same+H2504+heat						Negative
				Nov. 28, 9.30 A.M.		Acid	Positive
				Nov. 28, 11 A.M.		Neutral	Negative
				Nov. 28, 5.30 P.M.		Acid	Negative
				Nov. 28, 9.15 P.M.		Neutral	Negative
				Nov. 28, 8 P.M.		Neutral	Negative
				Nov. 28, 10 P.M.		Acid	Positive
				Nov. 29, 5.30 A.M.		Acid	Positive
				Nov. 29, 9 A.M.		Acid	Negative
				Nov. 29, 2 P.M.			Negative
	Same+H2504+heat					Alk.-neut.	Negative
				Nov. 29, 3.30 P.M.			
						Alk.-neut.	Negative
				Nov. 29, 8.30 P.M.			
						Faintly ac.	Positive
				Nov. 30, 2.30 A.M.			
						Acid	Positive
				Nov. 30, 12 NOON		Acid	Positive
				Dec. 1, 5.45 A.M.		Acid	Positive
40.	O'Brien,	4 yrs.	Pneumonia		Urotropin, gr. viii, every 6°		
				Nov. 29.		Acid	Negative
				Nov. 30, 1.10 A.M.		Neutral	Negative
				Nov. 30, 5 P.M.		Neutral	Negative
				Dec. 1, 4.30 A.M.		Acid	Negative
				Dec. 1, 9 A.M.		Alkaline	Negative
				Dec. 1, 5 P.M.		Acid	Negative
				Dec. 2, 1 A.M.		Acid	Negative
				Dec. 2, 10 A.M.		Alkaline	Negative
				Dec. 5, 5 A.M.		Acid	Negative
				Dec. 6, 2 A.M.		Acid	Positive
				Dec. 6, 6 A.M.		Acid	Positive
				Dec. 7, 1 P.M.		Acid	Positive
41.	Goulis,	5 yrs.	Pneumonia		Urotropin, gr. viii, ac. sod. phos., gr. v, every 6°, started Nov. 29.		
				Nov. 29, 4 P.M.			Negative
				Nov. 30, 5 P.M.		Alkaline	Negative
				Nov. 30, 5.30 P.M.		Acid	Negative
				Dec. 1, 12.45 P.M.		Acid	Negative
				Dec. 1, 4.30 P.M.		Alkaline	Negative
	Same dosage.			Dec. 8, 8.30 A.M.		Acid	Positive
				Dec 7, 12 MIDNIGHT		Acid	Positive
				Dec. 8, 12 MIDNIGHT		Acid	Positive +Intense
42.	McLaughlin,	15 mos.	Tetany	Dec. 3, 11 P.M.	Urotropin, gr. iv,		
				Dec. 4, 2 A.M.	Urotropin, gr. iv.		
				Dec. 4, 8 A.M.		Acid	Positive
				Dec. 4, 12 NOON		Acid	Positive
43.	Langford,	7 mos.	Tetany Chr. intestinal indigestion	Dec. 9, MIDNIGHT	Urotropin, started gr. iii, every 6°		
				Dec. 10, A.M.		Acid	Positive
44.	Snow,	16 mos.	Pneumonia	Dec. 6, 12 P.M.	Urotropin, gr. v, every 6°		
				Dec. 7		Acid*	
		Temp. 104°		Dec. 8, 3.40 P.M.		Acid	Positive

* Negative repeated with heat and acid= negative.

COXA VARA: SOME OBSERVATIONS ON THIS CONDITION WITH ESPECIAL REFERENCE TO THE QUESTION OF SPONTANEOUS RECOVERY FROM THIS DEFORMITY.

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A large proportion of the cases seen at an orthopedic clinic for children are those which present rachitic deformities of the lower extremities. These deformities are usually bow legs or knock knees of a greater or less degree, according to the age and condition of the child.

There is one other condition, however, namely, coxa vara, which is present in nearly all of these cases, and which many times escapes attention on account of the more obvious deformity of knock knees or bow legs. Coxa vara is, however, a very real deformity, and produces constant and definite results. It consists of a reduction of the normal angle of the neck of the femur with the shaft from an oblique towards a right or even an acute angle. The normal angle of the neck of the femur with the shaft at birth is said to be about 160 degrees. This decreases during growth, until adult life is reached, when the angle averages from 110 to 140 degrees. When growth is completed, the angle, as a rule, remains fixed.

It has been stated that coxa vara usually occurs with bow legs, and coxa valga, or an increase in the normal angle of the neck with the shaft, with knock knees. In this series there have been no cases of coxa valga, although there have been cases of both knock knees and bow legs. The average angle of the neck of the femur found in these cases, from measurements of x-ray tracings, regardless of age, sex or accompanying bow legs or knock knees, was:

Right leg,	125 degrees plus
Left leg,	124 degrees plus
Average in knock knees,	112 degrees plus
Average in bow legs,	124 degrees plus
Total number of knock knees,	6
Total number of bow legs,	17

It is obvious then that in knock knees there exists a greater degree of coxa vara than in bow legs. This seems reasonable in view of the fact that in knock knees the line of weight-bearing falls outside the knee joint, which tends to bring a greater strain on the femoral neck than is the case in bow legs, where the weight-bearing line falls inside the knee joint, and so tends to make the neck of the femur act like a spoke in a dished wheel, bringing it in line with the weight-bearing as the body rests on that leg. In all the cases studied rickets was the underlying cause of their various deformities. The cases were studied carefully over periods of from one to three years, and x-ray and other tracings were taken at various intervals.

CAUSES.

There are many causes of coxa vara, but it is most frequently seen in rickets, osteomalacia, tuberculosis of the hip and osteomyelitis, arthritis deformans and following trauma. In these cases the cause was always rickets, and the deformity was a static one due to superincumbent weight either in standing or sitting.

The sitting position has often been overlooked as a cause of coxa vara in these cases, but when the bones are soft as in rickets it may be readily produced without any standing position ever having been taken by the child. When the child sits, as children usually do, in the acute or subacute stage of rickets, with the legs either straight or crossed in front of them, there is the weight of the trunk exerting a counter pressure on the thighs, which tends to fix and displace backward the upper portion of the femur. This condition, combined with the pull of the psoas, iliacus and adductors, tends to increase the flexion deformity in connection with the increased pull of the ham strings and the tensor fascia lata. This position eventually leads to the flexion deformity seen in these cases of coxa vara, with the tendency to outward rotation with the legs extended.

The sitting position also favors flexion of the sacrum forward on the iliac bones and a consequent depression and forward displacement of the promontory of the sacrum, thus aiding in the production of the flexed position and lordosis in the erect position. The neck of the femur is depressed more than normal, with usually a forward bend to the neck, so that the trochanter is displaced backward and upward. The forward bend to the neck shortens the posterior aspect of the neck, which accounts partially for the limitation of abduction, on account of the bony impact of the trochanter on the ilium. The limitation of abduction by muscular forces is probably secondary to the effect of the coxa vara. That is, the muscles are shortened as a result of the coxa vara and not primarily. The change of the angle of the neck of the femur to the shaft does not cause a contraction of the muscles primarily, for theoretically in abduction the adductors travel through an arc at their periphery. Practically, however, as the muscles slacken, due to their decreased pull, on account of the raising of their point of insertion, they shorten.

The position of the head of the femur in abduction limits abduction, on account of its relation to the acetabulum; for on account of its sinking, its articular surface is displaced downward and forward, thus limiting the apposition of the joint surfaces. The backward concavity of the neck causes bony resistance and limitation of full and adequate outward rotation.

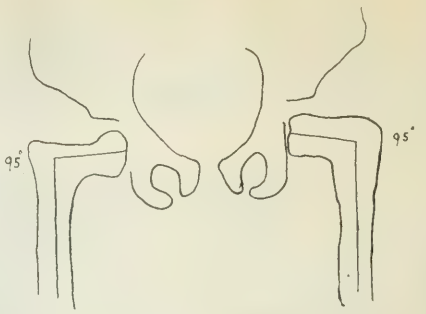
SYMPTOMS.

The usual picture seen in a case of coxa vara is as follows: When the child stands there may

be the usual knock knee or bow leg deformity, although of course coxa vara may exist quite independently of these other conditions. There is usually a markedly protuberant abdomen with a hollow back or lordosis. The degree of protuberance, apart from the usual big belly of the rachitic child, is more or less directly associated with the degree of hollow back present. There is also more or less flexion of the thighs on the abdomen and flat foot. The trochanters are usually found at or well above Nélaton's line, and the horizontal distance between the trochanters is increased. In lying down there is always a constant limitation of normal motion in abduction and hyperextension of the thigh on the body. This limitation of hyperextension is due to the shortening of the iliacus and psoas muscles principally, and the limitation of abduction to the high and backwardly displaced trochanter which impinges on the ilium in abduction. Shortening of the adductor groups of muscles may play a secondary part in this limitation also. The legs lie naturally in an outwardly rotated position due to the shortening of the previously mentioned muscles and the forward convexity of the neck of the femur. In standing the lordosis and pelvic tilt is largely due to this muscle shortening. In walking there is a noticeable waddling gait similar to that seen in cases of congenital dislocation of the hip.

A few of the characteristic cases will be described and the tracings, which were taken from the child and from X-Rays of the hip, shown.

Case 1. Girl, aged two and three-quarters; bow legs; seen Feb. 1, 1909; began to walk at ten months, bowing of legs since walking. Skull square, fontanelle closed, lumbar lordosis, marked rosary and epiphyseal enlargement at wrists and ankles. Slight bowing of femora, with double bow leg. Stands with marked bowing of legs, most marked in upper third of tibiae, where there is also backward bowing. Knees relaxed, external condyles enlarged. Abdomen protuberant. Motions at hip limited in internal rotation and hyperextension. Abduction of legs 24 degrees. Fitted to bow leg irons. See tracing I and x-ray tracing I A.



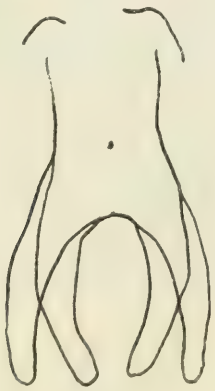
I A. Feb. 1, 1909.



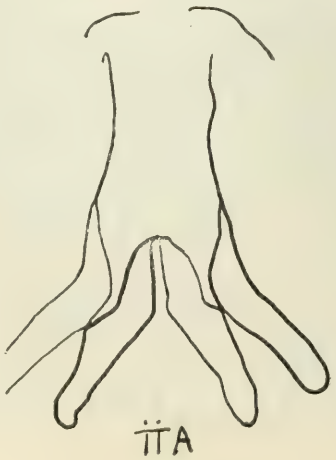
I B. June 22, 1910.

On June 22, 1910, a year and a half later, this child was examined again. There was still considerable bowing of the legs, especially of the left, with backward deformity at the knee. Both feet were flat. The abdomen was protuberant, but lordosis was not marked. Epiphyses at wrist still noticeable. Knees relaxed. No coxa vara clinically. No limitation of hyperextension or abduction. See x-ray tracing I B. Note increase in angle of neck of femur from 95 degrees to 120 degrees plus.

Case 2. Girl, age four; seen Dec. 30, 1908; knock knees; walking at fourteen months. Head large. Fontanelle closed. Left dorsal, right lumbar scoliosis, marked backward bowing of outer third of clavicles. Rosary and enlarged epiphyses at wrist. Slight outward bowing of femora and outward bowing of lower legs with knock knees. Flat feet. Stands with marked knock knee, left knee behind.

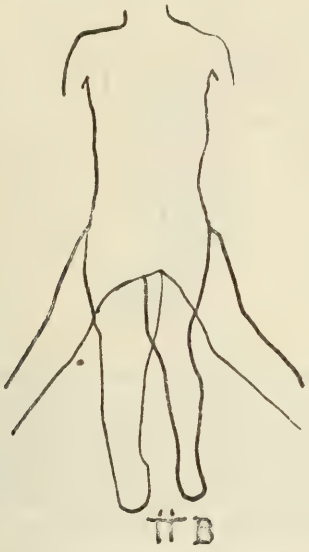


I.



II A

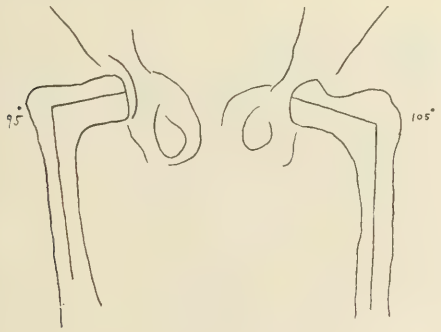
right with right overlapping. Thighs flexed in standing with knees bent. No special lordosis. Marked limitation of hyperextension, and abduction. See tracing II A. On Jan. 7, 1909, she had a double McEwen osteotomy performed for the relief of her knock knee.



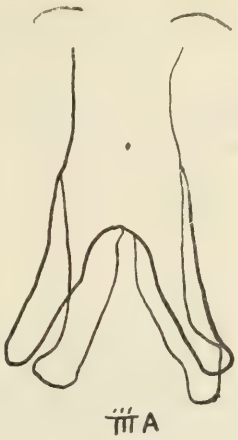
On June 20, 1910, about a year and a half later, her condition was as follows; Stands with very slight flexion of thighs on abdomen. Still slight knock knee. Internal rotation and abduction of thighs slightly limited. See tracing II B. X-ray tracings of this case were not taken on account of unsatisfactory plates.

CASE 3. Girl, age four; seen Feb. 2, 1909; knock knees and anterior bow legs. Skull square, lumbar lordosis, rosary, epiphyses enlarged, Harrison's sulcus present. Marked anterior bowing of lower third of tibiae, coxa vara, knock knee and flat foot. Stands with marked flat foot and flexion of thighs on abdomen. Marked limitation of hyperextension of thighs. Knee joints very lax. Marked outward bowing of femora. Limitation of abduction of thighs, legs lie in a position of outward rotation. See tracing III A and x-ray tracing III A. Operation Feb. 5, 1909, osteotomy for anterior bowing of lower legs.

Operation Oct. 13, 1909, double epiphysealysis of the femora. Nine months later was much improved. Stood with very slight lordosis, no knock knees, good motion in abduction. See tracings III B and x-ray tracing III B.

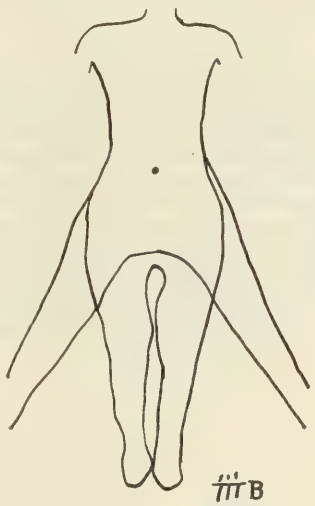


III A. Jan. 16, 1909.

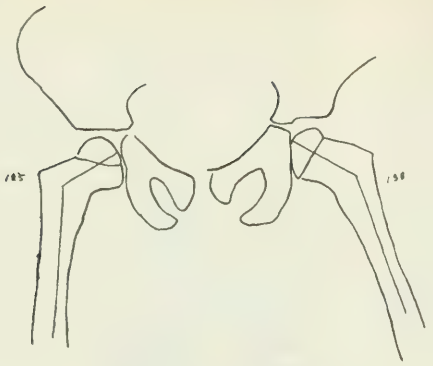




III B. July 22, 1910.

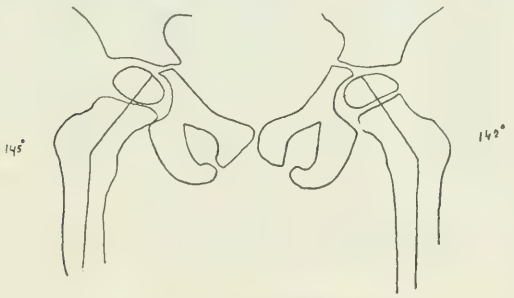


CASE 4. Boy, age three; seen July 18, 1908; bow legs; started to walk at ten months. Usual rachitic signs. Stands with marked outward bowing of femora and lower legs. Backward bowing of upper end of left tibia. Slight lumbar lordosis, all outward and inward rotation limited, also hyperextension. X-ray tracings at this date showed the angles of the neck of the femora to the shaft to be respectively 125 to 138 degrees. Braces to legs. X-ray, see IV A.



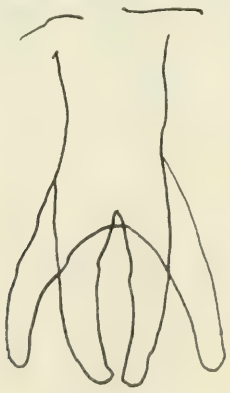
IV A. Jan. 2, 1909.

Two years later, on July 25, 1910, he had increased only two pounds in weight, which was 31¾ pounds. Stood with no marked lordosis, very little bowing of legs. Internal rotation was not limited, nor was abduction. The x-ray tracings at this date showed angles of 130 degrees. A year and a half later, on Dec. 23, 1911, the boy was well, he had no bow legs and no symptoms of coxa vara. The angles of the neck of the femora were approximately 145 degrees. X-ray, see IV B.

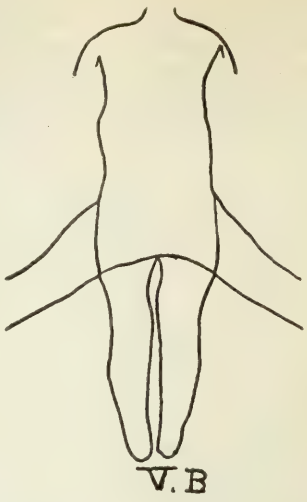


IV B. Dec. 23, 1911.

CASE 5. Girl, age two; seen Oct. 20, 1908; bow legs; began to walk at eleven months. Usual signs of rickets. Moderate bow legs, especially of tibiae. Stands with bowed legs, especially in upper third of tibiae and slight flexion of thighs on abdomen. Abduction and inward rotation of hips limited. Legs lie naturally outwardly rotated. See tracing V A. Abduction about 30 degrees. Seen again about two years later, July 25, 1910. No signs of bow legs or coxa vara. No lordosis. Abduction free. See tracing V B. Abduction increased to 60 degrees.

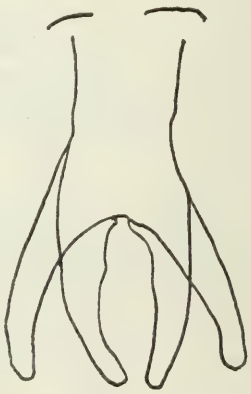


V A

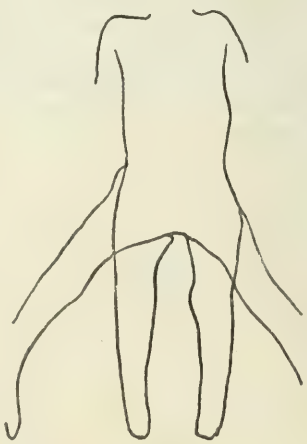


V B

CASE 6. Girl, age four; bow legs; seen Feb. 8, 1909; began to walk at eleven months. Usual rachitic signs. Stands with lumbar lordosis; with outward bowing of legs, especially lower tibiae. Both thighs flexed on abdomen. Trochanters high and back, abduction limited. Hyperextension and inward rotation limited. Lies with legs outwardly



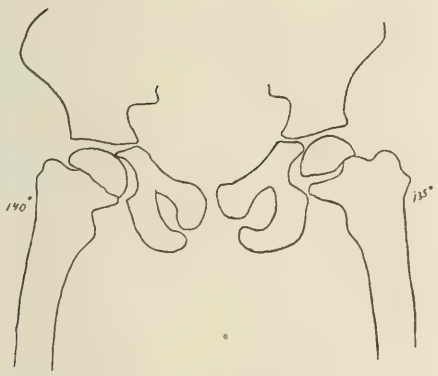
VI A



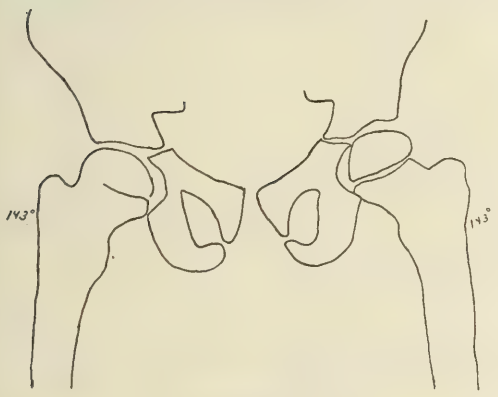
VI B

rotated. See body tracing VI A. Abduction about 30 degrees. Osteotomy of both lower legs, Feb. 19, 1909, for correction of bow legs. Seen fifteen months later, on Apr. 10, 1912. Legs straight, abduction normal, no signs of coxa vara. See body tracing VI C and x-ray tracing of same date, VI C.



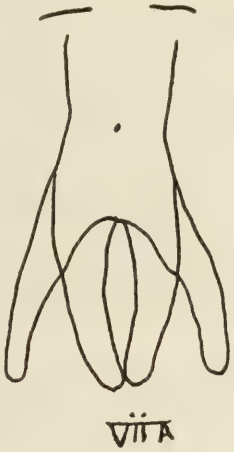


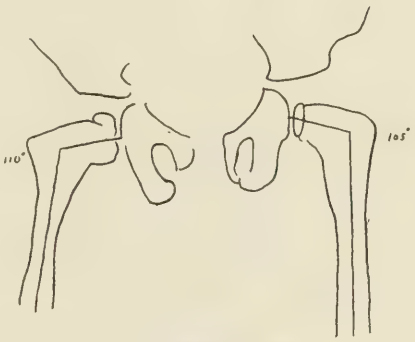
VI B. June 20, 1910.



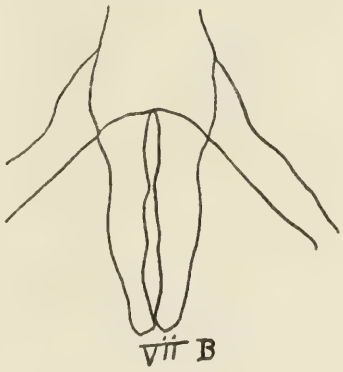
VI C. Apr. 10, 1912.

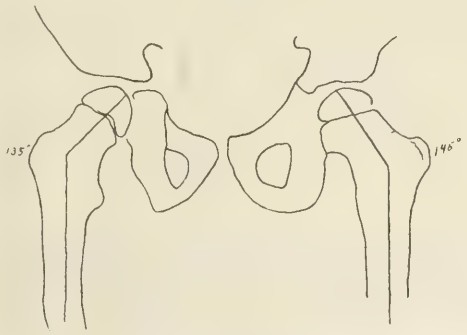
Case 7. Boy, age 3; seen March 8, 1909; bow legs; began to walk at sixteen months. Slight general signs of rickets. Slight outward bowing of femora and tibiae in upper third. Lies with legs outwardly rotated. Abduction and hyperextension at hips limited. Stands with slightly protuberant abdomen and tilt forward to pelvis. Tracing of legs taken. See VII A and x-ray tracing VII A. Note: Angle of neck of femur to average about 107 degrees. Child fitted to bow leg irons. He was seen again about fourteen months later, when he showed improvement. A year and a half later still, on Dec. 20, 1911, his legs were straight, and the tracing VII B and x-ray tracing VII B are self explanatory. There was no limitation of hyperextension or abduction, and the child stood naturally. Note increase in angle of neck of femur.





VII A. March 8, 1909.

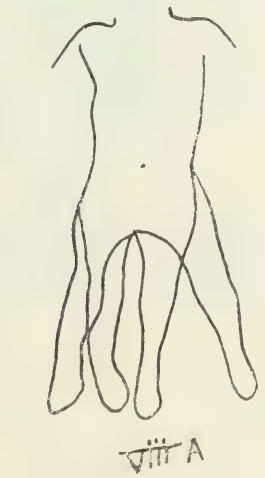


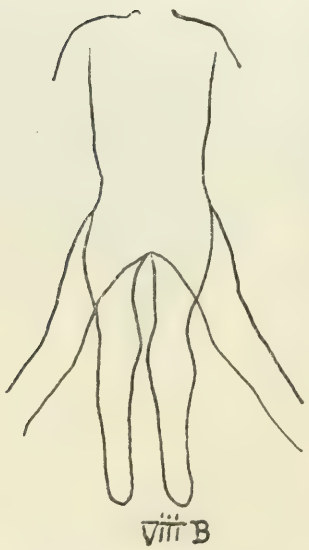


VII B. Dec. 20, 1911.

Case 8. Girl, age five and three-quarters; seen Jan. 27, 1909; bow legs; began to walk at ten months. Large square head, clavicles short and broad, axillae wide, upper ends of humeri enlarged and bowed forward and outward. Epiphyses at wrist very much enlarged. Stands with thighs flexed about 15 degrees; lumbar lordosis increased. Femora bowed forward and outward. Internal condyles enlarged. Marked anterior bowing of lower third of tibiae, with moderate lateral bowing. Sits on haunches with thighs and knees flexed and feet flat on ground. Limitation of inward rotation, abduction and hyperextension of thighs. See tracing VIII A.

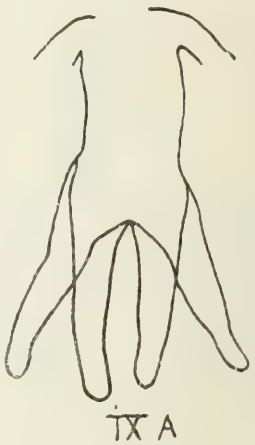
Two days later both tibiae were osteotomized for the correction of the anterior bowing. A year and a half later, on June 15, 1910, the condition was much improved. The bow legs were cured, and the motions at the hip were considerably increased. See tracing VIII B.





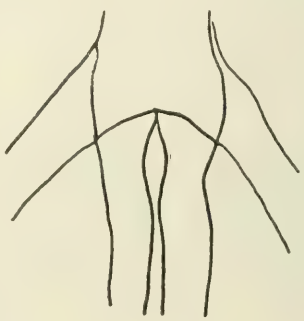
Case 9. Girl, aged two and one-half; bow legs; seen Jan. 2, 1909; first stood at year and a half and began to walk at two years. Shows the usual signs of rickets. Walks with a waddling gait, abdomen protuberant, lies with legs outwardly rotated about 15 degrees. Flexion at hip normal, abduction limited, adduction and inward rotation normal, considerable forward tilt to pelvis, and stands with marked lordosis. Hyperextension markedly limited. See body tracing IX A and x-ray tracing IX A Abduction about 30 degrees.

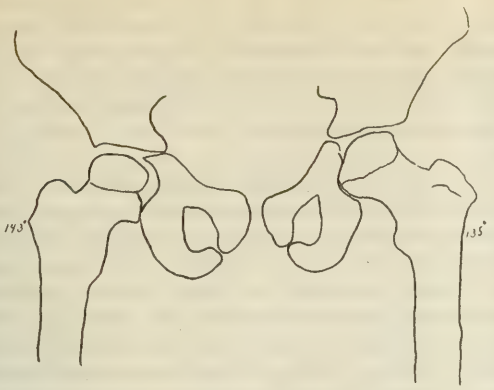
A double plaster spica was applied with the legs fully abducted, which was worn until March 21, 1909, resulting in a gain of about five degrees abduction. No treatment after that date. Seen again Apr. 10, 1912, when there was practically normal abduction of the thighs and no sign of coxa vara. See body tracing IX B and x-ray tracing IX B.





IX A. Jan. 2, 1909.





IX B. Apr. 10, 1912.

This series gives one a sufficiently clear idea of the general run of the cases, besides showing how the condition of coxa vara tended gradually towards a restoration of the normal angle. The last case, No. IX, shows the result where there had been the usual treatment of the application of a plaster spica carried out. The result was no better nor more quickly obtained in this case than in the others where no treatment had been instituted for the condition.

The question of what influence the correction or the accompanying knock knee, or bow legs has on the tendency to improvement of the coxa vara is too complicated a mechanical problem to be discussed even theoretically here. It would seem that as the coxa vara tends to return to normal, any restoration of the lower legs towards a normal weight bearing line would also have a favorable influence in hastening the above tendency.

CONCLUSIONS.

1. Rachitic coxa vara is a frequent and concomitant condition of bow legs and knock knees, but may exist independently.

II. In this series of cases it was observed to a greater degree in knock knees than in bow legs.

III. The condition apparently requires no treatment.

IV. The correction of a co-existing condition of knock knees or bow legs may hasten the process of recovery from coxa vara. I have, however, no evidence on this point.

V. In all cases there is a tendency to spontaneous recovery and a restoration towards the normal angle of the neck of the femur without treatment, and with no cessation from use or weight bearing.

VI. There is probably very little or no permanent disability in the average case.

RESULTS OF THE WASSERMANN IN TWO HUNDRED CONSECUTIVE ADMISSIONS TO THE DANVERS STATE HOSPITAL.*

BY HARLAN L. PAINE, M.D.,

Assistant Physician, Danvers State Hospital.

This study of a small, unselected series of two hundred cases of mental disease, tested by the Wassermann method, was made for the purpose of determining the nature and scope of the problems involved in the geographical distribution of syphilis in Massachusetts. Also, it was to ascertain the relative amount of syphilis among the insane.

This paper, using a smaller number of cases, was read before the Essex South Division of the Massachusetts Medical Society, on October 1, 1912.

In the early part of May, 1912, it was decided that the Wassermann test for syphilis should be done in every case admitted to the Danvers State Hospital. Previous to that time the test was being done on such cases only in which syphilis was suspected of being present, or of being an etiological factor. Many have attempted to estimate the amount of syphilis in cities, but there has always been a dearth of exact figures, even in the records of a well-conducted hospital, due to the very obscureness of some of the manifestations of the disease. The Wassermann test has made it possible to secure rather definite statistics regarding this disease, and the admitting list of a State Hospital, drawn as it is from a large district, and including all classes, offers an ideal place for drawing conclusions regarding the presence of the disease in the community, and its geographical location. Accordingly, a specimen of blood serum from every patient admitted since last May has been taken, and subjected to the Wassermann test for syphilis. Whenever a report is received that the blood serum is positive, or doubtful, a lumbar puncture is done, and the cerebro-spinal fluid is taken. This means, taking the 24.5% of cases showing a positive Wassermann reaction on the blood serum, on which it is a routine measure to secure a specimen of the spinal fluid, and those cases which, although they show a negative reaction on the blood serum show clinical signs that make it advisable to examine the cerebro-spinal fluid; that a lumbar puncture is done in the Danvers State Hospital on more than 25% of the cases. We have found it necessary only in a few cases to administer a general anesthetic, also that general paralytics rarely make any complaint of pain or discomfort during the proceeding. This is usually in direct variance to the conduct of patients suffering from other forms of mental disease.

To prevent the development of post puncture symptoms, all patients are kept in bed for forty-eight hours following the withdrawal of the fluid. The pressure of the fluid has also been

* No. 27 of the Danvers State Hospital Series.

measured in centimeters of water, but as yet the series of cases in which the pressure registering apparatus has been used is too small for any conclusions to be drawn.

The fluid is not only tested for the Wassermann reaction, but the cell-count, Nonne, and Noguchi tests are done. The Wassermann test on the blood serum and spinal fluid have been done in the laboratory of serum diagnosis of the Harvard Medical School, under the direction of Dr. W. P. Lucas. The Nonne and Noguchi tests and the cell-count of the spinal fluid have been done in the Danvers State Hospital Laboratory.

The operation of venesection for obtaining a sufficient quantity of blood for the Wassermann reaction is not a formidable one. The procedure is very simple and rapid; with trained assistants a specimen of blood can be taken every four minutes. The technic is as follows:—

The anterior surface of the forearm at the elbow is cleansed by brisk scrubbing with a stiff brush and soap and water. Then a solution of mercuric chloride, 1-2000, is applied, and a sponge wet with the solution is left on while a tourniquet is applied to the arm, halfway between the elbow and shoulder sufficiently tight that the pulse at the wrist can just be palpated. This in most instances brings a venous anastomosis into prominence, and the vein being selected, a sterile needle is quickly thrust in, letting the blood flow into a sterile test tube. No anesthetic is necessary. (A Strauss needle is a good one.) When 10-20 cc. of blood have been collected the tourniquet is loosened, the needle is withdrawn, and a piece of sterile gauze sponge placed over the point of puncture and held in place by a bandage. The test tube is immediately corked with a sterile cotton pluglet, and stood at such an angle that a long clot will form, which aids in the separation of the serum. The blood is immediately placed in an icebox and kept there until it is sent to the laboratory. The serum should always be taken within twenty-four hours of the time it is to be examined, otherwise a natural hemolysis takes place that interferes with the test. The specimen should also not be taken after a full meal or when the patient has been subjected to cold severe enough to chill.

The series studied comprises 200 cases. Of these 200 cases, 33 were admitted from Lynn, 24 from Lawrence, 18 from Salem, 11 from Gloucester, 9 from Haverhill, 14 from Malden, 12 from Everett, 12 from Boston, 5 from Amesbury, 5 from Melrose, 4 from Beverly, and the remaining 53 cases were scattered among 21 cities and towns of this district.

The district from which the Danvers State Hospital derives its patients is shaped somewhat like an equilateral triangle, with its base towards the north, and its apex represented by the city of Boston. It is bounded on the east by the Atlantic Ocean from Boston to Salisbury; on the north by the New Hampshire State Line; on the west its boundary can be roughly outlined by a line drawn from Boston through Lowell to the New Hampshire line. Of these 200 consecutive cases, 49 showed a positive Wassermann reaction of the blood serum, *i.e.* 24½%, or 24.5 of the cases admitted from this district to the Danvers State Hospital, had syphilis. One hundred and forty-six cases were from cities; of these, 36 gave a positive reaction, a percentage of 24+. Fifty-four cases were from towns; of these 54 cases, 13 were positive, a percentage of 24+. Of these 200 cases, 118 were males, and of these 30 were positive, a percentage of 25+. Eighty-two cases were females, and of these 19 were positive, a percentage of 23+. The seacoast cities gave a percentage of .32; the inland towns gave a percentage of .17; the mill cities gave a percentage of .28; and other cities a percentage of .19.

Of the 33 cases from Lynn, 10 were positive, a percentage of .30; of the 24 cases from Lawrence, 7 were positive, a percentage of .29; of the 18 cases from Salem, 6 were positive, a percentage of .33; of the 11 cases from Gloucester, 6 were positive, a percentage of .54; of the nine cases from Haverhill, only 1 was positive, a percentage of .11; of the 14 cases from Malden, only 1 was positive, a percentage of .07; of the 12 cases from Boston, only 1 was positive, a percentage of .08; of the 4 cases from Beverly, 2 were positive. Four negative cases were received from Woburn; from Everett 12 cases were received, 2 were positive, a percentage of .16; Swampscott sent 2 cases, of which 1 was positive, and 1 negative; Peabody, 3 cases, of which 2 were positive and 1 negative; from Ipswich, 3 negative cases were received; from Melrose 5 cases were received, of which 1 was positive and 4 negative; from Amesbury, 5 cases, of which 1 was positive and 4 negative; Stoneham sent 4 cases, of which 1 was positive and 3 negative; Chelsea sent 2 negative cases and Lowell 3 negative cases; from Revere 6 cases were received, of which 2 were positive and 4 negative; 3 cases were received from Winthrop, all of which were negative; Newburyport sent 2 cases, of which 1 was positive and 1 negative; Danvers sent 2 cases, 1 of which was positive and 1 negative; Andover sent 3 cases, all of which were negative; Methuen sent 2 cases, 1 of which was positive and 1 negative. The following towns, Saugus, Wakefield and Georgetown, sent 2 cases each, all of which were negative; the following towns sent 1 case each, all of which were negative: Norwood, North Reading, Winchester, Rockport, Marblehead, Somerville, Medford. Middleton sent 1 case that was positive.

One of the interesting things was the contrast between mill cities, such as Lynn and Lawrence, in comparison with Haverhill; the percentage of the two former being 30% and 29%, while Haverhill only showed a percentage of .11.

An interesting fact noted was the small num-

ber of cases in which a history of syphilis was obtained; of the 19 female cases that gave a positive Wassermann reaction, in only 2 could a history of syphilis be established. Of the 30 male cases, only 4 cases showed a history of syphilis.

A few words regarding the significance of the Wassermann reaction may not be amiss. According to Plaut, the primary stage of syphilis shows positive Wassermann reaction of the blood serum in 60-80% of all cases. One hundred per cent. of the patients suffering from syphilis in the secondary stage will show a positive Wassermann reaction of the blood serum. Ninety-eight per cent. of the patients suffering from the tertiary stage of syphilis will show a positive Wassermann reaction. Syphilitic and parasyphilitic affections of the nervous system usually show a positive Wassermann reaction of the blood serum. In this group belong general paralysis and cerebro-spinal syphilis. In general paralysis in addition to the positive reaction of the blood serum, we usually obtain a positive reaction of the cerebro-spinal fluid. Also the cell-count, Nonne and Noguchi tests confirm the presence of syphilis. Cerebro-spinal syphilis, on the other hand, does not show a positive reaction of the cerebro-spinal fluid. Into this last group of syphilitic and parasyphilitic affections of the nervous system fall nearly all of our cases that show a positive Wassermann reaction, and since it is a well-known fact that only a small and indeterminable percentage of cases of syphilis develop these parasyphilitic affections of the nervous system, it necessarily follows that the percentage obtained from the insane committed from these respective towns is very low in comparison with the actual amount of syphilis present.

THE ETIOLOGY OF HAY FEVER.*

BY ALGERNON COOLIDGE, M.D., BOSTON.

Hay fever and kindred disturbances have always been mysterious and illusive diseases. It is obvious that they form a group, having much in common and yet each being distinct from the others. Thence we have such terms as vasomotor rhinitis, hyperasthetic rhinitis, and paroxysmal sneezing to describe the group, and hay fever, rose cold, autumnal catarrh and horse asthma to describe different members of the group. These latter names are based upon the supposed etiology rather than upon the pathology of the afflictions, because the character of the symptoms suggests a functional disturbance or idiosyncrasy rather than a pathological lesion. Certain persons periodically or in a particular environment suffer from a set of symptoms commonly known as coryza; nasal irritation, sneezing, engorgement of the turbinates with watery nasal discharges. Often neighboring mucous membranes of the eyes and the throat are involved, and of the bronchial tract with more or less asthma. In some of these cases the exciting cause is definitely traced, as in typical hay fever caused by the pollen of grasses or of rag weed; in others it has not been isolated, as in that due to the emanations from certain animals. In still other cases no positive irritant can be proved, but the symptoms are so similar that a similar cause must be assumed.

It is evident that a person has hay fever because of an idiosyncrasy making him intolerant to one or more substances, which, although they are innocuous to others, are irritants to him. This was for many years, and is still often explained by supposing that the primary cause lies in the nervous system; that a patient suffers from hyperesthesia or increased reflexes or other instability of function of the local nerves or of his nervous system, and that the exciting pollen acts mechanically upon these sensitive nerves. Other etiological factors have been suggested in deviations of the septum, intranasal contacts and uric acid in the blood. All of these theories of etiology are open to criticism. It is easy to accuse almost any patient of some mild form of nervousness, especially if we assume that the presence of hay fever proves a nervous disposition. But it is certain that a very large number of truly nervous patients have not the least trace of hay fever, therefore it is not a common symptom of irritable nerves. The same is equally true in regard to malformations of the nasal cavities. But a still better argument, that the condition of the nerves or the shape of the nose have nothing to do with causing it lies in the fact that a person susceptible to one form of hay fever may be entirely immune to another. One may be violently affected in June and perfectly well in August, whereas another may be just the reverse. It is hard to imagine that unstable nerves or abnormal nasal cavities could make such fine distinctions between different irritating substances. It is also evident that extremely small quantities of the irritating substance are sufficient to bring on the symptoms. All this suggests that the primary cause of hay fever must be sought for in what may be loosely called a biochemical reaction. The first serious evidence for this theory was offered by Dunbar, who separated a proteid from the pollen of the grass family, which placed on the nasal mucous membrane of different persons acts as an irritant in all victims of the European form of hay fever, irrespective of seasons, while all others are unaffected by it. By introducing this proteid into horses he produced an antitoxin which protects the mucous membrane from the irritant action of the grass pollen. This suggested that the cause of hay fever is a lack of immunity on the part of the patient, which immunity is possessed by normal individuals. More recently others have announced that hay fever is caused by a mysterious phenomenon called anaphylaxis.

* Read before the New England Otological and Laryngological Society, November 26, 1912.

The proteid contained in the pollen of grasses is responsible for the European hay fever, that in the pollen of rag weed for our autumnal catarrh. The common form of so-called vaso-motor rhinitis, which is induced by the emanations from certain animals, particularly the horse, is evidently of a similar nature, and in this connection it appears to be established that persons liable to this disease are also especially liable to a disturbance of the nature of an anaphylactic shock after the injection of diphtheria antitoxin or other preparation of horse serum. We see also other varieties of vaso-motor rhinitis in which it is not possible to trace the source of irritation, but which lead us to suspect a similar cause. It is possible that in certain forms of chronic infection, especially of the nasal accessory sinuses, a micro-organism is present which produces a toxic proteid capable of acting on the mucous membranes of the nose and bronchi in a manner similar to the toxic proteids contained in pollen or animal emanations. In such a case the patient would be harboring his own irritant and the absence of an external exciting cause would be explained.

There are several questions connected with these cases which need better answers than they have hitherto received. What is the relation between the nasal symptoms and the asthma which so often accompanies it. Is the asthma due to a nervous reflex from the nose or is it the result of the direct action of the irritant on the bronchi; or is it caused by the absorption of some substance acting through the general circulation? Nasal irritation appears sometimes to excite asthmatic symptoms, but it generally does not do so. Concerning what is sometimes called nasal asthma or asthma of nasal origin, I doubt whether such a thing exists, except in connection with vaso-motor rhinitis. In answering the question whether in a certain case of asthma the nose is at fault, a history or symptoms of vaso-motor rhinitis is to be sought and not anatomical peculiarities in the nose.

May not the presence of bilateral polypi in cases of asthma be looked upon as *prima facie* evidence of vaso-motor rhinitis? Chronic vaso-motor rhinitis, asthma and bilateral polypoid formation of the mucous membrane of the ethmoid occur frequently together. In this symptom-complex the relative intensity of the nasal irritability, the asthma, and the polypi varies in different cases, but they are found so frequently together that one cause must be sought for to explain the combination.

An explanation is also needed for the sensitive spots in the nose, the mechanical irritation of which in a person suffering from hay fever brings on increased reflex symptoms, and cauterization of which is often recommended for treatment.

For the laryngologist the question of the etiology of these disturbances is especially interesting if it can suggest a successful and logical method of treatment. A curious fact in vaso-motor rhinitis is that many cases are relieved of their symptoms by methods of treatment which would seem to be entirely illogical, whatever our theory of the etiology may be, whereas in other cases the same treatment produces no effect. Septal and turbinate operations, cauterizing with chemicals or heat, inhalations and internal drugs appear to produce undoubted good results in some cases and to fail in others. This may be partially explained by supposing that any stimulation of the intranasal structures may in certain cases alter the conditions which make the symptoms possible. Recently different preparations from the exciting pollens have been introduced with the object of rousing a tolerance, but these also do not seem to be final. If all the symptoms connected with hay fever are primarily caused by an intricate biochemical reaction we may hope that logical and effective means will be found to neutralize this reaction. And the possibility is also suggested that the treatment of asthma and nasal polypi may follow in the same direction.

THE ETIOLOGY OF HAY FEVER.*

BY THEOBALD SMITH, M.D., BOSTON.

The disease known as hay fever is due to pollen grains. That was definitely decided many years ago by English physicians, and it was without knowledge of their work that Dunbar took up the subject anew in 1902. He himself was a victim of hay fever and his assistant, Prausnitz, who did much work with him, and has recently written several papers on the subject, was also a victim of this peculiar disease.

Dunbar first took up the etiology. He was soon led to suspect pollen, and he made a number of experiments which indicated that pollen from the grasses produces the June fever, and it also can be made to produce the same peculiar symptoms when pollen grains are blown into the eyes of susceptible individuals. These observers have used the eye almost wholly as the organ of reaction to determine the effect of the toxins and the antitoxins which they produce. Dunbar soon came to the conclusion that it was necessary to find what precise constituent of the pollen grains was the irritating one. He found that the smooth pollen grains were more concerned in producing the reaction than the fine spiny ones, thus eliminating mechanical activity as a cause. He had pollen grains analyzed, after collecting large quantities of them, especially from the grasses; these were dried and ground up and extracted in various ways. He took out the fats with alcohol and ether and then made a salt solution of the proteids remaining. He also tested the carbohydrates in the pollen grains, which he thought at first might be the active

* Substance of a Discussion on Hay Fever before the New England Otological and Laryngological Society, November 26, 1912.

agent. But on testing the purified carbohydrate he found it negative. In the salt solution extract he found albumin, pseudoglobulin and euglobulin. He purified this substance, but found it best to use the salt solution of the combined proteids. When this was instilled into the eye of a sensitive person he obtained very soon after, the characteristic reactions, which consisted of reddening of the conjunctiva, etc. By using the toxin he was able to make a distinction between the false and true hay fever cases, *i.e.* when the minimum reaction dose was instilled into the eyes of those who had other affections, but did not have hay fever, he found that no reaction took place; he could thus eliminate psychic influences.

He next started to make an antitoxin by using horses for this purpose. He injected them repeatedly with the salt solution extracts. After several months the serum of the horses was tested. He found that in his own eye and that of his assistant he could get the reaction. He first obtained the minimum reaction dose of the toxin by using his own eyes and those of his assistant. He then added the immune horse serum to the toxin and by trying different mixtures of toxin and antitoxin he found the final strength of his antitoxins. For instance, if a given quantity of antitoxin in a 1-30 dilution kept the attack from coming on, when mixed with the minimum dose of toxin which still produced a reaction, he considered it had a strength of 30. In this way he standardized his serum.

Some of these experiments indicated that the systemic attacks are due to the direct inhalation of the pollen powder. In one case, the assistant, who was very sensitive to the toxin, drew into his air tubes a certain amount of the powder and soon afterwards had a severe attack of coughing with dyspnea.

In 1905, after the thousand (more exactly, 997) cases had been treated, one of his assistants collated the data on hand contained in these cases, and it was found that about 60% came out very well under the treatment with the antitoxin; 24% were partially benefited; 16% not at all. The results from these thousand cases were thus very reassuring.

Dunbar maintains the doctrine or hypothesis, that he has to do with a soluble toxin. Such substances, when injected into an animal body, produce an antitoxin. By mixing the toxin and antitoxin, he showed that the toxic effect was eliminated, which indicated that he had to do with a true toxin which could be neutralized by an antitoxin.

Now, in recent years, since the development of our knowledge of anaphylaxis, many observers have considered hay fever an anaphylactic reaction. Let us look for a moment at this reaction and see how it resembles and differs from toxic action. We know that we can rapidly accustom animals to increasing doses of true toxin. Horses can be so immunized as to stand many thousand times the initial fatal dose of tetanus toxin. The same is true of diphtheria and other toxins. When an animal receives a very minute dose of some animal or vegetable proteid and some weeks later a large dose of the same, harmless to a fresh control animal, it exhibits a group of symptoms which come on very quickly and may lead to death. Thus the guinea-pig which received an excessively minute dose of horse serum two weeks previously, will die if 5 cc. of the same serum is injected subcutaneously, or much less into the peritoneal cavity, or as little as 0.1 c.c. intravenously. It cannot be immunized to this horse serum. It may become temporarily refractory after recovery from the anaphylactic shock, but it becomes susceptible again. There seems to be, therefore, a fundamental difference between toxin immunity and protein susceptibility or anaphylaxis. Both are immune reactions, but the latter is dangerous to the subject.

The current explanation of the anaphylactic shock is as follows: The original injection of proteid leads to the formation of an immune body (anaphylactic-reaction body) which, with the aid of the normal complement of the blood tends, on a second injection of the same proteid, to disintegrate it,—digest it, in other words,—for subsequent reassimilation. One or the other of the component parts into which the proteid is disintegrated may be toxic to the organism and produce the train of symptoms called anaphylactic shock.

The difference between a toxic and an anaphylactic or allergic action (as von Pirquet has called it) is then fundamental. The toxin and antitoxin combine to form an inert substance. The proteid (antigen) is acted upon by an immune body (anaphylactic reaction body) plus complement, and is disintegrated into fragments, one or more of which may be toxic and act as toxins before further disintegration has made them harmless.

In the guinea-pig receiving horse serum a second time in adequate dose, some toxic substance is set free, which acts upon the plain muscle fibre of the body. In the lungs it causes spasm of the muscular coat of the bronchi so that air cannot pass out or in, and the guinea-pig dies of asphyxiation. The lungs are found greatly inflated and this inflation in the guinea-pig is taken as a reliable indication of true anaphylaxis.

The sudden onset of the symptoms of hay fever after instilling the pollen extract or inhaling pollen powder has led the majority of writers recently to interpret the paroxysms as an anaphylactic reaction. Especially the asthmatic symptoms are suggestive. We are far from being in a position to settle this question at present. I can only give a few of the arguments which have been presented.

In the first place, Dunbar's claim to have produced an antitoxic serum which seems well sub-

stantiated, militates against the view that anaphylaxis is dominant in hay fever. On the other hand, the rapidity of onset and the apparent incapacity of the affected person to become immunized, speaks for anaphylaxis. The reaction in the conjuctiva may be called out almost every hour and the attacks last six or seven weeks, or until the pollen disappears from the air. But we know of toxins now which act within one or two hours after injection and we know that immunity to bacterial action may not be durable enough to last from one year to another.

Another line of argument favoring a toxic action in hay fever is the absence of a refractory state in the individual. The individual (man or animal) treated with a proteid in large doses, becomes insusceptible or refractory for a time. It seems as if the immune body (anaphylactic body) had been used up for the time being. In hay fever, no refractory state has been observed either in the spontaneous or experimental cases. The individual remains sensitive throughout the season, and from hour to hour. Experimentally, Dunbar has been unable to produce passive anaphylaxis by transferring serum of the treated horses to guinea-pigs and injecting the protein. In true hypersensitiveness or anaphylaxis, a shock would result under this condition.

Now, there is another way of attacking the problem, by attempting to actively immunize patients who are subject to hay fever. The serum, of course, only passively immunizes them, protects them only for a certain length of time, but if we can inject the pollen toxin subcutaneously and produce such a condition as is produced in the horse for the production of the horse pollantin, then, if immunity occurs, we are justified in saying that we have not an antiphylactic phenomenon to deal with, but a pure and simple sensitiveness to toxins. This method of active immunization or vaccination has been tried in England and in Germany. Only recently an article appeared by M. Neisser on this subject. The pollen toxin is prepared and put into the eye in from 5 to 5,000 reacting doses, the unit being that dose which produces marked hyperemia of the conjunctiva in sensitive persons. By injecting increasing quantities of the toxin subcutaneously into these 14 or 15 cases, they have obtained certain results. Fully one-half of the cases were very much benefited, some slightly, and some not at all. They were, however, careful to make inquiries of a number of other patients that had not been treated and they found that the season, during which the experiments were made, was such that fully one-half had a much easier time than the year before. These results are not entirely free from criticism, for the good results might perhaps have been obtained without the treatment. But Neisser and his co-worker think that they began the treatment a little too late in the season. The patient should be immunized before he is exposed to the pollen grains in the spring of the year, if it is a June affair. Another time they mean to try immunizing much earlier and see if they cannot get a larger percentage of successful results. These cases are not to be considered actual cures because all of the patients had hay fever, but the paroxysms were much milder and the patients were more comfortable.

From what has been said you will see that it is not quite possible to explain definitely hay fever as an effect of pure toxins on the one hand, or of hypersensitiveness on the other. The latter explanation is the simpler and is currently accepted. We do not, however, know enough of anaphylaxis itself. There are many phenomena at present thrown together as anaphylaxis, which need further analysis. It is also probable that in this disease the two phenomena are so associated that now one, now the other predominates. Pollen protein may contain both hypersensitizing and toxic substances not yet separated from one another.

Clinical Department.

A CASE OF GASTRO-MESENTERIC ILEUS.*

BY C. A. PORTER, M.D., BOSTON,

AND

G. W. MORSE, M.D., BOSTON.

THE reason for reporting this case is twofold. First, on account of the difficulty of diagnosis, and second, on account of the unique maldevelopment of the intestinal attachments, which were so striking that it should be added to the literature of the subject.

The case to be cited is that of a boy three years old who was sent to the Massachusetts General Hospital on October 18, 1912. From the mother the following history was obtained.

The child's parents and four other children were living and well, the oldest child being 17 years of age and the youngest a baby of 14 months. When 6 months old the patient had varicella, but otherwise none of the exanthemata. His development had not been unusual and he was apparently a *bright* child, but never seemed to be quite as strong as the other children as he had always complained of having "stomach-aches." One year previous to entrance he had a more severe attack of abdominal pain accompanied by vomiting, which lasted three or four days, and was relieved by enemata and castor oil, but since then, aside from any attack of diarrhea ten months before, the patient had been free from any intestinal symptoms.

The attack for the treatment of which the patient came to the hospital, began five days before. On the morning of the day of the onset the patient had his breakfast and noonday meal as usual, and apparently was perfectly well. In the afternoon he became feverish and complained of abdominal pain, but did not vomit. He passed a very restless and

* Read at a meeting of the New England Pediatric Society, November 14, 1912.

fretful night, and on the second day the pain still persisted and the child looked very ill, but no new signs or symptoms were noted. On the third day he began to vomit, the vomitus consisting of greenish, watery fluid in which no food was noticed. During the following two days, that is, the forty-eight hours before entrance, the child had remained in bed and vomited five or six times. He had been given castor oil and enemata without result until 12 hours before admission, when, as a result of an enema, a small quantity of brown mucus with a foul odor was recovered. This mucus contained no blood or fecal material. The only food he had taken during the five days was one-half cupful of milk, a little farina and a few sips of water, so that with the continuous vomiting, starvation was an important element. Abdominal pain and vomiting stood out as the chief symptoms of the five days' illness, the pain being recognized chiefly by the child holding his hands frequently on his epigastrium and assuming the knee-chest position in an effort to get relief. His general condition had grown very much worse during the last 24 hours before entrance, and marked loss of weight and increasing apathy was noted by the mother. No history of headache or trauma was obtained.

The *physical examination* in the accident-room revealed a little boy with normal development, but with little subcutaneous fat and in a poor state of nutrition. His facies were apathetic and his eyes sunken. He wriggled about on the examining table, usually keeping his thighs flexed on his abdomen, and was apparently comfortable *only* when in the extreme knee-chest position which he continually tried to assume, thus making the examination rather unsatisfactory. Frequent irregular twitchings of his upper lip, as if he were suffering sharp twinges of pain, were also noted. He was conscious and rational but very restless and fussy. His skin was dusky, pale and pasty, but aside from a slight eczema on his thighs, was clear.

Examination of the head showed nothing remarkable in its size or shape. The ears were normal. There was a slight nasal discharge with some excoriations of the external nares. The lips were dry and parched and the tongue, which was protruded straight, had a slight moist white coat. The throat was not remarkable.

The examination of the chest revealed nothing unusual, the heart and lungs being normal. There was no evidence of enlarged thymus.

The abdomen was very markedly retracted, with no areas of abdominal fulness, but marked tenderness throughout prevented deep palpation. This tenderness was not constant, but was apparently coincident with the exacerbations of the abdominal pain. At one time when the abdomen was relaxed, a small tumor, about as large as the tip of one's finger, was felt in the region of the pylorus, but this was not again demonstrated satisfactorily. No visible peristalsis was seen. Percussion revealed nothing remarkable and the liver edge and spleen were not felt. There was no general adenopathy.

The extremities, genitals and reflexes were all normal.

The blood examination showed a hemoglobin of 70% and leucocytosis of 18,000.

The spinal fluid revealed nothing abnormal.

The urine showed a large quantity of acetone, but no diacetic acid and no albumen or sugar.

No stool was obtained.

The vomitus was watery, greenish fluid, with some mucus, but no blood.

His temperature was 98.4, pulse 110, respiration 25.

In view of the fact that the child showed nothing definitely surgical and was in no condition to stand an exploratory laparotomy, both on account of the lowered vitality and on account of the acetonuria, it was deemed advisable to send him to the ward for further study.

At this time various diagnoses were offered, but no one diagnosis seemed to be conclusive. Cyelic vomiting, tuberculous meinigitis, brain tumor, intestinal obstruction from volvulus, intussusception, pylorospasm and acute infection were among the diagnoses considered.

The rather sudden onset and short duration of symptoms, together with the lack of changes of the reflexes made tubercular meningitis or brain tumor seem rather unlikely. Intestinal obstruction from volvulus was ruled out because there was no abdominal distension. Intussusception at this time should have, at least, shown a tumor and possibly bloody stools. An acute infection was rather improbable on account of the normal temperature. Thus pylorospasm or high intestinal obstruction remained, but even this diagnosis was considered doubtful.

The child was admitted to the East Surgical ward and given soda bicarbonate by mouth and by rectum and glucose subcutaneously. On the 19th, that is, the next day, he was no better and was transferred to the Children's Medical Service for the purpose of more careful study. Under their care the acetonuria was further treated with soda-bicarbonate and orange juice, and he was given glucose subcutaneously.

On the next day he vomited twice, and the abdominal tenderness seemed more localized in the epigastrium. He took liquids well by mouth, but vomited almost as much as was taken in. His general condition was not improved.

On the second day he *again* vomited twice and before each vomiting spell the stomach outline became distinctly visible but no peristalsis was seen. He became very restless and his general condition was unimproved. The acetone was still present in large quantities and the diagnosis no more definite than before. On this day the fundi were examined and found normal.

On the 22nd the vomiting still continued with no new signs or symptoms. During the forenoon the child tossed about his crib, often assuming the knee-chest position, in which it seemed to be more comfortable. At this time *visible gastric peristalsis was noted* and *that fact,* coupled with the facts that he had had no movements of the bowels and that the small intestine was empty, made the diagnosis of high obstruction, probably from pylorospasm, seem most likely. Bismuth x-rays were considered, but on account of the vomiting and low vitality they were not deemed advisable.

A definite diagnosis having been made, immediate operation was advised as a desperate measure to save the child, who was now in a very serious condition. The operation was undertaken at once by Dr. C. A. Porter who, after the child was etherized, opened the abdomen in the median line above the umbilicus, and found the unique condition which I will attempt

to describe. Its description is rather difficult in that the element of time entered so largely into the success of the operation that a careful study was impossible.

On opening the peritoneum a distended stomach and duodenum presented, filling a large part of the epigastrium. The pylorus was large and relaxed, but apparently normal, with no evidence of obstruction. The duodenum was distended down to the point where it disappeared beneath the mesenteric vessels. On lifting up the stomach with the great omentum it was surprising to find that the omentum, which was short and thick, had no connection at all with the transverse colon, and could easily be lifted out of the wound with the stomach, *leaving* the transverse colon in position. Further exploration revealed a swollen edematous root of the mesentery high up in its usual position. The small intestine was collapsed and contracted, much the same as those seen in the dog, but its color was very dusky, and the veins of the mesentery tremendously engorged as if by obstruction to the venous return.

The large gut which contained a small amount of gas had none of the usual attachments but hung free, the cecum, hepatic and splenic flexure having a long mesentery like that of the small intestine which allowed the colon to be delivered through the wound with the small bowel.

In order to determine just what condition had to be dealt with, the incision was enlarged and all the intestines held up in a mass outside the abdominal cavity. It was then clear that the whole mass of intestines, both large and small, had made a half turn to the right on the root of the mesentery, thus causing obstruction to the venous return and resulting in edema at the point of torsion where the mesenteric vessels cross the duodenum.

On twisting the entire mass of gut one-half turn to the left, it was immediately and strikingly noticeable that the obstruction was relieved as pressure on the stomach caused a rush of gas from the stomach and duodenum into the small bowel and the color changed from a dusky blue to a more normal appearance.

The intestines were then hastily replaced and the wound closed in the usual manner. No attempt was made to prevent torsion occurring again, as the child's condition would not allow any further operative procedure, and it was thought best to postpone that until his condition was more favorable. The operation took about 25 minutes, and the child stood the necessary trauma of evisceration remarkably well, leaving the operating room in fairly good condition.

Toward night of the same day the patient became very restless and nothing in the way of hypnotics seemed to quiet him as he still continued to assume the knee-chest position and was apparently in considerable pain. He reacted only slightly to stimulation but took water freely with no vomiting, and on the whole acted as if the obstruction were relieved. About 3 a. m. the next morning, however, his condition became much worse, and in spite of increased stimulation his pulse became imperceptible and he died at 4 o'clock.

No autopsy could be obtained so that further study of the anatomical condition could not be made.

A detailed embryological explanation of this arrested fusion of the layers of the peritoneum, with the resulting lack of fixation of the viscera, would at this time be too intricate and take up too much time, so let it suffice to say that the intestinal tract as found in this case had only partially gone through the complex twisting, rotating and fusion of layers, which characterize the development of the complex intestinal area of the higher animals, and is most elaborate in those beings who naturally assume the upright instead of the horizontal position.

During the past few years the study of the causes of enteroptosis has stimulated a new interest in the attachments and supports of the abdominal viscera and their embryological formation. The reporting of this case may suggest a possible link between the arrangement of viscera of those beings which naturally assume an upright position and those whose long axis is horizontal, by the supposition that this case presented an arrested development of the twisting and fusion of the layers of the dorsal and ventral meso-gastrium which are the suspensory ligaments and carry the blood supply of the primitive straight gut.

SYPHILIS AND THE SURGICAL OUT-PATIENT.

BY WM. PEARCE COUES, M.D., BOSTON.

If the conjectures of Iwan Bloch[1] and other syphilographers are true regarding the bringing of syphilis from the New World to the Old by members of Columbus' crew in 1493, we might well pause to consider and balance the total amount of harm done by the introduction of syphilis to the civilized world, against the benefits to humanity of his great discovery.

Perhaps Columbus himself, could he have looked ahead to 1913, and seen the toll of this disease in misery, death and disaster, would have stayed in Spain.

Recent wonderful advances of all that pertains to the knowledge of syphilis makes the ordinary physician stagger. Perhaps at times the syphilographers and teachers of this subject themselves forget all that has gone before in the enthusiasm of Wassermann's, Noguchi's, luetin reactions, and salvarsan treatment.

Though there is evidence to show that cases treated before the advent of salvarsan were cured and stayed cured, as attested by consecutive negative Wassermann reactions and continued health, Milne[2] believes that only about one case in four was really perfectly cured by the older methods of treatment.

The statement that the surgical out-patient clinic of a large hospital or dispensary is one of the best places in the world to study syphilis would not perhaps be granted by many, but at the same time it is perfectly true. Some of the most obscure and interesting lesions are there, mutely exhibiting themselves and begging for notice, often to no avail. The fact that patients come to the surgical clinic to be treated for some

definite surgical trouble (or supposedly surgical trouble) is often responsible for this. The fact that the supposed surgical lesion for which they present themselves is syphilis, or that an existing syphilis has an extraordinarily important bearing on a real surgical condition, is often lost sight of,—more often never thought of. The soft round, slightly depressed scars of old healed gummata on the body or legs are often overlooked, though to the initiated they spell syphilis as well as a positive Wassermann reaction.

If we seek to ascertain what types of lesions are most often unrecognized, few would contradict the statement that gummata of the bones and soft parts and specific periostitis and osteoperiostitis were among the most frequent. Specific onychia and paronchia, dactylitis and the joint troubles incident to tabes, and tabes itself would come next in the scale in the estimate of many. Increasing experience gives assurance of the relatively enormous numbers of the poorer classes, especially women, who are infected and have not the slightest knowledge of their disease.

A careful history and general inspection of the patient, which will take only three minutes extra, is everything in arriving at a correct interpretation of such obscure cases. Unfortunately this is often neglected in the surgical out-patient department through lack of time and lack of interest. It must be remembered that in getting the history in women patients the question of the number of children dying in infancy is fully as important as that of the number of miscarriages. Thus, a woman who had specific periostitis of the radius had had fourteen children, but further inquiry showed that eleven had died in infancy.

All patients with fractures, young or old, where the break does not unite when it should, must be considered as possible syphilitics until proved otherwise. One of the most often unrecognized forms of specific disease seen in the out-patient departments is specific periostitis. The patient falls, striking the arm perhaps a fairly violent blow. Clinical examination shows no fracture. The case is dismissed as a bruise or a sprain but returns with increased pain and disability. An x-ray is taken which shows a specific periostitis.

Ulcers of the legs, which are in reality specific ulcers, are often thought to be varicose, as pointed out by Fournier,[3] Gaucher[4] and others, simply because of the fact that they are accompanied by extensive varicose veins of the same legs. Gummata of the skin and underlying soft parts are time and again mistaken for sluggish wounds that are delayed in healing because the patient is "run down."

Case 1. An old woman was operated upon for an epidermoid cancer of the face. This was dissected out without contact and without going through the cheek. All went well for a few days and a perfect linear scar was seemingly going to be the result. On removing the stitches the wound separated and in three days a round soft ulcer, the size of a nickel, was the result of the excision. A careful examination, on account of the patient's complaining of her leg, showed a specific ulcer here; it was found that the patient had been treated for syphilis in the skin department. A complete physical examination, though it could not have changed the necessity for the treatment, would have thrown light on the case earlier. Prompt healing of the ulcer by mercurial ointment dressing, and there was no more scar than if the wound had healed by first intention. The patient was referred to the Dermatological Department for specific treatment.

Gummata are often mistaken for malignant disease, as the following will testify:—

Case 2. A young man was seen in the men's surgical department. He gave the history of an increasing swelling of the left side of the neck for the last few months, with debility from it. Absolutely no history of syphilis was obtained and careful examination showed no signs of any trouble besides that for which he came. Examination showed a large mass, dome shaped, extending above the left clavicle, as large as a cocoanut, the base fixed and immovable, the apex soft and reddened. The surgeon who asked me to see the man incised the mass and reported probable sarcoma. I had made a provisional diagnosis of gumma. The case was sent to the Huntington Hospital. Sections of the growth which were examined at the hospital showed syphilis and nothing more; gumma of the glands of the neck. Positive Wassermann reaction was, I think, obtained, but at any rate the man was much improved by treatment when unfortunately lost sight of in the Dermatological Department.

Case 3. A small boy was seen with a circular, bluish lesion on the right cheek, the size of a quarter, which he had had for eight months, and the history was given that it followed the bite of a dog. There was no history of specific disease, and not the slightest evidence of it on examination was found. A specimen was excised but was unfortunately lost. The boy was given careful treatment for weeks with no result. Unguentum hydrarg was used, with great improvement. The child was sent to the Dermatological Department with the opinion that the lesion was probably specific. A report was sent back that there was no syphilis. Patient was sent back again for a Wassermann despite this. Both Wassermann and Noguchi reactions were positive. The lesion was nearly well in a few weeks of vigorous specific treatment.

Case 4. A middle-aged woman was seen with a circular lesion of the cheek, a deep punched out ulcer, which had been diagnosed as a simple ulceration and treated with Sharlach R. salve. There was a history of having been stung by a bee on the cheek. No specific history was obtained; nothing else definite on examination. Diagnosis of gumma of the cheek was made and confirmed in the Dermatological Department. After a few weeks of treatment by mercurial ointment and internal specific treatment, the ulcer was well. One year afterwards the patient presented herself with a gumma of the nose, which had been unrecognized in another de-

partment. The ulcer of the cheek had left only a fine linear scar, hardly discernible.

Case 5. A middle-aged woman presented herself on my service with a slightly reddened superficial ulceration over the external condyle of the left humerus. A diagnosis of suppurating bursa had been made; treatment was unsatisfactory. Bare bone was felt by probe. An x-ray showed specific osteoperiostitis of the humerus. Prompt symptomatic cure, and in a few weeks the ulcer was completely healed. No definite specific history was found in this case.

Case 6. A middle-aged married woman was seen at the surgical clinic of the Boston Dispensary in November, 1912. The husband died of tuberculosis. There were no children and there had been no miscarriages. In August, 1912, she fell fifteen steps in an attic, striking on the right foot. She was treated by bandaging by a doctor for three weeks; has been lame ever since; constant disability and pain in the ankle. She had been to various hospitals for treatment and x-rays had been taken. She was told that nothing more could be done for her; the ankle has remained absolutely stiff. Examination showed a well-developed and nourished woman with no scars on palate, or outward evidence of specific trouble. The right ankle is greatly thickened, symmetrically tender to pressure; ankle absolutely rigid and no active or passive motion possible. An x-ray showed an old fracture of an internal malleolus and a mass of bone surrounding the tibia and fibula. The fibula is rough and enlarged nearly to the head. Wassermann reaction was negative. Large doses of iodide of potassium were given. In three weeks there was considerable motion in the ankle. The patient was free from pain most of the time, which had been very severe for a year. There was continued improvement when last heard from and considerable motion in the ankle.

Case 7. A young married woman was seen at the clinic in November, 1912. She gave a history of trouble with the elbow for two months. *There were four living children* and *no miscarriages*. Two of the children at least presented no external easily recognized stigmata of syphilis. Examination of the patient showed a well-developed and nourished woman. There was a reddened swelling, the size of a walnut, over the external condyle, fluctuant; there were only a few degrees of flexion of the elbow possible. Examination of the lungs showed the second stage of tuberculosis. No tubercle bacilli in the sputum (two examinations). Process about apex and slightly lower. Patient is four months pregnant. An x-ray of the elbow showed the elbow joint and the humerus, radius and ulna normal. Diagnosis of abscess, probably tuberculous, made. Incised in centre of fluctuating reddened area. There was no pus, but a sticky, honey-like fluid, slightly red, was evacuated. Syphilis was suspected from the character of the fluid. Wassermann reaction was positive. The incision took on rapidly the characteristics of a gumma, which healed quickly under specific treatment. An x-ray of the elbow later showed a thickened periosteum. Perfect symptomatic cure of the lesion by specific treatment. It would seem in this case that possible syphilis of the lungs should be considered as a diagnosis of the pulmonary condition.

CONCLUSIONS.

Without exaggeration and a duly conservative estimate that all doubtful cases are not syphilis because certain symptoms make it suspicious that they might be, it is a fact beyond refutation that there is an enormous amount of unrecognized syphilis in the surgical out-patient department of hospitals and dispensaries in every large city. The prompt recognition of these cases for their own benefit and that of their community is of great importance. They should at once be referred to and treated by those in charge of the department for syphilis in the various institutions. Every such out-patient department should have facilities for treating *all* the manifestations of syphilis, surgical or otherwise, within its own walls. In the surgical department three minutes extra time spent with each patient will show the presence or absence of keratitis, gummatous scars, gross periostitis of the long bones, abnormal teeth, old perforations of the palate, or lesions of more active syphilis, and will repay the surgeon many fold for his trouble.

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[1] Bloch, Iwan: A System of Syphilis. Darcy Power and J. Keogh Murphy, vol. i, p. 22.
[2] Milne: Am. Jour. Med. Sciences, vol. clxv, No. 2, p. 204.
[3] Fournier: Le Chancre et les Syphilides Cutanées et Muqueuses.
[4] Gaucher: E' Le Chancre et les Syphilides Cutanées et Muqueuses.

Reports of Societies.

PHILADELPHIA COUNTY MEDICAL SOCIETY.

Meeting of Wednesday, January 8, 1913, at 8.30 p. m.

The President, Dr. L. Jay Hammond, in the chair.

SYMPOSIUM ON THE GASTROINTESTINAL TRACT.

"Anatomy of the Stomach and Intestines," by Dr. Addinell Hewson.

"The Gastrointestinal Tract," by Dr. Vincent Lyon.

The subject is approached almost entirely from the standpoint of laboratory diagnosis, with a very brief résumé of the physiology and essential anatomy of the tract, disregarding the symptomatology and pathology in all save a few places. The following subdivisions are fully considered: The Physiology of Digestion, Movements of the Stomach, Pancreatic Secretions, Diseases of the Mouth as Affecting Digestion, Breath, Lips and Mucous Membranes, The Tongue, Disturbances of Sensation, Diseases of the Salivary Glands, Disease of Esophagus. A list of analytical gastric tests is given for a complete chemical analysis. Further subdivisions discussed are: Chemical Examination of Stomach Contents, Starch Digestion in the Stomach, Determination of Blood in Gastric Contents. In the consideration of gastric diseases the following classification is made:—

1. The Gastric Neuroses.
2. The Secretory Derangements.
3. The Motor Derangements.
4. The Commoner Organic Diseases.

The Condition of the Gastrointestinal Tract in Diseases of the Gall Bladder and Biliary Passages is another subdivision of the question discussed. The diseases of the pancreas are studied and tests given to determine pancreatic efficiency. The paper closes with a discussion of Appendiceal Disease as Related to Gastric Disease.

Dr. I. N. Broomell: A large percentage of the diseased conditions in the mouth of local origin can be attributed either directly or indirectly to dental caries. Statistics show that caries is about as prevalent today as at any previously recorded time. While absolutely clean teeth will not decay, it is equally a fact that all teeth that are not clean do not decay. There appear to be conditions of predisposition and of immunity which are operative in the matter of decay, so that caries is about as prevalent in teeth particularly cared for as in those neglected. Notwithstanding this an aseptic mouth should be insisted upon by the dental practitioner. I would strongly urge that in searching for the cause of an obscure pathologic condition the oral cavity be examined. In my opinion the only reliable mouth wash is the human saliva.

THE SMALL INTESTINE.

Dr. Frances C. VanGasken: The thing that stands out most prominently is the laboratory examination of the stools. This should be preceded by a test meal of either carmine or charcoal. In examining for the action of the pancreatic juice and of the bile the indican test is used. Next in value is the test for blood in the stools. After making the many tests the symptoms must be considered in making the diagnosis.

THE BILIARY REGION MEDICALLY CONSIDERED.

Dr. Joseph Sailer: The most significant sign of biliary disease is jaundice. A differential diagnosis must be made from lesions of the pleura, of the intercostal nerves and from endocarditis. Failure to demonstrate a lesion either by medical examination, clinical examination, by operative procedure or by autopsy is hardly sufficient reason for considering that a lesion in the liver does not exist.

THE BILIARY REGION: SURGICAL FEATURES.

Dr. George G. Ross: Practically all the diseases of the biliary apparatus, excepting malignant diseases, have their origin in infection, which infection arises most frequently in the intestinal canal. The most common route by which the organisms reach the gall bladder and ducts is by way of the papilla, a retroinfection. They can also enter the gall bladder by the blood current, the lymphatic stream and by continuity of tissue. I believe that chronic dyspepsia has for its cause some organic lesion. Symptoms due to disturbed function of the stomach and intestines are frequently associated with the chronic type of gall bladder and pancreatic disease, and that is especially true of gall stones. I am heartily in accord with the modern teaching that gall stones do not remain latent in a gall bladder. The chronic symptoms of the stomach and bowels arising from disease in the biliary apparatus are frequently due not so much to the gall bladder and duct diseases as they are to the associated or resulting adhesions about these organs by means of which they are abnormally attached to these geographically associated organs. The higher in the gastrointestinal tract these adhesions occur, the more marked will be the symptoms.

The treatment, surgically speaking, for the troubles of the biliary apparatus is operation. With the exception of the very acute variety of cholecystitis, operation should be performed much earlier than we have been in the habit of doing. Gall stones cannot be dissolved by waiting, and are only exceptionally passed, and then at the expense of great suffering. Adhesions become more numerous with each succeeding attack and only grow in density with the passage of time. The ordinary history we get in this type of case covers a period of rarely less than ten years, and often as long a period as 35 or 40 years has supervened between the onset of symptoms and operation. If the patients are financially able and sufficiently urged by their timid physicians or friends, they make the pilgrimage to the gall stone dissolving fountains of the great Bohemian mecca, only to return belching up the gas of a protesting gall bladder which still remains for some enterprising surgeon to place in his collection as silent witness of the futility and danger of delay.

THE LARGE INTESTINE.

Dr. B. F. Stahl: Diarrhea and constipation give us a basis for the consideration of all the diseases of the large bowel. Diarrhea is a symptom of comparatively few diseases of the large intestine, while constipation is a factor in practically all the remaining diseases of the large bowel. Diarrhea presents definite and extensive pathological lesions. Constipation offers so few that even in a disease so well defined as mucous colitis the lesions are so varied as to make impossible a strict grouping of these cases. The most important aid to regularity of the bowels is the habit of having a fixed hour for defecation. There is danger of inducing atony of the bowels by an abruptly begun regimen composed of great bulk of water and vegetables. Exceptional results are often obtained by the use of salicylate of eserin in 1-40 grain doses, particularly in the distressing cases of excessive tympany. Intestinal obstruction of varying degrees by reason of its weight may induce dilatation of every degree up to the size of the specimen shown in a case reported by Dr. Formad. The circumference of the largest part of the colon measured 30 inches and the contents weighed 47 pounds. The frequency with which cancer of the colon is overlooked is evidenced by Cabot's study of 3000 autopsies. In 43 cases 25% were unrecognized. Intestinal diverticulitis may result from constipation and atony of the wall of the bowel. It sometimes occurs in the cecum and may complicate the diagnosis of appendicitis. The most frequent site, however, is the sigmoid. The symptoms often suggest appendicitis. That the disease is more prevalent than the reported cases would indicate is evidenced by the recent recognition of the cases on record. A more painstaking method should be exercised of examining all conditions even remotely indicating disease of the abdominal viscera.

THE APPENDICULAR REGION.

Dr. Thomas R. Neilson: The location of the appendix influences the morbidity. The meso-appendix varies in length, breadth and manner of attachment. If short, it is prone to produce kinks interfering with circulation and causes grave consequences when acute inflammation occurs, and it no doubt often is a large factor in the development of some cases of chronic appendicitis. Disease of the appendix presents gastric symptomatology:—

(*a*) Symptomatology simulating ulcer.
(*b*) Symptomatology of chronic gastritis.
(*c*) Gastric symptomatology of nervous type.

The lesion of the appendix in such cases is chronic. Its establishment, while not easy, can in the majority of cases be made by the location of persistent and recurrent discomfort or tenderness, by the noting of evidence of toxemia and by blood examination. The laboratory examination of the blood gives a definite index of the degree of infection and of resistance. Of even more importance is the differential count, more especially that of the polymorphonuclears. In all cases the laboratory blood findings must be looked upon as only illuminating the clinical symptoms. Experience in the observation of these is a most important factor in determining the course to pursue and in reading correctly the values of the laboratory findings.

Dr. J. Coles Brick discussed

THE LABORATORY EXAMINATION OF DISEASES PROPERLY REFERABLE TO THE RECTUM PER SE.

NEW ENGLAND PEDIATRIC SOCIETY.

The Twenty-third Meeting was held at the Boston Medical Library on December 14, 1912. The following officers were elected for the ensuing year:—

President, Dr. James S. Stone, Boston.
Vice-President, Dr. Frederick P. Webster, Portland, Maine.
Secretary and Treasurer, Dr. F. B. Talbot, Boston.
Member of Council, Dr. J. M. Jackson, Boston.

Dr. Fritz B. Talbot and Dr. Warren R. Sisson read a paper entitled,

SOME FACTORS WHICH INFLUENCE THE EXCRETION OF FORMALIN IN THE URINE OF CHILDREN AND INFANTS TAKING HEXAMETHYLENAMIN (UROTROPIN).*

DISCUSSION.

Dr. Hugh Cabot said that more work must be done on this subject. Most of Dr. Cabot's observations were single. They accepted a negative observation as such. His own work on the raising of the dose should be reviewed. The same individual manages the drug differently at different times. It may be that there is a distinct difference in the way renal epithelium uses the drug in infancy.

Dr. F. P. Denny: Do the acid drugs add to the efficiency of urotropin?

Dr. W. R. Sisson: In our cases apparently.

Dr. J. L. Morse said that he had seen two types of pyelitis, one very mild, which recovered under any form of treatment, or even without treatment, and the other, which was very resistant to treatment. He had found alkalies more useful on the whole than urotropin in the treatment of these cases.

Dr. C. L. Scudder: Does it cause any signs of irritation?

Dr. W. R. Sisson: In the case of one child in which the fluid intake was unknown, there was blood in the urine with a dose of 40 grains a day.

Dr. C. A. Porter and Dr. G. W. Morse read a paper entitled,

A CASE OF GASTRO-MESENTERIC ILEUS.*

DISCUSSION.

Dr. C. L. Scudder said that the case was unique and opens up the subject of the torsion of various viscera which may be due to long attachments. He has seen one case of torsion of entire abdominal viscera.

Dr. Charles G. Mixter said he thought the most interesting part was the diagnosis of high obstruction.

Maynard Ladd, M.D., read a paper on

SOME OBSERVATIONS ON GASTRIC MOTILITY IN INFANTS AS SHOWN BY THE ROENTGEN RAY.

SUMMARY.

A study of the infant's stomach by means of the Roentgen rays after meals consisting of the regular feedings and from 150 to 200 grams of bismuth showed the following conditions:—

1. In normal digestion bismuth appears in the small intestines as soon as the feeding is completed.

2. The stomach appears to get rid of the greater amount of its contents in from 1½ to 2½ hours, after which there remains a residue which is expelled at a very slow rate in most cases, whether the infant is breast or bottle fed. The complete emptying time of the stomach varied from 3¾ hours to 5¾ hours from the beginning of the feeding. The influence of the composition of the food upon the emptying time is a subject for future investigation.

3. When a bismuth feeding is given and is followed by another feeding without bismuth at the end of the regular nursing interval (whether 2, 2½ or 3 hours), the bismuth residue from the first feeding does not mix intimately with the new feeding, but appears to be pushed out into the small intestines much more quickly than when left to itself. The suggestion is strong that the new feeding, if not excessive, stimulates peristalsis by distension of the stomach and hastens the expulsion of the residue from the previous feeding; on the other hand, if the distension is excessive, or if the new feeding comes at a shorter interval than the child is accustomed to, peristalsis may be inhibited and the emptying time of the stomach delayed.

4. In congenital pyloric stenosis, the Roentgen ray gives a definite picture, unlike that shown in other cases of vomiting. After a posterior gastro-enterostomy, the stomach appears to expel its con-

* See Journal, page 485.

* See Journal, page 506.

tents through the artificial opening more rapidly than through the pylorus in normal digestion.

THE COMPLEMENT FIXATION TEST IN THE MANAGEMENT OF GONOCOCCUS VULVO-VAGINITIS.

By G. G. SMITH, Boston.

The author reports the results of the application of this test to 25 cases in the Genitourinary Clinic of the Massachusetts General Hospital. The patients were girls whose ages ranged from 3 to 12 years, each one of whom had shown, at some time, a vaginal discharge containing gonococci.

The test was positive in 11 out of 12 clinically positive cases, and in 4 cases in which the evidence was inconclusive. It was negative in 3 cases in which other evidence of cure was insufficient. In 7 cases, a negative test was supported by a clinical condition indicative of cure, and upon this evidence the writer bases his belief that vulvo-vaginitis is curable, and that, in establishing a cure, the complement fixation test is of very considerable value.

DISCUSSION.

DR. H. CABOT said that Dr. Lucas came to the conclusion that the disease was incurable, as did Hamilton and others. These observations are not in line with gonococcus in the adult, which dies of its own accord, and dies within three years. The more likely cause is that they are continually exposed to the original source of infection and may be reinfected. The families should, therefore, be investigated more thoroughly.

DR. C. L. SCUDDER said that he had considerable experience with infection of the Fallopian tubes in adults and would like to know whether any of these cases show evidence of salpingitis in children.

DR. H. I. BOWDITCH said that he saw Dr. Van Ingeus' treatment of packing with argyrol which cured an acute case, but did not know whether the cases recurred. Packing with argyrol is painful. Does the treatment sensitize so that children are more easily infected?

DR. CHARLES G. MIXTER said that he has not seen gonococcal salpingitis in children.

DR. R. M. SMITH thinks that the test is of value to determine whether it is right for girls that have been previously infected to go back to school. The social service help is very important in finding and removing the original source of infection.

DR. R. L. DENORMANDIE says that the school board does not recognize that there is such a disease as gonorrheal vaginitis in children.

DR. A. R. KIMPTON said that he remembered a girl of ten or eleven years with pus tubes.

DR. H. CABOT has seen four or five cases of seven and eleven years with gonorrheal vaginitis with salpingitis. His impression is that the nearer to puberty the more likely they are to have salpingitis.

DR. R. M. SMITH said that he had seen two cases of salpingitis in the Children's Medical Department of the Massachusetts General Hospital.

DR. G. G. SMITH, in closing, said that the source of infection is known in about one-half of his cases, from four, the older sister, two rape, two cases from hospitals, two cases showed ruptured hymen. As regards duration of treatment, the cases were not under complete control. The discharge, however, had been stopped in from four to six weeks.

Book Reviews.

Medical Men and the Law. A Modern Treatise on the Legal Rights, Duties and Liabilities of Physicians and Surgeons. By HUGH EMMETT CULBERTSON, ESQ., member of the Ohio and New York Bars; Contributing Editor to many Legal Publications. Octavo, 325 pages. Cloth. Philadelphia and New York: Lea & Febiger. 1913.

This book is of unusual character and one which may well serve for reference in many matters in which the physician comes in contact with the law. It is becoming increasingly evident that a knowledge of law is desirable, if not essential, to the physician, and it is this want which Culbertson's book attempts to meet. An indication of the scope and subject matter may be had from some of the chapter titles, as, for example, "Who May Practice Medicine and Surgery," "Relation of Physician to Patient," "Malpractice or Negligence," "Criminal Liability of Physicians and Surgeons," "Physicians and Surgeons as Witnesses." All these and other matters are discussed at considerable length and with liberal appeal to precedents. The arrangement of the text is such as to make possible ease of reference and the typography is a special credit to the publishers. We cordially commend this volume to physicians and to others interested or concerned with the complex relations of society.

Bacteria. By DR. MAX SCHOTTELIUS. Second edition. Translated by Staff-Surgeon Herbert Geoghegan, R.N. London: Henry Froude, Oxford University Press; and Hodder and Stoughton, Warwick Square, E. C.

This is a small book of 317 pages, written for the lay-public. There are six chapters with the following titles: Position of Bacteria in the Scheme of Nature and in Regard to Other Forms of Life, Bacteriological Research Methods, "Disease" and the Means of Combating Infectious Diseases, Immunity and Protective Inoculation, Infectious Diseases, Protozoa as Pathogenic Organisms. It is very admirable in its arrangement and treatment of subjects and valuable because of its sane presentation, and it is to be hoped that the volume will be widely read. It is interestingly written, is scientifically accurate, and should be useful as an antidote to the distorted matter, so frequently presented by popular periodicals, on the subject of infections and disease. There are a few excellent colored plates taken from authoritative works. The addition in the second volume of chapters on Immunity and Protective Vaccination, and Protozoa, have materially increased the value of the volume.

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PROGRESS OF DR. FRIEDMANN'S DEMONSTRATIONS.

IN the issue of the JOURNAL for March 6 (Vol. clxviii, p. 362) we summarized editorially the history of Dr. Franz Friedrich Friedmann's method of treating tuberculosis by intravenous and intramuscular injection of a preparation of living tubercle bacilli, and discussed briefly the aspects of his visit to the United States. And in the succeeding issues, of March 13 and 20, we noted (pp. 402 and 442) the progress of the clinical demonstration of his method.

After the adjustment of certain technicalities, affording him the necessary privilege, material, and facilities, Dr. Friedmann proceeded to the actual treatment of cases in various New York hospitals. Three were injected on March 6, seventeen on March 8, and on March 9 seven in the presence of Dr. F. F. Anderson and Dr. A. M. Stinson, of the United States Public Health Service, who have been appointed an official committee of investigation, and to whom samples of the vaccine were submitted for examination.

On March 10 Dr. Friedmann left New York for Canada, reaching Montreal on March 11. On this day he treated 30 cases at the Royal Edward Institute. In the evening he addressed the Canadian Association for the Prevention of Tuberculosis, at Ottawa, Ontario. On March 12 he treated 10 patients at the Ottawa General Hospital; and on March 14, 50 adults and 20 children at Toronto. On March 15 he treated many more cases at Toronto, and on March 16 returned to New York.

Since his return from Canada, on March 16, Dr. Friedmann has given his anti-tuberculosis treatment to a considerable number of patients at clinics held at Bellevue and Mount Sinai Hospitals, the Hospital for Deformities and Joint Diseases, and the Montefiore Home and Hospital for Chronic Invalids; and Dr. Brannan, president of the Board of Bellevue and Allied Hospitals, has announced that bulletins will be issued from time to time reporting the condition of the patients treated at Bellevue. In the meanwhile the United States Public Health Service, through a special board of medical officers, is making a thorough investigation, by means of laboratory research and personal observation of patients under treatment in the New York hospitals, of Dr. Friedmann's claims. It is reported that many of the cases treated have already shown evidence of improvement. One case died three days after receiving the treatment; but as this patient was practically moribund at the time of inoculation, the fatality is hardly surprising.

On March 15 the Boston City Council passed a unanimous order that Dr. Friedmann be invited to demonstrate his method of treatment in this city. The matter was laid before the trustees of the Boston Consumptives' Hospital, upon whose advice the invitation was not given. On March 18 the Massachusetts State Board of Trustees of Hospitals for Consumptives issued, in a letter to the public daily press from its secretary, Dr. John B. Hawes, 2nd, the following wisely conservative statement:—

"The Friedmann preparation is a form of serum or vaccine which has been cultivated by growth in cold-blooded animals, such as the turtle. The exact details of its preparation have not as yet been made public. There is nothing particularly new in it, however, as earnest workers in every land have been and are still carrying on investigation along the same lines. The consensus of opinion by those most qualified to know, tuberculosis experts and scientists in this country and in Europe, is that the preparation will probably do no harm in the hands of skilful and experienced men. There is as yet no evidence as to its ability to cure, or indeed to bring about any radical improvement in pulmonary tuberculosis or consumption.

"While we deplore the great publicity which has been given Dr. Friedmann and his preparation and the exaggerated and garbled accounts which have been made concerning it, the Board believes that it is only right that Dr. Friedmann should be given every legitimate opportunity to prove the value of his discovery. On the other hand, the Board would urge the general public

and physicians to maintain a calm, sane and conservative attitude in this matter, and would advise that no physician allow his patients to be treated with this preparation, and that no patient take any step toward securing such treatment until it has been carefully investigated by those who are qualified to judge as to its merits. We should all welcome anything which is going to assist in curing consumption; it would be a great misfortune, however, and would do much harm to raise false hopes and expectations concerning any discovery which may or may not prove of benefit."

From Berlin, conflicting reports are received relative to professional opinion of the merits of Dr. Friedmann's work in that city. Professor Bier, of the University of Berlin, who has been widely quoted as having spoken favorably of Dr. Friedmann's treatment, issued on March 18 the following unequivocal statement of his position:—

"I must publicly protest against the misuse of my name for the recommendation of a remedy of whose effectiveness I have so far no evidence. I hope that this statement may find its way into the foreign press as quickly and as widely as my alleged recommendation of the treatment. It should also relieve me of the burden of constantly answering letters and stating that I have seen as yet no evidence of any unusual curative action of Friedmann's treatment."

Apparently abundant opportunity has been afforded and will be afforded Dr. Friedmann to demonstrate his method in America, and his preparation has been submitted to official federal authorities for determinative examination and test. The case now rests *sub judice,* and we can have no doubt will in time be decided equitably, impartially and definitively. Meantime the attitude of the public and of the profession should be one of dignified expectancy.

THE EXECUTION OF CHARLES THE FIRST.

The first of April just past was the centennial anniversary, not of the death, but of the exhumation, of Charles the First of England.

Charles Stuart, as is well known, died like a brave man on Jan. 30, 1649, on the scaffold at Whitehall, whither he was brought from his last days of peace at Carisbrooke Castle, now a romantic ruin in the Isle of Wight. Boswell, in his famous biography, records how Dr. Johnson once asked of old Auchinlech, the judge, Boswell's father, "What did Cromwell do?" "Cromwell do?" replied the judge, "God, sir, he gart Kings ken that there was a lith in their neck!" This phrase would have been a little more germane, had Charles been hanged instead of beheaded; but the moral in either case is apt enough. Incidentally it serves to recall the good old noun *lith,* a joint, now unhappily lost from popular parlance as well as from medical nomenclature, except in its adjectival form *lithe.* Lith was a word of common use in olden times. Sir Thomas Malory, for instance, in his "noble and joyous book entitled *Le Morte Darthur*" tells (Book III, Cap. xiii) how King Pellinore escorted the lady Eleine to Camelot: "And so as they rode in a valley it was full of stones, and there the lady's horse stumbled and threw her down, that her arm was sore bruised and near she swooned for pain. 'Alas! sir,' said the lady, mine arm is out of lith, wherethrough I must needs rest me.'" The term might well be restored to the language of accident room casualty.

So King Charles had his neck put permanently out of lith and was buried with his fathers in the crypt of St. George's Chapel at Windsor. But on April 1, 1813, his royal tomb was opened in the presence of the Prince Regent, afterwards George IV, of the Duke of Cumberland, of Count Munster, of the Dean of Windsor, of Mr. Benjamin Charles Stevenson, and of Sir Henry Halford, the court physician, in whose "Essays and Orations" (London, 1831) is preserved a circumstantial account of the event.

When the coffin was opened and the well preserved body of the august, decapitated monarch was examined, "the fourth cervical vertebra was found to be cut transversely, leaving the surfaces of the divided portions perfectly smooth and even." After the coffiin had been soldered up, it was found that one-half of the severed vertebra had become detached from the neck and had fallen aside unnoticed. The Prince Regent deemed it unnecessary that the coffin should be reopened for the replacement of the fragment, which he therefore presented to Sir Henry Halford. The latter valued this royal relic highly, and caused it to be placed "in a case specially carved of lignum vitae lined with gold, with a fitting Latin inscription inside the lid." His biographer, Munk, records that Sir Henry used even to exhibit this relic as a precious curiosity to privileged persons at his dinner table. It was finally given by his de-

scendant, Sir Henry St. John Halford, to the late King Edward VII, then Prince of Wales, "who returned it to the vault and deposited it in its case on King Charles's Coffin."

Of Charles's physical characteristics during life little is known, save that his most notable defect was a somewhat painful stammer. This may well have been a manifestation of the neuropathic heredity which he had through his father, James I, from Mary Queen of Scots, and which culminated in his licentious son, Charles II. Howbeit, the subsequent canonization of Charles the First as a martyr has deservedly marked him as a better man than either his predecessor or his successor upon the English throne.

MENTAL HYGIENE EXHIBIT AND CONFERENCE.

The first exhibit and conference of the Massachusetts Society for Mental Hygiene, in cooperation with the National Committee for Mental Hygiene, is being held in Boston during the current week. Similar conferences have been held this winter at New York, Philadelphia, Baltimore, and New Haven, and it is believed have been of great educational value and productive of much public good. Their purpose is to diffuse information about the study and prevention of nervous and mental disorders which are manifested in the phenomena of the feeble-minded, defective, delinquent, criminal and insane. At each of the sessions there are addresses, illustrated by lantern slides and by the exhibition of charts and photographs. Among the papers presented during this week may be enumerated the following: "The Methods of Studying Human Activities," Professor Stewart Paton, of Princeton; "Immigration and the Prevention of Insanity," Dr. Thomas W. Salmon of New York, director of the National Committee for Mental Hygiene; "The Medical, Hygienic and Social Value of the Psychopathic Hospital," Dr. Elmer E. Southard, director of the Psychopathic Hospital, Boston; "Mental Hygiene in the School," Dr. William H. Burnham, professor of Pedagogy and School Hygiene, Clark University, Worcester; "Mental Hygiene in the Development of the Child," Dr. W. F. Dearborn, Harvard; "Four Laws for Mental Hygiene," Dr. Richard C. Cabot, physician in charge of the Social Service Department of the Massachusetts General Hospital; "Mental Development in Its Relation to Eugenic Measures," Professor Robert M. Yerkes, professor of Psychology at Harvard; "Modern Methods of Dealing with Mental Diseases," Dr. George T. Tuttle, superintendent McLean Hospital; "Prevention of Mental Defectives," Dr. Walter E. Fernald, superintendent Massachusetts School for the Feeble Minded, Waverly; "Mental Deviates," Dr. Frank C. Richardson, professor of Neurology at Boston University School of Medicine; "Our Obligation to Understand the Working of Our Own Minds," Dr. James J. Putnam, Neurologist Massachusetts General Hospital; "A Program of Practical Measures for Mental Hygiene Work," Dr. Henry R. Stedman, chairman board of trustees, Taunton State Hospital; "The Treatment and Care of Inebriates," Dr. Irwin H. Neff, superintendent Foxboro State Hospital; "The Importance of Mentality in the Care of Juvenile Offenders," Hon. Harvey H. Baker, judge of the Juvenile Court, Boston; and "The Relation of Syphilis to Mental Disease," Dr. Samuel T. Orton, Ph.D., Psycho-Pathologist, Worcester State Hospital.

The mental hygiene exhibit, as it has been shown in Boston this week and previously in other cities, is essentially the same as that arranged by the National Committee for Mental Hygiene for the Fifteenth International Congress of Hygiene and Demography at Washington in September, 1912. At that time Dr. Lewellys F. Barker, professor of internal medicine at Johns Hopkins University, spoke as follows of the proposed work of the committee, of which he is chairman:—

"By a campaign for mental hygiene is meant a systematic attempt to secure human brains, so naturally endowed and nurtured that people will think, feel, and act better than they do now. Such a campaign was not possible before the rise of modern medicine. Only with this rise have we come to look upon states of mind as directly related to states of brain, to view insanity as disordered brain function, and to recognize in imbecility and in crime, the evidences of brain defect.

"Only a minority of the public know and realize that the kind of mind an individual has depends on the inborn qualities of brain he inherits and the influences which act upon it afterwards. Not many know that forty to fifty per cent. of all severer causes of mental disorder are due to known and well-defined causes, preventable by means with which we are now acquainted; that twenty-five per cent. of patients admitted to institutions for insane, and a large proportion of the criminals in confinement have

brains that have been injured by the abuse of alcohol.

"Only a few are aware that there are about 250,000 insane people in the United States today, and that the number is increasing at the rate of two to four per every 1000 of increase of population.

"Nor as yet has it been possible to impress the public with the facts that the social stigmatizing of the insane is cruel and unreasonable; that suicide, occurring as a result of psychopathic constitution should excite the sympathy rather than the moral judgment of those who think humanely; that every treatment of insanity in suitable institutions leads to complete recovery in at least twenty-five per cent. of the cases; or with a thousand other facts that ought to be known and realized."

That there are actually more insane persons in the asylums and hospitals of the United States than there are students in its colleges, universities and professional schools is surely a subject that should give us all pause for serious reflection.

THE GLASGOW LISTER WARD AND MUSEUM.

In the issue of the Journal for Feb. 20 (Vol. clxviii, p. 295) we reprinted from the *Journal of the American Medical Association* a letter with editorial comment relative to the proposed international memorials to Lord Lister, including the Lister Ward at Glasgow. We have just received from Mr. A. Ernest Maylard, of Glasgow, the following notice about this ward and the museum which it is to contain, to which we wish to direct particular attention:—

"As a memorial to the late Lord Lister, and as a means of perpetuating his memory in a way that it is hoped will prove both interesting and instructive to every member of the medical profession for all time to come, one of the wards in the Royal Infirmary, Glasgow, in which he worked out and first put into practice the principles of antiseptic surgery, is to be reserved and utilized in the following way: One part of the ward is to be refurnished as it was in his time with such objects as it may be possible to acquire; while the other part is to be made into a Museum for the exhibition of anything associated with the life and work of the great master.

"It is, therefore, asked that any who may have letters, pamphlets, books, or other objects of direct personal association with Lister and his work will either present or loan them to the Museum.

"Professor John H. Teacher, M.D., Hon. Curator of the Museum, will be pleased to receive any objects addressed to him at the Royal Infirmary, Glasgow, Scotland.

"The names of all donors or senders of objects are to be affixed to the exhibits."

It is with profoundest regret we must state that the response of the American profession to the former call for subscription to the Lister memorials has been shamefully inadequate. All such temporal recognition of so incalculable service as that of Lister to medicine and to mankind is, of course, utterly incommensurate with the worth of that service, as is the recognition that can be given to any genuine benefactor of mankind. But it is altogether desirable that the recognition should be made, and we most sincerely hope the publication of this notice will stimulate increased interest, and evoke more cordial contribution from our country to this Lister Ward and to all the Lister memorials.

THE PREVENTION OF DISEASES OF OCCUPATION.

Among the legislative measures of medical interest at present pending before the General Court of this Commonwealth is one dealing with diseases of occupation, which is of peculiar importance in view of the recent rapid growth of industrial activities within our State. The need of protection to workmen in these industries is obvious, and this bill aims to provide the machinery for such protection.

"The State Board of Health is authorized by the bill to define lead, arsenic, mercury, phosphorus and wood alcohol poisoning to be "dangerous to the public health," and to add to the list of diseases incident to them, from time to time, 'any occupational disease or definite symptoms of disease due to occupational processes or conditions' that may be deemed necessary. Upon the State Board of Labor and Industries is placed the responsibility of reporting to the Health Board all causes of disease in industrial establishments which are declared by the latter to be dangerous to public health. Appropriate penalties are provided for any employer who fails to comply with the requirements laid down for him in this connection, in the body of the bill."

This measure is approved by the Massachusetts State Board of Health. It is now in the hands of the Committee on Social Welfare, and it is to be hoped that their favorable report may lead to its early enactment by the legislature.

AMERICAN ACADEMY OF ARTS AND SCIENCES.

On Wednesday of next week, April 9, the annual meeting of the American Academy of Arts and Sciences is to be held at the Harvard Medical School. At 5.45 p. m. there will be a lantern slide exhibit by Dr. S. B. Wolbach, demonstrating his study of sleeping sickness in Africa. Among the important papers to be presented in the evening may be mentioned one on "The Pneumonic Plague in Manchuria," by Dr. Richard Pearson Strong, recently appointed professor of tropical medicine in the Harvard Graduate School of Medicine. This will be given at 8 p. m. in the lecture room of Building D, and all members of the medical profession are cordially invited to attend. Dr. Strong's talk will be followed by Dr. F. B. Mallory, who will explain the result of his recent investigation of whooping-cough.

MEDICAL NOTES.

Iowa Association of Orificial Surgeons.—The first annual meeting of the Iowa Association of Orificial Surgeons was held in the parlors of the Savery Hotel at Des Moines, Iowa, March 5. The following officers were elected: President, Dr. W. H. McCartney, Des Moines, Iowa; vice-president, Dr. C. L. Stoddard, Boone, Iowa; secretary-treasurer, Dr. W. J. Buck, Des Moines, Iowa; Dr. A. E. Shaw and Dr. W. A. Guild, both of Des Moines, Iowa, members of the Executive Committee. Des Moines was chosen as the place of the next meeting. Dr. E. H. Pratt, A.M., M.D., LL.D. of Chicago, Illinois, conducted an Orificial Clinic at the Des Moines General Hospital in the forenoon. Eight cases were operated on, demonstrating the fundamental principles of orificial surgery.

Prevention of Infant Mortality.—An English-speaking Conference on the Prevention of Infant Mortality will be held in Caxton Hall, Westminster, London, on Monday morning, Monday afternoon and Tuesday morning, August 4 and 5. The meetings will be held under the auspices of the (British) National Association for the Prevention of Infant Mortality and The Welfare of Infancy under the patronage of the King and Queen, and will convene immediately preceding the opening of the International Medical Congress.

A tentative program has been issued by the Committee which indicates that the papers will consist largely of medical opinion. The subjects treated will be:—

The Responsibility of Central and Local Authorities in Infant and Child Hygiene.

The Administrative Control of the Milk Supply.

The Necessity for Special Education in Infant Hygiene.

Medical Problems in Infant Nutrition.

Ante-natal Hygiene.

The president of the Conference will be the Hon. John Burns, M.P., president for the Local Government Board. The chairman of the English Executive Committee is Sir Thomas Barlow, and the secretary, Miss J. Halford, 4 Tavistock Square, London, W. C.

The American Committee, in charge of the part to be taken by the United States and Canada, will furnish information to those desiring to attend the conference.

Dr. Henry L. Coit, chairman, 277 Mt. Prospect Avenue, Newark, N. J.

Dr. Philip Van Ingen, secretary, 125 East 71st Street, New York City.

The World's Output of Radium.—An item in a recent issue of the London *Times* states that the total production of radium in the world, since the discovery of this element by Madame Curie, has been only 30 grams.

Death from Colored Candy.—Report from Kelliher, Saskatchewan, on March 23, states that three young children of that town died there recently after eating some colored candy, which is believed to have contained some poisonous ingredient.

A Gypsy Centenarian.—Maria Tom, a gypsy of Savannah, Ga., is reputed by members of her tribe to have been born in 1804. She is said to attribute her longevity and good health to her life-long habit of smoking tobacco.

Progress of the Balkan War.—Since the resumption of hostilities, the Balkan War has progressed with steady victory for the Allies. Janina was captured by the Greeks on March 6, and Adrianople and Tchatalja by the Bulgars on March 26. Meanwhile the sufferings of both victors and conquered from surgical disease and epidemic pestilence continue unabated. The total of the Massachusetts Red Cross fund for their relief now amounts to $9,617.41.

BOSTON AND NEW ENGLAND.

Homeopathic Hospital Training School.—At the annual graduation exercises of the Massachusetts Homeopathic Hospital Training School, held in Boston on Wednesday evening of last week, March 26, diplomas were awarded to a class of nineteen pupil candidates.

Harvard Veterinary Medical Alumni.—The sixteenth annual meeting of the Harvard Veterinary Medical Alumni Association was held in Boston on Wednesday evening of last week, March 26. The principal address was delivered by Dr. R. E. Dyer, veterinary surgeon of the Boston Board of Health. The following officers were elected for the ensuing year: president, Dr. P. J. Cronin, chief veterinary of the City of Boston; vice-president, Dr. John P. Conners, his assistant; secretary and treasurer, Dr. William S. Naylor, of Roxbury, Mass.

Cutter Lectures on Preventive Medicine.—The first of this year's series of the Cutter Lectures on Preventive Medicine and Hygiene was delivered at the Harvard Medical School on March 31, by Mr. George C. Whipple, professor of sanitary engineering in Harvard University, on "The Use of Vital Statistics"; the second on April 2. The third lecture will be on April 7.

Abolition of Free Lunch.—Report from Hartford, Conn., on March 24, states that the Connecticut State Anti-Tuberculosis Commission is in favor of a bill, now before the General Assembly, prohibiting and abolishing saloon free lunch.

"The Commission maintains that the free lunch counter in the poorer class of saloons especially is one of the most dangerous means of transmission of tuberculosis germs because the utensils with which it is taken are seldom washed and are a constant source of infection."

Death of a Quadruplet.—In the issue of the Journal for Aug. 15, 1912 (Vol. clxvii, p. 234) we noted with unusual interest the birth on August 5 of a set of human quadruplets in Dorchester, Mass.; and in the issue for Sept. 26 (Vol. clxvii, p. 447) we commented with satisfaction on the progress of these infants, who were then apparently all well and gaining weight. It is therefore with peculiar regret that we learn that on March 21, 1913, Virginia, the eldest of the quadruplets, died of broncho-pneumonia. The three others are reported to be quite well. We believe this is the only recorded instance in which all four of human quadruplets have lived so long. Probably the survival of even three is unusual. Whatever may befall them in future, the case already stands unique in medical literature.

Infants' Hospital Festival.—On Thursday of next week, April 10, a spring festival will be held at the Copley-Plaza Hotel, Boston, for the benefit of the Infants' Hospital. All who are interested in the work of this important medical charity are cordially urged to attend.

Recent Hospital Bequests.—The will of the late William Claxton, of Beverly, Mass., which was filed at Salem, Mass., on March 22, contains a bequest of $500 to the Beverly Hospital.

The will of the late Abel H. Proctor, who died on March 6 at Salem, Mass., has been filed at the probate court in that city. It contains a bequest of $50,000 to the president and fellows of Harvard College to be added to the fund of Ellen Osborn Proctor for the study of chronic diseases, the direction of the fund to be under control of the heads of the departments of theory and practice of physic, clinical medicine and pathology of the Harvard Medical School. After the death of certain annuitants, one-fourth of the residue of the estate is to revert to the Massachusetts General Hospital, for the general purposes of the McLean Hospital, and the remaining fourth to the Perkins Institution and Massachusetts School for the Blind, to be applied to general uses and purposes of the kindergarten for the blind.

The will of the late Hannah E. Sargent, of Brookline, Mass., which was filed recently in the Suffolk country probate court, contains a bequest of $500 to the New England Baptist Hospital, Boston.

NEW YORK.

The Mount Sinai Hospital.—Mount Sinai Hospital has received a donation of $125,000 from Messrs. Samuel and Harry Sachs for the support of free beds in the neurological department, in memory of Joseph and Sophia Sachs. A new ward has been opened for children suffering from nervous diseases, and the men's and women's wards of the neurological division have been enlarged. One of the new buildings which the Hospital is about to erect will be designed with special reference to the requirements of a thoroughly equipped neurological institute.

SYDENHAM HOSPITAL.—At a meeting of the directors of the Sydenham Hospital, held March 20, it was decided to erect a new six-story modern hospital, with 200 beds, on the site of the present building on East 116th Street, which contains 72 beds. It is to cost $350,000, and of this amount $100,000 has been contributed by Isaac Guggenheim, the banker.

ANTI-MENINGITIS SERUM.—In reply to a statement reported to have been made by Dr. S. F. Kramer to the Cincinnati Academy of Medicine to the effect that four children had been killed at the Cincinnati Hospital by the use of Flexner anti-meningitis serum received from New York, a result attributed to the tricresol employed as a preservative, Dr. Flexner has sent the following telegram: "If the serum itself or the preservative tricresol contained in it were the cause of the deaths reported by Dr. Kramer, many other similar reports should have been received. Considering the wide use of the serum and the consensus of opinion that it is not harmful, but highly beneficial to children, as well as adults, I see no reason to attribute the effects reported to either the serum or the preservative."

RECENT BEQUESTS.—Under the will of the late Dr. Charles F. Myers of New York, $25,000 is left to Acadia University, Nova Scotia, for the establishment of a professorship of biology and zoology.

By the will of the late Carl M. DeSilver, $50,000 is left to the Brooklyn Institute of Arts and Sciences and $2,500 each to a number of other Brooklyn institutions and societies, among which are the Eye and Ear Hospital and St. Giles Home for Crippled Children.

A CENTENARIAN.—Mrs. Marie Drown, of New York, a native of Westphalia, Germany, died on March 21, in her 100th year.

ALBANY HOSPITAL NURSES' HOME.—Report from Albany, N. Y., on March 21, states that the general contract has been awarded for the construction of a new nurses' home for the Albany Hospital.

"The building will be 192 x 85 feet, five stories and basement, of brick, re-enforced concrete and steel construction."

LOOMIS SANATORIUM.—The recently published sixteenth annual report of the Loomis Sanatorium for the Treatment of Tuberculosis records the work of this institution for the year ended Oct. 31, 1912. During this period, 355 patients were admitted to the various divisions, and 354 were discharged. The Babbitt Memorial Medical and Laboratories Building and Olivia Cottage were dedicated and formally opened on June 21, 1912. The principal need of the Sanatorium at present is money for a new sewage disposal plant.

Current Literature.

THE AMERICAN JOURNAL OF THE MEDICAL SCIENCES.

FEBRUARY, 1913.

1. *MAYO, W. J. *Some of the Disputed Problems Associated with Surgery of the Large Intestine.*
2. VAUGHAN, V. C. *The Relation of Anaphylaxis to Immunity and Disease.*
3. *ELSNER, H. L., AND MEADER, F. M. *Chronic Purpura, and Its Treatment with Animal Serum.*
4. MILNE, L. S. *The Present Value of the Wassermann Reaction.*
5. VOGE, K. M. *Diaphragmatic Hernia, with Report of a Case.*
6. WHITE, W. A. *Some Considerations Regarding the Factor of Fatigue, with Reference to Industrial Conditions.*
7. *NORRIS, W. G., AND FETTEROLF, G. *The Topography of the Cardiac Valves as Revealed by the X-rays.*
8. SEWALL, H. *The Rôle of the Stethoscope in Physical Diagnosis.*
9. *HEARD, J. D., AND BROOKS, R. C. *A Clinical and Experimental Investigation of the Therapeutic Value of Camphor.*
10. *PEPPER, O. H. P., AND AUSTIN, J. H. *Some Interesting Results with the Phenolsulphonephthalein Test.*
11. GORDINIER, H. C., AND SAWYER, H. P. *Primary Adenomata of the Liver Simulating Hanot's Hypertrophic Cirrhosis.*

1. Mayo mentions briefly a number of facts, anatomical, physiological and clinical, which may be of surgical importance. Of chief interest is the discussion of the functions of the cecum, which seems to play an important part in absorption, and may also play a part in metabolism. A clinical observation mentioned is that in cancer and in tuberculosis of the cecum there may be profound anemia which is not found to accompany more advanced tumors of the sigmoid.

3. Elsner and Meader review the literature of the serum treatment of chronic purpura and report two cases. In one the serum treatment seemed to be only of temporary benefit, but in the other there was apparently complete recovery, the last observation being made nearly a year after the treatment was discontinued.

7. Norris and Fetterolf contribute an interesting preliminary report as to the topography of the cardiac valves, which they studied by means of hardened and frozen cadavers sawed into frontal sections in which the valves were rendered resistant to x-rays by lead paint. The sections were then reassembled and radiographs made. The photographs of the sections and the radiographs of the bodies so treated are of great value, not only as showing the positions

of the valves but also in furnishing evidence upon other questions in the anatomy of the chest.

9. Heard and Brooks discuss the therapeutic value of camphor in the light both of clinical and of laboratory experiments. In the latter no certain evidence of action as a cardiac stimulant was obtained, and in the former camphor injected subcutaneously in doses as large as 50 grains failed to produce any definite effects. They conclude that the drug is not to be relied upon as a cardiac stimulant.

10. Pepper and Austin report three cases in which the findings by the phenolsulphonephthalein test are worthy of note. In the first, with clear evidence of a bilateral parenchymatous nephritis, the elimination was not delayed. The second case, one in which a bilateral decapsulation had been done, but in which symptoms of nephritis had recurred, also showed normal elimination of the dye. In the third case, one of bilateral cystic kidneys, the phthalein elimination was almost absent, but the excretion of chlorides and of the nitrogen of a restricted diet were approximately complete. [F. W. P.]

BULLETIN OF THE JOHNS HOPKINS HOSPITAL.

MARCH, 1913.

1. KLEBS, A. C. *The Historic Evolution of Variolation.*
2. *NUTTALL, G. H. F. *Lectures on the Herter Foundation. II.*
3. HOLT, L. E. *The Children's Hospital, the Medical School, and the Public.*
4. MCCAW, W. D. *In Memoriam. Dr. Robert Fletcher.*

2. In the second Herter Foundation Lecture, Nuttall considers the general subject of trypanosomiasis, taking up sleeping-sickness, nagana and other glossina-transmitted trypanosome infections. [J. B. H.]

THE LANCET.

MARCH 1, 1913.

1. *BERRY, J. *Lettsomian Lectures on the Surgery of the Thyroid Gland, with Special Reference to Exophthalmic Goitre.*
2. *BRUCE, J. M. *The Elements of Prognosis in Pulmonary Tuberculosis.*
3. CASTELLANI, A. *Typhoid and Paratyphoid Vaccinations with Live Attenuated Vaccines; Mixed Vaccines.*
4. RISELEY, G. *Should a Man with Miner's Nystagmus Work?*
5. CORNER, E. M. *Perforation of Gastric or Duodenal (Pyloric) Ulcers. Inferences on Modern Treatment Drawn from Histories of Patients Who Have Recovered.*
6. WHITE, C. *The Contraction Ring as a Cause of Dystocia, with a Description of a Specimen Removed by Hysterectomy During Labor.*
7. VOIGTE, J. C. *A Summary of Three Hundred and Forty Cases of Pulmonary Tuberculosis Treated During Twenty-Five Years' Practice.*
8. MACMAHON, C. *Functional Aphonia. A Method of Curative and Preventative Treatment.*

1. In the first Lettsomian Lecture, Berry considers hyperthyroidism or exophthalmic goitre from the pathological side, discussing the morbid anatomy of the gland in this condition in early as well as in late cases, as well as in secondary Graves' disease. He compares these with the changes found in simple parenchymatous goitre, and discusses the relation of Graves' disease to simple thyroid hypoplasia. He then takes up the subject of persistence and enlargement of the thyroid gland and briefly discusses the parathyroids. Exophthalmos in this disease he says is due purely to a collection of fat in the orbit, though why this is so he does not know. He emphasizes the need of careful study of the condition of the heart. He briefly considers medical and serum treatment.

2. Bruce discusses the various factors which may influence prognosis in pulmonary tuberculosis. From the bacillus itself we get no information, except that the patient has the disease. The degree of the patient's immunity can only be obtained from a careful study of constitution, inherited or acquired surroundings, occupation, and course of the disease. A third factor is the circumstances, social and financial, etc., of the patient. He discusses these factors in incipient disease and in well marked phthisis and in quiescent tuberculosis. To those to whom this question is a common and important one this paper will be of great value. [J. B. H.]

BRITISH MEDICAL JOURNAL.

MARCH 1, 1913.

1. *JEX-BLAKE, A. J. *The Goulstonian Lectures on Death by Electric Currents and by Lightning. Lecture I.*
2. DAVIS, O. C. M. *The Use of Physical Constants in Toxicology.*
3. COLE, P. P. *The Intramural Spread of Rectal Carcinoma.*
4. YOUNG, A. *Dislocation of the Metatarsus, with an Account of Three Cases.*
5. KNIGHT, E. *The Application of Fungi as Styptics.*
6. *BOURNE, A. W. *After-History of Gastro-enterostomy for Peptic Ulcer.*
7. BLACK, K. *A Method of Performing Gastro-jejunostomy.*

1. In the first Goulstonian Lecture Jex-Blake considers death by electric currents and the post-mortem evidence as to the cause of death; he considers evidence bearing on this subject coming from anatomical and electrical considerations as well as that obtained from experimental investigation. In a general way, post-mortem evidence is usually negative. The consensus of opinion seems to be that death is due to: (*a*) paralysis of the heart, or (*b*) paralysis of the central nervous system.

6. Bourne has studied the after-history of 65 cases on whom the operation of gastro-enterostomy has been performed for ulcer of the stomach or duodenum. Results are generally excellent cures or complete failures. His immediate mortality was 7.6%. General results were 43% excellent and 38% bad; prognosis is better when the patient is over forty. Duration of symptoms is of no assistance in forecasting the result of the operation. The length of time between the meal and onset of pain is of great importance. The longer it is the better: duodenal ulcers give better results than gastric.—38% gastric to 70% duodenal are cured. Failures may be due to: (*a*) recurrence, (*b*) formation of jejunal ulcer, adhesions and carcinomatous degeneration. Cases where an ulcer is *not* found at operation do badly.

[J. B. H.]

THE PRACTITIONER.

MARCH, 1913.

1. COLLIE, J. *The Prevention of Malingering Under the National Insurance Act.*
2. *SHERRIN, J. *Gall-Stones. Observations on the Symptoms, Diagnosis and Surgical Treatment.*
3. *BARN, W. *Gall-Stone Disease. Medical Treatment.*
4. *HOPE, C. W. M. *Suppuration in the Nasal Sinuses.*
5. DIGHTON, A. *Cavernous Sinus Thrombosis. With Report of Two Cases.*
6. *WARD, E. *The Treatment of Adenoids and Tonsils.*

7. Costobadie, H. P. *Ear, Nose and Throat Work in General Practice.*
8. Yearsley, M. *A Retrospect of Otology, 1912.*
9. Fleming, A. *Recent Work on Vaccine Treatment.*
10. McCann, F. J. *Progress of the Study of Diseases of Women During 1912.*
11. Phillips, H. R. *Oxygen as an Adjuvant in General Anesthesia.*
12. Sibley, W. K. *Electrical Operative Treatments for Diseases of the Skin and Mucous Membrane.*
13. Thorne, L. T. *The Clinical Significance of Blood-Pressure Records.*
14. McCarthy, H. L. *The Diagnosis of Congenital Syphilis.*
15. Aubrey, G. K. *Medical Certificates of Lunacy.*
16. Lawrence, M. C. S. *Salicylate of Iron.*

2. In a paper dealing with the clinical side of gall-stone disease from the surgical point of view, Sherrin discusses the importance of a careful history, the symptoms, differential diagnosis from renal colic, movable kidney, appendicitis and diseases of the stomach and duodenum. He cites several cases, and ends by urging early operation.

3. Barn believes that the frequency of gall-stone operation is a reproach to medicine. He urges operation only after medical treatment. His article is hardly convincing.

4. This is a careful paper illustrated by numerous x-ray plates of the various forms and causes of suppuration in the nasal sinuses, including symptoms and treatment.

6. Ward believes that operation for removal of tonsils and adenoids is one of the most valuable in surgery, but that it should not be treated too lightly nor done without careful examination of the patient and good reasons for doing it. [J. B. H.]

Edinburgh Medical Journal.

March, 1913.

1. *McNeil, C., and McGowan, J. P. *Inquiry into Outbreaks of Febrile Illness, with Rapidly Fatal Cases, Occurring in a Boys' Industrial School Near Edinburgh.*
2. *Languill, J. *Carcinoma of the Stomach.*
3. Fleming, R. A. *Acute Toxic Polyneuritis.*

1. In this article the writers describe an outbreak of a very serious illness, apparently an atypical pneumonia. Pneumococci and blood-stained sputum were obtained from cases in each of the three types into which this outbreak naturally may be divided. This disorder showed: first, absence or great paucity of clinical signs and symptoms of pulmonary disease, and, second, signs of severe poisoning of the central nervous system. They believe that there must have been some other factor besides pneumonia to explain the rapidly fatal cases. This factor they believe to be an enlarged thymus and a condition of status lymphaticus. They raise the interesting question as to whether or not status-lymphaticus may not explain some of the so-called "fulminant" cases of acute infectious disease.

2. This paper is a careful analysis of 200 cases of carcinoma of the stomach. It is the commonest form of cancer in males. Females are more frequently affected than text-books would lead one to imagine. It is not so much a disease of middle age as is thought, as a marked proportion of cases occurs under forty years. Heredity plays an important rôle in etiology. All cases of gastric ulcer, healed or unhealed, are potential carcinomata. He continues with numerous other interesting and valuable suggestions and conclusions based on his study of these cases. The paper is of distinct practical value.
[J. B. H.]

Münchener Medizinische Wochenschrift.

No. 7. February 18, 1913.

1. Aschoff, Kronig and Gauss. *Effect of Radiant Energy on Deep-seated Carcinoma. (To be concluded.)*
2. *Lesser, E. J. *Mobilization of Glycogen.*
3. *Boemeister, *Appearance of Virulent Tubercle Bacilli in the Blood After Injection of Tuberculin for Diagnosis.*
4. *Kahn, E. *Demonstration of Tubercle Bacilli in the Circulating Blood.*
5. Kessler. *Demonstration of Tubercle Bacilli in the Blood.*
6. Raestle, R. *Simplified Roentgenography of the Stomach.*
7. Bucky, G., and Frank, E. R. W. *Operations on the Bladder with the Help of High-frequency Currents.*
8. Kisch, E. *Drop Ether Anesthesia After Injection of Pantopon-Atropine Sulphate.*
9. Flatow, L. *Practical Points for Estimating Uric Acid and Purin Bodies in the Urine.*
10. Wahle, P. *Two Cases of Neosalvarsan Poisoning.*
11. Goebel, W. *Substitution of the Phalanges of the Fingers and Toes.*
12. Bruck, C., and Glück, A. *Effect of Intravenous Infusions of "Aurum-Kelium Cyanatum."*
13. *Lehmann, K. B. *The Active and Valuable Constituents of Coffee, with Special Reference to "Kaffee Hag" and "Thumkaffee." (Concluded.)*

2. The writer's experiments on frogs show results of unusual interest from the biochemical standpoint. Although difficult of explanation they may, later, prove illuminating in human diabetes.

3. That virulent tubercle bacilli may be present in the circulating blood and that they are common in the last stages of phthisis have been proven by inoculating guinea-pigs with blood from the patients. The writer made fifteen such tests in cases of early phthisis and had negative results. The tests were repeated at the height of the reaction following the injection of tuberculin and the outcome in four cases was positive.

Boemeister, therefore, urges caution in the use of tuberculin, and expresses his belief that not the height of the temperature, but the appearance of a local reaction at the point of injection indicates the presence of tubercle bacilli in the blood and that this reaction should be avoided when tuberculin is used either for diagnosis or for treatment.

4. The conclusion is reached that tubercle bacilli in the circulating blood can be detected with certainty by the animal test only because the blood normally contains substances which are acid-fast.

13. By careful observation of patients and by experiments, Lehmann finds that the only toxic substance in coffee is caffeine and that caffeine-free coffee is harmless. In the preparation of "Thumkaffee," on the contrary, no substances of hygienic importance are removed. It offers, therefore, no advantage. [G. C. S.]

Wiener Klinische Wochenschrift.

No. 7. February 13, 1913.

1. Kraus, R. *Methods of Combating Cholera in the Bulgarian War.*
2. Koch, H. *The Circumstances of Origin of Tuberculous Meningitis.*
3. Slukka, E. *A Further Contribution on the X-ray Appearance of Tuberculosis of the Pulmonary Root in Children.*
4. Dietl, K. *The Pathology of Orthostatic Albuminuria.*

5. *SCHIFFMAN, F., AND VYSTAORL, A. *Experiment Relative to an Internal Secretion of the Mammary Gland.*
6. LOGER, A. *Knowledge of the Radiological Findings of the Large Intestine in Tumors in the Region of the Kidney.*

5. The authors sum up previous work as follows: Scherbak demonstrated that extirpation of the breast does not influence pregnancy and labor. He, however, showed that in young goats, following breast extirpation there was a disappearance of rut and in four instances a loss of weight of the uterus. Leo Adler found that following the injection of mammary extract the suprarenals enlarge, and in the pregnant uterus the product of conception dies away and abortion follows: and histologically is found a condition analogous to human hyperplastic glandular endometritis. Fedoroff found after injection of mammin, decrease in size of the uterus, atrophy of the muscularis, and cell infiltration in the submucosa.

The authors' experimental work substantiates that of Scherbak. They produced abortion in pregnant animals by the injection of mammary extract. Attempts, however, to produce abortion in pregnant women by using pituitrin and mammin together have not been successful. They found also that the ovaries, as well as the uterus, are diminished in size by injections of mammary extract, those of the control animal being twice as large as those of the injected animal. They then demonstrated that mammary extract injections cause a diminution in size of the testicles, also that microscopically spermatogenesis is further advanced in the control than in the injected animal. Using the same sort of animals they injected them with mammary gland extract from another species (cow) and obtained the same results, also they observed an increase in the size of the posterior lobe of the hypophysis and the suprarenals in these cases.

From these experiments they conclude that there is an internal secretion of the breast and that it is capable of arresting the development of the genitalia. [F. S. K.]

DEUTSCHE MEDIZINISCHE WOCHENSCHRIFT.

No. 6. FEBRUARY 6, 1913.

1. GOTTSCHALK, S. *The Causes and the Treatment of Discharge from the Female Genitals.*
2. KÖRTE, W. *Typical Fracture of the Bones of the Face.*
3. KAUSCH, W. *Experiences with Rosenbach's Tuberculin.*
4. *BRAUN, W. *The Importance and Practicability of Prophylaxis and Early Treatment of Diphtheria.*
5. ZIEMANN, H. *Artificial Cultivation (in Vitro) of the Tertian Malarial Parasite.*
6. *WERNER, H. *Human Trypanosomiasis.*
7. SIPPEL, A. *Differential Diagnostic Difficulties in Gynecology.*
8. *JACOBSON, O. *The Diagnosis of Bronchostenosis.*
9. FRAENKEL, D. *The Normal Body Temperature of Children and Its Behavior in Activity and Rest.*
10. *JOHANNESSOHN, F. *Clinical Contribution on the Value of Ureabromin.*
11. KEIBELL, E. *Experiences with Roche's Erystyptic.*
12. GROEDEL, F. M. *The Technic of Roentgen-Kinematography. (Second Communication.)*
13. SCHURIG. *The Therapeutic Employment of High Frequency Currents.*
14. MOMBURG. *The Question of the Points of Support of the Foot in Walking and Standing.*
15. KAUFMANN, M. *Observations on Hypersusceptibility to Arsenic.*
16. DUTOIT, A. *The Relations of Basedow's Disease to Thymus Hyperplasia.*

4. Braun believes that with better organization between physicians and the State, diphtheria might be eradicated at comparatively moderate cost.

6. Werner reports a case of trypanosomiasis, with sleeping sickness symptoms, from Portuguese East Africa, caused by *Trypanosoma rhodesiense*, which proved entirely resistant to atoxyl. Eighteen hours before death, the trypanosomes disappeared completely from the peripheral blood and from the lumbar spinal fluid. The latter was also free from bacteria and gave the Nonne-Apelt phase I reaction. There was no eosinophilia.

8. Jacobson states that inspiratory displacement of the mediastinal organs and heart towards the affected side,—demonstrable by percussion and skiagram,—is a constant and pathognomic sign of bronchostenosis.

10. Johannessohn believes that bromide of calcium and urea is a sure and safe sedative. He reports eleven cases of its successful use. [R. M. G.]

No. 7. FEBRUARY 13, 1913.

1. ISELIN, H. *Detoxication of the Tuberculous Focus by Roentgen Irradiation. (To be continued.)*
2. LANDAN, M. *The Development of the Adrenal Cortex.*
3. FANSER, A. *Further Investigations (Five Series) on the Basis of Abderhalden's Dialysis Procedure.*
4. DRÜGG, W. *Investigations with V. Dungern's Simplification of the Wassermann Reaction.*
5. WACHTEL, S. *The Question of the Benzol Treatment of Leukemia.*
6. HARTUNG, E. *The Action of Luminal.*
7. SCHUSTER. *Melubrin.*
8. MOTZFELDT, K. *Diaphragmatic Eventration.*
9. SCHRICKER, H. *Two Contributions on Gunshot Wounds of the Abdomen.*
10. HIRSCH, C. *Sympathetic Nystagmus in Erysipelas.*
11. SCHRWALD, E. *Erosions by Benzine.*
12. BRANDENBURG, W. *An Excessive Cartilaginous Oblique Nose.*
13. WEISZ, E. *A Simple Splint for Extension and Flexion of the Knee Joint.*
14. KINDBORG, E. *The Prophylaxis and Treatment of Hemorrhoids by Anicure.*
15. HERSING. *A Chin Support for the Prevention of Snoring.*

No. 8. FEBRUARY 20, 1913.

1. v. WYSS, H. *The Pharmacologic Foundations of Bromine Therapy in Genuine Epilepsy.*
2. ISELIN, H. *Detoxication of the Tuberculous Focus by Roentgen Irradiation. (Conclusion.)*
3. PLEHN, A. *Some Unusual Cases of Diseases of the Hematopoietic Organs.*
4. HOFFMANN, E. *Acute Syphilitic Nephritis in the Early Period.*
5. SCHÖNE, C. *The Demonstration of Diphtheria Antitoxin in the Blood Serum of Patients Treated Therewith and the Question of the Dosage of Curative Serum.*
6. SCHMIDT, H. *Capillary Analytic Determinations of the Free Hydrochloric in the Gastric Juice.*
7. PIETRULLA, G. *Acitrin.*
8. HAUSMANN, T. *The Demonstration of Urobilin by Means of Copper Sulphate.*
9. NORDMANN, O. *Resection of the Thoracic Wall with Meltzer's Insufflation.*
10. SCHANZ, F. *Changes and Injuries of the Eye from Light.*
11. SCHILLING, R. *The Shading of the Singing Tone.*
12. HALLE. *Extirpation of the Tonsils, Its Dangers and Their Prevention.*
13. *ZITRONBLATT, A. *Cases and Histogenesis of Adenoma of the Navel.*

14. BRÜCKNER. *The Question of the Practical Significance of Blood-Pressure Measurements in Diphtheria.*
15. ZIEMANN, H. *The Artificial Cultivation (in Vitro) of the Tertian Malarial Parasite.*
16. MELCHIOR, E. *Dieffenbach as a Clinician.*
17. *STERNBERG, W. *The Human Aquarium.*

13. Only four cases of adenoma of the navel have ever been reported in the literature. Zitronblatt considers that embryologic and anatomo-pathologic investigations, as well as the clinical course of true adenoma of the navel, permit us to speak of it as an autogenous tumor. Histogenetically it arises from remains of the allantois in the umbilicus.

17. Sternberg reports and describes his investigation of an apparently authentic case of a Frenchman who can drink, retain, and expel at will, and without nausea, 7 liters of water at once. At the same time he can swallow 10 live frogs and 10 live goldfishes and eject them still living. Transillumination showed the animals swimming about in his stomach. [R. M. G.]

Obituary.

JOHN WARREN WILLIS, M.D.

DR. JOHN WARREN WILLIS, who died of pneumonia on March 1 in Waltham, Mass, was born at Belchertown, Mass., on May 2, 1832. He obtained his preliminary education at the Bridgewater (Mass.) Normal School, and received the degree of M.D. from the Harvard Medical School in 1861. After serving for a time as interne at the Deer Island Hospital, he settled at Waltham, where he continued active in the practice of his profession for fifty years, until his retirement in 1912. He was a member of the local school committee and board of aldermen. He was a founder of the Waltham Hospital and a surgeon on its staff. He served for many years as city physician. He was also a founder of the Waltham Nurses' Training School, and at the time of his death was one of its trustees. He was a member of the American Medical Association and of the Waltham Medical Club. He was a Fellow of The Massachusetts Medical Society, and served for 20 years as treasurer of the Middlesex South District Medical Society. He is survived by his brother and by his two sons, all of them also physicians.

Dr. Willis was beloved alike by his patients and by his associates, and the loss of his unselfish, manly personality is a grievous one to the community which he had so long and well served.

Miscellany.

CHANGES IN THE MEDICAL CORPS, U. S. NAVY, FOR THE WEEK ENDING MARCH 22, 1913.

LOVERING, P. A., medical director. Detached from Naval Hospital, Mare Island, Cal., and ordered to Washington, D. C., and to await orders.

DAVIS, R. G., assistant surgeon. Detached from Naval Medical School, Washington, D. C., and ordered to Naval Proving Ground, Indian Head, Md.

HUFF, E. P., passed assistant surgeon. Detached from marine detachment on *Prairie*, to *Florida*.

CRANDALL, J. W., acting assistant dental surgeon. Detached from receiving ship, New York, N. Y., and ordered to naval training station, Newport, R. I.

BROWN, J. L., acting assistant dental surgeon. Detached from naval training station, Newport, R. I., and ordered to naval station, Guan.

TOMPKINS, J. A., N.M.R.C., assistant surgeon, Ordered to Navy Yard, New York, N. Y.

SOCIETY NOTICES.

WORCESTER DISTRICT MEDICAL SOCIETY.—A meeting of the Worcester District Society will be held on Wednesday, April 9, 1913, at 4 p. m. General subject, "Pediatrics." 1. "Resources in Artificial Feeding of Infants and Some Indications for Their Use," Merrick Lincoln, M.D., Worcester. 2. "Carbohydrate Digestion and Indigestion in Infancy," Fritz B. Talbot, M.D., Boston. 3. "The Spasmophilic Diathesis in Children with Special Reference to Tetany," Timothy J. Foley, M.D., Worcester.

ERNEST L. HUNT, M.D., *Secretary.*

RECENT DEATHS.

DR. JOHN H. DROGE, of Brooklyn, N. Y., died on March 16, at the age of 53 years. He was graduated from Bellevue Hospital Medical College in 1884, and was chief laryngologist to the German Hospital, Brooklyn, of which institution he was one of the founders.

DR. JOHN A. HAYES, who died on March 21 at Somersworth, N. H., was born in 1838. He received the degree of M.D. from Dartmouth in 1862, and throughout the remainder of the Civil War served as surgeon of the Eleventh New Hampshire Volunteer Regiment.

RECORD OF MORTALITY.

FOR THE WEEK ENDING SATURDAY, MAR. 22, 1913.

CITIES.	Reported deaths in each.	Deaths under five years.	CITIES.	Reported deaths in each.	Deaths under five years.
New York	—	—	Pittsfield	17	5
Chicago	—	—	Waltham	4	1
Philadelphia	—	—	Brookline	7	1
St Louis	—	—	Chicopee	9	4
Baltimore	—	—	Gloucester	7	1
Cleveland	—	—	Medford	9	2
Buffalo	—	—	North Adams	2	1
Pittsburgh	—	—	Northampton	11	2
Cincinnati	—	—	Beverly	4	—
Milwaukee	—	—	Revere	5	3
Washington	—	—	Leominster	5	2
Providence	—	—	Attleboro	—	—
Boston	260	57	Westfield	10	4
Worcester	62	12	Peabody	—	—
Fall River	47	21	Melrose	5	1
Lowell	34	8	Woburn	5	1
Cambridge	30	3	Newburyport	2	—
New Bedford	37	11	Gardner	—	—
Lynn	32	4	Marlboro	—	—
Springfield	41	13	Clinton	1	—
Lawrence	—	—	Milford	—	—
Somerville	22	6	Adams	4	3
Holyoke	17	6	Framingham	—	—
Brockton	16	2	Weymouth	—	—
Malden	—	—	Watertown	3	—
Haverhill	15	4	Southbridge	3	—
Salem	8	1	Plymouth	—	—
Newton	9	4	Webster	4	2
Fitchburg	18	8	Methuen	—	—
Taunton	15	7	Wakefield	—	—
Everett	4	—	Arlington	2	—
Quincy	—	—	Greenfield	1	—
Chelsea	19	6	Winthrop	—	—

Address.

THE CONDUCT OF LABOR WITHOUT VAGINAL EXAMINATIONS.*

BY CHARLES M. GREEN, A.B., M.D., BOSTON,

Professor of Obstetrics and Gynaecology in Harvard University.

It is generally believed, I suppose, by those who are well trained in the science and art of obstetrics that it is good for a parturient woman, if she can be delivered without vaginal examination; yet, I also suppose it is true that only a very small minority of even normal deliveries takes place without more or less digital invasion of the genital tract. Indeed, it is probably true that in the great majority of cases the first thing the physician does on seeing a woman in labor is to make a vaginal examination to ascertain the presentation and position, and to determine how far labor has progressed. It may truly be said that in no other way can it be definitely known whether or not the cervix is effaced and to what extent the uterine mouth is dilated; but information on these points is not always essential, although perhaps oftentimes convenient for the physician. As for the diagnosis of presentation and position, it should generally be possible to determine these data in other ways. But here it may pertinently be inquired what objections can fairly be made to occasional vaginal examinations during the course of a normal case of labor for purposes of diagnosis and observation. If I make a thesis that vaginal examination should never be practised except to ascertain conditions that can be determined in no other way, it is my duty to defend the thesis and clearly to state the valid objections to routine vaginal examinations, the conditions which would warrant them or make them necessary, and the expedients by which without vaginal examinations all necessary information may generally be obtained: to this duty I will now devote myself.

The valid objections to routine vaginal examinations, even when skilfully and aseptically made, are two: first, they are generally distasteful and even painful to the parturient woman, especially so to the modest, timid, and oftentimes supersensitive primipara; this objection is of relatively minor importance, and would disappear in the face of a necessary indication for pelvic exploration; but in the absence of such indication no argument is needed to show that vaginal examination should not be insisted on. Moreover, it is a familiar experience that such examinations often lead to no satisfactory result in the first stage of primiparous labor, particularly in the resisting, hyperæsthetic young woman. If the presenting part is high, it is impossible to palpate it satisfactorily without the introduction of two fingers to the great discomfort of the patient; and when high vaginal palpation is really necessary, anæsthesia is often essential.

The second objection is, of course, the ever-present possibility of infecting the patient from without. Doubtless we shall all agree that in the work of the expert, trained in the rigid technique of modern surgical asepsis, the possibility of introducing infection from without is remote; but in what proportion are the trained experts to the great mass of physicians who do obstetric practice? Moreover, even the expert obstetrician and the well-trained nurse are human, and all human effort is liable to error. The obstetrician may inadvertently and unconsciously break his asepsis, or with his sterile glove he may introduce facultative organisms by contact with the folds of the external genitalia imperfectly cleansed by the trained nurse. This being true, what are the possibilities of infection by the midwife, and by the general practitioner who lays no claim to expert training!

But aside from the possibilities of exogenous infection, let us consider the possibilities of infections from within or the autogenous infections. And here we will not dwell upon those forms of endogenous origin wherein bacteria are borne to the pelvic organs by the blood or lymph streams from other foci, from distant ports of entry, such as the tonsil or the breast, nor again upon those autoinfections of the genital tract from contiguous foci, such as may exist in the appendix or Fallopian tube: true endogenous infection has no place in our present thesis. But what are the possibilities of infection by the dissemination in vaginal examinations, through the instrumentality of the even sterile glove, of bacteria already in the vagina at the beginning of labor? The question as to whether apparently healthy women under the common conditions of life harbor pyogenic organisms in their vaginæ has been the subject of much investigation by noted obstetricians and bacteriologists, and has been the basis of much polemic discussion. While as yet there is no general agreement on this subject, the results of recent investigation seem to show that almost every known organism, including the streptococcus and the staphylococcus, are to be found in the vaginæ of from 40% to 75% of the cases examined in the latter weeks of pregnancy. These organisms may find their way into the vagina from the vulva, they may enter from bathing in impure water, they may be communicated by cystitic urine, they may be introduced by the patient's fingers from recent contact with infectious discharges. While the normal vaginal secretion, small in amount, acid, containing no mucus, shows only the harmless, probably even beneficent, bacillus vaginæ, pathologic discharges contain numerous pathogenic organisms. It is also well known that pathogenic organisms other than the gonococcus are introduced by coitus practised by certain classes in every community not only in late pregnancy, but even during labor. If these facts are true, it may pertinently be inquired why almost every

* An address before the Buffalo Academy of Medicine, February 18, 1913.

woman is not the victim of autoinfection during labor; the question might be asked in reply, why do not the streptococcus, the pneumococcus, the Klebs-Loeffler, and the tubercle bacillus, lying dormant in so many noses and mouths, invariably result in their specific clinical possibilities? In the vagina very probably the lactic acid product of the bacillus vaginæ is fatal to most bacterial life except that of the gonococcus provided it is always normally present in sufficient amount and there is sufficient time for its successful function. Probably in the vagina, as in the mouth, the organisms lead a saprophytic existence until favoring conditions and depressed resistance invite their virulence. It is also a credible theory that during labor the descending fœtus, liquor amnii, placenta, and blood sweep out large numbers of organisms. This subject is admirably traversed by De Lee in his excellent text-book on obstetrics recently published, and he points out that "the practical lesson to be learned from these investigations (of the vaginal flora) is that the accoucheur should studiously and conscientiously avoid those conditions which render these bacteria virulent and invasive, *and which carry them to regions of the parturient canal where they may unfold their latent powers.*" Is it not clear that in making the vaginal examination the fingers are likely to carry organisms from the lower vagina to the cervical glands, to the uterus, and doubtless to numerous rifts in the cervical mucosa? And is it not true that unless made with great gentleness digital examination may open fresh ports of entry in the softened mucosa of the vagina for the entrance of infecting organisms?

If it may be assumed that I have thus far successfully defended my thesis, at least until such time as my statements are disproved by further investigation, it remains for me to declare in what ways the obstetric diagnosis may be made, if not by vaginal examination, and how the normal delivery may be conducted intelligently without digital invasion of the genital tract. But before entering upon this part of my subject I would like to point out that in my opinion, if full justice is to be done to woman in labor, she should be under the care and observation of her obstetrician from the early months of pregnancy, not only to insure proper hygiene and the alleviation or removal of minor ailments, to promote the best possible functional activity of the eliminative, digestive, and circulatory organs and to train the young gravida for the greatest physical ordeal of her life, but also to permit the observation of the growing fœtus and the determination of its proportionate relation to the pelvis through which it is later expected to pass. As I have already fully expressed my views on the care and observation of pregnant women before the Boston Society for Medical Improvement in 1891,* and more recently in the annual address before the Obstetric and Pediatric Section of the Ohio State Medical Association in 1911,† I will not now further allude to this important subject except to say that early in her pregnancy the young primigravida should be subjected to a full and complete physical examination. Not infrequently a bimanual examination is desired to determine whether pregnancy exists, in order that definite plans may be made for the future and for other reasons. Even if pregnancy is taken for granted on presumptive evidence, it is important to know reasonably early whether there is any abnormality of the soft parts which may interfere with normal labor; if we hope to conduct the labor without vaginal examinations, we must know beforehand whether any impediment exists in order to deal with it intelligently at the proper time. Thickness and rigidity of the hymen, vulval cicatrices consequent on ulcerative processes in childhood, vaginal and uterine atresias and septa, uterine displacements with possible incarceration, the presence of uterine myomata or ovarian cysts, immobility of the coccyx, or bony tumors of the pelvis should all be recognized in the early months. Then, too, the pelvis should be carefully measured, at least externally; if these measurements are essentially normal, the gravida may be spared the discomfort of internal pelvimetry until near the end of pregnancy; and even then it may be omitted, if the presenting head becomes well engaged or descends into the pelvis. It is desirable, however, to measure the distance between the tuberosities of the ischia and perhaps later between the ligamentum arcuatum and the sacro-coccygeal articulation, because pelves are sometimes contracted at the outlet even though the brim is normal. It is, of course, needless to point out that the untried pelvis of every primigravida should be carefully measured before the advent of labor; if the pelvis is found to be normal, all apprehension regarding that important factor of parturition is dispelled; and if in any degree abnormal, a progressive study of the size and position of the growing fœtus will enable the obstetrician to determine the degree of disproportion between passenger and passage, and to decide upon his further course of procedure, —whether he may expect to deliver through the pelvis by forceps or version, whether he will induce labor prematurely, or whether he will make the necessary preparations for an elective Cæsarean section. Lest it should be thought by some that the importance of this routine study of primigravidæ, and indeed of multigravidæ with a pathological obstetric history, is the academic dictum of a teacher, and that its application in private and hospital practice is a chimerical fancy, I would like to say that for years I have declined to take charge of obstetric cases unless the gravida is under my observation from early pregnancy, and I have found no difficulty in persuading my own clientèle of the desirability of such a course. Even in my hospital more and more women have year by year been led to make early application for pregnancy care and obser-

* BOSTON MEDICAL AND SURGICAL JOURNAL, February 25, 1892.

† Ohio State Medical Journal, August 15, 1911.

vation, until finally a clinic has been established, with a special staff, to carry on this work for hospital cases and out-patients alike, and the same advantages are extended to the poor as to the private patient. Under such a system the worst cases an obstetrician has to face are in private consultation practice, and in hospital emergency cases which enter after hours of fruitless pathological labor.

After a woman has demonstrated her parturient fitness by a normal first labor, subsequent pelvimetry is of course unnecessary, and aside from general supervision of a multigravida's health and functional wellbeing the obstetrician has only to observe the development of the fœtus and determine its position and presentation before the advent of labor; of course he should discover any relative disproportion occasioned by a considerable increase in the size of the baby. It is a well known fact that the external obstetric examination is more difficult and much less likely to give satisfactory results when practised during active labor than when executed beforehand. It is my own custom to make this external examination of the fœtus as early as the end of the seventh month. Subsequent monthly examinations reveal progressive fœtal growth, and sometimes also changes in position and presentation,—from right or left position to its opposite, and sometimes from breech to head or *vice versa*. A few days before the calculated date of labor a final examination is made, and after this no change in position or presentation is to be expected; in 97% to 98% of all cases at full term the head presents, and in normal cases is already engaged or descended into the pelvis in the latter days of pregnancy; it is only in cases of relative disproportion or in the relaxed condition of uterus and abdominal wall sometimes observed in multiparity, that the head is likely to change its position in late pregnancy. Still it is not generally difficult, at the first visit to a woman in the beginning of labor, to verify or disprove the last previous examination.

The external examination is not equally easy of satisfactory execution in all women. In some the abdominal wall is very fat, in some very tense, in others unduly hyperæsthetic. It is for the reason of these possible conditions that I am accustomed to examine the abdomen as early as the seventh month; it is not so difficult to detect changes in the later months, if the earlier positions and presentations are known. Then, too, if when seen in the early months the gravida is found to be too fat, it is usually possible to reduce this bane of easy labor, as well as of satisfactory examination, by intelligent regulation of diet and exercise. The abdominal wall is not usually so tense as to make palpation unsatisfactory until the later months, and troublesome tension may be much diminished by oil inunction after the seventh month. The hyperæsthetic muscular spasm of the timid, apprehensive young primigravida may be generally removed by interesting conversational diversion of her mind.

What means have we at our service for the external examination? First of all, our eyes. Inspection naturally comes first in most of our activities. By inspection, aside from the appearance of the breasts, nipples, and areolæ, a distended bladder, the status of the umbilicus, the presence of pigmentations, and the striæ, new or old, indicative of tears in the true skin, we note the shape and size of the abdominal tumor. A large size of the tumor is at most only suggestive; it may mean a large baby, it may mean hydramnios with the usually small, mobile baby, it may mean twins; subsequent examination must endeavor to differentiate between these possibilities. It should not mean a complicating ovarian tumor, for this should have been discovered at earlier examinations. The shape of the pregnant abdomen gives far more information. The normal shape is ovoid, in head presentations with the smaller end at the pelvic brim; if the lower pole is broad, it would suggest a breech presentation, to be determined later; a possible low attachment of the placenta would also be thought of. If the ovoid is distorted and irregular, it shows that the long axis of the fœtus intersects the long axis of the uterus, and, therefore, that an oblique or transverse presentation is highly probable; the possibility of a hitherto undiscovered, rapidly grown, intra-mural fibroid should not be overlooked. Finally the movements of the baby may usually be seen, and often point strongly to the fœtal position. Many a time while waiting for a student to practise auscultation I have watched the abdomen, and have been able to map out the fœtus by sight, although, of course, diagnosis by this means should be subsequently confirmed.

Our second and most useful means of external examination is that afforded by the sense of touch. By palpation of the pregnant abdomen we may expect to determine whether there is a normal amount of liquor amnii, or an abnormal hydramnios perhaps suspected after inspection. If the membranes are known to have ruptured, the presence of a normal amount of liquor is good evidence that the brim is occluded with a well-flexed presenting head, the only fœtal part which serves as a good ball-valve. If, on the other hand, the membranes have already ruptured and the uterus is found to contain but little liquor, it is fair to presume that the brim is not well occluded, and, therefore, that there is an abnormal presentation, such as a shoulder, or an undesirable presentation, such as face, brow, or breech. And if the examination is made on a woman who has been long in labor with ruptured membranes and dry uterus, we may usually palpate a high contraction ring. By palpation we may appreciate the size and mobility of the fœtus, and with practice be able to form a sufficiently accurate estimate of its weight. We may be able to confirm a suspicion of multiple pregnancy, although this is by no means

always possible. We may also detect the presence of a complicating neoplasm, and locate the placenta. But the most important purpose of palpation is to determine the fœtal position, presentation, and its relative size to the pelvis. It is unnecessary for me to describe the technique of this procedure; it is taught in all good schools and obstetric clinics. But I would like to insist on its value as an expedient for making vaginal examinations unnecessary. Save in a small proportion of exceptional cases we should be able to determine the presence of a head in the uterine fundus, and thus be able to recognize a breech presentation when it would be impossible by vaginal examination without anæsthesia to reach the high, unmoulded breech in early labor. The usually easy detection of the two large parts of the fœtus in a line at angle with the long axis of the uterus must generally mean a shoulder presentation, and this method of diagnosis is available long before it would be possible to palpate the shoulder by vaginal touch, even if the cervix were sufficiently patent to permit it. Whether the fœtus lies in right or left position is usually determined by touch without difficulty; but of far greater value is the study afforded by palpation of the relation of the head to the pelvis. That the head presents, and whether it is engaged or not, is readily recognized by what is known as the Pawlik grip, or, as sometimes called, by the third manœuvre. And if the head is engaged, by the fourth manœuvre, performed with both hands, the observer facing the woman's feet, the degree of flexion, the position, and the extent of descent into the pelvis are generally determined without difficulty. It is also possible to diagnosticate the unflexed or extended head by the third and fourth manœuvres by palpation of the occiput with the deep sulcus behind it, and of the sinciput or chin. To save time it is my usual custom to practise the Pawlik grip first, and thus often determine the position and engagement of the head without resort to palpation of the fundus and lateral surfaces of the uterus which is necessary in doubtful cases. And if the head is not easily thus grasped, it will generally be found that it has already descended, perhaps even to the pelvic floor.

There remains one other sense of contributory value in the external examination, the sense of hearing. While auscultation detects the bruit of the blood stream through the enlarged uterine arteries, and sometimes the musical note of the funic souffle, its chief value lies in the detection of the rate and rhythm of the fœtal heart sounds and in the location of their maximum intensity. For purposes of diagnosis of fœtal presentation and position the discovery of the locus of this maximum intensity of sound is of value in confirming the opinion reached by palpation, and sometimes it leads to the detection of error when palpation has been too hastily and perfunctorily performed. It is known that with the single exception of face presentations the fœtal heartbeat is heard loudest and most distinctly over the baby's back; and since, except when the head is extended, the back lies or can be made to lie in snug apposition to the uterine wall, it is easy to determine by auscultation in which of the four quadrants the fœtal back is disposed, and thus to confirm the results of palpation. In face and brow presentations the heart is heard loudest over the fœtal abdomen and small parts, because the extended head prevents the apposition of the back to the uterine wall, and forces the baby's abdominal wall to the opposite side. As it is known that in head presentations the area of loudest intensity of heart sounds is in one of the two lower abdominal quadrants, it naturally follows that when this area is above the maternal umbilicus, it points to the presentation of an undescended breech. In teaching it is my custom to require that the presentation and position should first be determined by inspection and palpation, and that then the small area should be selected over which the fœtal heart should be heard; if with a living fœtus the heart is not heard over the designated area, then the findings by palpation must be verified, and the discrepancies between the methods of examination must be explained.

Experience has taught me that if the several expedients at our command are intelligently and patiently employed, the external examination, especially if made at suitable intervals during the latter months of pregnancy, must almost always result in an accurate knowledge of presentation and position; further, that if in primigravidæ pelvimetry and vaginal exploration have been made at the proper time, the obstetrician should know at the incidence of labor the exact conditions with which he will have to deal as far as the fœtal passenger and the maternal passage are concerned; of the probable behavior of the maternal propelling power he can have no knowledge, although he may make correct prediction from his acquaintance with the parturient's nervous stability and muscular tone, and with the history of the multipara's previous labors. Under these circumstances why should any vaginal examinations be made as long as under normal conditions labor progresses normally and terminates within reasonably normal limits of time? Is it not true that no vaginal examination should be made in the absence of definite indications? Of course pathological conditions existing before, or arising during labor call for appropriate examination and intervention. Let me quote a case illustrating the conduct of a normal labor without a single vaginal examination:

Case 1. A secundigravida of 30 years, whom I had delivered of her first child eighteen months before, after a tedious but normal labor, took in her second labor at 11 p. m. I visited her two hours later. I had supervised her pregnancy, knew that she had a pelvis adequate to pass the average sized baby I had palpated, and knew that the head presented in O. D. P. position. Examination a few

days before had shown the head to be well engaged, and palpation on my arrival showed me that the head had descended well flexed to the pelvic floor. The membranes had ruptured three-quarters of an hour after the incidence of recognized labor; but in view of the well flexed, descended head, I had no apprehension of a prolapsed cord; moreover, the fœtal heart was heard to beat normally, in the right lower quadrant posteriorly. The patient was evidently in good labor, and I knew all about her that could be known, except the condition of the cervix. I saw no reason to make a vaginal examination, but seated in an adjoining room, I listened, while the nurse made her final preparations. After a rather brief but untimed period I heard a change in the patient's tones, and noticed that she was straining; it was very obvious that she was in her second stage. I then prepared myself with sterile gown and gloves, while the nurse watched the vulva. Soon the perineum bulged during pains, the vulva gaped, and the scalp came into view. In order to assure myself as to whether the occiput had rotated to the pubic arch, as it normally should do, with one finger I palpated the visible part of the head and found the small fontanel under the arch; I did not enter the vagina. The labor terminated in five hours after the initial pains. The puerperal temperature never rose above 99° F.

It may now be profitable to consider the conditions which would warrant or necessitate vaginal examinations during labor. Of course, as intimated above, pathological conditions usually call for operative procedure, from low forceps to abdominal section. Most of these procedures necessitate vaginal invasion; but every vaginal examination shadows the prognosis, if Cæsarean section is finally decided on. Ante-partum hæmorrhage, pregnancy toxæmias with convulsions, compound or other abnormal presentations, minor relative disproportion between pelvis and fœtal head, complicating neoplasms, prolapse of the funis, and evidence of impending fœtal asphyxia, surely necessitate treatment involving invasion of the vagina. But in the absence of these more or less grave complications, the only indications for vaginal examination in cases which at the beginning of parturition bid fair to be normal would seem to me to be only the prolongation of labor beyond reasonably normal limits of time, that is, ineffectiveness of the maternal powers, and suspected prolapse of the cord or a fœtal extremity. The following history will illustrate what might be called the time-limit indication for examining by vagina:

Case 2. The patient whose history as a secundipara was given above, now 36 years of age, in excellent general health, began to have the pains of her third labor at 4 a. m. The uterine contractions ceased to be regular two hours later; but they continued irregularly until 6 p. m., when true labor evidently began. My visit was at 9.15 p. m., when I found by external examination that the position of the presenting head, since my last previous palpation a few days before, had changed from O. D. P. to O. L. A., the head now being well engaged. The child was thought to be a little larger than that of the second labor, but still not above average size. The pains continued regular, but rather weak. At 4.30 a.m. of the next day the woman had been in true labor for ten and one-half hours, more than twice as long as in her second labor, although the fœtal position was more favorable, and the fœtus not materially larger. As the patient was now rather discouraged, it seemed best to me to examine by vagina to see if there were any cause, such as cervical rigidity, for the protraction of labor; the cervix was thus found to be soft and from one-half to two-thirds dilated. Two hours elapsed, and still there was no evidence of progress, so I made a second vaginal examination; the os uteri was not yet fully dilated, and the bag of waters was still unbroken. After still one other hour the membranes suddenly ruptured, and rapid delivery of a seven-pound child followed in fifteen minutes. The whole labor covered fourteen hours, nearly three times tne length of the last previous one, and the baby weighed only five ounces more. It seemed obvious that the protraction of labor was due to a poorer quality of labor pains, rather than to any anomaly of the cervix, and my two vaginal examinations gave no information except as to the extent of dilatation, which was more tardy than in the previous labor.

In some cases, then, of tardy labor vaginal exploration is legitimate and necessary, for intelligent treatment must depend in great measure on the condition of the soft parts and the degree of cervical expansion. If the labor pains are inefficient with a cervix but slightly dilated, resting the patient with anodyne treatment will often restore the length, rhythm, and normal quality of the contractions; sometimes the use of hydrostatic bags is indicated. And when inertia supervenes with the os uteri almost dilated, it is generally best to terminate the labor with forceps after manual dilatation. Sometimes unusual delay in labor may be due to a loss of flexion of the head after it has passed the brim, and vaginal invasion is necessary to correct this hindrance to normal mechanism. Then, again, in posterior positions of the occiput, the pelvic floor has in some cases so far lost its elastic resistance in multiparity that anterior rotation fails to take place, and the hand must be used to assist this rotation.

My conclusion is, then, that the common custom of making frequent vaginal examinations during labor is a bad one and deserves to be classed as "meddlesome." These examinations disturb and often hurt the patient, they add to the risks of infection, they give no information that cannot generally be obtained by external examination, except as to the condition of the cervix, and the possibility of prolapse of the cord or a fœtal extremity. Except in hospitals, to which naturally many abnormal cases are sent, the great majority of cases are normal as far as the fœtal passenger and the maternal passage are concerned, and when delay occurs it is much more generally due to defective pains. Frequent vaginal examinations do not remedy this difficulty, and the obstetrician's efforts can be more profitably employed than in making them. I have

already intimated that much can be done during pregnancy in standardizing the woman's nervous equilibrium and muscular tone. Cannot something also be done during labor? Especially in the long first stage of most primiparæ it is worth while to give attention to two important facts: first, it is best that the parturient should be out of bed until the first stage is well advanced; second, it is best that she should be occupied and her mind diverted with light duties or amusements. Many a parturient woman will bear her first-stage pains with comparative equanimity and without loss of her *morale*, if she gives her attention to household duties, writes notes, or plays games of cards. Moreover, in her usually long first stage a primipara should be fed with easily assimilable liquid food; no one is brave when hungry; no general, if he can help it, sends unfed troops into battle. As the first stage approaches its end the fact is very often shown by blood-streaked mucous discharge, by nausea and vomiting, and by rupture of the membranes. Soon after it will often be observed that the parturient instinctively begins to bear down, to strain; and the profuse secretions, gaping vulva, and relaxation of the anus are good indications of progress. Sometimes the second stage drags because the laboring woman fails to strain and does not make proper use of the supplementary force of her abdominal muscles. This is the time for the obstetrician to take active charge, to teach the young primipara to make full use of her muscular powers, to encourage, to coach, even to command. Even well-trained nurses generally fail to make their patients work properly, because, I suppose, women more naturally obey a man than another woman. A properly coached second stage rarely exceeds normal limits in a well-prepared parturient in the absence of pelvic and fœtal disproportion or fœtal malpresentation. But well-trained nurses can be taught keenly to watch the clinical phænomena of labor, and to judge quite accurately of its progress; so that the constant presence of the obstetrician is by no means necessary during the long first stage, especially if he is easily and quickly accessible by telephone, as may be illustrated by the following case:

Case 3. A quadrigravida of 26, whom I had attended in her former labors, took in labor at 6 a. m. I had last seen her three days before, and by external examination had made out a head presentation, well engaged in O. D. P. position. I did not visit the patient, but gave careful instructions to the nurse as to my plans and whereabouts for the day. I did all my morning work, but in the afternoon remained at home in readiness, using my time at my writing desk, and receiving occasional reports from the nurse. About 9 p. m. the nurse informed me that the second stage was at hand, and I saw the patient ten minutes later. As everything needed was in readiness, I had only to prepare myself, and I received the baby twenty minutes later. There was no vaginal examination, and the highest puerperal temperature was 98.6° F.

Medical students should be trained to make vaginal examinations, that they may make them with accuracy when occasion requires. The student should also be well trained in the external examination. He should then be instructed never to make a vaginal examination without a definitely necessary indication; and he should be led clearly to appreciate the fact that the infrequency with which he explores the vagina in normal labor affords an excellent criterion both of his skill in the external examination and of his clinical knowledge and acumen in the practice of obstetrics.

Original Articles.

DIABETES IN INFANCY AND CHILDHOOD.

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Külz, in the first complete text-book article on this subject, collected all the cases reported before 1878. He summarized 111 cases and gave references to 17 other cases published since his summary was made. The ages of these patients varied between fourteen days and fifteen years; 45 of them were boys and 57 girls; the sex was not given in the others. Fifty-seven were known to have died and 6 were said to have recovered. It is impossible to tell from the data given, however, whether the "cure" was permanent or not.

Curt Stern, in 1889, collected 117 cases in children under 16 years, 21 of which were included in Külz' series. Seven were under two years. Thirty-one of these children were boys and forty-seven girls; the sex was not given in the others. The results were given in 77 cases. Fifty-two were dead, 4 not improved, 7 improved and 14 were said to have recovered entirely. Stern says, however, that the proof of recovery is satisfactory in but one.

Saundby, in 1891, reported 159 fatal cases under 15 years, 80 of whom were boys and 79 girls.

Wegeli, writing in 1896, collected 108 cases, not included in the series of Külz and Stern. Forty-seven of these children were boys and 48 girls; the sex was not given in the others. Sixty-nine, or 64%, were fatal. Recovery was claimed in 15. The period of observation was less than three months in 9 of these, however. The other 6 were well after periods of from two and one-half to fifteen years. He also reported 28 new cases, all of whom, in which the data were complete, had died.

Bogoras, in 1899, collected 34 cases from the literature since Wegeli's paper and added 20 of his own. Twenty of these were boys and 26 girls, the sex not being given in the others.

In looking over the literature of the subject I have incidentally run across 27 other cases, 19 in males and 8 in females. Sixteen had died, 10 were still under observation and 2 were said to have recovered.

I have also seen 19 cases myself, 11 in boys and 8 in girls.

It is very evident from these figures that diabetes does occur in childhood and, as only a small proportion of the cases are reported, probably more often than is ordinarily supposed. They show nothing, however, as to the relative frequency of diabetes in childhood and in later life. The following figures show something as to this point. There were 321 deaths from diabetes in children under 10 years in England and Wales in 1851-1870, in a total of 11,042 of all ages, or not quite 3% (Roberts). Heinrich Stern reports 24 deaths, or 1.24%, from diabetes under 10 years in a total of 1867 in New York City (Cotton), while in Chicago, in a total of 418 in four years, 15, or 3.5%, were under 10 years (Cotton). Pavy had 8 below 10 years, in 1,360 cases; Seegen, 4 below 10 years in 800; Schmitz, 5 in 600; Mayer, 1 in 380; Griesinger, 6 in 225; Prout, 1 in 700; von Noorden, 50 in 2,000. This gives a total of 435 in 19,392, or 2.2%.

The general impression is that the frequency of diabetes increases directly with age. The analysis of these figures bears out this impression, 197 being under 5 years and 325 between 5 and 10 years.

A summary of the series of Wegeli, Roberts, Saundby, Leroux, Stern, Griesinger, Bogoras, Morse and Külz shows that, taking childhood as a whole, the incidence of the disease is essentially the same in both sexes, 491 in boys and 498 in girls. Judging from these figures, it occurs more frequently in boys than in girls during the first five years, 93 to 69, and with equal frequency from 5 to 10 years, 150 to 152.

A possible explanation for the lesser incidence of diabetes in childhood may be the somewhat greater sugar capacity at this age than in adult life, the glucose capacity in children from 3 to 5 years being, according to Wilcox, 30 grams or over, and from 5 to 10 years, 50 grams or over, while in adults it lies between 100 and 150 grams. This gives a slightly greater capacity per unit of weight in childhood than in adult life. The child is, moreover, better equipped for sugar digestion than the adult, having more liver substance in proportion to bulk, the relation at 4 years being 4.4% and in the adult 2.7%.

Etiology. The etiology of diabetes in childhood is essentially the same as in later life. The predisposition of the Jewish race to the disease is, however, not evident in early childhood. Heredity is an important factor, but perhaps less so than in later life. It may be either direct or indirect, a neuropathic family history being very common. There was a history of diabetes in the family of 6, or 31%, of my own patients. Familial juvenile diabetes is relatively frequent, heredity playing a very important part in this type. In this form all the children in the family are attacked in more than 50% of the cases, 7 or 8 children being affected in some instances. Lion and Moreau collected 30 instances of this type in 1909. One of my cases was of this type, three children of six in the family having the disease. It is usually stated that trauma is not an important factor in childhood. The recent literature, however, hardly bears this out; witness the cases of Lomax, Thompson, Abt and Strousse, and Lloyd. It is probable that the long-continued excessive consumption of sugar may play a part in the production of the disease, as is shown by Wilcox in his analysis of Holt's cases. Such a history was present in 6 of my own 19 cases.

Symptomatology. The symptoms in children are, of course, in the main the same as in the adult—polyuria, polydypsia, emaciation and constipation. Polyphagia is, perhaps, more common. Symptoms of gastric disturbance are said to be more common in the child (Stern). Disturbances of the skin, eye and nervous system are less frequent. Marked changes in the disposition are, however, very common, the child often becoming quiet, morose and sad. Eneuresis is often the first symptom to call attention to the trouble, while in others the first thing noticed is the presence of flecks of sugar on the clothing, vessel or floor. Another early and suspicious symptom is irritation of the external genitals.

Polyuria was the first symptom noted in 5 of my 17 patients over 2 years of age. Eneuresis was the first symptom noted in 4, excessive thirst in 3, emaciation in 3, quietness in 1 and disturbance of vision in another. Polyuria was noticed in all. Polydypsia was, however, noted in but 13. Emaciation was also noted in 13. Only 9 were constipated. A large appetite was noted in 6, while loss of appetite was noted in 3. Eneuresis was present in 5 and irritation and itching of the external genitals in 4. Itching of the skin was mentioned in but one case. Three were nervous, 2 were quiet, 1 suffered from headaches and 1 had trouble with vision. It is probable that many of these symptoms occurred more frequently than is shown by these figures, because most of the patients were seen but once in consultation, or at most a few times, and, therefore, only those symptoms which had developed up to that time were mentioned.

The onset is usually described as acute in childhood. It is, however, probably less often so than is ordinarily supposed, because what is taken for the onset is undoubtedly not infrequently the change from the mild to the severe type of the disease. How acute the onset may be is shown by a case of Schmitz, in a child of four years, in whom four days after a negative examination of the urine for another purpose, nervousness, dryness of the tongue, headache and severe thirst appeared, and 60 grams of

sugar per litre were found in the urine. It was formerly supposed that almost all of the cases in childhood were of the severe type, but more recent studies have shown that the two types are about equally common in the beginning, with a greater tendency for the mild to change to the severe than in later life. About two-thirds of my own cases were, however, of the severe type.

It is very difficult to make any definite statements as to the duration of the disease in childhood, because of the difficulty in determining the time of the onset in the mild cases and, in those which are apparently severe from the first, whether they were or were not primarily of the mild type. Another difficulty is that some of those apparently cured may have relapsed and ended fatally later. Von Noorden, whose personal experience has probably been larger than that of anyone else, states that the average duration in his cases, in all of whom the disease developed before the seventh year, in which the disease was detected after its development into the severe type, was one and one-half to two years. Those who came under observation in the stage of mild glycosuria lived from three to six years. Death may occur in as short a time as eight days (Rist). The duration in 12 of my own 17 cases over two years old was 6 weeks, 2 months, 4 months, 5 months, 7 months, 7 months, 10 months, 11 months, 11 months, 12 months, 21 months and 28 months, respectively. Three are still alive, 2 months, 11 months and 28 months respectively, after the onset of symptoms. All of these have sugar in the urine. The result is not known in the other two. In general, the usual statement that the younger the child the shorter the course, is true. This was so in my own cases. It is evident from the literature, however, that there are many exceptions to this rule. Death usually occurs in coma.

Prognosis. The prognosis in childhood is almost uniformly bad. Von Noorden's statement that "with few exceptions diabetes in childhood knows no cure, no matter how mild it may appear in the beginning, nor how gradual its development in the first months or even years," is unquestionably essentially correct. All series of cases, however, show a certain number of cures. In the vast majority of these cases, however, the children were under observation but a few months after the disappearance of the sugar. The sugar must be absent for a number of years before a cure can be claimed, because of the frequency of periods of latency, which, as in Wilcox' case, may be as long as six months or, as in one of my own cases, nearly a year, and in two others four months.

In many of the older cases, moreover, in which a cure is claimed, the evidence that the disease was really diabetes and not a temporary glycosuria, is unconvincing. There is no doubt that transitory glycosurias occur and completely recover. Some of the so-called "cured" cases of diabetes are undoubtedly of this nature. Another class of cases which has probably been mistaken for true diabetes and, when imperfectly observed, reported as cures, is that in which there is a definite intolerance for large quantities of carbohydrates which exists throughout life and is not progressive in character. Hürter's case, in a boy of ten and one-half years, makes it appear, however, that a cure is possible. In this instance, thirst, hunger, polyuria, emaciation and sleepiness, together with sugar in the urine, developed suddenly after an indiscretion in diet. He came under observation at the end of four weeks, and two weeks later, under a strict diet, the sugar disappeared. Carbohydrates were then gradually added and, although the urine was examined weekly, the sugar did not reappear. At the end of seven months there was no sugar in the urine, even after a single dose of 50 grams of grape sugar. Heiman's case of a boy of 10, who was passing 5700 c.c. of urine, containing 5% of sugar, and five months later was taking 105 grams of bread daily without sugar in the urine, and Gellhorn's, in a boy of 16, who when first seen was passing 6 quarts of urine, containing 408 grams of sugar, and who, four months later, having been sugar free for three months, could take 150 grams of carbohydrates without the appearance of sugar, also point in the same direction.

Diagnosis. Diabetes should be recognized at once in those cases in which the symptoms are typical. It should also be thought of in all cases in which there is gradual failure or a condition of malnutrition which is not otherwise accounted for. Irritation of the external genitals, especially in girls, and the appearance of eneuresis in children previously continent should always suggest it. The finding of sugar in the urine under such circumstances confirms the diagnosis. The finding of sugar in the urine without other symptoms of diabetes does not, however, justify the diagnosis of this disease, because a temporary glycosuria as the result of overstepping the limit of tolerance is not uncommon in childhood. This is especially likely to occur when the indiscretion is accompanied by disturbance of the digestion, as in the following instance:—

CASE 1. Betsy B., 3½ years old, had always been well. She stole and ate a considerable amount of candy, Dec. 22, and had an acute attack of gastric indigestion as the result. She had nearly recovered from this when her mother brought her in, Dec. 27, because of pseudomasturbation. Examination of the urine, in the search for a local cause of irritation, showed that it had a specific gravity of 1030 and contained a large amount of sugar. Careful questioning failed, however, to elicit any symptoms of diabetes.

The urine passed that night, just after supper, had a specific gravity of 1022, but contained no sugar. That passed at midnight, however, after a supper of bread and milk, had a specific gravity of 1034 and contained a trace of sugar. The morning urine had a specific gravity of 1028 and contained no sugar. She was then put on a somewhat restricted diet. She took 159 grammes of carbo-

hydrates, Jan. 2, and passed 24 ounces of urine of a specific gravity of 1024, which contained no sugar, while Feb. 2 she took 196 grammes of carbohydrates and passed 24 ounces of urine, of a specific gravity of 1026, which contained no sugar. She has been perfectly well since then, a period of a year, and the urine, although examined a number of times, has never contained sugar. The carbohydrates have not been limited, except that she has not been allowed to eat candy or to put sugar on her food.

Even the persistent appearance of sugar whenever a definite amount of carbohydrates is overstepped, although this amount is below the usual normal limit, does not necessarily justify a diagnosis of diabetes, as has been shown by von Noorden. What shall we say, moreover, as to cases like these described by Kerley, in which 3% and 3.5% of sugar, respectively, were discovered by accident in the urine of two healthy boys, brothers, four and six years old. These boys were under observation for six years, remained perfectly well and developed normally during this time, although sugar was always present in the urine, the amount never going below 1.5% and 2%, respectively, even on a strict diet.

Diabetes in Infancy. A considerable number of cases of diabetes in infancy have been reported. There are, for example, 13 under one year in the series of Saundby, Külz, C. Stern and Wegeli, while Hagenbach, in 1899, collected 77 cases under one year, and Eaton and Woods collected 11 others, in 1911, besides reporting one of their own. There is nothing to show, however, in the vast majority of these cases, that the sugar was dextrose, not lactose or galactose. Only those in which the sugar is glucose can be regarded as diabetes. The others are merely cases of glycosuria.

The breast-fed infant gets from 11 to 8 grams of lactose per kilo of weight daily during the first year, the amount diminishing progressively with age (Nobécourt). Under normal conditions sugar rarely appears in the urine. If it does, it is in the form of lactose or galactose. Normal infants under one year of age can take single doses of from 3 to 3.5 grams of lactose per kilo of weight, fasting, without the development of glycosuria (Grosz, Nobécourt). Glycosuria is likely to appear, however, if more than this is taken. The assimilation limit is lowest in the new-born. It increases rapidly during the first few days, after which it is practically constant. The assimilation limits vary quite widely, however, in individuals of the same age. The appearance of lactosuria under these conditions is not pathological. Nothmann has, in fact, described the occurrence of glycosuria in premature infants on the breast, that were doing well and showed no signs of intestinal disturbance, the condition persisting for many months. He believes that it is not premonitory of any other condition.

Temporary glycosuria is not uncommon in the acute digestive disturbances of infancy, in which conditions the assimilation limit is not infrequently lowered. If the sugar in the food is lactose, the sugar in the urine is in the form of lactose or galactose. It is probable that nearly all of the cases reported as diabetes in infancy have, in fact, been cases of lactosuria or galactosuria, not of diabetes. It is not difficult to distinguish between them if the possibility of lactosuria is borne in mind and the urine examined for the different varieties of sugar.

Both dextrose and lactose precipitate Fehling's solution on boiling. Dextrose precipitates it immediately, lactose after a longer time. This difference in time is, however, not sufficient to justify any conclusion as to the form of sugar. If a positive test for sugar is obtained with Fehling's solution, the urine should then be boiled for three minutes with an equal amount of a 10% solution of sodium hydrate. Hot Fehling's solution should then be added and the mixture again boiled. A positive reaction then means the presence of lactose.

A number of true cases of diabetes have, however, been reported in infancy in which the urine contained dextrose. Langstein reported a case of chronic internal hydrocephalus in which it was present in amounts varying between 0.1% and 1% from the time the baby was first seen when six months old until its death a few months later, and another case of anencephalus, in which it was found on the seventh day and persisted until the baby's death, at sixteen days, the amount varying from 0.5% to 1%. He reported another case in an infant of eight months, but did not give the result. Heiberg reported a case in a child of fifteen months. The urine contained 8% of sugar, and death resulted in fifteen days. Eaton and Woods reported a case in which the symptoms appeared at six months. The urine contained from 5% to 10% of sugar. The baby died when 23 months old. Bogoras reported a case in which glucose was found in the urine when the baby was fifteen months old. It disappeared after a month and was still absent four months later. I have myself seen one proved case of diabetes in infancy and another which I believe from the symptomatology to have been a case of true diabetes, although the sugar in the urine was not proved in this instance to have been dextrose. The history of these cases was as follows:—

Case 2. Evelyn S. was the only child of healthy parents. She was nursed for six months and then given milk with strained oatmeal, which she took until she was fourteen months old. Beef juice, broth, rice, eggs, toast, crackers, potato and baked apple were then gradually added. She did not, however, get more than two slices of bread and one potato daily. She had never had sugar on her cereals and had never been given sweets. She began to be somewhat constipated when 18 months old and perhaps began to drink a little more water and pass rather more urine at that time. The mother would not have thought of these things, however, if it had not been for what developed later. When

19½ months old she suddenly began to be very thirsty and to pass a great deal of urine. Her mother thought that she drank at least a quart of water daily and said that she passed urine every few minutes. The constipation had increased and she had lost weight very rapidly since then. About ten days after the development of the new symptoms, her mother noticed that the urine made a sugary stain on the floor and on the bedding. She called her physician, who found sugar in the urine. She was seen five days later, when 20 months old.

The physical examination showed that she had lost a large amount of weight. She was moderately pale and the skin of the face was dry, as was the tongue. Nothing else abnormal was detected.

The urine was pale, highly acid, of a specific gravity of 1040 and contained the slightest possible trace of albumin. The urine contained a very large amount of sugar by Fehling's test. The sugar was in the form of glucose. The exact amount was unfortunately not determined. The urine also contained acetone and diacetic acid.

Treatment had no effect upon the condition. She died in coma three days later.

Case 3. Thomas F., 19 months old, was nursed for two months, since when he had had nothing but condensed milk and an occasional potato. He did not seem quite up to mark Oct. 5, and it was noticed that he was passing more urine than usual. He was then given cows' milk, which he did not, however, take very well. He had an attack of bad breathing the night of Oct. 14, but seemed all right the next morning. The bad breathing recurred the next day and continued up to the time he was seen, in the late afternoon of Oct. 16. He had taken but little food, but had been very thirsty and had passed urine frequently.

The physical examination showed nothing abnormal, except the typical respiration of acid intoxication. A small specimen of urine was found to contain a large amount of sugar. The nature of the sugar was, unfortunately, not determined. He died in coma a few hours later, eleven days after the appearance of the first symptoms, and forty-eight hours after that of the peculiar respiration.

Treatment. The treatment of diabetes in childhood is, of course, the same as in later life, and consists essentially in the regulation of the diet. The general principles are to cut the carbohydrates down as low as is possible without bringing on an acid intoxication and to make up the calories lost in this way by increasing the amount of fat and proteids in the diet. This is no more difficult in children over four or five years old than in adults. In younger children, whose diet is made up to so great an extent of milk and starches, it is difficult to give enough fat and proteids to cover the caloric needs, and in infants, not old enough to eat meat and eggs, almost impossible.

The diet in infancy has to be made up of cream, sugar free milk, white of egg and beef juice. The milk can sometimes be enriched by the addition of precipitated casein. If it is necessary to give more starch, soya bean flour is a very good form to use, in that it contains a larger proportion of proteids than other flours. Eggs, fish, meat and butter may be added to the diet of children just past infancy.

The diet of older children is planned in the same way as that of adults. It is better, as in adults, to give the starch in the form of the common articles of food, such as bread and potato, than in that of any of the gluten preparations, almost all of which are unreliable. Bicarbonate of soda should be given at the beginning of the treatment, in order to avoid the development of acid intoxication, and later, if necessary. The same rule holds in children as in adults, however, that it is wiser to give starch and have a little sugar but no acetone bodies in the urine than to withhold starch and have acetone bodies and no sugar in the urine. Drugs are of no use in the treatment of diabetes in children, except for the alleviation of symptoms. The treatment used in the following instance illustrates the management of these cases in childhood.

Case 4. Charles W., eleven years old, had had diabetes for a month. He was allowed to eat as much as he wanted of his regular diet but was not allowed to put sugar on his food. He passed that day 560 c.c. of urine of a specific gravity of 1041, which contained 5.9% or 33.6 grams of sugar. It contained no albumin or acetone, and the sediment showed nothing abnormal.

An accurate account of what he ate was then kept. He took 85 grams of carbohydrates on one day and passed 855 c.c. of urine, of a specific gravity of 1018, which contained 1.8%, or 15.3 grams of sugar, but no acetone.

A boy of his age and size needs approximately 1300 calories daily. A diet was then arranged for him which contained the proper number of calories, and the amount of carbohydrates was regulated in order to determine how much he could take without passing sugar in the urine. The diet one day was as follows.

Cereal,	1½ oz.	37.5	8.2 grams
Rice,	1½ oz.	67.5	15. grams
Bread,	1 oz.	75	15 grams
Meat,	6½ oz.	390	—
Eggs,	4	288	—
Butter,	3 oz.	675	—
Tomato,	9 oz.		—
		1533	38.2 grams

He passed 530 c.c. of urine, of a specific gravity of 1010, which contained neither sugar nor acetone. The urine contained acetone the next day, however, although the amount of carbohydrates in the food was the same.

The amount of carbohydrates was, therefore, gradually increased, so that four days later he was taking 76 grams. He passed on that day 470 c.c. of urine, of a specific gravity of 1026, which contained 2.3%, or 10.8 grams of sugar, but no acetone. It was evident that his tolerance for carbohydrates lay somewhere between 38 and 76 grams. A little more experimenting showed that he could take about 55 grams of carbohydrates without the appearance of sugar in the urine and that this amount prevented the formation of the acetone bodies. He was, therefore, kept on a diet containing about 55 grams of carbohydrates and 1300 calories. On this

diet he held his weight and had no symptoms, while the urine contained neither sugar nor acetone bodies.

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BILATERAL SUBCLAVIAN ANEURYSMS.

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Operations upon aneurysms are probably as old as surgery, but not until arteries were ligated did the operation offer a reasonable chance of success. Since the time of Hunter and Antyllus there has been more or less controversy as to where the ligatures should be placed and, later on, the disposition of the sac has offered a new problem. Finally, the excellent work of Matas has added much to the technic of operations upon these progressive and often serious lesions. In addition to this, the work of many investigators, notably Carrel, upon the surgery of blood vessels in general, has aided materially the surgery of aneurysms. In that aneurysms differ greatly as to site and, hence, accessibility and seriousness, and because the usual underlying cause is primarily a disease of the arterial wall rather than trauma alone, every case is a problem in itself. Some varieties present practically no difficulties, while others are not open to surgical treatment. Careful technic and strict asepsis are absolute requirements.

Aneurysms are not very common. Of 551 aneurysms of all arteries, 23 were located in the subclavian artery. In a series of 120 subclavian aneurysms, two-thirds were on the right side, and in only two instances were the lesions bilateral; hence, this condition must be very rare. The third portion of the artery is the common site, but the aneurysm may extend in either direction according to size, particularly if of the fusiform type.

The following case of bilateral subclavian aneurysm is illustrative of symptoms and modes of treatment.

In September, 1908, this man entered the Boston City Hospital for the treatment of a left subclavian aneurysm. Age, 49 years; boiler-washer. He contracted syphilis 25 years ago, otherwise there is nothing material in his previous history.

Present Illness. For five or six weeks he has noticed a pulsating swelling behind and above the left clavicle, which has increased some since first observed. He attributes an enlargement of the left pupil which has existed for six years, to an injury to the left eyeball, but he has complained of numbness and tingling and some weakness in the left hand for four weeks. Physical examination shows we have to deal with a man in fair health. There is considerable arteriosclerosis. The heart is normal. The left radial pulse is slightly retarded and the impulse less distinct but more sustained than at the right wrist. Behind and extending above the inner third of the left clavicle is a smooth, rounded, expansile, pulsating tumor about the size of a hen's egg. It is not tender. The circulation in the left hand is not so good as in the right, and there is some sensory disturbance. The knee jerks are absent.

It was perfectly obvious that we had to deal with a case of aneurysm of the left subclavian artery, which was increasing rapidly in size and was causing pressure on the veins and nerves in its vicinity. The proximal end of the tumor disappeared behind the first rib and could not be defined.

Operation. It was originally planned to ligate the artery on either side close to the tumor and then shell out the sac, carefully separating it from the surrounding structures. A four inch incision was made along the clavicle, which was divided at the junction of its outer and middle thirds and then the inner two-thirds removed by disarticulating at the sterno-clavicular joint. On exposing the tumor it was found to be somewhat fusiform, and in front and above various trunks of the brachial plexus were adherent but could be separated with some care. Distally, the artery was readily exposed and ligated close to the sac, which was very thin, but the proximal portion of the aneurysm extended down into the chest so that the trunk of the artery could not be exposed. Finally, while freeing the thin sac, where it had eroded the first rib, it ruptured and this was followed by hemorrhage, which was arrested at once by gauze pressure. The situation was embarrassing because it was not known how deep the sac extended into the thoracic cavity. The sac had been entirely freed except the proximal portion. Finally, the large veins in the vicinity were retracted and a strong clamp put around the tumor rather deep in the chest, and this controlled the hemorrhage at once. On removing the sac down to the forceps the artery was observed. This was ligated with large sized silk and gave no further trouble. The aneurysm included the third, second, and a part of the first portions of the artery. The wound was closed except for a small drain, although the field was perfectly dry at the end of the operation. The arm was wrapped with sheet wadding and supported with a sling.

Considerable shock followed the operation, from which he rallied completely in 24 hours. There was subsequent paralysis of all muscles of forearm and hand and moderate edema of whole arm. There was no radial pulse. Some suppuration followed, but no constitutional symptoms, and the wound was healed in five weeks. The left pupil was more widely dilated. The fact that he could not contract the muscles resulted in some stiffness of wrist, forearm, hand and fingers, and massage was used.

After leaving the hospital he was not examined again until four years later, when he was admitted to the hospital for an aneurysm of the right subclavian artery. Meanwhile, he had not been able to do any laborious work but had enjoyed his usual fair health and was comfortable. An examination resulted as follows: He complained of considerable palpitation and dyspnea on exertion, but had no pain anywhere. The left pupil was still dilated and neither pupil reacted to light. The knee jerks were still absent and there was some ataxia and the Rhomberg sign was present, all showing that he had locomotor ataxia.

The condition of the left arm was as follows: Small radial pulse could be felt. The circulation in the hand was fair, but he said it felt cold most of the time and that the fingers were numb. The forearm and hand muscles were markedly atrophied. There was anesthesia of the hand and part of forearm. The absence of the clavicle was hardly to be noticed even on palpation and its loss did not interfere with shoulder motions, which were about normal. At the elbow, flexion and extension were normal, but rotation was absent. There was almost no motion at wrist and fingers.

The right arm is normal. The right subclavian artery presents an expansile, pulsating tumor, similar to that observed four years before on the left side, except that it is not so large and is a little smaller than a pigeon's egg. There are no pressure signs, but he says that the swelling is increasing. It was obvious that we had a right subclavian aneurysm, and it was decided to operate before the tumor caused any disturbance.

Operation. The tumor was exposed, as at the first operation by an incision along the clavicle and the removal of the inner two-thirds of that bone. It appeared to include the second and third portions of the artery, which were surrounded by branches of the brachial plexus. The veins were separated easily and the artery at either end of the aneurysm was exposed and ligated. The nerves and structures in contact with the sac were not disturbed. Pulsation ceased when the ligatures were in place. On opening the sac there was some hemorrhage, which was found to be due to the fact that the proximal ligature had worked loose because the coats of the artery were so friable. It was arrested at once by a second proximal ligature. The cavity of the aneurysm was then obliterated after the method of Matas—endoaneurismorrhaphy—by the application of a continuous, chromicized catgut suture to the two inner coats of the artery. These were very friable, owing to the arteriosclerosis. The wound was closed save for a small rubber dam drain, which was removed in 24 hours. The arm was wrapped with sheet wadding and supported with a sling. There was no shock. Convalescence was uninterrupted. There was no radial pulse and no functions of the arm were disturbed. Two weeks later he could move this arm as well as ever, and the absence of the clavicle was barely noticeable. He had no complaints and the arm appeared normal in all respects.

Anatomy. A few matters of surgical importance concerning the anatomy of this artery will be considered. It lies, approximately, behind the clavicle, its third portion on and above the first rib, and is easily accessible at this end. The first portion gives rise to all its branches, which are of good size and of considerable importance. It arises within the thorax, on the right side from the innominate artery and on the left from the aorta. It is so protected by the clavicle that the removal of the inner two-thirds or three-fourths of this bone, saving the periosteum, is a wise preliminary step and is often necessary on the left side when the first portion must be ligated. Its loss causes surprisingly little deformity or interference with the function of the arm. If need be, a portion of the manubrium and first rib could be resected. The preservation of branches for collateral circulation is important, and this is best accomplished by the method of endoaneurismorraphy of Matas. This circulation is established on the distal side by branches of the axillary, and on the proximal side by branches derived from the first portion of the subclavian, but if the ligature is placed proximal to the subclavian, the collateral is taken up from branches of the intercostal, deep epigastric, and descending branches from the neck. These need not be considered in detail. Suffice it to say that the arm does not suffer materially if the subclavian is ligated distal to its branches, but, if proximal to these, then the circulation in the forearm and hand is materially interfered with. It would seem to be rare for gangrene to result in this last instance.

In the case here reported, the ligature on the left side was proximal to all branches of the artery. Four years later the radial pulse could be felt easily, the nutrition of the arm was fair, but he said it felt cold in cold weather and then the fingers got a little bluish. On the right side, where the ligature was just distal to the vessels, although it is too early to get a radial pulse, there is no apparent difference in the circulation.

There are many important structures to be avoided in this region which need simply be enumerated: Large veins, most of which could be ligated without ill effects if wounded; the brachial plexus and the phrenic and pneumogastric nerves, all of which should be disturbed as little as possible. They may have been damaged already by the aneurysm or they may be injured by the operation. In the above case the left aneurysm had injured the plexus and further injury was done in the effort to excise the sac. On the right side the nerves were in contact with the sac, but were not disturbed. The case shows the advantage of endoaneurismorraphy in cases of subclavian aneurysm rather than excision of the sac, which is always done with risk of injury to both nerves and collateral

vessels. In that the artery arches over the apex of the lung, it would be easy to open the pleural cavity and, on the left side, the thoracic duct might be injured.

Pathology. The pathology of all aneurysms is practically the same. Occasionally the cause is trauma alone of a normal artery, such as a wound of the artery from a bullet, knife or sharp edge of bone, or the crushing of the vessel against a bone. The majority, however, are the result of an underlying arteriosclerosis. This pathologic process impairs the resistance of the intima and media and, as a result of the blood pressure being too strong for the adventitia, a gradual and spontaneous dilatation follows. It is possible, however, for such an artery to receive a local injury, thereby determining the site of an aneurysm. The arteriosclerosis in the above case was of syphilitic origin and the two aneurysms developed spontaneously. The dilatation follows the lines of least resistance and its rate and the shape and size of the tumor vary accordingly. Roughly speaking, the tumor may be fusiform, where the trunk is more or less uniformly stretched, or one side may stretch, forming a sort of sac or diverticulum. The axis of the tumor may be altered by the blood current, just as the course of a stream may be altered. Sooner or later all tissues may yield, including bone by erosion, but, meanwhile, there is more or less chronic inflammation at the circumference of the tumor, resulting in scar tissue, which may replace here and there the original walls of the sac. Nerves and other vessels may be pressed upon and their structure altered or destroyed. In many cases, particularly the saccular type, fibrin is deposited and organizes. All changes tend to progress, and final rupture is the rule if sufficient time elapses.

Symptoms. The local dilatation of an artery produces a smooth, expansile, pulsating tumor, which is characteristic of all aneurysms. Such a tumor may be palpable or even visible, according to its site. Subclavian aneurysms may be discovered easily, but on the left side it may not be possible to outline the whole tumor. For a long time there may be no pain or tenderness, simply a tumor as described. All additional signs and symptoms are the result of the increase in the size of the tumor which produces pressure upon or erosion of different structures. The chief structures, pressure upon which gives rise to symptoms in cases of subclavian aneurysm, are the neighboring nerves and veins, and of course the symptoms depend upon the particular nerve trunks or vessels involved. Paresthesia in the fingers, obscure pains in branches of the brachial plexus, motor changes, and occasionally pressure on the vagus and sympathetic nerves may be among the symptoms noticed. A neuritis with permanent nerve degeneration may result. Venous obstruction may show itself as a cyanosis of the extremity and visible venous dilatation. The radial pulse may be retarded but more sustained. Rarer changes may result if the tumor is of large size.

Prognosis. Rarely, an aneurysm of the larger arteries runs a self limited course, accomplished by the formation of thrombi, which organize and obliterate the cavity of the sac, resulting in a more or less solid, cicatricial tumor. Such a course would hardly be looked for in a subclavian aneurysm, unless we had to deal with a very distinct sacculation having a small communication with the arterial trunk.

The rule, however, is gradual increase in size, causing more and more disturbance from pressure, and a thinning of the sac, with eventual rupture either into the subcutaneous tissues or, possibly, through the skin, if it becomes adherent to the sac. The former condition might be discovered in time to ligate the artery; the latter would be fatal in a few minutes. Of eleven cases of subclavian aneurysm which received no surgical treatment, all ruptured after a period extending from date of first observation until five months to two years later.

The operative mortality of a large series of subclavian aneurysms treated by different methods, prior to 1890, was 73%, but since that time, as a result of asepsis and improved technic, it has been 16%. (It would probably be lower at the present time.) The causes have been secondary hemorrhage or infection and, as a rule, the two conditions are present. Many ligations have been followed by recurrence. Nerve trunks may be so degenerated as never to regain their functions. An aneurysm is always a serious menace to life.

Treatment. Little or nothing may be expected from palliative measures of treatment of these aneurysms and, therefore, they will not be considered here. Only surgical measures offer a chance of relief or cure, and there are three general methods of procedure: (1) Ligature. (2) Ligature, combined with incision or excision of the sac. (3) Ligature, with some plastic operation on the sac.

Ligature alone has been practised for a good many years. There are many methods, depending upon the site and the number of such ligatures. They may be proximal or distal to the tumor, or both, or they may be close or at a distance from the same. In many instances such treatment is palliative rather than curative, and is exposed to most of the risks of more efficient methods. Hence, ligation alone is generally not to be advised.

Ligature combined with simple incision and packing of the sac, allowing for subsequent drainage and healing by granulation, exposes the patient to sepsis and secondary hemorrhage and, therefore, is contraindicated. Ligature close to both aneurysmal poles, with excision of the sac, has been the method accepted by the majority of operators. It is radical and reasonably safe, and is probably the most satisfactory where the preservation of every possible help to the establishment of the collateral circulation is not

of the greatest importance. A clean field of operation results, the wound can be closed and prompt healing may be expected. The objection to the removal of the sac is the risk of destroying collateral arteries and the possible injury to neighboring or adherent nerve trunks. In the case above reported, the sac was removed on the left side, where nerve trunks were already damaged and the chance of repair was lessened by the necessary manipulation. Furthermore, although the tumor included the first portion of the artery, the excision of the sac may have interfered with better establishment of the collateral blood supply.

The third general mode of procedure is that developed and recommended by Matas. Its aim is to preserve the circulation in the artery, through a restored channel, if feasible, but at all events, to preserve all the perianeurysmal structures by means of a plastic operation, working chiefly within the opened sac. The Matas conception is ideal, but it may be difficult or impossible to execute because the blood current must be controlled during the operation and, in most cases, the sac is too brittle or not of a suitable shape. Traumatic aneurysms with healthy walls are best adapted for plastic work. The circulation can be checked temporarily by clamps, if both poles are accessible. After that the tumor is exposed but not dissected from the surrounding structures, and is then opened. Without going into detail, if we have a saccular type with one opening into the artery, this is to be closed by sutures and the sac cavity obliterated by sutures placed from within. After all has been well secured the clamps are removed. Fusiform aneurysms are more difficult to treat in this conservative manner.

On the other hand, because of the arteriosclerotic changes in the vessels and sac in very many aneurysms, restoration is difficult, and sometimes dangerous or impossible to carry out. Hence, the artery is to be ligated close to either pole, the sac opened and explored, but its outer surface is not to be disturbed. The openings of whatever branches may be given off from the sac are to be closed from within the sac which, in turn, is to be puckered and folded by sutures also placed within. This was done on the right side in the case reported and no disturbance of any sort resulted. It could not have been carried out on the left side because no clamp could have been placed proximal to the sac on account of its depth in the chest.

Operations of any sort on subclavian aneurysms are difficult because of their comparative inaccessibility and their proximity to important structures. This case illustrates the importance of trying to determine at the outset how deep the aneurysm extends into the chest and also the advisability of not freeing the sac from the surrounding structures. The subperiosteal excision of the inner two-thirds or more of the clavicle produces surprisingly little deformity and disability.

FOLLOW-UP WORK AS AN ELEMENT OF EFFECTIVE TREATMENT IN AN OUT-PATIENT CLINIC FOR EYE DISEASES. WITH EFFICIENCY TEST TABLES AND REPORTS OF CASES.

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To examine eyes to ascertain errors in vision, and to decide whether glasses are needed, is not as a rule of much scientific interest to the oculist. In out-patient work the "refraction cases" are generally regarded as the heavy chore of the clinic, because there are few interesting cases to be discovered in proportion to the large amount of routine which is the certain portion of whoever carries such a service.

From the standpoint of the public, however, the correction of errors of vision and the provision of patients with proper glasses, when required, are of extreme importance, conducing directly to health, to the industrial efficiency of wage-earners, and to the ability of children to profit by their school education and to acquire training for their future ocupation. Medical inspection has revealed the fact that 25%, more or less, of school children suffer from visual errors to a degree which calls for correction by glasses, and the amount of this work to be done in a large city is, therefore, enormous, only second to that called for by the teeth. Thousands of children whose parents cannot pay for the services of competent oculists, thousands of adults who have the same financial limitations—must now either depend upon out-patient clinics or go to the itinerant fakir or cheap "optical parlor" and pay high prices for questionable glasses.

With these considerations in mind, the Eye Clinic of the Boston Dispensary has endeavored to adapt its service with a view to attaining the maximum value from the public standpoint. Early in 1910, a study of the efficiency of the refraction work was initiated by Miss Elizabeth V. H. Richards, head worker of the social service department of the Dispensary. To quote from her report, made after an examination of the oculists's recommendations for one month:

"The oculist's time for each patient amounts to: A first examination of twenty minutes; a second one, sometimes longer, with the pupils dilated; and a third, after the pupils have resumed their normal size. Out of 60 patients whose eyes were thus tested, 45 were given a prescription for glasses. Of these, 30 never came back to order them. How many questions this raises! What about the value of the doctor's time lost, the cost of the nurse's time in taking the history and putting in the drops? What is going to be the result to the eyes and

perhaps to the general condition of the patients who need the glasses and do not get them? Why did they not get them? Were they too ignorant to believe they needed them? Did they not understand the order? Or were they too poor to buy them?''

Thus two-thirds of the 45 persons who needed glasses did not secure them. We now know from longer experience that a certain number of these persons probably came back ultimately for glasses, so the proportion of waste was probably not over 50% instead of 66 2-3%.

Believing that this serious waste must be reduced by dealing with the causes of the patient's failure to return for glasses, a trained worker in medical social service was assigned to this clinic in the spring of 1910. Since then the clinic has grown materially in size, and developed much more in efficiency, as the following table demonstrates:

Table I.—Reduction of Wasted Work in an Eye Clinic.

Date.	Pts. examined.	Found not to need glasses.	Needed glasses and secured them.	Needed and did not secure glasses.	Waste, *i.e.* per cent. of total needing glasses who did not secure them.
Autumn quarter, 1910	321	19	213	89	29.4%
Autumn quarter, 1911	328	51	222	57	20.4%
Spring quarter, 1912	434	91	372	32	7.9%
October and November, 1912			252	12	4.5%

By what methods were these results achieved? The social worker is on daily service in the clinic. She sees each new patient, takes a brief social history either from the patient, the parent, or the school nurse; she is either present or learns immediately from the examining oculist the results of the refraction tests, and she explains carefully why glasses are needed, as the oculist, under the pressure of a busy clinic, often has too little time to do. When the patient does not return at the proper time for glasses, a postal card is sent, or, in some cases, a visit is paid to the home. The latter course is, however, rarely necessary.

The number of visits paid per patient in refraction work is of some technical interest. The following table shows a change in this regard:

Table II.—Number of Visits Paid by Refraction Cases.

Date.	No. pts. paying 1 visit.		No. pts. paying 2 visits.		No. pts. paying 3 visits.		No. pts. paying 4 visits.		Total No pts.	
	No.	Per cent.	No.	Per cent.	No.	Per cent.	No.	Per cent.	No.	Per cent.
Autumn quarter, 1910	179	56%	92	29%	41	12%	9	3%	321	100%
Autumn quarter, 1911	80	24%	71	22%	78	23%	99	30%	328	100%
Spring quarter, 1912	161	37%	62	14%	72	17%	139	32%	434	100%

Comparing 1910 and 1911 in this table, the number of patients paying three or four visits increases markedly, the proportion paying three visits almost doubling and the proportion paying four visits increasing ten times. Comparing 1911 with 1912, the proportion paying four visits continues to increase, though slightly (30% to 32%). The proportion paying two or three visits diminishes (from 45% to 31%) and this diminution is taken up by the increase in those paying one visit only (37% instead of 24%). This last change is due to an effort to complete the whole work of examination and prescription in one visit whenever possible.*

This saves time of both oculist and patient, and, when the age and eye of the patient permit, is an undoubted advantage. While a certain proportion of cases—about one-third—undoubtedly require four visits to accomplish the work properly, we have made an effort to complete the whole work of examination and prescription in one visit whenever possible. Thus the number of those who formerly had to come back once or twice—taking more of the time of the physicians and more of their own time from home or wage-earning—is diminished, with a saving all around.

* Practically all patients for whom glasses are prescribed must return to secure them, as they are fitted at the Dispensary; and at this visit, the glasses, after fitting, are verified by the oculist. The above table includes only the visit paid up to the time the prescription is issued, the final visit for fitting and verifying glasses not being counted. Had it been included, it would simply have added one visit to almost every case.

ACUTE EYE DISEASES.

Acute disease of the eye, occurring among those not able or accustomed to employ skilled oculists, is a difficult problem. When hospital care is indicated, it is often hard to secure, both because empty beds are few and because many persons are unwilling to enter a hospital when only their eyes are affected—often failing to realize the grave danger to their sight. Outpatient treatment for these diseases, on the other hand, is too often inefficient because of the failure to follow up the patient to be sure that the needed treatment is actually secured. The social worker in the eye clinic of the Dispensary has given about one-third of her time to refraction cases, and much of the remaining time to increasing the efficiency of treatment of patients suffering from acute eye diseases. The aim has been to do systematic follow-up work, giving treatment in the home occasionally when special circumstances have demanded it, but more usually making sure that the patient came back

to the clinic when further treatment was required. Thus to insure a patient's return often calls for considerable "social work," as, for instance, when a family must be visited at home, and by tactful argument shown the importance of having their daughter's eyes properly treated, or when the wage-earner of the family is incapacitated by the disease, and provision must be made for aiding his dependents while he is kept away from work involving use of the eyes.

The interest, energy, and efficiency of the social worker in a clinic are important factors in its success. The eye department of the Dispensary has been fortunate in having Mrs. Anna Pride, who combines these qualities with an intelligent grasp of the problems of the service. Those responsible for the clinic are under great obligations to her.

A few case histories will illustrate the character of this service.

Case 1. Mrs. A. B. came to the clinic with suppurative abrasion involving half the cornea of the left eye, having been struck in the eye with a stove-lifter.

To prevent infection, a 20% solution of argyrol was used and the pupil immediately dilated at clinic with atropine; 1% atropine ointment was prescribed, together with the argyrol, and the patient told to return the following day.

Mrs. B. made five daily visits, the ointment being applied each time, as she could not get it in very well at home. The improvement was rapid and marked, but after the fifth visit Mrs. B. failed to return. The district nurse in her neighborhood was asked to call and if the patient was too ill to go to the Dispensary, to apply the ointment and report on the condition of the pupil; otherwise, to urge the patient to return to the clinic the following day. The district nurse reported no one living at the given address, neighbors saying the house had been vacant for six months. The social worker then wrote to the postoffice, explaining the case and asking if the patient's new address could be traced.

In a day or two an answer was received: the patient was found to be living outside of Boston. The social worker then called upon her and discovered that she had purposely given a wrong address, as she was afraid she would not be treated if it were known that she lived outside the city limits. When told that this would not stand in the way of treatment at the Dispensary, she apologized for giving so much trouble and appeared grateful for the interest taken in her. It was further found that she was not able to pay the daily admission fee of ten cents, in addition to the car fare, as her husband and daughter were out of work temporarily, and she herself had to give up work because of the eye condition. Free admission and treatment were promised her, and she gladly agreed to attend regularly.

She did return, having suffered a slight relapse because of the intermission in treatment. After four visits more she had improved so much that the atropine was discontinued, with the cornea intact, and a dionin ointment was prescribed to promote absorption of the scar.

The prompt securing of continued treatment for this woman undoubtedly resulted in saving the vision.

The patient was finally discharged, after being refracted, and the vision was found to be 10-200 O.D.; 8-200 O.S.—a probable slight loss in the injured eye, as the woman said she had always been very far-sighted, and probably the vision had previously been alike in both eyes. A high spherical and cylindrical correction gave the patient a vision of O.D. 20-80; O.S. 20-120. A final examination showed the corneal scar to be very thin, and vision will probably improve as further absorption takes place.

Case 2. C. D. came to the clinic on October 16, with iritis, O.S., of two weeks' duration. She had used boric acid, hoping the "cold" in the eye would clear up. There were many adhesions; the pupil was almost blocked. Persistent treatment in the clinic, at the first visit, with atropine crystals, brought about a slight dilatation in the pupil before the patient left. A 10% solution of dionin gave an excellent reaction.

The patient was coöperative, and reported daily, staying in the clinic a couple of hours each day to receive treatment; and in the late afternoon, the social worker called at the home and gave further applications of the ointment. Improvement was at first slight but steady. On October 23 the patient failed to come to the clinic. The social worker, on calling at her home, found her sick in bed, with a district nurse in attendance. Morphine had been given, and the pupil was somewhat contracted. A 4% solution of atropine was used at once, and the eye condition communicated to the doctor in charge, who promised to alter his treatment.

While in bed, the patient was visited daily by a district nurse, who, under instructions from the eye clinic applied atropine and dionin, the social worker in the clinic calling occasionally to keep track of pupil and tension.

On November 4 the patient was able to return to the clinic and on November 8 she was discharged cured. Some weeks later she was refracted with the following result: O.D. and O.S. 20-120, without glasses, and O.D. 20-30 and O.S. 20-60 with glasses. With this vision the patient can pursue her life and work. In this case the sight would undoubtedly have been entirely lost had the treatment not been followed up promptly.

Case 3. J. E., a child of two years, came to the clinic on May 23 with keratitis. A von Pirquet test was markedly positive. Atropine ointment and yellow oxide of mercury were prescribed, but the condition did not show any sign of improvement four days later, so the child was admitted to the Boston Dispensary Hospital for Children where she remained for five weeks, and, at the end of this time, was discharged well.

In August the child contracted a pneumococcus infection of the eyes, and was again admitted to the Hospital. During the interval between May and September she had been given several injections of tuberculin, but not regularly.

After discharge from the Hospital, on September 5, she was again admitted to the clinic (on September 27) with an acute eye condition. After an examination in the Dermatological Department, a tentative diagnosis of syphilis was made, and appropriate treatment prescribed. The child soon began to show a marked improvement under a combination of constitutional and local treatment. On November 25 atropine was discontinued and dionin oint-

ment was prescribed to promote absorption of the scars.

It was found impossible, however, to carry out this treatment effectively, owing to the poverty of the family. The child's mother was intelligent, but their income was insufficient. Through the social service, a relief society was interested in the case, and a more generous diet provided for the child than her own parents could afford. The sleeping conditions were over-crowded, so a crib was given in which the patient could sleep alone in a well-ventilated room.

Since this course of medical and social treatment began, the patient has steadily gained in weight, and, although she has had a slight attack of bronchitis, general conditions are favorable and the prognosis is good.

Case 4. Mary T., a girl of eleven, came to the Eye Clinic in March, 1911, with a corneal ulcer, O.D. Treatment until May brought no very satisfactory improvement. An investigation of the home condition was then made by the social worker, revealing the fact that the mother was a scrub woman, working away from home, and that the child was not receiving adequate care.

Mary was then admitted to the Dispensary Hospital for Children and, after five weeks, was discharged cured. About a year afterwards, on July 7, 1912, Mary returned, with a phlyctenular condition, O.D. She was treated at home, with material improvement, coming to the clinic daily to have atropine ointment applied, and the mother was given instructions about hygiene and diet.

On December 6, 1912, the child returned again—this time with keratitis, O.S. A von Pirquet test was strongly positive, and x-ray showed enlarged bronchial glands. Knowledge of the home conditions led to the judgment that the child could not get well unless a change was made. Through the social service a child-placing society undertook to board the patient in the country for a period of at least six months. The social worker of the Eye Clinic paid a visit to the child in her new home, giving instructions as to hygiene and diet, and shown how the eye ointment should be applied. The child was brought into the clinic as frequently as desired. The eye condition soon yielded to treatment, so that on December 26 atropine was discontinued and dionin ointment prescribed.

In June the patient was returned to her home, in good condition. She then began to have tuberculin treatment, under which she has steadily gained in weight. There has been no recurrence of the eye condition.

EFFICIENCY TESTS.

The efficiency table presented below shows that, for five acute eye diseases, a noticeable improvement in service has been brought about. The table is based upon two methods of testing efficiency; first, the statistical or "impersonal" method, based on the number of visits paid per patient, classified by diagnosis, and on the assumption that in general a larger number of visits per patient, suffering from a given disease, indicates better results; second, a classification of the medical result obtained with each patient, made almost entirely from the clinical records. While the division between *cured* and

Table III.—Efficiency Test of Eye Clinic.— Five Acute Diseases.

		Number of Visits for Patient.										Medical Results.					
		1	%	2	3	4	5	% under 6	6 to 8	9 to 12	over 12	% over 6	Total cases	Cured.		Impr'd.		Lost.	
														No.	%	No.	%	No.	%
Iritis	Fall quarter, 1910		0			2	1	75			1	25	4	1	25	3	75		9
	Spring quarter, 1912		0		3	1	2	50	2	4		50	12	7	58	5	42		5
Phlyctenular	Fall quarter, 1910	3	25	4		3	2	100				0	12	3	25	5	42	4	33
Keratitis	Spring quarter, 1912	2	20	2	2	1		70	1	1	1	30	10	4	40	3	30	3	35
Phlyctenular	Fall quarter, 1910	4	45		3		1	89	1			11	9	3	33	2	22	4	45
Conjunctivitis	Spring quarter, 1912		0	2	6	2	3	48	10	2	2	52	27	17	63	9	33	1	4
Acute	Fall quarter, 1910	9	55	4	2	1	1	100				0	17	2	12	8	48	7	45
Conjunctivitis	Spring quarter, 1912	15	35	9	10	2	5	95	1	1		5	43	19	44	9	21	15	35
Blepharitis	Fall quarter, 1910	16	60	7	1	2	1	100				0	27	3	11	9	33	15	56
	Spring quarter, 1912	16	45	11	4	2		95		1		5	34	4	12	18	53	12	35
Total for all Five	Fall quarter, 1910	32	46	15	6	8	6	97	1		1	3	69	12	17	27	39	30	44
	Spring quarter, 1912	33	26	24	25	8	10	79½	14	9	3	20½	126	51	40½	44	35	31	24½

improved is in many cases dubious, just as it is in hospital records, the "lost" case is a fairly definite quantity. Patients who fail to return for treatment after a single visit, or after a number of visits which is evidently too small for the cure of their disease, may safely be put down as "lost."

Such efficiency tests are of material help to the medical man in charge of the clinic and to the administrator of the institution. They indicate weak points; they should help to develop strong ones.

It would be highly desirable to ascertain the classes of the community who are chiefly concerned in a charitable clinic for eye diseases. Many indications drawn from our social worker's experience suggest that there is a large class in the community which is above the poverty line, but which has very limited means. These people are self-supporting and do not ordinarily attend free clinics for general medical care. When their eyes trouble them, they cannot afford to pay a competent oculist's fees, and these people, therefore, are the main patrons of the optician's parlor. On the other hand, they will not come to the ordinary out-patient clinic, partly because the morning hours are inconvenient, and also because they do not wish to accept charity. There can be little doubt that this large middle class ought to be able to secure competent eye service from properly trained members of the profession on an ethical basis and without loss of self-respect. Some provision to meet this need appears to be called for.

PROGRESS IN THE DIAGNOSIS AND TREATMENT OF INTUSSUSCEPTION.*

BY W. E. LADD, M.D., BOSTON.

Now that the controversy as to whether intussusception should be treated by inflation and irrigation, or by immediate operation, is over, and timely surgery is considered the best treatment, it is interesting to see whether any reduction in the mortality has taken place and whether we have at our disposal any means for still further reducing it.

In 1908 Dr. J. S. Stone[1] reported that in five years previous to that date, only eight patients with intussusception had been brought to the surgical side of the Children's Hospital. Of these eight, only one had recovered. He also reported that at the Infants' Hospital in the period of ten years previous to that date, the same number had been treated with the same result, one recovery.

Dr. E. A. Codman[2] at the same time reported the results from the records of the Massachusetts General Hospital of a period of ten years. At that institution ten infants with intussusception had been treated; one made an operative recovery but died four weeks later from a secondary operation for hernia. An eleventh case, where the diagnosis was doubtful, recovered following use of enemata. The results of treatment of intussusception in adults at the Massachusetts General Hospital were considerably better, but as that is outside the scope of this paper it will not be considered. Taking these reports of only five years ago from three comparatively representative hospitals in this community, the outlook seemed discouraging. Including the Massachusetts General Hospital records the mortality from intussusception in infants was just over 90%. Excluding them and considering the children and infants only, the mortality was just under 90%. Dr. Codman points out that at the Massachusetts General Hospital each surgeon has an opportunity of operating on only one or two cases of intussusception in ten years and consequently lacks uniformity of method. This suggests the advisability of having these cases sent, when possible, to a hospital devoted to the care of children or having surgeons specially qualified for the work take care of them in the more general hospitals.

I have selected from the records of the Children's Hospital for the last four and a half years, Dr. Stone's and my cases of intussusception; I find that Dr. Stone and I have each operated on ten patients with this disease. Six of Dr. Stone's patients recovered and four died, while of my ten patients, five recovered and five died. In this series of twenty cases we have a mortality of 45%, just half that which was reported from three hospitals here five years ago. These facts are encouraging and I believe that they have been made possible by the coöperation of the pediatrician and general medical practitioner, and I feel sure that with continued coöperation between the medical man and the surgeon and with earlier diagnosis and operation, intussusception will be removed from the list of diseases of high mortality. I want to consider this series of twenty cases and point out a few striking facts. The average age of Dr. Stone's six patients who recovered was two years. The average duration of symptoms of four of these patients was thirty-nine hours. In the other two cases the duration of symptoms was not recorded. The average age of my five patients who recovered was seven months and the average duration of symptoms was forty-eight hours. The earliest case I had was under twenty-four hours, while the earliest case Dr. Stone had was of thirty-six hours' duration. Of the patients who died the duration of symptoms was nearly the same and for the nine patients the average was seventy-five hours. Neither Dr. Stone nor I have lost any case having duration of symptoms under forty-eight hours. With one exception neither of us has been able to save any case with duration of symptoms over forty-eight hours. I had one patient, an infant two months old, who was brought to the hospital four days after the onset of symptoms of intussusception, who made an uneventful recovery following laparotomy

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and reduction. This case, I believe, however, to be the exception to prove the rule that intussusception is practically a hopeless condition in infants after it has lasted much over forty-eight hours. In any event the deduction to be drawn from the facts given is obvious, namely that we must get the cases within forty-eight hours and preferably within thirty-six or twenty-four hours.

Turning to Clubbe,[3] whose works on intussusception we all must admire and whose statistics so far as I know are better than anybody else's, we find that he has passed through the stage that we are going through in this community at present. That is in his first fifty cases he had a mortality of 50%, but as he succeeded in getting the cases brought to the hospital earlier, his mortality dropped correspondingly. In 1909 he reports twenty-six cases without a death, and his last fifty cases with a mortality of 8%. In this series of fifty cases the average time between the onset of symptoms and operation was seventeen hours. It is to be noted that the average duration of symptoms in these fifty cases of Clubbe's is less than the earliest case that either Dr. Stone or I have ever had an opportunity to operate on. Clubbe says: "We seem to have educated our medical community in this matter, and convinced them of the extreme importance of never missing a case of intussusception at the first visit. The surgeon is entirely dependent upon the general practitioner for the stage at which the case reaches the hospital, and if in any given locality the majority of intussusceptions are sent in late, then, through no fault of the surgeon, the mortality will continue to be high."

The question to be solved in this community at present, is how to make the diagnosis early and thus avoid the disastrous results of late operation. I believe that it is very important for the practitioner to have a different picture in his mind of intussusception from the one given in many text books. That is, the classical signs and symptoms often given are: a pallid face with pinched features, sunken eyes, a rapid and feeble pulse, a distended abdomen with a palpable tumor in the left lower quadrant or by rectum, bloody stools and stercoraceous vomiting. This makes the picture of an infant who has suffered from obstruction for two days or more, at a time when the diagnosis is of little value. It is of far more use for the practitioner to remember that infants in the early stages of intussusception, between paroxysms of colicky pain are apt to look perfectly well and have no elevation of pulse or temperature; and that the mother's story of a baby who has been well and suddenly taken with an attack of abdominal pain associated with drawing up of the legs and followed by vomiting, is sufficient reason for making a thorough abdominal examination even if the baby looks well. At this period before any distention has taken place, a small mass or sense of resistance may be felt at any place along the course of the colon, but in this early stage is most likely to be felt at the cecum or between there and the middle of the transverse colon. The next sign which presents itself is the appearance of blood in the stools. The presence of blood without much feces, and without mucus and the frequent movements characteristic of infectious diarrhea, is practically pathognomonic of intussusception. Any patient passing blood as described should be taken to the surgeon at once, whether any tumor can be felt or not. Later, in thirty-six to forty-eight hours the classical symptoms appear and the diagnosis is easy when the treatment becomes difficult and the prognosis grave.

There must, of course, arise a certain number of cases in which the early diagnosis is difficult. For such cases I believe that the x-ray with bismuth injections may be very useful. In Clubbe's statistics we find that in one hundred and fifty-seven cases, only six-tenths of one per cent. involved the small intestine alone. From these figures we may judge that only in very rare cases would the obstruction be above the ileo-cecal valve and consequently out of reach of bismuth given by rectum. The long time taken for bismuth given by mouth to reach the lower bowel makes that procedure out of the question. Some months ago I had a case in the Children's Hospital presenting symptoms of obstruction at the hepatic flexure, but not very suggestive of intussusception. Dr. A. George gave the child a bismuth injection and then took an x-ray picture. He believed from the plates that there was obstruction at the hepatic flexure. At operation I found that the lumen of the colon was partially but not totally obliterated by an adhesive band; this was freed, following which the child's symptoms disappeared and she made an uneventful recovery.

Seeing the readiness with which the bismuth travelled into the colon in this case, it occurred to me that this method might be used to advantage in the diagnosis of intussusception. During the last few months I have employed this method three times; twice to see if I could facilitate the operation by causing partial reduction with enemata and once for diagnostic purposes.

Plate I was taken of an infant six months old, who was brought to the hospital about twenty-four hours after the onset of symptoms. These consisted of intermittent attacks of abdominal pain followed by vomiting and bloody stools with very little feces. The abdomen was not distended and the mass could be very easily felt in the mid-line, just above the umbilicus. The diagnosis was, of course, simple but I had a bismuth injection given in hopes of causing partial reduction and thus facilitating the operation. This end was not accomplished; the position of the tumor remained unchanged, but the plate shows very clearly how useful this procedure might be in a case where the diagnosis was difficult. Note the cervix-like shape of the advancing part of the intussusception and how distinctly this is shown

to be within the bowel by the bismuth clinging to the wall of the intussuscipiens extending back over it. In this patient I made a right rectus incision and reduced the intussusception readily. The patient acquired an erysipelas of the leg four days after operation, but recovered from this as well as from the intussusception, and went home well seventeen days after entrance to the hospital. Pate II is perfectly negative, but is introduced to show the futility of attempts at reduction by enemata. This plate was taken of an infant five and a half months old, who was brought to the hospital three days after the onset, and presenting all the classical symptoms. The tumor was within two inches of the rectum. The injection was given in hopes of bringing the mass high enough in the abdomen to allow it to be delivered into the wound which was made in the median line. Note in the plate that no bismuth shows above the sacrum. The operation was difficult, but reduction accomplished, the baby lived for two weeks and then died from complications. Plate III was taken of a child in the medical ward, with infectious diarrhea. This patient, seventeen months old, was under the care of Dr. Thomas M. Rotch. On account of the bloody stools and sick appearance of the baby, Dr. Rotch wanted to be assured that he was not dealing with a case of intussusception. Dr. Stone and I saw the case in consultation. We gave a bismuth injection and had an x-ray photograph taken. From the plate we concluded that this was not a case of intussusception. The results justified the conclusion; the baby ran the course of an infectious diarrhea, eventually recovering. Though this plate is not as clear as I feel sure others will be in the future, a marked difference is to be noted between it and Plate I. Where the bismuth stops at the hepatic flexure, it stops almost straight across the bowel and not in the shape of a letter "U," as in Plate I, and there is no shadow of a tumor between the hepatic flexure and the cecum. Plate IV is simply inserted to show how the bismuth will proceed from the rectum to the cecum in a normal child. Though these cases are few in number, they suggest strongly the usefulness of the method as an aid to diagnosis.

In conclusion, it seems fair to state that the time has passed when a recovery from intussusception following laparotomy and reduction is to be considered a surgical curiosity. That in the last five years we have cured at the Children's Hospital ten times as many cases of intussusception as in a period of five years previous to 1908. That the medical practitioner deserves part of the credit for this gratifying improvement for having brought the cases earlier to the hospital. That in the future if they will bring still earlier and doubtful cases we can hope to determine the diagnosis with the aid of bismuth injections and the x-ray in time to cause another marked reduction in mortality. That patients with intussusception operated on within thirty-six hours from the onset of symptoms may be expected to recover.

I want to thank Dr. J .S. Stone for the privilege of reporting his cases with mine.

REFERENCES.

[1] Stone, J. S.: BOSTON MED. AND SURG. JOUR., 1908, vol. clviii, p. 435.
[2] Codman, E. A.: BOSTON MED. AND SURG. JOUR., 1908, vol. clviii, p. 439.
[3] Clubbe, C. P. B.: Brit. Jour. Chil. Dis., 1909, vol. vi. p. 311.

Clinical Department.

A CASE OF SEEMINGLY HOPELESS PERITONITIS APPARENTLY CURED BY HYPODERMIC INJECTIONS OF "MARINE PLASMA."

BY HORACE PACKARD, M.D., BOSTON,

Professor of Surgery, Boston University.

THE case which has prompted this communication was briefly as follows:

Early on the afternoon of Dec. 2, 1912, I saw, in consultation with Dr. J. Herbert Moore of Brookline, a patient acutely ill with some obscure abdominal difficulty. The symptoms were not sufficiently clear to warrant a diagnosis of appendicitis, but they were so alarming and had come on so precipitately and were so indicative of peritonitis from some cause that immediate operation was urged. Without delay she was removed to the hospital, and under gas-oxygen anesthesia the abdomen was opened in the median line. Immediately offensive gray fluid presented in the wound from which a culture was taken. Subsequent examination showed colon bacilli infection. The appendix was at once sought as the most probable source of the trouble. It was found well down over the pelvic brim, perforated near the middle and without protective adhesions. Much free pus was abroad in the pelvis and among adjacent loops of intestines. Not much was done in the way of "peritoneal toilet" except a rapid and brief saline irrigation of the pelvis and iliac fossae. Two stab wounds for drainage were made each side of the original wound and the latter closed throughout except for silver wire capillary drainage. Multiple rubber drains were adjusted in the stab wounds. The patient was placed in the Fowler posture and rectal lavage instituted.

Recovery from the immediate effects of the operation occurred without nausea or vomiting, but in the first twenty-four hours the patient complained bitterly of backache and begged to be permitted to lie down. The Fowler posture was, therefore, abandoned. For thirty-six hours a fairly free discharge came from the multiple drains. On the fifth day they were removed because no more discharge came from them and irrigation through them returned clear. In the meanwhile the patient's general condition was not alarming as far as temperature, pain, or gastric disturbance were concerned, but she had gradually and steadily developed tympanitis to such a degree that respiration had become rapid and superficial. Enemata wholly failed to stimulate bowel evacuation, peristalsis had ceased and death seemed a matter of but a few days or hours.

Happening to have in my cold cellar a few ampoules of "Plasma Quinton" (modified sea water) which I brought home from Paris on my last return from abroad, I bethought me to try as a last resort hypodermic injections of it, feeling sure that at worst it could do no harm. On the morning of the fourth day 100 c.c. were administered in the gluteal region. Twelve hours later 100 c.c. were injected on the other side. This was continued twice daily until 800 c.c. had been given. Within twenty-four hours after the first administration a distinct improvement in the patient's condition was observed. Gas and fecal discharges occurred with progressive relief of the abdominal distention, the breathing became fuller and deeper and the general condition in every way looked more encouraging. Steady progress followed until the 29th day, when the temprove anything conclusive in regard to the value of "Plasma Quinton" in septic infections. This communication is presented, not to make extravagant claims for the efficiency of this simple expedient, but to record the facts with the hope that others working in the same line may give it a trial until its worth is established or refuted.

Since the above experience two other threatening cases of peritonitis, one following removal of pus tubes, the other a sequel to appendicitis, have been treated in the same way with rapid subsidence of symptoms and recovery.

A word relative to sea water as a medicinal agent may be of interest. It first came to my

TREATMENT OF INTUSSUSCEPTION.—LADD.





been the localized abscess in the epigastrium late in the convalescence, the proposition that she never had general peritonitis and that the whole infection remained local and was taken care of by the drains, might be tenable, but the fact stands that peristalsis had ceased and all efforts to produce evacuations had failed. Based on repeated experiences in similar cases I felt that life would come to an end inside of the next 72 hours.

I am well aware that this one case does not

maintenance of health and strength. All life upon land has come up from the sea and developed through ages to its present state. The only source of mineral ingredients and food salts open to land animals is through the channels of drinking water and the ordinary vegetable and animal foodstuffs. Do they get under all circumstances enough to give them the fullest development, to maintain health and strength and resistance to disease?" In this spirit of research he went about his investigations and

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Clinical Department.

TREATMENT OF INTUSSUSCEPTION.—LADD.





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bitterly of backache and begged to be permitted to lie down. The Fowler posture was, therefore, abandoned. For thirty-six hours a fairly free discharge came from the multiple drains. On the fifth day they were removed because no more discharge came from them and irrigation through them returned clear. In the meanwhile the patient's general condition was not alarming as far as temperature, pain, or gastric disturbance were concerned, but she had gradually and steadily developed tympanitis to such a degree that respiration had become rapid and superficial. Enemata wholly failed to stimulate bowel evacuation, peristalsis had ceased and death seemed a matter of but a few days or hours.

Happening to have in my cold cellar a few ampoules of "Plasma Quinton" (modified sea water) which I brought home from Paris on my last return from abroad, I bethought me to try as a last resort hypodermic injections of it, feeling sure that at worst it could do no harm. On the morning of the fourth day 100 c.c. were administered in the gluteal region. Twelve hours later 100 c.c. were injected on the other side. This was continued twice daily until 800 c.c. had been given. Within twenty-four hours after the first administration a distinct improvement in the patient's condition was observed. Gas and fecal discharges occurred with progressive relief of the abdominal distention, the breathing became fuller and deeper and the general condition in every way looked more encouraging. Steady progress followed until the 29th day, when the temperature, which had been between 99 and 101 suddenly shot up to 102. About this time a tender bunch was discovered in the right hypochondrium just about the level of the navel. On the 32d day this was incised and a tablespoonful or two of pus evacuated from a space well walled off from the rest of the peritoneal cavity. There was a temporary drop in the temperature to 98 3-5 immediately after this, but it soon began to creep up again and reached 100 3-5 on the 36th day. At this juncture 50 c.c. of sea water were given with prompt fall of temperature to normal. There was no further interruption of convalescence and full recovery has followed. It must not be omitted that on the second, fifth, twelfth and twenty-second days she had autogenous colon bacillus vaccine in doses of 10 million each.

On analyzing this case now that recovery has occurred, we must not lose sight of the fact that at no time was there any severe gastric disturbance. This may be accounted for in part by the fact that the patient had gas-oxygen anesthesia —and not much of it for the operation was very brief—and she awakened almost at once without showing any ill effects whatever. Her convalescence thus started without the handicap of ether vomiting. The pulse was 108 the day after the first operation and never exceeded that at any time. It was mainly in the nineties and one hundreds until the final drop to normal three days after the final administration of the "Plasma." At no time was there much pain except the unbearable pain in the back which prevented maintenance of the Fowler posture. On the fourth and fifth days the abdominal distension had become so great and reached up to and filled the epigastrium and interfered so much with the action of the diaphragm that breathing was short and labored. Had there not been the localized abscess in the epigastrium late in the convalescence, the proposition that she never had general peritonitis and that the whole infection remained local and was taken care of by the drains, might be tenable, but the fact stands that peristalsis had ceased and all efforts to produce evacuations had failed. Based on repeated experiences in similar cases I felt that life would come to an end inside of the next 72 hours.

I am well aware that this one case does not prove anything conclusive in regard to the value of "Plasma Quinton" in septic infections. This communication is presented, not to make extravagant claims for the efficiency of this simple expedient, but to record the facts with the hope that others working in the same line may give it a trial until its worth is established or refuted.

Since the above experience two other threatening cases of peritonitis, one following removal of pus tubes, the other a sequel to appendicitis, have been treated in the same way with rapid subsidence of symptoms and recovery.

A word relative to sea water as a medicinal agent may be of interest. It first came to my notice when looking about the Hospitals of Paris in the summer of 1911. On making inquiries for something new in medical or surgical science I was directed to the Quinton Dispensary. There I found M. Quinton (who, by the way, is not a physician but an assistant professor of biology in the University of France), surrounded by an earnest band of workers, many of whom volunteer their services from benevolent motives. To this clinic mothers bring their sick babies by the hundreds during the summer months. Cholera infantum is such a frightfully fatal disease that anything which promises relief is eagerly grasped. It happened that this was the malady to which M. Quinton first directed his attention. The results have been superior to any other treatment that has ever been tried. I saw case after case of desperately sick, emaciated and apparently dying infants brought in, injected under the skin of the back with 30 to 50 c.c. of sea water twice daily, and on each visit show steady improvement and finally fully recover.

The scope of sea water in other directions has not yet been fully demonstrated, but there is some evidence of its value in the toxemia of pregnancy, acute nephritis of the exanthemata and possibly albuminuria from other causes, and general and local septic conditions. Cases also of chronic skin diseases, such as eczema and psoriasis have been reported cured under its action.

What could be more appropriate than that this harmless material should be used on our floating hospital ship this coming summer. Its use is not wholly empirical. M. Quinton reasoned it out as follows: "Life first started in the sea. The mineral ingredients and salts, such as are found in sea water, therefore, must play an essential part in the origin of life and in the support of life once it is established, and in the maintenance of health and strength. All life upon land has come up from the sea and developed through ages to its present state. The only source of mineral ingredients and food salts open to land animals is through the channels of drinking water and the ordinary vegetable and animal foodstuffs. Do they get under all circumstances enough to give them the fullest development, to maintain health and strength and resistance to disease?" In this spirit of research he went about his investigations and

experiments with sea water. Most accurate and exhaustive chemical analyses showed many mineral ingredients in plainly appreciable quantity and many others in small and infinitesimal proportions. The sea water is taken in aseptic containers from several fathoms below the surface and far enough away from land to escape any shore contamination. It is then diluted with the purest spring water until it is an isotonic solution and then filtered. It is not sterilized nor subjected to any heat nor is any chemical antiseptic added to it. It is then placed in sterile glass ampoules of varying sizes from 50 c.c. to 500 c.c. and sealed.

There seems no reason why, if this material prove to be of value, we should not prepare it here in Boston in connection with our research laboratories. We have the whole Atlantic Ocean of sea water at our doors. In the meantime arrangements have been made for its importation from Paris and it can now be secured in Boston.

New Instrument.

A CONVENIENT ANATOMIC DEVICE.

BY ROBERT M. GREEN, M.D., BOSTON,

Instructor in Anatomy, Harvard Medical School.

PROBABLY all anatomists and most students have been distressed by the rapidity with which dissections dry after the removal of the skin and superficial fascia. To obviate this, various devices have been employed, such as wrapping the parts in wet cloths or smearing them with vaseline. None of these protective substances, however, approaches the value and efficacy of the normal coverings. A fair degree of protection may be obtained by approximating the skin and fascia along each incision with a continuous, over-and-over stitch of stout waxed thread. But the great objection to this method is the time consumed by it, since the stitch must be entirely removed and renewed whenever the dissection is opened for work. Moreover, after such repeated sewings, the skin edges become frayed and will no longer hold the suture. Obviously what is desired is some device whereby skin and fascia can be held in apposition and repeatedly opened and closed without undue labor or consumption of time.



Shoe-Eye Rivet and Set. (Buettner-Whitcher.)

It occurred to me that perhaps the ordinary shoe-eye rivet, such as is used on laced boots and leggings, might to advantage be employed for this purpose. Accordingly I procured some of these rivets from a wholesale dealer in shoemakers' supplies, and from a large machine-shop and hardware store a Buettner-Whitcher set for applying them. In the accompanying illustration a rivet is shown one-half size and the set reduced three-fourths.

Upon experiment, I found that the rivets could very easily and conveniently be applied to the skin edges, as to a boot or legging, and that they held with amply sufficient firmness to allow the incision to be laced up with string. The technic of their application is as follows: The rivet is inserted into a slot in the lower jaw of the open set, in the relative position as shown in the illustration. The skin flap is then placed, with the raw side up, between the upper jaw of the set and the point of the rivet, so that the latter impinges upon the skin at the spot where it is to be fixed. When the handles of the set are closed by a firm grasp of the hand, the point of the hollow rivet stem is driven through the skin and clinched on the raw side. The set is then easily disengaged by opening the handles and slipping the slot of the lower jaw from the now stationary rivet.

The rivets may be thus applied either to the skin alone, or to both skin and fascia when the two have been reflected in one layer. When possible, the latter method is preferable, since it ensures covering the entire dissection with its normal fat envelope, which inevitably retracts under the skin when separated therefrom. In applying the rivets to fascia and skin together, it is desirable first to punch a hole for each with a slender knife or stout autopsy needle, especially in regions like the thigh and back, where the fascia is very dense, since the set is hardly able to drive the point of the rivet through so thick a layer, and in consequence may often in such situations fix the rivet unsatisfactorily and insecurely. In practice it proved advisable to place the rivets two inches apart and a quarter of an inch from the skin edge, the rivets along the opposite margin being spaced at alternate intervals.

By reducing the number of incisions to a minimum, and reflecting skin and fascia together in large flaps, it is thus possible, with very little effort, to provide a mode of closure which protects underlying structures better than any other device I have seen, and at the same time allows the incisions to be repeatedly opened for work, study, or demonstration, and reclosed quickly and efficiently. By applying the rivets as fast as the dissection proceeds, an entire body can be equipped without appreciable labor, and can be laced and unlaced from head to foot in a moment's time. I am led to record my use of this device in the hope that it may perhaps prove of service and convenience to others in similar work.

Reports of Societies.

PHILADELPHIA COUNTY MEDICAL SOCIETY.

Meeting of Wednesday, January 22, 1913, at 8.30 p. m.

The President, Dr. Charles A. E. Codman, in the chair.

MODERN GENITOURINARY DIAGNOSIS AND TREATMENT, WITH REFERENCE ESPECIALLY TO LABORATORY METHODS.

Dr. B. A. Thomas: The paper is a discussion of merely the more important advances diagnostically and therapeutically that have marked the progress in recent years of genitourinary surgery from the laboratory and endoscopical standpoints. The urogenital system is considered in turn under its anatomical parts,—the urethra, the prostate and seminal vesicles, the vasa deferentia epididymites and testicles, the bladder, the ureters and the kidneys, with an appendix delegated to syphilis. Irrespective of the routine bacteriological and cytological examination of every urethral discharge there should be an imperative obligation to investigate immediately, definitely and precisely the source of any urethral discharge, whether blood or pus, not known absolutely to originate from the urethra. The seven glass test is of value in the absence of the cystoscope and urethroscope. The differential diagnosis between gonorrheal and non-gonorrheal inflammation of the urethra rests ultimately upon bacteriological study. The eosin-azur stain in my opinion, is most meritorious. In the future it seems logical to infer that more may be expected of the gonococcus complement-fixation test gynecologically and also relative to cure and the matrimonial fitness of candidates. Therapeutically, in acute chronic gonorrheal urethritis and in the common complications other than synovitis and arthritis, the gonococcus bacterin has proved of little or no value, although we are as yet unprepared to express final opinion as to its possible value in lessening stricture formation. In joint complications and vulvovaginitis of children it has been signally meritorious. I believe its failure in the treatment of prostatitis, seminal vesiculitis and epididymitis is because these complications are almost invariably the result of superimposed mixed infection. Antigonococci serum, prepared in accordance with the work of Rogers and Torrey for the treatment of synovitis or arthritis and systemic gonorrheal involvement is the remedy par excellence. It has been my experience that much may be expected from the proper employment of autogenous bacterins in many cases of suppurative prostatitis and seminal vesiculitis. In disease of the vas, epididymis or testicle, laboratory methods, other than the histopathological, have little to offer with respect to the diagnosis and treatment of affections of these organs. With the use of tuberculin diagnostically I have never been misled. The bladder may be regarded as the bureau of information for tuberculosis of the urogenital system. The cystoscope is the invention that has accomplished most in urology. Of the many types, my preference is for the water cystoscope constructed on the evacuation-irrigation principle with the indirect vision lens and prism system. Primary disease of the ureter very rarely occurs. Usually the lesion is secondary to some renal, vesical, urethral or extra-ureteral condition. Of the many devices for the detection of stone in the ureter, the best is the wax-tipped ureteral catheter or bougie. Certain conditions, as pyelitis, with or without cystitis, and pyonephrosis, have presumably been cured with autogenous bacterins, always, however, in conjuction with other well recognized measures of merit. Tuberculin is useful diagnostically and therapeutically in tuberculosis of the kidney.

The treatment of syphilis at present is purely empirical. We have, however, in Ehrlich's preparations the promise of remedies of paramount importance.

Book Reviews.

Pathfinders in Medicine. By Victor Robinson. New York: Medical Review of Reviews. 1912.

This volume is a collection of the author's biographic essays in medical history. The subjects of these sketches are well chosen,—Galen, Aretaeus, Paracelsus, Servetus, Vesalius, Paré, Scheele, Cavendish, Hunter, Jenner, Laennec, Simpson, Semmelweis, Schleiden, Schwann, and Darwin,—and the subject-matter is inevitably interesting. Of the style of presentation, however, not so much can be said: its flamboyance simulates the eccentricities of some modern English playwrights and novelists without imitating their genius. In the beginning of the volume is printed the facsimile of a letter to the author from Haeckel, to whom the work is dedicated. His simple phrase is the sincerest and truest expression in the book:—

"Wenn ich diese hohe Distinction in Bescheidenheit annehme, kann ich es nur damit rechtfertigen, dass ich seit 60 Jahren ernstlich bestrebt war, die Erkenntniss der *Wahrheit* in der Medizin zu fördern."

A Manual of Surgical Treatment. By Sir W. Watson Cheyne, Bart., C.B., D.Sc., LL.D., F.R.C.S., F.R.S., and F. F. Burghard, M.S. (Lond.), F.R.C.S. New edition, entirely revised and largely rewritten, with the assistance of T. P. Legg, M.S. (Lond.), F.R.C.S., and Arthur Edmunds, M.S. (Lond.), F.R.C.S. In five volumes. Vol III. Philadelphia and New York: Lea and Febiger. 1912.

The first two volumes of this new, revised edition were reviewed in the issue of the Journal for July 25, 1912 (Vol. clxviii, p. 130). This third volume, which deals with "the treatment of the surgical affections of the joints, the spine, the head and the face," is illustrated with 271 plates. Its text maintains the merit of its predecessors, and is promise of continued excellence in those which are to follow.

THE BOSTON
Medical and Surgical Journal

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STERILIZATION OF THE UNFIT.

IN previous editorials we have repeatedly called attention to the growing menace of the feeble-minded. We have always advocated every reasonable plan for the elimination of these defective strains from the general mass of the population. Segregation in institutions, more rigid examination of immigrants, with a view to keeping out the alien defectives, careful examination and grading of school children, and the establishment of classes for the backward and feeble-minded, are some of the many plans to which we have given our cordial support. One far-reaching scheme, which if feasible would probably carry with it the most satisfactory results of all, we have heretofore left almost unmentioned in our columns. We refer to sterilization. There are so many reasons, sentimental and moral, which might possibly be advanced as valid objections to such a plan that we have been slow to espouse the cause of those ultra-eugenists who would treat the human race exactly as the animal breeder does the stock which he wishes to make physically perfect. However, it would seem that public opinion is rapidly approaching the view point of the animal breeder, and if the lay mind is ripe for such drastic measures we see no reason for the scientists to object. Eight States have already passed laws which provide in some form or other for the sterilization of certain criminal and feeble-minded persons. These States are Indiana, Washington, California, Connecticut, Nevada, Iowa, New Jersey and New York. In some other States legislation is pending with the same general end in view. Indiana has probably given the scheme the most thorough trial of all, for at the Jeffersonville Reformatory there have been, in all, about three hundred vasectomies performed upon confirmed criminals. The New Jersey State law is the most carefully planned of all. It aims to avoid abuse at the same time that it lends itself to scientific research, and provides for the sterilization of practically all those feeble-minded males whose confinement in institutions would be unnecessary were it not for the sole danger of procreating their kind. However, the law has been in effect only a short time and its workings are not yet assured.

In an editorial in the *Lancet Clinic* for March 8, 1913, Colonel Gorgas is quoted as advising the sterilization of the lepers in the colonies where they are segregated. He points out the fact that these persons naturally contract common law marriages and that no legislation can prevent the birth of children in leper colonies. In the Philippine settlement there are on an average fifty births a year. This means that just so many children are brought into the world under the most unfavorable conditions imaginable. It is easy to see how vasectomy would serve to reduce this evil, at the same time that it made the already hard lot of the leper more endurable.

The *Lancet Clinic*, commenting upon the stage of public opinion in regard to such measures, makes the statement that the sterilization of the feeble-minded would be eagerly welcomed by the masses. There are supposed to be something over 300,000 feeble-minded in institutions in the United States. Besides these there must be many more whose existence is unknown.

Davenport has estimated that segregation alone would, in the course of thirty years, serve so to reduce the number of the feeble-minded and insane, that the greater part of our institutions for these classes could be sold or turned over to the State for other purposes. But the segregation of all feeble-minded of all the various grades would be an immensely expensive undertaking. It would seem that the most practical plan should combine segregation and sterilization.

An argument advanced by some moralists against the plan of vasectomy is that libertinism would thereby be increased. They say that an operation which would remove danger of procreation at the same time that it left all the

natural desires, would necessarily be conducive to an increase in sexual immorality and the spread of venereal disease. It is possible that this argument would have some weight when applied to the criminal classes or to those afflicted with grave hereditary physical defects or diseases, like leprosy. It is, however, without weight when applied to the feeble-minded, because the feeble-minded have no sex control anyway, and vasectomy would make them neither better nor worse in this respect. Every one at all acquainted with the subject knows that the fear of offspring or the contraction of disease never enters the mind of the mentally defective.

Another argument advanced against the practice is that it is unconstitutional, because it would be inflicting a cruel and unusual punishment. But in the case of the feeble-minded this could not hold good because in no sense could it be construed as a punishment in their case. As a treatment for confirmed criminality, the Supreme Court in the State of Washington has already decided that the law is constitutional.

Some undetermined problems in relation to this question have to do with the effect of the operation upon the mind and body of the individual himself. Even so simple an operation as vasectomy has been held by some to work deleterious effects upon the metabolism of the individual upon whom it is performed, and to change his mentality for the worse. If this is true it would be an argument against its practice upon criminals and those suffering from grave inheritable physical disorders. But it would only be one argument, and it is at least an open question whether the harm to the individual would not be greatly outweighed by the benefit conferred upon the community.

In the case of the feeble-minded this argument would have almost no weight, because their mentality is not capable of being seriously lowered by any process or treatment, and the only debt which the community owes them is to make them as happy and comfortable as possible, so far as can be done without detriment to others.

Any arguments which might be validly urged against the practice of the sterilization of all the unfit, including the confirmed criminal, and the sufferer from diseases like leprosy, do not appear to have equal weight when applied solely to mental defectives. These have no debt which they owe society, because they are incapable of discharging the debts of the normal individual. They cannot be reformed of their bad habits because they are incapable of reform. It seems almost self evident that any plan which does not make the individual feeble-minded person seriously ill or unhappy would be justifiable in ridding the race of his defective blood.

THE PHIPPS PSYCHIATRIC CLINIC.

The formal opening exercises of the Phipps Psychiatric Clinic of the Johns Hopkins University Hospital will be held at Baltimore, Md., on Wednesday of next week, April 16. On this occasion "addresses will be given by Sir William Osler and Professor William McDougall, of Oxford; Frederick W. Mott, F.R.S., of London; Professor Heilbronner, of Utrecht; Professor Bleuler, of Zurich, and Professor Orovino Rossi, of Italy."

The Phipps Psychiatric Clinic was established in June, 1908, with an initial gift of $650,000, by Mr. Henry Phipps, of Pittsburg, Pa. The letter in which he offered this endowment states admirably the purposes and needs of such an institution:—

"I understand that there is urgent need in this country in connection with university medical schools and their hospitals, for institutions similar to those known as psychiatric institutes, to provide for the better care of patients suffering from mental disease, especially in its earlier and often curable stage, under conditions similar to those of a general hospital.

"Since patients may enter such an institution without the formality of a commitment, and without the stigma which is popularly thought to pertain to admissions to an asylum for the insane, experience has demonstrated that many may be rescued from permanent insanity by early treatment in an institution of this character. A psychiatric clinic, as thus understood, should also afford much needed opportunities for the instruction of medical students and physicians in this important field of medicine, and should be equipped with laboratories for the scientific investigation of the nature, cure and prevention of mental diseases.

"It gives me pleasure to offer to the Johns Hopkins Hospital the funds necessary for the erection and equipment of a psychiatric hospital on its grounds, to be administered as part of the hospital, in accordance with the plans and estimates that you have submitted, the institution to provide for about ninety patients and to contain the necessary laboratories and other facilities, and, furthermore, to offer to the Johns Hopkins University additional funds for the

establishment of a professorship of psychiatry and the assistantships thereto, the professor to be also the director of the psychiatric hospital.

"I have arranged to provide for the maintenance of the hospital and of the professorship for a period of ten years from the time of the opening of the hospital. It is my desire that, in the admission of the patients to the hospital, preference should be given to applicants from Baltimore and from those cities with which my life and work have been so closely associated—Pittsburg, Philadelphia and New York.

"It is my hope and expectation that the psychiatric clinic thus founded may serve as an example of what such institutions should be and prove to be a stimulus to the establishment of similar hospitals and professorships elsewhere."

The director of the clinic will be Dr. Adolf Meyer, professor of psychiatry in Johns Hopkins University.

MR. MORGAN AS A MEDICAL BENEFACTOR.

The recent death of Mr. John Pierpont Morgan on March 31, at Rome, recalls that it was he who in June, 1902, gave $1,500,000 to make possible the erection of three of the present new buildings of the Harvard Medical School, as a memorial to his father. This was not the only one of his generous medical benefactions. Among the many qualities that made him a distinguished and honored man, Mr. Morgan deserves to be gratefully remembered also as a munificent patron of medical education and science.

MEDICAL NOTES.

The Sheppard and Enoch Pratt Hospital.—The Trustees of the Sheppard and Enoch Pratt Hospital, Towson, Md., are planning to celebrate the sixtieth anniversary of the granting of the charter for the institution. While the hospital has been receiving patients for but twenty-one years, it was incorporated and the Board of Trustees were named May 24, 1853, Moses Sheppard, the founder, being the first president of the Board. It is expected that the celebration will be held either just before or just after the Congress of American Physicians at Washington.

London Death-Rates for February.—Statistics recently published indicate that the total death-rate in London during the month of February, 1913, was 19.0 per 1000 inhabitants. Among the several districts and boroughs, the highest rate was 26.4 in the old city of London; the lowest was 13.1 in Lewisham, an open southern suburb.

German Congress of Medicine.—The thirtieth annual meeting of the German Congress of Medicine will be held on April 15 to 18, at Wiesbaden.

"The principal subject proposed for discussion is the nature and treatment of fever. The discussion will be introduced by Drs. von Krehl of Heidelberg and Hans H. Meyer of Vienna. At the request of the Organizing Committee, Professor Schittenhelm of Koenigsberg will deliver an address on the relations between anaphylaxis and fever."

A Persistent Medical Student.—Report from Paris on March 29 describes the death of a man, at the age of 57, who for 37 years had studied medicine at the University of Berne, but had never succeeded in passing the examinations for his degree. His zeal and tenacity of purpose may have been laudable, but it would seem that any one who could not get a medical degree in 37 years had better have turned his energies to some more profitable occupation.

A French Typhoid Carrier.—Report from Paris on March 29 describes the recent discovery of a typhoid carrier in Colmar, Alsace, to whom 14 cases of the disease were traced. The patient was a stenographer. She was arrested and is now under treatment at the Pasteur Institute.

Incidence of Diabetes in Paris.—Statistics recently compiled by Dr. Jacques Bertillon of Paris indicate that in that city diabetes occurs chiefly among the professional classes, lawyers, physicians, and clergymen showing the greatest frequency of incidence.

American Doctors in the Balkans.—Report from Belgrade, Servia, states that on April 2, eight American physicians arrived in that city to undertake Red Cross relief work among the Balkans.

Spanish Honor for American Physicians.—Report from Madrid, Spain, on April 2, states that King Alfonso, upon the recommendation

of Dr. Vicente Llorente, the Spanish court physician who recently visited the United States, has appointed as knights of the Royal Order of Isabella the following New York physicians: Dr. Alexis Carrel, of the Rockefeller Institute; Dr. H. M. Biggs, of the Department of Health; Dr. William H. Park, of the Research Laboratory of the Department of Health; Dr. John W. Brannon, of Bellevue and Allied Hospitals; and Dr. Hideyo Noguchi."

Sterilization of Defectives in Minnesota.—Report from St. Paul, Minn., states that on April 1 the House of Representatives of the State Legislature passed, by a vote of 61 to 45, a bill providing for the sterilization of defectives, habitual criminals, and degenerates.

Epidemics Following Recent Floods.—The destructive floods, which have prevailed recently in many States, have been followed in several instances by disturbances of hygienic and sanitary conditions, which have resulted in epidemics of disease. At Peru, Ind., smallpox and diphtheria broke out among refugees in the local court house, which was thereupon turned into a quarantine station. A focus of smallpox on March 26 appeared at Eastport, Anne Arundel county, Maryland. At Albany, N. Y., the local filtration plant has been inundated, and typhoid fever is said to have broken out, owing to removal of protection of the water supply.

A Centenarian.—Mrs. Cornelia Holleman, who died recently at Raleigh, N. C., was locally reputed to have been born in 1812.

Federation of State Medical Boards.—At the first annual meeting of the newly organized Federation of State Medical Boards of the United States, recently held in Chicago, Dr. Charles H. Cook, of Natick, Mass., was elected president.

BOSTON AND NEW ENGLAND.

Psychopathic Hospital Lectures.—A series of eight lectures upon topics having psychiatric interest are being given at the Psychopathic Hospital on Monday afternoons during April and May, from five to six p. m. These lectures are open to physicians and to third and fourth year medical students. Others desiring the privilege should apply to Dr. H. M. Adler, Chief of Staff of the Psychopathic Hospital, 74 Fenwood Road, Boston.

LECTURES.

Monday, April 7. Introduction by Dr. Walter Channing, Chairman of the Trustees of the Boston State Hospital. "On the Nature of Delusions," by E. E. Southard, Director of the Psychopathic Hospital.

Monday, April 14. "The Meaning of the Sub-Conscious as Determined by Experimental Researches," by Morton Prince, Editor of the Journal of Abnormal Psychology.

Monday, April 21. "Anabolic and Catabolic Processes in the Nervous System and Their Bearing on the Theory of Neurolysis," by H. M. Adler, Chief of Staff of the Psychopathic Hospital.

Monday, April 28. "Psychotherapy from the Neurological Standpoint," by E. W. Taylor, Assistant Professor of Neurology, Harvard Medical School.

Monday, May 5. "The Neurasthenic Psychoses, with Special Reference to the Melancholia-Mania Group," by Edward Cowles, Instructor in Mental Diseases, Harvard Medical School.

Monday, May 12. "The Psychoanalytic Movement," by James J. Putnam, Professor Emeritus of Nervous Diseases, Harvard Medical School.

Monday, May 19. "The Relation of Experimental Psychology to Psychopathology," by Hugo Münsterberg, Professor of Psychology, Harvard University.

Monday, May 26. "The Social Bearings of Mental Disease," by Richard C. Cabot, Assistant Professor of Clinical Medicine, Harvard Medical School.

Recent Hospital Bequests.—The will of the late Franklin P. Hyde, of Boston, which was filed on March 29 in the Suffolk probate court, contains a bequest of $5000 to the Boston City Hospital for a free bed. The Children's Hospital, Boston, is to receive one-tenth of the residuary estate.

Massachusetts School for Feeble-Minded.—The recently published sixty-fifth annual report of the trustees of the Massachusetts School for the Feeble-Minded at Waltham, Mass., records the work of that institution for the year

ended Nov. 30, 1912. During this period the total number of cases under treatment was 1681. The number of enrolled inmates at the close of the year was 1584, of whom 1305 were at Waverly, and 279 at Templeton, Mass.

LECTURES BY DR. MUMFORD.—It is announced that Dr. James G. Mumford, of Clifton Springs, N. Y., will lecture at the Harvard Medical School at 8.15 p. m., April 10, on "Hippocrates and Galen," and April 11, on "Vesalius and Hunter." He will also lecture at the Boston Medical Library at the same hour on April 15, on "Medical History and Ethics; and a Modern Experiment in Practise."

BOSTON LYING-IN HOSPITAL.—The recently published eightieth annual report of the Boston Lying-in Hospital records the work of that institution for the calendar year 1912. During this period 814 mothers were treated and 813 babies born in the hospital, and 1858 mothers attended and 1868 babies born in its out-patient department. Thirty-one nurses received diplomas as graduates of the training-school. During the past five years the second hundred Cesarean sections have been performed in the hospital, the statistics of the first hundred having been reported at length in the issue of the JOURNAL for Dec. 2, 1909 (Vol. clxi, pp. 803-816). Particular attention should also be called to the work of the pregnancy clinic in the supervision of mothers during pregnancy, the timely detection of pelvic and other abnormalities, and the prophylaxis of pregnancy toxemia. The report reiterates the great and pressing need of the hospital for an adequate and modern building and equipments.

SMALLPOX IN FALL RIVER.—Report from Fall River, Mass., on April 1, states that three cases of smallpox have recently been discovered among mill operatives in that town, many of whom have in consequence been vaccinated by local health officers.

HOSPITAL CONCERTS FOR APRIL.—The concerts of the Boston Hospital Music Fund for the month of April, 1913, have been announced as follows: On April 13, at St. Monica's Home, Roxbury; on April 17, at the Carney Hospital, South Boston; on April 20, at the Helping Hand Home, Jamaica Plain; on April 25, at the Home for Crippled Children, Hyde Park; and on April 27, at the Boston Home for Incurables, Dorchester.

COMMONWEALTH DENTAL SOCIETY.—The annual meeting and dinner of the Commonwealth Dental Society will be held at the Revere House, Boston, on Thursday evening, April 10.

SUCCESSFUL CANDIDATES IN DENTISTRY.—Of the 42 candidates who appeared before the Massachusetts State Board of Registration in Dentistry on March 5, 6 and 7, 22 were successful in passing the examination, and have received certificates entitling them to practise their profession in this State.

FINE FOR ILLEGAL PRACTISE OF MEDICINE.—On March 31, a resident of Fall River, Mass., was fined $100 before the local police court for attempting to practise medicine illegally.

NEW YORK.

REPORT OF NEW YORK MILK COMMITTEE.—One of the most interesting features of the sixth annual report of the New York Milk Committee, just issued, is a detailed account of an experiment in practical eugenics made during the past year. Six tenement districts in the city were selected, and, at the milk stations in these, expectant mothers were asked to register with a nurse in charge, who then visited the women in their homes from time to time and gave them instructions as to the care they should take of themselves during pregnancy and the nursing period. This supervision was maintained for at least one month after the birth of their children, and the report states that among the infants of 1,375 women thus looked after the mortality was nearly one-third less than among infants of corresponding age in general in the Borough of Manhattan.

DEATH OF A TUBERCULOUS PATIENT.—The death of a patient at Bellevue Hospital three days after being injected by Dr. Friedmann (as noted editorially in last week's issue of the JOURNAL) would seem to have no bearing upon the general problem presented by the latter's treatment, as one of the man's kidneys had been removed, the other, it is stated, was tubercular, and he was practically in a dying condition at the time. Considerable surprise has been ex-

pressed, however, that Dr. Friedmann should have been willing to accept so hopeless a case for the employment of his method.

Work of Pellagra Commission.—It was announced on March 31 that Col. Robert M. Thompson, of New York City, and Mr. John M. McFadden, of Philadelphia, who last year together contributed $15,000 towards the work of the National Pellagra Commission, have this year again undertaken to supply funds for the continuance of that work. The Commission, whose headquarters are at the New York Post-Graduate Hospital, left this city last week to take up field quarters in Spartanburg, S. C.

Craig Colony for Epileptics.—The recently published nineteenth annual report of the Craig Colony for Epileptics at Sonyea, Livingston County, N. Y., records the work of that institution for the year ended on Sept. 30, 1912. During this period 227 new patients were admitted and 229 cases discharged, leaving a total of 1418 inmates, a number which far exceeds its legitimate capacity. Of those discharged only four were considered as recovered. The training school has been reorganized with a view to increasing its efficiency and value in the education of nurses. The pathologist's report contains the interesting record of 70 autopsies performed during the year, illustrated with several brain-plates.

Hospital for Crippled and Deformed Children.—The recently published twelfth annual report of the New York State Hospital for the Care of Crippled and Deformed Children records the work of that institution for the year ended Sept. 30, 1912. During that period 103 patients were treated, of whom 24 had tuberculosis of the hip and 15 of the spine. The total number of days of hospital care was 22,706. The hospital is urgently in need of enlarged quarters.

Adirondack Cottage Sanatorium.—The recently published twenty-eighth annual report of the Adirondack Cottage Sanatorium at Saranac Lake, N. Y., records the work of that institution for the year ended Oct. 31, 1912. During that period 312 patients were treated, of whom 35 were discharged as apparently cured and 98 with the disease arrested. The year has been marked by the completion of the new nurses' home and the establishment of a regular two-years' training-school course. A medical supplement to the report tabulates and summarizes the statistics of the 3281 patients who have been treated at the sanatorium since its foundation. Of these, 54% are still living.

Current Literature.

Medical Record.

March 15, 1913.

1. *Abbe, R. *Malignant Disease of the Tongue and Mouth.*
2. Williams, T. A. *Occupation Neuroses. Their True Nature. Treatment.*
3. Rosenstirn, J. *The Municipal Clinic of San Francisco.*
4. Copeland, E. P. *Tuberculosis in Early Life.*
5. Sabella, N. *Use of the Fetal Membranes in Skin Grafting.*

1. Abbe writes an interesting and valuable paper on malignant disease in the mouth. Thorough surgery, he says, is still the supreme reliance here. Radium has cured cases, but in advanced cancer its good effect is transient; in giant-cell sarcoma, however, it is a specific cure. The vicious causative effect of tobacco is proved. [L. D. C.]

March 22, 1913.

1. Von Ruck, K. *The Relative Value of Living or Dead Tubercle Bacilli and of Their Endotoxins in Solution in Active Immunization Against Tuberculosis.*
2. *Kosmack, G. W. *Radical and Conservative Methods in Obstetric Treatment.*
3. Russell, J. F. *The Treatment of Lime Starvation.*
4. Sicard, M. H. *Further Experience with the High Calory Diet in Typhoid Fever.*
5. Fussell, M. H., and Leopold, S. *Gradually Developing Hemiplegia Due to a Cerebral Neoplasm.*
6. Vinton, M. M. *State Care for Mental Defectives.*
7. Robinson, B. *The Medical Treatment of Appendicitis.*

2. Kosmak discusses, from both the conservative and radical standpoints, some of the commoner obstetric problems. His remarks on eclampsia are especially noteworthy. He cites the results of Lichtenstein in Leipsig with expectant treatment for this condition. During the last twelve months in which the conservative treatment was employed, not a single eclamptic mother died in a series of sixty consecutive cases. Spontaneous labor occurred in two-thirds of the cases. Expectant treatment consists of venesection, purging, sweating, sedatives (morphine and chloral), water by mouth and rectum, and nitroglycerin. [L. D. C.]

New York Medical Journal.

March 15, 1913.

1. Gordon, W. S. *Acidosis.*
2. *Rosenberger, R. C., and Dorworth, C. V. *Blood and Sputum in Croupous Pneumonia.*
3. Dabney, V. *Connection of the Sexual Apparatus with the Ear, Nose and Throat.*
4. Oppenheim, S. *Disease of the Nasal Accessory Cavities.*

5. Porter, W. H. *Uric Acid Calculi.*
6. Wile, I. S. *Medical Efficiency.*
7. Neuhof, S. *Extrasystoles.*
8. Martin, E. H. *The Specific Treatment of Pellagra.*
9. Groedel, I. M. *Carbonated Baths.*
10. McDuffie, M. W. *Tuberculosis.*
11. Klein, S. R. *Whooping Cough.*
12. Schatz, H. A. *Appendicitis or Not Appendicitis?*
13. Conklin, E. G. *The Size of Organisms and Their Constituent Parts in Relation to Longevity, Senescence and Rejuvenescence.*

2. Rosenberger and Dorworth made a clinical study of the blood and the sputum in croupous pneumonia. They find that the sputum in this disease contains numerous micro-organisms, and that before the crisis there is no preponderance of pneumococci over streptococci, micrococcus catarrhalis and pyogenic cocci. The characteristic rusty sputum was obtained in only 42% of their cases. The finding of pneumococci in blood cultures after the crisis is rare. In some cases clinically croupous pneumonia organisms other than the pneumococcus were found in the blood. The prognosis of uncomplicated lobar pneumonia is not, in their opinion, altered by obtaining the pneumococcus in culture. [L. D. C.]

March 22, 1913.

1. Knopf, S. A. *Artificial Pneumothorax.*
2. Lapham, M. E. *Artificial Pneumothorax.*
3. Grad, H. *Shortening the Uterosacral Liagments.*
4. Coriat, I. H. *Homosexuality.*
5. Karpas, M. J. *Psychic Constitutional Inferiority.*
6. *Kaufman, J. *Experiences with Neosalvarsan.*
7. Overlock, S. B. *Surgical Catharsis.*
8. Kennedy, J. W. *Removal of Mucocele of Appendix.*
9. Smith, R. K. *Therapeutic Possibilities of Manual Adjustment.*
10. Pendexter, S. E. *Unconscious Impairment of Vision.*
11. Wesson, M. B. *Epidemic Cerebrospinal Meningitis.*
12. Reed, H. S. *The Effect of Diplodia Zeae and Some Other Fungi upon Some Phosphorus Compounds of Maize.*

6. Kaufman reports results with neosalvarsan given intramuscularly. He finds that one injection is not curative and he is giving his patients three injections at monthly intervals and following these with a series of salicylate of mercury injections. Neosalvarsan, he says, is quite as potent as salvarsan. When given intramuscularly its effects are far more lasting than when given intravenously, but not so rapid. With aseptic technic there is no danger whatever of abscess or necrosis. Pain attending intramuscular injection is not constant and is not a valid objection to the method. [L. D. C.]

The Journal of the American Medical Association.

March 22, 1913.

1. *Morse, J. L. *Sterilization, Boiling and Pasteurization of Milk.*
2. Bryant, W. S. *Opportunities for the Preservation of Hearing.*
3. *Berg, A. A. *The Influence of Gastro-Enterostomy on Gastric and Duodenal Ulcers.*
4. Chisholm, A. S. M. *Theory and Practice of Medicine During the Seventeenth Century. (Concluded.)*
5. Corper, H. J., DeWitt, L. M., and Wells, H. G. *The Effect of Copper on Experimental Tuberculous Lesions.*
6. Mills, H. P. *Pellagra: Pathology of Gastro-Intestinal Tract.*
7. Connell, K. *A New Ether Vaporizer. Technic of Insufflation Anesthesia.*
8. Child, C. C. *Perineorraphy with the Figure-of-Eight Suture.*
9. Smith, C. *The Congenital Absence of Ribs: Report of Case with Complete Absence of the Left Seventh and Eighth Ribs.*
10. Hadden, D. *A Visceral Depressor.*
11. Kahn, L. M. *A Visceral Depressor for Use in Closing Laparotomy Wounds.*
12. Kilgore, E. S. *A Suction Hand-Valve for Clearing the Operative Field.*
13. Bates, L. B. *Leishmaniosis (Oriental Sore) of the Nasal Mucosa.*
14 Little, H. C. *A Spectacular Case of Lipomyxoma.*
15. Conlon, F. A. *Infection of Pharynx by the Aspergillus Niger.*
16. Bixby, E. M. *A Useful Lampstand Attachment.*

1. Morse states that the boiling and proper pasteurization of milk destroy the ordinary non-spore-bearing pathogenic micro-organisms. The bacterial growth is the same in pasteurized milk as in clean raw milk. The evidence at present available is insufficient to show whether cooked milk is more or less digestible than raw milk; whether babies thrive on it as well as on raw milk; and whether or not it predisposes to the development of diseases of nutrition. Granting that the cooking of milk does make it somewhat less digestible, and that its continued use does predispose to these diseases, it is evident, nevertheless, that the disturbances which it causes are slight and insignificant in comparison with the diseases caused by milk contamination with bacteria. All milk, except the cleanest should, therefore, be cooked before being used as a food for infants.

3. Berg believes that simple gastro-enterostomy can influence pyloric or duodenal ulcer only when there is an attendant pyloric spasm. In the absence of spasm all the food passes through the patent pylorus, even though a gastro-enterostomy is present; so that the ulcerated area is not protected from trauma. The reflux of duodenal contents into the stomach is a natural attendant on gastro-enterostomy and serves to alleviate the distressing symptoms of hyperacidity; but it does not favor the healing of the ulcer. Gastro-enterostomy will not protect against a recurrence of ulcer. Barring the question of malignant degeneration of a healed or healing ulcer, excision of the ulcer has no particular merit over a gastro-enterostomy toward preventing recurrence or recrudescence. Pylorectomy does protect against recurrence, but has a higher mortality. Gastro-enterostomy with pyloric exclusion favors the healing of the ulcer and has the same value in preventing recurrence as has pylorectomy, with the great advantage over the latter of a very low mortality. [E. H. R.]

March 29, 1913.

1. Gorgas, W. C. *Sanitation on the Canal Zone.*
2. Kahn, M. *Gunshot Wounds of the Abdomen.*
3. *Hauzlick, P. J. *A Study of the Toxicity of the Salicylates Based on Clinical Statistics.*
4. Fishberg, M. *Autoscrotherapy in Serofibrinous Pleurisy.*
5. McMorrow, F. *Some Old Pelvic Inflammatory Diseases, Their Non-Surgical Treatment with Report of Cases.*
6. Boldt, H. J. *How We May Reduce the Mortality from Cancer of the Uterus, with Special Reference to Treatment and to Publicity Through the Lay Press.*
7. Brady, J. M. *Report of a Case of Pneumococcus Meningitis with Normal Cerebrospinal Fluid.*
8. Stern, M. *The Grafting of Preserved Amniotic Membrane to Burned and Ulcerated Surfaces Substituting Skin Grafts.*
9. Bevan, A. D. *Medical Education and the Hospital.*

10. Niles, G. M. *The Philosophy of Mastication.*
11. Pottenger, F. M. *Spasm of the Lumbar Muscles.*
12. Kaufmann, L., and LeBreton, P. *A Case of Spastic Paraplegia, with Dorsal Root Section for Pain and Spasticity.*
13. Neustaedter, M. *Poliomyelitis in Guinea-Pigs.*
14. *Wetherill, H. G. *The Growth, the Death and the Regeneration of Bone.*
15. Hand, P., White, C. Y., and Reichel, J. *A Case of Hydrophobia.*
16. *Dixon, S. G. *The Bronchial Forms of the Tubercle Bacillus and Immunity to Tuberculosis.*
17. Rogers, J. B., and Murphy, A. I. *The Finding of the Acid-Fast Bacilli in the Circulating Blood.*

3. Hauzlick states that the mean toxic doses of the different salicylates for adult males and females, respectively, are 180 and 140 grains of the synthetic sodium salicylate, 200 and 135 grains of the natural sodium salicylate, 120 minims of the oil of gaultheria, 165 and 120 grains of acetysalicylic acid (aspirin) and 100 and 83 grains of salicylosalicyclic acid (Diplosal). This toxic dose is practically the same in various diseased conditions. The therapeutic response in various diseased conditions does not modify the toxic dose of the synthetic salicylate.

4. Fishberg, following Gilbert of Rome and the experimental data of Eisner, has found the subcutaneous injection of 2 to 5 c.c. of fluid from a tuberculous pleurisy, immediately after its removal from the chest, of value in the treatment of these cases. Symptoms and physical signs both improve rapidly. The author recommends strongly that this treatment be given further extended trial. No outward symptoms have ever developed.

14. Wetherill goes into an interesting discussion of MacEwen's new theory of bone regeneration and growth, which the latter believes takes place wholly independent of the influence of periosteum. The article does not lend itself to easy abstracting, but is well worth reading.

16. Dixon describes the branched form of the tubercle bacillus, which has a reduced virulence and has produced a marked degree of immunity in lower animals. [E. H. R.]

Annals of Surgery.

December, 1912.

1. *Wilson, L. B. *Fatal Post-operative Embolism.*
2. Cunningham, Jr., J. H. *Acute Unilateral Hematogenous Infection of the Kidney.*
3. *Cobb, F. *The Management of the Grave Emergency Cases of Extra-uterine Pregnancy.*
4. Walker, J. B. *Operative Treatment of Fractures.*
5. Rixford, E. *Contribution to the Etiology of Congenital Dislocation of the Hip.*
6. Bendell, J. L. *Bone Plating in Irreducible Fracture of the Clavicle.*
7. Russell, J. I. *Traumatic Separation of the Lower Epiphysis of the Femur.*
8. Elliott, G. R., and Sachs, E. *Observations on Fracture of the Odontoid Process of the Axis with Intermittent Pressure Paralysis.*
9. Corson, E. R. *Mediotarsal Subluxation as Shown by the X-ray.*
10. Thornburgh, R. M. *Multiple Gunshot Wounds of the Intestine without Perforation of Lumen.*
11. *Black, C. E. *Displacement of the Colon.*
12. Wiener, J. *Gangrene of Ileum Complicating Appendicitis.*
13. Remsen, C. M. *Appendicitis in an Infant Sixteen Days Old with Appendix in an Inguinal Hernia Sac.*
14. Council, M. D. *Primary Sarcoma of the Spleen.*
15. Jopson, J. H. *Bevan's Operation for Undescended Testicle.*
16. Ford, C. S. *Traumatic Femoral Aneurysm Cured by Matas' Method of Endo-aneurysmorraphy.*

1. Wilson analyzes the cases (47) of fatal post-operative embolism which occurred at St. Mary's Hospital from Sept. 13, 1899, to Dec. 31, 1911. The ten years prior to this period were without a single death from this cause. The reasons given are a higher percentage of certain types of operations and of cases admitted in extremis during the last twelve years. Total of 63,573 operations, with 0.07 of one per cent. mortality from embolism. The highest incidence was in operations on the prostate (0.66%), the lowest in operations on the appendix (0.04%). Between these two limits the order of incidence from lowest to highest is as follows: operations on mouth, on thyroid, on kidney, on hernia, on stomach or duodenum, on uterus, tubes and ovaries, on blood vessels, on gall bladder and on colon and rectum. There were none in 449 vaginal hysterectomies, but 5 in 1712 abdominal hysterectomies. Of 41 which came to autopsy, 36 were pulmonary, 10 cerebral and 1 coronary; 41 of the 47 were all very ill and probably subjects of low-grade bacteriaemia. Venous thrombosis was determined as source of emboli in 80%, cardiac thrombosis in 10%; miscellaneous or undetermined in 10%.

Statistical and clinical details are presented in two tables. Reduction to minimum of operative vascular traumatism, encouragement of very early free movement on part of patient, and measures toward reduction of bacteriaemia (destruction of local infective foci and preliminary vaccination) are suggested as preventive measures. Much judgment is required for determination of time patient should be permitted to get up. Quiet recumbent posture retards the circulation and favors thrombosis. If from anemia or bacteriaemia there is a suspicion that extensive thrombi have already formed before it is possible to permit the patient free movement, it is wise to continue the recumbent position to prevent dislodgement of emboli.

3. Cobb's contribution is based upon a study of 137 cases of extra-uterine pregnancy which occurred at the Massachusetts General Hospital from 1902 to 1910. There were 3 cases of interstitial pregnancy; 2 of these were personal cases. There were 36 desperate emergencies (including 8 personal cases). All were operated upon practically as soon as seen by the surgeon. The immediate mortality was only 5.5%. He believes that such cases should be operated upon at once. Ether should be started on the operating table, but not until everything is ready for the operation, including an intravenous salt infusion equipment, the preparation of the abdomen, and the exposure of the median basilic vein under cocaine by an assistant. Trendelenburg position with beginning of ether relaxation, clamping of ovarian arteries without attempting to evacuate blood and clots followed at once by starting salt infusion and giving strychnia. Cleansing of abdominal cavity with hot salt solution, double ligation and removal of tube, closure with through-and-through sutures without drainage. Steps should at once be taken to secure a donor for transfusion, since a very small number of cases do not respond to the usual after-treatment for hemorrhage. He says it is the duty of every practitioner to remember that the vast majority of the most serious cases (those most likely to go to a rapid fatal termination from hemorrhage) occur in young primigravidae, that there may be nothing to suggest pregnancy, and that the onset may be extremely sudden and may exactly simulate some other acute abdominal condition.

11. Black has carefully reviewed the literature on displacements of the colon, gives diagrams illustrating 28 cases and describes a personal case. In his case, owing to dense adhesions throughout the right half of the abdomen, a marked abnormality was not recognized at two operations. The descending colon and sigmoid were fixed in the right lower abdomen over the ileum, which ran vertically upward to an undescended cecum. He considers abnormalities of the various portions of the large bowel. He finds great

difference of opinion in regard to the position of the sigmoid, whether normally in the pelvis or above it, and whether it joins the rectum in a direction from the left or from the right. For purposes of study he suggests a classification. True congenital anomalies seem to be easily recognized and for the most part cause no inconvenience to the patient until complicated by some acquired influence. His study does not confirm the belief of some authors that the descending colon is more commonly in its normal position than any other portion. The sigmoid may be displaced to the right before or after the descent of the cecum. In only one case did the colon not approach the spleen. [T. W. H.]

Wiener Klinische Wochenschrift.

No. 8. February 20, 1913.

1. Hamburger, F. *Psychic Treatment in Growing Children.*
2. Lederer, R. *Spasmophilic Diathesis, a Hitherto Undescribed Clinical Picture.*
3. Chiari, O. M. *A Contribution to the Knowledge of Behavior of Freely Transplanted Fascia in the Human Organism.*
4. Hess, L., and Von Frisch, B. *A Phosphate in Human Urine.*
5. Reihl, G. *The Value of Acetone-Extract in the Meiostagmine Reaction.*
6. *Köhler, R., and Luger, A. *On the Meiostagmine Reaction.*
7. Hofbauer, L. *Origin and Treatment of Chronic Disorders of the Pleura.*

6. The authors, working with their own Lecithin acetone extract, and with the statistics of Zarzycki, find the Meiostagmine reaction positive in 80% of carcinoma cases, in 2.2% of patients sick with other diseases than carcinoma, 0% in the healthy. They conclude that it is valuable and that their preparation gives the best results. They draw the following conclusions also: In pregnant women the reaction is more often positive than in the non-pregnant, so that its value is much less. Proof as to whether the reaction comes about through precipitation or complementary reaction is not important. [F. S. K.]

No. 9. February 27, 1913.

1. Hess, L., and Wiesel J. *The Action of Adrenalin in Experimental Acute Nephritis.*
2. Kraus, R., Hofer, G., Ishiwara. *The Differentiation of the Leprosy Bacillus by Means of Bacteriolysis.*
3. Steiner, J. *Army Medical Experience at the Front.*
4. Jehle, L. *On the Action of Attempts at Correction of the Spine in Orthostatic Albuminuria.*
5. Jehle, L. *So-called Marsch-hemoglobinuria.*
6. Nagy, S. *Contribution to the Diagnosis of Acute Pancreatitis.*
7. *Langer, E. *The Cammidge Reaction and Its Value in the Diagnosis of Diseases of the Pancreas.*

7. The author arrives at the following conclusions: The Cammidge reaction is not specific for pancreas disease. The reaction is not only due to the existence of grape sugar, for it occurs after boiling the urine with 20% sodium hydroxide. It also comes in healthy individuals after the assimilation of 100 gm. dextrose, as a rule, even when there is no dextrosuria. Also, if there already exists a glycosuria the Cammidge reaction fails after boiling with 20% KOH, unless 100 gms. dextrose are given before. If such patients are given 100 gms. dextrose the previously negative Cammidge reaction becomes positive, whereas in healthy individuals it is negative even after giving 100 gms. dextrose, and the appearance of dextrosuria. The substances determining the Cammidge reaction appear to be those that are formed in the breaking down and building up of the glycogen. Also, while the Cammidge reaction is negative in the experimentally produced glycosuria, it becomes positive in the adrenalin glycosuria. It seems, therefore, that for a positive Cammidge reaction there is necessary not only an increased blood sugar content, but also an increase in activity in the chromaffine system. Such increase in activity of the sympathetic nervous system may occur as a result of pancreatic disease and a falling away of the retarding action of the pancreas. And also it may occur without existing disease of the pancreas. Under certain circumstances, however, certain decomposition products of the pancreas itself may produce this reaction, even though in this case it may be impossible to differentiate the crystalline substances produced in this case from those in the above mentioned condition. [F. C. K.]

No. 10. March 6, 1913.

1. Klein, S. *The Action of Benzol in Leukemia.*
2. *Stern, S. *Treatment of Leukemia with Benzol.*
3. Schopper, K. *Experience with Cholera in Ostrumelia During the Balkan War.*
4. Ishiwara, K. *Experimental Studies of the Cell Reaction in Rats by Freund-Kaminer.*
5. March, R. *Impetigo Herpetiformis Hebra, a Contribution to the Pathology of This Disease.*
6. Teleky, L. *Isolated Atrophy of Single Muscles of the Thenar Eminence in Stone-Cutters.*

2. The author reports the following remarkable result from the use of benzol in a case of leukemia. The dose was begun at 3 gms. (in oil, in capsules), and was increased to 6 gms. per diem. At the end of two months the leucocyte count diminished from 264,000 to 13,300, the erythrocytes increased from 3½ to 5½ million. The differential count changed as follows: Myelocytes diminished from 44% to 3%, polynuclear leucocytes increased from 48% to 74%. The spleen became smaller in proportion to the improvement in the blood picture, until at the end of treatment it was normal size. In addition to these improvements the patient is stronger and the weight has increased by 2 kilos. It is too soon yet to say that this is a permanent cure. [F. S. K.]

No. 11. March 13, 1913.

1. Jonas, S. *The Behavior of Various Kinds of Strictures in the Stomach and Duodenum Under Milk Diet and a Method to Diagnose Ulcerous Spastic Strictures in the Same Places.*
2. Matzenauer, R. *Accessory Toxic Reaction of the Alkalies Liberated from the Glass During Intravenous Salvarsan Injection.*
3. Maeller, R., and Stein, R. O. *The Skin Reaction in Lues and Its Relation to the Wassermann Reaction.*
4. *Lier, W. *Experiences with Neosalvarsan.*
5. Heinz, O. *Surgical Experiences in the Montenegro-Turkish Seat of War.*
6. Barkan, H. *On Infantile and Juvenile Tabes.*
7. Homa, E. *On the Permanency of Results and the Ultimate Fate of Children Treated at the Sea-Hospital at Trieste from 1896 to 1903.*

4. The author draws the following conclusions from his experience with neosalvarsan: That on account of its solubility in neutral reactions and the ease with which it may be used it gives the best results in primary and tertiary lues, as well as in the infectious wet form of the secondary period. It appears also that prospects of a true abortive cure in primary syphilis are very good. Also in the malignant ulcerative lues it gives good results in large doses and with repeated administration, whereas in the dry forms its reaction is weaker than that of

mercury. Besides it should be used always in connection with mercury, in which case the individual neosalvarsan injection should be given at longer intervals. The first injection should be small and be preceded by only a short term of mercury treatment. Neosalvarsan seems especially indicated in those cases in which mercury leads to severe stomatitis or nephritis with albuminuria. In these cases we can use the new Ehrlich remedy without interruption of the cure. Intramuscular injection is also useful, little or not at all painful, leaves no infiltrates, and can be used in ambulatory cases. [F. S. K.]

DEUTSCHE MEDIZINISCHE WOCHENSCHRIFT.

No. 9. FEBRUARY 27, 1913.

1. UHLENHUTH, P., MULZER, P., AND HÜGEL, G. *The Chemotherapeutic Action of Organic Antimony Preparations in Spirochetal and Trypanosomatous Diseases.*
2. PAL, J. *The Action of Opium, Its Components, and Substitute Preparations.*
3. EWALD, C. A. *Thrombosis of the Splenic Vein, with Fatal Gastric Hemorrhage.*
4. DORNER, G. *Broncho-Esophageal Fistula in Aortic Aneurysm.*
5. SACKUR, P. *Experimental and Clinical Contributions to the Knowledge of Hormonal Action.*
6. ROTHSCHILD, D. *The Influence of Iodine Medication on the Sputum Phagocytosis of Tubercle Bacilli.*
7. STERN, C. *Autolytic Properties of Guinea-pig Serum, and Consequent Sources of Error in the Wassermann Reaction.*
8. STÜMPKE, G. *Combined Salvarsan-Mercury Treatment of Syphilis.*
9. LANG, J. *The Salvarsan Question in Otiatry.*
10. HESS, A. F. *Investigations on Pylorospasm and Pancreatic Ferments in the Infant by Means of a Simple Duodenal Catheter.*
11. MEYER, O. *Contribution to the Origin and Prevention of Hirschsprung's Disease.*
12. *DSCHUNKOWSKY, E. *Recurrent Fever in Persia.*

12. Dschunkowsky states that recurrent fever is the disease produced in man in Persia by the bite of the tick *Ornithodorus Tholozani* or *Canestrini*, which lives in human dwellings. The spirochetae of this recurrent fever constitute a distinct species, which he proposes to designate *Spirocheta persica.* This spirochete stands closest to the *Spirocheta Duttoni* Probably the ticks also carry the infection to sheep, in whom the disease manifests itself only in temperature elevation, and in whose organism the spirochetes live in peculiar forms yet unknown to us. Under favorable conditions they may thence be transferred to man. [R. M. G.]

ANNALES DE L'INSTITUT PASTEUR.

DECEMBER 25, 1912.

1 *CARRÉ, H. *Contagious Agalaxy in the Sheep and Goat.*
2. *MANONELIAN, J. *Study of Nigri Bodies and Special Formations in Cells in Rabies.*
3. GERARD, P. J. *Contribution to the Study of Potassium and Sodium in Animals.*
4. BERTRAND, G., AND MEDIGRECEAUC, F. *Research on the Normal Manganese of the Blood.*
5. NICOLLE, M., AND TRUCHE, C. *Second Note upon the Preservation of Soluble Toxins.*
6. SAWTSCHENKO. *Inhibitory Action of Carbonic Acid upon Hemolysis and Bacteriolysis.*

1. This peculiar disease, with its limited distribution, has received little attention in the French literature and so Carré has reviewed the entire literature upon the subject. From his studies, which have been exhaustive not only from the historical and clinical side, but also from the experimental, he concludes that, contrary to general opinion, the breasts of animals with this disease may secrete up to their complete atrophy a fluid of equal virulence towards reproducing this disease. For contagion an open lesion is considered indispensable. The tears from an infected eye even without ulceration are virulent. The digestive tract seems to be the most likely source of absorption for the virus. The virus may be obtained in quantity by producing an experimental pleural effusion in the animals.

Serum vaccination from laboratory results opens prospects of value as a prophylactic measure against agalaxy.

2. For several years Manonelian has been studying the Nigri bodies in rabies as they occur naturally and as the result of experimentation. He has used many different preservatives and methods of staining. He gives a careful description of these bodies and shows some excellent illustrations. He concludes that these bodies are always present in natural rabies and are of the first importance in diagnosis. In rabies from fixed virus there are numerous forms which appear in the bodies and larger branches of the nerve cells. These two sets of bodies are similar in a way to the residual bodies in the testicles.

[C. F., JR.]

JANUARY 25, 1913.

1. BERTRAND, G., AND MEDIGRECEANU, F. *Investigations upon the Presence and Distribution of Manganese in the Organs of Animals.*
2. *MANOUÉLIAN, Y. *Investigations upon Atheroma of the Aorta.*
3. *MANOUÉLIAN, Y. *Studies upon the Pathogenesis of Arteriosclerotic Changes.*
4. POZERSKI, E., AND POZERSKI, M. *Contribution to the Study of Immunity Against the Anti-coagulating Action of Peptone.*
5. FOLEY, H. *Morphological Studies Upon Microfilaria in a Troop of Sharpshooters in Algiers.*
6. SCHILLER, I. *Presence of Staphylococci in Human and Experimental Animal Cells.*
7. BERTRAND, M. D. *Influence of Alimentary Regulation Upon Formation of Indol in the Organism.*
8. MUTERMILCH, S. *Toxic Action of Guinea-pig Serum Mixed with Kaolin.*

2. This author has been working under Metchinkoff on experimental arteriosclerosis, and after trying the different products of intestinal putrefaction is now reporting on the results of repeated injections of staphylococcus filtrates or emulsions into rabbits, dogs and monkeys. The examination for the sclerosis has been confined chiefly to the aorta, and he feels that lesions occur in a very high percentage of the cases. (I am not convinced that the lesions described are not of the spontaneous variety.—C. F. Jr.).

3. In this paper the author attacks the problem of the cause of sclerosis from the point of view of nerves, and does some experimental work to show that injury to a nerve will cause a corresponding injury to the arterial wall supplied by that nerve. Although an interesting theory, the work does not seem to be convincing that the nerve injury calls forth the arterial lesion, as the author claims. Some illustrations accompany the work. [C. F., JR.]

REVUE DE MÉDICINE.

FEBRUARY, 1913.

1. LABBÉ, M. *The Syndrome of Acute Dehydration.*
2. *VITRY, G., AND SEZARY, A. *The Resorption of Cirrhotic Ascites.*
3. GOLDBERG, J., AND HERTZ, R. *The Elimination of Urinary Chlorides in Simple Polyuria and the Influence on This of Sodium Bicarbonate.*

4. Cézary, A., and Sales, C. *Bacillary Elephantiasis.*
5. Constaing and Felderman. *Dental Erosion.*
6. *Rodriguez, A. *New Views on Diabetes.*
7. Dumas, A. *Nervous Acidents of Syncopal or Epileptiform Nature in the Course of Disturbance of Cardiac Rhythm.*

2. The authors trace the course of a case of cirrhosis of the liver that, at the expiration of some months, was considered apparently cured. The chief influence in the resorption of the fluid is supposed to be autoserotherapy. This is claimed to be most efficient in those cases in which renal permeability is well preserved. For this or for other reasons, this means of treatment is far from giving universal success.

6. Rodriguez advances some new and very interesting views on diabetes mellitus. In the first place it seems doubtful whether this disease as such actually exists. The retention of chlorides and their excretion in the urine seems to be the matter of greatest import. It is shown that a high degree of tension may cause an undue amount of cerebro-spinal chlorine content, and hence a glycosuria by counter-irritant action. According to this theory, the treatment consists of diminishing the food intake, when it is excessive, and especially the intact of chlorides. The latter treatment is indicated in those cases where the excretion of sugar is merely the sign of a chlorine intoxication. This explains the efficacy of green vegetable and potato days in the regime of treatment of diabetes. [L. H. S.]

Obituary.

JOHN SHAW BILLINGS, M.D., LL.D., D.C.L.

Dr. John Shaw Billings, Director of the New York Library, who died March 11, in New York City, was born in Switzerland County, Indiana, April 12, 1838. He graduated from Miami University, Ohio, in 1857, and received the degree of M.D. from the Medical College of Ohio in 1860, served in the Civil War, and retired from active service, at his own request, in 1894, with the rank of Lieutenant Colonel and Deputy Surgeon-General. He filled with distinction many responsible positions. He was vice-president of the National Board of Health from 1879 to 1882; had charge of the Division of Vital Statistics of the eleventh census; was medical advisor to the board of trustees of Johns Hopkins University, and from 1891 to 1896 professor of hygiene in the University of Pennsylvania.

He was in charge of the Surgeon-General's Library from 1875 to 1883, and from then to 1895 curator of the Army Medical Museum and Library.

In 1896 he was made director of the New York Library, and it was his duty to carry into effect the consolidation of the Astor, Lenox and Tilden Libraries and arrange for their removal into the new building on Fifth Avenue, a tremendous undertaking, which he lived to see completed.

He was a frequent contributor to medical, bibliographical and sanitary literature, and whatever came from his pen bore the stamp of his great and varied knowledge and thoroughness. He was an authority on heating and ventilation, and the old Boston Medical Library on Boylston Place and the Harvard Medical School on Boylston Street had the benefit of his expert advice in regard to ventilation. Sanitation and hygiene were also subjects which claimed much of his attention.

But the thing which will always cause his name to be held in the highest esteem the world over, his literary monument, is the Index Medicus, the outgrowth from, and made possible by, the Catalogue of the Surgeon-General's Library. Before him, whatever existed in medical literature had to be searched for and dug out with the greatest expenditure of time and patience. As Weir Mitchell says, "I often remember with regret the great waste of time in my younger days when there were no great libraries and when John Billings had not indexed the medical thought of all the centuries. The enormous labor then involved no one can imagine today."

As regards the Catalogue of the Surgeon-General's Library, we can surely agree with what was well said by Dr. W. T. Gairdner of Glasgow: "I can seriously say that there is no work of the present generation that strikes me more with the idea of the stupendous and also as being animated throughout by the qualities amounting to genius than that magnificent catalogue."

A specimen fasciculus of this proposed catalogue was issued in 1876, which is a model in every respect. The first volume appeared in 1880, the first number of the Index Medicus having been published the preceding year. This was pioneer work in medical classification and cataloguing, and was beset with many difficulties, among which were the scanty appropriations by Congress of money for the purchase of books and periodicals and for clerical work and the fact that many of the cataloguers had no knowledge of medicine, so that the perseverance, expert knowledge and enthusiasm which brought the work to a successful issue may well be regarded as allied to genius.

The Index Medicus suspended publication from 1899 to 1902. Attempts made in various quarters to start similar works resulted in showing that Dr. Billings had builded so well that no substitute was possible, and, now that he has gone, the medical and scientific world should see to it that this unrivalled publication continues to receive the support which is necessary for its existence.

At the Seventh International Medical Congress in London in 1881, Dr. Billings presented a very interesting and valuable paper on "Our Medical Literature," which every medical man would do well to read.

His eminent services to medical literature were everywhere recognized, and he was the recipient of honorary degrees from many univer-

sities: M.D. from Munich, Dublin, Budapest; LL.D. from Edinburgh, Harvard, Yale, Johns Hopkins; and D.C.L. from Oxford.

Only a few months ago his able collaborator for many years and afterward his successor, Dr. Robert Fletcher, passed away at the age of 90. As joint laborers in a gigantic undertaking they lived to see their work acknowledged as one of the greatest benefits to modern medicine.

ALGERNON T. BRISTOW, M.D.

Dr. Algernon T. Bristow, of Brooklyn, N. Y., one of the most eminent surgeons and most highly esteemed members of the profession in the State, died on March 24 from septicemia resulting from a prick in the finger while performing an appendectomy at the Long Island College Hospital on March 12. The wound is said to have been so slight that, while he felt the smart at the moment and immediately washed the part with an antiseptic solution, on close examination he was unable to find any trace of it. Dr. Bristow was born in England Nov. 29, 1851, and brought to this country when four years old. He was graduated from Yale in 1873 and from the College of Physicians and Surgeons, New York, in 1876. He was professor of surgery in the Long Island College Hospital, attending surgeon to the College Hospital and St. John's Hospital, and consulting surgeon to the Bushwick, Swedish, Coney Island and Long Island State Hospitals. Among the positions which he held at various times were, president of the Medical Society of the State of New York, vice-president of the New York Academy of Medicine, and editor of the New York State Journal of Medicine. He was a valued contributor to the medical journals and one of the most popular speakers in the numerous societies to which he belonged.

JULIAN AUGUSTUS MEAD, M.D.

Dr. Julian Augustus Mead, who died of heart disease on March 30, 1913, in Watertown, Mass., was born at West Acton, Mass., in April, 1856. After receiving his preparatory education at Phillips Exeter Academy, he obtained the degree of A.B. from Harvard in 1878 and that of M.D. in 1881. After two years' study abroad he settled in Watertown, where he continued active in the practise of his profession until his death. In 1895 he was appointed a member of the Massachusetts State Board of Health, a position in which he had ever since rendered important service to the community. He also served for three terms as medical examiner for the Seventh Middlesex district. He was visiting physician at the Perkins Institution for the Blind, post surgeon to the United States Arsenal at Watertown, and for seven years surgeon to the Sixth Massachusetts Regiment. He was a member of the American Medical Association, of the American Public Health Association, of the Massachusetts Medical Society, of the Massachusetts Medico-Legal Association, of the Massachusetts Association of Boards of Health, of the Harvard Medical Alumni Association, of the Boston Medical Library, and of the Cambridge Society for Medical Improvement. He is survived by his widow, by a sister, and by two brothers, one of the latter being also a physician.

Correspondence.

SHALL THE MEDICAL DEFENCE ACT BE REPEALED?

Boston, April 3, 1913.

Mr. Editor: The Medical Defence Act was adopted by the Massachusetts Medical Society four years ago last June. It was designed to furnish counsel for those members of the Society in their defence in suits for malpractice and also to discourage such suits being brought. During this period about a dozen cases have received the attention of the Society's counsel at an expense of $1481. The annual expense of the act for the four years amounts to a little less than eleven cents for each member of the Society. While this sum would not seem to be an exorbitant drain upon the Fellows, yet the criticism has been made that the measure is not justifiable and hence should be repealed.

Having suggested this act when president of the society, and being largely responsible for its adoption, the writer is naturally anxious that it shall have a fair and thorough trial. Inasmuch as some defendants did not know of the existence of such an act during a year or more after its enactment, it is fair to conclude that a four-years' trial is not sufficient to justify a final opinion as to its value. For this reason alone it is to be hoped that the measure may be allowed to remain in force for a few years longer. As time goes on, and the members become aware of its existence, more cases may appear and the expense may increase in proportion; but unless the experience of our society is different from that of all others with which the writer is conversant, the act will not be repealed in the near future.

Very truly yours,

George W. Gay, M.D.

POLISHED RICE.

Bryn Mawr, Pa., March 21, 1913.

Mr. Editor: Does Dr. Horace Packard, in his recent communication on the subject of polished rice, really mean to encourage the idea that the eating of such rice is in itself harmful? Such seems to be the legitimate inference from his statements.

Let us not lose our heads in the matter of polishing rice; there are many much more serious questions at the door. It has been shown that certain laboratory animals experimentally fed on polished rice, practically to the exclusion of other food, develop symptoms much like those of beri-beri. It has also been shown that control animals fed on whole rice do not manifest these symptoms, and also that the symptoms may be moderated or even completely removed if the affected animals in addition to their other food receive rice bran (as removed in the "polishing") or even certain extracts from it.

On the other hand there is no evidence whatever that eating polished rice, in any quantity, *with* a good mixture of other common foods in sufficient amount is in any way harmful. If any person be foolish enough to try to sustain life on rice alone, let him

see to it that he gets whole rice; but if any one enjoys rice merely as a pleasant part of his abundant daily ration, he need not worry that polished rice will do him damage. He will not get all there is in rice but he will be none the worse for it.

Yours truly,

Joseph W. Warren, M.D.

Miscellany.

SOCIETY NOTICES.

Hampden District Medical Society.—The annual meeting of the Hampden District Medical Society will be held at Cooley's Hotel, Springfield, Mass., on Tuesday, April 15, at 4 p. m.

Election of officers.

Papers for the afternoon:

Some New Methods of Etherization. Dr. Allen G. Rice, Springfield, Mass.

Vagitus Uterinus. Dr. David Clark, Springfield, Mass.

Uterine Fibroids. Dr. R. H. Seelye, Springfield, Mass.

Discussion.

Dinner at 6 p. m., at expense of Society.

Hervey L. Smith, M.D.,
Secretary.

The Boston Society of Medical Sciences.—The next meeting will be held on Tuesday evening, April 15, 1913, at the Harvard Medical School, in the Amphitheater of Building D, at 8.15 p. m.

The following papers will be presented:

Dr. H. A. Christian: "Experimental Cardiac Hypertrophy Studied by the X-ray." (15 minutes.)

Dr. Francis W. Peabody: "The Oxygen Content of the Blood in Lobar Pneumonia." (15 minutes.)

Dr. I. Chandler Walker: "Carbondioxide Absorption by the Red Blood Corpuscles in Experimental Anemia." (15 minutes.)

Dr. F. H. Verhoeff: "Parinaud's Conjunctivitis Due to a Hitherto Undescribed Filamentous Organism." (15 minutes.)

Cleaveland Floyd, *Secretary.*

Bristol North District Medical Society.—The annual meeting will be held at the Winthrop Club, Taunton, at 11 a. m., Thursday, April 17. Annual business. Paper on "Infant Feeding," by Dr. Richard M. Smith, of Boston. Discussion. Luncheon.

Censors' Meeting.

For the examination of candidates—2 p. m., Thursday, May 8, at the office of the Secretary. Medical school diploma must be shown or the candidate cannot be examined.

Arthur R. Crandall,
William O. Hewitt,
Elliott Washburn,
Secretary.
} *Committee.*

American Urological Association.—The annual meeting will be held in Boston on April 15, 16 and 17. The headquarters of the Association will be the Copley Plaza Hotel, where the afternoon sessions will begin at 2 p. m., and daily bulletins of the morning clinics will be posted. The members of the profession who are interested are invited to attend.

APPOINTMENT.

Dr. Ernest L. Booth, of East Boston, has been appointed a school physician by the Boston Board of Health.

BOOKS AND PAMPHLETS RECEIVED.

Nervous and Mental Disease Monographs Series, No. 15. Dreams and Myths, by Karl Abraham, Berlin. New York. 1913.

RECENT DEATHS.

Dr. J. A. Lapointe, who died recently at Biddeford, Me., was born in Canada in 1843. He settled at Biddeford in 1877, and had been actively engaged there in the practise of his profession ever since.

Dr. Sylvester E. Strong, of Saratoga Springs, founder of a well-known sanatorium in that place, died on March 17, at the age of 75 years. He was graduated from the medical department of New York University in 1863, and afterwards served as surgeon in the U. S. Army.

Dr. Hugh Angus Stewart, who died of septic tonsillitis recently in New York City, was born in Scotland, in 1882. He graduated from the University of Edinburgh, in 1904. In 1907 he migrated to the United States, and became assistant resident physician at the Johns Hopkins Hospital, Baltimore. In 1909 he was appointed assistant professor of pathology in the New York College of Physicians and Surgeons.

Dr. Frank Warren Chamberlin, who died recently in Harlem, N. Y., was born at Worcester, Mass, in 1860. He graduated from Worcester Academy in 1881, and from Williams College in 1885; and received his medical degree from the New York College of Physicians and Surgeons. He served on the house staffs of the New York and Sloane Maternity Hospitals, and was always active in the practise of his profession in New York City. He was a member of the Washington Heights and other medical societies. He is survived by his widow.

Dr. James Tucker Cutler, who died of pneumonia recently in Boston, received the degree of A.B. from Williams College in 1890, and that of M.D. in 1894 from the Harvard Medical School and from Boston University. He was visiting physician to the Cullis Consumptives' Home and the Homeopathic Dispensary, and a member of the Massachusetts Homeopathic Medical Society and of the Massachusetts Surgical and Gynecological Society. He was a resident and practitioner in Roxbury. He is survived by his widow and by one son.

Dr. Grant Stanley, of Sea Cliff, Nassau County, N. Y., died on March 23, at the age of 38 years. He was born at Meriden, Conn., and was graduated from Cornell University Medical College in 1904; after which he served as interne at the Seney Hospital, Brooklyn. Dr. Stanley was associate physician to the Nassau Hospital, Mineola, and attending physician to the Country Home for Convalescent Babies at Sea Cliff.

Dr. Ira Van Gieson, of New York, died March 24, at the age of 47 years. An obituary notice will be published later.

Dr. Joseph C. Young, of Newark, N. J., died on March 25, at the age of 63 years. He was graduated from the College of Physicians and Surgeons, New York, in 1873, and for many years was chief medical examiner of the Mutual Benefit Life Insurance Company of Newark. At the time of his death he was consulting surgeon to St. Michael's Hospital.

Dr. Richard Pearce Francis, who died on March 29 at Montclair, N. J., was born in 1860. He received the degree of A.B. from Harvard in 1883, and that of M.D. in 1888. He had practised his profession for many years in Montclair. He was president of the Montclair Medical Association, and a member of the local board of health. He is survived by his widow and by two children.

Original Articles.

HAND LESIONS FOLLOWING INJURIES OF THE UPPER EXTREMITIES.*

BY C. HERMANN BUCHOLZ, M.D., BOSTON.

(From the Medico-Mechanical Department of the Massachusetts General Hospital.)

The development of man is in a large respect founded on the development of the hand, that most wonderful instrument which nature has created. Modern theories of the evolution of mankind point out that, aside from the brain, it is mainly the greater development of the hand which in ancient periods has marked the difference between men and the other primates. Most animals are far ahead of us either in locomotion or in strength, or in the sharpness of their senses, but all are inferior as to the development of the brain and of the hand. It was the hand of the savage which lighted the first fire; with his hands he made his weapon, and his hand threw the spear and shot the arrow to kill the bear and the deer for his defence and for his food.

The history of civilisation and culture shows on every page what man owes to his hand. From the crudest beginning up to the most complicated technique all art is work of the hand. The skilful hand of the surgeon saves his patient's life and health. The hand is, with the face, the most important organ of expression, and the hand-writing expresses our character so well, that a real science, the graphology, has been based on the magic connection between the brain and the hand.

What the hand means for the whole body in general, it means for the upper extremity in a special way. The arm without the hand or with a useless hand is not good for anything, while, even with a badly crippled or paralysed arm, a good hand is, though of a limited, but of a still considerable use.

With all that in mind it is no wonder that injuries or diseases which interfere with the correct function of the hand should have an especially great importance for the general welfare and the occupation of the patient, as well as for the skill and thoughtfulness of the physician. But it seems to me, at least from my experience, that the results in many cases in regard to the restoration of the function of the hand are not entirely what we wish and, I venture to say, what we should expect now. It is a large field covered by the present subject. For this paper I have just selected certain typical lesions of the hand frequently following injuries of the upper extremity. I shall exclude all injuries of the hand itself below the wrist, because of the special condition of such injuries, and shall mainly refer to the typical fractures of the upper end and the shaft of the humerus, the dislocation of the humerus, the fracture of one or both bones of the forearm, and the so-called Colles' fracture.

I freely admit, that my personal impression in this line of work may not be quite objective, as I usually see and care for the worst cases, while a great many others do not need any particular after-treatment. But even so, the percentage of cases suffering from more or less serious lesions of the hand following such typical injuries is great enough to justify any attempt to improve our results.

PATHOLOGY AND SYMPTOMS.

My studies as to the pathological changes are wholly based upon clinical and x-ray observations. I have never been able to obtain any specimens for pathological examination, and a few experiments which I have made on dogs have failed to give results which may be of any value. Even with prolonged fixation the lesion healed perfectly. Moreover the difference between the paw of the dog and the human hand is perhaps too great to expect a similarity in the pathological changes.

Since most cases of secondary post-traumatic lesions of the hand are seen following Colles' fracture, this type shall be chiefly considered in this chapter. In the average the patients are treated for four weeks at the surgical department and after that, if it is necessary, they are sent to the medico-mechanical department for functional treatment. Several patients came to us at the end of three weeks and very few at an earlier date. The splints had usually been omitted on the day they were seen first.

The clinical picture in such cases is rather typical: The forearm is somewhat flattened from the pressure of the splints. On the side of the forearm there is noticed more or less edema and often a distinct discoloration from unabsorbed hematoma. The back of the hand and especially the fingers show, as the rule, a considerable swelling. The circulation of the hand is poor. By palpating one notices the infiltration about the tendons, especially on the palmar side of the wrist and forearm and on the back of the hand and fingers. There is often noticeable an infiltration about the interphalangeal joints. In all cases the hand and fingers are very weak, and in the vast majority considerable limitation of the motion of the fingers will be noticed.

A typical example is the following case:

Case 1. Woman of 55 years, in good general health, came to the accident room on Aug. 8, 1912, with a Colles' fracture, which was reduced under gas. Typical antero-posterior splints were applied and removed the next day for control. The bones were found to be in a very good position, the x-ray picture showing only a very slight backward bending.

On Aug. 21 the splints were reapplied.

On Aug. 28 the posterior splint was omitted.

* Read at the Boston Orthopedic Club, February 10, 1913.

On Sept. 5 the patient was sent to the medico-mechanical department. The fingers were then found to be very stiff and swollen.

Within three months twenty-nine treatments were given with but a moderate result. When seen last the patient was not able to bend her fingers sufficiently to touch the palm. The x-ray picture shows a marked atrophy of all bones of the hand and a distinct thickening of the fingers, especially about the interphalangeal joints.

Under appropriate treatment those symptoms clear up more or less gradually, but in many cases the improvement is extremely slow, and then with a decrease of the edema and infiltration the signs of atrophy become more prominent.

The skin loses its normal color and turgor; it is not so movable under the palpating finger as on the normal hand. In cases of long duration the circumference of the fingers may be considerably smaller while in the earlier stages the swelling due to the poor circulation will prevent this atrophy from becoming so noticeable. Most marked is the atrophy of the bones, as seen in the x-ray plate, to which Sudeck has first called attention. The x-ray picture shows a more or less marked loss of lime salts. The trabeculae become less clear and distinct or even may disappear on some places. The degree of bone atrophy is usually greater in relation to the severity of the clinical symptoms.

With an increase in the clinical symptoms we notice the retraction and tightening of the fascia and tendons of the fingers, in bad cases, of the whole hand. The most severe change is usually seen over the end joints and over the proximal joints of the fingers, but in the severe type the distribution may be equally extensive. The skin is then drawn tightly around the fingers, especially on the back side; the extensor tendons on the back of the hand are firm and do not glide under the palpating finger. The flexor tendons seem to be much better protected by their tendon sheaths.

Frequently changes of the joints are noticed. In the milder cases we have only a thickening of the capsule which gradually becomes retracted and forms a firm and tough ring around the joint. In the more severe type the cartilage becomes involved too. Such joints are oftentimes very much thickened, which change becomes the more apparent, as frequently the phalangeal parts of the fingers are thin and atrophic. In many cases where the palpation seemed to suggest a distinct thickening of the phalangeal ends the x-ray plate indicated a normal or nearly normal size of the bones themselves, but showed a faint shadow indicating the indurated capsule. The following case represents a good example of this type:

Case 2. Woman of 54 years, in fairly good general health. The patient has broken her left wrist five months previously and has worn antero-posterior splints during six weeks and an anterior splint for ten days more. At the admission the following note was made: Fair position of the bones, but with the usual backward tilt of the articular surface of the radius. Slight outward displacement of the hand. Considerable thickening of the carpus, pronation free, supination limited, marked limitation of all motions of wrist and fingers. The fingers are held in moderate contracture and cannot be flexed more than two and one-half to three inches from the palm. Also the extension of the fingers is limited. The interphalangeal joints are markedly thickened, while the tissues between the joints show a great deal of atrophy, making the thickening of the joints still more conspicuous.

The x-ray picture shows a marked atrophy of all bones and suggests a narrowing of the interarticular space of several interphalangeal joints. The thickening of the soft tissues around the joints is distinctly seen on the negative.

Fifty-one treatments within three and one-half months did not give a very satisfactory result. When seen last the hand was still markedly crippled and stiff.

In the most severe type we find a distinct reduction of the size of the articular space, due to the atrophy of the cartilage. In cases showing actual hypertrophic spicules a certain amount of such spicules will also be noted on the other hand. Clinically those cases showed the well known picture of hypertrophic arthritis with Heberden's nodes. The following is a typical example:

Case 3. Man of 67 years, in good general health, broke his right wrist on Sept. 16, 1912. The fragments were set at the accident room on the same day under an anesthetic, and antero-posterior splints were applied. The splints were repadded and rebandaged on Sept. 24 and Oct. 1. On Oct. 8 the patient was sent to the medico-mechanical department, where the following notes were made: Motions of wrist almost entirely limited, fingers very stiff, distance of fingers to palm in full flexion about two and one-half inches.

Now, after sixty-five treatments during four months, a functional improvement is obtained so far that the second and third fingers can touch the palm, while the distance of the fourth and fifth fingers in full flexion is still about one-half inch. But on account of the marked limitation of the end joints the fingers touch the palm, respectively come near to it, more proximalward than normally. The wrist shows about forty degrees of palmar and dorsal flexion, the rotation is fairly good. All fingers are much thickened, especially about the interphalangeal joints.

The x-ray plate showed a moderate atrophy of the phalanges of the right hand and a distinct hypertrophic arthritis of most interphalangeal joints of both hands.

The left hand shows a moderate amount of Heberden's nodes over the end joints, but a perfect function and absence of any other clinical symptoms.

I have not been able to find any selective distribution of the arthritis in the various fingers and the various joints of each individual finger; with the exception of the thumb, which is strikingly often less seriously affected than the other fingers.

Immediately after the removal of the splints a considerable limitation of motion is noticed, as has been mentioned above, in most cases. With the diminution of the swelling and the other acute symptoms the mobility usually shows an improvement which, however, is often very slow. In all cases where the atrophic condition becomes prominent and particularly in those showing a marked involvement of the joints, the mobility may be restricted for many months and we have seen a considerable number which did not show a satisfactory function within even years of observation and probably may always have a crippled hand.

In one of the worst cases (see Case 6) which came under observation four months after the injury the four fingers did not move more than about one inch forward and backward. That stiffness may be as bad as in the worst cases of infectious arthritis especially those of the gonorrhoeic type or in a septic hand. The resemblance of the traumatic hand to a hand affected by infectious arthritis is at times so great, that the differential diagnosis can become rather difficult without a knowledge of the history. But in these severe infectious arthritis cases we usually find a more extensive destruction of cartilage and bone with a tendency to the formation of bony ankylosis, which I have not seen in any of the traumatic hands.

The end joints of the fingers are most often limited in motion. Next to them come the metacarpo-phalangeal and last the middle joints, although there are exceptions where all interphalangeal joints are limited in motion, while the proximal joints are practically free. The flexion is more frequently limited than the extension; though a slight limitation of the extension is very frequent. A few cases have shown a marked contracture of the fingers which, however, is rarely as pronounced as in the septic hand. The hyperextension is almost always entirely limited.

As it is stated above, the thumb is usually not so much subjected to secondary traumatic lesions as the other fingers; therefore we find the limitation of motion usually not so pronounced as in the others. Nevertheless stiffness of the end-joint of the thumb is a rather common feature.

The seriousness of the subjective symptoms is about in accordance with the objective changes. In the severe cases the patients frequently complain of much pain and discomfort. They do not know how to hold their hand best. The hand feels cold and numb. Especially during cold weather the patients have great difficulty to keep their fingers warm and comfortable. It is interesting to notice, how much these patients become generally affected by the pain and the crippled condition of their hand; frequently such patients complain in a desperate manner about their constant physical and mental sufferings.

The frequency of the secondary traumatic hand varies considerably with the seat of the injury and with the age of the patient. It is obvious that the danger for the hand increases the nearer the seat of the lesion is toward the hand.

The following may give an idea as to the frequency in regard to the injuries of various parts of the arm. These data represent the first examination on the day when the patient was referred to the medico-mechanical department.

The number of Colles' fractures treated at the medico-mechanical department during a period of three years was 101, the total number treated at the out-patient department during the same period being 217. In 22 cases no notes were made as to the affection of the hand, though we remember several of these cases showing a marked restriction of motion. Of the remaining 79 only (a) 16 patients were able to touch the palm with the fingers, when seen first, and only in 5 cases of those the hand was recorded as normal. (b) 16 cases showed a slight limitation of motion, the distance of the points of the fingers to the palm in full flexion being less than one-half inch. (c) In 35 cases this distance was one-half to three inches and (d) in 12 patients even more than that, up to a nearly complete stiffness of the fingers.

	Fingers show free or nearly free motion.	Distance of points of fingers from palm in full flexion.		
		½ inch or less	½ to 3 inches	more than 3 inches
	Class a	Class b	Class c	Class d
Number of cases	16	16	35	12
Average age	39	44	50	54
Number of cases treated at the hospital from beginning	9	8	16	4
Days of treatment previous to first examination at the medico-mechanical department	28	26	31	26

The table shows the figures in regard to the average age, the number of cases treated at the hospital from the beginning and the average time of treatment previous to the first examination at the medico-mechanical department. Among the 35 cases of class c the record gives the note: "position good, resp. excellent" in 12 cases. In class d the same note was found in three cases.

In the fractures above the lower end of the radius and ulna the cases are recorded for one year only. Of 20 fractures of the shaft of one or both bones of the forearm no note as to the involvement of the hand has been made in 12 cases. Of the remaining 8 cases 5 showed a more or less marked lesion of the hand, while in 3 cases the hand was normal.

In comparison with fractures of the wrist and forearm injuries of the elbow show a much smaller percentage of secondary affection of the hand. An exception to this occurs in fractures

of the olecranon, where there seems to be a greater tendency towards such affections. This may be due to the fact that with the ordinary treatment the arm is fixed for a relatively long time in an extended position, in that way preventing the fingers from early function. Of 19 fractures of the elbow, in patients older than 16 years, 5 presented an affected hand; 3 of these cases were fractures of the olecranon. A typical case was the following:

CASE 4. Man of 70 years, who was seen two months after sustaining a fracture of his olecranon. The elbow showed motion from 170 to about 140 degrees. The fingers of both hands showed a marked hypertrophic involvement, with typical Heberden's nodes; but while the function of the left hand was perfectly normal, the fingers of the right hand were considerably limited in motion, the distance of the points of the fingers from the palm being about three inches in full flexion. The gain in motion of the elbow and fingers under a two months' treatment was but very slight.

Injuries of the shoulder again show a somewhat higher percentage in regard to affections of the hand, than those of the elbow. There seems to be a definite connection between the shoulder and the hand. Not only that many cases of injuries or infectious processes of the shoulder lead to a secondary affection of the hand, but also many patients with hands seriously affected from an injury or a local infectious process complain of pain in the shoulder joint or even present more or less restriction of motion in that joint. Of 35 cases of fractures of the upper end of the humerus 12 showed an involvement of the hand. Two of those cannot be counted in this connection because of a simultaneous fracture of the wrist.

As to the age of the patient there can be no doubt that with the advanced age the disposition to primary and secondary affections of joints, and of the hand in particular, is increased. All text-books on fractures and dislocations agree in this respect. However, the number of relatively young patients, with perfectly normal joints, aside from the injured extremity, who came under our observation suffering from most serious affections of the hand, is not small. I would furthermore say that in some of them the primary treatment was applied by the best surgeons; some of those cases were treated from the first day at our hospital.

As we have mentioned before, it is a fact, that patients with the typical Heberden's nodes are especially vulnerable. In many of such cases the hand of the injured side will show the thickened joints similar to, or more frequently somewhat worse than on the other hand. But almost always we will notice, that the limitation of the function is much greater than on the other side. This, I believe, cannot be explained by an aggravation of the joint symptoms alone, but, as I have said, by the greater vulnerability of all tissues.

Whether there is actually an individual and a racial disposition to such affections I do not dare to state objectively, but it has frequently been my impression.

CAUSES.

For the description of the etiological factors the Colles' fracture has again been chosen as the most typical and most frequent example.

The following may be considered as causes of the secondary traumatic hand:

1. The primary injury.
2. The hemorrhage.
3. The forcible reduction of the fragments.
4. The faulty application of splints and dressings.
5. Too long duration of fixation, and
6. An ill-judged after-treatment.

1. As to the primary injury very little need be said. In the first place it ought to be expected that the danger of a secondary affection of the hand in Colles' fractures or similar injuries is increased with the seriousness of the trauma. But it does not always seem to be that way. There are a number of cases where the affection of the hand was but slight, while the clinical picture and the x-ray plate indicated a severe damage to the bones and vice versa.

2. Next to be considered and, in the writer's opinion, of great importance, is the hemorrhage. The absorption of the blood with which most tissues are soaked, not rarely to a considerable distance from the point of the fracture, is at times very slow, especially when the natural resources of absorption are to a certain extent inhibited by preventing the muscular action. An irritation and often a marked inflammation of the soft tissues may follow which often leads to a formation of fibrous tissue with secondary retraction and atrophy of the muscles, tendon sheaths, ligaments and capsules.

3. The reduction of the displaced fragments under an anesthetic represents another injury which, however, may be but slight, if it is done with sufficient skill and care. While it must be the effort of the surgeon to obtain as good an anatomical adaptation of the bones as possible, it should be kept in mind, that the functional cure does not depend upon the exact reduction alone. In many of the most seriously crippled hands due to a Colles' fracture, the bones were found to be in a most excellent position. Occasionally I have found a note on the record as following: "Position excellent, hand useless."

The danger of a new injury is increased if the forcible reduction is made several days or even weeks after the accident. The advantage of a late reduction in a Colles' fracture is any way doubtful. Stimson says: "A few cases have been treated by refracture or by incision and osteotomy. I doubt if anything more than an improvement in appearance can be gained thereby; the causes of loss of function cannot be thus removed." Scudder is in favor of an open re-

duction in badly set Colles' fractures. I remember several cases where the effect of the late reduction on the position of the fragments was slight or nil, but where the secondary inflammatory effect on the hand was dreadful, certainly delaying the patient for months in his recovery.

4. Nearly all our patients with Colles' fracture have been treated with the double anteroposterior splints, perhaps the most simple way of splinting. I think Cotton is right in saying, that the result does not depend so much on the kind of splints, as on the manner in which the splints are applied. But with all that we must not forget that *all* splinting does some harm, and it should constantly be kept in mind to lessen this harm as much as possible. Experiments of Reyher have shown that long splinting of normal extremities exerts a certain deleterious influence upon all tissues, most notably the muscles, joints and bones. As to the bad influence of splinting, especially long continued splinting, in injured extremities we do not need any experiments. We see such cases daily in our clinics. The bad influence of fixation in a fractured limb is that the speed of the absorption of the hemorrhage is diminished, the circulation is decreased, the nutrition of all parts interfered with to some extent, and the muscles and joints are deprived of the beneficial effect of the functional stimulation.

The tight bandaging apparently presses away a part of the hematoma, but it acts chiefly on the surface. As it was stated above, one can frequently notice, that after the removal of the splints the arm does not show much swelling, but palpation of the tendons will show the distinct infiltration of the deeper parts.

5. The time of fixation plays a distinct rôle in causing and maintaining post-traumatic lesions of the hand. There is no full agreement among the authors as to a reasonable time of fixation in cases of Colles' fracture. Eisendrath recommends four weeks and this has been the average time of fixation used in our clinic, although after the third week one of the splints has usually been omitted.

Cotton says: "Only in rare cases of delay in union, in cases with very great damage to bone and soft parts, can there ever be need of anything more than a protective splint after two weeks."

With the French method of Lucas Championnière no splint is used at all, the patient's hand being put in a sling only, a method which has not come in favor in this country.

In many cases treated outside of the hospital and sent for an after-treatment to the medicomechanical department splints had been worn for six to eight weeks and even longer. Some of these cases showed a very severe affection of the hand and did not give a satisfactory result. However, it must be admitted that there are seen cases with very slight affections of the hand and slight or no limitation of the motion of the fingers in spite of a prolonged use of splints, while, on the other hand, in several of our worst cases the time of splinting had been three weeks only or even less.

But in general it seems, that unnecessary long use of splints is apt to increase the stiffness of the joints and the retraction of the muscles and to make the time of after-treatment longer and the final result poorer. But, to be sure, the main question is not, how long the broken limb has been fixed in splints, but how the splints have been applied, and in what way care has been taken for the injured soft tissues.

6. How much ill-judged after-treatment may favor the development of the traumatic hand will be considered in the last chapter.

The foregoing classification of etiological factors is made in regard to the Colles' fracture as a typical example. Conditions are similar in fractures of the shaft and even of the upper end of one or both bones of the forearms. In fractures of the humerus, especially those of its upper end the too long and too tight fixation seems to be the main cause of a secondary affection of the hand, though the influence of the primary injury and of the hematoma may also come in consideration. A number of our cases belong to that type of patient who is in fear of any motion and holds the fingers constantly stiff.

PROGNOSIS.

The prognosis of the secondary traumatic hand is in the majority of cases favorable. It is difficult to obtain exact statistics as to how long it will take for a stiff hand to regain full motion and strength, since many out-patients do not notify us, when they want to discontinue the treatment. But it is still a rather large number of patients who get out with a more or less crippled hand. Certain cases which I have had a chance to follow for many months and even for years did not show a satisfactory result. The end result is usually poor in those cases where Heberden's nodes have been present before the accident, but also a number of such cases, where the stiffness was largely due to retraction of the soft tissues and not so much due to actual changes in the cartilage and bones, have shown a progress so slow, that I felt sure, they never would get anything like a good functional result.

TREATMENT.

In considering the treatment we are confronting two questions, the first, how to prevent, and the second, how to cure the secondary traumatic hand. From all that is said above, it is obvious, that the first question is the most important one. Preventive measures have to be begun as soon as the patient is seen. It is not the idea of this paper to criticize in general the treatment of fractures of the upper extremities, but the present subject brings up necessarily a certain criticism of that treatment in

regard to the lack of individualization which, I believe, is prevalent in this kind of surgical work. Certain conditions which may be simple and easy to cure in youth may present a difficult problem in older people, therefore, in older patients and in such showing otherwise a tendency to arthritic conditions, careful precautions should be taken. First of all, the reduction should be attempted with the greatest skill. It should not be the aim to obtain an excellent position of the fragments *under all conditions*, but the functional problem should guide the therapeutic measures. These principles are also of importance in regard to the dressing. Whatever material and method is chosen, the pressure by the splints should never be too great. It is better to have the bones even slightly displaced than to do damage to the soft tissues which may be irreparable.

Of the greatest value in such cases is the early treatment with massage and exercises. In a number of cases where I have carried out this form of treatment I have been always very much impressed by the speed of the absorption of the hematoma and by the ease with which movements can be made even at an early date. My technic has been as follows: After the reduction of the fragments the arm and hand are put on a Schede's splint in palmar and ulnar flexation. On the following day the dressing is removed, but the hand is not lifted from the splint which is put, with the hand on it, on a table or on the operator's knee. While the one hand of the operator holds the patient's wrist tightly, but without hurting it, the other hand gives a number of soft stroking manipulations over the muscles of the forearm, as far as can be reached, and over the back of the hand. After that the dressing is reapplied. On the next day the same treatment is given, adding a few passive movements of the fingers. The hand need not be removed from the splint, when the latter is correctly applied, allowing the fingers a free play. (This point is, in my opinion, of great importance. It is absolutely unnecessary and is decidedly dangerous for the function of the handy to apply the splints in a Colles' fracture or similar lesions beyond the middle line of the palm.) The stroking is given somewhat more vigorously and kneading manipulations are added. I also do a few movements of the wrist, as early as on the fourth day. If that is done with sufficient care it does not cause any pain; loosening of the fragments is hardly possible, when the wrist is firmly held upon the splint. Such treatment which in the first days does not require more than a few minutes ought to be given every day or at least every second day, increasing each time the amount and number of motions.

The treatment of the fracture of both bones of the forearm is always a difficult problem, and I have no personal experience as to the early use of massage and exercise in such cases. Deutschlaender, one of the strongest advocates of that treatment, reports cases with a most splendid result obtained in a time, much shorter than by the usual methods.

I have lately treated one case of a fracture of the shaft of the radius, beginning massage of the forearm and hand and exercises of the fingers on the seventh day. The patient made a perfect functional recovery within five weeks from the accident.

In cases with delayed union in Colles' fractures as well as in fractures of the shaft of one or both bones of the forearm fixation is necessary until firm union is obtained. But as I have emphasized,* it is wiser to begin massage and functional treatment, especially of the fingers before union takes place, because not only the union may be hastened by such treatment, if it is done with the correct technic, but also the function can be and ought to be restored while waiting for the union of the fragments. A typical case was the following:

Case 5. Young, healthy man of 30 years with a fracture of the radius about three inches above the lower end. The patient was treated in the routine way with antero-posterior splints after reduction of the fragments. Since the union took place rather slowly the forearm and hand were kept in splints for over five weeks. Then the patient was sent to the medico-mechanical department for after-treatment. The forearm showed about fifty degrees rotation, the wrist was nearly stiff and so were the fingers. The x-ray picture taken eight weeks after the injury shows a marked atrophy. Since it is a young and healthy patient, the outcome will probably be favorable, though a long continued treatment may be needed. The better way in such a case would have been to start massage and careful functional treatment at the end of the second week or earlier. The time of the after-treatment probably would have been cut shorter by that way.

Nothing need be said about the fractures of the lower end and shaft of the humerus, because of the relatively rare occurrence of secondary involvement of the hand according to our statistics. In fractures of the upper end of the humerus the routine treatment after reduction of the fragments has been fixation of the arm for about four weeks. If it is not possible in such cases to use the traction method which, according to Bardenheuer, Peckham, and others, gives better results in a much shorter time the treatment should at least be made more active.

The following method has been found to be of value in such cases: On the third or fourth day the dressing is removed while the patient is sitting on a chair. The operator puts his hands from both sides on the shoulder, thus controlling the fragments and at the same time exerting a certain pressure over the swollen region. Now the hands perform slight rotary movements, very gently, but with sufficient pressure. Then with the hands still in the same position a kneading of the deltoid muscle is done with the thumbs which grasp one part after the

* C. H. Bucholz: Treatment of Fractures with Delayed Union. Boston Medical and Surgical Journal, July 22, 1909.

other and press it gently with rotary movements. After that a thorough kneading of the trapezius and of the muscles of the upper arm is done with one hand, while the other hand controls the fragments. After reapplying the dressing on the shoulder massage of the forearm and hand should follow, if needed. This treatment is given every second day or oftener and exercises are started, as soon as a partial union is noticed, which is, as the rule, after two weeks.

A few words may be added on the early use of massage and functional treatment in fractures and dislocations. Most of the competent authors feel there is something good in it, but they are not yet ready to recommend its general use. Cotton expresses his standpoint in saying: "We are hardly educated to this yet, and, if we were, most of us have no masseur, to whom we are ready to intrust cases at this period." He enumerates the following dangers: "Imperilling of the reposition, delay of union and irritation to joints." There can be no doubt that all three dangers are present, but in the hands of a skillful surgeon, and only the surgeon himself should do this work, they are very slight. As to the slipping of the fragments I have never seen a case myself. As to the delay of union my experiences have shown just the opposite result in hastening the cure in fractures with delayed union by massage and functional treatment. The danger of irritation of joints is in my own experience the greatest of the three dangers enumerated by Cotton, but, I do not think, it is greater, if the exercises are done one week, than if they are done four weeks after the injury. In fact, it seems to me that we can do exercises of joints, remote to the point of the fracture, more easily and with less risk of irritation on the fourth or fifth day than after the fourth or fifth week when, as a rule, functional treatment is started.

The second question is: What can be done with the secondary traumatic hand? The answer is very simple: In the milder cases a good functional result can be obtained by a persistent use of baking, massage, active and passive exercises, etc.; in the severe cases the hand will remain more or less crippled.

It is certain that many of such hands will come out all right without any after-treatment, and in general it seems better to leave them alone, than to send them to a masseur, who is not perfectly familiar with the subject. From my experience I have gained the impression, that such hands are very susceptible to an inflammatory reaction, when they are handled without proper care. To frequent forcible manipulations the tissues of such hands respond with swelling and pain which at times may be very persistent. I remember cases where the pain, caused by too rough handling, prevented the patients from sleep and brought them to a terrible stage of nervousness and exhaustion. Under a careful combination of light fixation, baking, and massage, the acute symptoms will subside within a week or two and after that exercises may be started again.

One case of this type was especially instructive to me.

Case 6. Woman of 52 years, who sustained a Colles' fracture four months previously. The fragments were reduced to a good position and the arm and hand splinted in the typical manner for nearly seven weeks. After removal of the splints the hand and, more or less, the whole arm were much limited in motion, and a masseuse was ordered to give massage and exercise treatment. As the patient told me, these exercises have been given so forcibly that her cries from the intense pain alarmed her neighbors. I saw the patient, after this form of treatment had been given for two months every day. The patient was very much exhausted and nervous. She did not sleep very well on account of pain; she had no appetite, and had lost in weight.

When seen first the whole left arm was held entirely stiff. The shoulder was limited in motion about two-thirds; the elbow one-half, and the wrist almost entirely. The fingers were so stiff that the points moved passive only about one inch forward and backward, active even less than that. It seemed hardly possible that the masseuse had been able to bend the fingers down to touch the palm only a few days previously. By a careful treatment with baking, massage and gentle exercises the motion in the shoulder and elbow were nearly entirely restored, while the forearm and hand showed a marked limitation of the motion even after five months of treatment.

The technic of massage in these cases is not difficult, but it cannot be learned from books. The best and most valuable thing in massage, the fine touch and the knowledge how much force and pressure is used in the individual case and on the different parts can be learned by practising only.

Exercises are best given in the form of resistive movements which at times may be supplemented by gentle passive manipulations. In cases with marked inflammation of the joints and ligaments, it is not advisable to give the exercises with the idea of a visible gain in motion under every day's treatment, but it is better simply to move the joints with a certain resistance as much as the movements can be done without pain. At least the pain should not persist for more than a few hours. If in spite of all care the symptoms of inflammation become increased, it is better to stop the exercises for a while. Under application of hot air, local warm baths and massage the acute symptoms usually subside within a week.

The forcible manipulation under an anesthetic has, in my experience, been found to bring up a decided danger. It is liable to produce a severe inflammatory reaction and may delay the recovery for weeks, if not at all reducing the outlook for a good result. In former years I have tried forcible manipulations under gas in several stiff hands, but have now entirely abandoned this method.

What finally becomes of such bad hands I am unable to say. One patient who came under our care nearly three years ago with a hand perfectly stiff in full supination, due to a poorly treated Colles' fracture two years previously, has gained so much by a fairly regular treatment, that she is now able to use her hand for most necessary occupations in daily life, though she cannot bring her fingers nearer than two inches from the palm. Many cases will probably improve in the long run, but even if the full function is finally restored, the sacrifice has often been greater than might have been necessary.

The idea of this paper has been to draw attention to the secondary traumatic affections of the hand and to make suggestions how to reduce the number of such cases. We shall do so, when we direct the treatment towards the functional cure from the very beginning, when we learn to individualize, and when we never forget, that we have to deal with living tissues which will react upon traumatic influences with inflammatory processes. To avoid the inflammation and, if it is not possible, to check its disastrous consequences in time, will give better results at the end.

HEAD INJURIES OF THE NEW-BORN.

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The recent post-mortem findings of so many cases of meningeal lacerations of the new-born opens up a new and wide field for thought and investigation. It is not for a moment to be assumed that the obstetrician of today is less skillful or more careless than his predecessors in the use of the forceps, but rather that the subject is receiving very careful attention on the part of the pathologist and the brain surgeon.

It is conservatively estimated that in cases of forceps delivery, from 30 to 40% of the infants so delivered suffer more or less from intracranial hemorrhage. True, many of these cases fail to show any ultimate effects of such lesion, but a sufficiently large number either succumb quickly or show remote effects, to warrant the warning which is now being agitated.

The advent of the obstetric forceps created no small furor in medical circles; they were variously condemned, lauded, damned and defended, only to take their place finally as an indispensable requisite to obstetric practice.

But after all these years of popular favor, we are now obliged to bring against them an indictment, based upon new-found evidence. While this evidence does not condemn the forceps in toto, yet it seeks to place restrictive measures upon their too general or indiscriminate use.

It is now generally conceded that where the dilemma arises of choosing between a protracted, difficult forceps delivery, especially those requiring great traction, or a Cesarean section, the safety to both mother and child is materially enhanced by resort to the latter.

Just a word as to the manner in which these hemorrhages take place. First, it is to be noted that in the autopsies mentioned, the majority of cases showed the hemorrhagic centres to be in the parietal or frontal regions, close to the longitudinal sinus. The second most frequent centre was just above or below the tentorium, or in the tentorium itself. When the parietal bones are made to overlap in an exaggerated manner, as they must do in a difficult forceps case, there is an extensive peeling off of the dura on one side, and of the periosteum on the other side. This allows a blood clot to form, which, if not extensive and conditions are favorable, will be absorbed without any ill effects; but if there be a continuation of the oozing, and the circulation be somewhat impeded, an intra-cranial local pressure will soon be exerted, which in time causes edema, with a resulting general pressure.

Again, if there be an undue overlapping of the occipital bones, one upon the other, or of occipital upon temporal or parietal, there is quite likely to be a laceration of the tentorium. Hemorrhages occurring in this region are more fatal than those occurring along the longitudinal sinus in the frontal region, from the fact that the medulla is here quickly affected, and asphyxiation results.

But while these tentorium lacerations are the most fatal, they are by no means the most unfortunate, for many of the frontal and parietal lacerations produce clots, which by their continued pressure, tend to destroy the cells of the cortex, producing a porencephalia with all its attending mental defects.

It must ever be borne in mind that the brain of the new-born child has less resisting power than almost any other tissue in the body; it is soft, is but poorly medullated, and will disintegrate quickly if there be any circulating disturbance.

Could we insert a window in the skull of the new-born, which had become the victim of a cerebral laceration, we would note changes something after this manner: If the bleeding were epidural, we would see a gradual ooze from the meninges, with coagulation and steadily increasing pressure. In the course of a few hours the ooze would cease, owing to the increasing pressure. After three or four days there would be a change in color of the clot from a deep red to a brownish red, and later to a light brown. Then the clot would begin to grow smaller as absorption took place, and change from a solid to a semi-solid body. Later it would appear to dissolve entirely, and a serum take its place.

If now we could continue our observation, we would notice nature's attempt at curing by throwing a wall around this serum and making

a cyst of it. This wall would be of a yellow color, quite a contrast to the cortex, and could be easily removed did we know its exact location. It is at this stage particularly wherein nature calls so loudly for help in removing the offending cyst. She is signalling to us by causing the patient to undergo epileptic seizures, exhibition of local paralyses, mental disturbances, or special sense perversion. Failing to attract our attention to the exact seat of the trouble, she surrenders to the inevitable, which is a destruction of the cortex due to the continued pressure and disturbed circulation.

If now we take a fresh look through the window, we will notice an interesting sight. The cortex appears as if it had changed to a substance not unlike bees-wax in its composition, having large pores filled with serum; the delicate pia mater is stretched over these little lakes or cells and the fluctuating fluid can be seen beneath the transparent membrane. It is in fact a degenerated porosity of the cortex, and is now beyond all hope of redemption; neither nature nor man can restore a porencephalic cortex, and the child is either a hopeless cripple, an imbecile, or both.

Let us now go back to the beginning of the trouble and see if we shall be able, by the manifestation of symptoms which the new-born child presents, to recognize the presence, the extent and the location of any cerebral hemorrhage which may have taken place. First, every obstetrician delivering a child under the conditions mentioned, should be prepared and acutely alert to recognize the first signs of cerebral hemorrhage. In the most severe cases the first evidence would be, an apparently dead child. The autopsies conducted by Bauereisen at the Kiel Maternity, Vienna, show quite conclusively that nearly all the still-births of that institution were such, not because of asphyxiation due to the protracted delivery, nor because of misplacement of the cord, or any of the other heretofore assigned causes, but solely because of intra-cranial hemorrhage, especially hemorrhage at or near the medulla; and he lays special stress upon the dangers, in the old practice, of swinging the child's head downward to resuscitate it, or of handling it in any manner so as to increase the intra-cranial hemorrhage, which is already going on. He reports the details of eleven cases of cerebral hemorrhages out of 47 autopsies on infants, all of the eleven cases having been instrumental deliveries.

If, therefore, the new-born child appears to be dead, and does not respond to the usual methods, such as clearing the respiratory passages, immersing in warm water, friction, etc., intra-cranial hemorrhage should be suspected, and the remedy applied as later suggested.

If, on the other hand, the child breathes but gives signs of low vitality, the following symptoms would be suggestive of cranial pressure: Undue protrusion of the fontanelles, pallor of the skin, deviation of the tongue, head drawn backward, convulsions, impeded respiration, such as Cheyne-Stokes, or respiratory irregularity in any form. If the child survives the first few weeks of life, and the clot continues to cause irritation, nature again runs up her distress signals in the form of a different set of symptoms. They are these: Difficulty or inability to swallow, inequality of the pupils, frequently recurring convulsions, spasmodic screams, continued restlessness or drowsiness amounting almost to coma, muscular insufficiency, especially an inability to support the head. Still later comes the evidences of paralysis if the clot be in or near the motor area. If the child continues to live, the real tragedy in that family has only just begun. Each succeeding act plunges all the characters into deeper gloom and despair, and usually the last scene is not the hoped-for death of the victim, but rather the premature death of the over-wrought and saddened mother, who has carried on her heart and hands the burden of an imbecile or crippled child.

The following picture will act as a composite for the majority of cases of porencephalia following an intra-cranial hemorrhage at birth:—

Case 1. It was a boy whom I had continuously under observation from his infancy to 18 years of age. The birth was a foot presentation, head delivered by forceps with difficulty, large, well developed child, but apparently dead; revived, breathed irregularly, was very weak, had to be fed with spoon, never nursed either at breast or bottle. Did not hold up his head until two years of age, showed signs of right hemiplegia when he tried to creep; began to have epileptic seizures at three years of age, which continued throughout life. Never talked, but made a guttural sound which was intended as an answer; understood what was said to him and would obey; had fairly good memory but otherwise an imbecile; had spastic paralysis of right arm and leg. The mother had never absented herself from this boy, day or night, for those 18 years. When 18 years of age the parents preferred the risks of an experimental operation rather than make no attempt at relief. A trephine opening over the left hemisphere in the motor area showed a condition of porencephalia involving all of the motor area and speech centre; numerous small cysts beneath the arachnoid; the cortex looked honeycombed and was of pale grayish color. This was a case which had passed through the various stages of intra-cranial hemorrhage at birth, clot formation, transformation of blood clot into serum, cystic formation and final destruction of the cortex under the area of pressure. The boy did not survive the operation, as a para-sinoidal sinus ruptured causing a fatal hemorrhage.

We are all familiar with these poor unfortunates; they present much the same appearance, simply differing in minor details. The mentality is about nil, speech absent or but indifferently present, usually a spastic paralysis of one arm or leg, or both; epilepsy present as a rule.

When we realize the havoc wrought in a home by such a tragedy, we become deeply impressed

with the great responsibility resting upon the accoucheur, and the possibility of finding some remedial agent which shall spare a household this deep sorrow.

The first question to present itself is, how early must such a lesion be recognized in order that it may be cured by operative measures? Unfortunately, no hard and fast rule can be laid down, owing to the varying degrees of resistance in the brain of different individuals. A clot pressing upon the brain of one child might cause a porencephalia within two or three years, whereas in another, such a condition might not ensue for six years. But generally speaking, there is little hope of affecting much improvement by surgical measures after a period of six or eight years. Much the same rule applies here as in epilepsy. After the epileptic habit has become established for ten years or more, even though it be of a definite traumatic origin, it is rare that a cure is effected, notwithstanding that the cause of the seizures may be readily found and removed. If we cannot state how *late* an operation can be performed with hope of success, we can state how *early* it can and should be performed; it is entirely *safe* and reasonable to operate upon the new-born a few hours or days after birth, with very excellent chances of recovery

Allow me to cite an interesting case as an illustration of this kind of intra-cranial hemorrhage:——

Case 2. This case came under the observation of a Boston surgeon some eighteen months ago. A child of four days old, instrumental delivery, no complications otherwise, a healthy boy of nine pounds. On the third day he became stupid and finally slept continuously. Twitchings appeared in the right hand and leg, also the left eye and left side of the face. The father of the child, being a physician, was easily induced to have a surgeon called. Fortunately the surgeon had been doing some brain surgery, and an exploratory trephine opening was made over the leg and arm centre on the left side of the head. A small sub-dural clot was found and removed, and the child made a good recovery, with the entire disappearance of all symptoms of compression. Eighteen months have elapsed and the evidences are that no further hemorrhage has occurred.

Case 3. I have a record of two other cases very similar in their nature. The youngest child I have operated upon was 3½ years old, whose history was very much as the composite outlined. He had right hemiplegia and impairment of speech, but had developed quite well physically. His condition showed plainly what area was affected, by the paralysis of the right arm and leg, with the involvement of the speech centre. The exposure of his left motor area, through a good sized osteoplastic flap, showed the cystic stage of the hemorrhagic clot. There was some destruction of the cortex adjacent to the cyst, demonstrating the beginning of porencephalia. The cyst was evacuated, but the delicate and friable nature of the cortex would not permit of the removal of the cyst wall. There was, however, much improvement in the use of the arm and leg. The case is still under observation, and I feel quite sure that had this case been operated one year earlier, a complete cure might have been effected.

To show the extent to which an intra-cranial hemorrhage may extend without giving any external evidence on the skull of such hemorrhage, and also as an illustration of how easily overlooked are these cases of meningeal lacerations, I wish to cite another case:—

Case 4. A young, healthy woman, at her first confinement, had a very difficult labor; the pelvis was of normal size, as the measurements showed, but the head was unusually large. The physician was a Boston man of large obstetric experience. He had applied the forceps and worked patiently and skilfully for several hours without effecting a delivery. She was then taken to the hospital and I was called in consultation. A Cesarean section was immediately decided upon, and in a short time I had delivered the child through an abdominal incision. The child responded but poorly, had great difficulty in breathing, was cyanosed and soon showed a marked Cheyene-Stokes breathing. At the end of four hours, the mother having rallied nicely, I decided to operate upon the child, but while we were making preparation for the same, the child ceased breathing, and could not be revived. I later made an autopsy, and found each hemisphere of the cerebrum normal, but in going below the tentorium, into the cerebellum, I found a large blood clot occupying most of the cerebellar fossae on each side. A close examination of the tentorium disclosed a rent of nearly two inches in the median line near the posterior fontanelle. This clot had so compressed the cerebellum, and that in turn had pressed upon the medulla sufficient to cause paralysis of the respiratory centre. It is scarcely possible that an operation in this case would have been successful. But here was a case where the forceps had so compressed the occipital and parietal bones as to lacerate the tentorium and cause an extensive hemorrhage; and yet not a sign of that hemorrhage was visible outwardly, save by an unusual tension of the fontanelles. The mother made an uneventful recovery.

It is in such cases that the death certificate usually reads "still-born" or "inanition," and there the research ends. It would shed a glorious halo of information upon these cases of so-called "still-births," if every one of them were subjected to a necropsy.

Details of Operation. In the most severe cases, the babe is usually comatose or but semiconscious, hence an anesthetic is rarely necessary. If it is necessary, a few whifs of chloroform, administered by an expert, is sufficient. As ether increases cerebral blood pressure, and chloroform diminishes it, the latter for children and babes suffering from brain hemorrhage is safer. The trick of locating the bleeding point is the crux of the whole situation, and this can only be determined by a most careful study of the case by one well up in brain localization: for it must be remembered that the new-born child will show no evidence of local paralysis,

however great or wherever located the hemorrhage.

Procedure. Having selected the site for operation, the scalp flap is turned down and the bone exposed. Every drop of blood which it is possible to conserve should be saved, for it is drops, not ounces, which count with the new-born child. A trephine may be used or not, as seems necessary; if the opening is made near one of the sutures, it will not be required. A little careful use of the chisel or gouge without the hammer will usually affect a sufficient opening for the use of the DeVilbis forceps or heavy shears.

However, there is no objection to the use of the trephine, if it is used delicately. The Hudson drill is too powerful an instrument for use in the babe's skull. If the clot is epidural, it is reached immediately underneath the skull, and can be quickly removed. A little pressure with cotton will generally control any oozing. If the clot is sub-dural, it can usually be felt or seen beneath the dura, and that membrane is then opened and the clot withdrawn. It goes without saying that the hazard of the operation is materially increased if the dura is opened. It is a delicate procedure in the infant, and must be done skilfully. In the great majority of cases the clots are near the surface, and generally near the sutures, and more frequently epidural.

Rapidity, conservation of blood, and delicacy, are the essentials to success in these operations.

It is not, I am sure, exhibiting an optimism born of mere fancy, to express the belief that we shall some day be able to recognize and successfully treat so many of these cases of meningeal lacerations of the new-born, that the tragedy of having an imbecile child grow up in the family in consequence of such accidents, will be of the rarest occurrence.

SELF-MUTILATION BY THE INSANE.

BY J. M. KENISTON, M.D., MIDDLETOWN, CONN.

After consulting all available literature, I find very little said about the propensity of certain of our patients to mutilate themselves. A paragraph, or perhaps a single sentence here and there, is apparently deemed adequate. Attempts at suicide and homicide, and various other morbid and maleficent tendencies are given ample consideration, and justly so.

When an insane person mutilates himself in any way he may not only cause a permanently injurious effect on himself, but he also may inflict great discredit on his medical attendant and the institution where he is treated. Relatives and friends will complain and often cause great trouble to those who have the charge of such cases. Sometimes instances of self-mutilation are exploited in the newspapers, only too often in a distorted or exaggerated manner.

The writer, therefore, feels that a brief résumé of cases of self-mutilation which have occurred either in his own service, or within his personal observation, will have a practical value. By no means do all these cases occur *in* the hospital. Very many happen before commitment.

It is convenient to classify somewhat arbitrarily these cases:—

A—Mutilation of head and neck.
B—Mutilation of body.
C—Mutilation of limbs.
D—Mutilation of sexual organs.
E—General mutilation.

Again, cases of self-mutilation may be divided into major and minor. Among the former we may mention amputation of fingers, hands and feet; emasculation; gouging out eyes; gashing or slicing the flesh; disembowelling; and thrusting one's self into fires. "Cleomenes, King of Sparta, struck with madness, demanded a sword. As soon as he received it he began to cut the flesh off his legs. He ascended to his thighs, from his thighs to his loins, till at length, making gashes in his belly, he died."*

Among the minor self-mutilations are, beating the head, or dashing it against the walls or furniture, causing ecchymoses and wounds; picking various parts of the person with finger-nails, needles, pins, bits of scrap iron, or glass; biting the nails to the quick; removing surgical dressings; self-flagellations; excessive constriction of various parts of the body.

A. MUTILATION OF HEAD AND NECK.

Case 1. R. F., male, colored. This man, who presents all the classical and typical symptoms of catatonia, gradually picked at his right nostril until he finally removed it entirely, leaving a large, cavernous and unsightly opening. Various means to restrain him and thwart his object were futile. If he wore mittens or camisole, he would rub his nose against the side of the bed or the wall. Employing special nurses to keep him constantly under observation did not succeed, as in some way or other he would elude their vigilance for a moment, and tear at his nose. Having finally accomplished his purpose, he seemed satisfied, and for years has contented himself with designing and applying the most absurd and fantastic substitutes for the nostril, such as scraps of rubber or other cloth, pieces of paper, ravellings, and so on. Sometimes he uncovers his nose, and exhibits it, with an air of pride, to his fellow patients and others. As he had numerous religious hallucinations in the early years of his psychosis, he probably mutilated himself in response to an order from some divine being. However, he has never given any explanation.

Case 2. J. S., male, epileptic. This man averaged four attacks of grand mal yearly, with occasional dreamy states (equivalents?). In one of these he cut his neck with a piece of scrap iron he removed from the bed spring. The wound was quite large, making a curved flap about four inches in width, just over the cricoid cartilage, which was not injured. On emerging from his dreamy state

* D. Hack Tuke: Dictionary of Psychological Medicine.

three hours later, he remembered nothing that had happened, and was amazed to find his neck bandaged.

Case 3. F. M., male, epileptic. Has several attacks of furor yearly, during which he will thrust his fingers into his mouth and lacerate the mucous membrane, and will also tear his face with his nails.

Case 4. M. W., female, paranoid condition. After sustaining a slight injury of left eye, gradually enucleated it, the complete extirpation requiring over four weeks.

Case 5. J. R., male. With one movement enucleated an eye, and displayed it, in the palm of his right hand, to the visiting physician on his morning visit.

Case 6. M. D., female, manic. Whenever excited tears her face and neck, and beats her head against the wall, sustaining severe injuries without any manifestation of pain. Often the attacks come on suddenly. Careful watching and special nursing have been quite successful in abating or mitigating these outbreaks.

Several other patients have injured themselves by inserting foreign bodies—as nails, buttons, bits of glass, splinters, rags, etc., in nose, ears, mouth, or even eyes. One woman for years used to stick deeply in scalp over frontoparietal region innumerable pins, needles, and even tacks. At times she applies soft soap as a depilatory. One of her fellow-patients called her a "walking pin cushion."

Milder forms of self-mutilation—rubbing or picking the skin in spots, causing unsightly sores—are comparatively frequent. One man rid himself of three wens by manipulating them with wire rings, pieces of crockery, and handles of discarded tooth brushes. At this writing three women in my service amuse themselves by pounding their faces, thus often causing "black eyes." Another woman for years pounded the top of her head with the seat of a common chair, and now has a marked depression of the skull. No cerebral lesions resulted. Two women cut off, or pulled out, their eyelashes.

B. MUTILATION OF BODY.

In my personal experience this has been very infrequent. One case was of great interest to me:—

Case 1. J. L., male, dementia praecox, catatonic form. On December day he burned his left arm, either intentionally or accidentally, on a radiator. The tissues sloughed, exposing the muscles. It was found that not only was there absence of sensibility (pain) in and around the wound, but also over the entire surface of the body. Reflex action was markedly diminished. The wound healed rapidly, but the analgesia and anesthesia persisted, and soon a new feature appeared. Whenever he was in the hall he would try to get to the radiators, or the hot water pipes, or the gas jets, when lighted, and endeavor to burn himself. When he succeeded, which he occasionally did, he manifested no pain, but usually smiled. Failing to burn himself, he would scratch or tear his skin. He never attempted to injure himself in any other way, and his motive was evidently not suicidal. He was very sensitive to cold, and would cover himself with several blankets, although his room was heated. This propensity to burn continued until his death two years later.

Case 2. C. R., male. On one occasion a large inguinal hernia became irreducible by taxis, posture, etc., even under complete anesthesia. While preparations were being made for an operation, patient reduced the hernia by rubbing it with his rings and other implements, which he had craftily secreted in his bedding. He said: "After using my tools three times, I hit my rupture with the back of my hair brush, and it went back with a big 'blob.' You doctors ain't going to cut me up." Strange as it may seem, no evil results followed this novel surgery, and the patient lived for several years without further trouble.

Several men, all paretics, have lacerated various parts of their bodies, each choosing, as a rule, some special locality, but generally without any serious results.

C. MUTILATION OF LIMBS.

Case 1. J. P., male, epileptic, with aura proceeding from his feet "something like a wave." Whenever possible, he would remove his shoes and stockings. One summer evening, just as the writer entered the ward, he saw patient stoop suddenly, and tear out the nail on each big toe. This was done in an instant, before writer, who was close at hand, could intervene. The mutilation apparently caused no pain, and patient said, "Now, I hope I will have no more fits."

Case 2. A. S., female. Some years ago sustained a Colles' fracture of right arm. She would not wear splints or any dressing, removing them as fast as they were applied. Being very excitable and irritable, she often vented her spleen by pounding the table, or chairs. In this way, she caused a wound over site of fracture. This wound eventually healed, the fracture finally united, and every motion of the wrist and arm was restored, although a moderate deformity persists.

Case 3. H.B., male, a catatonic, who for three years has assumed a very constrained position with marked muscular tension, and who has not spoken more than adozen times during that period, a short time ago, suddenly bit off the distal half of the third phalanx of the left middle finger. The bone, which was cut by the teeth as cleanly as if done by a saw, protruded slightly. Patient would not allow any dressings to remain, but he eventually got a good stump.

Case 4. G. G., male. Whenever possible, would turn on the hot water faucet and scald his hands. He did this on three occasions, notwithstanding the careful vigilance of his attendants. This act seemed to give him pleasure, and he tried in every way to prevent the blisters from healing.

Case 5. M. M., female, melancholia of involution. Without any warning, went to the barn, and with an axe nearly severed her right hand, cutting through all the flexor tendons. An operation, at the Hartford Hospital, by Dr. Philip Bunce, was a perfect success. Patient regained complete use of arm and hand, and only a faint scar is left. She was later committed as insane.

Several imbeciles, with irregular periods of sudden furor, have a habit of thrusting their hands through the windows, thus sustaining, in some cases, very severe cuts. In one case I succeeded in stopping this propensity, by keeping the cuts open for about two weeks, and not allowing them to heal. Several women have forced on their fingers rings much too small, causing extreme swellings, and even cutting through the flesh. Sometimes they have wound pieces of wire about a finger, producing a similar result.

Three men, with residuals of old varicose ulcers of the leg, have scratched and dug the scars until they succeeded in reproducing a very fair replica of the original ulcer.

Although not strictly germane, it may be added that many patients will remove surgical dressings again and again, thus causing self-injury, and increasing the tribulations of the physicians and nurses.

D. MUTILATION OF SEXUAL ORGANS.

Case 1. C. McC., male, delirium tremens. Was admitted to New Haven Hospital 16th, inst. (May, 1882), with delirium tremens, and a contused wound of glans penis, which he had inflicted under the delusion of thus expiating some imaginary sin. The local injury resulted in a slough, but under charcoal poultices a line of demarcation is now present. He also labored under a stricture which before dilatation rendered aspiration of bladder necessary; past two days has urinated naturally, but slowly and with effort. At times during the week he has been so violent that he has been confined in a straight-jacket.

May 26. Continues to urinate without aid. Talks rationally and cheerfully; is interested in the healing of the injured penis; tongue looks cleaner. Pulse improving under digitalis. This morning all symptoms encouraging. This afternoon, when all the others were out for exercise, placed what was left of his penis on the foot-board of his bedstead and hammered it with the heel of his slipper until a ragged stump about on inch long remained. Faint from hemorrhage and shock he was found abed almost pulseless.

May 28. Was restrained by muff during the night and given stimulants and milk freely, cold water dressing during the night; cataplasms today. Urinated twice this afternoon. Takes nourishment with relish. Pulse moderately full.

June 10. The mutilated portion of the penis has sloughed off, leaving a granulating surface; patient urinates without difficulty. During the past week has had a general eruption (red maculae in irregular patches) accompanied by some fever, referable appearing.

June 17. Rapidly recuperating. Is abstaining entirely from tobacco, which, as well as alcohol, he has formerly used excessively.

July 7. The wound on the penis has healed. During the past ten days has suffered from inflammation of conjunctiva and cornea, which under anti-syphilitic treatment, with instillations of atropia and zinc, has nearly subsided. Has grown quite fleshy. His mind perfectly clear.

Case 2. K. M., female, imbecile. Has marked erotic tendencies. On one occasion a profuse vaginal discharge, coming on rather suddenly, led to the discovery that she had inserted twenty common hairpins into vagina. These were almost inextricably twisted and mixed together, and had to be cut apart before removal. The mucous membrane had several lacerations, which healed rapidly.

Case 3. M. R., male. Forced a finger ring over penis, causing great tumefaction and edema, and temporarily suppressing micturition. The ring was removed with great difficulty, and some laceration was inevitable. Several small sloughs formed, but eventually recovery ensued.

Two men now under care have a propensity for tying rags and strings around the genitalia, to ward off imaginary evils, in reaction to persecutory hallucinations and delusions. On several occasions, when the constriction was too great, unpleasant symptoms have appeared, necessitating surgical interference. It is now a matter of daily routine to examine these men at least three times daily—morning, noon and night, in order to prevent similar occurrences.

E. GENERAL MUTILATION.

Several of my cases have a tendency to mutilate any or all parts of their persons, sometimes abrading or pounding at the same time various portions of the head, body and limbs, and again taking certain territories in rotation.

I have records of forty-seven cases coming under my own observation where the self-mutilation might fairly be called major cases. Minor cases, such as picking at the skin or parts of the body not covered by clothing—as face, neck, hands and wrists—are not uncommon, especially in the melancholia of involution, and in catatonics. Some patients effect what might be called a secondary mutilation by refusing to wear or by removing necessary medical and surgical appliances, as splints, bandages, trusses, etc. Some of these, not content with the above, irritate sores, abscesses, ulcers and wounds, by applying all sorts of unsuitable materials, as salt, pepper, vinegar, and even urine and feces. These patients give us much trouble and worry, and require *incessant care* and watching. Some can be restrained by suggestion and advice, some (not many) abandon the habit spontaneously, and a small number continue more or less regularly their efforts at self-mutilation throughout life. In every case a careful record should be made, and the relatives and friends should be informed, thus enabling us to forestall unjust and unwarranted accusations.

FECAL FORM.

BY FRANCIS LOWELL BURNETT, M.D., BOSTON.

"Go on, O friend! explore with eagle eye;
Where wrapped in night retiring causes lie:
Trace their slight bands, their secret haunts betray,
And bring new knowledge to the light of day;
Till, link by link with step aspiring trod,
You turn from Nature to the throne of God."

Billsborrow to E. Darwin.

During the course of an investigation into the nature of diet, a feature of feces has come to my notice, which I believe will be of value to Medical Science. Dietetics at the present time is concerned largely with the regulation of the kind or the caloric value of the food; but by the use of this observation the expression of some function of the intestine is taken into account, whereby the amount and the kind of food and the manner of taking it, are apparently made subservient to bodily action and better suited to the animal economy. The observation evidently embodies a principle, for it receives undoubted support from the expression of this function in the dung of many animals; and though the function is only now and then expressed in the form of the human feces, it can be acquired by man. Accordingly the principle is sufficiently suggestive to mention now and go on with, so that additional observations will be made and a more precise and practical knowledge of the function obtained to use in the determination of disease.

Oddly enough, the principle has been applied before in rather a remote science. It was sometime ago, indeed, that paleontologists, working over a few of the fossil beds, found some stones that had a peculiar shape. Almost all of them were round in section and elongated; but some showed a simple laminated structure, while others appeared with one lamina twisted on another. Such curious forms naturally aroused interest, and after an extended study they were finally identified as petrified feces, or "coprolites." To identify them was undoubtedly of value; but Owen takes the matter further and makes an application of the principle.[1] He says the twisted coprolites "indicate by their exterior spiral grooves that the ancient Ganoids possessed the spiral valve." Thus it was ascertained from a study of this mineralized excrement, that these prehistoric fish had an intestine of a spiral form.

A still more striking correlation is apparent, however, from a study of the fresh dung of animals; there is a feature seen in that of one species, which appears also in the others, that is, the dung of many animals is composed of units which have a peculiar shape and arrangement. Such an appearance is commonly seen in horse and sheep droppings, in which the units are irregularly oval and packed together. But the combination evidently changes the shape of those within the mass; for a few animals of a lower order discharge discrete units, and these are uniform in shape and size. The dung of the guinea-pig and the rabbit show this distinction: from the former the unit comes as a cylindrical mass with rounded ends; whereas from the latter, it comes as a rather biconvex mass. Again, the units from the cow and the monkey show still different characteristics, for the dung of these animals is discharged in a compact form and made up of units which are disc-shaped. There is a variation, too, in the dung of the dog and the pig; here the units were evidently oval at one time, but by pressure into a single dejection, they are often identified only by lines in the surface of the mass. With the dog a different form is sometimes seen; that is, the dung appears without any lines or in a soft, formless mass. The cause of this change is not obvious; yet, as the dog is domestic, and the instinct of these animals is sometimes dulled by environment, it may be on account of improper feeding. Of the animals alluded to then, although there are minor variations in the shape and arrangement of the units, it is nevertheless true that different units characterize the dung of many species. Doubtless, further variations may be found in the dung of other animals, but as all of those mentioned show this particular character, fecal form evidently follows a well defined principle in the animal series. And, furthermore, since fecal form is common to these animals, it may be regarded as normal.

On the other hand, if the dung of animals expressing fecal form is normal, how may the varied condition of the human feces be considered? In this variation it is often formless, sometimes it shows a few marks, and rarely it is entirely composed of units. The latter, of course, expresses a function similar to that of the lower animals; indeed Schmidt and Strasburger, who have also observed it, call it "Der Schafkotform."[2] Besides, from repeated observations of a single case, the absence of a foul odor, and little or no indol in the urine, suggest little or no putrefaction of the intestinal contents. And, lastly, from a study of this case and a few scattered observations of other cases, the continued expression of this function by man is apparently associated with a definite condition of the body,—one which is, perhaps, an improved state of well-being. It seems not unlikely, therefore, that fecal form is normal or physiological for man. Moreover, as the foul and formless stool shows the loss of a function the intestine is known to express, it seems probable that it is a pathological product and the indication of disease.

In the light of fecal form, therefore, it seems possible to determine a disease caused by the putrefaction of the intestinal contents. This fact gives a perfectly obvious meaning to a condition for some time known as autointoxication; but it also seems likely, on account of the very general character of this disease, to include other conditions of disease—now very obscure

in origin—within the bounds of its activity. For by accepting the foul and formless stool as an indication of disease, it must be one that is very generally in existence, one that is also exceedingly insidious, and though varying a great deal in degree from time to time, it must usually be rather protracted in its course. As a disease of the intestine, however, it would seem to affect the gastro-intestinal tract primarily; but since a stool of this kind also implies an execessive amount of intestinal putrefaction and gives rise to an indirect toxemia, it seems likely, therefore, that it may cause degenerative or sclerotic changes in many tissues and organs. Being a disease of such varying characteristics, there is only one of known origin that at all resembles it, and this is syphilis in its secondary and tertiary stages; for this infection during these periods may exhibit not only many different lesions of the skin, the mouth and the sensory organs, but also cause morbid changes in almost all the tissues of the body. But though the symptoms and lesions produced by the intestinal disease cannot be fully understood at the present time, what is of more importance is that some of the measures necessary to prevent or cure it have been roughly established.

The cure or prevention of this disease is not accomplished by the use of an intestinal antiseptic or indeed any medicine, but simply by changing the habits of the individual, with fecal form as a guide. And the units only must be the guide, because they alone express the action of the intestinal function by which fecal form is produced. However, more observations are necessary, and the following regulations of diet and other measures favor the performance of this function: Eat slowly and regularly—rarely more than three times a day; avoid an excess of fruit, proteid and sweets; sleep a suitable time; exercise moderately; and evacuate the bowel half an hour after breakfast every day. To eat slowly and regularly is probably the most important of these measures, for by these means the food is properly prepared for digestion, and an excess of it is avoided. Accordingly, if an individual is directed in the adoption of these measures so that the stool changes from what may be regarded as a pathological product to one expressing fecal form, the change also implies a gradual improvement in health, and so prevents or diminishes the activity of a disease causing a general disturbance of the body.

Several instructive inferences have been drawn from observations on the case already alluded to, with regard to the effect produced on fecal form by the action of the body. In the first place, there seems to be a relation between supply and demand, for when little food is ingested and a great demand is made upon it by the body,—especially through muscular activity,—the stool shows a formation in which each unit is distinctly separated from the others. The same kind of a stool is also seen sometimes in the feces of a person convalescing from a severe fever, when the demand for nourishment must, likewise, be very great.

Secondly, intestinal rate evidently exerts some influence on the form of the feces. Intestinal rate may be defined as, "the time taken by any portion of a meal to pass through the alimentary canal"; and to measure it, a person can take some rape seed with breakfast, several tablets of charcoal with luncheon, and some millet seed with dinner. In this way the effect produced in the feces usually distinguishes the mass composing one meal from that of another, for the rape seed appear as black dots in a brown field, the charcoal colors the entire mass black, and the millet seed appear as white dots in a black field. Accordingly, if the millet seed which were taken at seven o'clock one evening can be seen in the dejection at nine o'clock the next morning, the rate is fourteen hours; but if there is only a little charcoal—the substance taken at one o'clock—the rate would be twenty hours, and so forth. At times, a decided variation of rate has been found to take place in the action of the intestine of the case observed; indeed, for several months at different periods the rate was consistently rapid at fourteen hours; then, the stool was significant, inasmuch as it was soft, and the units were irregular in size and shape. In one instance, the increase in the rate was probably due to the excessive ingestion of fruit; and in another, to an excess of muscular exercise and a loss of sleep. During these periods, too, the case experienced a mild depression of the mind, a poor appetite, and a gradual loss of weight. However, when the rate is slower, at an average time of about twenty-five hours, the stool is also changed in character, because it is firm, and the units are large and uniform in shape and size. It may be assumed that this rate is about normal, not only on account of the uniformity of the units, but also because of a keener appetite, the occurrence of peculiar borborygmi when hunger is most acute, and an inherent sense of well-being in the individual. The association of a slow intestinal rate with the more perfect action of the function by which these units are formed in the feces, leads to an interesting suggestion. In animals, there is a function of the intestine known as antiperistalsis, by which the contents of a part of the large intestine is moved backward through the gut. At the present time, this function is not known to exist in the human being. Can it be, then, that the function by which fecal units are formed is simply antiperistalsis?

Thirdly, the borborygmi evidently have some significance. They seem to be associated with what is taken as the normal rate; yet at the same time they apparently bear some relation to the demand of the body for nourishment, for when a good deal of muscular exercise has been taken one afternoon and the amount of sleep has been cut short, they are likely to rumble away in the left lower quadrant of the abdomen before breakfast; but under ordinary circum-

stances, they are likely to be heard late in the morning; though now and then the sensation of them may be felt in the afternoon. When the intestinal rate is too slow or too fast, they are not felt at all. Cannon has also observed them.[3]

Lastly, it is interesting to consider the amount of aliment at the service of the body when the intestinal rate is rapid in comparison to a slow one. To make such a comparison, it is best to take a given time. Take the time directly after the dejection, or nine o'clock in the morning, for instance; then, an individual with a rate of fourteen hours would have a portion of dinner of the previous day and the following breakfast, or one and a portion meal masses at the service of the body, whereas, the same individual, with a rate of twenty-five hours, would allow the body three and a portion meal masses. Accordingly, the amount of aliment at one rate will be more than twice that of the other. May not such a variation have some relation to vital resistance or some other phase of disease? A query of this sort can be answered only by further experimentation, but from the previous observations it seems not unlikely that the amount of food ingested, the demand for nourishment, and the intestinal rate—as influenced by various factors—exert some influence on the form of the human feces.

And so the units may vary according to species; they may vary according to intestinal rate and other factors in man; yet in the order and correlation of fecal form, they seem to express some function of the intestine—some natural law, and should be, therefore, a measure of science.

REFERENCES.

[1] Owen: Anatomy of Vertebrates.
[2] Schmidt and Strasburger: Die Fäzes des Menchens.
[3] Cannon: An Explanation of Hunger. American Journal of Physiology, vol. xxix, March 1, 1912, No. 5.

A SUGGESTION FOR IMPROVING THE TRAINING OF OPHTHALMOLOGISTS.*

BY WALTER B. LANCASTER, M. D., BOSTON.

What provision is now made in Boston for the training of oculists? Suppose you were consulted by a young man whose purpose it was to devote himself especially to ophthalmology. If you went over the ground with him you would find a number of courses in the medical schools here, designed, for the most part, to meet the needs of the general practitioner, and a few short courses for postgraduates, which you would hasten to assure him were quite inadequate to provide for his entire special training if he were ambitious to stand well in his chosen field. By all means he should plan, you would tell him, to secure a position as house-officer at the Eye and Ear Infirmary and it would be well to precede this with a similar position at one of the other hospitals where valuable experience would be obtained in general medicine and surgery and in some cases in ophthalmology. We are not considering now what he might do in other cities. Finally, he should obtain a position in one or more of the clinics, join and take active part in the meetings of this and similar societies, study the literature, and by years of work and study he should arrive at a fairly high proficiency in his department.

What are the weak points, if any, in this scheme? First, let us recognize that some such course of training as this has produced ophthalmologists whom we recognize as men of very high rank in their field. But is it not true that their success has been achieved in spite of defects in this system and after overcoming obstacles? Would not the same efforts have led to still greater achievements had some of the obstacles been removed and the road made easier? Under the present arrangement the ophthalmologist is practically *self-taught*. He gets no systematic instruction as house-officer or assistant. The doors of opportunity are thrown open to him; he may enter freely, but he must not expect to be personally conducted. It is true that such a method of education in any subject develops certain valuable traits. It fails, however, to take the fullest advantage of the efforts, failures and achievements of our predecessors, fails to pass on to our successors the full fruits of our labors, so that as far as possible they may begin where we left off. It is characteristic of an early stage of educational progress and is in short, antiquated, wasteful, inefficient and unscientific. It was abandoned generations ago for general medical education.

The need of something different and better—more adequate—has been felt by many. Edw. Jackson has been writing on the subject and has arranged a course in ophthalmology at Denver—not too ambitious, lest it fail to attract those whom it is aimed to help, but a long step in the right direction. In some other places similar steps have been taken.

I am afraid we are not quite ready to establish in Boston a full course leading up to the degree of Doctor of Ophthalmology or Diploma in Ophthalmology, though I have no doubt it will come in time. I wish to ask what is the chief lack and can anything be done to supply it?

The foundations of ophthalmology are anatomy, physiology and pathology. How does the present method fit a student in these fundamentals? He has had systematic instruction in anatomy, including the orbit and its contents and surroundings, in the medical school as first-year student. It would be well if he could go over again later in his course the chapters of anatomy, embryology and histology with which the ophthalmologist has most to do, but it cannot be said that in this department is his most conspicuous lack to be found.

*Read before the New England Ophthalmological Society, Feb. 11, 1913.

In pathology, too, he has had in the medical school an extensive course making him familiar with the general processes—degenerations, inflammations, infections, new growths, etc.—so that when it comes to the manifestations of these processes in the eye the student is already prepared to understand and appreciate what he meets with in the special pathology of that organ.

Quite the reverse is true of physiology. The whole field of physiological optics is *terra incognita* to the medical student, except for what physics he learned before he entered the medical school and except for a week or so devoted to this branch when studying general physiology as a first year medical student. Ample for the general practitioner, in some cases extraordinarily complete, but wholly inadequate for the master of a special field. For two things must be kept clearly in mind. First that the characteristic and distinguished part of ophthalmology —that part which is not found in any other branch of medicine—is physiological optics. Second that physiological optics covers 80 to 90% of the work of the ophthalmologist, since the examination and treatment of nearly every patient involves the application of some part of that large subject. How large that field is only those who have worked in it know, and many of these hardly realize. The second edition of Helmholtz' Physiological Optics contains a bibliography by Koenig down to 1894. This has 7833 titles, but covers only a portion of the field. You know how references multiply as you approach very recent times. Several thousand would have to be added to bring the subject to date. This shows that physiological optics is a subject which has commanded the attention of workers and writers. Much of this is important and has practical every-day bearings. I believe it will average of higher grade than 10,000 consecutive titles taken from any other special branch of surgery or medicine.

Here, it seems to me, is the weakest link of our chain. Physiological Optics is not a subject to be self taught, and if so taught is apt to be neglected. In the first place, apparatus and laboratory facilities are essential to any adequate study of many parts of it. In the second place, most of us would make far more rapid progress with some guidance and help, and it is of great advantage in view of the ever widening scope of medical education—of all learning, in fact—to save time so that less of the field will be left untouched.

I have tried to show that physiological optics is exceedingly important but sadly neglected. I know I have put the case too mildly, but I rely on you who know the facts to add the emphasis you see is needed.

What should be done to remedy this lack? It seems to me that it would be futile to attempt to enlarge the courses on refraction of the type now pretty generally given, courses consisting of some didactic lectures on the theory but chiefly of clinical practice on patients with individual instruction in the use of the trial case, retinoscope, etc. What is really needed is a course of a different type, something laying the foundations broadly and deeply, securing a familiarity with the scientific work that has been done by others, and cultivating as far as possible the scientific way of approaching and solving a problem. A course divided between laboratory and clinical work, giving about two-thirds of the time to the laboratory and one-third to the clinical side, thus securing the scientific point of view and methods of work of the laboratory, and the interest and practical features of contact with patients. A very few patients examined with great exhaustiveness and exactness will be found more profitable, especially at the beginning, than the same amount of time spread over a large number necessarily more superficially treated. It should be more comprehensive, by which I mean that it should include not only errors of refraction and movements of the eye—admittedly the most important part of the subject—but also all other chapters of the large subject in due proportion.

Here is a list of the chief topics to be considered; they should require not less than 300 hours of work besides reading.

	HOURS.
Review of physical optics Dioptrics of the eye	25
Ophthalmometry Ophthalmoscopy Retinoscopy	25
Accommodation Mydriatics	20
Hypermetropia Myopia Astigmatism Presbyopia	100
Binocular vision External muscles of the eye Squint Heterphoria	60
Color sense Pupil Visual fields	25
Light sense Photometry Problems of illumination	30
Psychological problems	15
	300 hours

This program is tentative; suggestions and criticisms will be welcomed. It is not to be supposed that such a brief course will cover fully the whole great field of physiological optics. It is only an introductory course, and it is hoped that a fair percentage of the students taking it will pursue some portion of it further in a more advanced course with research work.

The question may arise whether it is not too dry and unattractive a subject to expect men to choose such a course in it. On the contrary, I believe that it can surely be made deeply interesting to any one who is preparing for ophthal-

mic practice. Like many another subject, when touched upon superficially it is dry and devoid of interest. When one digs below the surface, gets at the heart of the matter, begins to see its bearings and why men have spent so much time and thought on it, then a flood of light is let in and he sees how it applies to and illuminates his every-day work. Not only is the science made interesting, but interest is added to his daily use of it in his practice because he does his work understandingly instead of by rule of thumb. He will probably be interested, even to following up some of the purely scientific problems which have no immediate or obvious bearing on his practical work simply because his scientific curiosity is aroused and he wants to satisfy it. To be sure, there are mathematical methods of treating some of the problems that are far beyond those of us who lack a working knowledge of the higher mathematics. This part of the subject would have no place in such an elementary course as I have outlined. Indeed, it is far from being a large and important part of the field of physiological optics; its importance has been exaggerated as the unknown is apt to be. It can be omitted much better than many other parts of the subject.

Let us make the course interesting because vital, practical, full of contact with the daily problems of the practicing ophthalmologist, by judicious mixing of laboratory and clinical work. But beware of crowding out solid, exact, sound learning and the development of mental fibre and capacity by too eager an effort to free the course from the need of concentrated application—hard work, in short. Even a child will work like a beaver at toy or task if thoroughly interested. Whoever confesses that these things have no interest for him, confesses that he is not interested in what will constitute 75 to 90% of his private practice in ophthalmology.

There are chapters of physiological optics, such as refraction, which require some understanding of geometry. This is for us the irreducible minimum of mathematics, and anyone "who has no stomach for that, let him depart: his passport shall be paid and crowns for convoy put into his purse." He has made a mistake in choosing ophthalmology as his field of labor.

Clinical Department.

AN OPERATION FOR THE CURE OF VAGINAL HERNIA.

BY HOWARD A. LOTHROP, A.M., M.D., BOSTON,

Assistant Professor of Surgery, Harvard Medical School; Visiting Surgeon, Boston City Hospital.

Hernias through the pelvic outlet are rare. They occur in adult life and, of forty cases collected by Macready, thirty-four were in women. The pelvic outlet is protected by the pelvic fascia and the levator ani and coccygeus muscles, which form a sort of diaphragm, and through this pass the rectum, vagina and urethra. If this diaphragm is deficient in one place or another, the abdominal contents would tend to be forced through, and thus give rise to a hernia. But, contrary to what might be expected, because of its low position and structure, these pelvic herniae are infrequent. Herniae have been observed coming through different parts of the pelvic outlet, and have been named according to their anatomic situation but, because of the variety of names, there is some opportunity for confusion. For example, in *ischio-rectal* hernia the tumor enters the ischio-rectal fossa, in *pudendal* hernia the tumor comes through the labium majus, in *perineal* hernia the perineum of the male is the site, in *rectal* hernia there is a protrusion into the rectum, in *obturator* hernia the swelling comes through the obturator foramen, and in *vaginal* hernia the tumor enters the vagina.

So few cases of each variety have been observed and treated that there is only meager evidence of their nature and practically no definite method of treatment.

The following case illustrates the type of pelvic hernia passing down behind the uterus in the fossa of Douglas, pushing the upper portion of the posterior vaginal wall into the vagina and then out the vulva. This is the variety which has been called vaginal hernia:—

This woman is 41 years old, short and rather fleshy. Her general health has been good. As a result of childbearing, there was some perineal laceration. For several years prior to July, 1908, she noticed a swelling which presented at the vulva when she was sitting or was on her feet but which disappeared when she lay down. She suffered from backache and general pelvic discomfort. On the above date she underwent, at one of the hospitals, an operation for rectocele, cystocele, lacerated cervix and prolapse of uterus. These lesions were repaired and the uterus was suspended to the abdominal wall. She made a good convalescence, but as soon as she was on her feet the same swelling appeared at the vulva. In December, 1908, at another hospital, she was operated upon for a rectocele. Again the same swelling appeared at the vulva as soon as she was out of bed. About one year later she gave birth to a child and the labor was uneventful. Her condition remained unchanged as time went on, except that the swelling at the vulva became slowly larger. It was difficult for her to get about with comfort, and the surface of the swelling coming in contact with the labia majora became excoriated. She had much backache, but no urinary or intestinal disturbance. She was relieved on lying down and then was reasonably comfortable. I saw her for the first time about September, 1912.

Examination. She is short, fleshy, and in good general health. The abdomen is rather prominent and there is a median abdominal scar. The vulva is normal. When she lay down, the posterior vaginal wall was very lax, and when she strained this was pushed forward toward the vulva. When she stood this wall was forced out the vulva and made a tumor the size of a fist, which reduced itself on

recumbency. The general appearance was that of a large rectocele, but, profiting by the previous experience of two surgeons, this tumor was examined more carefully with patient in the standing position. The contents of the tumor were lobulated, seemed more or less solid, and could be pushed up away from the vaginal wall, leaving it as a sort of sac. Moreover, the finger in the rectum did not enter the tumor and the rectum itself did not appear to be dilated. The perineum, having been repaired twice, was in good condition. I was led to believe from her history and these observations that the condition had been in the past and was at present that of a vaginal hernia. Having no precedent for operation, it seemed best to explore the pelvic cavity from above and then be guided accordingly.

Operation. Median abdominal incision. The fundus of the uterus had remained adherent to the abdominal wall just above the bladder. At the previous operation a gall stone was detected but not removed. At this time numerous adhesions were felt which prevented palpation of the gall bladder. All the pelvic viscera were free, there being no adhesions anywhere. The hand passed down behind the uterus, entered a pouch which easily admitted the closed fingers and thumb and was thus passed through the vagina and out the vulva. This at once confirmed the diagnosis of vaginal hernia, the sac consisting of a lining of peritoneum and outer coverings derived from all the layers of the posterior vaginal wall. The neck of the sac was large and in the median line. It was obvious that the contents were small intestine.

Technic of Operation. Patient in Trendelenberg position. Median incision. Intestines packed away from the pelvis with long wet gauze strips. The broad ligaments were divided close to the uterus; the anterior half of the uterus was removed down to the cervix, the canal of the uterus being included in this excised portion. The broad ligaments and remaining half of the uterus were utilized later to help form a support to the floor of the pelvis.

The next step was to dissect up the peritoneum from the lining of the sac and deeper portion of the pelvis. A transverse incision was made at the level of the cervix uteri and just behind it, and continued in front across to either side of the pelvis. The posterior edge of the peritoneum was then dissected up and the stripping continued until the rectum and floor of the pelvis were exposed. With care and patience this was accomplished without tearing the peritoneum and the whole lining of the hernial sac was freed. It was obvious that it would be easy to fail in attempting to elevate the peritoneum from the sac and deep portion of the pelvis. This was done by rolling the peritoneum over dry gauze held in one hand, and with the other hand the parts were pushed away, using blunt dissection by means of gauze, smooth forceps or fingers. The peritoneum was moderately adherent to the wall of the sac. It was dissected up from the rectum and laterally to about the level of the cervix. (See diagram.) A cystic right ovary was removed; the other was not disturbed. The lax vaginal wall forming part of the sac, was then pushed down out of the way, to be disposed of later.

A pelvic floor was then made by suturing with chromicized catgut the broad ligaments stretched horizontally across the pelvis and overlapped. The remaining half of the uterus was tilted back over the ligaments, and its two free corners sutured to the pelvic fascia on either side of the rectum, leaving just room for the passage of the rectum. Finally, the peritoneum, which was held out of the way posteriorly, was drawn forward over the floor of the pelvis and sutured to the free edge of the peritoneum in front. Thus the general abdominal cavity was shut off and the pelvic cavity left covered entirely with peritoneum. The abdominal wound was closed by layers in the usual manner.

The next step was the treatment of the posterior vaginal wall from below. Patient was put in the lithotomy position. A curved incision was made, as in the ordinary splitting operation for rectocele at

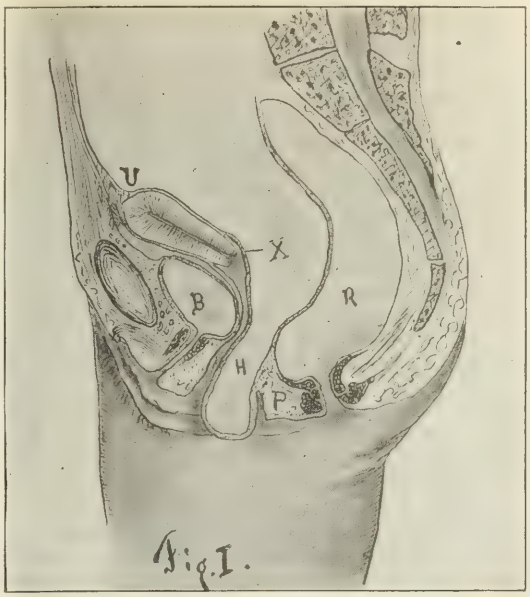


Fig. I.

Sagittal Section showing the Hernia.
B. Bladder.
R. Rectum.
P. Perineum.
U. Uterus, fixed to abdominal wall.
H. Hernial sac, continuous with the general peritoneal cavity.
X. Shows the level of a transverse incision through the peritoneum so as to strip it from the lining of the sac.

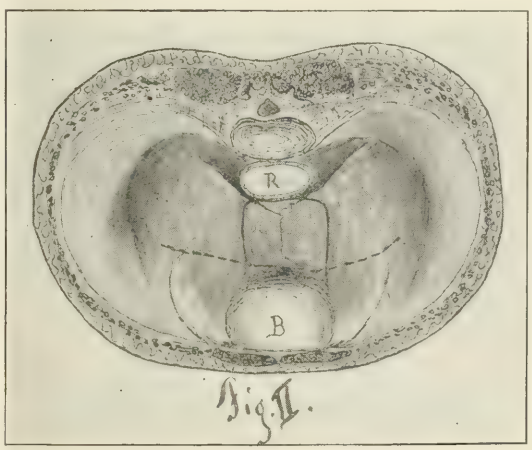


Fig. II.

Looking down into the pelvis from above to show the reconstruction of its floor.
R. Rectum. B. Bladder
Dotted line shows transverse incision in the peritoneum which was freed from the sac and then replaced after the broad ligaments were stretched across and a portion of the uterus was placed over them so as to extend to the rectum. These structures and the round ligaments are indicated in outline.

the vaginal outlet, and the posterior vaginal wall was separated from the rectum and the tissues lateral to it. This wall contained an excess of tissue because it had formed the chief bulk of the thickness of the sac. It was drawn down and the excess tissue cut off. The edges of the levator ani muscle were freed and held together with interrupted stitches. Although the perineum was in good condition it was made a little more supporting and held with silkworm gut sutures. After the excess of the posterior wall had been removed at its lower free edge, the closure was the same as in any operation for rectocele. After this wall had been freed below, there was, of course, direct communication with the upper field of operation. On this account, although the region was dry, a small rubber dam drain was left in the perineal wound extending up between the rectum and the vagina in order to allow for drainage. This was removed five days later; this wound closed at once. The time of operation was a little over two hours.

Subsequent History. Practically no shock followed this operation. The abdominal wound healed by first intention. There was never any suppuration in the vaginal wound and the parts remained fixed. For two weeks the temperature and pulse were normal and the convalescence was unusually free from discomfort except for the presence of an annoying cough of laryngeal and tracheal origin. During the third week there were subacute symptoms in the right upper quadrant, due to the chronic disturbance caused by a gall stone and local adhesions about the gall bladder. The presence of this condition was known at the time of operation, but it was considered unwise to disturb these parts at that time. At the end of a week this disturbance subsided, and further convalescence was uninterrupted. Patient remained in bed four weeks.

An examination made three months later showed no change in the posterior vaginal wall since leaving the hospital and being about on her feet. There is not the slightest indication of any bulging, and the wall feels hard and resistant. There are no local complaints. There is every reason to believe that relief from the vaginal hernia will be permanent.

SPASTIC PARALYTIC ILEUS.

BY ROBERT M. GREEN, M.D., BOSTON, FOSTER S. KELLOGG, M.D., BOSTON, AND PETER L. HARVIE, M.D., BOSTON.

(From the Gynecologic House Clinic of the Boston City Hospital.)

These two cases are presented as examples of a fatal, somewhat rare post-operative complication, and for the sake of the consequent moral in measures to avoid its occurrence:—

Case 1. The patient, M. P., a woman of 22, married at 19, entered the Boston City Hospital (Gyn. 170-277) on Oct. 23, 1911. Her family history was unimportant. Her catamenia were uneventful until marriage, since when they have been somewhat irregular, but seldom painful. In June, 1909, she was delivered by normal labor of a full-term, living fetus. Her puerperium lasted 12 days, and was apparently uneventful.

Early in February, 1911, she began to be troubled by burning and frequency of micturition, with yellowish-white vaginal discharge, and pain in both lower quadrants of the abdomen. In October, 1911, these symptoms recurred, and became so severe that she entered the hospital seeking relief.

Physical examination at entrance showed the patient well developed and nourished, but anemic. Her hemoglobin was 75%, her white count 12,000. Her temperature was 100° F., her pulse 76. Examination of the head, the extremities, and of the thoracic viscera showed nothing abnormal. The abdomen was distended and tympanitic throughout, with moderate tenderness and slight muscular spasm over both lower quadrants. Vaginal examination showed a parous introitus, intact perineum, bilateral nick of cervix, uterus completely retroverted and retroflexed, and imbedded in a mass of dense, sensitive exudate filling the entire pelvis and involving the uterine adnexa on both sides. The left vaginal vault was much shallower than the right, and in it could be felt a hard, irregularly sausage-shaped mass. There was a profuse white vaginal discharge, a smear from which, however, did not show the presence of gonococci. The urine was acid, normal in color and amount, had a specific gravity of 1.023, and showed the slightest perceptible trace of albumin. Its sediment consisted of squamous epithelial and white blood cells.

The diagnosis was made of bilateral salpingitis and pelvic peritonitis, probably of gonorrheal origin, though the exact time could not be determined at which the patient received the infection.

With the purpose of avoiding operative treatment until the acuteness of the attack should have subsided and some of the pelvic exudate absorbed, the patient was kept in bed in Fowler's position, with ice bags continuously applied to the lower half of the abdomen, with a light diet and abundant catharsis and diuresis. After a few days she was given also a daily hot vaginal douche and glycerine tampon.

Under this treatment, the exudate rapidly absorbed, the mass diminished greatly in size and tenderness, and on Nov. 10, 1911, the patient was discharged from hospital much relieved.

On Dec. 27, 1911, she reëntered the hospital (Gyn. 172-341) with a history of recurrent pain on the right side, chills, fever, but no vomiting.

Physical examination showed her condition much as before, with a mass palpable in each side of the pelvis, the left being more tender than the right. In view of the fact that she had shown no permanent improvement under palliative treatment, operation was now advised and accepted.

Operation (Dr. Green and Dr. Kellogg), under ether anesthesia, in the dorsal position, with the usual antiseptic preparation. A four-inch median hypogastric laparotomy incision was made, and the peritoneum opened without incident. The appendix was found elongated, congested, kinked, and distally adherent behind the cecum, the tip containing a fecal concretion. To bring it into view, considerable traction was made on the ileum, which was grasped for this purpose at a point about four inches distant from the ileo-cecal valve. A double ligature of No. 2 chromic catgut was passed through the meso-appendix close to the base, and the appendix and its mesentery tied off. The adhesions were tied off separately and cut, and the appendix removed. The stump was cauterized with crude carbolic acid, and buried with interrupted Lembert silk sutures. Both Fallopian tubes were found enlarged, kinked, and adherent in the posterior cul-de-sac. Both ovaries were normal. The left tube was

removed, with the escape of some purulent material, of which a culture was taken. The right tube was resected, leaving the proximal half. Both ovaries were left *in situ*. A pressure drain was placed in each lateral cul-de-sac to control hemorrhage. Ventral suspension of the uterus was performed by the Kelly method, and the abdominal wall closed in layers, except at the exit of the drains. A large dry dressing and swathe were applied, and the patient sent to the ward in excellent condition.

Following is the report of the course of the case, subsequent to operation, by Dr. Kellogg, who had immediate observation and charge of her in the ward.

Report of Case Subsequent to Operation. First twelve hours: Returned to ward with pulse 120, good. Good ether recovery without vomiting. Pulse fell to 84.

Second 12 hours: Patient awoke from sleep of several hours, nauseated; soon developed considerable distention, with rising pulse 108. The dressing was taken down, no evidence of external hemorrhage, no dullness in flanks. It was noticed at this time that the lower abdomen was relatively flat and the distention most marked above the umbilicus. There was considerable belching, and sodium bicarbonate increased this with some temporary relief from epigastric pain. Enemata, always with only fair result, were given. Toward morning vomiting of brownish fluid set in, small in amount, often repeated, coming up without much effort. The condition was now considered to be acute post-operative dilatation of the stomach, and a tube was accordingly passed, some gas and about ℥iv of dark greenish fluid with green flakes obtained; stomach then washed with sodium bicarbonate water until wash water returned clear, it being impossible to put in over a pint at a time.

Further enemata of various sorts gave unsatisfactory results and did not diminish distention.

Third 12 hours: A diagnosis of general peritonitis was made. Patient put in high Fowler's position. T. 99.8, P. 100, R. 22. A second attempt to pass the stomach tube, for the purpose of deciding certainly whether or not the stomach was dilated, was frustrated by the patient. Distention increased, especially above the umbilicus and more to the left than the right. Drains were loosened, with no pus but some ooze of serous fluid. Repeated enemata gave fair or poor results and did not lessen distention. Vomiting of greenish fluid continued, as before described.

Fourth 12 hours: P. 126, T. 99.4, R. 24. Distention increased as before. Continued enemata, poor results. Stimulation started. Rectal saline poorly retained. Toward morning pulse poorer in quality, 152.

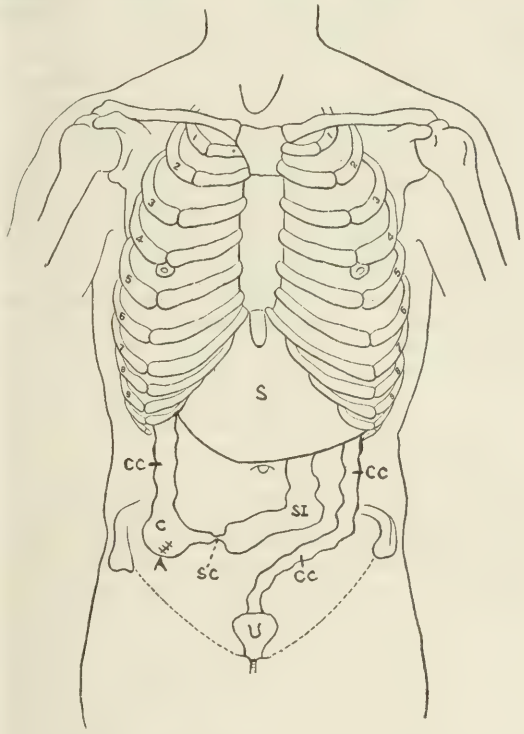
Fifth 12 hours: T. 97.4, P. 160, R. 16. Patient had not vomited for 10 hours. Pulse became better in quality, lower in rate. More comfortable. Distention had not increased. Enemata, with fair result.

Sixth 12 hours: T. 96, P. 144, R. 20. Early in morning patient became pulseless. Two and one-half pints normal salt solution were given into a vein, with return of pulse, good quality, rate 130. Subsequent to this distention rapidly increased, the quality of the pulse became poorer, unconsciousness followed, and ten minutes later the patient died, 81 hours after operation.

Pathological Report. No permission for autopsy was obtainable. Exploration through operative wound disclosed the following conditions:—

The uterus is fixed to the lower end of abdominal wound. The site of the removed tubes shows small amount of clotted blood. There is no fluid or pus in the abdominal cavity. The gut is everywhere shiny, not injected, no fibrin—no evidence of peritonitis. The lower border of a greatly distended stomach is palpable one inch above the umbilicus. There is no gut between the stomach and anterior abdominal wall. The right border of the stomach is in the right anterior axillary line. The left border is in the left mid-axillary line. The liver is pushed up and to the right. The gall bladder feels normal in size and collapsed. The pylorus does not feel thickened. The small gut is distended throughout so far as it can be seen and felt. Four inches from the cecum the ileum for two inches is thickened, dull, slightly reddened, contracted, flat, its internal walls are in apposition and a "half length" enters its calibre only on some pressure. There is no gross injury to the mesentery at this point. Between this and the cecum are two inches of normal undistended ileum, joining the cecum, which is not distended. The region of the appendix stump is not remarkable. The ascending and descending colon is not disturbed.

The accompanying sketch is an attempt to represent diagrammatically the conditions thus described.



Spastic Paralytic Ileus.

S. Stomach (distended) C. C. Colon (collapsed)
C. Cecum S. I. Small intestine (distended)
A. Appendix stump (buried) U. Uterus (suspended)
S. C. Spastic Constriction

From this it appears that this patient died, not of peritonitis, but of intestinal obstruction, due entirely to an annular constriction of the ileum, developing at the point where it had been grasped in order to exert traction on the cecum.

This spastic constriction must have been directly caused by surgical trauma to the smooth muscle fibres and their interlacing sympathetic nerve-plexuses.

A year later the following case repeated these conditions under somewhat different circumstances:—

Case 2. M. F., 31. Widow. Nullipara. Entered B. C. H. (Gyn. 187-125), on Jan. 2, 1913, with complaint of irregular flowing for past three weeks, with headache, indigestion, and pain in the lower part of the abdomen for a much longer period, in fact ever since a laparotomy done 6 or 7 years before for "inflammation of the left tube and ovary." Her history was otherwise unimportant.

On physical examination she was found to be well developed and nourished, slightly obese and flabby; her heart and lungs were normal. The abdomen was full, soft, tympanitic throughout, with a well-healed median hypogastric linear laparotomy scar. Vaginal examination showed a stretched introitus and intact perineum and cervix. The uterus was completely retroverted and adherent. In the right vault was a hard, non-sensitive mass, the size of a hen's egg. The left vault was empty. There was a slight bloody discharge. Urine, normal. T. 99.4°, P. 88.

The patient was kept under observation for several days, during which she continued to flow slightly and complained considerably of backache, flatulence, and cramp-like pains in the lower abdomen.

The diagnosis was made of adherent retroversion of the uterus, with chronic right salpingitis, and probably intestinal adhesions. Laparotomy was advised, for the breaking up of these adhesions and the performance of ventral fixation of the uterus, which it was expected would relieve the backache, flowing and pain. Operation was accepted, and the patient prepared in the usual manner.

Operation. (Dr. Green and Dr. Harvie.) On Jan. 10, under ether anesthesia, a median laparotomy incision was made alongside the old scar. Small intestine was found adherent along the entire line of incision, and was separated with great difficulty. During the process the intestine was subjected to considerable traction and manipulation. On entering the peritoneal cavity, the entire pelvis was found roofed over with dense adhesions, involving the sigmoid. With great difficulty these were separated. The uterus was found firmly adherent by its posterior surface to the floor of the pelvis, but was gradually freed and raised. The appendix and the left uterine appendages were absent. The right ovary was cystic and was removed. The fundus of the uterus was then firmly fixed to the anterior abdominal wall, and the abdomen closed in layers without drainage, the old scar being resected.

The patient's condition remained good till the next morning, when she vomited, became rapidly distended, bowels could not be moved, and in spite of treatment she grew rapidly worse and died 26 hours after operation.

Permission for autopsy was refused, but post-mortem examination through the operative wound showed a condition essentially similar to that described in the first case. The stomach and upper portion of the small intestine were immensely dilated. At the point where the intestine was separated along the line of incision, there was a spastic annular contracture involving about an inch and a half of the gut. Distal to this point the remainder of the small intestine and all the colon was collapsed. There was no evidence of peritonitis.

CONCLUSIONS.

The cause of death in these two cases was intestinal obstruction from a localized tonic contraction of the circular smooth muscle fibres of the small intestine, due to surgical trauma. Kelly and Noble[1] describe the condition under the term dynamic or hyper-dynamic ileus, and state that it constitutes 2% of all cases of intestinal obstruction. From the nature of its pathology, which is probably a mechanical injury to the plexuses of Auerbach and Meissner, the most convenient descriptive term for the condition seems to be spastic paralytic ileus.

The moral of these two cases is the immense importance of avoiding all pinching trauma to the bowel during laparotomy. In the second case, this was perhaps inevitable, in the first it might easily have been prevented. The small intestine seems much more liable than the large to spastic paralysis. Hence in appendicectomy, traction should *never* be made on the ileum for the purpose of bringing the cecum into the wound, but only the large intestine should be employed for such traction.

Medical Progress.

A REVIEW OF THE PROGRESS IN PATHOLOGY FOR 1912.

BY S. B. WOLBACH, M.D., BOSTON,

Assistant Professor of Bacteriology, Harvard University Medical School.

CONTENTS.

Tumors:
Experimental Cancer Research.
Neuroblastoma.
Chloroma.
Infectious Diseases:
Syphilis.
Trypanosomiasis.
Cultivation of Spirochetes.
Experimental Pneumonia.
Poliomyelitis.

It is the purpose of this review to include recent advances in the pathology and etiology of diseases which are liable to be of interest to the general medical reader. The small attention paid to pathological anatomy and histology does not mean that a great deal of work has not been done, but with the present highly developed knowledge of lesions, it could not be otherwise than that original papers along these lines should be too highly specialized and technical to be of great interest to the general reader.

The bulk of the work published from pathological departments, which is of interest, has been along experimental lines. A great deal of

[1] Gynecology and Operative Surgery, vol. ii, pp. 397-398.

it has been done in laboratories connected with departments of medicine, surgery, and even physiology. There is a decided tendency of growth in one sort of pathological research, away from pathology and towards departments presided over by heads of clinical departments, and this type of work, namely, the application of chemical methods to the study of disease processes, is one of the most important fields of research in medicine today. The tendency of growth already noted, seems to indicate beyond doubt that this line of research belongs with the clinic.

Of general interest in the consideration of the development of pathological physiology is the invention by Folin of a series of new methods applicable to problems in metabolism, and requiring such small quantities of material, blood, urine, feces and perhaps even lymph, that observations can be made upon human beings over extended periods. Another important contribution to possibilities is the perfection of methods for the study of respiration which can be applied to hospital cases, largely contributed by the Carnegie Institute in Boston.

In this review, many interesting subjects have been omitted because their bearing is chiefly clinical, and should be included in a review of progress in medicine.

EXPERIMENTAL CANCER RESEARCH.

The most important recent contribution to the etiology of malignant tumors is a series of observations made by Rous on tumors of fowls, which are inoculable, and which may be transmitted by the injection of bacteria and cell-free filtrates. Rous' first report was made two years ago (*Journal of Experimental Medicine*, 1910, Vol. 12). The tumor was a spindle cell sarcoma which could readily be transferred to fowls of the same strain. Apparently when the tumor filtrate is injected, injury must be done to cells before the new growth can take origin (*Journal of the American Medical Association*, Vol. lviii, No. 23). If the filtrate is injected into the blood stream, taking especial care not to allow it to come in contact with the vessel walls where punctured, no tumor formation occurs, but if foreign inert substances are added, multiple tumors form. Similarly, in direct injection into the tissues, the tumor first takes origin along the needle path. The nature of the filterable agent which causes this sarcoma is puzzling. It will pass through Berkefeld filters holding back minute bacteria, although it will not go through the Chamberlain F filter. All attempts to demonstrate the organism with the dark field apparatus have been futile. Heating to 55 degrees centigrade destroys this tumor-producing substance; likewise toluol, chloroform 50% alcohol and 2% phenol. It is rapidly destroyed by bile and by saponin, thus behaving like animal organisms in distinction to bacteria. The nature of the virus producing this chicken sarcoma suggests very strongly a living organized agent, although this has by no means been proved. Very recently Rous reported a second chicken tumor; this time an osteochondro sarcoma, which is produced by a filterable agent (*Journal of the American Medical Association*, Vol. lix, No. 20). The finding of this second type of tumor, which is reproduced by the injection of bacteria, free and cell-free filtrates, is of great significance, in that it shows that there is a selective behavior to the filterable agent. In the case of the first tumor, discovered by Rous, the growths are invariably of the spindle cell sarcoma type; in the second tumor, they are always of the osteochondro sarcoma type. Rous concludes that these substances are probably living viruses, and that these findings with the chicken tumors largely demolish the theoretical basis on which objections to an extrinsic cause for cancer have been built up.

In connection with the subject of cancer in animals, the report by Irwin F. Smith, pathologist in charge of the Government Laboratory of Plant Industry, on the structure and development of crown gall is of great interest (Bureau of Plant Industry, United States Department of Agriculture, Bulletin 255). Smith terms crown gall a plant cancer, and one is forced to admit that these growths in plants resemble in general aspects the behavior of tumors in animals. Crown gall occurs in a variety of plants, and may affect any part of the root or plant shoot. The growths are composed of plant cells, individually similar to normal plant cells, but failing to differentiate and to produce normal plant structures. Smith has proved the infectious nature, and has been able to isolate a bacterium, which, when injected, will produce these tumors. Smith's evidence for considering the crown gall growth to be of the nature of a neoplasm is well founded. The demonstration of a specific cause for the proliferation is of unusual interest, particularly when viewed in the light of Rous' experiments with fowl carcinoma.

NEUROBLASTOMA.

A fairly large number of cases have been reported during 1912 of the type of tumor to which Wright first called attention in 1910, and called by him neurocytoma or neuroblastoma (*Journal of Experimental Medicine*, Vol. 12, No. 4). L. Pick has recently written a monograph (*Berliner Klinische Wochenschrift*, 1912, Nos. 1 and 2), collecting all the reported cases of tumors of this type, that is, malignant tumors arising from embryonic sympathetic nerve cells, giving the name *Ganglioma Embryonale sypathetisum*. He corroborates the work of Wright by agreeing that these tumors arise in nests of embryonic sympathetic nerve cells. By special staining methods the fibril formation can always be demonstrated, if the material is fresh. In some instances, the fibrils are very easily found. These tumors are most often found in the adrenal

glands; oftentimes in combination with multiple tumors of the liver, tumors in the skull and in the lymph nodes. It is now certain that the cases of simultaneous tumors of the adrenal glands and orbit, known as Hutchinson's syndrome, are tumors of the sympathetic nerve type. In another paper (*Zeitschrift für die gesamte Neurologie and Psychiatrie*, Bd. 6, Heft 4), L. Pick and M. Bieschowsky have collected cases and summarized knowledge concerning the ganglio-neuromata of the brain, and show that these tumors are not excessively rare.

Following these publications of Pick, there have been other cases reported in this country by Symmers (*Journal of the American Medical Association*, Vol. lx, No. 5), and abroad by Friedrich (*Frankfurter Zeitschrift für Pathologie*, Bd. 10, 1912, Heft 3) and Landau (*Frankfurter Zeitschrift für Pathologie*, Bd. 11, 1912, Heft 1). These papers, unquestionably stimulated by the publication of Wright's, definitely establish the existence and frequency of a hitherto not generally recognized group of tumors.

The writer of this review has seen two unpublished cases, both occurring in Montreal. One from the prenasal fossa of a child with metastases in the cervical lymph nodes, and another from an adolescent female with generalized metastases to bone, liver, lungs and lymph nodes; this latter tumor was probably primary in the adrenals.

It may safely be predicted that a large number of such cases will be reported from this country and abroad during the next few years.

CHLOROMA.

The German literature of the last few years contains numerous reports of cases of so-called chlor-leukemia, and in fact, in nearly every case of chloroma recently reported, leukemia has existed. A concise statement of the present knowledge on chloroma is to be found in the paper by Burgess (*Journal of Medical Research*, Vol. 27, No. 2, November, 1912) who reviews the literature and reports two new cases. Burgess' conclusions, which are fairly conclusively supported by the evidence he presents, are that the tumors called chloromas are simply green tumors, which represent a part of the pathological processes in leukemia; that the type of leukemia is myelogenous leukemia and not lymphatic leukemia. The absence of granular cells is simply indicative of the acuteness of the process and the invasion of the blood and tissues by myeloblasts, which are not yet differentiated. The conception that myelogenous leukemia is a blood metastasis of a true tumor, whose origin is in the bone marrow, and whose cells invade the blood stream and the bone marrow, explains the connection between leukemia and chloroma. According to Burgess, in certain cases of myelogenous leukemia, in which the cells are largely undifferentiated and multiply rapidly, other tissues are invaded. Some times in this way, nodules of tumor cells are formed. These masses, if green, are called chloroma. These conclusions of Burgess are in general agreement with recent work done abroad. Burgess has materially contributed to the general knowledge by virtue of the superior technical methods he has employed. The nature of the color of the tumors still remains somewhat of an enigma. It is to be noted in this connection, that the layer of white cells obtained by centrifugalizing blood of myelogenous leukemia cases always has a distinct greenish color.

SYPHILIS.

The most important contributions to the pathology of syphilis, aside from the cultivation of the spirochete and the completion of the requirements of Koch's Laws, are a few new facts regarding the distribution of the treponema in tissues. Warthin, in a number of papers, which are briefly summarized under the heading, "Cardiac Syphilis," (*Ohio State Medical Journal*, March, 1912), has reported 12 cases of sudden death in children and infants, due to cardiac insufficiency. There was no suspicion of congenital syphilis; furthermore, there was nothing that would be attributed by the pathologist to syphilis, but on examination of various tissues by Levaditi's method, spirochetes, associated with certain histological changes, have been found. He has come to the conclusion that there is a certain form of myocarditis which is dependent upon the presence of colonies of spirochetes in heart muscle. In 35 cases of acquired syphilis in the adult, he has found myocardial changes associated with the presence of spirochetes. The majority of these cases were supposed to have been successfully treated, and in some of them not even the attending physicians associated the final conditions with syphilis. The great importance of Warthin's work is that unexplained death due to myocardial changes may rest solely upon the lesions produced by the *Treponema pallidum*, in cases giving practically no other evidence of syphilis.

Noguchi and Moore (*Journal of Experimental Medicine*, Vol. 17, No. 2) have demonstrated the *Treponema pallidum* in 12 out of 70 brains, from cases of general paresis. The age of the cases varied from 33 to 60 years; 10 were men and 2 women; 7 were of the cerebral type and 5 of the tabetic. Anatomically the brain showed the usual thickening of the pia and microscopically there was the usual infiltration with plasma cells and lymphoid cells in the meninges and around the vessels. The spirochetes were found distributed in the substance of the brain, singly and in groups, and oftentimes, far in the substance, away from the vessels, and unsurrounded by evidence of any cellular reaction.

These findings are of great importance in that they demonstrate that paresis is a syphilitic affection; that the lesions are due to the presence of the parasites, and not to toxic substances elaborated elsewhere.

TRYPANOSOMIASIS.

Trypanosomes have been found in the blood of domestic cattle in every part of the globe, and a recent bulletin of the United States Department of Agriculture (Bulletin No. 145, Bureau of Animal Industry, Howard Crawley) shows that trypanosomes exist in the blood of 75% of yearling and adult American cattle. These trypanosomes are only to be demonstrated by making blood cultures, that is, adding large quantities of blood to bouillon. The trypanosomes multiply in the layer of white cells and platelets that forms above the bottom layer of red cells. Crawley has given the name *Trypanosoma americanum.*

Work done in Nyassaland during 1912 by Bruce, Kinghorn and Yorke and their associates, has conclusively established the status of *Trypanosoma rhodesiensi* as a new species, parasitic for man. This trypanosome has been found in a fairly large proportion of antelope. Experimentally it has been transmitted by *Glossina morsitans,* which is the common tsetse fly of dryer regions, and hitherto supposed to transmit trypanosomes pathogenic for cattle only. The great importance of this work is evident, and it will unquestionably be productive of campaigns against trypanosomiasis along new lines. This work on trypanosomiasis is abstracted in *The Sleeping Sickness Bulletin,* and the *Tropical Diseases Bulletin* of London, directed by A. G. Bagshawe.

Wolbach and Binger (*Journal of Medical Research,* September, 1912) in a research directed towards ascertaining the factors concerned in the production of the lesions of trypanosomiasis, have shown that the trypanosomes do not remain confined to the blood vessels and lymphatics, and that they invade the connective tissue structures of all organs and the substance of the brain. The finding of trypanosomes in the substance of the brain, remote from the lesions, indicates that they migrate freely, and also that the pathology, which closely resembles that of general paresis, is due to the actual presence of the trypanosomes in the meninges and brain substance. In general, they conclude that the lesions of trypanosomiasis are due to the presence of the trypanosomes in the affected tissues. Previous theories considered chiefly the possible effect of toxins elaborated in the blood stream.

CULTIVATION OF SPIROCHETES.

Noguchi has been most active during the last year with cultivation experiments, using spirochetes from many sources. His method for cultivating the *Treponema pallidum* seems to be simple and more certain than those of European workers. His first paper was published in the *Journal of Experimental Medicine,* Vol. 14, and here the material employed consisted of lesions produced in rabbits. Later, *Journal of Experimental Medicine,* Vol. 15, he succeeded in cultivating the *Treponema pallidum* directly from human lesions, and has shown that these cultures are pathogenic for monkeys. To Noguchi belongs the credit for first fulfilling all the requirements of Koch's Laws for the spirochete of syphilis. His medium consists of combinations of sterile ascitic fluid and agar, to which pieces of fresh sterile rabbit tissue is added, kidney or testicle. Strict anaerobic conditions are maintained by filling the tubes to a considerable depth, and covering the medium with a layer of paraffin oil. In his early work, these tubes were placed in an oxygen-free atmosphere of hydrogen. The success of Noguchi's method depends on the fact that after stab cultures have been made in his medium, consisting of two parts of slightly alkaline nutrient agar jelly and one part ascitic fluid, the spirochetes multiply and migrate out, away from the line of puncture and bacteria, so that after two or three weeks of incubation at body temperature, hazy zones are obtained, which consist of colonies of spirochetes. By making repeated transfers, he had been able to separate mixed cultures of spirochetes, and has paved the way for important work on the study and differentiation of the mouth spirochetes. So far, he has cultivated three different new spirochetes from the mouth cavity: *Treponema microdentium, Treponema macrodentium* (*Journal of Experimental Medicine,* Vol. 15, No. 1) and *Treponema mucosum* (*Journal of Experimental Medicine,* Vol. 16, No. 2). The last named came from a case of pyorrhea alveolaris and is distinguished from other mouth spirochetes by the production of mucin. In morphology, it is very much like the *Treponema pallidum,* from which it is distinguished, by the production of mucin, and a fetid odor in cultures.

Other spirochetes which Noguchi has cultivated are: *Spirocheta phagedenis,* a new species which he found in phagedenic lesions on human external genitalia (*Journal of Experimental Medicine,* Vol. 16, No. 3). *Treponema calligyrum,* a new species from condylomata of man, *Spirocheta refringens,* and a whole series of spirochetes of the relapsing fever type, including *Spirocheta obermeiri, Spirocheta duttoni, Spirocheta kochi, Spirocheta novyi,* (*Journal of Experimental Medicine,* Vol. 16, No. 2) and *Spirocheta gallinarum,* the spirochete of fowls (*Journal of Experimental Medicine,* Vol. 16, No. 5).

The importance of these methods of Noguchi, and his success with them cannot be overestimated, as it opens a field for systematic investigation of spirochetes and pathological processes produced by them. As yet, no one has confirmed Noguchi's work. One reason may be that he gives rather meagre details, and in work of this character, personal niceties of technic are of greatest importance.

EXPERIMENTAL PNEUMONIA.

Lamar and Meltzer (*Journal of Experimental Medicine,* Vol. 15) report a series of experiments

on dogs in which they produced pneumonia in 42 successive cases with a mortality of at least 16%. Their method is to introduce pneumococcus cultures by intratracheal insufflation. They claim to have produced a typical lobar pneumonia. Control experiments with salt solution, broth serum and mixtures of serum and soap solution injected in the same way as the cultures did not produce consolidation. Other experiments with streptococcus and influenza bacillus produced a type of inflammation quite different from the consolidation produced by the pneumococcus. In a few instances they produced lobar pneumonia with Friedlander's pneumo-bacillus. This work has attracted considerable attention, because it claims to be the first successful experimental production of lobar pneumonia in animals.

POLIOMYELITIS.

The most important work of the past year in poliomyelitis has been directed toward the manner of transmission. Rosenau, as is well known in this community, reported at the International Congress of Hygiene in Washington in September, successful transmission experiments with the ordinary stable fly, *Stomoxys calcitrans*. This work was shortly afterwards corroborated by Anderson and Goldberger of the Public Health and Marine Hospital Service.

In the report of the State Medical Institute of Sweden to the Fifteenth International Congress of Hygiene, held in Washington, 1912, a large number of careful experiments directed towards the demonstration of the presence of the virus of poliomyelitis on the mucous membranes of abortive cases and healthy persons are recorded. In six families the existence of carriers of the virus were found. In three families, several virus carriers were found, although in no family was there more than one typical case with paralysis. These experiments have been criticized by Flexner on the ground that, while the monkeys injected with the mouth and nose washings of the suspected individuals developed paralysis and sometimes died, they did not show the characteristic pathology of poliomyelitis. Distinct lesions, however, were found, the atypical nature of which the experimenters attributed to the diminished virulence of the virus.

Flexner, Clark and Fraser (*Journal of the American Medical Association*, Vol. lx, No. 3) describe an instance in which they obtained from the healthy parents of a child suffering from an acute attack of epidemic poliomyelitis, material which when injected into monkeys gave characteristic symptoms and pathology of poliomyelitis. This material was obtained by irrigating the naso-pharyngeal cavities of the mother and father with normal saline. The experiment proves in a more conclusive manner than the Danish invesigators were able to do, that apparently normal humans may harbor the virus of poliomyelitis.

Of even greater interest is the report by Flexner and Noguchi (*Journal of the American Medical Association*, Vol. lx, No. 5) of the cultivation of the virus of poliomyelitis. The technic employed was essentially that of Noguchi for the cultivation of spirochetes, which is described elsewhere in this review. Colonies were obtained in the ascitic fluid agar medium, which were composed of minute globoid bodies just within the microscopic range of vision. Cultures from human tissues in the third, and from monkey tissue in the fifth generation have caused typical experimental poliomyelitis in monkeys. Other experiments by the authors are in progress with a view of excluding a remote possibility of the virus being passively carried over from test tube to test tube.

These cultivation experiments, if capable of confirmation, will have a tremendous effect on the investigation of diseases produced by filterable micro-organisms, for it is certain that at least some of the principles underlying the problem of the cultivation of filterable organisms will have been solved.

(To be continued.)

Reports of Societies.

SECTION ON GENERAL MEDICINE OF THE COLLEGE OF PHYSICIANS OF PHILADELPHIA.

Meeting of Monday, January 27, 1913, at 8.15 p. m.

The President, Dr. H. R. M. Landis, in the Chair.

A CONSIDERATION OF CERTAIN TYPES OF ARTHRITIS DEFORMANS AND THEIR MANAGEMENT.

Robert B. Osgood, M.D., Boston: Proof of the existence of arthritis deformans goes back to three thousand years B. C. The views expressed tonight will be from an orthopedic point of view, and we shall leave unsettled the question whether we are dealing with one or more than one distinct disease. We shall adopt a temporary nomenclature, which we realize is imperfect, but attempt to define what seem to us distinct clinical types. The four types to be discussed are: Infectious, Toxemic, Atrophic, Hypertrophic. We find it difficult to connect acute articular rheumatism in any way with the chronic manifestations of arthritis deformans, and we believe it has no causal relation. We have been equally successful in associating true gout with the types to be discussed. By the chronic infectious polyarthritis we mean an arthritis usually of more or less sudden onset. If unaffected by treatment, the disease is commonly progressive. We may include in this type those cases of gonorrheal arthritis in which the cocci may be recovered from the joints and those cases in which other bacteria have been found either in the joint effusions or in the tissues, especially the villi removed at operation. In the second type, chronic toxemic polyarthritis, we may include the cases of chronic polyarthritis following influenza, associated with chronic infections of the nasopharynx and sinuses, ulcerative processes in

the intestines, the so-called auto-intoxications often in association with enteroptosis, and that form of arthritis deformans known as Still's disease. Careful search has failed to find the actual presence of bacteria in many of these joint conditions in which the early picture is in all respects consistent with the existence of an infection. The third, or chronic atrophic polyarthritis, is clinically to our minds almost if not quite an entity. The clinical histories of this type less strongly suggest the direct result of an infection or its toxic products. The picture is like some trophic disturbance of central nervous origin. We believe these are the cases that have so strongly suggested the neural theory of the etiology of the so-called rheumatoid arthritis. In the chronic hypertrophic polyarthritis type we are inclined to the belief that we are dealing with an arthritis deformans so essentially different from the other types that it may be considered from the point of view of symptomatology and treatment as an entity. A separate heading has been made of spinal forms, because of the confusing nomenclature. Grouping the first two of these four divisions together, three types of arthritis deformans then seem to us to be clinically distinguishable, the infective or toxemic, the atrophic and the hypertrophic. We shall try to show later that the pathologic examination and the x-ray findings seem to consisently suggest a certain purity to these types. In regard to etiology, we have arbitrarily made the first division on an infective basis. The second type we also believe strongly to be the result of either some undiscovered direct invasion of the joint tissue by bacteria or more probably to result from the development of one or more than one toxic substance by various forms of bacterial growth within the body, taking place in the nasopharynx, the intestines, or some other focus. As to whether in the third, or atrophic type, the toxic effect is exerted first on the central nervous system and secondarily on the joint tissues we have no certain proof. The evidence seems to us to point to the correctness of this theory of Painter, Jones and others. The fourth type, hypertrophic arthritis, seems to us to be much more likely the result of faulty metabolism than of an infection or an infectious toxemia. In the first three types no effort should be spared to obtain the most perfect hygienic conditions of living with as much life in the open air as possible. The first step in the management of the infectious and toxemic joints should be a most careful search for a focus of infection. A suggestive article by Pemberton indicates how much can be done by the careful supervision of the diet. We have come to believe strongly that the constantly found enteroptoses may be one of the factors in faulty alimentation. Much may be expected from conservative surgery. In regard to vaccine therapy, it seems to us that our attitude should be one of receptive skepticism so far as the cure of arthritis deformans is concerned. The search for an infectious focus in the atrophic type has been attended with less success than in the two preceding. We must conserve the strength and improve the nutrition of these patients by every means at our disposal, especially by attention to the habitual splanchnoptosis. In the hypertrophic type the search for a focus of infection has been rewarded with no success. We have little to say regarding drugs in arthritis deformans because of the conviction that empiricism, rather than scientific evidence of their value has encouraged their use.

Until we find the cause of arthritis deformans we must seek out all possible sources of infection. We must attempt to make the processes of alimentation and all other physiological processes as normal as may be. But whether successful or not, we must never lose sight of the fact that this form of chronic disease is one which calls for the greatest friendliness, encouragement and effort on the part of the physician.

Dr. Osgood's paper was discussed by Dr. Thomas McCrae and Dr. G. G. Davis.

Dr. Mary Rowley-Lawson, Fellow of the Rockefeller Institute, gave a lantern demonstration on

THE INTERPRETATION OF THE MALARIAL "RING FORM" PARASITE.

This paper was discussed by Dr. Alfred Stengel.

Book Reviews.

Electro-Therapeutics for Practitioners. By Francis Howard Humphries, M.D., F.R.C.P., M.R.C.S. Illustrated. New York: Longmans, Green, and Company. London: Edward Arnold. 1913.

This volume consists of a series of "essays on some useful forms of electric apparatus and on some diseases which are amenable to electric treatment." It aims to supply to the general practitioner information about the useful forms of electrotherapy, and about the principles to be observed in the selection of cases therefor. In general, the author believes electricity indicated symptomatically for the relief of pain, in neurasthenia, insomnia and a variety of functional disorders, and in certain skin affections and some forms of malnutrition. The technic and apparatus are everywhere thoroughly described, and there is a useful terminal glossary of electric nomenclature. In his historic introduction, the author points out that the disrepute of electrotherapeutics is largely due to its unfortunate practice by charlatans and to improper selection of cases. His work shows that its field is legitimate and its possibilities of benefit not unimportant.

The Practitioner's Visiting-List. Philadelphia and New York: Lea and Febiger. 1913.

The annual issue of this visiting-list, for thirty patients a week, provides amply and satisfactorily for the work of the average practitioner. Prefixed to the record pages is the usual text of useful information. This is the twenty-ninth year of publication of this standard memorandum-book.

Genitourinary Diseases and Syphilis. By Henry H. Morton, M.D., Clinical Professor of Genitourinary Diseases in the Long Island College Hospital, Genitourinary Surgeon to the Long Island and King's County Hospitals and the Polhemus Memorial Hospital, Consulting Genitourinary Surgeon to the King's Park State Hospital and the Beth Israel Hospital of Newark. Member of the American Urological Association, Fellow of the New York Academy of Medicine, etc. Third edition; revised and enlarged. Philadelphia: F. A. Davis Company. 1912.

The present edition of Dr. Morton's book is in many respects an improvement upon the two preceding ones. It treats somewhat more fully of certain parts of the subject or field of diseases that it presents and brings others up to date.

There is much to commend in the volume, but we do not feel that the subjects treated under some of the headings can possibly be properly or at all fully presented in so very short a space as the author has given to them and must characterize certain of them as being entirely inadequate, while at the same time they do not possess the advantage of compendiums in succinctness.

Examples to which this criticism apply are the following: Urinary fever and acute septic anuria occupy but four or five pages; twelve pages only are given to the important subject of tumors of the bladder. Tumors of the renal parenchyma are disposed of in less than two pages, etc., etc. On the other hand, the subjects of gonorrhea and syphilis are treated admirably and the recent progress made in connection with the treatment of the latter malady is well set forth. The writer is conservative in his estimate of the curative properties of the salvarsan treatment and does not take note of the instances of a second inoculation in the human being, as well as in apes, of the disease after an original infection with syphilis was treated by salvarsan, which, though few in number as yet, seem to show that in some cases at least the drug has undoubtedly effected a cure.

The subject of hypertrophy of the prostate and its treatment also receives adequate consideration and is acceptably set forth, as are a number of others.

On the whole, the criticism which suggests itself to the reviewer as being applicable to the book as a whole, is that it is not so complete a manual for students or for the practitioner of medicine as are some others already in existence, and therefore, despite its excellent qualities in many parts, it does not fill a place that greatly needed to be filled and falls short of doing so in some essential respects.

As a bit of book making the work falls below the standard set in some other publications, both in arrangement of subjects, index, and illustrations, though it is well above those of books published until within the last six or eight years in these respects.

We feel reluctance in not being able to commend the work more highly, because of the high reputation and deservedly high position won by its author in this field of surgery, but we cannot say that it comes up to the standard that is required by the great advance in knowledge that has taken place in this field in common with that made in so many other branches of surgery, or that it deals with its subjects as adequately as any one of half a dozen other books already before the medical public. We take pleasure, however, in repeating that it contains much that is of most excellent character.

The Prospective Mother. A Handbook for Women During Pregnancy. By J. Morris Slemons. New York and London: D. Appleton and Company.

Dr. Slemons, with keen insight and tact, has interpreted for the prospective mother the difficult scientific knowledge of today on which the art of obstetrics is based. In simple language he has revealed the intricate secrets of Nature in her most beautiful and most profound moments.

His words, based on wide experience and deep researches, should inform the ignorant, encourage the timid, and quiet the fears and anxieties of the inexperienced. The book is not only a safe one to put in the hands of a lay woman, but may also be made her greatest safeguard; a guide in simple matters, informing her when to turn to her physician, and an aid in carrying out his instructions.

Dr. Slemons deserves the gratitude of the physicians by putting in their hands a safe guide for their obstetric patients, which should save minutes and hours of explanation and instructions and prevent misunderstandings by giving reasons for elaborate preparations which to some might seem needless precautions. The conscientious obstetrician has thus received an advocate of real power.

The public should be a large gainer by the high standard set before them for obstetric service to the mothers of our citizens. Not until the public is informed what good obstetric service is and is convinced of its worth will it demand that good service for which it must be willing to pay. Such a book takes the public freely into our confidence in another branch of medicine and thus brings us one step closer to a complete mutual understanding. We hope this book will be an awakening to the general public to the demands of modern obstetrics.

The book is optimistic, pleasantly suggestive, clearly expressed and easy reading even to the lay woman. Her fears are met and allayed. It should be welcomed by the physicians practising obstetrics and by their intelligent patients.

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IMMIGRATION IN 1912.

It is generally conceded that immigration holds a very intimate relation to the national public health, not alone in respect to the actual diseases that may be imported, but more especially with reference to mental or physical defects that may be handed down to future generations, in short, from the eugenic aspect. While there is a considerable unanimity of belief that unsound immigrants should be excluded, there is great divergence of opinion as to how this object shall be accomplished. This was illustrated in the wide discussion attending the recent attempt in Congress to add to the present admission requirements a literacy test, and to secure federal inspection of steerage passengers while in transit on steamers to this country. Probably more effective than this would be a preliminary inspection of prospective immigrants at their ports of debarkation by United States officials, and it is to be hoped that this may be brought about before long.

The report of the Commissioner General of Immigration for the fiscal year 1912 gives some interesting data on the sources of immigration for the year. Of the 838,172 immigrants entering the United States in 1912, 161,290, or 19.2%, came from Northern and Western Europe, from the Teutonic and Celtic races, and 570,130, or 68.0%, came from the Iberic and Slavic races of Southern and Eastern Europe and Western Asia. This reverses the proportions coming before 1880, when about four-fifths were drawn from Northern and Western Europe. Russia, particularly Southern Russia, and Italy contribute 19% each of the total. Hungary was next, with 11%, then Austria with 10%, Greece 3%, Turkey in Europe and adjoining principalities 2%, and Spain and Portugal less than 2%. One per cent. of the total were from Japan, China and India. The significance of this preponderance of the Iberic and Slavic races lies in their poorer physical and mental equipment, and their radically different ideals and standards of living as compared with the Celtic and Teutonic races.

The following table, compiled from the Commissioner General's report, shows that for the last five years there has been a fairly constant number of aliens debarred on medical grounds.

Proportion of Immigrants Debarred in Last Five Years for Medical Reasons.

Year.	Total Immigration.	Debarred per 100,000 for Following Reasons.		
		Mental Defects.	Epilepsy and Insanity.	Loathsome or Dangerous Contagious Disease.
1908	782,870	23.7	23.5	371
1909	751,786	24.1	22.2	317
1910	1,041.570	17.4	19.0	300
1911	878,587	18.8	16.6	325
1912	838,172	19.7	16.0	208

Note: Compiled from annual report of Commissioner General of Immigration for fiscal year 1912

It may be questioned whether this number should not show a steady increase, instead of remaining constant. Mention has been made in the Journal at various times of the unduly large proportion of insane and mentally defective in New York State institutions drawn from the foreign population. There has been a widespread movement, especially in New York during the past year, looking toward improvement in the mental examination of arriving aliens. It is unnecesary at this time to dwell upon the great importance of more thorough examination for mental conditions. In his annual report for 1911 the Commissioner of Immigration at New York stated, "At a time when the subject of feeble-mindedness is becoming more and more important in civilized countries, and the nature and bearings of this taint are being studied by scientists, the Government would seem called upon to make far greater efforts than it does to prevent the landing of feeble-minded immigrants." The same is true of insanity.

In his annual report for 1912 the Commis-

sioner of Immigration at New York reiterates the imperative necessity of an increase in the number of medical officers on duty at Ellis Island and of provision by Congress of additional space and facilities for their work. Especially is a corps of trained interpreters needed for the mental examination. The Commissioner points out that the needed improvements at Ellis Island, including larger detention quarters and a new ferry boat, would cost about $600,000, while by reason of the head tax levied on every arriving alien, the income to the Government through immigrants landing at Ellis Island averages about $3,000,000 annually. Of a total immigration into the United States of 838,172 in 1912, 725,040 entered through Ellis Island.

In the fiscal year 1912, 6653 aliens were deported because physically, mentally or morally below the legal standard. Of these, 5427 were excluded at the ports of entry, including 1748 with grave physical defects, 297 with grave mental defects, 2288 with physical or mental defects not so serious, but still affecting ability to earn a living, and 1094 morally defective. Twelve hundred and twenty-six aliens were arrested within the country within the legal three-year limit and deported for the following conditions: 199 physically defective, 620 mentally defective and 407 morally defective. The 5427 defectives rejected in 1912 constituted more than one-third of the total number debarred. Of the 297 mental defectives refused entrance, 10 were idiots, 105 were insane, 44 were imbeciles, 218 were epileptics, and 110 were feeble-minded.

Beginning with the administration of President Wilson, the Bureau of Immigration becomes a part of the new Department of Labor, under Secretary William B. Wilson. There are weighty questions to be solved in the administrative policy of this Bureau, as well as by Congress, in providing adequate appropriations for efficient inspection and in framing legislation which will more effectively exclude physically or mentally unsound aliens. Immigration easily ranks among the leading problems of the day and in no particular is it of greater concern than from the standpoint of the public health. The question might well be raised as to whether the medical inspection of immigrants should not properly be constituted a feature of national quarantine administration, since the function of the two is the same and even now both are operated by the same federal agency, the Public Health Service.

HOUSING REFORM IN GERMANY.

As the family and the home are the basis of civilization, so should the house in which the family makes its home vitally interest the statesman, the humanitarian and the political economist. The housing problem has indeed become momentous, in great civic centres especially; and a recent report in the *New York Evening Post* on housing conditions in Berlin, contains matter pregnant for every community in or out of Germany, in the United States as well as in Europe.

There is a falling birth-rate in Germany. In Berlin the birth-rate has been below the average of France, a country of recent years much objurgated for its "race suicide." And *pari passu* with such falling rate, Germany has a "shockingly high infant mortality." Here are facts at present of unusually deep concern in The Fatherland, and in a way difficult to appreciate by our own people. For a kind of Jingoist infection has seized upon Europe. Every State is needing soldiers, quite as poor mad old Lear needed them; and ever since Napoleon (who held that mother worthiest who could rear most sons to be fed to cannon) the needs of the army have formed the criterion by which such matters are judged in Europe.

All this seems irrelevant until one grasps that in cities generally, inadequate and unsanitary dwellings for the poor have much to do, if not with the falling birth-rate, at least with a high infant mortality; in other words, bad housing tends to lessened families.

In order for better housing therefore, there is a Prussian bill projected, having the object to extend the scope of the building-police authority as to street-widening; the expropriation of needed building sites; provision of open spaces in fair proportion; and the creation of municipal housing departments in all cities and communes with a population over 100,000, which departments will control designs and equipments of dwellings for working people. Inspectors of the Housing Department (akin, no doubt, to the tenement house inspectors in American cities) would see that the demands of the authorities as to space, comfort and sanitation, would be complied with; they would urge the landlord, by precept and advice, to make his property habitable; and should the landlord remain recalcitrant the police would compel him to do his duty.

Local authority, in the event of this bill becoming law, shall decide whether any given room will be used for a living or a sleeping room or kitchen; may forbid the common use of dwelling-rooms by several families; may regulate the number who may live in them (the latter provision being with a special view to the elimination of the lodger of either sex who, for a minimum rent, is entitled to enough floor space to hold a bed). In Berlin, as indeed in all great cities, many thousands have no home other than such "sleep places."

War is also to be waged on the huge "rent-barracks," the typical working-class tenement house of the German cities, with its two, or sometimes three, courts running back from the street. "These places are largely responsible for the curiously strong impression of uniform prosperity which German cities make. The reason is that, in the first section of the houses fronting on the street, people who are either really or relatively prosperous live and pay a fairly high rent. They are the class who are particular about the looks of their windows and cultivate flowers and trailing green in summer on their balconies. The really poor live in the rooms looking on the damp, sunless courts behind and to get an idea of how they live one must penetrate into their unsanitary fastnesses, often a surprising distance from the highly respectable street front."

We may complacently assume this condition of things to be only Continental; yet there are American cities in which the like obtains. There are frame shacks, built cellarless on the ground, without ventilation under the floors, or water in the houses or sewer connections. Many folk living on the main streets are unconscious of or oblivious to the fact that such homes line interior alleys. Here are the "lung blocks" of great cities; for tuberculosis is neither a hereditary nor a family infection, but a house disease.

The subject, as we have intimated, is of world-wide interest wherever humankind congregates in great numbers to make up cities. And herein lies one of the greatest problems with which American municipalities have to deal.

PROGRESS OF DR. FRIEDMANN'S WORK.

Since our latest editorial note on the work of Dr. Friedmann, in the issue of the Journal for March 20 (Vol. clxviii, p. 442), the latter has continued his treatment of tuberculous patients in New York City and elsewhere. On March 29 he inoculated 10 cases of phthisis at the Montefiore Home, New York, in the presence of government physicians. On April 2, Dr. E. S. Harding, of Montreal, chairman of the medical board of the Royal Edward Institute for the Study, Prevention and Cure of Tuberculosis, issued the following statement regarding the patients treated in that city by Dr. Friedmann on March 11:—

"The Friedmann treatment for tuberculosis, while proving itself to exercise no deleterious effect upon its subjects, has as yet produced no results by which its ultimate value can be determined so far as 55 patients treated in Montreal are concerned."

On April 6, Dr. Friedmann treated 19 patients at the Seton Hospital, New York City. On April 9, before a gathering of representative physicians, he treated 69 patients at the Wallum Lake Sanatorium, in Pascoag, R. I.; on April 10, 14 cases at Woonsocket, R. I.; and on April 11, 69 cases at St. Joseph's Hospital, Providence, R. I. On April 12 he addressed the Academy of Science at Washington, D. C., and on April 14 treated patients at the George Washington University Hospital in that city. Alleged attempts to patent and commercialize Dr. Friedmann's vaccine seem due far more to the misguided efforts of American promoters than to any disposition on his own part to make money illegitimately from his method of treatment. It is stated that he has been invited to continue his demonstrations in Texas and in South Carolina.

MEDICAL NOTES.

A Posthumous Award to a Brave Physician.—The patron's medal of the British Royal Geographical Society for 1912 has been awarded to the late Dr. Edward Adrian Wilson, the surgeon of Scott's Antarctic Expedition, who died at the post of duty with his comrades after accomplishing work of great scientific value in exploration and study at the South Pole.

Endowment of Medical Research by Insurance.—It is provided by the British National Insurance Act that the insurance commissioners may retain the amount of one penny for each insured person to be devoted to the investigation of preventable diseases. The total sum thus available for purposes of medical research is about $285,000.

The Sphygmographic Detection of Forgery.—The following method of detecting forgery has recently been suggested by an English physician:—

"The pen in the hand of a writer serves in a modified degree the same end as the sphygmograph, which traces the heart's action, and in a person's handwriting one can see, by projecting the letters greatly magnified on a screen, the scarcely perceptible turns and quivers made in the lines by the action of that person's peculiar pulsation.

"To demonstrate this an experiment was made at the Charing Cross Hospital. A number of persons suffering from heart disease wrote an exercise in their ordinary handwriting. The different manuscripts were then taken and examined microscopically. By throwing them highly magnified on a screen, the jerks or involuntary motions due to the patient's peculiar pulsation were distinctly visible.

"The handwriting of persons in normal health does not, however, always show their pulse beats. What one can say is that when a document purporting to be written by a certain person contains traces of pulse-beats and the normal handwriting of that person does not show them, then clearly the document is a forgery."

Appointment of Two German Pathologists.—It is announced that Dr. Jores, of Köln, has been appointed director of the institute of pathology at the University of Marburg; and Dr. Lubarsch, of Düsseldorf, director of the institute of pathology at the University of Kiel.

Seizure of Cocaine in San Francisco.—Report from San Francisco, Cal., states that on April 8 the local police seized in a city hotel 800 pounds of cocaine, valued at $50,000, smuggled into this country from Mexico for the illicit drug traffic.

Hygienic Conquest of Jerusalem.—A true modern crusade, instituted by American philanthropy, is now being carried out in Palestine. Report from Jerusalem on March 24 states that:

"The soup kitchens that were established by Nathan Straus are now ministering to a thousand Mohammedans, Christians, and Jews every day. The workshops that he started are working full time, giving employment to several hundred, making the souvenirs that are sold to pilgrims, and that were hitherto imported, while the population of the city was sitting in hopeless idleness

"But the most important element in the new life that has been given Jerusalem is the work of the health department, founded by Mr. Straus, under the direction of Dr. Bruenn, and established in a building furnished by the Ottoman Government. Active work was begun last August. The city was divided into thirty districts and was thoroughly studied by the agents of the health department. It was found that every fifth person in Jerusalem had malarial germs in his blood, and that every third person had an enlarged spleen.

"The chief causes of the malaria were found to be the open cisterns, which had become the breeding places of mosquitoes, and the pools that abounded in the city and around about. Immediate steps were taken to have the cisterns covered and the pools filled up. For the first time in centuries there is a real checking of the mosquito plague. The health work is now organized in four divisions:—

"1. General hygiene, especially the stamping out of malaria.

"2. Bacteriology and serology branch of Pasteur Institute, to deal with hydrophobia.

"3. Therapeutic division, to cope with foot and mouth disease.

"4. Eye dispensary, to wage a campaign against the infectious eye disease that causes so much blindness in Palestine."

Such measures, effectively and persistently prosecuted, should result in a genuine hygienic conquest of the Holy Land.

Antiquity of Surgery in Egypt.—In a recent lecture at London, Dr. F. M. Sandwith, consulting surgeon to the Khedive of Egypt, stated that the first authentic record of surgery in that country was at the time of the fifth dynasty, about 4000 B.C.

"The first surgical implements of which anything was known were splints found in the Nubian Desert. In one place a graveyard was found, and here were remains of bodies with fractured limbs that had been set with bark splints. One was a right thigh bone that had been broken, and was still held in position by a workmanlike splint and bandages. All the knots were true reef knots, and the wrappings showed how the strips of palm-fibre cloth were set just as a good surgeon would set them nowadays, so as to use the full strength of the fabric."

Amalgamation of Medical Schools.—It is announced that the Baltimore Medical College and the medical department of the University of Maryland have been officially united into a single school; also that the Medical College of Virginia and the University College of Medicine, at Richmond, Va., have been similarly amalgamated.

Red Cross Work in Flooded Districts.—A considerable work of medical relief and sanitation is being performed by the American Red Cross in the Western districts recently devastated by floods.

"About one hundred Red Cross trained nurses were immediately sent to the flooded country and are assisting not only in caring for the sick, but in coöperating with the sanitary inspectors in house-to-house visiting. Major Charles Lynch, U. S. A., of the Red Cross First Aid Department, is giving assistance in this sanitary work to Surgeon General Hall of the National Guard of Ohio. Where necessary, small emergency hospitals were established."

Report from the flooded district states that smallpox is epidemic in many small towns along the course of the Ohio River in Illinois, Indiana, Ohio and Kentucky.

Wisconsin Pure Syrup Law Invalid.—Report from Washington, D. C., states that on April 7 the federal supreme court declared the pure syrup law of Wisconsin invalid because the latter conflicted with the national pure food law.

BOSTON AND NEW ENGLAND.

Maine Insane Hospitals.—The recently published combined annual reports of the trustees, resident officers, and visiting committees of the Maine Insane Hospital at Augusta, and of the Eastern Maine Insane Hospital at Bangor, record the work of those institutions for the year ended Nov. 30, 1912. During that period 1184 patients were treated at the former and 750 at the latter. Five nurses were graduated from the former hospital training-school and eleven from the latter. A new home for nurses is urgently needed at the Augusta hospital; and at the Bangor hospital, additional land for a dairy farm.

Nomination of Dr. Rosenau.—It is announced that Governor Foss has nominated Dr. Milton J. Rosenau, of Boston, professor of preventive medicine and hygiene in the Harvard Medical School, to succeed the late Dr. Julian A. Mead as a member of the Massachusetts State Board of Health.

Brookline Free Hospital for Women.—On Wednesday of last week, April 9, a costume ball was given at the Copley-Plaza Hotel, Boston, for the benefit of the Brookline (Mass.) Free Hospital for Women. A sufficient sum was made to enable the hospital to remain open this coming summer.

Monson State Hospital.—The recently published annual report of the trustees of the Monson (Mass.) State Hospital records the work of that institution for the year ended Nov. 30, 1912. During this period the total number of patients under treatment was 1146, and eight nurses were graduated from the training school. Considerable was done in the way of additions, reconstructions, and other permanent improvements to the hospital buildings, and extensive field studies were made of epileptics, deviates and delinquents, particularly from the point of view of heredity. The work system of treatment has been much employed, with ever increasing success.

Northampton State Hospital.—The recently published fifty-seventh annual report of the trustees of the Northampton (Mass.) State Hospital records the work of that institution for the year ended Nov. 30, 1912. During this period the total number of patients under treatment was 1323, of whom 699 were men and 624 women. The hospital is overcrowded, and an appropriation of $41,000 is asked for the construction of a new dormitory. Appropriation is also asked for the purchase of two adjacent tracts of land for further enlargement.

Measles in Reading.—Report from Reading, Mass., on April 6 states that measles is at present epidemic in that town, where 40 cases have recently occurred among the pupils of a single school.

Gift of a Tuberculosis Hospital.—It is announced that Mrs. James Jordan, of Boston, has given a tract of 800 acres, with house, near Moncton, N. B., to the government of New Brunswick to be used as a hospital for incipient tuberculates.

"The original mansion has been rearranged for use of the nurses, superintendent, and also for kitchen, dining, recreation and reading rooms for the patients. Three pavilions are being completed in the grounds for the latter. Each will accommodate ten patients. Each has wide verandas and the doors of the bedrooms all open out on the verandas, so that except in very rough weather the beds are wheeled out, enabling the patients to sleep in the open air. Each pavilion is provided with a large bath-

room, a room for clothing, books, medicines and also a room for severe cases."

MASSACHUSETTS HOMEOPATHIC MEDICAL SOCIETY.—The seventy-third annual meeting and dinner of the Massachusetts Homeopathic Medical Society was held in Boston on Wednesday of last week, April 9. The annual address was given by the retiring president, Dr. George R. Southwick. The following officers were elected for the ensuing year:—

"Dr. Plumb Brown, of Springfield, president; Dr. John H. Paine, of Boston, first vice president; Dr. Mary A. Leavitt, of Boston, second vice-president; Dr. E. S. Calderwood, of Boston, recording secretary; Dr. B. T. Loring, of Boston, corresponding secretary; Dr. T. M. Strong, Boston, treasurer; Dr. George R. Southwick, of Boston, chairman of the board of censors."

BOSTON MORTALITY STATISTICS.—Cases of infectious diseases reported to the Boston Board of Health for the week ending April 8, 1913: Diphtheria, 46; scarlatina, 27; typhoid fever, 6; measles, 25; smallpox, 0; tuberculosis, 61, of which 5 were non-residents.

The death-rate of the reported deaths for the week was 14.39.

NEW YORK.

THE OHIO FLOODS.—Up to the evening of April 4 the New York contributions for the relief of the flood sufferers in Ohio and other States amounted to $631,050, and of this, $494,695 was given directly to the Red Cross fund. The Russell Sage Foundation has been making a study of the methods of relief adopted after the San Francisco earthquake and fire, and, by a remarkable coincidence, a book setting forth the results of these researches was just going to press when the news of the recent floods came. For the guidance and assistance of those engaged in the work of relief the Foundation has had advance sheets of portions of the book stuck off, and in these the necessary operations are treated of under six heads: organization and emergency periods, rehabilitation, business rehabilitation, housing rehabilitation, after-care, the aged and infirm.

PELLAGRA COMMISSION.—During the past week the Pellagra Commission, under the auspices of the New York Post-Graduate Hospital, the expense of which is paid by Col. R. M. Thompson, of New York, and J. M. MacFadden, of Philadelphia, again went to Spartanburg, S. C., to pursue its investigations in the spring and summer. As before, the head of the Commission is Capt. J. F. Siler of the U. S. A. Medical Corps.

COLUMBUS HOSPITAL.—At a dinner on April 1, at which Dr. Ramon Guiteras presided, a campaign was started to raise $200,000 for new buildings for the Columbus Hospital, which has outgrown the limited accommodations of its present quarters.

DEATHS FROM STREET ACCIDENTS.—During the first quarter of 1913 there has been a marked increase in deaths from street accidents in the city, notably from automobiles, over the corresponding quarters of the past two years. The figures given by the National Highways Protective Society are as follows:

	1913	1912	1911
Automobiles	51	39	19
Trolley cars	36	31	16
Wagons	19	21	19

DEPARTMENT OF SOCIAL WELFARE.—Mrs. A. A. Anderson, a daughter of the late Jeremiah Milbank, who with her brothers has in the last ten years contributed nearly $5,000,000 to benevolent objects, has now made a gift of $650,000 to the New York Association for Improving the Condition of the Poor for a department of social welfare. In her letter offering this fund she expresses the wish that the proposed department should concern itself with a program based upon preventive and constructive measures which should include those activities calculated to prevent sickness and thus diminish poverty, such, for example, as the promotion of cleanliness and sanitation, and aid in securing a proper food supply. She then suggests at least three sub-departments or committees: one dealing with matters pertaining to public health and hygiene, one with those pertaining to the welfare of school children, and one with those pertaining to food supply. A tentative program in accordance with these suggestions has been outlined by the association, and it is stated that a committee on public health and hygiene will, among other things, continue the public bath work which the society started in 1891. It will have supervision over the Milbank Memorial Baths and will coöperate with the city in increasing and popularizing public bathing facilities.

The Communion Chalice.—Dr. E. L. Trudeau has published in a recent number of *The Churchman* a suggestive communication in regard to the administration of the chalice in the Communion service. The question of any possible danger of conveying infection by this means has, he says, long been of the deepest interest at Saranac Lake, in view of the number of invalids there. Some three years ago, with the approval of the bishop of the diocese, the simple plan of dipping the wafer in the wine and placing both at one time between the lips of the recipient was adopted. No opposition has been elicited, the well and the sick have communed together with the utmost freedom, and the number of communicants has been greatly increased since the change was made. On purely bacteriological grounds, he goes on to say, the objection to the direct contact of the lips to the chalice has, so far as the transmission of tuberculosis is concerned, perhaps been exaggerated, and, after some discussion of this point, concludes as follows: "Although there may be widely differing views held among bacteriologists and physicians as to the possibility of transmitting diseases by the usual method of the administration of the chalice, there is no doubt at all that many communicants are deterred by the fear of contagion, and that the method in use here entirely does away with this objection. The Church must decide whether of her own accord to initiate this slight change, or whether to wait the possibility of being required to do so by health authorities."

Current Literature.

Medical Record.

March 29, 1913.

1. Beard, J. *On the Occurrence of Dextrorotatory Albumins in Organic Nature.*
2. Mayo, T. J. *The Action and Administration of Crotalin in Pulmonary Consumption and in Epilepsy.*
3. Williams, E. H., and Brown, J. S. *The Menace of the "Recovered" Insane.*
4. *Boehme, G. F., Jr. *The Differential Diagnosis Between Pneumonia and Appendicitis.*
5. Boldt, H. J. *A Brief Comparison Between Hospital Service in Germany and That in the United States, with a Reference to the Requirements for Medical Practice.*
6. Sill, E. M. *The Treatment of Erysipelas in Infants by Means of Vaccines.*

4. Boehme discusses the differential diagnosis between pneumonia and appendicitis which, he points out, are more often confounded than one would suppose. He calls attention especially to the abdominal symptoms of pneumonia——pain, tenderness, rigidity, tympanites, nausea and vomiting. The most important aid to correct diagnosis in these cases is the character of the abdominal tenderness, which in pneumonia is more general and more superficial than in appendicitis. [L. D. C.]

New York Medical Journal.

March 29, 1913.

1. Mackee, G. M., and Remer, J. *Massive Dose X-ray Treatment of Cutaneous Epithelioma.*
2. Boldnan, C. F. *Hospital Morbidity Statistics.*
3. Cumston, C. G. *Suprapubic Cystostomy.*
4. Tousey, S. *An Improved X-ray Generator.*
5. *Aikman, J. *Extract of the Suprarenal Glands.*
6. Hyman, A., and Sanders, A. S. *Chronic Seminal Vesiculitis.*
7. Knapp, M. I. *Newer Teachings of Diseases of Gastro-intestinal Canal.*
8. Dreuford, G., and Hirshberg, L. K. *Dreaming and Dreams.*
9. Wertheimer, H. G. *Hyperidrosis; Etiology and Treatment.*
10. Lavandera, M. *A Plea for More Expert Anesthetists.*
11. Lubman, M. *The Prevention of Middle Ear Diseases.*
12. Gilbridge, J. J. *Ten Cases of Goitre.*
13. Glasgow, L. E. *Salvarsan in Asthma.*
14. Knoop, F. *Modern Problems of Nutrition.*

5. Aikman writes an interesting paper on the therapeutic uses of suprarenal extract. He says that constitutional effects are obtained only by hypodermic injections or intravenous infusions. The hemostatic effect is obtained only by local applications. Given by the mouth, suprarenal extract has little or no action aside from the local effects. It should not be used in the treatment of pulmonary or cerebral hemorrhages. Failures in the treatment of bronchial asthma are generally due to faulty diagnosis or improper administration of the drug. [L. D. C.]

The Journal of the American Medical Association.

April 5, 1913.

1. Grant, W. W. *Ligneous Phlegmon of the Abdominal Wall.*
2. Figueroa, S. *A New Method of Shortening the Round Ligaments.*
3. *Albee, F. H. *An Experimental Study of Bone Growth and the Spinal Bone Transplant.*
4. Lyon, E. P. *The Problem of Teaching General Medicine.*
5. Burr, C. W. *The Teaching of Psychiatry.*
6. Dercum, F. X. *The Teaching of Insanity.*
7. Gould, G. M. *Saving the Backward School Child.*
8. Hirschfelder, J. O. *The Treatment of Gonorrheal and Other Infections with Digestive Bacterial Extracts.*
9. Neuhof, S. *A Case of Congenital Familial Dextrocardia with Electrocardiographic Curves.*
10. Baetz, W. *One Hundred Cases of Acute Arthritis Among the Negro Laborers on the Panama Canal.*
11. Wesson, M. B. *Rabies. A Pathognomonic Sign Generally Overlooked.*
12. Thomas, S. B. A. *The Preparation and Employment, in a Series of Cases, of a Potent Polyvalent Antistaphylococcic Serum.*
13. Underhill, A. J. *Intermittent Pyuria Due to Infection of the Prostatic Utricle.*

3. Albee expresses the following opinions in regard to the growth of bone grafts. Many liberties may be

taken with the bone graft without interfering with its success. It has certain bacteria-resisting properties. Grafts may be kept in salt solution or on ice or several days before use. It seems probable that the amount of Haversian blood-supply is, in a very large degree, if not wholly, responsible in determining whether bone graft lives as such or acts as an osteoconduction scaffold. The transplant apparently acts always as a stimulant to osteogenesis on the part of the bone into which it is implanted. It seems largely a question of definition of what the periosteum really is, and what it includes, as to whether it is to be actively osteogenetic or not. If by chance the cleavage is deep, as when the periosteum is removed with a sharp elevator and the bone scraped, the periosteum is very sure to be actively osteogenetic. On the other hand, if the periosteum is stripped off or removed by a blunt instrument, the cleavage is not likely to be deep enough to include the osteogenetic layer of cells on the periphery of the compact bone. In that instance the periosteum would constitute a connective tissue limiting membrane only and slight or no osteogenesis would occur. [E. H. R.]

Surgery, Gynecology, and Obstetrics.

March, 1913.

1. Mayo, W. J. *Surgery of the Spleen.*
2. Wilson, L. B. *The Pathology of Splenomegaly; a Study of the Operative and Autopsy Material from the Mayo Clinic.*
3. *Weibel, W. *The Extended Abdominal Radical Operation for Cancer of the Uterus.*
4. *Clark, J. G. *The Radical Abdominal Operation for Cancer of the Uterus.*
5. Cullen, T. S. *The Radical Operation for Cancer of the Uterus.*
6. *Werder, X. O. *The Cautery in the Radical Treatment of Cancer of the Cervix.*
7. Dickinson, R. L. *Discussion of Paper on "Cancer of the Cervix."*
8. Gellhorn, G. *The Extended Vaginal Operation for Cancer of the Cervix Uteri.*
9. Taylor, H. C. *Discussion of Papers on "Cancer of the Uterus."*
10. *Neel, J. C. *Results After the Wertheim Operation for Carcinoma of the Cervix of the Uterus.*
11. *Robinson, S. *Intratracheal Ether Anesthesia.*
12. James, C. S., and Shuman, J. W. *Seminal Calculi Simulating Nephrolithiasis.*
13. Sampson, J. A. *Results of the Radical Abdominal Operation for Cancer of the Uterine Cervix.*
14. Kelly, H. A., and Lewis, R. M. *Skiagraphic Demonstration of Vesical Tumors.*
15. Cubbins, W. R., and Marvel, W. J. *General Plastic Peritonitis.*
16. Miller, J. R. *The Relation Between Sarcoma and Myoma of the Uterus and Its Bearing on X-ray Therapy of Uterine Myomata.*
17. McKenna, C. H. *A Report on Two Cases of Cervical Rib and an Operative Measure to Prevent Recurrence of Symptoms.*
18. Turck, R. C. *Lateral Intestinal Anastomosis, a Modification of the Ferguson-Grant Method.*
19. Good, F. L. *A New Obstetrical Rubber Dilating Bag.*
20. Hirst, B. C. *Rupture of the Uterus.*
21. Kolischer, G. *The After-Treatment of Suprapubic Prostatectomy.*
22. Porter, J. L. *The Treatment of Tuberculous Joints.*

3. Weibel, studying 863 cases of cancer of the cervix, finds 53% of permanent cures of all cases surviving operation. By permanent cure is meant no recurrence after five years. In the last 175 operations the mortality was reduced to 9%.

4. Clark believes that the radical operation in spite of the high mortality has given the highest per cent. of cures of any operation thus far employed for this condition. The abandonment of the extensive glandular dissection is justified because it adds greatly to the mortality and does not sufficiently raise the percentage of permanent cures.

6. Werder is strongly in favor of extensive igni-extirpation of the vaginal vault and the parametrium by the vaginal route in cancer of the cervix. He warns that we should look out for the late recurrence after 6-8 years in all operative procedures.

10. Neel, analyzing cases at Johns Hopkins Hospital, finds that the primary mortality has been decreased from 28.5% for the first 7 years to 11.7% for the last 5 years. He believes that exploratory laparotomy is often necessary to determine the operability of a case before the extended operation is undertaken.

11. Robinson concludes that intratracheal insufflation anesthesia is a safe method. It is the method of choice in operations about the head, neck and thorax, and should reduce the mortality in these operations. Operative shock is lessened, and post-operative recovery is less exhausting. [E. H. R.]

The Lancet.

March 8, 1913.

1. *Adams, J. E. *Hunterian Lecture on Peritoneal Adhesions.*
2. *Berry, J. *Lettsomian Lecture on the Surgery of the Thyroid Gland, with Special Reference to Exophthalmic Goitre. Lecture II.*
3. *Müller, F. *Principles of Percussion and Auscultation.*
4. Ward, G. R. *The Blood in Cancer with Bone Metastases.*
5. Core, D. E. *Fatal Hematemesis in a Case of Hepatic Syphilis.*
6. Hall, G., and Angus, H. B. *Case of Subcortical Cerebral Tumor, Tuberculous in Nature, Removed by Operation; Recovery.*
7. *Bardswell, N. D. *The Treatment of Pulmonary Tuberculosis.*

1. Adams in the Hunterian Lecture, presents an interesting experimental study on peritoneal adhesions. He considers the nature of such adhesions, infective and non-infective, as produced by sterile sponges, etc. He shows that sterile rubber drainage tubes are so soon covered by adhesions as to lower their value except in abscess centers. The leaving of blood in the abdominal cavity does not seem to particularly excite the formation of adhesions. He describes various experiments by which adhesions were produced. He discusses the valuable rôle played by the omentum in localizing inflammatory processes by forming adhesions and describes the movements of the omentum. He goes over the various methods of attempting to prevent and cure adhesions by the use of lubricants, omental grafts, etc.

2. In the second Lettsomian Lecture Berry discusses to what extent operation is justifiable in Graves' disease, first considering the results of medical treatment, which he thinks does very little to influence the course of the disease. In his own cases the operative mortality was very small. He discusses the selection of cases for operation, the advantages of operation, which he considers great, the question of anesthesia and the relative advantages and indications for the various operations, ligation of the arteries, partial excision, and the dangers of total excision. Finally, he states that in his opinion treatment should be carried out jointly by both physician and surgeon.

3. Müller discusses the underlying physical and acoustic principles of auscultation and percussion. He urges that these two methods be placed on a more solid scientific basis.

7. Bardswell discusses the immediate and ultimate results of treatment of pulmonary tuberculosis at the King Edward VII Sanatorium. For statistical purposes all cases should be divided into two classes, those with and those without a positive sputum. He emphasizes the great prognostic importance of the disappearance of tubercle bacilli from the sputum. The article is of interest and value to those especially interested in the subject. [J. B. H.]

March 15, 1913.

1. *Berry, J. *Lettsomian Lecture on the Surgery of the Thyroid Gland with Special Reference to Exophthalmic Goitre. Lecture III.*
2. *White, W. H. *Alimentary Toxemia.*
3. Murray, R. W. *The Etiology of Cysts Connected with Hernia Sacs.*
4. Bradburne, A. A. *Spastic Cyclophoria.*
5. Reynolds, J., and Reynolds, R. J. *On the Treatment of Carbuncles, Boils, Staphylococcic Infections, and Certain Streptococcic Infections by the Internal Administration of Large Doses of Dilute Sulphuric Acid.*
6. Bardswell, N. D. *The Treatment of Pulmonary Tuberculosis. II.*
7. Wood-Jones, F. *Some Anatomical Considerations of the Disposition of the Sciatic Nerve and Femoral Artery; with Suggestions as to Their Clinical Significance.*
8. Aikman, J. *An Unusual Abdominal Case.*
9. Fitzwilliams, D. C. L., and Vincent, W. H. *A Case of Gangrene of the Leg in an Infant Eleven Days Old; Amputation; Recovery.*

1. In the third Lettsomian Lecture, Berry discusses and analyzes his own series of 400 operations for the removal of goitre. Parenchymatous goitres, he believes should rarely be treated by operation but by medical means, such as "the administration of iodine in some form or other, or of arsenic or thyroid extract." He tabulates his reasons for operating in his cases, among which come chiefly dyspnea, 209, and discomfort, 57. He goes on to consider adenomata and cysts of the thyroid, intrathoracic goitres and malignant disease of the thyroid.

2. Cf. *British Medical Journal*, March 15, 1913. [J. B. H.]

March 22, 1913.

1. *Hall, F. D. H. *The Lumleian Lectures on Intrathoracic Aneurysm. Lecture I.*
2. *Bell, W. B. *The Arris and Gale Lectures on the Genital Functions of the Ductless Glands in the Female. Lecture I.*
3. Hertz, A. F. *Bastede's Sign: a New Symptom of Chronic Appendicitis.*
4. Turner, D. F. D. *Cases Treated by Radium in the Royal Infirmary.*
5. Wallace, C. F. *Hyperextension and "Back-fire" Injuries of the Wrist.*
6. MacNab, A. *Ionic Medication in Herpes Zoster.*
7. Smith, H. L. *The Nature of Tea Infusions.*

1. Hall discusses intrathoracic aneurysm as to etiology, situations and symptoms. These he takes up in detail under the following headings: (1) pain, (2) respiratory, (3) laryngeal, (4) circulatory, (5) dysphagia, (6) paraplegia and hemiplegia, and (7) general symptoms. He discusses physical signs at some length.

2. Bell, in the first of the Arris and Gale Lectures, discusses the functions of the ovary, the effect of the removal upon the genital functions, upon general metabolism, upon the thyroid and pineal glands and upon the suprarenals. He then considers certain clinical observations of the effects produced upon the thyroid and upon the pituitary by ovarian insufficiency. [J. B. H.]

British Medical Journal.

March 8, 1913.

1. *Price, F. W. *An Address on Recent Advances in the Diagnosis, Prognosis and Treatment of Heart Disease. The Polygraph.*
2. *Lewis, T. *An Address on Certain Physical Signs of Myocardial Involvement.*
3. Thorne, W. B. *Manifestations of a Healthy Heart.*
4. Naish, A. E. *The Ventricular Rate in Complete Heart-block.*
5. Samways, D. W. *The Auricle in Mitral Stenosis.*
6. *Jex-Blake, A. J. *The Goulstonian Lectures on Death by Electric Currents and by Lightning. Lecture II.*

1. Price, in a somewhat complex and detailed paper, discusses the modern methods of diagnosing and investigating various cardiac conditions by means of heart tracings and the polygraph, giving both auricular and ventricular movements. He dwells particularly upon digitalis and its uses, why it is so effective in one case and apparently valueless in another. Under treatment he urges prolonged rest, both physical and mental. In cases with widespread degeneration of the heart muscle and in cases where there is pyrexia digitalis will do no good. In fibrillation of the auricles it is of the greatest value. He advises pushing the drug until toxic symptoms are in evidence.

2. Lewis, in an article covering much of the ground of the previous one, considers acute and subacute heart block and other evidences of myocardial degeneration, temporary and permanent.

6. In the second Goulstonian Lecture Jex-Blake continues his discussion of death by electric currents. He dwells particularly upon the influence of fright, general anesthesia and sleep upon such currents. [J. B. H.]

March 15, 1913.

ALIMENTARY TOXEMIA.

1. *White, W. H. *Introduction.*
2. *Andrews, F. W. *Bacteriology.*
3. *Saundby, R. *Medical Point of View.*
4. Lane, W. A. *Surgical Point of View.*
5. *Jex-Blake, A. J. *The Goulstonian Lectures on Death by Electric Currents and by Lightning. Lecture III.*
6. *Bonney, V. *The Necessity of Recognizing Midwifery as a Branch of Surgery.*

1. White briefly discusses the subject of alimentary toxemia in a general way, describing the previous work done on the subject by Herter and others, the symptoms and their relation to allied conditions.

2. Andrews, taking up the subject from the bacteriological point of view describes the conditions for bacterial growth offered by the alimentary canal, the biological character of the normal flora of the canal, the number and nature of the bacteria at different levels, their effect upon the healthy body, and the influence of pathological conditions upon them and the part they play in alimentary toxemia. In a large group of cases the poisoning is by foreign proteins with which bacteria have nothing to do. There is little evidence at present that true toxins derived from the ordinary fauna of the gut, soluble or intracellular, play much part in alimentary toxemia.

3. Saundby discusses the symptoms of alimentary toxemia and comes to the conclusion that infrequent or incomplete evacuation of the colon is not in itself a cause of disease, but that such symptoms which may arise under this condition, are due to a breaking down of the normal protective mechanism. Evidence does not justify the entire exclusion of proteid food from

the diet on the theory that from animal proteins all such toxemia arises. Treatment should be based on eliminating toxins and preventing their further formation. In case of extensive disease of the wall of the colon the exclusion or removal of this organ is a justifiable procedure after reasonable trial has been given to medical methods.

5. In the third Goulstonian Lecture Jex-Blake considers death by lightning. In the United States in the year 1900 there were from 700 to 800 such deaths. He discusses the nature of lightning, intensity of the current, etc., classifies the various kinds of flashes and mentions the various theories of death in such cases. He considers at length the post-mortem changes and quotes several illustrative cases.

6. Bonney makes a strong plea to consider obstetrics as a branch of surgery, instead of an appanage to medicine. (Such a paper should be quite unnecessary; unfortunately this is not the case.—J. B. H.)

March 22, 1913.

1. Rankin, G. *A Lecture on Glycosuria.*
2. Stockman, R. *The Action of Salicylic Acid and Clinically Allied Bodies in Rheumatic Fever.*
3. *Jex-Blake, A. J. *The Goulstonian Lectures on Death by Electric Currents and by Lightning. Lecture III.*
4. *Watson, C. *Remarks on the Food Requirements of Children.*
5. Turner, D. *Cases Treated by Radium in the Royal Infirmary, Edinburgh, During 1912.*

3. Jex-Blake, in the third Goulstonian Lecture, reviews the causes of death by lightning, failure of the heart, failure of respiration, and both together. Unless sudden death takes place the percentage of recoveries is large. He gives some interesting and sensible remarks upon prevention. The oak tree, for instance, is forty or fifty times more liable to be struck than the beech; a forest is safer than an isolated tree; it is safer to lie or sit than to stand up; umbrellas should not be kept up; it is always wise to have a dog along as animals are more apt to be struck than humans. (This is rough on the dog.—J. B. H.) Treatment consists chiefly of artificial respiration. There is a very lengthy bibliography.

4. Watson has been making investigations: (1) to ascertain by chemical analysis the amount of food consumed daily by apparently healthy children about five years old, in good social circumstances, and (2) to devise nutritious one-course meals at small cost suitable for a large number of children, 2000 or more, fed by the school authorities. The paper does not lend itself to review but is an interesting and valuable contribution to the subject. [J. B. H.]

Miscellany.

DR. HERBERT B. HOWARD'S RETIREMENT FROM BOARD OF INSANITY.

The State Board of Insanity, at its meeting April 4th, adopted the following resolutions on the retirement of Dr. Herbert B. Howard, chairman, as a member of the Board:—

Resolved, That in the retirement of Dr. Herbert B. Howard as a member of the State Board of Insanity, the Board loses a tried and competent member and the State a public servant of integrity and unusual experience.

Dr. Howard had a career which eminently fitted him for the work and responsibilities of this Board through long and varied association with State and private institutions. He became assistant physician of the State Infirmary in 1884, and its superintendent in 1891. In 1897 he resigned this position to become superintendent of the Massachusetts General Hospital. In 1908, he resigned from the Massachusetts General Hospital to assume the superintendency of the Peter Bent Brigham Hospital, a position which he now holds. His connection with the State Board of Insanity dated from its establishment in 1898. In 1902 he resigned to become trustee and chairman of the Gardner State Colony; and on his resignation in 1907, he was reappointed a member of the State Board of Insanity, of which he became chairman in 1908, a position which he filled with dignity and efficiency until March, 1913.

His colleagues on the State Board of Insanity hereby place on record their deep appreciation of his work as a member of the Board and their recognition of his sterling qualities as a man.

Correspondence.

LETTER FROM FRANCE.

The Latest Uric Acid Solvents.

(From Our Special Correspondent.)

Paris, March 7, 1913.

The excellent saying that there are some popular beliefs that have to be killed, as they will never die, is perhaps nowhere truer than in the uric acid question. So far as I can observe, the belief of the substance as a pathogenic agent is just as firm today as it was twenty years ago, in spite of all that has been written about it by the men who have taken as their special field the department of nutrition disorders. Though on reflexion this is maybe not surprising, for what comparison can there be between the dictum of learned men, and the advertisement column of the daily paper? Naturally none; the odds are too great. And I fancy that the real enemy, the foe that is dying so hard, is the manufacturer of the patent uric acid solvent, whose wares, at least over here, are heralded in every sheet in flamboyant characters, and, it must be confessed, with clever and humorous illustrations.

The latest offender, the preparation that has driven me to my pen again, is,—. No I will not help it along even by the feeble means at my command,—this exploiting of public credulity is really too lamentable. Suffice it to say that following on its two or three score of predecessors there is now on the market here a remedy that we will call X that is in the hands of some pretty skilful promoters, according to French ideas. There is a saying in France that you can make *anything* sell provided you have courage enough to dump load after load of money into the bottomless pit of advertising, without expecting to get any return whatever for a more or less extended period; the courage consists in going steadily ahead until the returns do begin to show up. Now the point is that this is a remarkably canny folk, not given to letting money get very far out of sight, for fear it may not be able to find its way home again. The consequence is that their ideas on advertising are what we should

call infantile. Since newspaper advertising costs a good deal of money, they, as a general thing, do not have recourse to it; thus their largest general daily papers consist in only six or, at the most, eight pages, mostly reading matter. The popular means of bringing a pharmaceutical product to the public's notice is either to send small leaflets by post to the persons they think the question may interest, or else to hire some needy-looking individual who has made a failure in every other path of life to go around and visit the same parties and expatiate on the virtues of the preparation. The result of these two practices is, that the leaflet passes into the basket unopened, while after the agent has departed you sit down to make a careful note of his wares so that you may be sure never, never to use them under any circumstances whatever.

This being the general practice here the methods followed by the promoters of the product X are so entirely different that I have wondered whether the owners are not in reality Americans. I am told that advertising in French dailies is very expensive, as they are not exactly charity organizations; they have in addition one little game of highwaymanship that is really most attractive. You advertise your product freely in a couple of the leading papers, and only moderately, or not at all, in papers of lesser ranks. All of a sudden you are surprised by a strong adverse current of opinion blowing from the columns of the latter, and on inquiring as to the cause you are told that you are deliberately being held up, in order to force you to advertize in their sheet also! But the X-men have made no such mistake. Anything that you pick up has the X-ad. in it somewhere; it is flashed on the drop-curtains of the theatres between the acts as you sit there helpless; and in one of the most important dailies clever illustrations have appeared, half of the outside page, if you please, representing a male nurse with a powerful scrubbing-brush hard at work cleaning out a split-open kidney, or a disordered liver,—so that even the densest intellect can be in no doubt as to the action of the preparation. How there can possibly be enough people in circulation burning to flush out their excessive uric acid, to warrant such wholesale advertising as this, passes my comprehension, even granting that uric acid can be in excess and needs washing out! But that is the affair of the X-company, and not mine, fortunately.

The imperturbability of the man in the street, and perhaps even more of the wife of his bosom, in this uric acid question is dumbfounding. He has, of course, ideas on most medical matters, but on many of them he is prepared to admit that he does not possess the whole truth, and that there may be grounds for doubt or discussion. But not so with uric acid. This substance he knows all about, and he knows just what it does; he knows when his system is thoroughly saturated; his chemist will measure his daily output for him in hundredths or thousandths of a gram, if he wishes; and he is just as thoroughly convinced of the accuracy of his little mental equation: uric acid= more or less all the symptoms that custom has led us to group together under the heading of gout-rheumatism, or arthritism, to use the term adopted over here, as he is that the sun will rise tomorrow. To attempt to argue on the subject is useless; even with the most intelligent. It is the breaking-point, in medical matters. They will admit skepticism in pretty much anything, but not on the uric acid question; so that it is really better to bow before such fixity of purpose, and hope for better days.

I had been meditating on the meteoric career of this X-product a good deal of late, when the other day a woman came back from Lausanne with what I take to be the very latest touch in the uric acid solvent line, and this time I think the other rivals will really have to sit up, as the new notion is going to be very attractive to this gullible flock of clients and will certainly push all the —al class of drugs very hard,—in fact would unquestionably run them clear off the field were it not for the one item of expense,—for the newcomer is a very costly affair.

I have on a former occasion referred to the medical community that has been gradually worked up at Lausanne, where a certain band of impenitent fakirs have been treating the whole of Europe of late years for gastro-intestinal disorders with a combination of hot alkaline solution, messy paps, and blueberry jam. Lausanne has become a regular pool of Siloam; certain doctors have entire hotels given up to their patients only; and the place has in a way grown to be a species of little Mecca, outside of whose precincts salvation is not to be had. Thus soda and macaroni will not work in London, or New York; they have to be administered *in situ* by the master hand. Well, these fellows have surpassed themselves this time. I once asked an elderly medical man who had retired at the close of a long and prosperous career, to what he attributed his success in the main, as he did not appear to me to be gifted beyond many another brother practitioner. "Well, doctor," said he, with a penetrating look, "I think I always had a fertile mind," and he pronounced it with a good long i that was very effective,—meaning that whenever one drug demonstrated its want of efficacy he was never at a moment's loss for another one to take its place. Now these Lausanne brethren are unquestionably endowed with minds of a similar order. For what they advise as a uric acid solvent you would never guess from now until Doomsday. Radium! but radium given in the following manner,—which you will at once see has its practical side.

They have an apparatus fitted with a reservoir for water, a radium cell, and a measuring contrivance. So many c.c. of water remain in the vicinity of the cell for so long, and are then administered to the patient, who comes to the hospital every day, begins at a low quantity, rises to a maximum by gradual stages, and then returns again in a similar way to the starting-point, the entire cycle covering a period of about 24 days. This radiated water is absorbed with the circulation, dissolves the lumps of uric acid which are naturally being swept along the vessels, very much like pebbles in a mountain stream, and, in short, renders inestimable services to the patient,—not to speak of the doctor's bankbook.

However, in my patient's case the result was not according to schedule. They have, by the way, now introduced a new dodge into the question. In times gone by patients were quite satisfied to know the number of centigrams of uric acid eliminated per liter of urine. It meant nothing at all, scientifically; but it was a definite mathematical figure, and we all know the fascination such details have for the average patient. But now the question has advanced, and been put on a firmer foundation, for the patients are told how many milligrams of uric acid their blood contains per 100 cc.! A puncture of the finger is made, which hurts like the dickens, as a certain volume of blood is requisite for this analysis, and the laboratory does the estimating. Now in my case something went wrong. The patient says the water was radiated each day by a different attendant, each one of whom submitted it to a different duration of radiation, and the results were approximately as follows,—I have purposely changed the figures a little. Before treatment, uric acid of the urine, per diem 0.32; of the blood, per 100 cc., seven milligr. After two weeks' treatment, 0.35, and eleven. And on return to Paris, 0.48, and fourteen! However, there is simply no discouraging this class of patient, and he has found a man here who says that it is not necessary for the victim to come to the doctor to draw the *elixir vitae* fresh from the tap, but that he will prepare it for him in his laboratory and deliver it each day at his house, and the treatment is to continue! [This idea may possibly commend itself to some enterprising mind at home in search of the new,—although in my inmost heart I trust that the whole affair will in America meet with the estimation it so richly deserves.]

"S."

A POST-MORTEM PORTRAIT OF CHARLES THE FIRST.

Salem, April 4, 1913.

Mr. Editor: In Guey and Ferrier's "Forensic Medicine," (London, 1875), there is a plate of the unfortunate Charles I, taken 165 years after his execution.

Hardly a person could fail to recognize the likeness of the unfortunate monarch.

As you say,* he was a better man than either his father or his son!

Very truly yours,

DAVID COGGIN, M.D.

* See JOURNAL of April 3, 1913, (vol. clxviii, p. 516).

CHANGES IN THE NAVY MEDICAL CORPS.

The following changes have been made in the Medical Corps, U. S. Navy, for the week ending April 5, 1913.

BIELLO, J. A., passed assistant surgeon. Detached from Nav. Hosp., Mare Island, Cal., and ordered to U. S. *Delaware.*

POST, D. C., assistant surgeon. Detached from Navy Yard, New York, N. Y., and ordered to U. S. S. *Glacier.*

DAVIDSON, A. B., assistant surgeon. Detached from U. S. S. *Glacier,* and ordered home to await orders.

ROBERTSON, G. E., assistant surgeon. Detached from U. S. S. *Petrel,* and ordered to Marine Expeditionary Force.

DRAGOO, C. H., assistant surgeon. Detached from Marine Expeditionary Force, and ordered to U. S. S. *Petrel.*

FINDEISEN, W. E., assistant surgeon. Detached from Marine Expeditionary Force, and ordered to U. S. S. *Wheeling.*

WOOD, C. C., asistant surgeon. Detached from Marine Expeditionary Force, and ordered to U. S. S. *Nashville.*

RIDDICK W. J., assistant surgeon. Detached from U. S. S. *Wheeling,* and ordered to Marine Expeditionary Force.

JENKINS, H. E., assistant surgeon. Detached from U. S. S. *Nashville,* and ordered to Marine Expeditionary Force.

FRENCH, G. R. W., assistant surgeon. Detached from U. S. S. *Panther,* and ordered home to await orders.

CHARLTON, C. F., assistant surgeon. Detached from Nav. Hosp., New York, N. Y., and ordered to U. S. S. *Panther.*

CONNOR, W. H., assistant surgeon. Detached from Nav. Hosp., Newport, R. I., and ordered to Washington, D. C., examination for promotion.

SOCIETY NOTICES.

HARVEY SOCIETY.—The annual meeting of the Harvey Society will be held at the College of Physicians and Surgeons, 437 West 59th Street, New York, on Friday evening, April 18, at 8.30 p. m.

HAVEN EMERSON, *Secretary.*
120 East 62d Street.

NEW ENGLAND PEDIATRIC SOCIETY.—The twenty-seventh meeting of the New England Pediatric Society will be held at the Boston Medical Library, at 8.15 p. m., on Friday, April 25, 1913.

The following papers will be read:

1. One Hundred and Seventeen Cases of Infantile Diarrhea Treated by Intestinal Implantation of the Bacillus Lactis Bulgaricus at The Babies' Hospital of New York. Ralph Oakley Clock, M.D., New York.

2. Congenital Stenosis of the Pylorus with X-ray Plates. Charles G. Mixter, M.D., Boston.

3. Tonsils and Adenoids in Children. Algernon Coolidge, M.D., Boston, and F. E. Garland, M.D., Boston.

Light refreshments will be served after the meeting.

JAMES S. STONE, M.D., *President.*
FRITZ B. TALBOT, M.D., *Secretary.*

SUFFOLK DISTRICT MEDICAL SOCIETY.—The annual meeting will be held at the Boston Medical Library, 8 The Fenway, Saturday, April 26, 1913, at 8.15 p. m.

Paper by Dr. Harvey Cushing. The Surgical Aspects of Pituitary Disease.

Discussion.

Business: Report of the Librarian, Treasurer, etc. Election of Officers. Consideration of amendment to By-laws (as enclosed).

Refreshments after the meeting.

FRANK B. HARRINGTON, M.D.,
President.
WALTER C. HOWE, M.D.,
Secretary.

BOOKS AND PAMPHLETS RECEIVED.

Modern Methods of Drug Standardization of F. E. Stewart, M.D., PhG. Germantown, Pa. Reprint.

Boston Lying-in Hospital, A Statement about its Service to Patients and the Public, its Managers, Physicians, and Nurses, and an account of its work in 1912. Boston, 1913.

Bulletin of The Lying-in Hospital of the City of New York, 1913.

University of Pittsburg. The School of Medicine, Bulletin 1912-1913.

Die Behandlung der Lungentuberkulose im Hochgebirge, by Dr. med. O. Amrein. Wiesbaden.

Bulletin of the Massachusetts Institute of Technology. Summer Courses, 1912.

A Contribution to the Problem of Convalescence, by Dr. Fred Brush, New York, N. Y.

RECENT DEATHS.

DR. FRANK LITTLE, of Brooklyn, N. Y., died April 4, at the age of 58 years. He was a native of Ridgeway, Penn., and was graduated at Wooster, Ohio, in 1881. He was formerly on the visiting staff of the Kings County Hospital.

DR. JOHN EDWARDS, of Gloversville, N. Y., died April 4. He was 66 years old, and was graduated from the College of Physicians and Surgeons, New York, in 1869. He was visiting physician to the Nathan Littauer Hospital and had been health officer of Gloversville for many years.

DR. SAMUEL RICHMOND, of the house staff of the Atlantic City Hospital, died March 31 at the home of his father in Passaic, N. J. He was in the 26th year of his age, and a graduate of the University of Virginia.

DR. M. ORDWAY DALY, who died on April 6 at Dorchester, Mass., was born in Boston on April 13, 1866. He graduated from the Boston Dental College in 1888, and since that time had practised his profession in Boston. He it survived by his widow and by one son.

DR. GEORGE MCCLELLAN, who died of cardiac disease on March 30, at Philadelphia, was born in 1858. He was professor of applied anatomy at the Jefferson Medical College.

Original Articles.

TRICHINOSIS.*

BY THOMAS F. LEEN, M.D., BOSTON.

Physician in Chief to the Carney Hospital, and Assistant in the Theory and Practice of Physic at the Harvard Medical School.

Of parasitic diseases none better than trichinosis opened up pathways for scientific progress and study, from the time in 1828 when small calcareous bodies were noticed in human muscle, up to 1898, when Thayer and Brown found practically pathognomonic blood changes pointing to an animal parasite in this disease. And at present, though of great economic interest, it has thrown open to biologists important questions, one in particular, the origin of the eosinophile, which, if discovered will be an important scientific acquisition. Clinically, the disease is a definite entity, with a symptom-complex based on pathological soundness, and though not frequent may be generally readily diagnosed. From this view it will be presented, as well as its interesting medical history, and the simple pathology of the parasite, which in every disease is of the utmost importance for proper understanding and treatment.

During the past six years there have been two cases at the Carney Hospital, the more recent one last October.

It is a febrile infectious disease appearing sporadically or epidemically, originating by infection with an animal parasite, a round worm, the trichinella spiralis, contained in pork, eaten raw or insufficiently cooked. Before 1860, the presence of the parasites in the muscles was regarded as an anatomical curiosity, until Zenker reported clinically his classical case in Virchow's Archives, Band xviii, which may be said to be the most important helminthological contribution of the 19th century.

Case 1. A girl aged 20 was admitted to the Dresden City Hospital on Jan. 12, 1860. She had been ailing from Christmas and about New Year had to go to bed, complaining of debility, sleeplessness, loss of appetite, constipation, fever and thirst. At first the fever was very intense and the abdomen distended and painful. Although there was no enlargement of the spleen, and rose-spots were absent, the diagnosis of typhoid was made. Very soon there developed throughout the entire muscular system, extreme pain, particularly in the extremities, so that she complained day and night. The arms and legs were bent at the elbows and knee-joints, and could not be extended without the greatest pain. An edematous swelling of the legs was present. Later a low typhoidal pneumonia appeared. The patient became profoundly apathetic and died on Jan. 27. The autopsy was performed next day, and to quote Zenker, "one can judge of my astonishment when I, in the first microscopic preparation, saw at a glance a dozen, non-encapsulated free trichinae in the parenchyma of the muscles." Further investigation showed the muscles swarming with worms. No involvement of Peyer's patches was present.

In this case he determined two points of vital importance, first, the presence of living adult trichinae in the intestines, and, second, found muscle-trichinae in the flesh of the animal, a portion of which the girl had eaten. To this newly discovered disease Zenker gave the name Trichiniasis. At once the disease began to be recognized, especially in Germany, where for years past inexplainable epidemics caused large mortality, supposed to be due to a chemical poison from rotten meat.

The first great epidemic of etiological importance occurred in Saxony in 1863, with a mortality of 16 per cent. Great astonishment was caused throughout Germany in 1865, when in the town of Hedersleben of 2,000 inhabitants, 337 were infected and 101 died. Klopsch in 1866 amputated a patient's breast for carcinoma, and while operating, found in the pectoral muscle encapsulated trichinellae which were still living. The affected patient remembered that in 1842, twenty-four years before, she, with two of her family had been taken sick for several weeks with violent bone, joint and muscle pain, and edema.

In 1851, several people near Hamburg, after eating ham, were taken sick, and three died. A cat having eaten also of it began to move about very slowly and in evident pain, later dying. The cause of the disease was unknown. One of those affected became insane, and at his death in 1865, Tungel sent a piece of his muscle to Virchow, who found it almost entirely infiltrated with calcareous trichinella capsules. Freed from the capsules the embryos gave positive signs of life and infected rabbits fed on them. This shows an exceptionally long life and ability of the encapsulated forms to infect for thirteen and a half years.

Geographically, it is universal, and epidemics have been reported in Germany, England, Austria, Switzerland, France, Russia; and in North America, first found in swine by Leidy in 1846 and in humans in 1864. It is widespread in North American swine.

Etiology. As Zenker first showed, the disease in humans is due to the eating of trichinous pork, and that its habitat is in swine. As well the rat is a carrier as it spontaneously infects itself. They have been found also in the wild-boar, mouse, cat, dog and some others. Experimentally the infection was produced in herbivora,—rabbits and guinea-pigs. The hog for man is always the most deadly carrier of this dangerous parasite. An infection by beef, veal, mutton or horse-flesh has never been observed. The trichinella spiralis is of the class of round-worms, parasitic in man and different animals, living sexually separated, and when isolated visible to the eye. In 1835 it was named by Owen, trichina spiralis, and sex differentiation was made out by Virchow and Leukart.

* Delivered Dec. 9, 1912, before the South Boston Medical Society.

The whole development-cycle combines essentially three stages: (1) the stage of sexual maturity or intestinal trichinae; (2) the emigration and growing of the young embryos in the muscle; and (3) the resting-stage or the muscle-trichinae.

The First Stage, or Intestinal Trichinae. When the infected pork is taken into the stomach the action of the gastric juice frees from their capsule, and connective tissue covering, the trichinae from the ingested muscle, and moving along into the intestine in two or three days they grow to mature males and females. Then copulation begins and also fertilization of the eggs. Four to five days after fertilization, that is, six to seven days after eating the trichinous pork, the birth of the embryos begin.

Without entering too deeply into the anatomy of the worm, there are a few facts you should know to aid you in the explanation of the migration of the embryos. The adult female is longer than the male, just over 3 mm., and the male one-half as long. Up to the period of copulation they are about the same size, but after, there is further growth of the female due to the stretching of the uterus. The caudal end of the female contains the ovary and from it the eggs pass upward through the oviduct to the uterus, where they are fertilized, and developing into embryos are extended into the vagina, which empties at the anterior fifth of the body. They appear first, as I have stated, six or seven days after the release of the muscle trichinae. At this time we find all stages of embryonic development, from eggs before fertilization, up to the perfectly formed embryo ready to be deposited by his mother.

The Second Stage of Development—the Embryos. As they are born they are very small and the sexes show no appreciable difference in size, as the adult, but are slender cylindrical worms, .08-.12 mm. Just before their birth their mothers bury themselves in the mucus and lie snake-like about the intestinal villi or penetrate the crypts of the lower duodenum and upper ileum. With a boring motion of their anterior end they raise up the epithelium and work into the stratum proprium or basement membrane of the mucous membrane, thus escaping eviction by peristalsis and moving intestinal contents empty their young brood directly into the lymph spaces. Only exceptionally are they born in the intestinal lumen, and it is then a question if they ever find their way to the lymph-spaces. They are born on an average of one every one-half hour, and the birth of countless embryos from the same female extends over several weeks. Staubli reckons 1000 embryos to a female, and Leukart 1500, and Krabbe fed 400 muscle trichinellae to a rabbit, and five and one-half weeks later its muscles contained several hundred thousand young worms.

How do they arrive at their destination, the striated musculature? This has been the subject of much discussion. The embryos, freed from the females in the intestinal walls, seek out, by their ability to move, the lymph vessels. Under certain conditions they are borne directly into a central lymph-vessel, and with the lymph they pass through the thoracic duct into the venous system to the heart, from where they are thrown with the blood, after going through the lesser circulation, into the peripheral arterial system. Hence they can be shown in the circulating blood at their maximum 8-25 days after infection.

The embryos leave the capillaries in the striated muscles, remaining only a very short time in the connective tissue, being found there only with great trouble, and penetrate quickly into the primitive muscle bundle, where they show their typical embryonic form. The fact that they are not found in the connective tissue, leads to the supposition that they are attracted to the muscle by some chemical affinity. Though the entire striated musculature may be infected, that of the diaphragm, intercostals, larynx, tongue and eye, is the more heavily hit, and this is not due to the fact of their easy and quick delivery to the groups of muscles lying in the vicinity of the diaphragm, but these muscles are the most active in the body and, therefore, have the richest blood supply. It is agreed unanimously that the beginning of migration to the muscles occurs on the ninth or tenth day after infection.

Inside the muscle fibre, the embryo quickly grows, due to osmotic absorption of food, and in ten to fourteen days it is about ten times its original size, and it begins in the third week after infection to roll itself spiral-like in the much swollen spindle-like muscle fibre, this process continuing for two weeks more, when it reaches its full growth.

Third, the Resting Stage. Hence, after four to six weeks from the ingestion of trichinous pork, the embryo enters the resting-stage, and then begins the formation of a capsule about it, taking three months for its completion, later becoming calcified. During its period of rapid growth important anatomical changes take place, especially the development of a digestive tract and sex organs. Spirally rolled within their capsules they remain in a latent stage, perhaps for years, when they finally, after ingestion in man's or an animal's stomach, are freed from their capsules and their new life opened.

Trichinellae, as well as in the blood and striated muscle, are found in the mesenteric lymph-glands, peritoneal cavity, pericardial cavity, pleural cavity, lungs and myocardium, but never as older or encapsulated forms, because as Graham has shown, they only have the power to grow in that particular type of muscle fibre which has a sarcolemma. Often heart-immunity is spoken of, as no one has ever found there perfect mature embryos. But biologically there is no immunity. Recent investigation shows that heart-muscle fibre in a certain sense possesses no sarcolemma, that is, no outside covering, and

when the embryo tries to bore in, there is nothing to resist it, as the contractile muscular protoplasm is washed away, and it always remains outside the muscle-cells, and acting as a foreign body and irritant, an inflammatory process starts up about it and it is destroyed. This same result occurs in connective-tissue and fat. But in the destruction of muscle-fibres secondary fat development results and surrounds the encapsulated embryos.

The symptom-complex may be divided into three parts corresponding to the life-cycle and pathology of the worm, as has been stated. When and how and what the early symptoms may be is inconstant. General constitutional and gastro-enteric disturbances are the rule. General discomfort, anxiety, dull heavy headaches, dizziness, nausea and vomiting, choking sensations, chilliness, and diarrhea, with more or less violent colicky abdominal pains. The vomiting and diarrhea may become intense, and the latter may be followed later by obstinate constipation. The appetite usually disappears. The tongue shows nothing characteristic, often dry and more or less heavily coated. During this general period of lassitude an increasing fever appears. Occasionally very early an intense lameness of the muscles appears, in flexors, neck, and lumbar region. Kratz found this in mild as well as severe cases, and considered it the most constant early symptom, which after some days subsides. The patients when this and the diarrhea subsides, think they are convalescing and some try to work, but are compelled to go to bed. This muscle-lameness appears before the beginning of embryo-wandering, and it cannot be explained by muscle-invasion. Some say it is due to reflex action from the intestines, others a sympathetic affection, but Friedrichs ascribes it, as well as the severe general disturbances, edema of face and the high initial fever, to an intoxication from dead trichinellae, as seen in roundworm, fish tapeworm and other parasitic infections.

The most important pathognomonic symptom, quite constant and often generally the first, is the edematous swelling of the eyelids, upper and lower, and of the face. Seldom is it lacking and first appears on the seventh day. Somewhat later, from the ninth day on, there is edema of the extremities, more often the legs than the arms, and as well at times the scrotum. Renz twice saw scrotal edema without heart-failure, or albumen in the urine. The lid edema after some days disappears and may return later, but that of the legs is obstinate and persists a long time into convalescence. It is not easy to explain the early edema of the lids on account of the many views, as embryo-migration, vaso-constriction caused by an irritant, and that of the extremities is laid to heart weakness.

The future course of the disease develops symptoms which better be discussed systematically in relation to the individual organs.

The *sensorium* is generally undisturbed, though delirium has been noted in a few fatal cases, accompanied with violent attacks of dyspnea. A meningitic picture, a curled up body, stiff neck, and Kernig sign, has been present, but lumbar puncture has been negative, indicating meningismus only. Bothersome sleeplessness at the height of the disease is very frequent, and may be present early, though from it children do not suffer. Epigastric pain occurs in the second week and is ascribed to the migration of the young brood to the diaphragm. "A sudden feeling of pressure and constricting pain in the pit of the stomach, extending to the back, strikes the patient with syncope and collapse, cold hands and feet, small, intermittent pulse," symptoms similar to what Romberg has described as celiac neuralgia. This attack may last from six to twenty-four hours, followed by a profuse sweat. Complete skin anesthesia, lasting for a few days, has been reported, and itching, and paresthesia occasionally.

A characteristic symptom is profuse sweating in mild or severe cases, appearing early and lasting throughout. The skin reflexes show no essential change, but the patella, tendo-Achilles, and triceps reflexes are frequently lost or diminished, returning as patient improves. There is a change in the electrical reactions of the muscles.

Temperature may be absent, especially in children. However, in most cases there is more or less elevation and in severe cases to 104° and more, beginning the first day and reaching its maximum generally in nine to eleven days Frequently the temperature curve runs as a typical typhoid, showing often morning remissions. If it continues indefinitely or is interrupted by new elevations, there are generally complications of the respiratory tract.

The pulse early is hardly more frequent than normal, from 80 to 90, and is similar to a typhoid. When there is beginning respiratory trouble, there is an increase to 100-120. Rarely are there striking disturbances of heart activity, as intermittent pulse with bradycardia to 48, and in women the development of soft murmurs.

Gastro-enteric symptoms, especially the early, have been spoken of. Also severe diarrhea, or obstinate constipation, with abdominal pains, can continue throughout. Mucus, muco-bloody and bloody stools have been described, the latter causing death. At autopsy in such cases gastric, duodenal and intestinal ulcers were found, and experimentally there seems to be a relation between the two, for in a trichinous infected cat, three round ulcers of the duodenum were found, and four times in infected rabbits hemorrhages and hemorrhagic erosions of the gastric mucous membrane were seen. These may be due to embolic obstruction of small vessel-areas by wandering embryos.

The spleen generally is not enlarged, though one observer noted it present in 38 out of 46 patients, and if it is, it is due to a mixed infection, and not a peculiarity of the disease.

Muscle-lameness, appearing as an early symptom, merges slowly to muscle-stiffness, due to embryo migration and ultimate changes resulting. This depends essentially on the intensity of the disease, that is, on the number of parasites piercing the muscle, for in mild cases and in children it may be absent. The patients feel as stiff as a poker, and the muscles are swollen, of wooden hardness, and very sensitive to pressure. Motion causes intense pain. All the muscles may be hit, yet the neck and lumbar muscles more so, but less the muscles of the extremities, particularly the flexor, so that the patient presents a typical posture as he lies motionless, holding his limbs in a moderate position of flexion, as though he had acute angular contractures of the elbows and knees. Muscle weakness of the highest degree may be present without considerable sense of pain. The muscle stiffness sometimes disappears in five days, and has lasted 112, but generally in severe cases five or six weeks, corresponding to the pathologic changes. The muscles of mastication and swallowing may be affected and lead to trismus. The tongue is often difficult to move on account of its increased size, and the laryngeal muscles are severely attacked, speech-function suffering, hoarseness, and later aphonia and edema of the glottis.

The migration into the respiratory muscles, the diaphragm, intercostals and sterno-cleido-mastoids make respiration very difficult and painful, resulting in serious dyspnea, inactivity of the diaphragm, and serious hiccoughs. The respiratory interference and its sequelae play an essential part in the fatal cases. Sometimes the first symptoms may be swelling and pain in the muscles without temperature, and slowly developing and creeping leads to severe trichinosis. Sometimes cases of so-called rheumatism of the muscles, with "rheumatic pains" of one to ten years' standing, were correctly diagnosed by muscle excision and evidences of trichinella found.

The eyes sometimes have limitation of motion in conjunction with eye-pains, conjunctivitis of a severe nature, with well-marked subconjunctival ecchymoses appear. The eye-grounds are negative.

Very often bronchial catarrh, due to deficient expectoration on account of weakened respiratory muscles, with often broncho-pneumonia and a harassing cough, or frank pneumonia, is present.

The skin shows sudamnia from the profuse sweats, severe itching, and occasionally petechiae. Acne and furunculosis are frequent, and herpes rarely.

Slight urinary retention is frequent and incontinence when there is great weakness. The urine is of the fever type and albumen and casts appear when the renal irritation is severe. A very strong diazo-reaction appears, much more so than is ever seen in typhoid or tuberculosis, and is a constant phenomenon.

The stools are diarrheic, pea-soup, or rice-water in character, occasionally bloody, or constipation may be present. Few cases have been reported where the embryos or parasite were found in the stools.

Sputum shows eosinophiles, and where blood has been raised, in a case of Askanazy, embryos were found.

The blood in trichinosis is not only of the greatest importance for differential diagnosis, but to the actual meaning and origin of the eosinophile it is of general scientific interest.

After infection the first stage shows a polycythemia and a polychromhemia, and later a mild anemia develops. There are no morphological changes, as poikilocytosis and blast-formation, and these cannot be produced experimentally in guinea-pigs, even to lethal dosage. The leucocytes diminished in typhoid are increased in trichinosis, and the great increase is due to the eosinophile. It is to the great credit of American medicine that this was proven, the first observations being made in four cases at the Johns Hopkins Hospital by Thayer and Brown in 1897. The severer the disease the greater the eosinophilia. Of 44 severe cases 33 gave estimations above 20 per cent. and of 16 mild cases only five. Of this group the highest estimate was 62.2 per cent., and experimentally in guinea-pigs 52 per cent.

In severe cases the clinical symptoms are so marked and distinctive that from them a positive diagnosis may be made, but the inestimable value of an eosinophilia in mild or moderate cases is of the greatest importance.

Experimentally after feeding trichinellae to guinea-pigs the following results were obtained:

1. A leucocytosis appeared in seven to thirteen days.

2. A genuine eosinophilia appeared.

3. The increase of the eosinophiles appeared earliest in eight days.

The eosinophilia appears not at the time of the worm infection as a result of poisonous materials from the capsule freed in the stomach, and absorbed in the intestine, nor as a result of chemical processes in the intestines, but stands in close relation to the migration of the embryos and their entrance into the musculature. For months and even years after recovery these cells are increased.

In mild cases the disease lasts two to three weeks, but much more often six to seven weeks, and in a large number of cases much longer. According to Stiles, Wardwell and Hasall in Germany were observed, from 1860 to 1880, 8,491 cases with 513 deaths, 6.04 per cent.; from 1881 to 1896, 6,326 cases with 318 deaths, 5.02 per cent.

In epidemics the mortality varies from 30 per cent. to nil. Death occurs as early as the end of the second week and the majority from the third to the fifth week.

Here I want to report one of our cases at the

Carney which readily fits in with what you have heard.

Case 2. She was 32, single, a cook and lived in Roxbury.

Family History. Negative.

Past History. Excepting two minor accidents she had always been well. Habits showed excessive tea-drinking.

Previous Illness. Eight days before admission patient had an indefinite chill. The next morning her eyes were swollen, and she felt sick, but was up and about. Previously she had felt well excepting constipation for a week preceding. Seven days ago she vomited green mucus and food, and had a headache. Since then has been in bed most of the time with persistent severe headache, nausea and fever. Has no appetite. Under vigorous cathartics bowels moved freely. No swelling of legs. Has soreness in muscles of legs, neck and arms. Has been sleeping poorly. Has a history of eating boiled ham about ten days before the onset.

Physical Examination. W. D. and N. Rather alert young woman lying comfortably in bed. Lips slightly cyanotic. Skin clear. Slight puffiness under eyes. Pupils slightly irregular in outline, and react to light and distance. Ocular movements normal.

Teeth well cared for. Tongue clean, dark red. Throat reddened.

Neck. No spasm, nor tenderness of muscles.

Glands. None felt.

Chest. Well formed, expansion good on both sides; rather more on right.

Lungs. Negative.

Heart. Negative, except for some rapidity.

Radial Pulse. Small volume and not Dicrotic.

Abdomen. Negative. Spleen not felt. No rose spots.

Extremities. Very slight pitting of skin of both legs, as high as knees. No scars.

Reflexes. Knee-jerks lively. Achilles normal. No clonus; no Kernig.

Oct. 30. Stool liquid, yellow, no blood, no parasites or ova; negative to guiac test.

Blood Examination. Hgb. 90 per cent. Leucocytosis 15,200. Polynuclears, 60 per cent. Large mononuclears, 6 per cent. Small. Mononuclears, 4 per cent. Eosinophiles, 28 per cent. Transitionals, 2 per cent.

Nov. 1. Blood and 3 per cent. acetic acid in equal parts showed no parasites.

Nov. 3. Muscular tenderness has not increased.

Nov. 4. Distressing pain on breathing with cough and signs of a pleuritis in lower right back and a bronchitis found.

Nov. 5. Patient very sick, right face flushed. She is nauseated and vomits. No definite consolidation made out. Leucocytosis, 22,800. Polynuclears, 70 per cent. Eosinophiles, 4 per cent. Large mononuclears, 12 per cent. Small mononuclears, 11 per cent. Transitionals, 4 per cent. Distressing chest pains and cough severe. Urine shows blood and coarse granular casts, and albumen.

Nov. 10. Feels much better, but still has pains and cough. Temperature normal, and patient spends more comfortable nights.

Nov. 12. Leucocytosis was 18,400, and eosinophiles 7 per cent. Urine still shows irritative elements.

Nov. 15. Pains in mouth, teeth and gums, but dentist cannot find anything the trouble with teeth.

Nov. 19. Leucocytes, 12,800. Eosinophiles, 3 per cent.

Nov. 22. Very much better, no pains nor aches. Complains of much distress after meals. General improvement was steady and she was discharged Nov. 28, 1910, thirty days after admission.

That case, you see, is typical and though it appeared in the typhoid season, one familiar with the clinical aspects of trichinosis could readily diagnose it.

As regards immunity, there is none, for every animal susceptible to it may be reinfected.

Differential Diagnosis. It is an acute febrile sickness with more or less marked gastro-enteric symptoms, lameness of the muscles, edematous swelling of the face, mainly the lids, redness, and, eventually, ecchymoses of the conjunctiva, disturbing sleeplessness, profuse sweats, muscle pains, muscle stiffness and hardness, absence of patellar and Achilles reflexes, Kernig phenomenon, absence of enlargement of the spleen, strong diazo-reaction, and blood showing leucocytosis, eosinophilia, embryos circulating in the blood, and muscle trichinae in striated muscle.

To differentiate it from typhoid is confusing because of the slow onset, gastro-enteric disturbances, a continued and ascending temperature, the apathy, the positive diazo, especially when there is no enlargement of spleen and no Widal. But against it are the face and lid edema, the marked muscle symptoms, and the later absent spleen, absence of rose-spots, and the leucocytosis and eosinophilia.

Heart and kidneys as causes of the edema may readily be excluded by stethoscope and urine; as well as inflammatory process of face or scalp.

Against sausage and meat poisoning of a toxic nature, trichinosis is not so sudden or violent, and the absence of edema of lids, muscle lameness and of blood picture.

Rheumatic troubles may be ruled out by edema of face, eosinophilia, and cause of the disease.

Acute primary polymyocitis is difficult to differentiate, as the eosinophilia does not aid, but examination of muscle from the deltoid or biceps will show trichinellae, and perhaps the blood embryos.

Multiple neuritis is easily differentiated.

Therapy. If only a short time has elapsed after eating the infected food, copious stomach washings and thorough catharsis should be tried. Strong antithelmintics, such as santonin, extract of male fern, glycerine and benzol in frequent large doses. Later the fact that the worms are pressed in the crypts and intestinal mucus, strong drugs might tend to drive the worms further into the mucous membrane. So cathartics are given, as calomel, compound infus of senna, castor oil, etc., to keep the intestine thoroughly clean and wash away any worms which have temporarily lost their grip. For direct action on the worm, glycerine, benzol, the

picronitrate of potash and soda. Now that Ehrlich in chemico-therapeutic experiments has given us salvarsan and neosalvarsan, they are well worthy of trial to kill the embryos in the blood. Colloidal silver (kollargol) 4-6 c.c. of a 2 per cent. solution has been tried intravenously for the embryos. Symptomatic treatment, as each case demands, should be given, and diet accordingly.

Prophylaxis. The mode of infection is well known, therefore we must prevent the eating of raw or insufficiently prepared pork products, and further efforts to fight the infection in swine. All slaughtered hogs should be inspected with the microscope, for early trichinous pork cannot be detected with the naked eye, though the older forms may be seen as white calcified pinhead specks on and in the muscle. Inspection of the diaphragm, ribs, larynx, and tongue muscles should be made always, on account of their frequency of infection. No land is free of the disease. The largest percentage of infection in swine is in the United States, from 2.7 to 16.3 per cent. Curiously, we have no inspection for the pork we raise and eat, but what is exported we must inspect, especially if we wish to send it to Germany. Another factor is the rat infesting slaughterhouses and piggeries, and spreading the disease in swine. They are carnivorous and eat infected pork, and at their death are eaten by the swine. In Saxony, of 704 rats examined 8.3 per cent. were trichinous. Swine eat pork also and may be infected so.

Much work has been done scientifically on trichinosis which has not fallen into the hands of the general man, and what I have tried to give you are facts and some hypotheses about a simple disease, but one to practitioners and students that seems shrouded in difficulty and mystery.

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THE DIAGNOSTIC SIGNIFICANCE OF THE LEUCOCYTE COUNT IN OSTEOMYELITIS AND TUBERCULOSIS OF THE BONES IN CHILDHOOD.

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LEUCOCYTOSIS is the presence in the blood of an increased number of white corpuscles, of the same varieties as occur in normal blood. It is present in many physiological conditions, but it is of especial interest as a pathological phenomenon, taking a leading part in the reaction of the individual to infection by pyogenic bacteria. In the adult, a number exceeding 9,000 per cubic millimeter may be considered a leucocytosis, but in children, whose physiological equilibrium is normally unstable, any number of leucocytes between 6,000 and 12,000 may be considered normal.

As to the significance of leucocytosis in pyogenic and tuberculous bone infections, especially in childhood, I have been unable to find satisfactory comment in the literature, beyond the general statement that leucocytosis occurs, and is usually very high, in the former and that it is low in the latter, constituting, therefore, a basis for differential diagnosis between the two. The data, and conclusions therefrom, presented in this paper, are consequently drawn from leucocyte counts made during the last few years on patients in The Boston Children's Hospital, without reference to other findings.

Since Sept. 1, 1907, 35 children with osteomyelitis have had leucocyte counts, a total of 51 counts having been made on these cases. In the last two years, a more routine and thorough examination of patients with this disease has been made, and the average leucocyte count has been found to be lower, which may be explained by the fact that in the less recent cases, white blood counts were made only in the presence of serious symptoms, poor general condition or obscure local conditions. This count arranged by periods, is as follows:

Sept. 1, 1907 to Jan. 1, 1909, average count	25,800
Jan. 1, 1909 to Jan. 1, 1911, average count	18,300
Jan. 1, 1911 to present date, average count	17,800
In the last year only, the average count is	16,200

If leucocytosis of any significance be considered a leucocyte count of 12,000 and above (in patients below the age of 12), and a count of 18,000 and over signifies a distinct reaction to infection, the 51 counts taken on these cases group themselves thus:

12,000 and below	12 or 24%
12,100 to 18,000	19 or 37%
18,000 and over	20 or 39%

As far as could be ascertained, 34 of these counts were taken in an acute stage of infection (for the most part recent in onset), 17 in chronic

stages. The average count in the acute cases is 22,200; in the chronic 14,600. The size of the count seems to have a direct relation to the temperature, as may be seen in the following table:

TEMPERATURE.	NUMBER OF COUNTS.	AVERAGE COUNT.
Normal to 100	9	11,300
100 to 102	15	16,300
102 to 104	19	22,200
104 and over	8	28,600

Moreover, the leucocytosis shows a corresponding relation to the general condition of the patient. In 9 counts on cases characterized as in "bad" or "poor" condition (from toxemia or a generally lowered resistance), the average count is 32,000; in 25 counts where the condition was "fair," 18,200; in 17 counts, condition "good," 15,100. This to a large degree explains the lower leucocyte count of later years (as given above), 42% of the cases in the last two years being in "good" condition, with only 16% "poor," as against 20% "good" and 20% "poor" in the previous years. In no case was a "poor" general condition accompanied by a very low or absent leucocytosis, this indication of high virulence of the infection or extremely low resistance of the patient not being observed in this series.

In reference to the local conditions in these cases, and the relation of the white count to the presence of pus or sequestra, with and without drainage, the following is a brief summary.

Seven cases were not operated on; the average of the 8 blood counts on these cases is 13,000. In all of these the general condition was "good" or "fair," the temperature low, and the condition cleared up with rest or apparatus, there being a doubtful diagnosis of osteomyelitis in two cases.

In the remaining cases (in which an operation was performed), 23 counts were made before operation and averaged 23,200; 20 counts made after operation averaged 17,900.

In 5 cases having a count both before and after operation, the average drop in leucocytosis is 7,400, pus or dead bone being found in 4 of these cases and free drainage established. In the 5th case there was an increase of 2,500 leucocytes, no pus or sequestrum being found at this operation.

In the other cases, 16 had counts only before operation; of these, 8 were over 18,000 and these were for the most part in "fair" or "poor" condition, had a high temperature, and in each case pus or dead bone was found at operation. The other 8, with leucocytes below 18,000, had a temperature of 99-100, were in "good" condition, (three cases were possibly tuberculous joints), and pus or sequestra were found at operation.

Nine cases had counts only after operation. In four of these the count was over 18,000 and their condition was recorded as "poor," the temperatures averaging 102 degrees. While pus was found in 3 of the operations, drainage in only one case could be considered free at the time of the count. The 5 cases with counts subsequent to operation below 18,000 were in "fair" condition, pus being found at the operation and drainage established.

Among the cases operated upon there were four in which neither pus, dead bone nor detritus was found. In these the leucocytes ran from 12,000 to 43,000, the temperature from 99 to 104, the general condition from "poor" to "good," a low count being accompanied by low temperature and good condition, a high count by the contrary.

As to the location of the disease, the majority of cases upon which these counts were made had involvement of the femur or hip, the tibia coming next in frequency. The leucocytosis in infection of the different bones averaged about the same and locality appeared to be of no significance.

SUMMARY.

The leucocytosis in osteomyelitis varies from normal to 40,000 in cases which at first glance may present few clinical differences. The average leucocyte count in cases, most of which are severe, is 20,000 and over, but in the more routine examinations of all cases of osteomyelitis the average count is 16,000 to 17,000.

On careful examination of the cases, marked differences may be noticed, and the relation of these differences to leucocytosis appear to follow certain definite principles, so that the white count may be to some degree predicted from the other symptoms. The count distinctly varies with the acuteness of the process, the more acute the case the higher the count. It varies with the general condition, the poorer the condition the higher the count. The degree of fever is a very constant variant with the degree of leucocytosis. A high count is significant of the presence of pus or sequestra, obtaining no drainage or poor drainage; a low count follows operation with evacuation of the inflammatory products. A high count may, however, be present when no pus is found at operation, the general condition in these cases usually being low. From a diagnostic stand point, a low count is indicative of either a low grade process, a long standing process, an acute process with free drainage, a good general condition regardless of local conditions, or any combination of these; a high count is significant of the opposite. A high count with free drainage may be accounted for only by an extremely low condition (as from long standing sepsis before operation), or by other infectious processes (as pneumonia or otitis media, which occurred in two of these cases). A low count is not incompatible with a severe infection, for, although suggestive of other conditions (as tuberculosis), it must be

remembered that 60% of this entire series was below 18,000.

Since July 1, 1912, leucocyte counts have been made on 53 patients presenting the clinical symptoms of bone and joint tuberculosis, there being a total of 56 counts. The average of these counts is 11,600, and of these 37, or 66%, were 12,000 and below, 12, or 21%, between 12,000 and 15,000, and 7, or 13%, over 15,000. In other words, two-thirds of the cases had no leucocytosis, and but one in eight could be said to have had a significant count.

As to the count in acute and chronic stages of the disease, 62½% were made in a decidedly acute stage (most hospital cases being naturally acute), with an average count of 11,400; the remainder, in chronic stages, showed a count of 11,900, there being, therefore, no marked difference. Thirty-one cases had counts while in a condition characterized as "good"; these averaged 11,300. Twenty patients in "fair" condition averaged 12,200 and 5 in "poor" condition averaged 9,000, showing that there is no significant relation between the general condition and the count. The highest count of the entire series, 26,000, was on a patient in distinctly "good" condition, while the highest count of the 5 cases in "poor" condition was 13,400. The possibility that the lower the condition the lower is the count may, of course, be entertained as evidence of secondary anemia.

As to the relation of the count to the temperature, the following was observed:—

TEMPERATURE.	NUMBER OF COUNTS.	AVERAGE COUNT.
Normal (99 and below)	23	11,400
99 to 100	27	10,900
100 to 101	5	15,900

While this is not the exact relation to temperature shown in osteomyelitis, there is probably some significance to the leucocytosis in cases running a temperature over 100. The question arises if this is not due to the presence of other organisms than the tubercle bacillus, as of these 5 cases, one had a slough, one an indolent ulcer, one a sinus, and one a condition which had favored a diagnosis of toxic arthritis. It is certainly significant that of the 7 cases in this series which had a count over 15,000, 6 had other conditions which might account for the leucocytosis, and, conversely, the average white count in all cases in the series in which there was a question of any other trouble was 15,600. But one case with a frank leucocytosis could not be accounted for, and this might be due either to the presence of another condition not diagnosed, or to an error in counting the blood. It is well also to note here that the date of the Von Pirquet test was seldom recorded, and it is possible that the blood count on some of these cases was taken on the day or two in which the slight reaction from the test occurred, thus explaining the fact that the temperature was often higher than normal on the day the count was made.

Although one of the cases with high counts, given above, had an abscess, and another a sinus, the average for cases with abscess, of which there were 15 in the series, was 11,400. The average of 4 cases with sinus was 13,000, and while this was a trifle high, the difference between this count and the average of the series is hardly as marked as might be expected.

There seems to be little difference in the average counts in cases in which the tuberculous process was of long standing and in those in which the process was recent in origin. Thirty-three old cases averaged 12,500 and 20 new cases averaged 10,600, this result depending probably on other factors in the individual cases. Likewise, there were three cases with tuberculous involvement in other regions than the one undergoing treatment at the time of the count. The average for these was 11,000, the presence of multiple foci evidently not influencing the count in the same way it may influence the virulence of the tuberculous process

As to the location of the tuberculous focus in these cases, there were 26 hips, with an average count of 11,000; 21 spines, average count 9,500; 9 knees, count 14,700; one ankle, count 14,000. From this it would appear that knees give the highest count, hips next and spines lowest. Whether there is any significance to these figures it would be hard to say, for although other factors may have influenced the count in a few cases, the greater possibility for the presence of other organisms with the tubercle bacillus in the knee, than for mixed infection in the spine, should not be overlooked.

All the cases in this series were diagnosed clinically as bone or joint tuberculosis. In 51 of the 53 cases the Von Pirquet reaction was tested, and was found positive in all but three. Of these three cases, one was a hip which exhibited a new acute process, the patient being in good condition with a low temperature. The white count was 8,800. The other two cases were spines, both in chronic stages of Pott's disease, in good condition with little fever, the counts being 9,000 and 6,200, respectively. While the failure of the first two of these to show a tuberculin reaction may have been due to error in technic, the last case was tested at two different times, and was probably one of those unusual cases of advanced bone tuberculosis which give no reaction to tuberculin. It is certainly apparent that there is no relation between the presence or absence of the Von Pirquet reaction and the white count in cases which are clinically tuberculous, those few cases of this series with negative reactions giving a count lower, if anything, than the average of those which are positive.

SUMMARY.

As distinguished from osteomyelitis, the results of an investigation of the significance of

the leucocyte count in tuberculous bone disease are largely negative, the evidence being distinctly against leucocytosis of any degree. The white count, whether above or below normal limits, does not seem to vary with any constancy with the acuteness or recency of the process, with the temperature or general condition of the patient, or with the presence or absence of abscess and sinus, multiple foci or a positive Von Pirquet reaction. It is, on the other hand, influenced by the presence of other conditions which favor infection by other organisms, such as (in this series) sloughs, ulcers, arthritis, and possibly the location of the process. Even in these cases the count is but slightly increased, and raises the question if the presence of a tuberculous focus does not perhaps tend to keep the white count low, especially in advanced cases with slight secondary anemia.

CONCLUSIONS.

The routine examination of children with tuberculosis of the bones and osteomyelitis, two-thirds of the cases in both diseases being in an acute stage, shows an average white count of 11,600 for the former and 16,200 for the latter, a significant difference of about 5,000 leucocytes. That this difference is constant, and is a reliable factor in diagnosis, is shown by the fact that in osteomyelitis but 24% of the counts were below 12,000, as compared with 66% in tuberculosis, while 39% of the former were over 18,000 and but 13% of the latter over 15,000. This difference is still more emphasized in the acute cases, which make up the majority seen in hospital practice, the average for osteomyelitis being 22,200 and for tuberculosis 11,400, a difference of nearly 11,000.

The conclusion to be drawn from this series is, therefore, largely a confirmation of the well-known theory that leucocytosis does not occur in bone infection by the tubercle bacillus, but only in the presence of a pyogenic organism. Cases which are clinically tuberculous, and have a high white count, must find their explanation in some other focus of infection, or in a mixed infection at the original site. The only cases offering difficulty in diagnosis from the white count alone are those cases of osteomyelitis with a normal count or very low leucocytosis, which are commoner than most text-books affirm. In these, the relation of the count to other symptoms, such as the fluctuation of the count with the temperature or with the general condition (a relation which does not exist in bone tuberculosis), the presence of a freely draining bone abscess, especially if the count is low following operation, or the existence of a long standing, low grade process in a case in which the count has been at one time high, should point to a diagnosis of osteomyelitis, to be readily confirmed by other diagnostic data.

The number of cases from which these conclusions are drawn is relatively small, and the data from some of their records inconclusive; presumably these figures add no new ideas to the subject, but they are at least confirmatory and suggestive of the general significance of the leucocyte count in the commoner bone infections of childhood.

ASPECTS OF THE MILK SUPPLY.

I.

SOME FEATURES OF THE MILK SITUATION.*

BY JAMES O. JORDAN,

Boston Board of Health, Bureau of Milk Inspection.

As it would be impossible to encompass within a limited discussion any considerable portion of the so-called milk problem, it is necessary to dwell only upon some of the features of this question.

The territory from which a supply is derived is of importance in the furnishing of milk for a city of Boston's size. This area might be termed a milk shed, and that for Boston is so large that it extends from Northern Maine, through New Hampshire, Vermont, and into New York and Connecticut, and includes 6,700 farms. Massachusetts also contributes to the quantity of milk consumed here, but this amount is lessening yearly, as can be demonstrated by the number of cows upon which taxes were paid in the years 1906, 1911 and 1912. In 1906 these animals numbered 181,816; in 1911, 166,500; and in 1912, 161,608. Thus the decrease in the number of cows from 1906 to 1912 was 20,208, and from 1911 to 1912 the decrease was proportionately larger and numbered 4,892 animals. This is a situation suprising to some, and deserving of thought by those favoring a near-by milk supply. Rhode Island is the only New England state from which milk is not sent to Boston. Coming from such a large area means that some of this product is brought from a long distance; in fact, milk arrives here daily which is transported by railroad 260 miles, and there is an emergency supply which is drawn upon only in times of great shortage, which is transported over four hundred miles. This latter haul at first thought seems appalling, and yet milk products are shipped daily to New York City over a like distance. If nearness of supply is advantageous, Chicago is more favorably situated than either New York or Boston, for the bulk of the milk consumed in Chicago comes from a territory within seventy-five miles of the city, and the longest haul is only ninety miles.

Boston is peculiarly situated in other respects, for besides the water frontage, which reduces the number of directions from which the milk supply can be drawn, there is the further consideration that there are many near-by cities and towns which not only consume the milk produced in their adjacent territories, but to an increasing degree use the product from the far away dairies.

* Read at a stated meeting of the Boston Medical Library, February 19, 1913.

as Boston is compelled to do. To this extent the supply for Boston is like that of the neighboring cities and towns. Most New England dairies are small, which means that the supply must be procured from more farms than holds true where the production units are larger.

Is nearness of supply to be desired? From the standpoints of freshness, of dairy inspection, and when necessary, the procuring of information concerning the health of individuals who have to do with the production of milk, it has many advantages. But unless brought from extremely long distances and with equally good dairy conditions, milk if properly iced upon a railroad car keeps as well, and probably in most instances better, than if retained at the ordinary dairy awaiting transportation to the city. Yet it is the fact that the distance from which the milk used in Boston is being obtained is being increased constantly, and under prevailing conditions that policy of extension must continue. As an illustration, at one time recently, when the cream supply would not meet the demand, this product in limited amounts was brought here from Canada.

What has been done for the safeguarding of the supply? In 1904 the Board of Health began a bacteriological investigation of this commodity which has since been continued, and in 1905 and since that time, great attention has been given to the temperature of milk during transportation and also after its arrival in this city and while awaiting delivery. It is my opinion that the work carried on in these directions has had more to do with awakening interest in the milk situation of this city than any other factors. But regardless of this belief, it is true that from the commencement of these examinations, a movement began on the part of the large dealers for increased oversight of their supplies. Dairy inspection was instituted by these concerns and continued for several years. In this endeavor thousands of dollars were expended, probably in amount totalling more than the State and all of the cities of Massachusetts combined have spent in this particular endeavor. Other methods, as the circulation of printed matter and lectures, were employed by the dealers to secure better production conditions. Eight of these firms also established bacteriological laboratories. As showing the extent of the work of these laboratories, it can be stated that in 1911, 90,207 milk counts were made. Undoubtedly the energy and money expended in the attempt to better Boston's milk supply by the above and other firms has never been equalled by milk concerns in any other city of like size. From this consideration much credit is due to the local dealers. The State Board of Health has carried on dairy oversight for several years, and a part of this endeavor has applied to the farms sending milk to this city. This oversight on the part of the State has been restricted, however, by both funds and lack of direct authority to enforce recommendations. In the latter part of 1910 active dairy inspection was inaugurated by the Boston Board of Health, and for the year ending Feb. 1, 1912, there were 9,356 inspections, of which 7,834 were satisfactory and 1,522 unsatisfactory, and the product of five hundred of the latter was permanently excluded from Boston by reason of unwillingness of owners to coöperate with the Board in the production of sanitary milk. The product of twenty-five dairies was temporarily excluded on account of the existence of communicable diseases upon the farms. Creameries and the milk-handling plants of local licensees also come under the supervision of the Dairy Division.

Efforts have been made by dealers to improve the supply within the city, but of this feature more will be said later. In this connection the the bacteriological tests made in the Bacteriological Laboratory upon samples procured by the Bureau of Milk Inspection are of interest. The specimens thus taken are divided into three classes: namely, those from contractors, *i.e.* taken from the cars as they arrive in this city, from wagons, and from stores. The standard adopted by the Board of Health is 500,000 bacteria to the cubic centimeter. The results obtained appear below:—

Year.	Under 500,000 Bacteria per c.c. Per cent.	Above 500,000 Bacteria per c.c. Per cent.
CONTRACTORS' SAMPLES.		
1905	87.60	12.40
1906	89.98	10.02
1907	83.70	16.30
1908	86.42	13.58
1909	88.62	11.38
1910	86.51	13.49
1911	89.70	10.30
1912	91.27	8.73
WAGON SAMPLES.		
1905	54.40	45.60
1906	52.21	47.99
1907	59.73	40.27
1908	72.15	27.85
1909	75.39	24.61
1910	83.42	16.58
1911	81.43	18.57
1912	83.67	16.33
STORE SAMPLES.		
1905	28.50	71.50
1906	18.99	87.01
1907	36.00	64.00
1908	43.41	56.59
1909	54.74	45.26
1910	77.80	22.20
1911	76.83	23.17
1912	67.99	32.01

Upon analysis of the results of the samples from contractors it would appear that if the findings for the year 1907 were eliminated, no material gain has followed from these examinations. As far as the total percentages are concerned this conclusion would be substantially correct, but in detail such assumption would be erroneous, as there has been a yearly constant gain in the percentage of specimens containing 200,000 and less bacteria to the cubic centimeter. In

1905 the percentage under this classification with 50,000 and less bacteria per cubic centimeter was 59.8; in 1912 the corresponding figure was 66.28. Unfortunately these total results do not mean that about ten per cent. of the dairies so tested fail to comply with the standard. If this was an actual and stable condition, the application of a remedy would be simplified. Practically we deal with specimens and not dairies, and a dairy from which samples upon one day have a high bacterial content, may send milk here on the following day of the opposite character, and this condition may be reversed with the product from another farm, with low counts on the first examination and high ones on the second testing.

With the wagon specimens, and these may be considered as representing milk practically a day older, *i.e.* milk which is delivered to consumers one day later than that procured from contractors, and which has been subjected to repeated handling, there has been, excluding the 1906 results, a constant gain from the bacteriological standpoint. There is also the further fact of marked increase by years, of the percentage of samples having 200,000 or less bacteria to the cubic centimeter, and of the findings for 1912 of the 83.67 per cent. of specimens complying with the standard, 77.43 per cent. had 200,000 or less bacteria to the cubic centimeter.

Concerning the store milk, and this is the oldest milk and that which to a large degree has had the most handling, there has been a marked improvement and yearly gain, if the results of the 1906, 1911 and 1912 examinations be excepted. The notable increase in percentage of samples with less than 500,000 bacteria from 1909 to 1910 may be attributed to the regulation requiring the sale of shop milk in bottles. In 1911, when this regulation was declared unconstitutional by the Supreme Court, more "loose milk" was sold in shops than in the preceding year, and this condition has prevailed since that time, and is believed to have been a contributing factor to the low percentage of specimens complying with the standard in 1911 and 1912.

Viewed as a whole these results, while indicating an improvement in Boston's milk supply, point also to the difficulties of supervision of this commodity by bacteriological means alone. Bacteriological results, while a useful index to the quality of milk, can only be safely considered as one of the methods to be employed in its supervision from producer to consumer. Furthermore, it seems fair to assume that the application of bacteriological tests for determining the character of milk has not covered a sufficient length of time to warrant the adoption of such findings as a principal factor in its oversight, and upon which to base extensive legal proceedings. Any endeavor to do so under present conditions would be fatal to the advance already secured by the application of bacteriology to the betterment of this product. A plan which would be more advantageous to both consumer and dealer would be that of publicity, *i.e.* to require Boards of Health to publish in monthly bulletins or newspapers the results of bacteriological counts where the specimens exceeded a fixed standard. This would afford the consumer ample opportunity to know the quality of milk which he was purchasing.

What has been chiefly responsible for the apparent improvement of wagon and shop milk, as denoted by the bacteriological tests? This seeming gain would indicate, considering the findings from the examination of contractors' samples that greater progress had been made within than without the city. To some, those opposed to pasteurization, this condition may be more apparent than real, for of the contributing factors, that of heat has probably been the most efficient in the reduction of bacteria in the wagon and shop milk. Some of the other agencies have been refrigeration (and this includes icing even while the milk is being delivered from wagons), improvements in milk-handling plants, the washing of cans sent into the country for milk, the cleansing of bottles returned by consumers to milkmen, checking the misuse of milk containers, as employing them for other substances than milk products, and requiring the sale of shop milk in bottles.

This has necessitated a vast expenditure of energy and money, both by the Board of Health and by the dealers. There is probalby no milk concern in this city, whose business is of any magnitude, which has not, either upon recommendation of the Board of Health or of its own volition, made partial or complete changes in its milk handling methods in the last few years. Thus there have been other factors besides that of pasteurization which have aided in lowering the numbers of bacteria in the wagon and shop milk.

At present there are about 268,000 quarts of milk consumed daily in this city, and the major portion is of the ordinary or common grade. Of this amount 9,830 quarts, or 3.67 per cent., may be termed reasonably clean milk, that which is sometimes called "inspected milk," and 2,362 quarts is of the certified type. The number of quarts of milk of these latter varieties consumed daily in Boston, beginning with 1907 and ending with 1912, has an important bearing upon this subject.

	INSPECTED.	CERTIFIED.
1907	8,950 qts.	855 qts.
1908	7,006 "	955 "
1909	10,580 "	1,032 "
1910	11,304 "	1,216 "
1911	14,117 "	1,797 "
1912	9,830 "	2,362 "

The milk usually termed "inspected" is guaranteed solely by dealers and some of it cannot strictly speaking be thus classified, because of the absence of certainty of the animals having been subjected to the tuberculin test and by

reason of the lack of supervision of the employees who come in contact with the milk. The tuberculin testing clause under the requirements for inspected milk is of questionable value as, so far as known, no subsequent examinations are demanded, thereby reducing the protection to the consumer which retesting may afford, and which is required at certified milk dairies. It is a fact that this milk, as sold in Boston, is reasonably clean, is produced under commendable conditions, and is well within the bacterial standard of 100,000 to the cubic centimeter. A part of this product is pasteurized in bottles before delivery to the consumer. In the providing of clean milk the authorities have assisted and encouraged dealers, perhaps to an unwarranted degree, considering the small demand and the consequent limited financial return. The dealers have made arrangements so that almost unlimited supplies of this commodity could be provided if necessary. Under present conditions however, there is a surplus coming to Boston daily, and because there is no market, it is mixed with the common grade of milk. Are we not to be condemned as citizens for this condition and for the further fact that only 3.67 per cent. of the milk consumed in Boston is of this type, and that the demand for certified milk is equal to only 0.88 per cent. of the total supply? The decrease in the number of quarts used daily of this reasonably clean milk from 1911 to 1912 was caused by some of the small dealers abandoning its sale and by one firm losing a large percentage of its business through increasing the price of this product from ten cents to twelve cents per quart, in order to obtain a living profit. These data afford conclusive proof that health authorities and certified milk commissions are endeavoring to provide higher grades of milk than the public is demanding or is willing to buy, that most consumers are not now desirous of procuring such milk where an increased cost is involved, and that some of those who are interested in the subject, want the extra improvement cost to be borne by the producer or dealer. It is certain that this state of affairs, combined with the present inertia of most consumers will never result in procuring abundant supplies of clean milk for this or any other locality.

Who is chiefly responsible for this condition? To my mind the physician who daily has the opportunity, possessed by no other class of individuals, of presenting to consumers the advantages which follow the use of clean milk, and the disadvantages likely to be attendant upon the employment of milk of the opposite type. The effort to make the clean milk movement a success can never be attained without the active support and aid of the members of your profession. You are essential to its being placed upon a firm foundation, and the subject is one worthy of keenest interest. Let it be known that in Boston there is a market for all of the clean milk which comes within its borders.

You are asked and urged to assist in this propaganda by encouraging at every opportunity the employment of clean milk. If you will do your part, the authorities and the medical milk commisssions will see that the demand is supplied and that the product is properly safeguarded.

II.

THE PRODUCTION OF CERTIFIED MILK.

BY J. A. FOORD,

Head of Division of Agriculture, Massachusetts Agricultural College, Amherst, Mass.

I WILL describe briefly just what we do at the Massachusetts Agricultural College in the production of certified milk. For the sake of simplicity I am going to take it for granted that you know nothing about it, and will apologize once for all for taking this view point. Of course it will be necessary to omit a good many things, but I will try to tell you some of what we consider the most important factors.

First, as to stables. It might be well to discuss briefly the kind of stables that are desirable for the production of certified milk. In building a stable of this kind, the object is to furnish one that is easy to keep clean and sanitary, and in which dust can be eliminated as much as possible. The floor should be non-absorbent, easily cleaned, not slippery, a non-conductor of heat, and durable. The wooden floor does not fulfill these conditions. The floor, it seems to me, should be on the ground, with no cellar under it. I am aware that it is not many years ago that the barn cellar for the storage of manure was advocated, but we know today that it is difficult to store manure so that there will not be considerable loss of the valuable element, nitrogen, and consequently it is better from the soil fertility standpoint to draw the manure directly to the fields and spread it than to allow it to accumulate in the barn cellars, from which the odor nearly always penetrates to the stable above. As to the kind of floor it is best to use, cement has been advocated and is undoubtedly the most sanitary. I do not like cement under the cattle, however, and for flooring the stalls, I think the best thing so far suggested or invented is the cork and asphalt brick. The gutter behind the cow should be narrow enough so that the animal will step over rather than into it, so that the feet and consequently the stalls are not unnecessarily soiled. This calls for a little deeper gutter, which does no particular harm. Now in regard to the ceiling, it should be tight, so that no dust will pass through it, smooth so that it may be easily cleaned; that is in building of wood sheathing the usual groove should be omitted and plain sheathing used. Cement or pulp plaster is a good material to use, because the former, especially, can be easily washed. It is desirable that the ceiling be of light color.

There should be plenty of windows, with the light well distributed, that is, on three sides of the building, if possible. At least four square feet of window space, and better, six square feet of window space per animal is desirable. The subject of ventilation is an important one, but time does not permit my taking it up now. It may be said briefly that the intakes should be many and of small size, and if possible arranged so that the cold air will come in near the ceiling, and that the outlets should be few in number and large.

There is another question that is often discussed, and that is whether it is desirable to have hay over the cattle or not. I feel that some boards of health have gone to extremes in this matter, and that there is no logical reason why hay should not be stored over the cattle, provided, that there is (1) a tight ceiling; (2) a good ventilating system, one that works; (3) a room outside the stable where hay can be thrown down, so that hay is never thrown from the mow directly into the stable, but is drawn in on trucks; (4) plenty of windows so that light and air are admitted on both sides; and (5) that reasonable sanitary conditions are maintained in the stable itself. It is certainly less expensive in building a barn to put the hay above it than it is to build a separate stable. In the whole construction of the stable, smooth inside surfaces and rounded corners with the possibility of washing the whole interior surface, is desired. At this point, I might mention one of the certified milk producer's problems; that is, how to pay the interest on the investment on such a stable at the present prices of certified milk.

Second, the cattle. The cattle should be healthy and free from tuberculosis, and here again comes another problem, too large a one for us to consider tonight. I might say, however, that I believe the question of tuberculosis in cattle will never be settled until there is a more widespread knowledge of the subject, and a belief in the fact among our farmers that it is more profitable to keep a herd that is free from tuberculosis than one that is not. You can rest assured, however, that the Medical Milk Commission of Boston is using every precaution to see that the herds certified by it are free from this disease. The cows should also be free from garget or any other udder trouble. It is desirable also that a large proportion of the herd should not be in an advanced period of lactation, because we usually find that the milk from cows in the latter part of the lactation period is apt to contain a large number of bacteria per cubic centimeter. The cattle are under the supervision of the veterinarian of the Medical Milk Commission, who visits the herd without previous notice, whenever he wishes to.

The food fed to the cattle must be healthful and of such a character that it will not injure the flavor of the milk. Extreme care is necessary in making changes from one kind of feed to another, in order to avoid any injurious effect when the milk is fed to children and invalids.

Absolute cleanliness is of course an essential in the care of the cattle, and I might give you very briefly the routine followed in our stable morning and afternoon. The stables are first cleaned, the manure being taken out by means of cars on an overhead track. Small chains are then hooked across under the cows' neck to prevent their lying down. They are then groomed with the currycomb and brush, and this is followed by washing the udder, flanks, tail, and under parts, with soap and water, and drying these again so that there will be no free water. I might add in this connection that care is necessary in a certified milk stable to prevent dust entering from the barn-yard or fields especially on windy days. This may seem like a stretch of the imagination, but I can assure you that the bacteria count of the milk is influenced in this way.

In most certified milk dairies the cows are milked by hand, with clean dry hands, which the men are required to wash after milking one cow and before going to the next. Artificial milkers are being tried out and used somewhat, but in the past it has been difficult to get milk with as low a bacterial content when artificial milkers were used as when the milking was done by hand. I think, however, this disadvantage will eventually be overcome. I have been told recently by more than one large dairyman that it was doubtful economy to install a milking machine for less than sixty cows. In milking by hand it is desirable, in fact almost essential, that covered pails with small openings be used. Each cow's milk is carried directly to the dairy as soon as it is milked.

Third, the dairy. Most certified milk dairies are separated from the stable by what is usually called a cut-off, that is, a small room through which the air is allowed to circulate to prevent the odor of the stable from passing to the dairy. In our own dairy we use this device, and turn the milk into a strainer, from which it passes through a small pipe in the cement wall into the bottling room. The bottling room is kept for that purpose only. A cloth screen is put into one of the windows so as to furnish air as free from dust as possible, and everything that enters the room enters it through a double-end sterilizer, one end of which is in the washroom, and the other in the bottling-room, so that everything enters the room through this sterilizer, except the men employed; we would pass them through too, but they object. The wash-room has the usual appliances for thorough washing, cleaning, and sterilizing of the utensils. We aim to sterilize with live steam every day all utensils that come in contact with the milk. At the present time certified milk is almost universally shipped in glass bottles. I hope someone will invent before very long a single service milk bottle or container that will be satisfactory; until then we must, I suppose, continue to use

glass. I might add that with reference to our own dairy the bottles are thoroughly washed in Boston before being returned to us, but that we take nothing for granted and the operation is repeated. When put into the sterilizer they are inverted and are kept inverted until they are put upon the rack for filling.

Fourth, the milk. The milk is cooled, bottled, and packed in cracked ice within thirty minutes of the time it leaves the cow. The dairyman inspects the bottles as they are put into the boxes for icing. At this point comes rather a difficult problem for the producer, and that it to fulfill the requirements of the Commission and keep the milk between 45 and 32 degrees Fahrenheit until delivered, when the weather conditions cause the surrounding air to vary in temperature frm below zero to 90 degrees Fahrenheit. It is almost exasperating to a producer when he has used every precaution, almost regardless of expense, to keep milk within this temperature, only to see it left on the consumer's door-step for a couple of hours because someone is too thoughtless to take it in. I am aware that the early delivery of milk which is common in Boston does not make this problem any easier to solve. Agents of the Medical Milk Commission can and do take milk for examination from the delivery wagons, without previous notice; I think practically all analyses are made from milk taken in this way. Now as to delivery, undoubtedly the delivery of certified milk can be done cheaper by a large contractor than by any other means, because the consumers are so widely scattered. With reference to delivery, I might add that while the Commission requires certified milk to be delivered within 48 hours of the time of milking, I do not think consumers need to worry if it is twelve hours older, provided it has been kept below 45 degrees. We have kept certified milk for 20 days by simply keeping it cool, and at the end of that time the bacteria count was only 1100, and the milk was apparently normal, except for the fact that the cream had separated and was somewhat thick, but perfectly sweet.

Fifth, the men. The men are all under the supervision of a local physician, who reports directly to the Medical Milk Commission certifying the milk. More than one Boston physician has asked me about the examining physician's methods, and I might say in reply that in addition to examination of the men at any time that he sees fit and without previous notification to us, he keeps a list of their living and boarding places, and this with the daily report of the board of health keeps him well informed as to the possibility of infection. As a matter of fact, in Amherst he is the local health officer. In this connection comes another one of the certified milk producer's serious problems; all these methods that I have described have to be carried out by men who are just human and who cannot be paid big wages if the business is to be a financial success. I want to call your attention to a statement by Dr. Charles E. North, who had charge of an experiment by the New York Milk Committee, at Homer, N. Y. As you probably know, Dr. North was a physician who began by producing certified milk on his own farm. He says, "there is no one factor in milk production nearly equal in importance to the dairy farmer himself. There is no question in my mind that the man himself is far more important than his equipment, and that a good man can produce good milk amid unfavorable surroundings while a bad man cannot produce good milk under any circumstances." Men in certified milk dairies wear clean white suits while milking.

Sixth, the consumer. The consumer is certainly not educated as to the food value of milk or as to the desirability of clean milk for children. The consumer is often ignorant also as to the proper care of milk after it has been delivered. As already stated, milk is frequently left on the doorstep for hours, or is left around in the kitchen without being put in the refrigerator, and even when it is put away, we know that in many house refrigerators the temperature is very little if any below 50 degrees Fahrenheit.

Seventh, the commission. I believe the members of the Medical Milk Commission of Boston are most careful and conscientious in their work, and are doing all they can to protect the consumer. The recent outbreak of scarlet fever in Amherst is an example. The teamster who took the boxes of bottled milk from our dairy to the early morning train returned to the barn with his team saying that he was not very well, and went to his room. Before noon we had called the local physician representing the Commission and he diagnosed scarlet fever. The Commission and the Boston contractor were both notified by telephone and it was decided to pasteurize the milk, which had already reached Boston, in the bottle, as the man who had developed the disease had only handled the outside of the milk cases which are of tight wooden construction with tight wooden covers. Although the National Association of Medical Milk Commission provides for pasteurization under such circumstances, your Commission withdrew the certification of our farm until they were assured by their Amherst representative that no further cases were likely to develop among the men employed at the farm. By this suspension of delivery we lost the difference between the butter fat value and the certified milk value of the milk, amounting to $286.00 to date, and in addition 22% of our trade, which it has taken nearly five years to build up; and our milk was perfectly safe all the time. I do not criticize the Commission, but mention this to show you the care they are taking to have their certification mean something, and also the risks the producer has to take.

Eighth, the producer. And now coming to the last factor, the producer. He is working 365 days in the year and 366 in leap year, and if, after paying expenses, he pays 6% on his in-

vestment, he is doing more than we have been able to do thus far.

Gentlemen, this most healthful and carefully guarded food product is available for your use or that of your patients, and yet Prof. Jordan has just told us that only eighty-eight one hundredths of one per cent. of the milk coming into Boston is certified.

III.

THE MEDICAL MILK COMMISSION OF BOSTON.

BY ROBERT L. DE NORMANDIE, M.D., BOSTON.

By vote of the Suffolk District Medical Society in the spring of 1906, Dr. Post was directed to appoint five members to form the "Milk Commission of the Suffolk District Medical Society." It was also voted that the members of this commission should serve without compensation; that they were to make such rules and regulations concerning certification as, in their discretion, they deemed proper; that they should make such arrangements to secure competent gratuitous veterinary, chemical and bacteriological service as might be available.

As a result of this vote the Commission in March, 1907, certified "The Warelands" dairy at Highland Lake, Norfolk, Mass., as meeting their requirments for certified milk. This dairy at that time put out about 200 quarts of milk daily. In March, 1908, a certificate was granted the Massachusetts Agricultural College at Amherst. The output from this dairy was 150 quarts daily. Neither of these farms had serious difficulty in living up to the requirements of the Commission. On October 1, 1908, the Cherry Hill Farm, under the management of the Gould Brothers, became certified, with an output of 1200 quarts daily. On this same date the Middlebrook Farm, at Dover, N. H., was also certified with an output of 36 quarts daily, which was later rapidly increased to between 200 and 300 quarts.

The Massachusetts Agricultural College milk was delivered by D. Whiting and Sons, and as the demand for certified milk increased H. P. Hood and Sons found it advisable to have a certified milk and made arrangements to deliver the Middlebrook Farm milk. These two firms are still continuing to deliver the milk from these farms. The Warelands and Cherry Hill Farm milk was delivered by their own teams.

For the first ten months of 1910 the Miles River Farm at Hamilton was certified, but the owner did not continue certification as his output was so small that the added expense was not justifiable.

Until July 1, 1911, the milk from these farms was certified by the Milk Commission of the Suffolk District Medical Society. By Chapter 506 of the Acts of 1911 of the State Legislature, a law was passed authorizing the incorporation of Medical Milk Commissions for the purpose of supervising the production of milk intended for sick room purposes, infant feeding, use in hospitals and for other purposes. Section 4 of this Act gives corporations organized under this Act power to enter into agreements in writing with any dairy-man for the production of milk under the supervision of such corporation and to prescribe in such agreements the conditions under which such milk shall be produced, provided these conditions shall not fall below the standards of purity and quality for certified milk as fixed by the American Association of Medical Milk Commissions and the standards fixed by the laws of the Commonwealth. Section 5 provides that the working methods of the corporations founded and the dairies producing milk under this Act are subject to investigation and scrutiny of the State Board of Health. Section 6 provides that any person offering as certified milk, milk which does not conform to the regulations prescribed by and bear the certification of a corporation organized under the provisions of this act is guilty of a misdeameanor and is liable to a fine not exceeding one hundred dollars.

Because of this Act the Milk Commission of the Suffolk District Medical Society went out of existence and the Medical Milk Commission of Boston, incorporated, took its place. The membership of the Commission remained the same, but we lost affiliation with the Medical Society, which we feel is a weak point in the incorporating Act. At some future date we hope to have this act so amended that the Commission becomes closely associated with the Medical Society.

When we were incorporated we entered into agreements at once to certify four dairies, namely, the Warelands, at Norfolk, Mass.; the Massachusetts Agricultural College, at Amherst, Mass.; Cherry Hill Farm, at Beverly; and the Middlebrook Farm, at Dover, N. H. These farms continued to be certified until the spring of 1912, when Cherry Hill Farm, under the management of the Gould Brothers, transferred their stock to their new farm at Essex, the Prospect Hill Farm, and the Cherry Hill Farm was discontinued. On May 15, 1912, we gave a certificate to the Home Farm of H. P. Hood and Sons, at Derry, N. H., and they have been putting out since then about thirty quarts daily, but this farm is capable of putting out a thousand quarts daily as soon as the demand arises.

Cherry Hill Farm during the summer of 1912 was taken over by another management and asked to be certified, but it was not until October 1 that the Commission found the milk fulfilled their requirements. A certificate was then granted. On October 15 this farm stopped the delivery of milk because of the expense involved in the delivering of the milk. It was a source of regret to the Commission that the manager of the farm gave up the production of certified milk for he had met all our suggestions, willingly and promptly.

Such in brief is the story of the farms certified by the Boston Medical Milk Commission. There are, besides these certified milks, three others coming into Boston, two certified by the Cambridge and one by the Cohasset Commission. On February 1 the Warelands sent into Boston approximately 275 quarts, Amherst 345, Middlebrook 366, Prospect Hill 660, Hoods at Derry 30, a total of 1700 quarts of certified milk a day.

The expenses of the Commission up to July 1, 1911, were borne by the Suffolk District Medical Society. From then to January 1, 1913, part of the money was raised by a tax of one mill per cap for each cap used, the deficit being paid by the Suffolk District Medical Society. After a year's trial of this method to raise the money necessary to certify the farms, it was found to be not only insufficient, but that it worked unfairly and, therefore, beginning on January 1, 1913, each farm agreed to pay the expenses it incurs necessary for the certification plus a tax of one-quarter of a mill per cap used in order to cover the necessary clerical work. By this scheme we hope in the future to be self supporting and not have to ask for any money from the district society.

Certified milk has been coming into Boston for six years, and it is astonishing to find how few physicians, to say nothing of the laity, fully understand what it means or the value it has. What certified milk is can best be shown by quoting from our contract, which each of the above farms have signed.

This contract is in substance the requirements recommended in May, 1912, by the American Association of Medical Milk Commissions for the production of certified milk:—

"The stables, dairy, and all other buildings of the farm shall be clean and well ventilated; proper care and cleanliness shall be observed in milking and in the care of the various utensils employed; the nature and quality of the food used and all other matters of a hygienic nature bearing on the health of the cows and the cleanliness of the milk shall be such as to meet the approval of a veterinarian appointed by the Commission. All animals of the herd shall be free from tuberculosis and all other diseases. The tuberculin test shall be applied to all animals at or shortly before admission to the herd and the entire herd shall be tested twice a year at approximately six months' intervals in a manner and by a person satisfactory to the Commission. All animals showing a positive reaction shall be removed immediately from the herd. No person who is suffering from any infectious or communicable disease or who has been exposed recently to such a disease shall be employed on the farm or in the handling of the milk. The milk shall be cooled to 45 degrees Fahrenheit within one hour after it is milked and shall be kept at a temperature below 45 degrees Fahrenheit until its delivery. The milk shall not be frozen and shall not be subjected to heat. The milk shall not contain more than 10,000 bacteria of any kind or kinds to the cubic centimeter, and shall be kept free from pus or pathogenic organisms and from all foreign substances. Unless otherwise designated, the milk shall contain not less than 3.5% nor more than 4.5% fat. Milk may contain more than 4.5% fat provided it is marked as containing more than 4.5% fat. The milk shall be put in glass bottles on the farm, under conditions satisfactory to the Commission and the bottles shall be sealed and labeled in a manner satisfactory to the Commission. The per cent. of fat in the milk may be stated on the bottle provided the per cent. of fat in the milk so labelled does not vary more than .50% in either direction from the stated per cent. or provided the per cent. of fat in the milk is not less than 4.5% of fat if it is labelled "more than 4.5% fat."

How are these conditions fulfilled and enforced?

First and above all, the Commission must be certain that the dairyman it certifies means to be honest and straightforward in his dealings. No matter what rules and regulations are laid down they are of no avail if the dairy be not conducted honestly. We fortunately have not met with any underhanded work—all of the farms have dealt honestly and openly with us. Should we find one acting otherwise, the certificate would at once be taken away, no matter how good the milk might be. The moment confidence in the producer is lost the value of the certificate goes.

Each farm is inspected once a month by the Commission's veterinarian and he reports the result of his findings in writing to the Commission. From October to June samples of milk from the delivery wagons are taken twice a month and from June to October once in a week for bacteriological examination. If, as a result of these bacterial examinations any count is found to be over 10,000 bacteria to the cubic centimeter, the farm is notified and another count taken at once. The certificate is not necessarily taken away on the first rise in the count. The source of the trouble is sought for. Generally it is quickly found and the count drops at once. If it is not found and the count is still up, the certificate is revoked and is not re-issued until the farm proves conclusively that it can keep the count consistently below 10,000.

We try to have all employees examined by physicians before they are allowed to go to work. Any sore throats are at once reported and the man is not allowed to go to work until there is no danger. The employers try to instill into the men a desire to obtain the lowest possible counts and to live up, not only to the letter of the regulations, but to their spirit.

The Commission freely admits that all the milk at all times has not had a bacterial count below 10,000. Mistakes and accidents will occur. If we lived up absolutely to the letter of the law no producers would go into the business of certified milk. The Commission must steer a

middle course, the milk must be on the average well above the requirements of certified milk and that it is, but we must not be so rigid that when a single sample falls below the standard the certificate is revoked at once. Especially is this true when the producer shows every willingness to rectify the trouble. All of the farms have had trouble at times in living up to the requirements. With some the trouble was trivial; with others it was serious. At various times the certificate has been taken away from all but two. All have been warned of more or less trouble. It may be said here that physicians must teach their families who are using certified milk that the cap which seals the bottle is the only proof they can have that this milk is certified. The Commission obviously cannot notify each consumer when the certificate is revoked. If the Commissioner's cap is on the bottle and is untampered with, the consumer can with safety use the milk, but if the seal is tampered with or does not have the Commission's cap on the bottle then the consumer must reject it and demand what he asked for.

One word about inspected milk. Legally in Massachusetts there is no such milk. The word "inspected" is tacked on to caps and advertisements simply to catch the ever-to-be-fooled public. If you ask by whom is this milk inspected you get varying replies. We know of no medical society inspection of so-called "inspected" milk. The truth of the situation is that the inspection is done, whatever there is of it, by the milk dealer himself and the value of such inspections is so obvious that no further word is necessary.

Three examples will show the value of the certification. Microscopic examination of one specimen of milk showed increased numbers of leucocytes with a few chains of streptococci. A member of the Commission went at once to the farm and by microscopic examination of the milk from the individual cows located the source of the trouble in a single quarter of the udder of one cow which the herdsman of the farm had not found. This cow was at once removed from the herd and no trouble arose.

Again, the farm which has shown consistently the lowest bacterial count put out a milk which was very bitter to the taste and with a bad odor. This farm was telephoned to at once and the source of the trouble found and the cow which was giving this milk removed from the herd. The next shipment of milk was of the same excellent quality as before. What the cause of this bitter and foul smelling milk is dairymen do not know. It is not due to bacterial contamination because the count of the quart of milk I saw was 500,000 bacteria to the cubic centimeter. This bitter milk is a recognized source of trouble to dairymen. It is unfortunate that it occurs, but it can in no way be regarded as the dairyman's fault. The third instance of the value of the Commission was recently shown when an outbreak of scarlet fever occurred at the Amherst Agricultural College. One morning after the shipment of milk had been made to Boston, it was discovered that one of the farm workers had scarlet fever. Professor Foord telephoned to us of the situation and that milk which arrived in Boston in the afternoon was pasteurized at once and sent out with no comment on it because there was no time to have any slips printed saying the milk had been pasteurized. This was the last shipment of milk that came down from Amherst until the State Board of Health and our own physician notified us that the conditions at Amherst were satisfactory and that the milk could come without danger of contamination. Unquestionably it was a hardship to cut off this milk supply, but it was much better to cut off this supply entirely than to let it come into Boston and be delivered when there was the slightest question about the possibility of infection being present. The sales of certified milk have not come up to the expectations of the producers.

The increase is slow but steady, and we feel confident that if the profession at large appreciated more fully the safeguards and the value of certified milk they would urge their families to take it more often than they do.

IV.

DISCUSSION OF PAPERS OF PROFESSORS JORDAN AND FOORD AND OF DR. DE NORMANDIE.

BY JOHN LOVETT MORSE, M.D., BOSTON.

It is hardly necessary to remind you that the diarrheal diseases in infancy are due in large part to bacteria, that the bacteria enter in the food and that the food in which they enter is milk. The entrance of bacteria can be prevented in two ways: by the use of a pure, clean milk and by heating the milk. It is certain that the pasteurization of milk does not do the harm which it was at one time supposed to do. In fact, there is no evidence from the laboratory, animal experimentation or clinical, that the pasteurization of milk causes any disturbance of nutrition in infants. (Personally, however, and I think most pediatrists will agree with me, I prefer, if possible, to feed babies on pure, clean, raw milk than on pasteurized milk.) It seems to me that on the whole they do better. The only ways to get clean milk are to own your own cow, take care of it and milk it yourself, deliver it yourself, or to have the production and delivery of milk controlled by milk commissions. The former method is, of course, impracticable; the other method is practicable and most satisfactory. It is hardly necessary to remind an audience of Boston physicians of the dangers and importance of contagion through milk, because the epidemics of sore throat of the last two years are still fresh in their minds.

The number of babies and children infected with tuberculosis through milk is relatively small compared with the number infected

through the air. It is large enough, however, to be worthy of attention and, if possible, prevention. During this month I have seen, in consultation, three cases of abdominal tuberculosis in infants living under the best possible conditions and having the best possible care. The only common source of infection which could be gotten at was that they all had been taking the same milk. This milk came from one of the best dairies in Boston, but one which is not certified. It is impossible to know, therefore, whether the cows have been tested for tuberculosis, as they should have been, or not. There would be no question about it if the farm was under the control of a milk commission.

Everyone will admit the importance of accuracy in the preparation of modified milks for babies. It is impossible to obtain accuracy unless the milk used in the preparation of the food is of constant composition. It is hardly possible to get milk of a constant composition except by the use of certified milk.

It is not uncommon for people to get certified milk for their babies during the first year, then to give it up because of expense, feeling that after the first year the character of the milk supply is not of as much importance. This is wrong, because children during their second year are almost as easily infected as during their first year, and are relatively easily infected throughout early childhood. It is almost as important to have a pure milk for young children as for babies.

It is very evident from what has been already said to-night that the price of certified milk must be much greater than that of ordinary milk. It is well worth, however, the difference in price. People should be willing to give up some of their small luxuries in order to get certified milk for their babies.

I can only emphasize what has been said by previous speakers as to the lack of appreciation of physicians of the importance of pure milk. The small attendance here to-night shows their lack of appreciation. If the subject was some obscure surgical condition which few of those present would see except very infrequently and which not one in ten would be competent to operate upon, the room would be crowded. It seems to me that they should be more interested in procuring pure milk for their own children and for their patients whom they see daily than in an obscure surgical condition. Further evidence of the lack of interest of the physicians in this subject is the fact that a certain milk dealer recently sent around a circular throughout the Back Bay stating that certain physicians, whose names were given, used his milk and recommended it. Many of these physicians are members of this society. As a matter of fact, the conditions at the farm in question are such that it could not, by any possibility, be certified by a milk commission.

Medical Progress.

PROGRESS IN PATHOLOGY.

BY S. B. WOLBACH, M.D., BOSTON,
Assistant Professor of Bacteriology, Harvard Medical School.

(Concluded from page 586.)

Infectious Diseases (continued):
- Brill's Disease.
- Malaria.
- Scarlet Fever.
- Sporotrichosis.
- Leprosy.
- Epidemic Streptococcus Sore Throat.
- Pertussis.

Nutritional Diseases:
- Beriberi.
- Pellagra.
- Scurvy.

Miscellaneous:
- Brain Lesions Produced by Electricity.

BRILL'S DISEASE AND TYPHUS FEVER.

Anderson and Goldberger, of the Public Health and Marine Hospital Service (*Public Health Report,* No. 71, 1912) have shown that Brill's disease is identical with typhus fever. They were able to do this through the possibility of infecting monkeys from the blood of cases of Brill's disease, and proving that these monkeys, after recovery, were immune to virulent blood from Mexican typhus fever. Similarly, monkeys which had recovered from Mexican typhus fever were found to be immune to Brill's disease. This work demonstrates that typhus fever has been present in New York City and in other large cities of the United States for many years. A recent report by Roger I. Lee, in the Boston Medical and Surgical Journal, gives the incidence of this disease at the Massachusetts General Hospital, and shows that it is by no means very rare. The absence of epidemics is accounted for by the fact that typhus fever is transmitted through an intermediate host, the body louse. In this country there is no great opportunity for transference of infected lice from one individual to another.

MALARIA.

The cultivation of the malarial parasite by Bass and Foster is reported in the *Journal of Experimental Medicine,* Vol. 26, No. 4. The authors have cultivated two types of parasites; the plasmodium vivax and the plasmodium falciparum. So far but two confirmatory reports have been made, that by Thompson and McLellan (*Annals of Tropical Medicine and Parasitology,* Vol. 6, No. 4) and that by Surgeon C. H. Lavinder, United States Public Health Service (*Journal American Medical Association,* Vol. 60, No. 1). Thompson and McLellan and Lavinder cultivated the plasmodium falciparum. A note by Major Sir Ronald Ross, which is appended to Thompson and McLellan's paper, confirms the evidence of cultivation both in specimens sent by Bass from New Orleans and by Thompson and

McLellan in Liverpool. The method employed is to withdraw blood from a vein of a patient, and to add 1-10 of a c.c. of a 50% solution of dextrose for each 10 c.c. of blood obtained. The blood is then quickly defibrinated and is placed in the incubator. The parasites live and develop at the top of the column of precipitated red cells. If it is wished to maintain the parasites for more than one generation, it is necessary to transfer them to blood from which the leucocytes have been removed by centrifugalization. The plasmodium grows only within the red cells. If the leucocytes are not removed from the blood, they quickly destroy the parasites.

This work is of great importance, as hitherto all attempts to cultivate malarial parasites have failed, and it is quite possible that the study of the cultures, which represent, of course, the asexual cycle, will be of aid in the differentiation of species of malarial organisms.

SCARLET FEVER.

"Inclusions in Leucocytes in Cases of Scarlet Fever," first reported by Döhle in 1911 and again in 1912 (*Cent. f. Bak.*, Abt. 1, Orig., Bd. 65, Heft 1-3), have attracted a great deal of attention all over the world. These inclusions are minute bodies which stain blue by Giemsa's and Wright's stain. They are most easily demonstrated by ordinary alkaline methylene blue stains. In Döhle's second paper he described a spirochete in a leucocyte, which he believed to be connected with the presence of these bodies, and possibly the cause of scarlet fever. A perfect flood of papers has appeared on this subject. The unanimous conclusion is that these bodies, while more common in scarlet fever than any other disease, are not pathognomonic of scarlet fever, and naturally not parasitic. The finding of spirochetes in scarlet fever has not been confirmed.

SPOROTRICHOSIS IN THE UNITED STATES.

Ruediger (*Journal of Infectious Diseases,* Vol. ii, No. 2) has collected and summarized cases from the United States. Ten years ago, infection of the human with sporothrix fungus was so rare as to be a pathological curiosity. At that time only three cases had been discovered in America, and no cases had been recognized in any other country. In this respect, the history of sporothrix infections reminds one of the history of blastomycosis and coccidoidal granuloma, which was first discovered in America, and whose existence was for a long time denied by European workers, although recently accepted. During the last six years more than fifty cases of sporotrichosis have been reported from France, a few in Germany and 44 cases from different parts of the United States. Ruediger brings additional cases, making a total of 57 cases observed in the United States. The distribution of these cases are as follows: Missouri 3, Kansas 12, Iowa 1, Nebraska 5, South Dakota 3, North Dakota 23, Minnesota 1, Illinois 3, Pennsylvania 1, New York 2 and California 1. Ruediger draws attention to the fact that five-sixths of the total of 57 cases occurred in the Missouri valley. The disease resembles somewhat the disease in horses. There is usually a primary ulcer, followed by subcutaneous nodules along the course of the lymphatics and enlargement of the lymph nodes. The subcutaneous nodules may break down and form abscesses and ulcers. The lesion is of the granulomatous type, closely resembling tuberculosis. The presence of the parasite in endothelial leucocytes and giant cells makes the diagnosis easy. The cases are rapidly cured with potassium iodide.

LEPROSY.

In spite of numerous publications during 1911 and 1912 on the cultivation of the leprosy bacillus, our actual knowledge of the bacteriology of leprosy has not been materially advanced. This statement is made in view of the fact that since 1903 there have been 19 publications dealing with the cultivation of the leprosy bacillus, and of these 19 reported isolations, hardly two agree.

Duval and Wellman (*Journal of Infectious Diseases,* Vol. ii) report two different cultures, both occurring with considerable constancy in leper tissues. One is a chromogenic organism with marked morphological variations; the other is not chromogenic and is more uniformly acid-fast. Lesions are said to have been produced in Japanese waltzing mice and possibly in monkeys.

Liston and Williams (*Scientific Memoirs,* India, No. 51) report the finding of a chromogenic organism which differs from that of Duval and Wellman. The organism is variable in its behavior to acids after staining with carbol fuchsin. It shows marked pleomorphinism in cultures, varying from short bacilli to streptothrix forms.

Reenstjerna (*Deutsches Med. Woch.,* 1912, No. 38) reports the cultivation of an acid fast, extremely pleomorphic bacillus, pathogenic for monkeys, and Machow (*Cent. f. Bak,* No. 67, 1913) claims to have cultivated an acid-fast organism which does not produce colored colonies, although the cultures sometimes show coccoid and streptothrix-like forms. This culture is said to be pathogenic for mice.

The publications during 1912 show the same lack of uniformity in results that previous years have brought forth, and the whole question of the bacteriology of leprosy remains decidedly confused.

EPIDEMIC STREPTOCOCCUS SORE THROAT.

The epidemics of sore throat which occurred during 1911 in Boston, Chicago and Baltimore have been reported in considerable detail by C. E. A. Winslow (*Journal of Infectious Diseases,* Vol. 10, p. 113); Capps and Miller (*Journal of the American Medical Association,* Vol. 58, p. 1848); Hamburger (*Bulletin of the Johns*

Hopkins Hospital, Vol. 24, No. 263). Rosenow (*Journal of Infectious Diseases,* Vol. 11, p. 338) has worked on the bacteriology of the Chicago epidemic. Winslow in his paper summarizes the reports of twelve outbreaks of a similar disease in Great Britain. Hamburger gives some details from the report of an outbreak in Norway, and the study of eighteen epidemics in Great Britain, made by Savage—"Milk and the Public Health, 1912."

There is no reasonable doubt that these epidemics, occurring in different parts of the world, are of the same disease; a severe type of sore throat, with or without tonsillitis, and apt to be followed by severe, often fatal, metastatic suppurative processes. Suppuration of the cervical lymph nodes is particularly common. Other frequent complications are multiple arthritis, otitis media, phlegmon and peritonitis. It is thoroughly proved by the studies made in America and Great Britain that the disease is distributed by milk. The type of streptococcus, wherever studied, in Boston, Chicago and Baltimore, shows the same peculiarities which distinguish it from other streptococci. The colonies are larger and more watery in appearance. This is due to the formation of abundant capsular material, and the capsules may be demonstrated by ordinary stains. It acidifies and coagulates milk; inulin is not fermented, and the organisms are not dissolved by bile salts. It is much less hemolytic than streptococcus pyogenes, either in blood agar plates, or in fatal cases of septicemia. Long cultivation on artificial media causes the loss of some of these characteristics, namely, the appearance of the colonies and capsule production.

Rosenow has come to the conclusion that it is impossible to determine whether the streptococci of these epidemics are of exclusively bovine or human origin. He has shown that they may be of both, and that butter and cream may contain virulent streptococci, even when the milk has been drawn from cows under aseptic conditions. He also believes that streptococcus pyogenes grown in unheated milk assumes the characteristics of the cultures from these throat epidemics, and that these characteristics may be accentuated by passage through animals.

Considering the confused state of our knowledge regarding the differentiation of streptococci into strains or species, the only points worth emphasizing in regard to cultures from these throat epidemics is that they are at least fairly characteristic when first isolated, and that clinically they behave differently from the ordinary streptococcus pyogenes infections, and that the milk-borne streptococcus sore throat is essentially a clinical entity.

PERTUSSIS.

Bordet and Gengou in 1906 reported the discovery of a bacillus in whooping cough, which they were able to isolate in pure cultures from sputum. This bacillus is an extremely minute one, and has some points of similarity with the bacillus influenza. Their evidence for assigning it as the causative factor in pertussis is based upon its presence in the sputum and the complement deviation test which the serum of the patients give, the antigen, of course, being a specific one made from the bacillus.

Mallory and Horner (*Journal of Medical Research,* Vol. 27, No. 2, November, 1912) report the discovery of the characteristic lesion of whooping cough, and the locus of the bacillus. The bacilli occur in large numbers between the cilia of the epithelial cells lining the trachea and bronchi, and possibly the nose. They believe that the action of the organism is largely mechanical, and that by its presence in large numbers, it interferes with the normal movements of the cilia. The tissue reaction is very slight, and consists of an infiltration of the submucosa with lymphocytes, including plasma cells, and a moderate degree of inflammation of the epithelium, evidenced by invasion with polymorphonuclear leucocytes. They have been able in subsequent work to reproduce the same lesion in dogs and monkeys. This piece of work completes the chain of evidence necessary to establish the bacillus of Bordet and Gengou, as the cause of whooping cough.

BERIBERI.

A number of papers have appeared in the last few years, showing that beriberi could be experimentally produced in birds, fowls and pigeons by feeding with polished rice; at least a paralysis is produced due to peripheral nerve lesions, similar to those found in human beriberi, and cures could be produced by the addition of substances obtained from the rice polishings. Experiments on man have been done by a number of investigators in a number of different places, but these experiments are open to criticism in that they were conducted in regions where beriberi is endemic, so that two theories have been in force regarding the etiology: one that beriberi is due to the lack of certain substances in the diet; the other that deficiencies in diet only predispose, and the real cause remains unknown, and possibly is of infectious origin.

Strong and his associates in Manila (*Philippine Journal of Science,* Section B. Vol. 7, August, 1912, No. 4) have greatly extended the knowledge of beriberi, and confirmed the results of animal experimentation on the human. These experiments were carried out in Bilibid Prison, the subjects were volunteers, and were prisoners under sentence of death. The conditions were practically ideal, being conducted in a region free from beriberi, and protected against sources of infection, granting that these existed. They could find no evidence that beriberi is an infectious disease. On the other hand, they were able to produce the disease in individuals fed with special diet, while the control individuals, although intimately associated with the others,

did not contract the disease. A special diet formed the basis of the meals for all the subjects of the experiments, and included such food as bread, coffee, sugar, bacon, onions, lard and bananas. Four groups were formed, which were fed as follows. Group 1, white rice and extract of rice polishings and special diet; Group 2, white rice and special diet; Group 3, red rice and special diet; Group 4, white rice and special diet.

It is inadvisable to go into the details of the experiment, but the results show conclusively that beriberi develops because of the absence of some substance or substances in the diet. Such substances are evidently present in red rice, rice polishings and in the alcoholic extracts of rice polishings. The rigid isolation of the prisoners undergoing the test would seem to exclude the possibility of the introduction of an infectious agent through any other individual, or by the introduction of any article. These experiments of Strong and his associates are of great importance because they show that even with the diet containing all the physiological requirements, beriberi may result, owing to lack of certain unknown substances.

In experiments on fowls, Vedder (*Philippine Journal of Science*, Section B, Vol. 7, August, 1912, No. 4) found that fowls develop a polyneuritis when fed on a diet containing polished rice, cotton-seed oil, egg albumin, sugar, salt, magnesium phosphate, potassium phosphate and asparagin. Neuritis could be prevented by the addition of unpolished rice to the diet. A series of experiments have shown that the neuritis-preventing substance is not volatile, but is destroyed by heat; that it is not an inorganic salt, fat, proteid or alkaloid. It is probable that it is an organic base.

It is thus seen that the substances which prevent polyneuritis or experimental beriberi in fowls are probably similar in nature to those which prevent experimental scurvy in animals.

Funk ("Etiology of Deficiency Diseases," *Journal of State Medicine*, Vol. 20, No. 6) has isolated a crystalline substance, which he calls beriberi vitamine, and which he believes to be the active principle of the protective substance found in rice polishing. This substance, which has the formula $C_{17}H_2N_2O_7$, has a curative action for the experimental beriberi or polyneuritis in birds. He is inclined to think that vitamine is necessary for the metabolism of nervous tissue. The lack of vitamine in food stuff forces the animal to get this substance from its own tissue, the result being an enormous loss of weight, after which the available stock begins to be scarce. There is a consequent breaking down of the nervous tissues, with the result that nervous symptoms, such as are seen in beriberi, manifest themselves.

SCURVY.

The last year has seen material advance in our knowledge of scurvy. Baumann and Howard (*Archives of Internal Medicine*, Vol. 9, No. 6) report the first accurate study of the metabolism of scurvy. They do not attempt any general conclusions from the study of their one case, but their findings are of great interest. They found that the loss of the various food constituents through the feces was less when fruit juice was added to the diet. The total sulphur metabolism was abnormal throughout the experiment, the quantity eliminated being in excess of that ingested. Chlorine and sodium were retained during the fruit juice period, but were excreted in excess of the intake during the preliminary period. More potassium, calcium and magnesium were retained during the fruit juice period than during the preliminary period.

The experimental production of scurvy in animals reported during 1912 opens up, of course, great possibilities for the future investigation of scurvy.

Holst and Frölich (*Zeitschrift für Hygiene*, Bd. 72, Heft 1) found that they could produce scurvy in guinea-pigs by feeding them exclusively with grain or bread. They produced the characteristic lesions of scurvy: the loosening of the teeth; hemorrhages into the gums and joints; loosening of the epiphyses and changes in the bone marrow. Guinea-pigs that were fed exclusively with cabbage, carrots and dandelions did not show these changes, even though they lost greatly in weight, thus showing that scorbutus is not due to simple inanition. The animals which developed scorbutus could be cured by feeding with a number of vegetables. The anti-scorbutic power of certain vegetables was diminished or destroyed by long drying or cooking, but the juice of acid fruits retained their anti-scorbutic power even after heating.

Fürst (*Zeitschrift für Hygiene*, Bd. 72, Heft 1) found that feeding guinea-pigs exclusively with plant seeds would produce scorbutus, though not so easily and regularly as with exclusive grain feeding. Plant seeds that produce scurvy would acquire anti-scorbutic properties when infected with fungi. His attempts to identify the anti-scorbutic powers with specific substances, as fat, albumin, carbohydrates, cellulose, salt and enzymes failed.

Frölich (*Zeitschrift für Hygiene*, Bd. 72, Heft 1) found he could produce scorbutus in guinea-pigs by exclusive feeding with raw or cooked milk, although not so perfectly as by exclusive grain feeding. When fed with oats and raw milk, they did not develop scurvy; when fed with oats and cooked milk they did.

From these papers we may infer that the anti-scorbutic property of a food stuff depends on a substance destroyed or modified, to a large extent at least, by heat. The nature of the anti-scorbutic substance is unknown. That profound changes in metabolism in man have been demonstrated, and that the possibility of isolating the substances, the lack of which produce these changes, seems assured, offers reasonable ground for some interesting speculation.

PELLAGRA.

Sporadic cases of pellagra have been reported in many of the northern states in this country, and it seems that with greater familiarity with the disease, the total number of cases recorded from different parts of our country, is rapidly increasing.

Surgeon C. H. Lavinder (*United States Public Health Report*, Vol. 20, No. 50) has made a systematic attempt to collect statistical information relative to pellagra in the United States. A peculiarity of the disease here is a comparatively large number of cases occurring in people of easy circumstances. As in Italy, it is found that there is constantly but one case in any house or family. The author considers that pellegra during the last five or six years has affected no less than thirty thousand individuals, and that the matter has reached the dignity of a public health question of national importance.

A very extensive report of the Pellagra Commission of the State of Illinois has appeared. It is quite impossible to make a fair review of this report. Some of the salient points, however, are that the disease is essentially similar to that of Europe and Egypt. There are some slight differences in the distribution of the skin lesions. The lesions of the central nervous system in general are similar to those described by Adolph Meyer, under the name of central neuritis. The pathology consists of changes such as the axonal reaction and chromolysis in the Betz cells of the motor cortex, and of the larger pyramidal cells in the praecentral convolutions, and in the cells of the nuclei in the cerebellum, pons, medulla and cord, as well as posterior root and sympathetic ganglia. In some cases there is more or less overgrowth of neuroglia along blood vessels and around nerve cells. These lesions are interpreted as being simply the reaction upon the part of nervous tissue to the general effect of a deleterious substance, occurring in the disease, and are in no way specific for pellagra. Other lesions are slight inflammatory reactions in the connective tissue structures of the liver, intestinal ulcerations and secondary kidney lesions. The skin lesions pathologically give the general picture of angio-neurotic processes, and resemble to a marked degree the lesions found in erythema multiforme. Attempts to obtain a specific reaction in pellagra cases have failed. Cutaneous extracts of maize and complement fixation experiments have given negative results Attempts to produce pellagra in healthy individuals by a corn diet has failed in the hands of this Commission; likewise attempts to transmit pellagra to monkeys and other animals, by feeding and inoculation experiments, have failed. The general conclusions are that pellagra is a disease due to infection with a living micro-organism of unknown nature, and a possible location for this infection is in the intestinal tract. Deficient animal protein in the diet may constitute a predisposing factor in the disease. The Commission was not able to identify the nature of the association of the intestinal bacteria and protozoa investigated in a rather exhaustive series of experiments, with the disease.

Attempts made by Anderson and Goldberger and C. H. Lavinder (*Public Health Report*, Vol. 26, No. 26) to transmit pellagra to monkeys by injection of blood and spinal fluid and nervous tissue from pellagrins have failed.

Devoto (*Wiener Klin. Woch.*, Vol. 63, No. 1) says that in eight Italian provinces there has been a diminution since 1889 of 75% of pellagrous individuals. This diminution he claims is due to the lessening consumption of maize, brought about by edicts prohibiting the use of bad maize, and to improvement in economic conditions.

In spite of the voluminous literature of pellagra, definite conclusions as to the etiology are impossible. It is even difficult to form an opinion as to the value of the evidence for and against the infectious theory. The pathology of the disease throws very little light upon the nature of the underlying or causative processes. Such evidence that we have points to a similarity with certain nutritional disorders, such as buckwheat poisoning, beriberi and scurvy. In spite of these factors, however, we must remember that the infectious theory has many supporters, and among them, the Illinois Commission.

BRAIN LESIONS PRODUCED BY ELECTRICITY, AS OBSERVED AFTER LEGAL ELECTROCUTION.

The finding of constant and characteristic lesions in the brain, after death by electrocution, is of interest. Spitzka and Radash (*American Journal of Medical Sciences*, Vol. 144, No. 3) had an opportunity to study five brains which were preserved in formaline, shortly after death by electrocution. Peculiar areas, which gave a vacuolated appearance to the sections, were found in all. These areas, which are unlike anything seen in any other condition, ranged in diameter from 25 to 300 microns. They consist of two parts, a central rarefied and an outer condensed zone. The most characteristic contain a small blood vessel, surrounded by a delicate meshed reticulum, representing the central four-fifths of the area, and a condensed peripheral zone. The explanation of these areas can only be guessed. The bead-like vacuoles along the vessels and the condensed peripheral zone seem to show that the sudden liberation of gas, due to electrolysis, best explains their origin. Spitzka and Radash note that similar lesions have been experimentally produced by Sir Victor Horsley and R. H. Clarke. It is quite probable that these lesions will have considerable forensic importance.

Reports of Societies.

COLLEGE OF PHYSICIANS OF PHILADELPHIA.

Meeting of Wednesday, February 5, 1913, At 8 p.m.

The President, Dr. James C. Wilson, in the chair.

A PECULIAR FORM OF BRONCHOPNEUMONIA OF LOBAR DISTRIBUTION.

By Dr. David Riesman.

THYMUS DEATH IN THE NEWBORN, WITH REPORT OF A CASE.

Edward P. Davis, M.D.: The patient, Mrs. F. C., applied for treatment at the Wharton Street Maternity Dispensary of the Jefferson Hospital. She was pregnant, near term, and had had irregular bleeding for several days. She was delivered promptly by Cesarean section and her convalescence was uninterrupted. The child did well for 24 hours but died in spasm with dyspnea. During the life of the infant its neck and thoracic region presented nothing abnormal. Recent studies in relationships existing between the placenta and the thyroid gland suggest that the large thymus in the newborn must share in various disturbed conditions of maternal and fetal metabolism. In the case reported it is possible that the mother's hemorrhage had altered the condition of the fetal blood and in consequence produced alteration in the size and condition of the thymus. That the gland was enlarged before delivery is shown from the fact that the fetus was observed to make inspiratory movements of an unusual character before the membranes were opened. Evidently the disturbance of eventrating the uterus and compressing the lower segment to control hemorrhage was sufficient to influence the fetus. It is difficult in the present state of our knowledge to suggest measurements for preventing thymus death. Attention to the mother's hygiene during pregnancy is certainly demanded. Delivery by Cesarean section exposes the child to the least possible mechanical disturbance, and in this case no prolonged or vigorous efforts were made to establish respiration. A further study of the thymus from the standpoint of toxins and sera may throw light on this obscure condition.

DISCUSSION.

Dr. J. P. Crozer Griffith: I was glad to hear the speakers tonight admit the lack of positive knowledge by the profession regarding the strange condition under discussion. The term "thymus death" is rather an unfortunate one because it does not always have the same meaning. There is undoubtedly proven to exist a death by pressure of the thymus gland upon the trachea. The majority of so-called thymus deaths have been *sudden* deaths. I believe with others that such deaths are cardiac deaths. There is no anatomical proof of the occurrence of sudden congestion. The most generally accepted theory for these cases of sudden death is that the condition is a neurosis, toxic, perhaps, in origin, and that for some unknown cause, varying with the case, there is a sudden arrest of the heart's action.

MORS THYMICA; MORBID ANATOMY AND PATHOGENESIS (ILLUSTRATED).

Dr. William M. L. Coplin: We are very much in doubt regarding the changes that occur in the thymus body. One is impressed with the exceedingly varied morphology of the organ. We are in a field of doubt regarding embryology, histology and function. The frequent association of the enlargement of the organ with sudden death is marked.

MYOCARDIAL HYDROTHORAX.

Dr. James M. Anders: The association of cardiac disease and unilateral hydrothorax is not rare. In 13 out of my 16 cases of hydrothorax due to myocardial changes, the condition was wholly on the right side throughout. In five of the 16 cases, clear and convincing evidence of well-pronounced chronic interstitial nephritis was present. In nine cases the cardiac incompetency was caused by chronic myocarditis. Myocardial hydrothorax is especially apt to go unrecognized in cases in which external edema is absent, the severe dyspnea being attributed principally to so-called cardiac or cardiorenal asthma and pulmonary congestion. It is not uncommon to meet cases of myocardial insufficiency that simulate closely valvular disease, particularly mitral incompetency, with which may be associated a mild grade of stenosis. There is not obtainable, however, a clear history of acute articular rheumatism in chronic myocarditis, but commonly of one of the exciting factors of secondary dilatation of the heart, such as physical or mental overstrain, an intercurrent febrile affection and the like. Treatment has reference to removal of transudate by tapping the chest and correction of the causative condition so far as possible by hygienic and medicinal means. It is futile, as a rule, to attempt to get rid of the transudate by the exhibition of digitalis and other cardiac stimulants without first withdrawal of the fluid by aspiration if it be considerable in amount. The myocardial insufficiency demands resort to remedies that will strengthen the heart muscle. Rest is the most valuable adjunct in the treatment of the cardiac dilatation to which the hydrothorax is due. It must be, however, absolute and long continued. The use of saline laxatives carried to the point of rather active catharsis was of decided service in a few of my cases. In five instances of the series herewith reported a salt-poor diet was employed with favorable effect, re-accumulation of the transudate being thereby noticeably delayed.

DISCUSSION.

Dr. Judson Daland: As the symptomatology is readily explained by the condition of the myocardium the liquid in the pleura is overlooked because no physical examination is made. In my experience certain of these cases have not done well under the influence of digitalis, more especially if we have reason to believe there is degeneration of the myocardium. Strophanthus is more uniformly beneficial, provided the preparation is active. The tincture as ordinarily obtained is inert. In hypertension with myocardial inflammation or degeneration I have been unable to demonstrate that the hypertension has been permanently reduced by such doses of nitroglycerine as could be given with safety. Particularly important is it for us to bear always in mind the possibility emphasized by Dr. Anders that

a latent unilateral hydrothorax may develop at any time during the course of myocardial inflammation or degeneration and require early and prompt removal by the aspirator.

Dr. James Tyson: Whatever may be the more remote cause of non-inflammatory accumulations of fluid in the chest cavities I believe they are practically due to cardiac weakness or obstruction to the onward movement of the blood or to both combined. The frequency of the invasion of the right chest as compared with the left might have been further illustrated by reference to the observations of the late Dr. J. Dutton Steele, who found that out of 100 cases 83 were double and 17 single, and that of the 83 double three-quarters were right sided, and of the 17 single 10 were right sided. I have learned that it is not well to wait before tapping for the effusion to become large if one is certain that it is present on one side or on the other.

Dr. Thomas McCrae: One possibility of error in the recognition of these cases lies in the fact that when the amount of fluid is not very large, the dullness is regarded as being due to increase in the size of the liver. The fluid may persist in these cases for long periods and sometimes increases and decreases without any special change in the cardiac condition. This is particularly seen in patients who refuse tapping. In some cases the removal of a very small amount of fluid is followed by rapid absorption of the remainder.

Dr. Anders, closing: My object in presenting this paper was to refer to the cases of hydrothorax in which there was no external dropsy at the onset and no valvular disease, and therefore little ground for suspecting the presence of fluid in the pleural sacs. I want to emphasize the fact that we should systematically examine the thorax in chronic myocarditis, independently of either valvular disease or chronic nephritis. I believe that right-sided hydrothorax of cardiac origin is more often due to myocardial disease than has been supposed by clinicians. I would lay special stress upon the extreme latency of right-sided hydrothorax due to foregoing chronic myocarditis, and agree with Dr. McCrae and Dr. Tyson that we should do tapping early in the presence of a weak or dilated heart.

Book Reviews.

Napoleon's Campaign in Russia. Anno 1812. By Dr. A. Rose. With illustrations by O. Mertê. Taken from Yelin "In Russland, 1812." New York: Published by the Author. 1913.

The Illness and Death of Napoleon Bonaparte (A Medical Criticism.) By Arnold Chaplin, M.D. (Cantab.), F.R.C.P. With three illustrations. London: Hirschfeld Brothers. 1913.

These two widely diverse volumes on Napoleon, appearing almost simultaneously, may conveniently be considered together, since they illustrate, after all, merely varying aspects of the same personality.

The first volume, by Dr. Rose, should have been made at least interesting by its subject matter. Its style, however, is so amorphous, discrete, and inconsequential as to cause the narrative to fail largely of its effect.

The second volume, the substance of which has already appeared in the *Lancet,* represents a final attempt to lay or exorcise the persistent pathologic ghost of Napoleon's last illness and death. It is based on a careful examination of the documents and a microscopic study of the specimens preserved from the autopsy. Of the authenticity of these specimens there seems to be still some slight doubt; but, accepting them as genuine, there seems good ground for accepting the author's conclusion that "the cause of Napoleon's death was cancer of the lesser curvature of the stomach developing on the site of an old gastric ulcer." There were also vesical calculi, and at the apex of the left lung some small healed foci of tuberculosis. On the basis of the clinical history, and considering the medical knowledge and diagnostic methods of the time, Chaplin attempts a defence of the physicians who have been so severely criticized for their treatment of the Emperor. An appendix contains the brief biographies of these four physicians; a second, the story of the specimens, which are preserved in the museum of the Royal College of Surgeons, London; and a third an account of the exhumation of Napoleon on Oct. 16, 1840. There is a melancholy grandeur of interest associated with this final clinico-pathologic study of Napoleon's case, as with all that pertains to the history of the great Corsican.

The Modern Hospital. Its Inspiration; Its Architecture; Its Equipment; Its Operation. By John Allan Hornsby, M.D., and Richard E. Schmidt. With 207 illustrations. Philadelphia and London: W. B. Saunders Company. 1913.

This volume attempts much more elaborately what was attempted in Aiken's book on "Hospital Management," which was reviewed in the issue of the Journal for July 6, 1911 (Vol. clxv, p. 24). The present volume is the work of only two authors, whereas the latter was that of many. What it loses, however, in variety of expert knowledge, it gains in singleness of purpose and insight. Despite its modest prefatory acknowledgment of incompleteness, it seems admirably thorough. Every element in the construction, equipment, and administration of a modern hospital is considered, and sensibly discussed, with a strong and attractive spirit of personality. The illustrations are many and well chosen. The book is a valuable contribution to the small but growing literature of hospital administration, and should therefore be of great value to the important class of professional hospital superintendents.

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PROMISCUOUS SANITARY DANGERS.

A MAN is prone to give little heed to many small things in daily life unless attention is directed to them in a striking or unusual manner. Were he to pay strict heed to all the minute interests and points of contact which compose his life, there would be but little time left for anything else. He must conserve his energy and attention, and put into practice instinctively his knowledge of the minutiae. A knowledge of the principles of personal hygiene, and an intelligent habit of avoiding certain small and unnecessary risks, will aid unconsciously, it may be, in preserving a normal and healthy body and mind.

In a recent bulletin of the Public Health Service[1] Drs. J. W. Kerr and A. A. Moll point out certain of these risks and at the same time call attention to a matter which, while small in itself, is of much importance in the field of personal and general hygiene. The authors show the danger attending the promiscuous use of drinking cups and roller towels.

Nowadays the prevailing sentiment is opposed to the use of the common communion cup and very properly so. It is surprising that its use, attended as it is with such obvious dangers of transmitting secretions and disease from one person to many, persisted as long as it did. As early as the fourteenth century, the Catholic church temporarily withdrew the use of the common communion cup from the laity because of the prevalence of the "plague." The inventory preserved in the records of the Protestant Church at Bopfingen, Wurtemburg, for 1703, show "one small gold-plated cup for the sick, one tin cup for infected persons," and such cups were recorded until 1832.

During an epidemic in Strassburg in 1564, it seems that a professor of theology suggested the use of individual cups in the communion service to prevent disease spreading through this medium. Dr. Terry in 1887 was apparently the first in America to advocate a change from the use of the common communion chalice. In 1894 the first careful scientific investigation of the subject was made by Dr. Charles Forbes. He found in the dregs of a communion cup two kinds of contamination,—from the mouth and from the clothing, including fibrous matter from clothes, various bacteria and bacterial spores, epithelial cells and mucus from the mouth. He reported an epidemic of diphtheria in 24 families of Rochester, which was conclusively traced to the use of a common drinking cup. A serious and fatal epidemic of this disease in San Jose, California, was proved to have arisen from a common communion cup, infected by a person in the early stages of the disease.

Tubercle bacilli, pus organisms, and the germs of syphilis, pneumonia, diphtheria and influenza have been demonstrated in common drinking cups. Every drinking cup or glass used by several persons carries these deadly possibilities. In the home, on the train, in the park or street drinking fountain, in public buildings, wherever it is found, the common drinking cup or glass is a dangerous menace and is a reflection on the intelligence and common sense of those who use it or allow it to remain. Among the all too few enlightened cities which by ordinance or regulation forbid the use of common drinking cups are New York, Buffalo, Albany, St. Louis, St. Paul, Toledo, Pasadena, Atlanta and Louisville. Nine States and one territory have such a law in force, including Colorado, Connecticut, Illinois, Indiana, Kentucky, Maryland, Massachusetts, New Hampshire, New Jersey and Hawaii. Such a provision is made by regulation of the State Board of Health in Idaho, Iowa, Kansas, Louisiana, Michigan, Mississippi, Missouri, Montana, Oklahoma, Oregon, South Carolina, South Dakota, Texas, Utah, Vermont, Washington and Wisconsin. The California and New York State Legislatures passed such a law, but their respective governors vetoed it. The California State Board of Health, however, has adopted a resolution against the use of the

[1] Kerr, J. W., and Moll, A. A.: Common Drinking Cups and Roller Towels. Public Health Bulletin No. 57. August, 1912.

common drinking cup. The people of these two states in particular should demand that laws of such evident sanitary necessity be enacted and enforced.

Another and little considered source of danger is the common roller towel. This is an inexcusable abomination wherever it is found. The Committee on the Prevention of Blindness of the American Medical Association stated on June 8, 1912, that "the infection is carried by means of the atrocious roller towel, which is still found in some primitive establishments." Trachoma[2] is very frequently spread by means of the roller towel, and the opportunities for the transmission of virulent and dangerous diseases by this medium, are evident on a moment's consideration.

In this connection one must recall the ordinary practice in many cafes and restaurants of furnishing finger bowls to several patrons in succession, without cleansing or refilling the bowls. This is another dirty and reprehensible practice which the public should not tolerate. Dr. C. H. Lavinder calls attention to this abuse in the Public Health Bulletin of January 3, 1913. It is interesting to note that in spite of much current talk to the contrary, the mouthpieces of telephone transmitters do not seem to harbor or serve as media for the transmission of pathogenic organisms. After bacteriological examination of numerous telephone transmitters in public places, including those in a tuberculosis hospital and actually used by victims of the disease, Dr. Spitta concluded, "that the transmission of tuberculosis through the medium of the telephone mouth-piece is practically impossible."[3]

It is a matter of satisfaction that the federal Public Health Service is spreading such data and educating people in a correct knowledge of personal and public hygiene. Every factor in the prevention of disease and the improvement of hygienic conditions throughout the United States is receiving expert attention from these guardians of the public health. They do not seek to impose arbitrary restrictions or to interfere in local affairs. They are the servants of the whole people, commissioned with the responsible task of discovering and removing the causes of disease, and of leading each person to a correct knowledge of the principles and practical application of the science of maintaining good health.

[2] Trachoma a National Menace, Alfred C. Reed. The Survey,—.
[3] Spitta: Medical Officer, March 23, 1912

THE MILK PROBLEM IN MASSACHUSETTS.

THE milk problem in Massachusetts is one of those which seem to grow more instead of less puzzling as time progresses. Probably, however, this apparently increasing difficulty is due in part to the failure of the community to pursue any permanent policy in attempting its solution.

For several years the matter of milk legislation has been threshed over in successive sessions of the General Court; various measures, good, bad and indifferent, have been presented and discussed; but, from one circumstance or another, no definite action has been taken. Naturally this negative method has failed to produce positive results. While the supposedly conflicting interests of the several groups of persons concerned in the production and distribution of milk are acting against one another to produce this deadlock, the situation stagnates and the community continues to suffer in consequence.

In an editorial in the issue of the JOURNAL for Feb. 13 (Vol. clxviii, p. 249) we reviewed at length the milk situation in Massachusetts, discussing particularly the Ellis milk bill, then pending before the State Legislature, and advocating its passage. In the issue of the JOURNAL for Feb. 20 (p. 286) we also referred editorially to the Meaney bill (House No. 857) and to Senate bill No. 44, advocating their passage also as adjuncts to the Ellis bill. Since that time these and other suggested measures have been discussed extensively in joint sessions of the legislative committees on agriculture and on public health, with the disappointing result that only the Meaney bill and Senate bill No. 44 have been favorably reported, and all others, including the Ellis bill, have been given leave to withdraw. In this form the recommendation of these committees has gone to the Legislature, where, however, the Ellis bill or any other may be again substituted and passed.

Senate bill No. 44 is the official bill of the Massachusetts Association of Boards of Health. It fixes at 500,000 per c.c. the State standard for the maximum number of bacteria permissible in milk intended for sale. It does not render it mandatory for local boards of health to enter upon the work unless they so desire, but does give to the State Board of Health authority to proceed against dirty milk. The Meaney bill, entitled "an act to encourage the dairying industry of Massachusetts," provides that

"All milk sold, offered for sale, or held for sale, shall, in the final package, be labelled or marked first, as to the name of locality (by State) in which such milk has been produced; second, as to the artificial treatment, if any, to which such milk has been subjected.

"Such information shall be given in phrases of common use. The origin of milk may be conveyed by the use of the phrases "Massachusetts milk," "Maine milk," "New York milk," etc. In describing the artificial treatment, the phrases used shall be, "Pasteurized milk," "natural milk," "modified milk," "compounded milk," or other well understood terms, as shall be approved by the local Board of Health. But in the event of milk having been pasteurized twice or more, that fact shall be so stated."

As we pointed out in our previous editorial, the Meaney bill, though in itself excellent, "fails to provide the machinery necessary for its enforcement." Moreover, it is limited in its application. What is primarily needed by the community is a much broader and more comprehensive measure, like the Ellis bill, which at least attempts to deal with the entire situation, constructively. That the Ellis bill will be substituted and passed by the Legislature, notwithstanding the adverse report, is the belief of the Massachusetts Milk Consumers' Association, whose executive committee has recently issued the following statement through the public daily press:—

"Consumers throughout the State who have been working so loyally and unselfishly to save young lives and to prevent milk-borne epidemics need not be disheartened by the adverse report on the Ellis bill by a committee of the Legislature. This is exactly what has happened in previous years, the committee never having reported favorably upon it, but it has always been substituted in the Legislature itself. The Ways and Means Committee, however, has always favored it. This year the Ellis bill has more friends than ever in the House and Senate and we have no doubt that they will succeed in substituting it for the report of the committee.

"That the Ellis bill will save many lives is the opinion expressed by the highest health authorities throughout the country, and that being so, its passage by the Legislature is inevitable. It is no exaggeration to say that it is the most important bill before our legislators at present. It is almost inconceivable that they will not give the State Board of Health legal power to stop the sale of milk handled under unsanitary conditions and to provide a proper system of inspection to enforce clean milk laws and regulations."

Such is the legislative situation as it stands at the present writing. Unfortunately it has been further complicated by a recent message from Governor Foss to the General Court, in which he suggests a further entirely impracticable substitute for all the milk legislation now pending. The Governor vetoed the Ellis bill when it was first passed two years ago, and his political opposition to it constitutes another obstacle to its enactment.

Obviously, the milk problem in Massachusetts is too complex for solution by any one person. The opinions of unprejudiced experts, however, are fairly in accord as to the general method to be pursued in attempting to solve it. In another part (pp. 609-618) of this week's issue of the Journal we publish a symposium on "Aspects of the Milk Supply," presenting the views of four acknowledged and disinterested authorities on this important subject. To these instructive articles we would especially call the attention of our readers for thoughtful perusal. The essence of their conclusion is that the safeguarding of the milk supply rests fundamentally on an intelligent, rigorous, organized system of inspection under the central control of the State Board of Health. Such a system is provided by the Ellis bill. This bill doubtless is not perfect, but it is by far the most satisfactory measure thus far proposed. Certainly it is better than the inadequate, disorganized policy hitherto pursued. We, therefore, strongly advocate the passage of the Ellis bill, believing that it will establish a system, which, when modified by time and experience, will secure for Massachusetts a solution of the milk problem worthy of an enlightened and progressive Commonwealth.

THE RESIGNATION OF DR. HARVEY.

After eighteen years of faithful service, Dr. Edwin B. Harvey has been compelled by reason of failing health to tender his resignation as Secretary of the Board of Registration in Medicine. During this long period Dr. Harvey has devoted practically his entire time and efforts to the important duties of this office. He originated and drew up the bill and piloted it through the Legislature in 1894, while he was a member of the State Senate and was thus naturally much interested in its success. As indicated in his numerous annual reports, the act is by no means perfect, but it is the best attainable

to the present time. Numerous efforts have been made from time to time to secure amendments, but thus far without success. Such as it is, however, the act has done much to elevate the standard of medical practice in the State and to discourage the advent of a horde of ignorant pretenders, that are a menace to the public welfare.

Dr. Harvey deserves and will receive the hearty commendation of all who properly appreciate the amount and character of service rendered to the public and to the profession during his long and active career at the State House as representative, senator, and secretary of the Board of Registration in Medicine.

Dr. Walter P. Bowers, president of The Massachusetts Medical Society and a charter member of the Board, has been elected secretary. His high position in the profession and his well-known executive ability are guarantees of efficient service in his new position.

A HARVARD MEDICAL EMERITUS.

THE resignation of Dr. Clarence John Blake, of Boston, as Walter Augustus Lecompte professor of otology in the Harvard Medical School, as noted in another column of this issue of the JOURNAL, has been immediately and fittingly followed by his appointment as professor emeritus from September 1, 1913, the date when his resignation takes effect. This appointment comes in worthy recognition of his forty-three years of efficient service to his University as a teacher in his special subject. It is a matter of sincere gratification to Dr. Blake's many well-wishing and warm friends among his professional colleagues and former pupils that this honor finds him still alertly vigorous and interested in his work, able and disposed to devote many more years to its enjoyment in the continued study and practice of his chosen science.

MEDICAL NOTES.

ST. MARY'S HOSPITAL, ROCHESTER.—The recently published twenty-third annual report of St. Mary's Hospital, Rochester, Minn., records the work of that institution for the calendar year 1912. During this period 5986 patients were treated and 8703 operations performed. Ten nurses were graduated from the training-school.

MONTCLAIR BOARD OF HEALTH.—The recently published eighteenth annual report of the Montclair (N. J.) Town Board of Health records the activities of that body for the calendar year 1912. During this period the total death-rate was only 9.83 per 1000 of population, the local corrected birth-rate 21.5 per 1000 of population, and the death-rate of infants under one year 89 per 1000 births. There were no deaths in 1912 from typhoid fever, diphtheria, measles, or smallpox. Especial attention was devoted to mosquito eradication, over 800 mosquito breeding nuisances being abated.

A NEW MEDICAL PUBLICATION.—During this month of April has appeared the first issue of the *Clifton Medical Bulletin*, a new quarterly publication, edited by Dr. James G. Mumford, of Clifton Springs, N. Y. The JOURNAL is glad to welcome cordially the appearance of this new medical periodical, and to extend sincere wishes for its success.

BUBONIC PLAGUE IN COLOMBIA.—Report from Bogota, Colombia, on April 11, states that bubonic plague is epidemic at Santa Marta, a port on the Caribbean Sea. The number of cases is not given.

TWO CENTENARIANS.—William J. Barnett, who died recently at Linden, N. J., is said to have been born in 1812 in England. He is survived by one aged son, two daughters, several grandchildren, and numerous great-grandchildren and great-great-grandchildren.

John Butler, who died on April 10 at Asbury Park, N. J., is said to have been born on Jan. 16, 1810, in Staten Island, N. Y. It is stated that he never used tobacco, but that for the last 80 years of his life he drank eight cups of strong coffee daily, and consumed alcoholic beverages in moderation.

A LIVING CENTENARIAN.—Mrs. Ann Elizabeth Magill, of Philadelphia, who is said to have been born on April 14, 1809, celebrated recently her supposed 105th anniversary. Her general health is excellent.

BOSTON AND NEW ENGLAND.

MEASLES IN READING.—The epidemic of measles in Reading, Mass., which was noted in last week's issue of the JOURNAL, continues unabated. Thus far 75 cases of the disease have

been reported. Forty of these are among pupils of one school, and 20 among pupils of another, both of which have now been ordered closed for two weeks.

Lecture by Dr. Rucker.—It is announced that Dr. W. C. Rucker, Assistant Surgeon-General of the United States Public Health Service will give his lecture on "The Rodent, and Its Relation to the Public Health," illustrated with stereopticon, under the auspices of the Sanitation Department, Women's Municipal League, at Jordan Hall, Boston, on Friday, April 25, at 4.15 p. m.

No Smallpox in Fall River.—In the issue of the Journal for April 10 (p. 552), we noted the report that three cases of smallpox had recently been discovered in Fall River, Mass. This report, it appears, was erroneous, as there have actually been no known cases of smallpox in that city.

Seizure of Opium in Roxbury.—On Saturday, April 12, the federal customs inspectors seized $1000 worth of smuggled opium on the premises of a resident of Roxbury, Mass., who was arrested and held in $200 bail.

Indictment for Sale of Decomposed Eggs.—Before the Suffolk Superior Court last week, four dealers of this city were indicted for having decomposed eggs for sale as food.

Another Typhoid Carrier.—It is reported that the cause of a recent epidemic of 15 cases of typhoid fever in Quincy, Mass., has been traced to a carrier then employed as a maid on the farm in Danielson, Conn., which was the source of milk supply for the persons infected. The maid, now at Auburn, Mass., has been quarantined.

Lecture by Dr. Osler.—It is announced that on Tuesday of next week, April 27, Dr. Sir William Osler, regius professor of medicine at Oxford University, will give an illustrated lecture at Harvard College, Cambridge, Mass., on "The Oxford University Press."

Recent Hospital Bequests.—The will of the late Charles H. Greenwood, of Dorchester, Mass., who died on April 8, was filed on April 11 for probate in the Suffolk registry. Among numerous charitable bequests, it contains two of $2000 each to the Cullis Home for Consumptives and to the Boston Floating Hospital.

The will of the late Isaac M. Jackson, of Plymouth, Mass., contains a bequest of $10,000 to the Plymouth Hospital, to be known as the Abby Jackson Fund, the income to be used for the general purposes of the hospital.

Middlesex South District Medical Society.—At the annual meeting of the Middlesex South District Medical Society, held in Boston last week, the following officers were elected for the ensuing year: Dr. Godfrey Ryder of Malden, president; Dr. William D. Swan, Cambridge, vice-president; Dr. Lyman S. Hapgood, Cambridge, secretary; Dr. Charles A. Dennett, Arlington, treasurer; and Dr. Edward M. Plummer, Charlestown, commissioner of trials.

Boston Mortality Statistics.—Cases of infectious diseases reported to the Boston Board of Health for the week ending April 15, 1913: Diphtheria, 37; scarlatina, 47, including 4 non-residents; typhoid fever, 2; measles, 207; smallpox, 0; tuberculosis, 87, including 5 non-residents.

The death-rate of the reported deaths for the week was 19.64.

NEW YORK.

Death-Rate in March.—Once again the death-rate is slightly in excess of that of last year, a result probably attributable to the greater prevalence of influenza, with the respiratory diseases which commonly complicate it. The weekly reports of the Health Department show that in the month of March the mortality in the city represented an annual death-rate of 16.79, as against 16.59 in February and 16.03 in March, 1912. Among the diseases in which there was an augmented fatality were the following: The weekly average of deaths from typhoid fever increased from 4 in February to 5 in March; the weekly average from measles, from 10 to 19.75; from scarlet fever, from 13.75 to 20.75; from whooping-cough, from 6.25 to 8; from epidemic cerebrospinal meningitis, from 2.75 to 5; from pulmonary tuberculosis, from 196.25 to 200.75; from diarrheal diseases under 5 years, from 33.25 to 42.75; from tuberculous meningitis, from 19 to 21.75; from appendicitis and typhlitis, from 10.75 to 14.5; from cirrhosis

of the liver, from 18 to 21.5; and from puerperal diseases, from 17.25 to 19. Among the diseases in which there was a diminished mortality were the following: The weekly average of deaths from diphtheria and croup declined from 38.75 to 37.5; from apoplexy and softening of the brain, from 24.5 to 19.75; from organic heart diseases, from 220.25 to 216.25; and from Bright's disease and acute nephritis, from 139 to 133.5.

COST OF SPRING CLEANING.—The Board of Aldermen having thus far failed to pass the special appropriation of $37,000 for the spring cleaning of the city asked for by the Health Commissioner, the Mayor determined to go on with the work without waiting for this, and on April 11, after a conference with the heads of the various city departments, issued a proclamation to the citizens, in which, after announcing the undertaking in concert "to clean up the whole city, indoors and outdoors, and to keep it clean," he, first, requests them to have all rubbish ready to put on the street on a certain day (to be announced) when it will be removed by the street cleaning force, and, second, calls attention to the section of the city ordinances forbidding the throwing of any rubbish or litter upon the streets. He also sent a letter to the Police Commissioner telling just what was expected of the police in carrying out the plans agreed upon.

APPOINTMENT OF DR. BIGGS.—It is reported that Dr. H. M. Biggs, general officer of the New York City Health Department, is to be State Health Commissioner, to succeed Dr. Eugene Porter, who has held that position for many years.

BEQUEST BY DR. ELIOT.—Under the will of the late Dr. Ellsworth Eliot of New York a bequest is made to Yale University, of which he was an alumnus, of $1000, to be known as the Joseph Ellsworth Memorial Fund.

DEPARTMENT FOR RADIUM TREATMENT.—It is announced that a department for treatment with radium emanation has been established at the New York Post-Graduate Medical School and Hospital, for public use and scientific investigation.

BIRTH OF QUINTUPLETS.—Report from Ithaca, N. Y., on April 11, states that Mrs. Charles Smith, of Danby, a village near that city, recently gave birth to living quintuplets. The weight of the respective infants is not given, but it is said that all five seem vigorous and are still alive.

Current Literature.

MEDICAL RECORD.

APRIL 5, 1913.

1. JELLIFFE, S. E. *A Summary of the Origins, Transformations and Present-Day Trends of the Paranoia Concept.*
2. MILLER, M. B. *Surgical Conditions of Abdomen in Their Relation to Life Expectation.*
3. *FALK, H. C. *Vapor Anesthesia and Its Advantages.*
4. NAMMACK, C. E. *The Differential Diagnosis of Lobar Pneumonia.*
5. MAVERICK, A. *Blunders Made by Nature; the Part Played by Nature in Causing Disease of the Digestive and Nervous Systems.*
6. FRANCISCO, H. M. *A Celloidin-Paraffin Method for Embedding and Handling Tissue.*
7. SEXTON, L. *Surgical Tuberculosis.*

3. Falk discusses the advantages of vapor anesthesia as used in about 800 cases at the French Hospital in New York. The apparatus used consists of three bottles placed together, with a single stop-cock. In the first is placed four ounces of ether, in the second 10 ounces of chloroform, in the third some hot water. A foot pump forces the air through the ether or chloroform and then through the hot water. The ether and chloroform can be given separately or in combination by means of this apparatus. Anesthesia is begun with nitrous oxide and is preceded by a hypodermic injection of morphine (gr. 1-8) and atropine (gr. 1-150). When the warmed ether vapor is turned on, the smothering, coughing and laryngeal spasm often experienced with cold ether does not occur, and the stage of excitement is generally absent. Saliva and mucus are not troublesome, as the warm ether vapor does not excite the salivary glands unduly. There is little or no bronchial irritation, even in patients with pulmonary tuberculosis. Postoperative vomiting is absent in about 65% of cases, and nervous symptoms are wanting. Only a small amount of ether is necessary to keep the patient narcotized, 2¾ ounces per hour being the average.

[L. D. C.]

NEW YORK MEDICAL JOURNAL.

APRIL 5, 1913.

1. MUMFORD, J. G. *An Adventure in Practice.*
2. MAVERICK, A. *Vienna Caustic.*
3. CHANCE, B. *Developmental Alexia.*
4. *SPANGLER, R. H. *The Treatment of Epilepsy with Hypodermic Injections of Crotalin.*
5. JAMES, W. M. *Infection with Entameba Tetragena.*
6. WILLIAMS, T. A. *Tabes Dorsalis Without Lymphocytosis.*
7. BRAND, A. *Hypertrichosis.*
8. GOODALL, H. S. *The Diagnosis of Pulmonary Tuberculosis.*
9. ALLAN, W. *A Comparison of Types of Continued Fever.*

10. Walfield, J. M. *Multiple Neuritis in a Child.*
11. Epstein, J. *A Case of Psoriasis.*
12. Friedman, L. J. *Tetanus Successfully Treated with Antitetanic Serum.*
13. Howland, J. *The Scientific Basis for the Artificial Feeding of Infants.*

4. Spangler reports eighteen cases of epilepsy treated with hypodermic injections of crotalin, giving the results of his study of the effect of the venom on the coagulability of the blood. The dose varied from 1-200 to 1-75 of a grain of the venom. He finds that the symptoms of epilepsy are closely related to increased coagulability of the blood and that it is possible to decrease this coagulability and probably to diminish the irritability of the nervous system through the hypodermic administration of crotalin solution. The writer's studies on the effect of the peptone poison, the other principal chemical element of snake venom, in epilepsy are still incomplete.

[L. D. C.]

The Journal of the American Medical Association.

April 12, 1913.

1. Halsted, W. S. *Ligature and Suture Material. Also an Account of the Introduction of Gloves, Gutta-Percha Tissue and Silver Foil.*
2. Stetten, DeW. *The Conservative Treatment of Diabetic Gangrene of the Lower Extremity.*
3. *Freeman, L. *Advice to Patients on Leaving the Hospital After Surgical Operations.*
4. Hilpert, W. S. *The Purity of Commercial Sodium Salicylate.*
5. *Richards, J. H. *The Wassermann Reaction in Diabetes Mellitus with Special Reference to Acidosis.*
6. Gay, F. P., and Claypole, E. J. *Induced Variations in the Agglutinability of Bacillus Typhosus.*
7. Taylor, K. *Sporotrichum Schenckii.*
8. Eisendrath, D. N. *Pyelotomy for the Removal of Renal Calculi.*
9. Abrahams, R. *A Case of Pulmonary Insufficiency.*
10. Strunsky, M. *The "New Heel" with a Pathognomonic Sign for Detecting Inflammatory Lesions in the Anterior Arch of the Foot.*
11. Bachmann, R. A. *A New Operation for Hemorrhoids.*
12. Jennings, W. B. *Hemorrhagic Disease of the New-Born Infant Treated by Horse-Serum.*

3. Freeman dwells in detail on a subject of very practical importance, but one little written about. Much bodily and mental discomfort and many distressing sequelae of operations would undoubtedly be corrected if every patient undergoing a surgical operation was given advice as outlined in Freeman's paper. Would it not be well for hospitals to issue a printed set of directions for post-operative patients?

5. Richards finds the Wassermann reaction is positive in diabetes with marked acidosis. It is negative in cases of diabetes showing no acetone or only very slight amount. These positive cases did not have syphilis. [E. H. R.]

The American Journal of the Medical Sciences.

March, 1913.

1. *Cushing, H. *Concerning the Symptomatic Differentiation Between Disorders of the Two Lobes of the Pituitary Body; with Notes on a Syndrome Accredited to Hyperplasia of the Anterior and Secretory Stasis or Insufficiency of the Posterior Lobe.*
2. *Cheney, W. F. *Gastric Disturbances in Tabes Dorsalis.*
3. *Cabot, R. C. *The Lymphocytosis of Infection.*
4. *Smithies, F. *Gastric Ulcer Without Food Retention; A Clinical Analysis of One Hundred and Forty Operatively Demonstrated Cases.*
5. Ashford, B. C. *The Economic Aspects of Hookworm Disease in Porto Rico.*
6. *Swann, A. W. *Urticaria Treated with Epinephrin.*
7. White, J. H. *The Dissemination and Prevention of Yellow Fever.*
8. Hall, H. J. *The Sanatorium of the Future.*
9. *Crohn, B. B. *The Diagnosis of the Functional Activity of the Pancreatic Gland by Means of Ferment Analysis of the Duodenal Contents and of the Stools.*
10. *Thomas, T. T. *A Study of Empyema, with Special Reference to the Feasibility and Importance of Dependent Drainage.*

1. Cushing reviews the development of our present knowledge of the functions of the hypophysis, presenting the evidence from which it has been concluded that the gland is composed of two portions, each of which has its independent functions, the anterior portion having to do with skeletal development which is increased when the internal secretion is excessive, as in acromegaly, and a posterior portion which influences the sugar metabolism and the development and activity of the genital organs. Cases are reported in which increased skeletal development associated with adiposogenital dystrophy is attributed to increased function of the anterior portion of the gland coexistent with deficient activity of the posterior portion.

2. Cheney reports cases to emphasize the occurrence of recurrent gastric disturbances as the first manifestations of tabes, the other features of which appeared later. In such cases the diagnosis may be impossible, but the presence of a Wassermann reaction is suggestive.

3. Cabot reports six cases to illustrate the fact described long ago by Ehrlich that occasionally diseases which ordinarily produce a polynuclear leucocytosis are accompanied instead by a lymphocytosis. This lymphocytosis may be accompanied by glandular enlargement and so excite suspicion of lymphatic leukemia.

4. Smithies presents an analysis of the 140 cases among the series of 404 cases of gastric ulcer studied at the Mayo Clinic in which no food retention could be demonstrated. The conclusions are too numerous for repetition and are notably inconsistent with the common teachings. Perhaps the most important finding is that in these cases without food retention in the fasting stomach vomiting occurred in nearly three-fourths.

6. Swann in six cases of urticaria has given injections of 1-1000 adrenalin, eight minims repeated in ten minutes, with in every case fading of the rash and cessation of the itching in from five to twenty minutes. In five of the cases the urticaria returned, usually within a few hours, but in one the eruption did not reappear until three days later.

9. Crohn has studied the pancreatic ferments in the duodenal contents (obtained by Einhorn's duodenal tube) and in the stools of 27 cases. The results seem to give conclusive evidence as to the patency or non-patency of the ducts, and so far as can be decided by so small a number of cases the quantitative findings apparently give evidence as to the functional activity of the pancreas in the production of its external secretion. More observations, however, are desirable.

10. Thomas' article is a comprehensive study of the subject of empyema based primarily upon observations upon a formalin hardened cadaver in which the condition was not recognized in life so that the post-mortem relations were undisturbed. From these observations and from clinical findings he draws numerous conclusions of interest. He be-

lieves that more than is generally known the pus is enclosed in areas limited by adhesions between the visceral and the parietal pleura, the cavity so formed having its greatest extent at the base, but including a channel marking the course of the flow of pus from the original source of infection to the base under the influence of gravity. He emphasizes the importance of establishing drainage at the most dependent portion. [F. W. P.]

The Indian Medical Gazette.

March, 1913.

1. *Waters, E. E. *The Value of Amorphous Cinchona Alkaloid in Malaria.*
2. Sutherland, W. D. *Anaphylaxis.*
3. Birdwood, G. T. *The Management of the Puerperium and Its Relation to Puerperal Fever.*
4. Berkeley-Hill, O. *A Report of Two Cases Treated Successfully by Psychotherapy.*
5. *Battye, W. R. *Spinal Analgesia.*
6. Giffard, G. G., and Fraser, F. C. *Abdominal Section Performed on a Patient Anesthetized by Intravenous Infusion of Ether.*
7. Fisher, J. *A Case of Perforating Enteric Ulcer of the Ileum.*
8. Sympson, N. S. *Pneumococcal Peritonitis Occurring During Parotitis Without Any Lesion Being Discovered in the Abdomen.*
9. Watts, H. *Appendicitis in a Hernial Sac.*

1. From a clinical study of malaria at Calcutta, Waters finds that the amorphous alkaloid is from three to five times as efficient as the sulphate of quinine in treatment.

5. Battye reports his methods and results in a large number of spinal analgesias with stovaine. [R. M. G.]

Deutsche Medizinische Wochenschrift.

No. 10. March 6, 1913.

1. Dencke, T. *Syphilitic Aortic Disease.*
2. Walb. *Lupus of the Nasal Mucosa.*
3. Schütz, F., and L. *The Occurrence of Typhoid Bacilli in the Tonsils of Typhoid Patients.*
4. de Besche, A. *Investigations on Tuberculous Infection in Childhood.*
5. Bontemps, H. *The Avoidance of Erroneous Microscopic Diagnosis of Tubercle Bacilli.*
6. Aronson, H., and Sommerfeld, P. *Further Communications on the Toxicity of the Urine in Measles and Other Infectious Diseases.*
7. Harttung, H. *Local Anesthesia in Operations on the Sternum.*
8. Böcker, W. *The Question of the Indications for Arthrodesis.*
9. Herz, P. *Operative Treatment of Nephritis.*
10. Holth, M. *Mothers and Their Children Treated with Salvarsan.*
11. Teschmacher. *A Case of Cured Addison's Disease.*
12. Semenow-Blumenfeld, S. S. *A Contribution on Latent Erysipelas.*
13. Wolfsohn, G. *A Modification of Staphylococcus Vaccine.*
14. Buttersack. *Soap as a Cause of Pruritus.*
15. Dutoit, A. *Artificial Pneumothorax.*
16. Dutoit, A. *Report on Thyroid Tuberculosis.*

No. 11. March 13, 1913.

1. Küttner, H. *Hyomandibular Fistula, a New Form of Congenital Cervical Fistula.*
2. *Fülmer, H. *The Isolated Active Substances of the Hypophysis.*
3. Schong, C. *The Length of the Incubation Period in Acute Infantile Paralysis.*
4. Leubuscher, P. *Therapeutic Experiments with Phosphorus in Epileptics.*
5. Stoerk, E. *Round Ulcer of the Stomach and Lymphatism.*
6. Löwenstein, E. *Findings of Tubercle Bacilli in the Urine in Testicular Tuberculosis.*
7. Unger, E. *Total Removal of the Stomach.*
8. Gins, H. A. *The Staining of Diphtheria Bacilli.*
9. Strauss, A. *The Copper Treatment of External Tuberculosis.*
10. Hübner. *Is Psoriasis a Cutaneous Symptom of Constitutional Bacterial Affections, or a True Skin Disease?*
11. Antoni. *Seven Cases of Syphilitic Reinfection and Observations on Severe Salvarsan Intoxications.*
12. Becker, P. F. *What Ought the Non-Roentgenologist to Know About X-Erythema?*
13. *Kondring, H. *Clinical Experiences with Chlormetakresol for the Quick Disinfection of the Hands.*
14. Dutoit, A. *The Radiotherapy of Thymus Hyperplasia.*
15. Herzfeld. *Railroad Hygiene in the Year 1912.*
16. Ebermayer. *Legal Questions from Medical Practise.*

2. Fülmer has succeeded in demonstrating from the infundibular portion of the hypophysis a pure, crystallized substance, hypophysin, to which are due the combined actions of hypophyseal extract on the uterus, blood-pressure, and respiration.

13. As a result of his clinical experiments, Kondring believes that Chlormetakresol, in the form of Phobrol in a one per cent. solution combined with 70% alcohol or 20% acetone-alcohol, is admirably suited for rapid disinfection of the hands and of the operative field. It does not make the skin hard or sore. The alcoholic solution is absolutely odorless, and is suited for long or short operations. [R. M. G.]

Munchener Medizinische Wochenschrift.

No. 8. February 25, 1913.

1. *Kutschera, A. *Against the Water-Etiology of Goitre and Cretinism.*
2. *Boehncke, K. E. *The Chemo-sero-therapy of Pneumococcus Infections.*
3. *Werner, E. *Occurrence of Tubercle Bacilli in Circulating Blood.*
4. *Rosenberg, E. *Occurrence of Tubercle Bacilli in Circulating Blood.*
5. *Magnus, G. *Treatment of Wounds with Sugar.*
6. Wagner, A. *Venesection in Polycythemia.*
7. Hirschkowitz. *Roasted Wheat for Diabetes.*
8. Oeri, F. *Suffocation Following Rupture of a Tuberculous Gland into a Bronchus.*
9. Danielson, W. *General Purulent Peritonitis from Tape-worm.*
10. Abderhalden, E. *Effect of Serum-ferment in Pregnancy and Tumors.*
11. Holzknecht, G., and Haudek, M. *X-ray Studies of the Movements of the Pathological Stomach.*
12. *Aschoff, Krönig and Gauss. *The Possibility of Influencing Deep-seated Cancer by Radiant Energy.* (*Concluded.*)

1. The facts adduced by the writer against the theory that goitre and cretinism originate from water seem conclusive. He says that epidemics of these diseases correspond to communities but never to water supplies; that animal experiment shows that goitre and cretinism may be independent of water; and that epidemiological evidence shows that the cause of both diseases must lie in the house, in the immediate neighborhood, or in the afflicted persons themselves. Transference by an intermediate host is probably possible.

2. Boehncke's experiments on white mice artificially infected with pneumococci seem to show that the protective power of anti-pneumococcus serum can be much increased by injecting ethylhydrocuprin. The hope is raised that similar methods may prove valuable in pneumonia.

3. and 4. Werner casts doubt on the evidence recently advanced to prove that tubercle bacilli may be demonstrated in the blood of patients infected with tuberculosis, and Rosenberg submits additional data in favor of their demonstrability.

5. Having obtained good results in the treatment of wounds with sugar, Magnus advocates its use enthusiastically.

12. The writers advocate the use of Roentgen and of radium-therapy to prevent metastasis in carcinoma of the uterus and of the breast. They say that the neighboring glands should be treated before they show signs of metastasis, and that deep-seated cancers grow more slowly and even improve under the treatment, as shown by pathological examination. [G. C. S.]

No. 9. March 4, 1913.

1. *Wilms. *Which Methods of Thorocoplasty Are the Best with Reference to the Extent of Disease?*
2. *Vulpius, O. *Treatment of Internal Injuries to the Knee.*
3. Kolb, K., and Laubenheimer, K. *Prophylactic Serum Treatment of Tetanus.*
4. Wagner, G. *The Conradi-Trock Tellurium Plate for Diagnosis of Diphtheria.*
5. Arnold, W. *Orthotic Albuminuria and Its Relation to Tuberculosis, Particularly Skin Tuberculosis and Syphilis.*
6. Abderhalden, E. *The Question of Specificity of the Protective Ferment.*
7. Altmann, K., and Dreyfus, G. L. *Salvarsan and Cerebro-spinal Fluids in Early Syphilis, etc. (To be concluded.)*
8. Waibel, C. *Injuries to the Toes from Accident. Prognosis as to Disability.*
9. Groedel, F. M. *Four Years' Experience with Constant-current Roentgen Apparatus; Important Advances with It.*
10. Wolff-Eisner, A. *Experimental Studies of the Dangers of Infection in Abortion and Their Prevention.*
11. Jansen. *A Simple Bandage for Fracture of the Clavicle.*
12. Mann, T. *Clinical Experience with Codeoval.*
13. Peiser, J. *Scales for Weighing Infants' Food.*

1. Wilms' views on thoracoplasty are likely to prove of special interest to surgeons who operate on the chest. He discusses the different methods, the special advantages of each and the means of avoiding aspiration pneumonia. He says that the general rule against opening tuberculous abscesses externally on account of the danger of resulting mixed infection may be set aside when a large pulmonary cavity already shows mixed infection.

2. By an injection of absolute alcohol at the point of rupture of the semilunar cartilage and by subsequent inflation of the knee-joint with oxygen, Vulpius succeeded in getting good recovery in some cases and he believes that this method may sometimes render operation unnecessary. [G. C. S.]

Berliner Klinische Wochenschrift.

No. 6. February 10, 1913.

1. *Rehn, L. *Surgery of the Heart and Pericardium.*
2. Klineberger, O. *Sudden Irresistible Desire to Sleep.*
3. Behrend. *A Case of Traumatic Paralysis of the Suprascapular Nerve.*
4. Loewenthal, W., and Seligman, E. *A Paratyphoid Bacillus Without Gas Formation.*
5. Rabinowitsch, M. *Lepra-bacilli in the Circulating Blood of Lepers, and in the Heart Blood of a Patient Dying of Leprosy.*
6. Aronson, H. *The Poisonous Effect of Normal Organ and Muscle Extract.*
7. Segale, M. *The Bio-chemical Differential Diagnosis of Ptomaine Poisoning from Wood Alcohol Poisoning.*
8. Ely, L. W. *Joint Tuberculosis.*
9. Pilf, T. *The Causes of the Low Birth Rate in Germany.*

1. This article, impossible to review, is an extremely good summary of what has been accomplished in the surgery of the heart up to date, with a number of suggestions as to diagnosis and treatment of various heart lesions. [J. B. S., Jr.]

No. 7. February 17, 1913.

1. *Libiger, J. *Papillomatous and Carcinomatous Tumors Produced in the Stomachs of Rats, by a Nematoid Worm (Spirotera sp. n.).*
2. Axhausen. *The Nature of Arthritis Deformans.*
3. Wolff, F. *The Examination of Feces for the Eggs of Parasites.*
4. Munzer, A. *Internal Secretion and the Nervous System.*
5. Aron, E. *Pneumothorax Therapy.*
6. Manorloff, E. *Gastric Juice Anaphylaxis.*
7. Rosenstein, A. *A Third Method for Performing Complete Plastics on the Nose.*
8. Weisz, E. *The Treatment of Ankylosed Ankle Joint.*
9. Klamner, E. *A Durable Gram Stain for Gonococci, Fungi and Spirochetes.*
10. Wolff-Eisner. *Vaccine Therapy.*

1. The author describes an endemic, hitherto unknown disease in the stomach and esophagus of rats, caused by the presence of a nematoid worm developing in the lining epithelium of the mucous membrane of the above mentioned organs, and whose intermediate host is the scab (*Periplastar americana, periplantar orientalis*). The disease was first observed endemic in wild rats of an isolated locality, and was produced in laboratory rats by feeding the intermediate host. The disease causes, in the initial stage, a hyperplasia of the epithelium and inflammation. In pronounced cases this disease continues on to papillomatous formation, which may develop enormously and fill up the entire stomach cavity. The disease may be the forerunner of a malignant epithelioma with infiltrative heterogenous changes in the epithelium, or at least, so it was observed in four laboratory rats infected by scabs. In two and possibly three of these animals, metastases were observed in other organs. No parasites or eggs of parasites were observed in the metastases. [J. B. S., Jr.]

Annales De L'Institut Pasteur.

February 25, 1913.

1. Nicollé, M. *Autolysis.*
2. Alilaire, E. *Experiences on the Autolysis of the Colon Bacillus.*
3. Sahmbern, A. J. *Preparations of Toxic Solutions by the Aid of Autolysis.*
4. *Pozerski, E., and Pozerski, M. *Contribution to the Study of the Immunity Against the Anti-Coagulating Action of Peptone.*
5. Wollman, E. *Rearing of Sterile Chicks.*
6. Calmette, A., and Guerin, C. *New Investigations Upon the Vaccination of Cattle Against Tuberculosis and Upon the Kind of Tubercle Bacillus in the Vaccine.*

7. *Andriescu, C., and Cinca, M. *Action of Anti-typhoid Serum of Besvedka Upon the Course of Typhoid Fever.*

4. In a long article covering a lot of experimental work these authors have studied the action of peptone in dogs and rabbits. They found that one dose in a dog produced a characteristic reaction, including a temporary incoagulability of the blood which in a few hours would return to normal. A second injection on the same animal after the blood had returned to normal did not affect the coagulation. The rabbit, on the other hand, seemed to have a natural immunity against this substance.

On studying the matter further in the dog they found that it was not a true immunity produced by the excitation of antibodies from the first injection. They found that the first injection drove out into the circulation from the liver cells these anti-coagulating substances. The second injection apparently had no more of these substances to drive out, but did stimulate the liver to form more, as subsequent treatment of the liver with a blood peptone solution showed these substances present.

7. The authors report on a series of cases treated with Besvedka's anti-typhoid serum. The cases, they say, were severe and only one died. Although the fever does not appear from their charts to have been appreciably shortened, they think that the severity of it was abated. After the injections they were unable to get a single positive blood culture except in the fatal case, while they did frequently before. The question is raised whether the serum has an anti-endotoxic action or only a bacteriolytic action.

[C. F., Jr.]

Revue de Chirurgie.

February, 1913.

1 *Jacob, O. *The Relations of the Motor Branch of the Radial Nerve with the Radio-Humeral Articulation.*
2. *Clermont. *Tibio-Peroneal Disjunction, and Fractures of the Ankle.*
3. Martini, E. *Alterations of the Thyroid Body in Different Experimental and Clinical States.*
4. *Catz, A. *Retrograde Invagination of the Intestine.*
5. Chalier, A., and Bonnet, P. *Primary Melanotic Tumors of the Rectum. (To be continued.)*

1. Jacob presents an anatomic study of the relations of the motor branch of the musculo-spiral nerve, from the point of view of the operative surgery of the elbow.

2. This attempt at classification of ankle fractures is well illustrated by diagrams and by ten excellent skiagrams.

4. Catz reports from his private observation a fatal case of retrograde invagination of the small intestine, complicated by volvulus of the invaginated coil. He discusses the etiology of the condition, and collects from the literature 33 cases of retrograde intussusception, and a dozen in which volvulus and invagination coexisted. [R. M. G.]

Obituary.

IRA VAN GIESON, M.D.

Dr. Ira Van Gieson died March 24 at the Bellevue Hospital in New York, at the age of 47. His death was due to chronic nephritis and its complications. Dr. Van Gieson was born on Long Island, and throughout his active career was associated almost entirely with New York and the institutions of that State. He was graduated from the College of Physicians and Surgeons in 1885, and for many years thereafter served the school as one of its teachers. He early developed an interest in scientific problems, particularly of a pathological sort connected with the nervous system, and although during the latter years of his life he did much work on hydrophobia he will be chiefly known as a brilliant investigator and student of neuro-pathological subjects. One of his earlier services was the discovery and application of a practical and simple method of staining nerve tissues, which has since gone under his name. His point of view was always original and at times fantastic. For many years he was a dominant figure at neurological meetings and invariably advanced ideas of striking originality and significance. One of his most brilliant pieces of work was the demonstration, twenty years ago, that certain conditions of the spinal cord found post mortem and supposedly demonstrating faults of development were in reality simply artefacts produced by imperfect and careless hardening of the tissues. This work created a profound impression in Germany and disclosed in striking fashion the fallacy of much painstaking investigation previously made by German students.

When the central laboratory, known as the Pathological Institute of the New York State Hospitals for the Insane, was organized Dr. Van Giesen was chosen, very naturally, as its first director. He held this position for about seven years and established during that time a most elaborate system for the study and pathological investigation of mental disease, insisting upon the thesis that the nervous system, although more highly differentiated, and therefore demanding special study, must, nevertheless, be regarded as under the same general laws as other organs, and that an examination of the nervous system should entail an equally painstaking study of the rest of the body. Valuable in theory, such a plan of organization met certain obstacles in practice. It was felt that the practical aspects of the subject were being sacrificed to theoretical considerations, so that finally, much to his disappointment, Dr. Van Gieson was obliged to give up a work upon which he had set his whole heart. He thereafter, for a number of years, was in the service of the New York Health Department and continued to work in the Laboratory, up to the time of his final illness, although for some years past he had been far less in the public eye than formerly.

Van Gieson was undoubtedly a man of great natural capacity, but somewhat unfortunately had a fixed assurance of the correctness of his own point of view. This led to inevitable and at times unnecesary friction with those with whom he was brought into intimate contact. He was pleasing and cordial in manner, but during the latter years felt keenly the disappointment of being obliged to renounce his chosen work

and became something of a recluse. He has unquestionably added materially to our knowledge of many details of medicine and did some work of extraordinary brilliancy. His death will be regretted by all who knew him intimately.

FRANCIS HENRY COHAN, M.D.

Dr. Francis Henry Cohan, who died at Leominster, Mass., on February 13, 1913, of pneumonia complicated by nephritis, was born at Nashua, N. H., in 1871. After obtaining his general education at St. Rose Academy and Holy Cross College, he engaged in business for a time before beginning the study of medicine. He received the degree of M.D. from the Bowdoin (Maine) Medical School in 1901, and immediately settled at Leominster, where he continued active in the practise of his profession until his death. He was untiringly energetic and zealous in all medical and surgical interests, and it was largely owing to his efforts that the Leominster Hospital was established last year. He was a Fellow of The Massachusetts Medical Society. He is survived by his widow.

Correspondence.

MEMORIAL TO LORD LISTER.

The Royal Society, Burlington House,
London, W.

March, 1913.

Mr. Editor: A large and influential Committee was recently constituted at the instigation of the Royal Society and the Royal College of Surgeons in order that the priceless services of the late Lord Lister to the cause of science and the alleviation of human suffering should be commemorated by some suitable memorial. To give effect to this proposal an Executive Committee was appointed for the purpose of deciding what should be the form of the memorial, and of taking such steps as might be necessary to organize the collection of subscriptions, and to carry the design into execution. This Committee has met on several occasions, and considered many proposals, and has come to the conclusion that the most suitable memorial would be one comprising:

1. A Tablet with medallion and inscription in Westminster Abby.
2. The erection of a Monument in a public place in London.
3. The establishment of an International Lister Memorial Fund for the advancement of surgery, from which either grants in aid of researches bearing on surgery, or awards in recognition of distinguished contributions to surgical science, should be made, irrespective of nationality.

At a meeting held at the Mansion House, in the City of London, these proposals were supported by the speakers, namely The Lord Mayor, The Lord Chancellor, Lord Avebury, the Presidents of the Royal Society and the Royal College of Surgeons, the Hon. W. F. D. Smith, Mr. Frederick M. Fry, and unanimously adopted.

To carry out the proposals and commemorate Lord Lister's worth in a suitable manner, a large sum of money will be required, and it is proposed to form Committees in the provinces, in the dependencies of the Empire, and in foreign countries, to take such steps as are necessary in order to co-ordinate the collection of subscriptions. There can be little doubt that any appeal issued in favor of this tribute to the great Surgeon's memory will be responded to with generous sympathy, not only in the British Empire, but in many foreign countries, where his beneficent work has met with grateful appreciation. We, therefore, beg leave to ask you to assist the objects of the memorial by making a donation to the funds.

We are, Sir,
Your obedient Servants,
Arch. Geikie,
Chairman of Executive Committee.
W. F. D. Smith,
Deputy Chairman of the Executive Committee.
Rothschild,
W. Watson Cheyne,
Hon. Treasurers.
John Rose Bradford,
Hon. Secretary.

Donations may be sent to the "Treasurers of the Lister Memorial Fund, Royal Society, Burlington House, W."

Cheques should be made payable to "The Lister Memorial Fund" and crossed "Bank of England, Western Branch."

LISTER MEMORIAL FUND.

The Royal Society, Burlington House,
London, W.

March 19, 1913.

Mr. Editor: The remarkable advance of surgical science achieved by the late Lord Lister, and the priceless benefits conferred by him on humanity at large by the alleviation of suffering and the mitigation of disease, have aroused in the British Isles a widespread desire that his epoch-making and beneficent work should be commemorated by some fitting memorial. A large and influential Committee has accordingly been formed in London for the purpose of raising the funds required for such a tribute to his memory, and a considerable sum has now been subscribed. It is proposed that the Memorial should be a threefold character, and consist of (1) a simple marble medallion bearing a sculptured portrait of Lord Lister to be placed in Westminster Abbey among the monuments of the nation's illustrious dead; (2) a larger and more conspicuous monument to be erected in some public place in London, the city wherein he lived and worked; (3) if funds sufficient shall be obtained, the founding of an International Memorial Fund from which either grants in aid of researches bearing on Surgery or rewards in recognition of important contributions to Surgical Science shall be made, irrespective of nationality.

We are led to believe that many persons in other lands who are acquainted with Lord Lister's services may be glad of an opportunity of recognizing the debt which the world owes to the great Surgeon, and may be willing to assist in this movement to perpetuate his memory. He was a foreign member of many learned academies and societies in all civilized countries. He likewise held Honorary Degrees from many foreign universities. In these various institutions we think there may be not a few members who might be willing to add their contributions.

The sum already subscribed or promised is, perhaps, sufficient for the completion of the first two parts of the proposed Memorial, which are of a more local nature. But the third object is international in character, and the funds in our hands are as yet insufficient for its adequate establishment. On behalf, therefore, of the Lister Memorial Committee, we make this appeal for assistance from other countries in order that the provision of an International Lister Fund may be accomplished on a scale worthy of the illustrious man and of the debt under which

the civilized world lies to him. We shall welcome all contributions as evidence of the appreciation with which Lord Lister's services are regarded.

We trust that in the important institution over which you preside there may be some who would make this appeal publicly known and would be willing to collect subscriptions, to be forwarded in due course to the British Committee.

Signed, in the name of the Lister Memorial Committee,

JOHN ROSE BRADFORD,
Honorary Secretary.

Miscellany.

NOTICE.

WANTED—A GRADUATE NURSE AS HOSPITAL SUPERINTENDENT. AMERICAN HOSPITAL FOR WOMEN AND CHILDREN, MADURA, SOUTH INDIA.

Among the patients in 1911 were 41 Europeans and Eurasians, 3820 Indian Christians, 7446 Hindus (of all castes) and 1057 Mohammedans.

Nearest hospital for women is 70 miles distant. Patients sometimes come 100 miles to be treated. The doctor has visited patients 70 miles from the hospital.

Environment: Madura, a city of 135,000 inhabitants in the Madras Presidency, is situated in latitude 10 degrees north, about 300 miles southwest of Madras. It is a center of interest for tourists who visit the famous temple of Menarchee which covers 13 acres in the heart of the city. The district included in the Madura Mission has a population of 2,573,000. Work here was begun by the American Board in 1834. The Tamil language is spoken throughout the district. Other Christian institutions in Madura are the American College, Girls' Training and High School, Lucy Perry Noble Bible Training School, Albert Victor Hospital for Men, American Hospital for Women and Children.

Opportunity: A new woman's hospital will be erected as soon as the $55,000 necessary for land and buildings can be raised in the United States. As there has never been a trained American nurse in the hospital the opportunity to enter upon enlarged work with new equipment is limitless. The great physical sufferings of women in the east which can only be relieved by women present another great opportunity. A trained nurse would be of untold assistance to the American physicians in performing operations as it is almost impossible to secure adequate Indian helpers for such delicate service.

A great increase in the efficiency of medical work for women will be possible when an American nurse is secured as there is constant need of oversight which the physicians cannot give. The standard of work done by Indian helpers can only be raised by such constant oversight.

Social Life: The American nurse would probably live in a mission bungalow with the two American physicians. She would have her own bedroom and would share with her associates the dining and living rooms.

In the city of Madura are 20 American missionaries and in the entire Mission within a radius of 50 miles from Madura are 48 workers connected with American Board stations. An European community of about 100 members gives added opportunities for social intercourse. Tennis is the quickest and most popular form of recreation.

During some part of April or May practically all missionaries and European residents from a large district of Southern India go to the beautiful hill station of Kodai, 50 miles by rail and cart from Madura. Such a large assembly of congenial people furnishes opportunity for delightful social intercourse.

Qualifications: A strong constitution, a good education, a first-class hospital record, ability to learn the language, qualities of leadership, deep spiritual life.

Support: Salary is $500 and room in mission building. Board is about $13 a month. Extra allowances are made for language teacher and vacation expenses.

A missionary who applies for permanent appointment (terms of service seven years with one year of furlough) receives an outfit allowance of $250.

SOCIETY NOTICES.

THE CENSORS OF THE SUFFOLK DISTRICT MEDICAL SOCIETY will meet to examine candidates for admission to the Massachusetts Medical Society at 8 The Fenway, on Thursday, May 8, 1913, at 2 p. m.

Candidates, who must be residents of the Suffolk District, or non-residents of Massachusetts, should make personal application to the Secretary, and present their medical diplomas, at least three days before the examination.

For further particulars, apply between 2 and 3 p. m. to WALTER C. HOWE, *Secretary*,
303 Beacon Street.

RESIGNATIONS.

DR. EDWIN H. HARVEY has resigned as secretary of the Massachusetts State Board of Registration in Medicine, but will continue a member of the board.

DR. CLARENCE JOHN BLAKE has resigned as Walter Augustus Lecompte professor of otology in the Harvard Medical School, his resignation to take effect on September 1, 1913.

RECENT DEATHS.

DR. CLARA JANE ALEXANDER, of Boston, who died on April 9 at Mysore, South India, was born in Blairsville, Pa. She graduated in 1889 from the Woman's Medical College of Pennsylvania, and served for a year each as resident physician at the Blockley City Hospital, Philadelphia, and at the Children's Hospital on Staten Island, N. Y. In 1892 she became resident surgeon at the New England Hospital for Women and Children, of which she was subsequently appointed assistant surgeon and finally visiting surgeon. She was also physician to the Pope Dispensary. She was a member of the American Medical Association, of the Massachusetts Medical Society, of the New England Hospital Medical Society, and of the Boston Medical Library. She was president of the New England Alumnae Association of the Woman's Medical College of Pennsylvania.

DR. JARED GROVER BALDWIN, who died on April 11 in New York City, was born at Montrose, Pa., on July 18, 1827. He received the degree of M.D. from New York University Medical School in 1853, and immediately settled at New York, where he continued active in the practice of his profession until his retirement a few years ago. He was for many years censor of the New York Homeopathic Medical College and Hospital, and was visiting and later consulting physician to the Hahnemann Hospital. He was a member of the American Institute of Homeopathy, of the New York State and County Homeopathic Medical Societies, and of the Homeopathic Materia Medica Society. He is survived by his two sons.

DR. THOMAS W. CLEMENTS, who died on April 13, in Brookline, Mass., was born at Weymouth, N. S. After serving in the ranks throughout the Civil War, he began the study of dentistry, and graduated from the Boston Dental College in 1872. He was a member of the Massachusetts Dental Association. He is survived by his widow.

DR. MARK W. PRAY, who died on April 4 at Framingham, Mass., was born in 1867. He formerly practised dentistry in Attleboro, Mass. He is survived by his widow.

Original Articles.

LOCALIZED OSTEOMYELITIS OF THE LONG BONES.

BY CHANNING C. SIMMONS, M.D., BOSTON.

Surgeon to Out-Patients, Massachusetts General Hospital; Assistant in Surgery, Harvard Medical School.

This paper is a plea for the early recognition and prompt, energetic treatment of the mild cases of osteomyelitis, bone furuncle. These cases are extremely mild, localized, and are often overlooked or mistaken for "growing pains" rheumatism, or strain until an abscess develops in the course of several weeks or months. In some the infection is of such a mild type that the inflammation subsides without the discharge of pus but in nearly every instance causes trouble later in life.

The impression left in the mind of the practitioner after reading the usual text-book description of osteomyelitis is that of an extremely acute infectious disease, with symptoms of toxemia, occurring in young children and involving the whole bone. Too little attention is paid to the milder types of which bone abscess, Brodie's abscess, is the chronic form. This is much more common than the classical diffuse type. The orthopedic surgeons as a class are probably the only men to whom it is a well recognized disease and who treat it promptly and efficiently. The general practitioner does not have the facilities at hand for an x-ray or, more properly speaking, one who can interpret the plates, for every case of sprain that does not yield readily to treatment, and the disease may run a very mild course. Of the cases in this series 15 had run a subacute course and had had one or more palliative operations performed. These consisted usually of opening a superficial abscess with temporary relief, which in some instances lasted from one to several years. Of 13 long standing cases 11 had had previous operations, 10 two or more, while a few had had six or eight. It is in these cases that cure is very difficult to achieve on account of the secondary changes that occur in the bone.

The same remarks as to the prompt recognition and treatment of the milder type applies to all forms of osteomyelitis as seen in the general service of any large hospital. Thus at the Massachusetts General Hospital I have recently treated 52 consecutive cases of osteomyelitis only 11 of which were acute and recognized as such. Five of these were recommended to the hospital by me as emergencies. Of the chronic cases a few were of several months but most of many years' duration and had had several operations performed. These in the majority of cases were inadequate or not done at a time when a rapid cure might reasonably be expected.

The classification of osteomyelitis is difficult. From the point of view of the pathologist it is a simple matter being either acute or chronic but this gives the surgeon little help in regard to the clinical manifestations and indications for treatment in a given case. The following are two classifications: the first simple and accurate but very brief (Goldthwait, Painter, and Osgood),[1] the second complete and somewhat unwieldy, perhaps, but arranged to guide the surgeon rather than for the pathologist.

Classification. (Goldthwait, Painter and Osgood).

- Acute. Localized.
  - Diffuse.
- Chronic. Localized.
  - Diffuse.

Author's classification.

- Acute.
  - Central.
    - Diffuse.
      - Fulminating.
      - Ordinary acute.
    - Localized.
      - With bone destruction.
      - Mild type (bone furuncle).
  - Periosteal.
  - Epiphysitis.
  - Secondary.
- Chronic.
  - Central.
    - Diffuse.
      - Six to ten weeks' duration.
      - Three to twelve months' duration.
      - After many years.
    - Localized.
      - With bone destruction.
        - Six to ten weeks' duration.
        - Three to twelve months' duration.
        - After many years.
      - Bone abscess (mild local type).
        - Up to one year's duration (subacute).
        - After one year's duration.
        - "Resting" or "sterile" cases.
  - Periosteal.
  - Epiphysitis.
  - Secondary.

This classification, particularly in the chronic form, is made solely in regard to the proper treatment to be instituted in a given case.

This paper deals only with the localized central osteomyelitis of the mild type, both the acute and chronic forms.

The twenty-six cases on which this paper is based naturally group themselves into certain definite classes.

1. *Early Acute.* Four cases. These were seen approximately from three to fourteen days after the onset of symptoms. They all presented typical symptoms of a mild infectious osteomyelitis. There was a history of injury in two while two were spontaneous. The symptoms were mild constitutional disturbance, malaise, and

pain referred to the bone near a joint. None had a temperature over 101.5°, but all had a slight leucocytosis. In these cases the bone was trephined and the marrow showed evidence of inflammation, although in two no frank pus was found. Three gave a positive culture, two staphylococcus aureus and one albus, while in the fourth the swab was allowed to dry before planting and no growth occurred. Following the operation the constitutional symptoms subsided and the temperature dropped to normal. The wounds healed in a few weeks. I believe that if no operation had been done a typical bone abscess would have developed but I do not think the infection was virulent enough to cause a local osteomyelitis with destruction of bone and the formation of a sequestram.

2. *Late Acute.* Three cases. Cases seen a few weeks after the onset of symptoms in which a definite local bone abscess was present (bone furuncle).

3. *Subacute bone abscess.* Five cases. Bone abscess of less than one year's duration. The changes in the surrounding bone in these cases were marked but not as great as in the next group and good results were obtained by operation in this as well as in the two previous groups.

4. *Chronic Bone Abscess.* Eleven cases. Of from one to many years' duration showing marked eburnation of the bone surrounding the abscess. The end results of operation on these cases were poor as compared with the previous groups.

5. *"Resting Abscess."* Two cases. Long standing cases of a very low grade infection with mild symptoms, where the operation showed a cavity filled with clear fluid and lined with fibrous tissue. The culture from these cases was sterile. These have been termed "resting abscesses" by Thompson. They were easily cured by operation.

The success of operation on these cases depended in a great measure on the length of time after the onset of the disease the operation was performed.

Many papers with reports of cases have been written on Brodie's abscess, the name often applied to bone abscess in the chronic stage, and many suggestions made as to treatment chiefly in regard to the closure of stiff walled cavities in bone. Few, if any, of these papers give the end results of the operations in a large number of cases so it is impossible to judge of the values of the different procedures. Gross[2] in a complete article analyses 141 cases of bone abscess and gives a review of the literature to date (1901). Thompson[3] has also written an instructive article and had the opportunity to examine several specimens microscopically. From his work the best idea of the pathology may be derived.

Etiology. The etiology is the same as in any form of osteomyelitis. Either spontaneously or as the result of mild trauma, or exposure, an infection occurs in the epiphyseal end of the diaphysis usually in the long bones. The tibia, especially the upper end, is more commonly involved than any other bone. The following statistics are of interest. They are somewhat condensed.

Homans.[4] 105 acute cases of osteomyelitis in children.

Femur	40
Tibia	38
Fibula	7
Humerus	11
Radius	4
Ulna	3
Clavicle	2

LeConte.[5] 60 cases seen in a general hospital service.

Tibia	47
Fibula	6
Humerus	6
Femur	3
Ulna	1
Clavicle	1

Gross. 141 cases of bone abscess.

Tibia	101
Femur	15
Humerus	18
Radius	4
Ulna	2
Both ends tibia	1
Tibia and fibula	1

Simmons. 26 cases. Bone abscess. Acute and chronic.

Tibia	14
Fibula	1
Femur	5
Humerus	4
Metacarpal	1
Metatarsal	1

The involvement of more than one bone is not at all uncommon and while one focus of infection may be severe, another may be mild. The existence of multiple foci presupposes a general systemic infection which in the severer forms of osteomyelitis is common. Five in this series of 26 cases had more than one bone involved, three having several. Thus in Case 46 the humerus, scapula, femur, and tibia were involved, and in Case 5 the ulna, rib, humerus, and the other tibia had been the seat of abscesses.

Age: The age at onset of the disease is the same as in the ordinary forms of osteomyelitis but most of the patients are not seen in a general hospital until they reach adult life. Careful questioning usually brings out a history of an attack of pain followed by an abscess that broke through the skin and discharged for some time, during childhood. The average age at onset of symptoms was 16.5 years, the youngest being four and the oldest 36. Trendel's[6] chart showing the age incidence, gives a gradually rising curve to the 17th year after which there is a rapid fall. The average age at which the

cases were admitted for treatment was 25.8 years. The duration of the symptoms before operation, excluding the acute cases, varied from four months to twenty-two years and in the chronic cases averaged 10.7 years. Most of these gave a history of freedom from symptoms for many years of which case 2 is a good example.

Sex: There were 20 males and 6 females.

Trauma: This bears an important place in the etiology. Twelve gave a history of some form of injury, 9 none, and in 5 no note as to trauma was made in the records. It also bore a distinct relation to the lighting up of an old process.

Syphilis: Certain cases of broken down gummata of bone are probably at times mistaken for bone abscess. The Wassermann test was done in but few instances, all of which, with one exception, Case 10, were negative. In this case a positive culture, an unknown bacillus, was obtained. Case 6 also gave a history of syphilis.

Pathology: The pathology of osteomyelitis is too well known to need repetition here. The infection usually takes place in the epiphyseal ends of the diaphysis of the long bones, this seat of predilection probably having some relation to the blood supply (Lexer).[7] In the mildest form of bone abscess an infection occurs which is of such low virulence that it is overcome by the natural resistance of the part. In these cases the infectious material becomes walled off and the symptoms subside without the breaking of an abscess externally. The focus may later take on new activity but it is probable that a certain number of cases have no further trouble and carry the walled-off infectious material throughout life.

If the infection is somewhat more virulent, the common form, a definite abscess develops which breaks through the cortex and later through the skin. A sinus is thus formed which, as the virulence of the infection subsides, often closes and a typical chronic bone abscess in the medullary portion of the bone results. Thompson assumes that, as the infection subsides, the granulation tissue lining the abscess cavity changes into fibrous tissue. At the same time the inflammatory irritation causes marked thickening of the cortex and obliteration of the medullary canal by new-formed bone. This sclerosis depends on the age of the abscess and the amount of irritation and apparently has a definite relation to the ease with which a cure may be effected by operation. In the long standing cases this sclerosis is very marked and it is in these that obliteration of the cavity by new formed bone after operation cannot be depended upon. The contents of the abscess after the closure of the sinus and subsidence of symptoms is serous according to Thompson, and he terms this the quiescent stage. It may later become a "mature" abscess in which case the serous contents again becomes purulent, the fibrous lining membrane becomes granulation tissue and the symptoms return. Gross, on the other hand, believes that the sclerosis and resulting diminished blood supply cause the bacteria to lose their virulence and that as rarefaction of the surrounding bone occurs from the resulting loss of irritation new blood vessels grow in and the bacteria again multiply with the recrudescence of symptoms. Which of the above theories is the correct one is immaterial as regards treatment and it is also true, as borne out by Cases 13 and 38 that an abscess with sterile serous contents and lined with fibrous tissue can cause symptoms. There is, following the sclerosis, a certain amount of rarefaction as the abscess increases in size. When this keeps pace with the formation of the pus but few symptoms result, but when pus forms faster than rarefaction takes place pain from tension ensues. This process of rarefaction and pus formation followed by eburnation and the return of pus to serous fluid may go on several times in the course of the disease without the breaking of the abscess through the cortex or skin. Sequestra are rarely seen in the abscess cavity.

Bacteria: Culture from the abscess, either acute or chronic, usually shows a staphylococcus, the aureus being more common than the albus. In the acute cases the growth may be profuse but in the chronic cases even where the cavity in the bone is filled with thick creamy pus there are only a few scattered colonies on the surface of the media and in several of the cases the pus was reported sterile. It is to be presumed that bacteria were present in these cases but not in large enough numbers to give rise to a growth. The two cases with definite fibrous lining and serous contents, the resting stage of Thompson, gave a sterile culture. Cultures from the 26 cases were as follows:

Staphylococcus aureus	12 cases
Staphylococcus albus	2 cases
Staphylococcus albus and aureus	1 case
Unknown bacillus	1 case
Sterile	7 cases
No culture taken	3 cases

Involvement of the joint rarely occurs. This is particularly true in children, as the epiphyseal cartilage is a firm barrier to the extension of pus in that direction. In the adult this natural barrier does not exist and infection of the joint is said to be relatively common even in the most chronic cases. It occurs by a gradual extension of the abscess by canalization of the bone. Two cases of involvement of the knee joint occurred in this series. In one (Case 11) infection of the joint followed operation for chronic bone abscess of the head of the tibia. In the other (Case 32) from the history, x-ray and examination of the knee, infection apparently occurred fairly early from extension of the process in the lower end of the femur. Both of these were adults, 18 and 23 years old respectively.

The pathology in the chronic cases of this series corresponded in general to the classical description. There was a definite rounded cavity in the bone filled with pus. On curetting the granulation tissue out, the walls were com-

posed of extremely hard eburnated bone, the thickness and denseness of which bore some relation to the duration and age of the abscess. The periosteum in what may be termed the relapsing cases, was thickened and loosely attached to the bone, which was roughened and of a dark reddish color. Small openings were usually present in the cortex leading to the cavity, particularly where a sinus opened through the skin. In the two resting cases with serous contents the eburnation of the surrounding bone was not as marked and the periosteum not thickened. The cavity in one of these was multilocular and in the other unilocular. Both were lined with a thick layer of fibrous tissue. In the four acute cases the periosteum was slightly thickened. In two of these there was a small amount of thin purulent fluid under it. In all, on opening the medullary cavity no definite pus was seen, but the marrow did not look normal. Three of these gave a positive culture, while in the fourth one, through some error the culture was not planted.

Thus bone abscess is what might be termed an osteomyelitis of the third degree, the second degree leading to local destruction of bone and sequestrum formation, and the first degree being diffuse osteomyelitis with destruction of the entire shaft.

Symptoms. The symptoms of the acute disease are frequently extremely slight and often overlooked unless one bears in mind the possibility of a mild osteomyelitis in all children with symptoms of an infection. Either spontaneously or as the result of a blow or sprain the child complains of an indefinite pain around a joint and, if the knee or hip, walks with a slight limp. He is apt to be irritable and restless, not sleeping well, and there are all the symptoms of a mild general infection. The temperature is slightly elevated, being 101 or 102 at night and a leucocytosis of from 16,000 to 30,000 is usually present, even in the mildest cases. Sprain or contusion, "growing pains" or rheumatic pains are the usual diagnosis at this time. Examination of the part shows the motion of the neighboring joint free. There is rarely, in these early stages, slight thickening of the bone and local temperature. Percussion on the bone gives pain and is in children the best method of determining this point. The normal bone should be percussed first, then the suspected one, beginning at the uninfected end. As the diseased end is approached the child will cry. In any obscure, infectious disease in children the long bones should be examined to rule out the possibility of an osteomyelitis.

At a later stage of the disease, in from three weeks to three months, depending on the severity of the infection, there is marked local thickening, pain and temperature, with some subsidence of the general symptoms. By this time also the pus has usually broken through the cortex and formed an abscess in the soft parts, which may break spontaneously with the relief of all symptoms. In certain cases the symptoms may persist for many months or years in a mild form, with exacerbations and remission of pain without the breaking of the pus through the periosteum (Case 13). After the rupture of the abscess the symptoms subside with the formation of a sinus leading to the bone, which persists for a varying length of time, finally healing. The abscess may then be said to enter the resting stage, which may last months or years, during which time it exists but causes no symptoms. It may at any time become active, usually following some trauma, when all the symptoms return and a new abscess forms, breaking through the skin as did the first. This may happen many times in the course of the patient's life, the abscess sometimes breaking and at others the symptoms subsiding without the discharge of pus.

In the two resting cases the symptoms consisted of a dull aching pain in the bone, worse after exercise and more marked at night than in the day time. This was pretty constant, but varied somewhat from month to month.

X-ray. The x-ray in the acute cases is of no value whatever, but in the subacute and chronic cases it is of the greatest aid, one being able to make an accurate diagnosis from it alone. In the mild acute cases, as in the severe, no change in the bone is visible. At the end of one or two weeks, some periostitis may be seen and some rarefaction in the medulla.

After several weeks the x-ray picture is typical, although it may vary considerably in different cases. In the common form there is marked thickening of the end of the bone occupied by the abscess, with an increase in density in its immediate vicinity. In the center of this dense bone a definite cavity can usually be seen. In many cases, particularly those of long duration, the thickening and eburnation is so great as to completely mask the cavity. The appearance is, however, typical, except where the abscess occurs in the centre of the shaft, in which case it may somewhat closely resemble syphilis. In certain other cases, even of long duration, there is comparatively little reaction about the abscess, the cavity being plainly visible, and the x-ray suggests either tuberculosis or some centrally placed bone tumor. This appearance is much less common than the former. All x-rays should be interpreted by an expert, as it is extremely difficult for a man not conversant with the radiographic plate to make an accurate diagnosis.

Diagnosis. The diagnosis in the early cases is difficult to make. It is all important, for I believe that if it was made and every case promptly and energetically treated, a rapid cure would result in nearly every instance, and patients with chronic bone abscess recurring year after year would not be as common as they are at the present time. This, besides saving the

patient a great amount of suffering and loss of time from inability to work, is also of importance in hospital economy. At present many patients spend from two to several weeks of their lives every few years in a hospital, instead of once. In all cases of sprain, "rheumatism," or "growing pains" in children, which persist and do not yield readily to treatment, the possibility of a low grade osteomyelitis should be considered. The local symptoms, taken in conjunction with mild constitutional disturbance, a slight temperature and a leucocytosis should make the diagnosis probable and an x-ray, if the condition has lasted one or two weeks, should make it positive. In these early cases, if the evidence is strong enough, operation should be performed, for in the few cases where the diagnosis is wrong, but little damage is done, while if it is correct, months or years of suffering are prevented. In the late cases the history and the x-ray make the diagnosis easy, but the possibility of a gumma or centrally situated bone tumor should be borne in mind.

Treatment. The treatment usually applied to bone abscess is that employed in abscess in general, *i.e.* drainage, but here the probelm is somewhat different, as we have a stiff walled cavity to deal with. The treatment employed in this series of cases, modified slightly to suit the individual case, was as follows: A tourniquet was used in every case when possible, as it allows of much more accurate work. In the early acute cases, before a definite abscess had formed, an incision was made to the bone. The periosteum was then stripped back and two or more openings made into the medulla with a small burr or trephine, the number and size of the openings depending on the appearance of the marrow. The cavity was then packed with iodoform gauze. The marrow was not curetted.

In the late acute and subacute cases, after the formation of an abscess, the incision was made and the periosteum stripped back, as in the earlier cases. The cortex was then removed with a gouge and chisel, opening the cavity. This was curetted out, the eburnated bone about it removed to a greater or less extent, and the cavity sterilized by swabbing out with 95% carbolic acid followed by 95% alcohol. In some cases the cavity was then packed with iodoform gauze. In others a small wick was introduced, the periosteum and soft parts sutured with cat gut, and the cavity allowed to fill with blood clot. In still others, after cleaning and drying the bone, Moorhof's bone wax was used. As is noted under results, it apparently made little difference what was done, as all healed in a reasonable length of time and have remained well one year or more.

In the chronic long standing cases practically the same three methods were employed. In these, however, it was found best to make a curved incision to the bone, turning back a flap of soft parts and periosteum. This made the suture of the periosteum in place after treating the cavity much more easy. The entire front wall of the abscess was removed, giving free access to all parts of the cavity, and also a large amount of the sclerosed bone. These operations, with the possible exception of the bone wax operation, are not sufficient, as shown by the results, to effect a cure in the chronic cases, as the endosteum has not the power to form new bone and obliterate the cavity.

The use of Moorhof's bone wax is indicated when it is impossible to obliterate the cavity in any other way. Silbermark,[8] Stewart[9] and others have reported many cases where wax has been used to fill these cavities, followed by healing by first intention and no further trouble, but I have been unable to achieve these results, although I think I have followed Moorhof's[10] technic carefully. Although in every case the wax has, in part at least, been extruded, I thoroughly believe in its use in certain cases, as it makes an excellent dressing, does away with the constant painful changing of wicks, and transforms a profuse purulent discharge into a slight serous one.[13]

Schede's[11] operation, of allowing the cavity to fill with blood clot, after sterilizing it, which later becomes organized, is theoretically sound, but practically is almost impossible of accomplishment in a septic cavity, no matter how much care is taken to render it sterile. It is applicable, however, to cases in the quiescent stage.

It would appear that as the bone is incapable of filling the defect, and as foreign substances, as Senn's decalcified bone chips, bone wax, etc., are not often tolerated by the body, it were best to obliterate the cavity by living tissue after Neuber's[12] suggestion.

In cases operated upon recently I have used this method, employing either muscle or skin flaps, the latter when possible. It is not applicable in all cases. In using skin flaps, in the head of the tibia, for example, the cavity is first cleaned out thoroughly. The side walls are then cut down as much as possible, transforming a deep hole into a somewhat concave surface. A flap of skin, with the pedicle towards the body, is then cut from one side of the incision and swung in so as to lie in the bottom of the old cavity, where it is retained either by one or two stitches or by the dressing. Considerable ingenuity must be used in obtaining a flap in a given case, and no definite rules can be laid down. This leaves two areas, one on each side of the flap to granulate, which may later be covered in by a Thiersch graft if necessary, but the main cavity is obliterated. At first there is an unsightly depression at the site of the flap, but this later fills out to some extent and the appearance is really of minor consequence. In places where skin cannot well be used, as in the lower end of the femur or head of the humerus, muscle flaps derived from the vasti, deltoid or triceps may be employed in a similar manner. It is necessary when muscle is used to

cut flaps very much larger than the cavity they are intended to fill, as the contraction that occurs is very great, and the flap when made is disappointingly small. The cases in which I have used this method are too few and sufficient time has not elapsed to allow definite conclusions to be drawn.

Another alternative in treating this condition is resection of the diseased portion of the bone subperiosteally with the hope of regeneration, and this in certain cases seems justifiable, although I have never employed it. Another expedient is the transplanting of a piece of bone, as a rib, to fill in the defect after resection.

SUMMARY OF RESULTS.

It is difficult to determine without an x-ray what cases are cured by a given operation and what are only temporarily relieved. Many cases after the spontaneous rupture of the abscess are free from all symptoms for many years, but the x-ray in these will show the cavity. The cases in this series have been followed from one to two years after operation, but x-rays have only been obtained of a few, as many of the patients live at some distance from the hospital and it is difficult to get them to report. In the few cured cases, where an x-ray has been taken, the eburnation has disappeared to a great extent and no cavity is to be seen.

Acute Cases. Early. Four cases. Bone trephined and cavity packed. All were healed inside of six weeks. These are comparatively recent cases, the last one having been operated upon only four months ago. They are well at present, but it is too soon to draw conclusions. (Cases 40, 41, 44, 48.)

Acute Cases. Late. (Of a few weeks' duration). Three cases. In one bone wax was used (Case 8, x-ray at end of one year); one was packed (Case 20); and in one the cavity was allowed to fill with blood clot (Case 10). All well one and one-half to two years after operation.

Subacute. (Less than one year's duration.) Five cases. In three of these bone wax was used (Cases 4, 16, 31), while the other two were packed (Cases 24, 32; x-ray at end of year). All were well one to one-half years after operation.

Chronic Cases. (One to several years' duration). Eleven cases. The end results in two of these have not been determined. Of the remaining nine, four are well from one to one and one-half years after operation. In one of these in which blood clot was used (Case 25) the abscess broke open again six months after operation and discharged two weeks, but the patient has now been well a year. I hesitate to put this case in the "well" group, as no x-ray has been taken. In the other three cases (Cases 2, 5, 7) wax was used. All were well over one year, and an x-ray was taken of one (Case 2). Five cases may be termed failures. In one bone wax was used (Case 17). At the end of a year a sinus still existed and the x-ray showed a cavity as large as ever. Three cases were packed. In one a bleeder (Case 6) the sinus persisted and the x-ray shows an abscess as large as before operation. The second healed rapidly after operation, but at the end of eight months the symptoms returned and the abscess broke again. In the third operation was followed by an infection of the knee joint, necessitating later resection. At the end of a year the osteomyelitis was well but the joint stiff (Case 11). It seems only fair to class this case as a failure. In the one case followed where the cavity was allowed to fill with blood clot, the wound healed rapidly, but at the end of ten months the symptoms returned and the x-ray showed a typical abscess (Case 28).

Thus, of the nine chronic cases only four are cured, and in three of these bone wax was used. In the fourth the cavity was packed but I am rather dubious as classifying this case as a cure.

Resting Cases. Of several years' duration with serous contents. Two cases. In these the cavity was allowed to fill with blood clot and the wound closed in layers without drainage. In both the symptoms were relieved and the wound healed by first intention. One is well one and one-half years later (Case 13, x-ray) and one ten months (Case 38).

These cases, although small in numbers, are, I think, very instructive, particularly as to the prognosis. They would seem to show that it made little difference what operation was performed in any case of less than one year's duration. The wound in the bone healed presumably with the obliteration of the cavity by new bone. This, at least in the few cases in which it was possible to obtain an x-ray, was what had happened. In these early cases the eburnation around the cavity was distinctly less than in those of longer duration, and at this time the endosteum is capable of forming new bone, which property it looses after a certain lapse of time, as does the periosteum. In the chronic cases, only four out of nine of which are cured, the same operation as done on the acute cases is inadequate. It is necesary in order to ensure a cure to obliterate the cavity with living tissue. It would thus appear that opening and draining the cavity in these cases with the packing after the sterilization of the cavity and the removal of some of the surrounding eburnated bone was not a proper operation. Neither is Shede's operation of allowing the cavity to fill with blood clot, even if this remains sterile, although this gave satisfactory results in the two resting cases. It would seem to be satisfactory providing the cavity in the bone is sterile, as besides these cases the author has used with success several times in cysts of the long bones and in one case of giant cell sarcoma. The use of Moorhof's wax has given, unexpectedly, better results, three cases out of the four in which it was used being cured. In these the wound was closed

without drainage, but in all at the end of one to two weeks a sinus formed which discharged serum and wax. In every case, therefore, the wax has been treated in part at least as a foreign body and extruded.

CONCLUSIONS.

Mild acute localized osteomyelitis is often overlooked in its early stages, but when recognized and treated promptly recovery usually occurs in a few weeks.

It makes little difference what type of operation is performed in the subacute cases, cases of less than one year's duration, if it is thorough. The results are almost uniformly good.

In the chronic, long standing cases of bone abscess operations such as are performed in the earlier cases with success often give unsatisfactory results, as the endosteum is not capable of filling in the defect No definite rule as to the type of the operation can be laid down, but each case should be considered individually. When possible it would seem best to obliterate the cavity with living tissue flaps.

SYNOPSIS OF CASES.

Earle Acute.

Case 40. Female, 12 years old. Three days ago fell injuring right ankle. Now much pain and marked tenderness over lower end of tibia with slight edema and local temperture. X-ray shows no fracture and bone appears normal. Temperature 100°. Leucocytosis 16,000. Incision made over lower part of tibia. Periosteum thickened and some blood beneath it. Two openings made into medulla with burr and small amount of blood and puriform material evacuated. No frank pus found. Following operation temperature dropped and all symptoms relieved. Wound practically healed in three weeks.

Case 41. Female, 4 years old. Three days ago awoke at night crying with pain in the thigh. No history of injury. Pain has continued and has been "feverish." Examination shows thickening and tenderness over right trochanter. Much voluntary spasm. Temperature 102.5°. Leucocytosis 28,000. Incision over trochanter and three trephine openings made into medulla. Cloudy serum found in soft parts over trochanter, and few drops of pus in medullary cavity. Culture from both showed staph. aureus. Wound packed. Symptoms relieved by operation and wound healed in eight weeks.

Case 44. Male, 7 years old. Two weeks ago twisted knee. For three days severe pain in knee and restless. Examination: motions of knee perfect. Marked tenderness below tibial tubercle. X-ray negative. Temperature 101°. Leucocytosis 18,500. Incision over tender point and two openings made through cortex. No pus found but marrow very dark colored. Packed. Culture showed staph. albus. Symptoms relieved by operation.

Case 48. Male, 17 months old. Two weeks ago fell on right shoulder and two days later complained of severe pain in it. Has been fretful but sleeps well. Examination showed upper half left humerus thickened and tender. Motions of shoulder free. Temperature 102°. Leucocytosis 54,000. X-ray negative (poor). Incision through deltoid to bone. Abscess found in soft parts. Two openings made into medulla with burr. No pus found but culture from both abscess and medullary cavity showed staph. aureus. Symptoms relieved by operation.

Late Acute.

Case 8. Male, 9 years old. Sprained left ankle three weeks ago. Now has mild constitutional disturbance with local pain, swelling and tenderness. X-ray shows typical abscess of lower end of tibia. Abscess opened, contents curetted. Cavity sterilized and filled with bone wax. Culture staph. aureus. Healed by first intention but sinus formed at end of two weeks. Well at end of one year. (X-ray taken.)

Case 20. Male, 13 years old. "Boil" on outer side of left leg four weeks ago. Examination shows small discharging sinus near head of fibula and considerable thickening around head of tibia. X-ray shows definite cavity head of tibia. Large abscess cavity in calf of leg, popliteal space, and lower part of thigh opened and drained. Abscess in head of tibia opened and cavity packed. Well one year later.

Case 10. Male, 38 years old. Bone abscess head of tibia eight months ago, opened and packed. Two weeks before entrance severe pain and tenderness over head of fibula. X-ray shows periostitis and some rarefaction head of fiubla. Wassermann positive. Cavity filled with granulation tissue and small amount of pus found in head of fibula. Cavity sterilized allowed to fill with blood clot, and soft parts closed in layers with a small wick. Culture showed an unknown bacillus. Healing practically by first intention. Well two years later. On specific treatment.

Subacute.

Case 4. Male, 15 years years old. Blow over head of tibia four months ago and has been in bed treating for rheumatism ever since. Examination shows tender red area over head of left tibia with considerable thickening of the bone. X-ray shows marked thickening of the head of the tibia and periostitis with an abscess cavity. Abscess in soft parts and bone opened. Cavity in bone cleaned, sterilized, and filled with bone wax. Culture, staph. aureus. Some pocketing in soft parts during convalescence. Well one year later.

Case 16. Male, 16 years old. "Boil" broke below knee four months ago which has not healed. Examination shows thickening head of tibia with a discharging sinus around which there is considerable inflammation. X-ray shows typical abscess of dumbbell shape. Cavity cleaned out and filled with wax. Culture, staph. albus and aureus. Sinus persisted nearly a year. Well at end of two years.

Case 24. Male, 15 years old. Fell from wagon four months before, striking on right hip. Persistant pain and tenderness in region of trochanter worse lately and after exertion. Examination showed tender fluctuant swelling over outer upper part right femur. X-ray showed bone abscess in

shaft three inches below trochanter. Abscess opened and cavity in bone packed with gauze. Culture, staph. aureus. Wound healed in about five months. Well one and a half years later.

CASE 31. Male, 23 years old. Six months ago back of right hand swelled and became painful, without cause, followed by the opening of three sinuses in the palm which have been discharging since. X-ray shows large cavity in the end of the third metacarpal with some thickening about it. Cavity opened, found filled with pus, sterilized and filled with bone wax. Culture, sterile. Healed in six weeks. Well 17 months later.

CASE 32. Male, 18 years old. Blow on left knee ten months ago. Leg soon became red and swollen and abscess opened. In hospital four months and when discharged knee stiff. One week ago recurrence of pain and tenderness above left knee. Examination showed two sinuses lower inner aspect left femur. Knee nearly ankylosed. X-ray showed cavity four inches above lower end femur with considerable thickening of the bone and destruction of cartilage of knee-joint. Abscess in medulla opened, cleaned, and cavity filled with wax. Culture, sterile. During convalescence several pockets of pus in soft parts. Well 13 months later (X-ray taken.) Slight amount of motion in knee-joint.

CHRONIC CASES.

CASE 2. Male, 33 years old. Two previous operations. First trouble followed kick by a horse 15 years ago when abscess broke over head of tibia. Healed but broke again four years later. No symptoms then for 15 years. One year ago abscess broke again healing shortly, and one month ago same thing happened. Examination shows red tender swelling over head left tibia with considerable thickening. X-ray shows typical bone abscess of long standing masked by dense bone. Abscess opened, cleaned, and filled with bone wax. Culture, staph. aureus. Healing by first intention but sinus formed at end of about two weeks. Healed in four months. Well one year later. (X-ray taken.)

CASE 5. Male, 14 years old. Duration 10 years. Five previous operations. History indefinite but abscesses broke out 10 years ago over one radius, a rib, the humerus, and both tibiae. Sore has broken out on right tibia about once a year since. Examination shows many old scars over bones above mentioned. Over lower third right tibia soft parts red, tender, and fluctuant. Radiograph shows a typical bone abscess four inches above ankle in tibia with little thickening. Cavity opened, cleaned, and filled with bone wax. Culture, staph. aureus. Healed by first intention with the exception of a small sinus which discharged wax and serum for some time. Well 13 months later but letter rather unsatisfactory.

CASE 6. Male, 30 years old. Three previous operations. Blow on left knee 12 years ago and was laid up several months but recovered completely without operation. Three years ago severe pain in knee and small abscess opened in popliteal space. Two years ago a large abscess opened in same place. Pain in knee returned one month ago. Specific history. Examination, scar on inner side femur just above knee. Considerable tenderness and some thickening. Motions of joint painful. X-ray shows large cavity in lower end of femur. Abscess cavity in bone opened and packed. Recurring hemorrhage from all parts of wound for one week, following operation and hemoglobin dropped to 35%. (Some similar trouble at previous operations.) Three years later sinus persisted and x-ray shows cavity as before.

CASE 7. Male, 26 years old. Many previous operations. Nine years ago left ankle became swollen and abscess broke. No known cause. In bed nine months. Since then an abscess has broken about every six months which heals in a few weeks. Nine weeks ago ankle became swollen again and has been in bed since. Examination shows scar over lower end of left tibia. Soft parts red, swollen, and tender. X-ray shows abscess cavity and much thickened bone about it. Abscess cavity opened, cleaned, and filled with bone wax. Soft parts could not be accurately approximated. Culture, staph. aureus. Small sinus discharged six months. Well one year later.

CASE 11. Male, 23 years old. One previous operation. Seven years ago right knee became swollen and tender and abscess broke, healing in a short time. Four years later became swollen again and was operated upon in Ireland and thinks a piece of bone was removed. Healed and remained well till three years ago when abscess broke again. Examination shows two discharging sinuses over head of tibia and x-ray shows typical abscess head of tibia. Cavity opened, cleaned, and packed. Culture, sterile. Patient out of bed night of operation and three days later knee-joint found to be infected. Excision of joint eventually performed. Eighteen months later well with a stiff knee.

CASE 14. Male, 36 years old. Duration 22 years. Three previous operations. When 14 years old had a bone abscess of right foot and five weeks later one of right humerus. Healed but broke out again five and seven years later. Two weeks ago packing case fell on right foot and since then much pain and tenderness. Examination shows red, tender, swelling over head of first metatarsal and x-ray shows typical bone abscess cavity. Opened, cleaned, cavity allowed to fill with blood clot, and wound closed without drainage. Small sinus formed a few weeks later. No further report on case.

CASE 17. Male, 26 years old. One previous operation. Eight years ago attack of pain in right arm, with some constitutional symptoms, which eventually subsided. One year ago a second attack of pain and was operated upon for osteomyelitis humerus and musculo-spiral neuritis. Healed rapidly. For seven weeks has had pain, swelling, and tenderness at site of old operation. Examination shows scar four inches long outer side middle right humerus, with a sinus at the upper end. Bone thickened and tender. No limitation of motion. X-ray shows two connecting cavities at center of humerus. Cortex much thickened. Cavities opened, sterilized, and filled with bone wax. Wound closed without drainage. Culture sterile. The tourniquet during the operation was applied over the shoulder and remained in place about 45 minutes. It caused a complete brachial paralysis which, however, cleared up in about four weeks. A sinus discharging serum and wax formed a short time after operation but

healed in a few months. About ten months later pain recurred in the scar and an x-ray showed the abscess as large as before operation.

Case 21. Male, 22 years old. Duration four years. Trouble with right ankle four years ago and an abscess was opened that time. Well till six months ago when ankle became red, swollen, and tender. Examination shows two scars over lower end right tibia. X-ray shows bone abscess lower end of tibia. Opened, cleaned, and filled with bone wax. Culture, staph. albus. One month later sinus discharging serum and wax. No further report.

Case 25. Male, 35 years old. Twenty or more years ago had bone disease of both tibiae and both humeri and abscesses have broken out several times since. One year ago right tibia was operated upon. Two months ago large abscess broke under left deltoid but is now healed. Examination shows considerable thickening head of left humerus. Motions of shoulder free. X-ray shows cavity in the head of the humerus and considerable thickening of the bone. Abscess opened, cleaned, cavity allowed to fill with blood clot, and wound closed in layers with a small wick. Sinus discharged about three months. Nine months later a small abscess broke in the scar which healed in two weeks. Well now (one year later). Culture staph. aureus.

Case 28. Female, 17 years old. Six years' duration. Two previous operations. Fell six years ago and soon after an abscess formed at the lower end of the right femur. Operated upon ten months ago for osteomyelitis of femur. Examination shows a discharging sinus at the inner side of the right femur four inches above the condyle. X-ray shows the bone much thickened, probably masking an abscess cavity, and the periosteum rough. Abscess opened, cleaned, allowed to fill with blood clot, and wound closed in layers with a small wick. Culture, staph. aureus. Sinus persisted several months. One year later an attack of pain and x-ray shows abscess as before.

Case 30. Female, 30 years old. Duration four years. No previous operation. Four years ago severe pain in right shoulder subsiding after several weeks. Two years ago similar attack. Now dull ache for three months. Examination shows considerable tenderness and spasm around right shoulder. Head of bone thickened. X-ray shows two distinct cavities in upper end of humerus. Cavities opened, cleaned, and packed with gauze. Healed in two months. Ten months later abscess recurred.

Resting Cases.

Case 13. Female, 38 years old. Duration, two years. Severe attack of pain over center of left tibia two years ago without cause. Many similar attacks since, coming on every three or four months. Examination shows slight thickening and tenderness over center of left tibia. Wassermann negative. X-ray shows an abscess cavity center of tibia masked by thickened cortex. Cavity opened and found to be lined with thick fibrous tissue and filled with serum. Curetted, cleaned, allowed to fill blood clot, and wound closed in layers without drainage. Culture sterile. Healed by first intention. Eighteen months later reports no symptoms. X-ray shows no cavity.

Case 38. Female, 23 years old. Duration 17 years. Several operations. Abscess of tibia when a child following a fall but no trouble now for many years. For some time has had repeated attacks of pain in center of tibia worse at night and after use. Last severe one three months ago. Examination shows right leg one-half inch shorter than left. Crest of tibia thick, particularly at center. Scar at ankle. No tenderness. X-ray shows marked eburnation of cortex with suspicion of abcess cavity at center of shaft. Cavity opened and found lined with fibrous tissue and containing serum and a small sequestrum. Cleaned, allowed to fill with blood clot, and wound closed in layers without drainage. Healing practically by first intention. Symptoms relieved and no further trouble nine months later. Culture sterile.

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INFECTIONS OF THE UPPER URINARY TRACT IN INFANCY AND CHILDHOOD.*

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It is an axiom among pediatricians that in children diseases do not differ in kind but only in course and manifestations from those that affect adults. These differences are conditioned by the immaturity and lower resistance of childhood, by the greater susceptibility of juvenile tissues to injurious processes, and also by their greater promptness and delicacy of reaction and their more active regenerative powers.

Particularly is this true with regard to surgical infections of the upper urinary tract, of the kidney and renal pelvis. Though less frequent, on the whole, in children than in adults, these conditions seem more likely to run an acute course, and are more liable to supervene without adequate apparent antecedent cause. The two conditions in which this is most typically true are acute pyelitis, and, to a less extent, acute unilateral hematogenous infection of the kidney. It is remarkable that neither of these conditions was recognized clinically or described in the literature until quite recently.

As early as 1883, Dr. Samuel J. Gee,[1] of St. Bartholomew's Hospital, London, reported in the *British Medical Journal*, "Some Kinds of Albuminous and Purulent Urine in Children." But though he was evidently dealing with con-

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ditions of acute renal infection, and even uses the term "spontaneous nephritis," he does not satisfactorily describe a definite clinical entity.

The earliest satisfactory clinical account of pyelitis in childhood is apparently that of Professor Monti,[2] senior surgeon of the Vienna Policlinic, in 1893. Without reporting specific cases, he describes accurately the clinical picture and symptom complex of the condition. The cardinal diagnostic signs which he recognized are fever, mental aberration, pain and tenderness, vomiting, pyuria and albuminuria, facial edema, and in chronic cases emaciation. He says little of etiology, considers the prognosis on the whole favorable, and regards rest, milk diet, and diuresis as the essentials of treatment.

In 1894 Dr. L. Emmett Holt, of New York, published[3] "Three Cases of Acute Pyelitis in Infancy." All had been characterized by suddenness of onset, pyuria, irregular pyrexia, and absence of local signs, except slight tenderness at the costovertebral angle. In none was there any local process, such as a balanitis or vulvovaginitis, as a source of origin for the infection, which Holt considers to have been probably hematogenous. This seems to have been the first definite description in English of this condition, the credit for whose clinical recognition and emphasis therefore is commonly attributed to Holt.

Essentially the same description is repeated in Holt's text-book[4] on "Diseases of Infancy and Childhood," in which he recognizes and classifies as the possible etiologic causes of pyelitis, renal calculi, congenital malformations, the exanthemata and acute fevers, and direct infection, either hematogenous, through the urethra, or by lymphatic extension from the intestine. For treatment he emphasizes the importance of aqueous diuresis, and the administration of hexamethylenamine with either benzoic acid or potassium citrate according as the urine is alkaline or acid. Surgical intervention is indicated only in case of the development of pyonephrosis.

In 1896, Wolfstein,[5] in an article on "Pyelitis in Infancy," in the *Archives of Pediatrics*, reports a case of pyelitis in a girl of sixteen months. He recapitulates the ground covered by Holt, adding to his recognized causes phimosis and vulvo-vaginitis, as forms of infection affording a starting point along the lower genital tract.

Baginsky,[6] in 1897, in his "Further Contributions to the Pathology of Renal Diseases in Childhood," reported four cases of pyelonephritis, of apparently idiopathic origin, in all of which a pure culture of colon bacillus was obtained from the urine. This observation introduces a new element in diagnosis, and suggests the possibility of the ascent of this organism from the genitals, or its passage by lymphatic extension from the intestine. The possibility of such absorption was definitely established by Marcus[7] in 1899, by experiments on rabbits. His results were essentially confirmed by Posner and Cohn[8] in 1900.

In 1902 Ritchie[9] of Edinburgh reported one case and Thomson[10] of Edinburgh eight, all following the general clinical type classically outlined by Holt. They believe the condition probably usually due to immigration of the bacillus coli from the bowel, and consider the essential of treatment to be alkaline diuresis. They believe that constipation and anal fissures are predisposing causes and should be treated, if present.

Even after the definite recognition and clinical description of pyelitis in infancy and childhood, its literature continued for some time to be scanty. In 1906 Heubner[11] reported a case in the chapter on pyelitis in his text-book of pediatrics, but laid no special stress upon it.

In 1908, Box[12] presented in *The Lancet* a clinical lecture on the subject, in which he considered most infections of the urinary tract in children to be due to the colon bacillus, and believed that their mode of approach to the renal pelvis must always be either hematogenous, by upward extension, or by direct lymphatic extension from the bowel. He was the first to report the use of colon vaccine in the treatment of obstinate cases, apparently with beneficial results.

A year later, in 1909, Thursfield,[13] in an article in *The Hospital*, on "Pyelitis in Children," recapitulates the subject to date, and reports several cases, which he divides into acute, subacute and chronic types. He declares the colon bacillus the commonest infecting agent, next to which is the pneumococcus. He also recognizes calculous and tuberculous forms of the disease, and those in which the posthitis associated with phimosis is apparently the exciting cause.

The latest available reference to the subject is that in a clinical lecture[14] by Herringham on "Acute Pyelitis," in which he reports one case in a child. In obstinate cases he employs an autogenous vaccine. This he believes relieves some of the symptoms, but does not alter the course of the disease or kill out the infection; and he considers that it is not without certain risks from anaphylaxis.

In addition to this review of the literature, and in further illustration of these infections of the upper urinary tract in children, I wish to report the following cases from the Surgical Clinic of the Children's Hospital, Boston. For the privilege of reporting these cases, I desire to acknowledge my grateful indebtedness to the members of the staff on whose services they occurred.

Case 1. E. A. Female, 11 years. Entered Children's Hospital, Jan. 8, 1909. No. 1101.

The history and physical examination were such as to lead to a diagnosis of acute appendicitis, and at operation an appendix abscess, situated in the pelvis, was found and drained. Following this the child did well until Jan. 25 when the temperature rose to 102.8°. On Jan. 27 she suddenly developed pain, tenderness, spasm, and fulness, in the right costo-vertebral angle. The urine, since first operation, had shown the slightest perceptible trace of albumin. The diagnosis was made of acute second-

ary infection of the right kidney, and operation was advised and performed.

Operation. (Dr. Stone.) Examination under anesthetic showed a distinct fullness in the right costo-vertebral angle; incision made vertically through the muscles directly over the lower pole of the kidney; the tissues about the kidney were edematous but there was no pus; the kidney was enlarged to about one and one-half times its normal size; the capsule of the kidney seemed flabby: it was incised and the kidney underneath was found to be rather pale in color with yellowish spots, the largest lying on the inner side just below the pelvis and containing stringy, yellowish necrotic material, with a little pus. The handle of the knife could be plunged into the kidney without any resistance and caused absolutely no bleeding; a piece of the kidney was excised for examination; only a few drops of blood were lost; one cigarette drain was introduced into the wound; the other kidney could be felt considerably enlarged and also tender.

Following this operation the amount of urinary secretion remained for several days very low, but gradually rose to an average of 700 c.c. per diem. The urine was of low specific gravity, and contained a considerable sediment of small round and pus cells, but little blood and no casts. On March 2, the 24-hour amount of urea was 18.7 grams. There was still the slightest perceptible trace of albumin. The patient, however, was free from symptoms; and both wounds having healed, except for small granulating areas, she was discharged from the hospital.

This case, then, apparently represented an acute hematogenous infection of the right kidney, secondary to a focus of suppuration elsewhere, the renal symptoms supervening during the convalescence from previous infection.

Case 2. M. S. Female, 12 years. Admitted on Feb. 21, 1911. No. 2593.

Twelve hours before entrance patient had sudden onset of severe pain in the right lower quadrant of the abdomen. Vomited once. Temperature 100.6° Pulse 96. White count 28,000; differential count showed 95% polymorphonuclears and 5% mononuclears. Urine contained no acetone or albumin. Physical examination showed some abdominal tenderness, but was otherwise negative. The patient was put to bed under observation, with a questionable diagnosis of appendicitis.

On Feb. 22 the tenderness and spasm seemed definitely localized over McBurney's point. T. 103°. P. 104. White count, 26,000. The diagnosis of appendicitis seemed probable, operation was advised.

Operation. (Dr. Homans.) An incision, two inches long, was made a little inside the outer border of the right rectus, rather high over the appendix region. The abdominal cavity was free from fluid. The appendix was free and easily found; it was tied off with chromic gut and removed, and the stump touched with carbolic and alcohol and buried with silk. An examination of the abdomen was made through the wound; nothing abnormal could be felt in the pelvis except considerable fecal matter in the rectum. The right kidney appeared normal in size and was movable. Nothing else could be felt in the way of enlarged glands, or any source of infection. The wound was closed with silk worm gut.

After operation, the temperature fell to normal and remained so for three days. It then rose to 103°, in the vicinity of which it continued without localizing signs of any possible cause therefor. On March 10, the urine was noticed to be smoky, alb. large trace, sp. gr. 1.028, acid, 24-hour amount 1200 c.c., sediment contains many erythrocytes and blood casts. There was tenderness over the left kidney. Operation was advised.

Operation. (Dr. Homans.) The child was placed on her face, with pad under the abdomen. An incision was made in the left loin just outside the quadratus lumborum. The kidney capsule contained very little fat. It was not thickened, and its relations to the kidney were normal. The kidney itself was large and rather flat; it was very flabby. The capsule appeared normal in color, perhaps a little pale. This was split from pole to pole, reflected part way over each surface. An incision about one-quarter inch deep was made in the kidney cortex, and the kidney substance showed nothing remarkable, unless it was a little more friable than usual. A cigarette wick was placed to kidney cortex, and the wound was closed in layers with interrupted chromic catgut, and the skin was closed with silk worm gut. The child stood the operation well.

Following the operation, the child made a steady convalescence, and was discharged on April 19 with both wounds healed and the urine normal in amount and free from blood and casts, albumin, s. p. t.

In this case the original condition is not clear. It was not appendicitis. The child probably had an obscure general infection, which ultimately localized hematogenously in the kidney.

Case 3. M. L. Male, 9 years. Admitted on March 17, 1911. No. 2645.

Three days before entrance, without previous history of injury, the patient began to complain of pain in the right hip. The attending physician states that the urine contained blood and albumin at this time.

Physical Examination on entrance. General condition fairly good. Cheeks flushed, eyes bright. Temperature 103°. Pulse of good quality, regular. Lungs: Clear and resonant. Abdomen: Negative. Kidney-area negative. No rigidity; no tenderness, no masses. About crest of ilium on the right side, just lateral to post. sup. spine, there is a definitely marked point of tenderness on palpation. This tenderness is deep and in relation to bone and not to soft tissues. There is also a general area of tenderness about the size of palm of hand just below post. sup. spine, also in relation to bone and not to underlying soft structures. Hip-joint is not involved; veins about ilium and joint are distended, knee reflex present on left, but absent on right side. No Babinski. No evidence of paralysis. Spine: Negative. Sacro iliac joint negative. Operation was advised on a diagnosis of acute osteomyelitis of the ilium.

Operation, March 18, (Dr. Stone.) A transverse incision was made from the middle of the iliac crest on the right downward towards the trochanter. It was carried through the fascia, and the underlying muscle was split parallel with its fibers. Beneath, an abscess full of brownish pus was opened. The periosteum was found to be dissected off the ilium over an area about one and one-half inches in diameter just beneath the epiphyseal line, and the epiphysis at the upper border of the abscess was found to be slightly separated from the ilium for a short distance so that the blunt dissector dropped

into the epiphyseal line. With a chisel, the ilium was then cut away beneath the epiphyseal line, and from the inner surface of the pelvis, there was a corresponding discharge of pus which lay between the ilium and the iliacus muscle. The abscess cavity apparently lay on each side of the ilium, between it and the iliac muscle on the inside, and between it and the gluteal muscle on the outside, and seemed to originate at the epiphyseal line between the ilium and the epiphysis along the crest. The ilium itself was very thin, containing practically no medullary cavity, so that it was impossible to tell whether there was or was not a true inflammation of the medulla. The bone was of about the thickness of the handle of an ordinary spoon. The bone was completely chiseled away throughout the area where the pus lay. This was roughly circular, and about one and one-half inches in diameter directly beneath the middle of the iliac crest. There was no evidence that the epiphyseal cartilage was involved in the disease, but the disease obviously went to the epiphyseal cartilage. Cigarette drains were inserted into the cavity. Culture of pus showed pure growth of staphylococcus aureus.

On March 21, after good recovery from first operation, patient developed tenderness over left ankle. W. C. 18,000. T. 103°.

Operation again advised. (Dr. Stone.) An incision was made over the anterior aspect of the lower end of the tibia, close above the ankle-joint. The incision was carried down to the bone. The periosteum was edematous, and the epiphyseal line was also edematous. With a small curette, a portion of the epiphyseal line, which seemed most inflamed, was curetted away. A small gauze drain was inserted. This operation was done within twenty-four hours after the first signs of inflammation in the tibia. No pus was found, but definite inflammatory reaction was found.

Following this operation, the patient's urine became on March 27 bloody, and, 1,015, diminished to 500 c.c. in 24 hours, and contained white blood cells, casts, and a slight trace of albumin. This condition gradually subsided under aqueous diuresis, and the patient was discharged on April 11 with wounds still draining, but urine nearly normal. He returned twice in the next two months with recurrent suppurations in the ankle, but was finally discharged on June 21 with the wounds nearly closed and the urine practically normal.

This case represents a primary osteomyelitis of the ilium, with metastatic epiphysitis of the tibia and acute metastatic, probably hematogenous, nephritis.

Case 4. S. H. Male, 7 years. Admitted on April 3, 1911. No. 2671.

Ten days before entrance patient began to have pain in the right side of the abdomen. This has increased, but there have been no nausea, vomiting, or disturbance of micturition. The child has had increasing lameness in the right leg. Six weeks ago he was circumcised for phimosis and balanoposthitis.

Physical Examination. Head and throat negative. Chest well formed. Lungs negative on auscultation and percussion. Heart: Negative on auscultation and percussion, except very well compensated mitral insufficiency. Abdomen: Rounded. Liver dullness extends from costal margin in nipple line. Slight spasm on right abdomen, and considerable spasm of right flank. Tympanitic except in right flank. Area of dullness and tenderness in right flank extending from a line connecting anterior superior spine with costal margin just lateral to nipple line and running into liver dullness. The right thigh is held in partial flexion by psoas spasm, with pain on extension, but when the thigh is in flexion, the hip motions are free in all directions with no pain. Extremities are otherwise negative. Urine: High, acid, 1.020. No sugar. Slight trace of albumin. No acetone. Sediment contains some pus and blood, with many hyaline, granular and epithelial casts. T. 103°. P. 130. R. 40. White count 60,000.

Under rest in bed, with aqueous diuresis the abdominal mass and tenderness practically disappeared, the white count fell to 35,000 on April 11, the amount of urine rose to normal and there ceased to be blood in the urine. On April 20, x-ray showed a suggestive shadow in the right kidney region. The tenderness in the right lower quadrant then gradually increased, and on April 24 operation was advised.

Operation. (Dr. Stone.) An incision was made parallel with the fibers of the external oblique, about two and one-half inches long and about one inch vertically above the anterior superior spine. The external oblique was incised parallel with its fibers. The internal oblique and transversalis were split along their fibers, and the edges of the muscles retracted. The peritoneum was incised, exposing the outer side of the cecum, and apparently loops of lower small intestine firmly matted together inside the wound. On separating the coils of intestines, a small amount of grumous pus was set free. The appendix was then found on the outer posterior aspect of the cecum, directly under the wound. It was about one and one-quarter inches long; the lumen about one-sixteenth inch thick, and the walls about three-sixteenths inch thick. It was very densely matted down. It was ligated and excised, and the stump was touched with crude carbolic and alcohol. Three cigarette drains were inserted, one outside the cecum upward, another outside the cecum towards the brim of the pelvis, and the third directly in the flank at the stump of the appendix. Culture from the appendix showed no growth.

After operation, the temperature fell rapidly The wound drained considerably. The urine cleared up rapidly, and was nearly normal when the child was discharged, on May 3, with a small sinus in wound.

In this case there was apparently an acute inflammatory nephritis and pyelitis, following, and perhaps dependent on, a balano-posthitis. The early symptoms were those of an acute pyelonephritis, followed later by acute appendicitis. The child recovered completely after removal and drainage of the appendix.

Case 5. R. P. Male, 3 years. Admitted on April 15, 1911. No. 2706.

Four weeks before entrance, patient had pneumonia, followed by failure of temperature to remain normal. Five days ago, four ounces of green pus were withdrawn from the chest by aspiration.

Physical Examination. Well developed and nourished little boy. Pale, not extremely sick. Pupils equal and react. Mouth and throat clear. Anterior cervical glands felt on both sides. Chest: Well

formed. Expansion good on right, but poor on left. The right lung is resonant throughout; no râles. The whole left lung, to apex, is flat on percussion. Breath sounds heard, but distant and tubular. Heart: Pushed to right; dullness extends five cm. each side of mid-sternal line. Sounds clear, regular; no murmurs. Abdomen: Soft, tympanitic. No masses or tenderness. Extremities: Negative. No paralysis or edema. Knee-jerks not obtained.

Urine: Normal in appearance. No sugar or acetone. Albumin: s. p. t. Operation was advised.

Operation. April 17, 1911. (Dr. Stone.) An incision was made over the eighth rib in the posterior axillary line, carried downward to the bone. The periosteum was reflected and one and one-quarter inches of rib was resected, with an escape of thick pus, with a small amount of fibrin, but the fibrin was uniformly distributed over the parietal and visceral surfaces of the pleura. The lung expanded well, and a drainage button was inserted. Smear from the pus showed many pneumococci.

Two days after operation, the urine became smoky and contained a trace of albumin and many casts. This, however, cleared up under rest in bed and aqueous diuresis, and on May 3 the child was discharged with the wound still draining.

On May 25, he was readmitted with fever and recurrent dulness in the chest on the left side. On May 27 the wound broke down and the sinus was dilated with the evacuation of considerable pus. The child's condition improved steadily and on June 14 with the sinus healed, lungs clear, but the urine still containing some albumin, pus, and granular casts, the patient was discharged.

This case seems to have been one probably of acute inflammatory nephritis consequent upon empyema following pneumonia.

Case 6. M. G. A girl, 12 years old. Entered April 23, 1912.

Family History. Father, mother and six children living and well.

Past History. Diphtheria, whooping cough and measles.

Present Illness. Two weeks ago patient began to complain of pain in left side of chest and abdomen. Did not feel well enough to play about. Complained of feeling chilly three to four times during day and mother states that child had quite severe chills. Has not vomited. Bowels regular. Frequent urination, especially at night.

Physical Examination. Well developed and fairly well nourished. Eyes: Pupils equal and react to light and distance. Tongue coated. Throat normal. Heart regular, no murmurs. Lungs: Resonant throughout. Abdomen: Tenderness and voluntary spasm from costal margin to pelvis. No real spasm. Extremities: No spasm or limitation of motion about hip. Tender along outside of thigh. K. J. and feet normal. Temperature 101°. Pulse 120. Urine: Acid. Albumin. Sug. 0. Blood: W. B. C. 24,000. Operation was advised and accepted, Aug. 24, 1912.

Operation. (Dr. Stone.) Vertical incision about two inches long in the loin over the most prominent part of the abscess, just below the level of the last rib and about three inches from the spine. Incision carried through the muscles into the abscess cavity, free discharge of thick pus. Abscess was found to lie next to the kidney, but lay below, behind and outside the lower pole of the kidney and above and outside and in front of the upper pole. In the lower location there was a considerable pocket of pus, directly beneath the wound, there was an area in the kidney itself of necrotic broken down kidney-tissue and pus about as big as the last joint of the forefinger. This led directly into the kidney. Two rubber dam cigarette drains were inserted, one to the lower and the other to the abscess cavity around the upper pole of the kidney.

The patient made a good recovery from ether. There was slight discharge from the wound for many days, and patient finally went home on Sept. 17, 1912, with a presistent lumbar sinus.

From the foregoing cases, and from the literature, the following conclusions seem justified:—

1. In infants and children infections of the upper urinary tract, though infrequent, are likely to occur without adequate apparent antecedent cause.

2. Their onset is acute, their clinical picture definite, their recognition often missed on account of their simulation of other infectious conditions.

3. Their two most usual forms are acute pyelitis and acute inflammatory nephritis.

4. The latter is most usually hematogenous in origin, the former probably proceeds by lymphatic extension from the intestine.

5. Predisposing causes are calculi, constipation, phimosis, anal fissures, and foci of infection elsewhere.

6. The classic signs of both are pyrexia, pyuria, and tenderness in the costovertebral angle.

7. Differential diagnosis depends on examination of the urine.

8. The treatment consists in rest, milk diet, aqueous diuresis, moderate catharsis, urotropin, with sodium benzoate, potassium citrate, or vaccine, in obstinate cases; surgery, only as a final measure.

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THE VIEWS OF PLATO AND FREUD ON THE ETIOLOGY AND TREATMENT OF HYSTERIA: A COMPARISON AND CRITICAL STUDY.*

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The history of the so-called neuroses and psychoneuroses begins, from a documentary standpoint, with the most ancient medical and philosophical writings. Indeed, the old Greek philosophers in particular found in morbid nervous and mental phenomena a most fascinating

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field for speculation. And their writings abundantly prove that they indulged in this pernicious habit to their heart's content.

The use of the word "pernicious" in connection with the speculative habit seems to me entirely justified when we consider that the latter has been indulged in by every philosophically-inclined writer on the subject of functional nervous disorders from Plato down to those of our own times, and has done more to obscure our understanding of the pathology and treatment of these disorders than any other factor.

It seems, I admit, a very far cry from Plato to Prof. Sigmund Freud, but when I have exposed to you their etiologic views on hysteria, I think you will agree that, in essence, these views are practically identical.

Plato,[1] dealing with the causation of the psychoneurosis in question, expresses himself as follows: "The womb is an animal which desires ardently to engender children. When it remains sterile for a long time after puberty, it endures this state with difficulty; it grows angry, rushes here and there through the body, obstructing the air passages, hindering the respiration, throwing the body into extreme dangers and occasioning divers maladies, until desire and love bringing together the man and the woman create a fruit and cull it as from a tree."

The idea of the uterus rushing angrily hither and thither through the body, causing now the "globus," now a syncopal attack, now some other of the well-known hysterical manifestations, is interesting as a measure of the advance made by modern pathology in certain directions. It has no bearing upon the theme about to be developed.

What I wish to call to your attention particularly is that part of the theory which deals with the mental and emotional attributes ascribed by Plato to the uterus and considered by him as the *vis a tergo* which impelled it upon its antic courses. These attributes, as already indicated, consist, on the one hand, of intense strivings, desires and impulses on the part of the uterus to get itself fecundated and, on the other, of anger and other violent emotions aroused by delay or failure in the accomplishment of its designs.

The transition from this Platonian theory of etiology to the Freudian is simple. As I hope presently to show you, Freud simply shifts the above-mentioned attributes to their real sphere —the mind—and assumes an unconscious but stormy conflict among them as the cause of the outbreak of hysterical symptoms.

To paraphrase the language of the Freudian pathology, there is waged in the mind of the victim of hysteria a conflict between two groups of ideas or mental processes which cannot be brought into harmony with each other. One complex of mental processes is, for some reason or other, of such a kind as to be inacceptable to the main body of the personality. The personality fails to assimilate it, will have nothing to do with it, tries to forget it, to submerge, to repress it. The repressed complex then takes on an automatic existence and acts as an irritating foreign body in the same way as any foreign body that has not been absorbed.

And now for the first of the many paradoxes with which the theory teems: It appears that the order of activity assumed by the defectively assimilated complexes—which generally take the form of strivings, desires and impulses—is usually a very low one, of an automatic and almost reflex kind and is, in a word, *unconscious,* that is to say, it operates without the subject being aware of it.

There remains for us only to examine into the content of these strivings, desires and impulses which, entirely apart from the patient's awareness, metamorphose themselves into clinical symptoms. And as nearly as one of ordinary intelligence and understanding can gather from the writings of those best qualified to interpret the Freudian doctrines, it appears that the strivings, desires and impulses which work such havoc outside the field of the patient's awareness, are the outcome of the unconscious cerebration which subtends the most natural of all human feelings—namely, the *libido* or craving that actuates everyone to do his share in the great work of the propagation of the species. In a word, the outcrop of hysterical symptoms is—according to Freud—the result of an unequal battle between the patient's *unconscious* desires and impulses and his equally unconscious but rigidly censorious mind.[2]

If you have succeeded in following the above clear and uninvolved exposition, you have before you the two theories. To my way of thinking, they differ mainly in the time of their appearance. Personally, I favor the Freudian—it is so much more restful and soothing to fancy a noiseless conflict between a sexual (but not necessarily sensual) longing and a mental censor (both unconscious) than it is to picture a brutally lustful uterus running amuck through the body.

Modern pathology is in itself a sufficient refutation of the etiologic portion of Plato's theory. A very little close reasoning should serve to dispose of Freud's. My first objection to it is that it is absolutely arbitrary, in that it takes into account one element only of the many which compose that very complex product called personality. My second objection is that it is entirely illogical. Obviously, from what has been said, it looks upon the symptoms of hysteria as voluntary on the part of the sufferer, *i.e.* a sort of compromise between unconscious sexual desire, longing and striving, and the repressive activities of a likewise unconscious mind. Hence, it asks us to believe that a voluntary act may at the same time be an unconscious one—in other words, that the will can operate without the conscious mind being aware of its operations. Now, even a moment's consideration shows us that if we take away all sensations and emotions there can be no will, and the ab-

surdity of the Freudian contention becomes at once apparent.

There are numerous other objections to the theory, but the two given render enumeration of the rest practically superfluous. One, however, I will mention because it applies not only to the theory in question but to many others. It is to the effect that they all locate the patient's trouble entirely within the realm of ideation and emotion absolutely without regard for the fact that the way human beings feel, talk and act is but a reflection of organic sensation. In other words, they deal with the language, actions and emotions of the psychoneurotic quota of humanity as a pure abstraction, without regard for their organic source.

It is—or should be—a matter of common knowledge that, in the great majority of cases, the psychoneurotic comes into the world with the seeds of his disorder firmly implanted in his nervous system. With rare exceptions, his ancestry—either immediate or remote—is primarily to blame for his unhappy lot. Ancestral insanity, nervousness, tuberculosis, syphilis, gout, alcoholism or some other devitalizing agent paves the way for his downfall; environing circumstances do the rest. His nervous tissues are as prone to functional over-exhaustibility as the lungs of the offspring of consumptives are to the invasion of the tubercle bacillus.

We come now to the therapeutic aspects of the two theories under consideration. According to Plato, we should expect to see all symptoms disappear when the angered and consequently antic uterus receives the fecundating seed it so ardently desires. The Platonian notion is intelligible and naïf; the Freudian possesses only one of these qualities.

The last-named system of therapeutics is known to the scientific world as *psychoanalysis*. To pursue it with success requires, we are credibly informed,[3] three years' incessant practice—a good previous knowledge of neurology being assumed. But let not this fact dismay you. According to information from the same reliable source, brilliant results are sometimes obtained in a given case by a single hour's use of the method every day for three years. This is particularly true where both the patient and the physician are versed in Greek and Roman mythology, classical Greek poetry, legend and tragedy, folk-lore and song.

You may be puzzled to know why so much time is required both to learn and to practice psychoanalysis. The answer is simple: Just bear in mind that the hysteric's symptoms are due to a conflict between his sexual strivings, desires and impulses and his censorious *unconscious* mind and that, in order to check the battle, we absolutely must know just how it started.

To achieve this knowledge we are compelled to go back to a very early moment in the infantile period of his career, *i.e.* to the suckling stage. Then it is, we are told by Freud and his disciples, he first becomes aware, through the medium of his *unconscious* mind, that he is the possessor of sundry orificial erogenous zones, and this discovery causes to spring into existence certain of those sexual strivings, desires and impulses which lead to conflict in the unconscious mind, and ultimately—anywhere from fifteen to thirty years later—to the appearance of hysteria.

In this work of investigation you must have the patient's co-operation. You must make him conscious of the sexual significance of his striving, longings and desires, of which, of course, he, up to this time, knows nothing. To do this you have merely to let him introvert his attention deeply enough to tap the unconscious, encouraging him in every way to let his imagination run riot on sexual matters of every conceivable kind from sodomy to incest.

As a supplementary means of getting at the naked truth you must even follow the patient into slumberland, since it is par excellence in dreams that the sexual nature of the havoc-working unconscious strivings, desires and impulses reveals itself.

Let me hasten to caution you, however, that the sexual content of the dream is practically always latent and that it requires an absolutely unbridled imagination on the part of the investigator for its discovery. As I shall presently show you by citations from the literature, it is really in the world of dreams[4] that Freud and his followers have gathered their richest harvest.

Just how analysis of the unconscious waking or sleeping mind brings about a cure, I do not comprehend. The Freudian contention is that it leads the patient to a greater and nobler understanding of his character and enables him to suppress or to utilize upon a more exalted plane of activity his sexuality. Presumably this does away with the unconscious strife which caused his psychoneurosis.

To make the Freudian theory quite clear in all its details, let us take a concrete hypothetical case. Let it be that of a recently widowed mother. We will say that during the long illness which preceded her husband's death she was seldom absent from his bedside—day or night; that during this time her own physical needs received from her but scant attention; that little reached her senses but the sights and sounds of the sick chamber and that the one anguished query that occupied her mind for weeks was, "Will he live?" Let us add to all this the despair which came with the knowledge that recovery was impossible and the grief, too deep for words, that followed the fatal termination.

Let us add further that hardly is her husband buried when her only child is stricken with a serious illness which for a long time baffles the understanding and skill of the attending physicians and consultants. At last the nature of the disorder is discovered, but with the discovery the hopes which buoyed the mother before the real diagnosis was made, are forever dashed—the malady is a fatal one.

Should this poor woman, thus bereft of husband and son, come to you for treatment for a profound hysteria you would naturally assume that her trouble was the result of the anguish of mind and the physical overstrain incidental to the sickness and death of husband and son. But if you were of the Freudian school, you would absolutely distrust these apparent causes and resort to psychoanalysis to find out what was really at the bottom of the patient's hysteria. By means of this method you would discover that while she was still at her mother's breast her unconscious mind discovered that her mouth was an erogenous zone, that this discovery led to unconscious sexual longings of a perverted order and that the struggle between desire and repression—likewise unconscious—finally led to the hysterical outbreak.

If the patient chanced not to be troubled by insomnia you would undoubtedly get considerable aid in establishing the etiology from an analysis of her dreams, for, according to Freud, the dreams of an hysterical person are often symbolic of such practices as incest and Lesbian love.

When you had employed your psychoanalytic methods with care and diligence, you would inform your patient fully of your findings concerning her sexuality and you would then confidently expect to see recovery soon follow upon the realization that her nervous suffering was the result of the struggle made by her virtuous unconscious mind to keep her from becoming a sexual pervert and a criminal.

I have promised you citations from Freudian literature in order to show the paramount importance of the rôle played by dreams in psychoanalysis. The lateness of the hour makes the present introduction of this topic particularly appropriate. My citations will, however, not be extensive.

In the *Zentralblatt für Psychoanalyse,* Part 9, p. 408, Rank gives an analysis of a "toothache" dream which confirms Freud's view that such dreams relate to masturbation. Part 12, p. 586, contains a lucubration by Robitsek (Die Stiege, Leiter als sexuelles Symbol in der Antike.), which proves by evidence from archaeology (sic) that the doubt cast on Freud's interpretation of the occurrence in dreams of climbing steps or ladders as a symbol for coitus is entirely unwarranted.

But enough from dreamland! I cannot, however, resist the temptation to lay before you one or two more examples from this literature. In the same *Zentralblatt,* Part 5-6, p. 200, Sadger maintains that asthma, neurotic edema, membranous colitis, etc., are not, strictly speaking, of psychogenic origin, but are instances of the condition termed by Freud "sexual neurosis," and that physical predisposition (of a sexual nature) plays the essential part in the etiology. Stekel, Part 7-8, p. 328, gives an analysis of a case of writing-stammering, a term used to denote a symptom in regard to writing that has every analogy with stuttering of speech, and clearly shows that this symptom consists in a sexualization of the act of writing and represents a mental equivalent of psychic impotence(!). Finally, Eibenschutz, Part 5-6, p. 242, skilfully analyzes a striking occurrence where a philological authority had read the wrong date of a passage (MCCCL instead of MDCCCL), with a consequent confusion in his judgment. (The discovery in this case, by psychoanalysis, of what led to the confusion in judgment, is one of the most remarkable recorded in Freudian annals. I know of nothing accomplished by a certain learned Society, whose transactions have been handed down to posterity by Charles Dickens in his famous Mudfog Papers, that is in any way worthy of comparison with it.)

In closing, I assume that the Freudian theory and doctrines have never caused the faintest ripple upon the placid surface of the practice of any one of my listeners; and I predict that they never will. Nevertheless, it is just as well for you to know to what esoteric tenets in psychopathology and psychotherapeutics the speculative habit, without a background of sound physiologic principles, may lead. How much it has added to our therapeutic efficiency I leave to the dicision of time.

Some of us seem to forget, not temporarily, but permanently, that there is an Art to Medicine as well as a Science, and that we are bound by the Hippocratic oath to cure our patients "safely, swiftly and pleasantly." To the middle term of this pact we cannot—in the case of the psychoneurotic—strictly adhere. To the other two terms we can always be faithful if we take common sense as our guide and are not lured away by therapeutic schemes evolved from academic subtleties.

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[3] See article, Psycho-Analysis in Psychotherapy, by Ernest Jones, M.D., M.R.C.P. (London), in Jour. Abnorm. Psychology, vol. iv, No. 2, pp. 140-150.
[4] The Relationship between Dreams and Psychoneurotic Symptoms, Ernest Jones Amer. Jour. of Insanity, July, 1911, vol. lxviii, p. 57.

Medical Progress.

REPORT ON DERMATOLOGY.

The Proper Use of Salvarsan at the Present Time.—Cure of Frambesia by Salvarsan.—Lupus Treated by Salvarsan-Tuberculin.—Neosalvarsan.—Treatment of Urticaria with Epinephrin.—Arsenic as Employed in Dermatology by the General Practitioner.

BY JOHN T. BOWEN, M.D., BOSTON.

THE PROPER USE OF SALVARSAN AT THE PRESENT TIME.[1]

Brocq, after an extensive experience of more than two years' duration, considers that salvarsan and neosalvarsan are very efficient in syphilis and ought to be employed whenever possible

at the beginning of the disease, in as large doses as are compatible with the tolerance of the patient, in order to endeavor to destroy the organisms at the outset. They *may* be employed with advantage in the course of the disease, whether in the secondary or tertiary period, especially when mercury alone or in conjunction with the iodide is ineffective or is not tolerated. The question to decide at the present time is whether there are not serious disadvantages in the use of these substances and whether or not they ought definitely and completely to supersede mercury and the iodides in the treatment of syphilis. This question is unfortunately not so easy to decide as might appear from the brilliant results that are matters of common knowledge. A sufficient number of cases have not yet been treated, and a sufficient number of years have not yet elapsed, to warrant us in affirming that we know at the present time just what the disadvantages of this treatment may be, nor in predicting what will be the future of the syphilitics so treated.

With regard to patients in the secondary stage, Brocq's opinion is that it is not *indispensable* to treat all such cases by means of the new methods, in view of the fact that we were in the habit of considering the older methods as very efficacious. Whether they are *useful* in all such cases, with the exception of those that present obvious contraindications, is a question difficult to decide. He is inclined to think that it is advantageous to give salvarsan (or neosalvarsan) in at least a certain number of injections, in (1) every case of secondary syphilis that has not been previously treated, (2) every case of secondary syphilis that, having been previously treated by mercury, still shows active signs, and (3) every case of secondary syphilis that after being treated, both by salvarsan and mercury, still exhibits rebellious or recurrent manifestations of the disease. In cases of secondary syphilis with no active signs, and in good condition, he inclines to think that salvarsan should not be given, even with a positive Wassermann, as he is not yet convinced that this treatment is absolutely harmless.

With regard to tertiary manifestations he does not think that at the present time there is any real advantage in employing salvarsan rather than the older methods, in the larger part of the cases of cutaneous and mucous membrane lesions, although it may be used where there are no contra-indications. In the case of rebellious lesions it may be used with advantage, and in grave destructive lesions it should be used at once.

CURE OF FRAMBESIA BY SALVARSAN.[2]

C. A. Koch of Surinam in a communication to the Berlin Medical Society of October 23, 1912, sums up his experience with this treatment in South America. Frambesia or yaws was brought to South America from Africa by the black slaves. It is caused, as is well known, by a spirochete, which differs only slightly from that of syphilis, morphologically. The disease itself is also very similar to certain of the forms of syphilis, so that it has in the past been considered identical with syphilis by some authorities. It has, like syphilis, three stages, a primary lesion, a small papular exanthem with typical manifestations, and in the third stage pains in the joints, chronic ulcers, etc.; but differs from syphilis in that all these stages are frequently observed simultaneously in the same subject. Typical lesions have a diameter of 15-25 mm. and may form large granulating surfaces, which give rise to a purulent secretion. Later, after the crust has disappeared a fungous, papillomatous excrescence is produced, which has given rise to the name of the disease. In Surinam the infection is usually caused by direct contact, and the clothing is often the means of dissemination. Koch, who has been twelve years in Surinam, says that despite strenuous efforts at isolation and disinfection, the disease has progressed steadily so that it was necessary to enlarge the frambesia hospital. Mercury, iodide, and the popular local remedies were powerless against the disease. The time of remaining in the hospital was on the average a year, and he often had 400 and more patients at a time. As soon as salvarsan was introduced, Koch tried it in this disease with the most astonishingly good results from the first. The first effects were noted six days after the first injection and in fourteen days the first cases were almost completely healed. On the 25th of May of the preceding year the treatment with salvarsan was begun with 328 patients, and in three weeks the last patients were dismissed and the hospital closed. The hospital building was considered unnecessary and was appropriated to other purposes. On the whole 1200 patients were treated with salvarsan during the first nine months of the previous year. Among them were ten recurrences or reinfections. The first twenty cases were treated intramuscularly; the rest, with the exception of children under two years, intravenously. The paper was illustrated by pictures of different forms and localizations of frambesia lesions. This especial work was instigated and furthered by Ehrlich; and the writer justly claims the interest of the profession in a method of treatment that is capable of healing in fourteen days a severe disease which had previously had an average course of a year.

LUPUS TREATED BY SALVARSAN-TUBERCULIN.[3]

Herxheimer and Altmann in 1911 found by chance that salvarsan produced a reaction in tuberculous tissue. It was first observed in syphilitics who had tuberculous lesions. Six cases of lupus vulgaris of the face and extremities were then treated with salvarsan, with the result that there followed a typical reaction in the lupus tissue, with all the clinical signs of an acute inflammation that appeared to be very similar to the tuberculin reaction. Two theories for this

reaction were advanced: one that the salvarsan had a destructive action on the tubercle bacilli, setting free tuberculin, which was diffused in the surrounding lupus tissue, thus causing the reaction; and the other that the reaction was due to a primary influence on the cell elements of the miliary tubercle. Later Herxheimer and Altmann experimented with a parallel treatment by salvarsan and tuberculin. Bernhardt[4] reports six cases treated by him by the Herxheimer-Altmann method, using both tuberculin and salvarsan. The best results were obtained in the cases of ulcerated and serpiginous lupus. There was a remarkably rapid cicatrization of the lupus ulcerations, especially of the more superficial ones, and the view is expressed that so quick a result can be attained by no other method. There was also a quick absorption of the lupus infiltrations, which was most pronounced in the first half of the time of treatment. There was a much less marked therapeutic effect from this method in cases of non-ulcerated lupus. This method had also a very marked effect on the course of lupus of the mucous membranes A complete healing was attained in a short time without any local treatment. In these experiments arsenobenzol was used intravenously in doses of 0.30, at intervals at first of 9-12 days, later once a month. The tuberculin was used in active doses in the intervals between two administrations of salvarsan.

The conclusions are that the salvarsan-tuberculin method in lupus vulgaris gives the best relative results in the ulcerated forms, causing a rapid cicatrization. That the action of this procedure on the lupus tissue is very evident, many infiltrations disappearing completely, others undergoing a partial absorption. That the Herxheimer-Altmann method should be added to those that have been shown of approved value in the treatment of lupus, but that it should be intelligently combined with other methods.

NEOSALVARSAN.[4]

At the November, 1912, meeting of the French Society of Dermatology and Syphilis, Leredde reported his studies of the accidents from neosalvarsan, the technic, and the strength of the injections. He considers that it has now been abundantly proved that most of the dangers from salvarsan are either wrongly attributed to it or are due either to faults of technic or to a disregard of formal indications. Salvarsan is dangerous only in the hands of physicians who employ it without having learned its use thoroughly. The technic of the injections has been settled, while the question of dosage remains still a matter for study. Leredde counsels a gradual, progressive increase in the amount injected. He lays stress on the fact that prudence should be exercised in the treatment of patients afflicted with "simple" ulcers of the stomach and duodenum, as these ulcers may be syphilitic, and death be caused by Herxheimer's reaction, following too energetic treatment at first, as is the case sometimes with those who have a latent syphilitic meningitis. Should neosalvarsan be substituted for salvarsan in the treatment of syphilis? The preparation of the injections is easier, and this in itself removes certain possible causes of accident. Also a larger amount may be injected. But since the introduction of neosalvarsan certain accidents, sometimes of a serious nature, have been met with, which were not reckoned with in the earlier periods of salvarsan therapeutics, so that a number of Germans and Belgians have abandoned neosalvarsan and returned to salvarsan. Leredde does not agree with these latter. He considers that a large number of the accidents from salvarsan, particularly the paralyses, are explained by a peripheral neuritis. By a closer study of the causes of the accidents from neosalvarsan, as of the accidents from salvarsan, the means of avoiding them will be better and better recognized, and in this way a judgment may be formed as to which of the drugs is less dangerous. As to neosalvarsan, the period of experimentation has not yet exceeded six months and is, therefore, by no means concluded. The technic which was originally recommended by Schreiber is most dangerous, more by the frequency of the injections than by the size of the dose, and should be completely abandoned. The solution of neosalvarsan, prepared antiseptically with distilled water, sterilized after distillation, should be immediately injected into the veins without useless exposure to the air. The injections should be separated in every case by a minimal interval of five days. The doses should not be, on principle, larger than the corresponding doses of salvarsan. If one desired not only to heal the lesions but to attain a sterilization of the syphilis in a way both prudent and energetic, Leredde advises his method of progressive dosage. At the outset of the treatment successive injections, at intervals of five days, are to be made of 0.30, 0.60, 0.90 neosalvarsan; in a later series 0.60, 0.90. Larger doses should be exceptional and reserved for cases of rebellious nerve syphilis, in which normal doses have previously been well borne. The contra-indications of neosalvarsan are the same as those of salvarsan. Neosalvarsan is dangerous in non-syphilitic nephritis, and in degenerative lesions of myocarditis. In excessively alcoholic subjects it may also be dangerous, on account of latent changes in the liver. It should be used with great caution, and in slowly progressive doses, in patients with simple ulcers of the stomach and duodenum, or with ulcerative lesions of the larynx. It may be used in tabetics in the cachectic period or in advanced general paralytics, but in these latter cases, as well as in those where there are signs of uremia or an asystolic tendency, the justification of the procedure lies in the extreme gravity of the cases.

At the same séance of the Society, Darier presented an elaborate report of two cases of death

after injections of neosalvarsan, with a critical review of analogous cases. One of these cases was the subject of a tertiary syphilis, the other was in the secondary period; both had been treated with mercury recently and thoroughly. In the course of a series of intravenous injections with neosalvarsan they were seized, after the third injection, with nervous phenomena of a very serious nature. In the first case, that of a vigorous man, without any organic trouble, the accidents occurred in the course of the third day after the injection and resulted in death in nineteen hours. In the second case, that of a weakly, tuberculous, and albuminuric subject, with a malignant ulcerative lesion of the pharynx and a double iritis, the nervous phenomena began fifteen hours after the injection, continued for three days in a very exaggerated form, then quickly subsided, to be followed in five days by a fatal tubercular bronchopneumonia. The clinical symptoms in the two cases were almost exactly similar; a sudden seizure with epileptiform convulsions, succeeded by a deep stupor, bordering on coma. Nothing of great importance was found at the autopsies. Darier then enters upon a discussion of the probable pathogenesis of these nervous phenomena with a view to avoiding them, if possible, in the future. He concludes that the only plausible explanation is in the supposition that in some cases at least there is a retention of the drug, on account of decomposition and faulty elimination. After reviewing the cases of serious or mortal injury following the use of salvarsan, he sums up his conclusions as follows: *Conclusions.* Although neosalvarsan is not generally toxic in the mild doses usually employed, it must be borne in mind that its use is not unattended with danger Neosalvarsan appears to be on the whole more dangerous than salvarsan. In a not inconsiderable number of cases, neosalvarsan may produce dangerous nervous phenomena, especially encephalomyelitis and progressive neuritis of arsenical type. In very exceptional cases death has ensued under such conditions that an acute arsenical intoxication may be fairly assumed to be the cause. These accidents are probably owing to an accumulation of the drug, following its decomposition in the organism and insufficient or retarded elimination. At the present time it is not possible to avoid these accidents surely by any known means or precautions, but the following rules are recommended for adoption: (1) Eliminate all subjects who present any visceral signs, and especially those in which there is any suspicion of an affection of the kidneys or liver. (2) Always begin with a minimal dose of .20 to .30 at the most, and increase this dose with great caution. (3). Never repeat the injections at an interval of less than five or seven days at the least, or without being sure that the first injection was not followed by any symptom of intolerance, or that the urinary elimination of arsenic has been normal.

At the meeting of the same society on Dec. 5, 1912, Goubeau reported a case of late accidents following a treatment by neosalvarsan aggravated by application of a paste of zinc oxide. The subject was a man of 42, without any sign of organic lesions. He was given four injections of neosalvarsan between the 24th of September and the 11th of October. On the 20th of October there was an attack of general urticaria with severe itching. On the 3rd of November the patient was found confined to his bed with an intense desquamative scarlatiniform dermatitis, with affection of the mucous membranes. There was scarcity of urine but no sugar or albumin. Upon questioning it was found that at the beginning of the present attack he had been covered from head to foot with a paste of oxide of zinc, and that after these applications the skin got worse and assumed the character of a scarlatiniform dermatitis, accompanied by fever, digestive disturbances and symptoms of general gravity. Death took place on November 7. The belief expressed was that the patient died of arsenical intoxication due to the suppression of the eliminating functions of the skin by the use of the zinc paste. This opinion is fortified by some experiments made upon animals. Hence the conclusion is reached that in the case of all patients treated with salvarsan or neosalvarsan it is important that the functions of the skin should be in good order; this may be attained by exercise in the open air before the injections, by hydrotherapeutics, massage, etc. It is also important in such cases, as well as in those affected with toxic or infectious erythemas, and whenever from any cause the renal functions are insufficient, that the greatest care should be taken to avoid the application over large surfaces of thick pastes and occlusive dressings.

TREATMENT OF URTICARIA WITH EPINEPHRIN.[5]

Swann of New York publishes the results of the administration of epinephrin subcutaneously in six cases of urticaria. In all of these cases this treatment was followed by a rapid disappearance of the erythema and wheals. The preparation used was the 1-1000 adrenalin chloride solution given in a dose corresponding to 8 minims for an adult of 140 lbs., this dose being repeated in 10 minutes. The eruption disappeared constantly after the second dose; an improvement was seen 8 minutes after the first dose, became most marked in from 10 to 20 minutes, the eruption then disappearing with startling rapidity. There was no itching in from 5 to 20 minutes after the first dose.

Recurrences in these cases were apparently uninfluenced. The writer was not present in any instance where the rash re-appeared, so that he could not test the treatment again under these circumstances. Whether or not repeated doses will relieve the condition for a longer time will be an interesting subject for study.

The rapid disappearance of the wheals in these cases is interesting in connection with recent studies of epinephrin which have shown by experiments on excised peripheral arteries that contraction occurs when they are treated with high diluted solutions of epinephrin, and that the degree of this contraction depends on the amount of contraction of the vessels when the treatment is given, the contraction from the treatment being much greater when the vessels were previously relaxed.

This remarkably speedy effect on the wheals of urticaria suggests its use in more serious conditions, notably those of angioneurotic edema, in which edema of the epiglottis and glottis may endanger life. Here it is quite conceivable that epinephrin might act in the same prompt manner as it does upon the wheals in urticaria. Anaphylaxis with bronchial spasm and edema is another case in point. Epinephrin has been shown to be capable of relieving the asthma of anaphyalxis. It has also been suggested that epinephrin could be used as a diagnostic test to differentiate vasomotor eruptions from those of different origin, such as a serum erythema from that of scarlet fever.

ARSENIC AS EMPLOYED IN DERMATOLOGY BY THE GENERAL PRACTITIONER.

Saalfeld[6] of Berlin asserts that while the advances in dermatology have been pretty widely recognized by the general medical profession there are still a large number of physicians who consider skin diseases and arsenic as synonymous terms. Arsenic is considered a universal cure in dermatology, of value in the most varied dermatoses, "from A to Z, from acne to zoster." The writer's object is to point out to the general practitioner how false this conception is.

Two categories of skin affections must be considered, first those in which arsenic is of no value, and secondly, those in which it works positive harm. In the latter class belong the dermatoses which are etiologically dependent on disturbances in the stomach and intestines. Many eczemas are to be included in this class, as well as the erythemas caused by food. The second category of skin affections, in which arsenic, although doing no harm, is of no avail, are the dermatoses whose cause lies in a toxic agent acting from without, such as pediculosis, scabies, and the affections caused by the various vegetable parasites.

The number of cases in which arsenic has a specific action, analogous to that of mercury in syphilis, is not large. It is regarded by some as of great value in certain of the less common dermatoses, such as lichen planus and lichen acuminatus. It has also had marked good results in the lichen chronicus simplex of Vidal. Other affections in which the writer has found the drug of value are pityriasis rubra pilaris and verreucae planae juveniles. He asserts that it also has a favorable influence on pityriasis rosea. In the large group of pemphigus affections, including dermatitis herpetiformis, he considers arsenic often of value, but far from specific. In leukemia, pseudo-leukemia, cutaneous sarcoma, and mycosis fungoides he considers that the drug has a certain place.

As to the value of arsenic in psoriasis, the authorities are not in accord. Those who regard this disease as caused by a parasite, consider the drug of no value. The writer claims to have seen great benefit from it in the early stages of the affection and cannot agree with those who would forbid its use in fresh hyperemic patches of the disease. In such cases he warns against the use of an energetic external treatment.

As to the most frequent of all skin affections, eczema, arsenic is indicated in those cases in which it may be assumed that there is a constitutional disturbance, when there may be large areas of lichenification, often having begun in early childhood. In some cases of seborrhea of the head accompanied by acne, arsenic may be of service. In the tuberculides and in prurigo it is also indicated.

The injurious effects of arsenic are not infrequently seen by the expert in the shape of pigmentations, keratoses and zoster. Disturbance of the digestion, dryness of the throat, irritation of the conjunctivae are more commonly met with. With regard to preparations, acidum arsenicosum is sometimes tolerated when Fowler's solution is not. All arsenical preparations should be given after eating. As to subcutaneous or intramuscular injections, the writer has found cacodylate of soda, a valuable preparation given in a 5% sterilized solution. Touching in a cursory fashion on the use of arsenic in syphilis, he points out the fact that it was employed in this disease with good results, years ago, especially in the case of those who were much debilitated. Salvarsan has greatly raised our hopes, and he remarks with commendable conservatism, that *perhaps later,* after further experimentation and a simplification of the method of application, *it may be used also by the general practitioner* with benefit to his patients.

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Reports of Societies.

PHILADELPHIA COUNTY MEDICAL SOCIETY.

Meeting of Wednesday, Feb. 12, 1913, at 8.30 p. m.
The President, Dr. Charles A. E. Codman, in the Chair.

Dr. H. M. Christian gave a review of the most recent work by a foreign author on Genito-Urinary and Venereal Diseases.

THE REFLEXES AND NEUROSES OF THE RECTUM AND ANUS.

Collier F. Martin, M.D.: By demonstrating local lesions, pathological changes in the spinal cord, lesions of the sympathetic ganglia and interferences with the reflex arcs, we are able to interpret many symptoms associated with the rectum which before were inexplicable. Contrary to the teaching of most of the text-books on proctology, but in accord with the views of anatomical authorities, the rectum proper receives no innervation from the spinal nerves. According to Piersol, the visceral branches are really white rami communicantes, derived from the second and third or the third and fourth sacral nerves, and are distributed to the pelvic viscera by way of the pelvic plexus of the sympathetic. The upper portion of the rectum and the pelvic colon are supplied by branches from the inferior mesenteric plexus which in turn is derived from the left portion of the aortic plexus. On the other hand, the external sphincter, the skin of the anal canal and the peri-anal region, and the levator ani muscles have a spinal innervation, derived from the third, fourth and fifth sacral, and the coccygeal nerves. The view is experimentally borne out that the innervation for both automatic rectal, and automatic vesical, functions is situated in the sympathetic system. As the spinal innervation to the anorectal region extends only to the anorectal line or dentate border this becomes an important landmark in the consideration of rectal symptomatology. My own experiments have failed to demonstrate that any pain or tactile sensations extend above this line. That the rectal wall itself contains no direct spinal nerve representation seems evident from the absence of sensation when the stimuli are confined to the rectum. While pathologic conditions causing peripheral nerve disturbances produce many changes in the tonicity of the sphincters, diseases of the central nervous system have even a more pronounced influence upon the rectal and anal reflexes, and upon the sensory, motor and secretory functions. By far the most important symptom occurring in cases of central nerve disease, from the proctologic standpoint, is constipation. This condition is produced by alterations in the visceral nerve supply causing disturbance of the sensory, motor and secretory functions. Laxatives, massage and electrical stimulation are of great value in treating this condition.

SOME GOOD RESULTS IN INOPERABLE CARCINOMA OF THE BREAST BY MEANS OF THE ROENTGEN RAYS.

Dr. George E. Pfahler: Several patients are shown and reports given upon twelve inoperable cases of carcinoma of the breast which are all of this class I have treated. Relief of symptoms was obtained and large ulcerating carcinomas disappeared under the action of the rays. Treatment extended from several months to a year or more. The following conclusions have been reached.

1. In inoperable cases of carcinoma of the breast x-ray treatment offers a reasonable hope of relieving the patient of the symptoms of the disease, prolonging life and possibly causing complete disappearance of the disease.
2. Patients have been relieved of the symptoms of the disease for from one to eight years.
3. No other method of treatment has ever accomplished as much in this class of patients.
4. A careful mastery of good technic is essential to success.

FIFTEENTH ANNUAL MEETING OF THE AMERICAN GASTRO-ENTEROLOGICAL ASSOCIATION.

Atlantic City, N. J., June 3 and 4, 1912. Hotel Raleigh.

AGAR TUBES FOR THE ESTIMATION OF THE PANCREATIC FERMENTS.

Dr. Max Einhorn, New York: Agar tubes—mixed with albumen, starch and fat,—allow the ferment action to take place in them by osmosis. If the test substances added are colored with indicators, which undergo change when acted upon, it is easy to ascertain the presence of the ferments and also to estimate their approximate amounts by the volume of tube changed. The method of testing the ferments with the agar tubes seems to me to be simple and worthy of recommendation, though some details will have to be worked out further.

DISCUSSION.

Dr. J. C. Hemmeter, Baltimore: I have never tried this method, but it impresses me very favorably. I should like to know whether the use of agar complicates the deductions; because in either case, whether testing for fat or carbohydrate, or proteid, he has a proteid in the agar.

Dr. Einhorn: The reason I took agar is that if we produce it in some kind of concentration, and let it pass the digestive tract, it will not disappear. If we use it in a one per cent. solution, it disappears, but if a three per cent. solution is used, it remains. Agar is not changed by the ferments; but the other things we add can be acted upon by them.

SOME UNSOLVED PROBLEMS IN GASTRO-ENTEROLOGY,—PRESIDENT'S ADDRESS.

Dr. Walter B. Cannon, Boston, Mass: Some of these problems are the following: The reflex of swallowing, the "myenteric" reflex, by which a stimulant at any point in the digestive canal provokes contraction above and relaxation below. There are certain aspects of this that remain unexplained. In connection with the myenteric reflex, the question arises as to the relation between the diastalsis of the ileum and the anastalsis, or reversed waves, in the proximal colon. The relation of the myenteric reflex to defecation has not been studied. Another possible relation of the myenteric reflex to the activities of the canal, lies in the function of the ileocolic sphincter. The cardiac and pyloric sphincters are operated through this reflex. A great deal more work needs to be done on absorption. More significant than any of the problems thus far mentioned, however, I believe, is that which I touched upon in my address last year, when I submitted evidence before the association, as to the fundamental importance of tonus in the movements of the alimentary canal. If there exists the proper relation, between the tonic state and internal pressure,—that is, if the proper tension is developed,—then the various obvious movements naturally result. In the intimate connections of the indigestive processes with other activities of the body lie the most significant and the most profoundly interesting problems, not only of gastro-enterology and internal medicine, as a whole, but also of physiology as a special science. It is because of this interlac-

ing of interests that we, as surgeons and physicians and specialists and workers in the medical sciences, gather together each year in order to focus such light as each of us may throw on these more or less obscure features of our subject.

ATOPHAN IN THE TREATMENT OF GOUT.

Dr. G. D. Kahlo, French Lick, Ind.: This is a brief report of the results of clinical experiments in the use of atophan (phenyl-cinchonic acid) in forty cases of abnormal uric acid metabolism associated with gastro-intestinal diseases. The author believes that we have in atophan a very valuable therapeutic agent, more effective and free from objectional features than preparations usually employed for such purposes.

DISCUSSION.

Dr. Jacob Kaufman, New York City: The contention is that atophan increases the production of uric acid elimination to such an extent that it is necessary to give large quantities of bicarbonate of soda to prevent irritation by the highly acid urine. In true gout, it has been used with excellent results; but I have tried the atophan in the case of "uric acid excess of gout" and have seen no effect after its use. One of my patients, suffering from gout, and to whom I gave atophan while he was not taking plenty of bicarbonate of soda, passed a bloody urine which was loaded with numerous crystals.

Dr. Kahlo: The results from the use of atophan are not so good in the regular form as in the typical cases. I have not seen any cases of hematuria.

THE DIAGNOSTIC WORTH OF THE GLYCYLTRYPTOPHAN AND THE TRYPTOPHAN TESTS IN DISEASES OF THE STOMACH. A REPORT OF 1175 CASES STUDIED BY A UNIFORM METHOD.

Dr. Frank Smithies, Rochester, Minn.: In our series, more than one-third of the proven cases of cancer of the stomach gave positive glycyltryptophan reactions; more than one-fourth were lactic acid positive; and about one-thirteenth of the number exhibited the tryptophan test. While gastric conditions, other than cancer, exhibit positive glycyltryptophan reactions, in no single class of disease of the stomach is this test obtained so frequently as in cancer. Our work does not show that the tryptophan test is, as has been advanced, pathognomonic of cancer. Low free hydrocloric or total acidity is frequently determined in gastric contents exhibiting positive glycyltryptophan, lactic acid and tryptophan reactions. Many cases of low acidity were negative to the above tests. Approximately one-half of the positive glycyltryptophan and tryptophan reactions were in gastric extracts containing bile and blood elements. Approximately one-fourth of the negative extracts contained blood and bile elements.

DISCUSSION.

Dr. G. A. Friedman, New York City: I am working with the glycyltryptophan test in about twenty cases, and my experiments show that in cancer you obtain sometimes the reaction, but in other conditions I never obtained a positive reaction. I never came across a positive case of cancer, shown by this test, where other symptoms were not present. Usually you find lactic acid and all the signs. I believe that the tryptophan test for cancer is of no value whatever.

Dr. John A. Lichty, Pittsburg: I gave up using this test a year ago. It seemed to me that the points which interfered with the test are those usually present in carcinoma of the stomach.

Dr. Kaufman: This is an important subject and we should make use of every available method that enables us to make early diagnosis of carcinoma. A most reliable test is the presence of blood in the stool. In a recent comparison of tests for carcinoma; and in 96%, or 104 cases out of 110, blood was found. In the test for blood in the stool you must eliminate all possibility of error by arranging a careful diet of green vegetables, and by avoiding the putting of instruments in the stomach. The moment you use a tube there is the possibility of a lesion.

Dr. Seymour Basch, New York City: I have also found the test unreliable in gastric carcinoma diagnosis. Another test—offered on theory—is the presence of undissolved albumen. The basis of the test is that the gastric contents, if it has the cancer secretion, contains more albumin than the ordinary test of gastric secretion. The ferments digest more albumin; the higher the body of albumin the greater the pepsin. The test is simpler than either of the other two, and better carried out.

Dr. James Taft Pilcher, Brooklyn: I have had the opportunity of examining some four or five hundred cases of cancer of the stomach on whom operation was performed and diagnosis confirmed, and on all of these it was found (these tests being applied) that they did not give any basis on which to apply diagnosis. The clinical history is much more definite and of more diagnostic value than any of the tests that have been put forth. One precedure which seems to bear more directly on positive diagnosis, is that of giving bismuth and taking a radiograph of the actions of the stomach through the fluoroscope.

Dr. J. C. Hemmeter: We must remember that Dr. Smithies is aiming to recognize the disease at a very early stage. The results are not clear-cut as yet. Dr. Kaufman's idea of showing the presence of blood in the feces is important.

Dr. Smithies: In a great many cases carcinoma can be diagnosed accurately by the history. In our cases we have proved that the albumen test, the stain test, and the like, are all of vital value in the diagnosis of carcinoma of the stomach.

INDICANURIA.

Dr. William Gerry Morgan, Washington: The paper is based on analysis of 138 cases, treated during 1911. The indicanuria may be accidental (transitory) or may be a definite part of the clinical picture, though still associated with other pathological processes. In a very few, it is an indication of true intestinal auto-intoxication.

Among the various etiological factors reviewed, particular stress may be laid upon loss of nerve tone as the cause of the underlying putrefaction, it being found that, in Washington, the end of the busy season is the time that most cases are seen.

The symptoms characteristically exhibited are those of an intoxication with a poison having especial affinity for the nervous system. Analysis was made of the symptoms complained of by the patients; and the one symptom present in the greatest number was gas formation in the bowel, indicative

of the putrefaction. Others of the most prominent symptoms were early fatigue, loss of ambition, malaise, headache, dizziness and muscle pains. A myriad of other nervous manifestations were present.

The cure must consist in measures preventing the formation of toxin and eliminating those already formed. Other associated conditions must be treated. Treatment of the condition itself consists of general hygienic measures, diet, exercise, irrigations and occasional medication. Purgatives have been found to do harm. In the majority of cases, cure is easy, but progress in the occasional true auto-intoxication is slow.

DISCUSSION.

Dr. Jacob Kaufman, New York City: Many conditions are described as being caused by auto-intoxication, but we find that not a single fact has as yet been shown which could prove that there was intestinal auto-intoxication. The problem remains unsolved. No substance has been demonstrated as acting as a toxine. Indican itself, is not considered toxic. In such cases I have sometimes found albumin. A certain amount of intestinal putrefaction is present; and so we have the output of indican, though we may have increased intestinal putrefaction without the indican. While admitting the possibility that such things as intestinal auto-intoxication exist, yet I do not think that the increased amount of indican can be used as an indication of the increased intoxication.

Dr. Max Einhorn, New York City: These troubles of auto-intoxication have been exalted greatly by the profession. Many patients are told that they have poisoned their system; they are put on a rigid diet and told they cannot do this or that; and they really become nervous and frightened. I have had some such patients. They are mostly nervous; which condition I relieve by letting them live like other people,—not bothering about constipation, diet, exercises, and so on. The whole thing of auto-intoxication is still a theory, and not practical. The chief thing that we should teach such patients, is that they must live rationally.

Dr. Dudley D. Roberts, Brooklyn: While indicanuria has been something of a failure; still, the subject points out a half hope; though before we prove its relation to intestinal toxemia, we have much to find out. Much work can yet be done on this subject, and although we have had 150 cases under observation, we feel we do not know much more than when we started.

Dr. Jas. P. Tuttle, New York City: I have had many cases of so-called auto-intoxication, and in that type of disease have observed that in the worst cases of chronic constipation it had no relation to indicanuria, and many cases loaded with mucus, casts, etc., had no traces of indican. I found that indicanuria is most always associated with some type of staphylococcus or streptococcus infection. I am inclined to think that in cases of a large amount of indicanuria, there is some slight lesion, possibly around the lower end of the cecum. These cases do not need to be washed out with a barrel of water. It is not necessary for a man to have two movements a day. I have seen patients having one movement every two or three days, and they were just as well as though they had more. Do not scare your patients.

Dr. Morgan: From my experience with indicanuria, it is unimportant whether you examine the urine for indican. It is a definite picture, and you will find increase of indican along with the other conditions. There is an absorption in the canal which is rather important. I do not believe diet is good for auto-intoxication, and think a rational way of living is best. A part of the cure is taking the patient away from business; because it is the condition of the nervous system, or lack of nerve power, exhausted from use in other directions, that does not permit of his functioning properly.

(To be continued.)

Book Reviews.

Memorials of the Oswaldo Cruz Institute. Vol. iv, No. 1. Rio de Janeiro: Manguinkos. 1912.

This volume of publications continues the researches of the Oswaldo Cruz Institute. Particularly noteworthy is the work of de Faria, on "Contributions to Brazilian Helminthology"; of Horta, on "Primary Infection of the Guinea-pig with *Trichophyton Gypseum Asteroides*"; and of Aragao on "The Biology of the Ixodidae" and on "*Myctotherus Cordiformis.*" There are 8 admirable illustrative plates, 4 of them colored.

Experimental Physiology. By E. A. Schafer, F.R.S. London and New York: Longmans, Green & Company. 1912.

To the numerous laboratory manuals of physiology, Professor Schafer adds this. The ground covered is that usual in laboratory courses in physiology, particularly in Great Britain, where animal experimentation is highly restricted. The most valuable feature of the book is seen in the numerous very clear diagrams which serve to illuminate the text.

Report on Blackwater Fever in Southern Nigeria. My W. M. Graham, M.D., Director, Medical Research Institute, Lagos. London: Waterlow and Sons Limited. 1912.

This report, based on a study of the cases of blackwater fever occurring in Southern Nigeria from 1899 to 1911, constitutes a valuable original monograph on the disease. The author states the four principal theories of its etiology, and is disposed to believe, though he does not prove, that it is a specific disease caused by a specific organism. In a series of 12 appendices are presented tabulated statistics, photomicrographic plates of the liver and kidney from fatal cases, clinical charts, and a map showing the epidemicity of blackwater fever in Southern Nigeria from 1905 to 1911.

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LYNCHING AND CROWD-PSYCHOLOGY.

DR. FREDERICK L. HOFFMAN has presented in the *New York Times* of March 3, 1913, comfortable observations regarding the lynching of negroes in the United States. Based upon statistics supplied by the *Chicago Tribune* (for unfortunately "there are no Federal judicial statistics upon which a thoroughly trustworthy conclusion could be based") these observations are to the effect that the number of negroes lynched by the whites has year by year been steadily, and on the whole progressively, decreasing. In 1892 there were 235 lynchings reported (at the rate of 3.6 per million of our population). In 1912 there were only 64 reported; and since our population has greatly increased in the intervening two decades, the relative rate was last year only .67 per million, or the lowest recorded since 1885.

Most of our lynchings have been in the South, but States to the north and west of Mason and Dixon's line have been by no means guiltless of these crimes against civilization.

Dr. Booker T. Washington believes this most gratifying tendency toward the passing into oblivion of Judge Lynch is by reason that, during the last ten years at any rate, poverty and ignorance have been disappearing, while economic conditions are bettering; the South's rich natural resources are being developed, the negro is being trained to skilled industry; there are higher standards of living; and *pari passu*, there has come increasing respect for law and order, with consequent increase in self-restraint; and there is a fast growing sentiment among the white people in our Southland toward the orderly enforcement of the law. Dr. Washington does not believe that race antagonism has been the underlying cause of such lawlessness as has ended in the lynching of negroes. The incentives to racial antagonism in the bitter defeat of our white brethren in the Civil War (in the causation of which the negro was a large though innocent factor), have fast been disappearing; and they are today no doubt negligible with relation to the lynching of people of Dr. Washington's race. Besides, as we have seen, race antagonism does not obtain only in the South. Race conflicts are likely in the most unexpected ways to arise anywhere, in any city North or South, wherever crowds may congregate. In 1901 a negro shot a policeman who attempted his arrest. His having to pay the full penalty for this deed was as absolutely certain as any human event could be. Nevertheless there was that night a riot. Quite harmless, industrious, law-abiding negroes were struck with deadly weapons, stamped upon; and innocent colored women returning from their work were shamefully attacked. Street cars on crowded thoroughfares were stopped, and inoffending negro men and women were dragged from their seats, over the laps of other people, and were all but murdered by white men. Next morning those whites, on calm reflection, must have wondered how they had come to be seized with such insensate frenzy. And this happened, not in any one of our Southern States, but in New York.

In point of fact race antagonism may arise at any time, for the slightest reason, or for nothing at all in reason; herein the *genus homo* is no better than the squirrel. In any given wood gray and red squirrels cannot live harmoniously; either will live in perfect amity with any other kind of animal. But the grays and the reds will kill one another until either of these two colored species has been exterminated. Race antagonism is one of those primitive impulses which are like to work disaster should they have the opportunity to assert themselves in the collective mind—that is, in *The Crowd*.[1]

It has taken us many painful centuries to attain civilization, but relapses to savagery are practically instantaneous. Every student of history knows with what dreadful ease, through the baneful hypnotism of malicious leaders, or through evil suggestion, collective man can, by

[1] Le Bon, S.: The Crowd, A Study of the Popular Mind.

a kind of psychic contagion, be made to revert to barbarism—the higher brain centres being almost instantaneously short-circuited, so that the basal emotions of hate and rage, the primitive instincts of cruelty and slaughter, hold the situation. Lynchings are then liable to occur, and are phenomena altogether of the same nature as the Massacre of St. Bartholomew, the Sicilian Vespers, the Jew persecutions, the French Revolution, and hundreds of other race-tragedies with which the pages of history teem.

The best white people in the South have ever been against lynch laws; and yet they have not altogether prevented lynching. Indeed very good people among them have even participated in such abhorrent work, through the subtle and insidious influences indicated. Le Bon has well observed that "the quality of the individual in the crowd is without importance. From the moment they are in the crowd the ignorant and the learned are equally incapable of observation." And Senator Hoar in his superb autobiography has observed: "Her people, (Massachusetts) like the rest of mankind, are liable to waves of emotion and of prejudice. This is true the world over. It is as true of good men as of bad men, of educated as of ignorant men, whenever they are to act in large masses."

Apart from lynching, then, the psychology of the crowd is worthy of study, by reason of its many applications to human life as it is lived today. How else explain, for example, the objection of many thousands of our otherwise sensible people to so obviously salutary a measure as a National Health Bureau? How else explain such phenomena as anti-vivisection or the anti-vaccination movement?

THE DOCTOR IN PLAUTUS.

On the whole it is perhaps rather surprising that among the twenty extant comedies which have come down to us from the works of Plautus, in only one, the "Menaechmi," does a doctor appear as a *dramatis persona.* To English readers the "Menaechmi" is of peculiar interest, since from it Shakespeare, with characteristic indifference as to the originality of his material, borrowed bodily the plot of the "Comedy of Errors," one of his earliest productions and his only farce. Plautus in his turn adapted the story from Menander's Ἀδυμοί, but the tale is doubtless much older even than that.

Probably Shakespeare derived his knowledge of the "Menaechmi," through the first English translation of it, published in 1595, by William Warner, the author of "Albion's England." It is again characteristic of Shakespeare's genius that, though adopting the general plot, he so altered many of the details as to make the comedy essentially English and his own. His master stroke was the addition of the two Dromios, thereby increasing sixteen-fold the possibilities of laughable complications, which nevertheless he handles without confusion. Cylindrus, the cook in Plautus, is metamorphosed into the rotund kitchen-wench, whom Dromio of Syracuse so dreads, but who happily never appears on the stage. Similarly the doctor in the "Menaechmi" is transformed by Shakespeare into the schoolmaster, Pinch, a necromantic clerk who is sum-summoned to conjure the supposedly bewitched Antipholus of Ephesus. Perhaps it is an honor to the profession that Shakespeare did not keep the doctor in his true character, for Plautus's physician is no credit to the craft.

The fifth act of the "Menaechmi" opens with a soliloquy by an old man, who is waiting for the doctor whom he has gone to fetch to heal the distemper of Menaechmus Epidamni.

"My bones ache with sitting, my eyes with watching, while waiting for the doctor, till he return from his business. At last the troublesome fellow has with difficulty got away from his patients. He says that he has just set a broken leg for Aesculapius and an arm for Apollo. I wonder whether I should say that I'm bringing a doctor or a carpenter."

Evidently the doctor was a surgeon; and his attempt to gain reputation by boasting of his cases is not unparalleled by the indiscretions of some young practitioners in our own time. In the doctor's first speech on his entrance, and in the reply to it, is repeated the familiar modern pleasantry of the patient who, in response to inquiry what is the matter, says, "That's what I want you to tell me." Then the doctor continues bragging of his practise, "Why, I heal countless times as many as he in the course of the day." Presently Menaechmus Epidamni appears on the scene, and then ensues the following abbreviated dialogue:—

Doctor: Save you, Menaechmus. Prithee, why do you bare your arm? Don't you know how much mischief you are doing to that disease of yours.

Menaechmus: Why don't you go hang yourself?

Doctor: (Aside) This case can't be treated even with ointment of hellebore. (Aloud) Tell me, do you drink white wine or dark?

Menaechmus: Why don't you ask whether I am wont to eat dark bread, or purple, or yellow? Or whether I am wont to eat birds with scales or fish with wings!

Doctor: Are your eyes ever in the habit of becoming hard?

Menaechmus: Do you take me for a locust?

Doctor: Do your bowels ever rumble that you know of?

Menaechmus: When I'm full they don't rumble at all; when I'm hungry, then they do rumble.

Doctor: Do you always sleep soundly until daylight? Do you easily go to sleep when in bed?

Menaechmus: I go to sleep if I have paid my money to him to whom I owe it."

This is no very remarkable example of method in case-history-taking, but doubtless it is fairly representative of the age. After some further colloquy, the doctor threatens that he will make Menaechmus "drink hellebore (apparently his one medicine) for twenty days," and orders him transported to his house for treatment.

The doctor in Plautus, then, is probably typical of his time, and is a vehicle for broad satire against his profession. No doubt the sketch is overdrawn; but though exaggerated, it is a vivid and convincing picture of the fallacies and foibles of medicine two centuries before the Christian era.

THE APPOINTMENT OF DR. ROSENAU.

In the nomination by Governor Foss and the subsequent appointment of Dr. M. J. Rosenau as a member of the Massachusetts State Board of Health a decided step in progress has been made. It is recognized that many motives are operative in the appointment of persons for public office which the people at large are not always able to appreciate, but there will, we surmise, be no difference of opinion as to the wisdom of the selection of Dr. Rosenau. Among the various boards which have to do with the welfare of the community none is of greater importance than the Board of Health and in no other is experience and technical knowledge a greater asset. For this position Dr. Rosenau is peculiarly adapted both on account of his personality and his far-reaching knowledge of matters pertaining to public health and hygiene. Now in early middle life, he has devoted many years of undivided and assiduous study to questions of hygiene in the broadest sense. In the pursuit of this object he has travelled widely under the auspices of the United States Government and has applied his knowledge thus acquired both through publications of various sorts and in many equally important practical ways. Called recently to the headship of a newly constituted department as Professor of Hygiene and Preventive Medicine at the Harvard Medical School, he has already actively identified himself with questions of public concern and has established a course of instruction for health officers carrying with it a degree from the University, which is likely to conduce to more efficient public health service not only in this State but throughout the country. Governor Foss and the community are to be congratulated upon this admirable appointment, the duties of which Dr. Rosenau will, no doubt, fulfil with the conscientiousness which has always characterized his work.

MEDICAL NOTES.

PROGRESS OF DR. FRIEDMANN'S WORK.—During the past fortnight, Dr. Friedmann has continued the demonstration of his method of treating tuberculosis in New York and other cities, giving second inoculations to a number of patients whom he had first treated early after his arrival in this country. Following his return from Washington, he treated 50 cases on April 17 at St. Joseph's Hospital, Providence, R. I., and on April 18 returned to New York. It is stated that several of the patients treated already show definite evidence of improvement.

PLAGUE IN ECUADOR.—Report from Washington, D. C., on April 22 states that the bubonic plague, endemic in Guayaquil, Ecuador, is extending into the interior of that country, to Quito and intermediate points.

NATIONAL ACADEMY OF SCIENCES.—The annual meeting and fiftieth anniversary celebration of the National Academy of Sciences were held last week in Washington, D. C. The address of welcome was delivered by Dr. Ira Remsen of the Johns Hopkins University. At the closing session on April 24 Dr. William H. Welch, of Baltimore, was elected president for the ensuing year.

UNITED STATES VITAL STATISTICS FOR 1911.—The following vital statistics for the registration

area of the United States in 1911 were recently published in a bulletin of the Department of Commerce:—

"The total number of deaths returned for the registration area of the United States for the year 1911 was 839,284. The estimated mid-year population of this area was 59,275,977, or 63.1 per cent. of the total population of the United States, and the death-rate for the year was 14.2 per 1,000. This is the lowest death-rate ever recorded for the registration area. The registration States formed less than one-half of the total number of States in the Union. Together with the District of Columbia, which is included in totals for the group of registration States but is elsewhere treated as a registration city, they comprised altogether somewhat more than one-half of the total estimated midyear population in 1911 (54,385,234, or 57.9 per cent.).

"Out of the total of 839,284 decedents, 779,770, or 92.9 per cent., were whites and 56,431 were negroes (the latter including all mixtures of white and negro blood), while only 1,359 were Indians, 1,060 Chinese and 664 Japanese. The percentage of deaths of white persons and of white population is higher in the registration area than in the United States as a whole, because none of the Southern States, where the greatest proportions of negroes are found, is as yet included as a whole in the registration area.

"Out of the total of 839,284 deaths at all ages, 1,296—an unnecessarily large number—were of unknown or unstated age. No less than 1,054 of these were reported from the rural part of the registration States, a condition suggestive of carelessness on the part of local registrars in rural districts in accepting certificates of death without the statements of the ages of the decedents. Deducting the unknown or unstated ages, there remain 837,988 deaths at unknown ages, of which 149,322, or 17.8 per cent., were of infants under 1 year of age, 209,482, or 25 per cent., were of children under 5 years of age, and 222,579, or 26.6 per cent., were of persons 65 years of age or over.

The percentage which deaths of infants under 1 year of age formed of the total deaths at known ages for the year (17.8) was somewhat less than that for 1910 (19.2). This ratio, however, is not a reliable one for the comparison of infant mortality.

"For the group of registration States as a whole the death rate per 1,000 of infants under 1 year of age in the population was 112.9, or about eight times the death-rate at all ages. The death-rate of children from 1 to 4 years of age (11.8 per 1,000) was equal to about one-tenth of that of infants under 1 year. The death-rate of children in the first five years of life (32.9) was about ten times that of children in the second five years (3.1), and was greater than that for any age group except that of 65 to 74 years (55.2). These figures show the great preponderance of infant and child mortality, and a study of the death-rates of infants and children for individual areas will show where special effort may be made to restrict the causes to which such deaths are chiefly due.

"The largest percentage of decrease in the death-rate of infants under 1 year of age shown for any of the States compared was that for Rhode Island, 30 per cent., and the smallest, that for Michigan, 8 per cent. In all the large cities included in that table, except Minneapolis, St. Paul, Syracuse, and Portland, the infant death-rate was lower in 1911 than in the census year 1900. The largest relative decrease was in Atlanta, 55 per cent., followed by those for Indianapolis, 39 per cent., and Washington, Paterson, and Memphis, each 38 per cent."

A Living British Centenarian Barrister.—Mr. W. A. Gordon Hake, of Brighton, England, is reputed to be the oldest living barrister in Great Britain. He is said to have been born on April 5, 1811, at St. David's Hill, near Exeter in Devonshire. He retired from the active practice of his profession in 1865, and has since devoted himself to horticulture. He walks outdoors a great deal, and attributes his longevity to his abstemious habits, frugality, and abundance of physical exercise.

Decrease of Birth-Rate in Paris.—The annual report of Dr. Bertillon, recently published, shows a continued decline in the Parisian birth-rate. In 1861, when the city had 1,696,141 inhabitants, 53,570 births were reported, corresponding to a rate of 33.3 per 1000. In 1912, with a poulation of 2,870,000, there were only 48,230 births, corresponding to a rate of approximately 16.6 per 1000.

Prolonged Immunization Against Diphtheria.—Report from Wiesbaden, Germany, where the Congress of Internal Medicine was in session on April 18, states that Dr. von Behring of the University of Marburg has perfected a method for prolonged immunization against diphtheria by an antitoxin preparation.

BOSTON AND NEW ENGLAND.

Death of a Triplet.—Report from Greenwich, Conn., notes the death in that town on April 17 of Hope Allcorn, the last survivor of triplets, born at Herefield, Sussex, England, in 1832. That Hope outlived her sisters, Faith and Charity, and was the only one of the triplets to have children, of whom she leaves seven, affords obvious possibilities for moral and philosophic apologue.

New Milk Station in Dorchester.—It is announced that the Boston Milk and Baby Hygiene Association has decided to open a new milk station in Dorchester the coming summer. For this it is necessary that the sum of $1000 should be raised, and contributions to this fund are urgently solicited.

Fly-Killing in North Easton.—Report from North Easton, Mass., on April 22 states that the local District Nurse Association has offered to pay at the rate of one cent apiece for all flies killed in that town prior to May 17. This high premium is intended to stimulate fly destruction during the early days of spring, when the killing of a fly inhibits a larger number of offspring than later in the summer.

Measles in Eastern Massachusetts.—In last week's issue of the Journal we noted the occurrence of an epidemic of measles in Reading, Mass. The disease is also unusually prevalent in a number of other towns in Eastern Massachusetts. There are reported to be 85 cases in Wakefield at present, 175 cases in Malden, 120 in Lynn, 40 in Brookline, 72 in Quincy, and many in Melrose, Braintree, Weymouth, Hingham, Brockton, Rockland, Cohasset, Scituate, Marshfield, Kingston, and Plymouth.

Penalty for Selling Watered Milk.—In the Malden (Mass.) court last week a local dealer was fined $50 for having in his possession, with intent to sell, milk to which water had been added.

Dedication of Lynn Sanatorium.—A new sanatorium for tuberculous children was dedicated on Saturday, April 19, at Lynn, Mass., with appropriate ceremony. The building, which will accommodate 50 patients, was erected by the Lynn White Plague Relief Fund Association at a cost of $5000, the money having been raised by popular subscription.

Recent Hospital Bequests.—The will of the late Mary M. Donovan, of South Boston, which was recently filed for probate, contains a bequest of $300 to St. Elizabeth's Hospital, Boston.

Boston Mortality Statistics.—Cases of infectious diseases reported to the Boston Board of Health for the week ending April 22, 1913: Diphtheria, 41, including 1 non-resident; scarlatina, 36, including 2 non-residents; typhoid fever, 6; measles, 221; tuberculosis, 51, including 4 non-residents.

The death-rate of the reported deaths for the week was 16.17.

NEW YORK.

Legality of Dairy Inspection.—Another decision in favor of the City Health Department of great importance in upholding the legality of the present methods of dairy inspection was recently handed down by the Court of Appeals. The case in which this was rendered was that of a dairyman outside the city who sued the chief of the Division of Food Inspection for damages sustained through the official action of the latter in notifying a creamery company not to include the plaintiff's milk in its shipments to the city because the inspectors had reported the conditions at his dairy as unsanitary. This complaint was dismissed in the Supreme Court of Delaware County some two years ago, and the plaintiff then appealed. The decision of the Court of Appeals sustains the right of the Department to prevent shipments from the country into the city of milk produced under unsanitary conditions at the dairy, and also points out that an action for injuries resulting from proceedings by the Department or its officers in the proper performance of their duties must be brought against the city.

Precaution Against Typhoid.—As an additional precaution against typhoid fever, the City Health Department has added the following section to the Sanitary Code: "Contractors or builders shall provide or cause to be provided temporary privies for the use of the men employed during construction work at some convenient place upon the premises, and the same shall be properly screened to prevent the entrance of flies thereto. The contents of such privies shall be disinfected and removed, and shall not be allowed to accumulate thereat. Contractors, builders, or other persons having the management of construction work, shall require workers and employees to use the privies so provided. It is hereby made the duty of each owner or occupant of any premises on which a privy is located or used to cause the same to be properly screened, so that flies shall not have access thereto or to the contents thereof."

The Longboat: an Alcoholic Retreat.—Miss A. M. de Peyster, secretary of the Seamen's

Benefit Society, has had fitted up, at her own expense, twelve rooms on the fifth floor of the fine new building of the Seamen's Institute for the special accommodation of sailors who get intoxicated while in port. The beds are only a few inches high, and on the floor mattresses are spread; so that a fall out of bed is not likely to be attended with serious results. Miss de Peyster has named this alcoholic retreat "The Longboat," in reference to an old nautical couplet which runs:

"What shall we do with the drunken sailor?
Put him in the longboat and make him bail 'er."

Recent Hospital Bequests.—Among numerous charitable bequests in the will of the late Miss Margaret E. Mitchell of New York are $1,000 each to the Roosevelt and Presbyterian Hospitals.

Under the will of the late Moses Weinman of New York thirteen benevolent institutions and societies are left $5,000 each. Among these are the Montefiore Home and Hospital for Chronic Invalids and the following other Hospitals: Mount Sinai, Beth Israel, Presbyterian and St. Vincent's.

Hospital Saturday and Sunday.—It is announced that the Hospital Saturday and Sunday collection this season amounted to $117,707, a considerably larger sum than in any year since the Association was organized, thirty-three years ago; $13,589 of the amount was raised by the Women's Auxiliary. During the past year two additional hospitals have been admitted to share in the benefits of the collection, making the total number of institutions represented in the Association 47.

Current Literature.

Medical Record.

April 12, 1913.

1. Morris, R. T. *Peritoneal Adhesions of the Insidious Toxic Group.*
2. Hayes, H. *The Prevalence of Catarrhal Deafness and Its Economic Consideration.*
3. *Griffin, W. W. *A Few Interesting Cases of Bone Lesions.*
4. Sheedy, B. DeF. *The Results of Tonsillectomy.*
5. Buerger, L. *The Pathology and Treatment of Callous Ulcer of the Bladder.*
6. Leszynsky, W. M. *Sexual Disorders Associated with Diseases of th Ner vous System; and Remarks on Present Day Sexual Problems.*
7. Clendening, L. *The Accuracy of Systolic Blood Pressure Determinations by Various Methods and the Clinical Use of the Diastolic Pressure.*

3. Griffin reports several cases of bone lesions with x-ray plates, and points out that a "mouse-gnawed" appearance of bones in a radiograph is highly suspicious of syphilis. [L. D. C.]

New York Medical Journal.

April 12, 1913.

1. Proelcher, F. *Poliomyclitis and Variola.*
2. McConnell, G. *Ths Pathology of Neuralgia.*
3. Mammack, C. E. *How Much of Eugenics is Scientific?*
4. Goodhardt, S. P. *Atypical Children.*
5. Watson, L. *Hemorrhoid Operations.*
6. Hebert, P. Z. *Improvements in the Speculum.*
7. Dennett, R. H. *Exercise and Diet in Relation to Growth.*
8. Packard, M. *The Treatment of Pneumonia.*
9. Allan, J. *Jequirity in Ophthalmic Work.*
10. *Held, I. W. *Heart Block (Adams-Stokes Syndrome).*
11. Van Voast, P. M. *Suitable Amusements for the Growing Child.*
12. Hoobler, B. R. *Diseases Influencing Growth.*
13. Haywood, H. B. *Acute Anterior Poliomyelitis.*
14. Ormsby, R. *The Injection of Salvarsan.*

10. Held reports a case of heart block with attacks of Stokes-Adams' syndrome, and he quotes at length from the literature of the subject. The treathent, he says, depends upon the kind of heart block. If the bundle of His is diseased we can only hope to be successful if the lesion is due to a gumma, and here treatment is most satisfactory. In other cases treatment is purely symptomatic. Hydrotherapy is restricted to lukewarm baths, with rest and friction afterward. Carbonic acid baths may be used to advantage if the blood pressure is not too high. Atropine is of value in the neurotic type of case. The diet is that of general arteriosclerosis and myocarditis. [L. D. C.]

The Journal of the American Medical Association.

April 19, 1913.

1. Westbrook, F. F. *Instruction in Hygiene in Medical Colleges and the Training of Health Officers.*
2. Pool, E. H. *Systematic Exercises in Postoperative Treatment.*
3. Wolfsohn, J. M. *A New Lumbar-Puncture Needle.*
4. Brotherhood, J. S. *Hospital Clinical Records.*
5. Hastings, T. W. *Complement-Fixation Tests for Streptococcus, Gonococcus and Other Bacteria in Infective Deforming Arthritis and Arthritis Deformans.*
6. Lerche, W. *Membranous Strictures of the Esophagus of Obscure Etiology.*
7. Potter, N. B. *Sahli's Pocket Sphygmobolometer.*
8. Ohlmacher, A. P. *The Bacteriology and Bacteriotherapy of Renal Calculus and Its Sequels.*
9. Lyons, R. *The Treatment of Amebic Dysentery with Subcutaneous Injections of Emetine Hydrochlorid. Report of Six Cases.*
10. Darling, S. T. *Budding and Other Changes Described by Schaudinn for Entameba Histolytica Seen in a Race of E. Tetragena.*
11. Ashburn, P. M. *The Relationship of Variola and Vaccinia.*
12. Tarnowsky, G. D. *Tubal Reimplantation. A New Conservative Operation for Sterilization of Women.*
13. Rosenow, E. C. *The Etiology of Articular and Muscular Rheumatism.*
14. *Flint, J. M. *A New and Simple Treatment for Acute Traumatic Subdeltoid Bursitis.*
15. Detwiler, A. K. *The Recently Described Parasite of Syphilis.*

16. Mallett, E. P. *An Automatic Ligature-Passing Forceps.*
17. Frisch, F. *New Iris Scissors.*
18. Squier, J. B. *An Unusual Type of Hydrocele.*

14. Flint has found immediate relief from acute pain in acute traumatic subdeltoid bursitis by aspiration of the fluid with an ordinary syringe. He also finds recovery more speedy if aspiration is practiced. The procedure is simple. [E. H. R.]

Bulletin of the Johns Hopkins Hospital.

April, 1913.

1. *Richardson, E. H. *Tuberculosis of the Urinary System in Women.*
2. Ford, W. W., and Watson, E. M. *The Effect of Chemical Treatment upon the Baltimore City Water.*
3. *Grove, W. E. *Certain Dangers of the Adenoid Operation.*
4. Davis, J. S. *The Transplantation of Rib Cartilage into Pedunculated Skin. An Experimental Study.*
5. Stitt, E. R. *Dengue, Its History, Symptomatology and Epidemiology.*

1. Richardson's paper is devoted to a study of a case of renal tuberculosis in a woman. Among the important local symptoms, he calls attention to polyuria, frequent and painful micturition, hematuria, pyuria, pain in the lumbar region, a sensitive kidney, and tubercle bacilli in the urine. The important constitutional symptoms are: irregular fever, night sweats and progressive emaciation. In treatment he recommends immediate operation to remove the kidney if only one is affected or if the remaining kidney is but slightly affected. He devotes only a few lines to the usual hygienic and dietetic measures, and says that tuberculin should be given a cautious trial. This article distinctly over-emphasizes surgery at the expense of tuberculin and other hygienic measures.

3. Grove describes certain complications following the adenoid operation, such as involvement of the ear and accessory nasal passages and cites several illustrative cases. He urges against operating when any local infectious process, however slight, is present in ear, nose or throat. He emphasizes the need of a thorough operation and that patients should be kept under observation for two or three weeks after operation. [J. B. H.]

The Lancet.

March 29, 1913.

1. *Hall, F. de H. *The Lumleian Lecture on Intra-Thoracic Aneurysm. Lecture II.*
2. *Findlay, L., and Watson, F. *Eczema Oris as a Manifestation of Congenital Syphilis.*
3. Macnaughton-Jones, H. *The Relation of Puberty and the Menopause to Neurasthenia.*
4. Harris, W. *Hyoscine-Morphia Anesthesia for Alcohol Injections in Neuralgia.*
5. Williams, C. T. *Remarks Introductory to the Clinical Study of Pulmonary Tuberculosis.*
6. Aramy, S. A. *The Individual Treatment of Diabetes.*
7. Macfie, J. D. *The First Hundred Cases Recommended for Sanatorium Benefit in East Essex.*

1. In the second Lumleian Lecture, Hall discusses the various abnormal conditions found in the pulse when an aneurysm is present. He discusses the pupils and the question of tracheal tugging. He describes the changes shown by the x-rays and presents 12 excellent plates. He gives statistics showing the relative frequency of the various modes of termination of this disease and discusses the differential diagnosis and the relative value of various symptoms.

2. Findlay and Watson consider eczema oris to be an important and little described symptom of congenital syphilis. In its most typical form the lesion is situated at one or both angles of the mouth and radiates therefrom towards the cheek, sometimes in the form of a fan-shaped patches. He gives in tabular form the results as regards the Wassermann reaction and the clinical histories of 21 cases in which this was a prominent symptom. [J. B. H.]

British Medical Journal.

March 29, 1913.

1. *Bond, C. J. *A Lecture on the Mucous Channels and the Blood Stream as Alternative Routes of Infection.*
2. Bell, W. B. *The Arris and Gale Lectures on the Genital Functions of the Ductless Glands in the Female. Lecture I.*
3. Macalister, C. J. *The Esthetics of Medicine.*
4. Barling, S. *Henoch's Purpura with Intussusception. Laparotomy. Recovery.*

1. Bond discusses the question as to whether the infective agent in disorders of the liver, kidney, gall bladder, urinary bladder, mammary, salivary and other glands reaches these structures by the blood stream or by the mucous channels through which these organisms communicate with the surface of the body. Under this heading he discusses typhoid carriers, epididymitis, pyelitis, urinary stasis, etc., but comes to no definite conclusions. [J. B. H.]

The Practitioner.

April, 1913.

1. *Savage, G. H. *Automatism.*
2. *Jones, R. *"Responsibility"—in Regard to Certain Forms of Unsoundness of Mind.*
3. *Newman, D. *Chronic Cystitis and Retention of Urine; Treatment by Drainage and Its Beneficial Effect upon Damaged Kidneys.*
4. *Curtis, H. *Modern Urinary Surgery; Points for the Practitioner.*
5. *Walker, J. W. T. *Recent Work in Genito-urinary Surgery.*
6. Feris, W. H. *A Modification of Spengler's Rapid Precipitation Method for the Estimation of Approximate Immunity against Tuberculosis.*
7. Chapman, C. W. *Review of the Literature on Heart Disease.*
8. Turner, J. G. *Some Recent Work on Dental Surgery.*
9. Cobb, T. G. *The Diagnosis of Neurasthenia.*
10. Young, G. P. *Heredity, Eugenics and the Falling Birth-Rate.*
11. Telling, W. H. M., and Hann, R. G. *Case with Comments. Influenza with Repeated Rigor.*
12. Russell, W. B., Wood, F. L., and Barrett. W. E. *Three Cases of the Acute Abdomen. With Comments.*

1. Savage discusses interestingly with numerous illustrative cases this somewhat rare condition.

2. This article is of medico-legal interest, especially from the British point of view.

3, 4, 5. These are clinical papers dealing with various phases of modern genito-urinary surgery, with remarks on symptoms and treatment of the respective conditions described. There is an extensive bibliography. The papers present nothing new, but are an interesting review of this subject. [J. B. H.]

Deutsche Medizinische Wochenschrift.

No. 12. March 20, 1913.

1. Thiernich, M. *The Treatment of Tetany in Early Childhood.*

2. Schubert, M. E. *Cymarin, a New Cardiac and Vascular Drug.*
3. Schoenborn, S., and Cuntz, W. *The Question of Parasyphilis.*
4. Bacmeister and Heues. *Investigations on the Cholesterin Content of Human Blood in Various Internal Diseases.*
5. Landau, M. *Adrenal and Fat Metabolism.*
6. Feldt, A. *The Chemotherapy of Tuberculosis with Gold.*
7. Dibbelt, W. *The Etiology of Rickets and Calcium Metabolism.*
8. Drèsing. *Contribution to the Etiology of Rickets.*
9. Schlesinger, E. *The Results of Roentgen Investigation in Gastric Ulcer.*
10. Neumann, A. *Further Experiments with the Employment of the Omental Flap in the Treatment of Perforated Gastric and Duodenal Ulcer.*
11. Momberg. *Intraperitoneal Employment of Oil.*
12. Lervy, J. *Congenital Scoliosis.*
13. Neumann, W. *The Treatment of Extensive Hare-Lip with Complete Cleft of the Jaw.*
14. Frenzel, A. *Interdental Splint or Extraoral Bandage in Treatment of Jaw Fractures.*
15. Dutoit, A. *The Magnesium Treatment of Traumatic Tetanus.*

Munchener Medizinische Wochenschrift.

No. 10. March 11, 1913.

1. *Oberndorfer. *Syphilitic Diseases of the Aorta.*
2. Erne, F. *Functional Tests of the Kidney with the Phenolsulphonephthalein Method of Rowntree and Geraghty.*
3. Conradi, E. *Occurrence of Diphtheria Bacilli in the Secretion of the Nose and Throat of Infants with Indigestion.*
4. Witzel, O. *Treatment of Ruptures in General, and Especially the Gigant Rupture.*
5. Spiethoff, B. *Therapeutic Use of the Individual's Own Serum.*
6. Fraenkel, A. *Drugs to Check Cough and a New Preparation of Codein.*
7. Kauffmann, M. *A New Drug for Obesity, Colloidal Palladium-hydroxydal.*
8. Hildebrandt, W. *Chloroform-narcosis and Diseases of the Liver.*
9. Andree, H. *Extirpation of a Brain-Tumor Under Local Anesthesia.*
10. Häuer. *A Rare Foreign Body in the Male Urethra.*
11. Althoff. *Two Cases of Severe Lead Poisoning in Brass-workers.*
12. Altmann, K., and Dreyfus, G. L. *Salvarsan and Cerebro-spinal Fluid in Early Syphilis, etc. (Concluded.)*

1. This account of syphilitic aortitis is most interesting and comprehensive as to essentials. He describes the pathology and histology, differentiates them from degenerative sclerosis, enumerates the physical signs, symptoms, and the means of diagnosis; and emphasizes in conclusion that syphilitic disease of the aorta is shockingly common, that it kills in the most useful period of life and that if diagnosed early it can be cured in the clinical sense. [G. C. S.]

No. 11. March 18, 1913.

1. *Grafe, E. *Albumen in the Metabolism of Febrile Patients; Its Treatment and Practical Significance.*
2. Krecke, A. *Chronic Appendicitis.*
3. Spitzy, H. *Use of the Force of Respiration in the Treatment of Scoliosis.*
4. Fränkel, J. *The Origin of Marked Tilting of the Pelvis.*
5. Glaessner, K., and Krevzfuchs, S. *Pylorospasm.*
6. Werner, P., and v. Zubszycki, J. *Effect of Elektragol on Opsonins.*
7. Fauser, A. *The Question of the Presence of Specific Protective Ferments in the Serum of the Insane.*
8. Engelhorn, E. *Biological Diagnosis of Pregnancy.*
9. Fromme, F., and Rubner, C. *Functional Tests of the Kidney with Phenolsulphonephthalein.*
10. Decker. *Benign Polyps of the Large Intestine and of the Sigmoid.*
11. Polland, R. *Valuation of the Internal Use of Mercury.*
12. Lade, F. *Use of the Herman-Perutz Reaction After Lumbar Puncture.*
13. Dreisbach. *Another Mushroom Poisoning.*
14. Pöhlmann, A. *Is the Use of the Brendel-Müller Reaction by the Practicing Physician to be Recommended?*
15. Bruegel, C. *Movements of the Pathological Stomach Revealed by the Roentgencinematograph.*

1. From his studies on a series of cases of infectious disease of various kinds Grafe draws the conclusion that the participation of nitrogen in metabolism is the same in the presence of fever as in its absence, and that by a rational diet all loss of albumen and of weight may be prevented even in the severest infections. [G. C. S.]

No 12. March 25, 1913.

1. *Sauerbruch, F. *Effect on Diseases of the Lungs of Artificial Paralysis of the Diaphragm.*
2. Morpurgo and Donati, A. *The Question of Inheritance of the Anlage for Tumor Growth.*
3. *Rübsamen, W. *Clinical Experimental Studies of the Efficiency of Ecbolics Post-partum.*
4. Dreyfus, G. L. *Neosalvarsan.*
5. Gerber. *Results to Date with Salvarsan and Neosalvarsan for Local Spirochetoses.*
6. Maier, L. *Effect of Hygienic Conditions on the Morbidity and Mortality of Measles-pneumonia.*
7. Seeligmann, L. *A Method of Treatment Which Benefited a Case of Sarcoma of the Ovary, Involving the Spine.*
8. Reichel, H. *Skopolamin-sleep in Combination with Morphine, Pantopon and Narkophin.*
9. Schüffner, W. *Is Beriberi Also Endemic in Europe?*
10. Gastpar. *Examination of the Eyes of School-children.*
11. Kuhn. *First Aid in Asphyxia by Direct Blowing in of Air.*
12. Bruck, F. *Personal Prophylaxis of Syphilis.*
13. Sasse, F. *Ileus Callosum Ventriculi Totale; Extirpation; Observations on the Effect and the Technic.*
14. Fischel, L. *Iodipin by Clyster for Prostatitis.*

1. Sauerbruck reports having recently caused paralysis of the diaphragm in five cases of lung disease by cutting the phrenic nerve. The patients were able to be about again after three days and suffered no serious consequences and no disturbance of the heart or respiration. It is too soon to report the resuts which are hoped for.

3. The writer records observations on the effect of various ecbolics used after delivery. (The work is interesting, but unsuitable for a brief review.) [G. C. S.]

Wiener Klinische Wochenschrift.

No. 12. March 20, 1913.

1. *Fleismann, K. *Operative Treatment of Myomata.*
2. Freund, L. *The Treatment of Psoriasis Vulgaris by Light Rays.*

3. DENK, W. *Experiences of the Balkan War.*
4. HUITERSTOISSER, H. *An Ascaris in the Hepatic Duct.*
5. ORTH, O. *Partial Volvulus of the Stomach.*
6. VOGEL, R. *Fractures of the Superior Maxilla, a Preliminary Communication.*

1. The author has had a gross mortality of 1.7% in 293 operations for myoma of the uterus. This includes a mortality per cent. of 5.2 for abdominal panhysterectomy, .93% for supravaginal amputation, for abdominal myomectomies 6.2%, for all vaginal operations 0%. He cites the statistics of Doederlein-Krönig, which show a total mortality of 5%.

Regarding x-ray treatment of myomata he makes the following observations:—

Though with x-ray treatment a number of disappointments are to be expected, it is a valuable addition to myomata-therapy.

Cases which show evidence of ovarian tumor, of sarcomatous or carcinomatous degeneration or of pus in the pelvis, or twisted pedicle with degeneration are probably for operative and not for x-ray treatment. [F. S. K.]

No. 13. MARCH 27, 1913.

1. BARTEL, J. *The Stage of "Lymphoid" Latency in Tubercular Infection.*
2 HOUSSAY, B. A. *The Clinical Value of Adrenalin and Hypophysin.*
3 GESSNER, W. *Fat Metabolism.*
4. GLAESSNER, K. *Stone in the Pancreas.*
5. KAHANE, H. *States of Fear.*
6. *MAYER, A. *The Teachings of Bossi and Their Relations to Gynecology.*

6. The author protests strongly against the teaching of Bossi, who gives, he says, undue importance to gynecological insignificancies in their relation to mental diseases. Bossi lays stress on uterine position as a cause of mental derangement, but in several cited cases neglects to consider tubal infection. Bossi believes in repeated operations if necessary in this sort of case. The author cannot agree to this point of view, and cites several cases from his clinic cured by suggestion alone, leaving the minor gynecological condition to look after itself. [F. S. K.]

DEUTSCHE ZEITSCHRIFT FÜR CHIRURGIE.

BAND 120. HEFT 5-6. JANUARY, 1913.

1. LINDEMANN, A. *The Pathogenesis and Clinical History of Inflammations of the Renal Pelvis.*
2. *WAGNER, A. *Acute Perforating Gastric Ulcer.*
3. WOLFF, P. *The Catgut Question.*
4. KROH, F. *Experimental Studies on the Theory of Ischemic Muscle Paralysis and Muscle Contracture. II.*
5 OZANI, Y. *Alcohol Disinfection.*
6. *SCHEPELMANN, E. *Heart Valve Surgery.*
7. PORTA, S. *New Procedure in Vascular Anastomosis.*
8. RITTER, C. *Critical Observations on the Critical and Experimental Investigations of the Origin and Disappearance of Lymph-Nodes.*
9. ZESAS, D. G. *Obituary of Paul Niehaus.*
10. RICKER, G. *The Theory of Diacresis and Diapedesis Hemorrhage.*

2. On the basis of 15 cases which he reports from Roth's surgical clinic at Lübeck, Wagner concludes that there is no contraindication to immediate operation on every case of gastric ulcer perforating into the general peritoneal cavity. He believes the simplest, quickest, and therefore most rational operation is Lembert suture of the perforation with or without refreshment of the edges and attachment of a tab of omentum. Gastro-enterostomy is indicated only in pyloric stenosis or hourglass stomach. Excision or even resection as a rule make too great demands on the patient's strength. If suture is impossible, the perforation should be closed with omentum or gauze pack. The abdominal cavity should be irrigated with a gentle stream of warm physiologic salt-solution, without eventration or serious insult to the peritoneum.

3. Schepelmann, from Wullstein's surgical clinic at Halle, reports his experimental investigations on surgery of the cardiac valves in guinea-pigs. By employing Brauer's positive pressure apparatus, he has succeeded in establishing a communication between both ventricles near the apex, and both auricles by anastomosis of the auricular appendages. He believes that this plastic cardiac operation would be humanly possible and would successfully relieve congenital tricuspid stenosis. [R. M. G.]

ARCHIV. FÜR KLINISCHE CHIRURGIE.

VOL. 100. PART 3.

18. *HILDEBRAND, O. *Surgery of the Posterior Cranial Fossa.*
19. HEYROVSKY, H. *Causation and Treatment of Idiopathic Dilatation of the Esophagus. Esophagogastro-anastomosis.*
20. MEYER, W. *Esophageal Cancer from the Standpoint of Thoracic Surgery.*
21. GOTO, S. *Pathologico-anatomical and Clinical Studies in the So-called Myositis Ossificans Progressiva Multiplex.*
22. *WENGLOWSKI, R. *Cervical Fistulae and Cysts.*
23. JEGER, E., AND ISRAEL, W. *Implantation of the Renal Vein into the Vena Cava. The Technic of End-to-side Vessel Anastomosis.*
24. ROPKE, W. *The Operative Treatment of Duodenal Injuries Caused by Blunt Force.*

18. Hildebrand's article is a classified and detailed account of 51 cases of his own on whom he had operated for some condition of the posterior cranial fossa. Twelve cases had tumor of the cerebellar shelf angle; 6 had meningitis serosa and 4 had internal hydrocephalus. There were 5 cysts of the cerebellum, and 5 solid tumors, 8 tumors of the Pons Varolii, 9 of the cerebrum, 1 of the base of the brain and 2 undetermined. Of the 51 cases, the immediate mortality was 20, of which number 16 were inoperable. Only 22 survived 3 months or more. The highest mortality was among the inoperable cases, and of the 20 post-operative deaths, 10 were due to pneumonia, 3 to meningitis. Hildebrand concludes that early exploration in every case of suspected cerebellar tumor is the best treatment.

22. Wenglowski presents the evidence secured from the study of a number of embryos to show the formation of the branchial cysts. His article is valuable from that point of view. [G. C. S.]

ZEITSCHRIFT FÜR KLINISCHE MEDIZIN.

BAND 76. HEFT 1 AND 2.

1. FABER, K. *Atony of the Stomach.*
2. *ROTH, O. *Remarkable Erythrocytic Inclusions in a Case of Splenectomy.*
3. EISNER, G. *Experimental Investigation on Autoserotherapy.*
4. ARNOLDI, W. *Alterations in Chlorine Content in Blood Serum by Disturbance of Gastric Secretion.*
5. WERTHEIMER, J. *Tests of Pancreas Function.*
6. WOLFF, H. *Influence of Meat Extractives on Vegetable Diet.*
7. *SCHWENKER, G., AND SCHLECHT, H. *The Influence of Substances Which Affect the Sympathetic Nervous System on the Eosinophile Cell.*
8. *HECHT, V. *Dietetic Influence on Pathological Blood Pressure.*

9. Bauer, J. *Effect of Thyroid and Iodine Medication on the Blood Picture of Endemic Goitre.*
10. *Severin and Heinrichsdorff. *Liver Changes Following Salvarsan.*

2. A man of 26 years had had his spleen removed three and one-half years before for "splenic anemia," but no pathological or blood report made at this time was obtainable. The patient now comes to the hospital for epileptiform attacks. The blood examination is striking: hemoglobin 100%, red and white counts and differential counts of leucocytes are all approximately normal, but nearly one-half of the red corpuscles show basophilic granular stippling; moreover many of these abnormal cells also show a larger cell inclusion staining red with Unna's polychrome methylene blue. The latter are thought probably nuclear remnants by the authors. These erythrocytes show a diminished osmotic resistance, thus showing a susceptibility to hemolysis not depending upon the presence of the spleen. This patient did not show increased iron excretion in comparison with another patient with normal blood, but who had also had splenectomy performed. The patient had a number of forbears having similar diseases.

7. There was no constant effect of pilocarpine or physostigmine upon the eosinophiles in the circulating blood.

8. Hecht claims that diet, with the aid of regulated baths and exercise, is the greatest factor in bringing about a reduction in high blood pressure. His cases include not only those associated with adiposity, with excessive smoking, etc., but also cases of nephritis. In all a diet looking to the following points has successfully diminished blood pressure even to normal: (1) less stimulating diet, omitting spices, etc., (2) diminished meat, (3) increased vegetable diet, (4) diminution of fluid, (5) less salt, (6) limitation or discontinuance of alcoholic beverages. Hydrotherapy and mechanotherapy play also a prominent part in obtaining the wished for reduction in pressure.

10. The authors report two cases of acute liver atrophy which they think may have been caused by previous salvarsan administration. [J. B. A.]

Deutsches Archiv für Klinische Medizin.

January 16, 1913.

1. Erdélyi, P. *The Excretion of Nitrogen Products of Metabolism in Nephritis and the Intravenous Use of Diuretics.*
2. *Straub, H. *Determination of Acidosis in Diabetes Mellitus.*
3. *Schweisheimer, W. *The Alcohol Content of Blood Under Different Conditions.*
4. Herschberg, O. *Essay on the Knowledge of Brain Abscess. (Metastatic Brain Abscess Following Bronchial Gland Abscess.)*
5. Hefter, J. *The Excretion of Purin Bases in Health and Disease.*
6. Lenk, R., and Pollak, L. *The Presence of Peptolytic Ferments in Exudates and Their Diagnostic Importance.*
7. Ellermann, V. *The Importance of Separate Pipettes and Mixing Flasks in Clinical Blood Counting.*
8. v. Rohden, F. *Blood Circulation in the Lung in Closed and Open Thorax and the Effect of Increased or Diminished Pressure on It.*
9. Milne, L. S. *Anemia from Hemorrhage.*

2. Straub has presented in this article a good piece of work illustrated with many charts fashioned after those employed by Schlayer in Tubingen. By means of the method of measuring the CO_2 tension of alveolar air according to Halden's technic he has found that a good estimate of the degree of acidosis may be obtained in diabetes. By this method the effect of an acid substance upon the breathing centre is measured, and the possibilities of neutralization on the part of the blood. He studied in diabetics and non-diabetics the effect of carbohydrate withdrawal from the diet. In both types of cases the CO_2 tension sinks but returns to normal quicker and sinks less in the non-diabetic. In coma the CO_2 tension reaches its lowest level. In ketonuria the CO_2 tension is only a measure of the retention of ketone bodies. If they are rapidly excreted, the CO_2 tension does not sink. If alkali can neutralize the acid the dropping of the CO_2 tension level is checked. Addition of most carbohydrates raises a pathologically low CO_2 tension.

3. Schweisheimer raises the questions of whether or no there is alcohol in normal human blood; also whether alcohol when drunk enters the blood stream unchanged and how long it stays in the circulation and in what proportion. Also he studies these relations in persons who are used and not used to alcohol.

He concludes that in normal blood there is from 0.02955 to 0.03686% of alcohol. Alcohol drunk enters the blood stream as such and may reach 2.266%, which is the highest he found. The concentration varies in the blood dependent upon the habits of the person. In non-drinkers it is more concentrated. In non-drinkers the alcohol reaches its height of concentration in about one and one-half to two hours, and after holding it for some time slowly falls, while in the accustomed drinker the concentration in the blood reaches its high level sooner, holds it less long and drops to normal quicker.

The psychic phenomena of drunkenness go parallel with the concentration of the alcohol in the blood.

[C. F., Jr.]

Miscellany.

PRESIDENT LOWELL'S ANNUAL REPORT.

The recently published annual report of the president of Harvard University touches on many topics of general interest,—athletics, freshman dormitories, the Graduate School of Applied Science, the Coolidge Memorial Library, the new plan for admission to Harvard College, the University Press, and the Widener Memorial Library. The following paragraphs pertain particularly to the Harvard Medical School and its affiliated hospitals:—

"The year has been remarkable for a series of contributions to medical science made at the School. During the summer and autumn of 1912 Dr. Folin published his discoveries in metabolism, which made a profound impression, and his analysis of the blood in cases of rheumatism and gout; Dr. Mallory, his discovery of the germ of whooping cough; while Dr. Rosenau, with the coöperation of Dr. Richardson of the State Board of Health and Professor Wheeler of the Bussey Institution, ascertained that infantile paralysis was transmitted through a species of stable fly (*Stomoxys calcitrans*). Enlarging the bounds of knowledge is no less essential a function of a university than imparting it; in no field are the two more closely connected today than in medicine, and three such discoveries in the course of a single year are a deep source of gratification.

"For many years in the Medical School courses of instruction, both clinical and in the laboratories, have been offered for the benefit of physicians and surgeons in active practice. A large part of these have been included in the Medical Summer School, while others have been given in term-time. The science and art of medicine are advancing so rapidly that many practitioners are glad of opportunities to gain a greater familiarity with recent methods than they can get from medical journals alone; and the Faculty felt that instruction of this character could profitably be made more systematic. A Graduate School of Medicine has, therefore, been created, with a separate dean and administrative board, and to some extent an additional staff of instructors, although not a distinct Faculty.

"Reference has been made in a preceding page and in former reports to the closer relations between the Medical School and the different hospitals. The central factor in the movement is the alliance with the Peter Bent Brigham Hospital, situated opposite the main entrance to the School. The buildings are nearly completed, and will be ready for the first patients in a few weeks.

"Notable also in the history of the School has been the opening of the Collis P. Huntington Memorial Hospital for cancer in close cooperation with the School."

RESOLUTIONS ON THE DEATH OF DR. ALEXANDER.

THE Medical Staff of the New England Hospital for Women and Children has been greatly shocked by the untimely death of Dr. Clara J. Alexander, who has been for many years one of its valued surgeons. Dr. Alexander was ever ready to give her services to rich or poor and was indefatigable in her efforts for the best interests of both Hospital and Dispensary. In January, 1912, she was called to India to assist in organizing a Surgical Department in the Holdsworth Memorial Hospital at Mysore, S. India, taking for this purpose a two years' leave of absence. Her letters from India were cheery and enthusiastic, with no mention of ill health, and her colleagues here were already looking forward to her return.

Dr. Alexander's personality was forceful and decisive and she will be greatly missed by her many friends.

Resolved, That the Hospital Staff desires to express great sorrow for the loss of Dr. Alexander and conveys to her family the deepest sympathy in their bereavement.

Resolved, That a copy of these resolutions be sent to the family and that they be published in the BOSTON MEDICAL AND SURGICAL JOURNAL.

At the regular meeting of the New England Hospital Medical Society, held on April 17, the following resolutions on the death of Dr. Clara Alexander were drawn:—

Resolved, That in the death of Dr. Clara J. Alexander this Society has lost a highly valued member, and the medical profession one of its ablest practitioners. Her exceptional training and natural aptitude for surgery made her eminent in that branch of the profession, in which she has few equals among the medical women.

The uprightness of Dr. Alexander's character and the thoroughness of her work, gained for her respect wherever she was known.

Resolved, That these resolutions be sent to the family of Dr. Alexander, and published in the BOSTON MEDICAL AND SURGICAL JOURNAL.

EMMA L. CALL,
EMMA B. CULBERTSON,
SARAH M. PALMER.
MARGARET L. NOYES, *Recording Secretary.*

RESOLUTIONS PASSED BY THE COUNCIL AND ADOPTED BY THE NEW YORK ACADEMY OF MEDICINE IN MEMORY OF ALGERNON T. BRISTOW, M.D.

Whereas, The Council of The New York Academy of Medicine has learned with profound sorrow of the death of Dr. Algernon Thomas Bristow, therefore be it

Resolved, That the Council hereby records its appreciation of Dr. Bristow, the man and the physician.

He became a Fellow in 1901, and served as vice-president from 1906 to 1909. As an officer, as a member, and in his private practice he exemplified all that is best in the medical profession. He combined to an unusual degree the practical and the ideal in his work. Dr. Bristow was a man of great public spirit and much interested in all the activities of the Academy. His wise judgment and genial personality will be greatly missed. Therefore be it

Resolved, That a copy of these resolutions be sent to the family and to the medical journals.

WILLIAM M. POLK, M.D.,
President.
CHARLES F. ADAMS, M.D.,
Recording Secretary.
WISNER R. TOWNSEND, M.D.,
L. EMMETT HOLT, M.D.,
Committee of the Council.

Correspondence.

THE LURE OF GERMANY.

(From Our Special Correspondent.)

VIENNA, March 27, 1913.

Mr. Editor: For years American physicians have flocked to Europe in large numbers to seek in Berlin or Vienna or other famous German medical centers post-graduate study. It is the accepted thing to do. Medical education is not considered complete until it has been done. To doubt this would be heresy.

There are three principal classes of physicians who go abroad—The first is the physician who has not as yet seen much active practice but goes to do special work extending over a year or more to complete his equipment for practice. The second class is represented by the man of maturer years who is conversant with modern medicine and its advances and goes to Germany to see at first hand things that interest him most. He does not stay very long. The third class, probably 85% of all who go, are the practitioners of longer or shorter standing who go for shorter periods—chiefly for the glamor of foreign study, or because it is considered the thing to do or, because it is the shortest road to a specialty. They are well meaning but superficial men, a large percentage of whom know no German and want to know none. Courses are arranged in the largest medical centres so that these men can in a short time hear a tremendous amount of bad English on any subject. They can order their medical instruction like the food at their hotels, the only difference being that their capacity for medical food is not wisely limited by Providence. How much these physicians, who as practitioners have long since been unused to sit in academic chairs and listen, really absorb and digest of this forced nourishment can be judged somewhat by a similar process with which all are familiar, namely, the cramming which students undergo at home.

The worst feature in the largest centre, Vienna, is that these physicians who may have listened to 200 hours of bad English or 20, receive from the University of Vienna, by a commercial transaction of associated American physicians, a diploma, which certifies to the American public, at least, that the owners are specialists, to the physicians themselves it may represent Kronens and no work.

Of course such a system does not in the least injure the University of Vienna. But it injures the standard in which the medical profession in America is held. I am sure that the best type of physician in America would not care to be advertised in this way.

It seems to me the way to help the situation is in supplying first-class post-graduate study at home and in advising the public at large not to put too much faith in the man who papers his office wall with paper bought in Vienna.

H. P. G.

EARLY SUCCESSFUL ATTEMPTS AT INTESTINAL SUTURE AND INTESTINAL RESECTION IN ANIMALS.

Mr. Editor: The following paragraphs on the above subject are taken from a medical thesis selected from among the inaugural dissertations of the graduates in medicine, of the University of Pennsylvania, published in 1806. The author of the thesis was one Thomas Smith, of the Island of St. Croix. These investigations probably represent among the very earliest successful experiments, although intestinal suture had been practiced in the human being a long time before this.

Experiment 5.

"On a full grown terrier, I repeated the former experiment, wishing to see, whether a longitudinal incision would not, by great care and attention, be so managed as to do away with the opinion of its being universally fatal. To effect which, a very small opening was made through the parietes of the abdomen, and a portion of intestine, being brought into view, it was divided longitudinally for about two inches, and afterwards secured by six stitches which were cut off at the knots. The parts having been returned, the lips of the external wound were brought together and secured by adhesive plaster. The animal did not appear to have suffered in the least from the operation, for in less than twenty-four hours he took food and has continued doing well ever since."

Experiment 7.

"Wishing to know how much of the intestine might be removed, without much endangering the life of the animal, I performed the following experiment: Having obtained a full-grown dog, an incision was made into the cavity of the abdomen, two inches of one of the small intestines were removed, the outside portions were then brought together, and the wound was treated as the transverse incisions had been. In dissecting of the divided portion of intestine, some of the branches of the mesenteric arteries were wounded, but did not bleed during the operation. On visiting him in the afternoon, I found there had been a considerable hemorrhage which still continued. I did not open the wound, but applied a piece of wetted linen to the parts, which had the desired effect. On the 18th, the belly being somewhat tense, two of the external ligatures were cut away, that the blood, should any have collected, might be discharged; but the wound did not open, and the dog soon resumed the appearance of perfect health, which continued without interruption until May 6, when he was killed. The divided portions of intestines were found united, and the ligatures had been all discharged."

Experiment 8.

"Having opened the abdomen of a pointer pup, three inches of intestine were excised, the arteries being secured, the intestines in other respects, were treated as the last had been. In twenty minutes after the operation, he vomited the food which he had taken in the morning, and appeared dull in the remaining part of the day. Three days after the operation, he took food, and continued doing well. May 6, he was killed, and the abdomen being opened, it was with difficulty I could ascertain where the division had been; the coats of the intestine appeared somewhat thickened; one of the ligatures remained attached internally."

Very truly yours,

Wm. Pearce Coues, M.D.

Boston, April 9, 1913.

CHANGES IN NAVY MEDICAL CORPS.

The following changes have been made in the Medical Corps, U. S. Navy, for the week ending April 19, 1913:

Allen, A. H., passed assistant surgeon. Detached from Atlantic Reserve Fleet, and ordered to U.S.S. *Connecticut.*

Valz, E. V., passed assistant surgeon. Detached from U.S.S. *Kansas,* and ordered to U.S.S. *Minnesota.*

Irvine, W. L., assistant surgeon. Detached from U.S.S. *Connecticut,* and ordered to Atlantic Reserve Fleet.

Phillips, E. W., assistant surgeon. Detached from U.S.S. *Minnesota,* and ordered to U.S.S. *Kansas.*

Huff, E. P., passed assistant surgeon. Detached from U.S.S. *Florida,* and ordered to U.S.S. *Scorpion.*

Straeten, R. J., passed assistant surgeon. Detached from U.S.S. *Tonapah,* and ordered to U.S.S. *Florida.*

Dessez, P. T., passed assistant surgeon. Detached from Navy Yard, Boston, and ordered to U.S.S. *Tonapah.*

Walton, D. C., assistant surgeon. Detached from U.S.S. *Scorpion,* and ordered to U.S.S. *Pittsburgh.*

EXAMINATION OF CANDIDATES FOR ASSISTANT SURGEON.

United States Public Health Service.

Boards of commissioned medical officers will be convened to meet at the Bureau of Public Health Service, 3 B Street, S.E., Washington, D. C., and at the Marine Hospitals at Boston, Mass.; Chicago, Ill.; New Orleans, La., and San Francisco, Cal., on Monday, May 5, 1913, and Monday, June 9, 1913, at 10 o'clock, a. m., for the purpose of examining candidates for admission to the grade of assistant surgeon in the Public Health Service.

Candidates must be between 23 and 32 years of age, graduate of a reputable medical college, and must furnish testimonials from two responsible persons as to their professional and moral character. Service as internes in hospital for the insane or experience in the detection of mental diseases will be considered and credit given in the examination. Candidates must have had one year's hospital experience or two years' professional work.

Candidates must be not less than 5 feet, 4 inches, nor more than 6 feet, 2 inches, in height.

The examination usually covers a period of about ten days.

For further information, or for invitation to appear before the board of examiners, address "Surgeon General, Public Health Service, Washington, D. C."

THE NEED OF A MEDICAL MISSIONARY AT BEIRA, PORTUGUESE EAST AFRICA.

This appeal is issued by the American Board of Commissioners for Foreign Missions, Boston, Mass.

Location: Beira is located in Portuguese East Africa, south of the Zambezi River and close to the ancient city of Sofala, which was the earliest settlement of the Portuguese on the East Coast of Africa, these enterprising people having established themselves there in 1505 or thereabouts. Sofala, in turn, is supposed by some to be the site of tht Ophir of the Bible. From very ancient times gold has been obtained to the westward of Sofala, about three hundred miles and transported to the coast. Ruins of an ancient civilization are still found in that region, particularly at Zimbabwe. Beira, although in Portuguese territory, is the port of entry of Rhodesia, Cecil Rhodes having built a railroad from Bulawayo in Southern Rhodesia to the coast of Beira in order to find a shorter route for commerce than that to Cape Town. It has an excellent harbor and all vessels passing up and down the coast stop at this port, so that its communication with the outside world is good. Two railroad trains a week leave for the interior.

Population: It is a town of about one thousand population (European). These are mostly Portuguese, but there is quite an admixture of English and German on account of the extensive trade which is carried on from this point. There is an excellent hotel kept by an English woman, and good residences stretched along the shore looking out over the Indian Ocean. The native population varies according to the state of trade. When the railroad or government is engaged in large construction works there is a great influx of natives. This city has been chosen by the American Board as the site of a new station, not so much on account of the European residents or of the natives of Beira as because it is the proper base for an extensive work in the interior. Two rivers flow into harbor at Beira.

Climate: It must be confessed that the climate is trying, as is the case all along the East Coast. Beira is undeniably hot, but it is not unhealthy. The residence built by the American Board is on the sandy beach facing the ocean, and is carefully protected with copper screens against mosquitoes. The ocean breezes serve to ameliorate the heat and to keep away the mosquitoes and other insects. The city is built on the sand, and going in the streets is so heavy that narrow tracks have been laid on which tram cars are pushed by the natives. Each person has his own tram and his native boys to push the same. The Board has a station in the interior at Mt. Silinda among the mountains where the climate is quite different and where all the surroundings are attractive. The missionaries at Beira would need to take a two months' vacation at Mt. Silinda, or elsewhere amongst the hills during the hottest season. They would also need to come home every five years for a full furlough of a year.

Qualifications and Support: A Boston gentleman offers to pay the salaries of these missionaries whenever they are found. This appeal is particularly for a medical man, thoroughly qualified professionally, in physique, in missionary devotion and in ability to handle his fellow men tactfully. The Board expects the doctor to be a college man and a graduate of a high grade medical school, and to have had considerable practice. The Board will send the doctor to London for a special course in tropical medicine. It will be useless for indifferently prepared doctors to apply. The Board never lowers its standards in the matter of qualifications. The doctor need not be a Congregationalist but he must be earnestly Christian.

Correspondence: Physicians who wish to investigate this and other opportunities now open for Christian medical service in India, China, Turkey, Korea, and Persia should write to Mr. Wilbert B. Smith, 600 Lexington Avenue, New York City.

SOCIETY NOTICE.

American Gastro-Enterological Association.—The sixteenth annual meeting of the American Gastro-Enterological Association is to be held at the new Willard Hotel, Washington, D. C., May 5 and 6, 1913.

Physicians are cordially invited.

Franklin W. White, M.D., *Secretary*,
Boston, Mass.

APPOINTMENTS.

Tufts College Medical School.

1. Dr. Harold Williams has been been appointed Dean and Professor of the Theory and Practice of Medicine Emeritus.

2. Dr. Henry B. Chandler has been appointed Professor of Ophthalmology Emeritus.

3. Dr. Elwood T. Easton has been appointed Professor of Ophthalmology.

4. Dr. Edmund W. Clap has been appointed Associate Professor of Ophthalmology.

Dr. Louis A. O. Goddu, Assistant in the Orthopedic Department at the Massachusetts General Hospital has been appointed Consulting Orthopedic Surgeon at the Woonsocket City Hospital, Woonsocket, R. I.

RESIGNATION.

Dr. Harold Williams has resigned the position of Dean and Professor of the Theory and Practice of Medicine in Tufts College Medical School.

RECENT DEATHS.

Dr. Albert Eber Miller, of Needham, Mass., who died on April 21 at East Orleans, Mass., was born in 1831. He received the degree of M.D. in 1865 from the University of Pennsylvania, and was a member the The Massachusetts Medical Society, the Norfolk District Medical Society, and the Boston Gynecological Society.

Original Articles.

THE DIAGNOSIS OF THE TUBERCULAR CHARACTER OF JOINT DISEASE.

BY E. G. BRACKETT, M.D., BOSTON.
Surgeon to the Orthopedic Department, Massachusetts General Hospital.

(From the Orthopedic Department, Massachusetts General Hospital.)

Formerly the diagnosis of the tubercular character of a joint disease was a comparatively simple matter, for there were not the fine distinctions to be made as to the character of an arthritis. In children, it was but necessary to determine the existence of a joint disease, and the diagnosis of its tubercular character followed as a natural consequence; in adults, other than the acute and monarticular joint diseases, were classed as rheumatic. At that time, the group of clinical signs and symptoms was the means alone by which the diagnosis was made, and a positive diagnosis was made with comparative ease, for the effort only was to establish the existence of an inflammatory process, and the clinical signs were used to indicate only the presence of disease. Later on, the need of differentiation became necessary, the clinical picture was more carefully studied, and the attempt made to distinguish between certain forms of arthritis, by the variation in the different clinical symptoms and by their grouping. Very much of value was learned by this, and the attempt was then made to use the clinical signs; first, to determine the presence of a joint disease, and, second, to determine its character, and a great deal of dependence was placed upon the special clinical picture, in distinguishing, for example, between a tubercular and an infectious process. But the problem today is a very different one, for one by one, new methods have come into use, by which the pathological processes have been given finer distinction. The x-ray has led to the possible detection and location of early disease, and laboratory tests to the detection of various types of infection. Surgery now frequently permits exploration of joints, and the pathology of the process determined when formerly it was only suspected. Therefore, on the clinical side, evidence to detect the character anti-mortem is necessary. The demands today are for a very much finer distinction than can often be made by the mere external, the clinical, manifestation of disease. There is no reason why the clinical picture of an inflammatory process, caused by one particular germ, should at any given period of the disease, be clearly distinct from that occasioned by another. The clinical signs give evidence only of some form of an inflammatory lesion, but they give no evidence as to what kind of bacterium is the cause. As, for instance, the difference between an active form of a tubercular and a mild form of an infectious lesion, is too slight to be distinguished by clinical signs alone. The general course of the case is suggestive, but the character, or grouping of clinical signs, at any one time is of little value to the purpose. In the long course of a case enough may develop to be of value, but one can hardly wait until a disease has run its course, in order to make a diagnosis of its character. The distinctions are too fine for these coarse methods of diagnosis. All tests are, therefore, necessary to determine the character of any suspected lesion, the x-rays, the various forms of tubercular reactions, Wassermann, Luetin, complement fixation, and blood and urine examinations, and from these the evidence is taken. Nothing short of this is equal to place the definite clinical diagnosis on a par with the exactions of pathological distinction of today.

The problem today is quite a different one from that of formerly. Given the question of a suspected joint, the first step is to determine upon the presence of disease. The task is comparatively an easy one, and formerly it ended the question, but today the problem begins where then it used to end. The second step is to determine whether the disease is of a tubercular or non-tubercular origin, and this is the one of importance, for on it the principle of treatment and the questions of prognosis will depend, and it is a question often of very great difficulty and frequently one impossible to decide. For the positive proofs, it is necessary to use all the laboratory tests at hand, which are more definite in the results sought by them, and for just this reason, viz., that these tests are positive and rather definite in the answers they give to us, there is danger now that the study of this clinical picture, in its more accurate detail, may fall into disuse, and it is far too valuable an aid that we should allow it to do so. For example, the tendency is to look at the x-ray before making a careful clinical examination of the case, and to ask for the tubercular and other reactions before first weighing the clinical evidence, and it is extremely difficult to give the clinical side its real importance, after these other sources have biased our opinion. It is on account of the importance, as well as the frequent difficulty, of making this distinction between the tubercular and non-tubercular, that leads to this plea for emphasis on the study of the clinical side, and which appears to be in danger of neglect.

This paper aims to suggest, by means of a few illustrations, some of the questions which are helpful in the problem of making the diagnosis of a tubercular joint lesion, in distinction from the other general classes of the non-tubercular forms of arthritis. These are:—

1. The value of special clinical symptoms.
2. The routine method of diagnosis.
3. Diagnosis between articular or periarticular disease.
4. Location of the bone focus.

GENERAL CHARACTERISTIC ELEMENTS IN TUBERCULAR ARTHRITIS.

The following signs give evidence which will bear consideration. The special feature suggesting the tubercular character is indicated:—

1. Mon-articular
   (Second joint = less severe.)
2. Remissions—usual.
   Development—slow.
   Residual symptoms—persistent.
   (*a*) deformity,
   (*b*) limp,
   (*c*) slight disability,
   (*d*) swelling.
3. Pain—not prominent.
4. Swelling (synovial).
   From thick velvety membrane not fluid.
5. Temperature—0
   (or from secondary infection).

1. *Pain.* By a very great majority the disease is monarticular in manifestation. The second joint, when it exists, follows tardily on the first, is much less severe, and its course less destructive. This is in all probability due to the fact that the second, or the other joints, are of toxic rather than of bacterial invasion, as described by Poncet as tubercular rheumatism. In the non-tubercular forms, the rule is not only to have a multiple joint invasion, but the various joints are affected with various degrees of severity, destruction and frequency, and with chronological difference in their appearance. Also the joint which proves to be the most serious is frequently not the first invaded.

2. *Development and Remissions.* The development is slow, extending over a period of months, and sometimes years, and, in the early periods, the disability is, in a very large number of cases, to a surprising degree, slight. This slow development is attended with remissions, which are almost invariably present, and form a symptom which must be regarded as most important. A feature of these remissions, also of marked value, is that the disability never entirely disappears, but shows a residue in one or more of four features. These are (*a*) deformity, (*b*) limp, (*c*) slight disability, (*d*) swelling. The (a) deformity may not be noticed at all times; frequently in the morning on rising, and disappears after use, or a very slight residual deformity is left, which is later found to have existed only after careful questioning. The (*b*) limp and (*c*) slight disability are noticed only on active or forced exertion, not sufficient to restrict to usual routine. The (*d*) swelling can be detected only in the most superficially placed joints and in thin subjects. It is, as a rule, a swelling from a residual thickening of capsule rather than fluid, and does not change except with the exacerbations.

3. *Pain.* In the attacks pain is present, usually most noticeable as sensitiveness and disappears with the acuteness of the attack. In the disability which is found as a residuum in the remissions pain is not a usual symptom. The amount which is left usually depends upon the amount of involvement of the real articular surfaces of the joint, and is much less in the periarticular forms.

4. *Swelling.* Fluid in the tubercular joints is not usual, unless it be pus, and this naturally as a late symptom, and when destruction has occurred and when diagnosis is no longer in doubt. The swelling (in superficial joints) has much the feel of fluid, but is due to the thick, vascular, velvety synovial membrane, gives an elastic feel closely resembling that of fluid, and varies with the vascularity.

5. *Temperature.* Temperature is not to be expected in the slowly developing and quiet joints.

It is on the clinical side that emphasis is made in this communication, as being one which gives us not only a valuable aid in diagnosis, but the one always at hand, and many times the only one. Many a case will be seen by the general practitioner, away from the large centers, where the confirmatory tests cannot be made. But in our best equipped methods of examination reliance cannot be put on these signs alone, but all tests which may be given by laboratory methods are necessary to determine the character of the condition, and since we do use these other guides, it is of value to have a definite routine of examination in any case suspected of tubercular joint disease. Therefore a schedule of examination is convenient, an example of which is here given:—

History:
- Slow development
- Remissions
- Residual: Limp, Deformity
- Pain—slight

Joint involved—Knee

Local signs:
- Capsular swelling
- Flexion
- Atrophy
- Pain—slight

Duration—One year
Ankylosis—Motion
Temperature—98.6 to 99.6

Urine	Color	Reaction	Sp. Gr.	Albumen	Sugar	Sediment
	High	Ac.	18	0	0	Negative

Blood Examination		
	Haem.	80%
	Whites	5,900
	Reds	5,864,000

Reaction Tests		
	von Pirquet	Positive
	Tuberculin	Temperature+3° c. 1 mg.
	Wassermann	Negative
	Luetin	
	Neisser	Negative

Naso-Pharynx		
	Tonsil	Negative
	Teeth	Negative
	Nasal cavity	Negative

Gastro-Intestinal Tract		
	Acidity	Negative
	Constipation	Present
	Ptosis	Negative
	Stools	Negative

For many years it was understood to be quite sufficient to make the diagnosis of a joint disease. Later it was recognized clinically that there were two distinct types of joint disease: (1) the true articular, in which the true articular structures, the synovial membrane, the cartilage and underlying bone, were the seat of disease, and which gave true articular symptoms; and (2) disease

of the periarticular structures (focal disease) in which in the early stages there was no actual involvement of the joint structures themselves, and which gave rise to joint symptoms from the proximity of the disease to the joint, but which were different in character and grouping from the former, and could be called reflex joint symptoms. This form (by extension to the joint) later becomes a true articular, but with the lesser understanding was formerly frequently overlooked, until the articular involvement took place. The x-ray then gave positive proof of this distinction and its early detection, and it is now essential in the recognition of joint disease to make the clinical distinction of these two varieties. Here, too, we may study these by their clinical characteristics, for they give a distinctive grouping of the essential signs of joint disease.

The two types to keep in mind are those symptoms which accompany the involvement of the articular structures, and which may be regarded as true articular symptoms, and the symptoms which accompany the disease involving the structures near the joint, but not invading the joint structures themselves and which may be regarded as reflex joint symptoms. In tabular form these may be represented by the accompanying tables. The two forms represent articular and periarticular disease. It is not to be expected that all cases can be put into one or the other of the two groups, but the majority fall into place, and it is of help to determine the amount of true articular involvement, a very important factor in deciding on the course in any joint disease. The two types to keep in mind are: (1) those symptoms which accompany the involvement of the articular structures of the joint, and which may be regarded as the true articular symptoms; and (2) those symptoms which accompany the disease involving the structures *near* the joint, but not invading the joint itself, and which may be regarded as reflex joint symptoms. In contrast, these may be shown as follows in tabular form, representing articular and periarticular disease.

ARTICULAR DISEASE.	PERI-ARTICULAR DISEASE.
1. Pain (prominent symptom) severe referred sensitiveness	1. Limp (prominent symptom)
2. Spasm—marked	2. Pain slight referred sensitiveness (absent)
3. Motion much limited none	3. Spasm—slight or absent
4. Deformity—marked	4. Motion—slight limitation
5. Disability—marked	5. Deformity—slight
6. Atrophy—marked	6. Disability—slight
7. Onset—sudden	7. Atrophy—slight
8. Remissions—absent	8. Onset—slow
	9. Remissions—marked

It is not to be expected that all cases can be definitely fitted into one or the other of the two groups, but the majority fall into place, and it is of help to determine the amount of true articular involvement, a very important factor in deciding on the course of action in any destructive joint disease. As would be readily expected, the true articular symptoms are those which indicate an interference with the most active function of the joint, and which play a protective rôle, limiting its activity, while the other gives only protection from the more severe use of the joint. Thus the most noticeable feature of the articular type is pain (sensitiveness), with its accompanying features of spasm and deformity; while of the periarticular type, the transient attacks of pain and sensitiveness and a most noticeable is the early limp, with occasional marked tendency to remissions or intermissions. The nearer to the joint the disease, the more prominent articular character is the grouping of the signs, and, on the other hand, the lesser the degree of the articular involvement (most noticeably in some of the lower grade affections of the synovial capsule), the less prominent these articular symptoms, notably the pain and sensitiveness and tendency to deformity.

In many of the cases we must carry the diagnosis one degree farther still, and in cases of actual bone disease in early periods, localize the part of the bone affected, in so far as it affects the treatment and prognosis. In most instances this is definitely shown by the x-ray, but in conjunction with this the clinical signs are equally valuable. Two examples may be used to illustrate these: (1) the early lesions in hip disease, whether beginning in the femoral or acetabular portions of the joint; and (2) in vertebral caries, whether beginning in the anterior portion of the body, interfering with its weight-bearing function, or in the posterior portion of the vertebral body, and so situated that the column, in its weight-bearing function, is not seriously so involved, but with early involvement of the spinal canal with its cord. In this the x-ray is not of aid, and reliance must be put on the physical signs alone. Naturally the clinical course in these two will not be the same, and may be represented for the purpose of study in their clinical evidence by two types, and indicates the part which the clinical side of the examination may play in the attempt to localize the early focus.

TYPE I.

Prominent symptom = Disability
Knuckle—early
Pain—late
paroxsysmal
+ by motion
c spinal sensitiveness
Remissions

TYPE II.

Prominent symptoms = Pain
Knuckle—late
Pain—early
s spinal sensitiveness
referred
follows activity
Intermittent
Intermission.

The above illustrates the value of careful grouping of the practical clinical signs as an aid in the finer distinctions in joint diagnosis, and with the perfection of the finer laboratory tests, it is important that special emphasis be put on the observation and study of the clinical side in diagnosis.

INFANTILE BERIBERI IN THE PHILIPPINES.*

BY DONALD GREGG, M.D.,

Assistant Out-Patient Physician, Boston Psychopathic Hospital.

Formerly

Assistant Professor of Tropical Medicine, University of the Philippines, and Acting Physician-in-Chief, Philippine General Hospital, Manila, P. I.

Although adult beriberi has been reported from many quarters of the world and has been attributed to many etiological causes, infantile beriberi, to the best of my knowledge, has been reported from but two countries,—Japan and the Philippine Islands. In 1888, Hirota[1] of Japan, first described this interesting condition which he called infantile beriberi. Later, Guerrero,[2] a Filipino, described clinically a similar condition among Filipino infants. And recently further clinical, pathological and experimental work has been done by McLaughlin,[3] Andrews,[4] Chamberlain and Vedder,[5]—Americans working in Manila.

Infantile beriberi—called in Japan "Kak-Ké," in the Philippine dialects "Taon," "Taol" or "Suba"—is a disease of great importance in the Philippines. Practically 50% of the deaths among the Filipinos in Manila are of infants under one year of age. This infantile death rate is two and one-half times higher than the death-rate of infants in the United States or European countries. Moreover, 75% of these dying infants are breast-fed, whereas in Germany only 12 to 15% are breast-fed. In Boston[6] in 1907, it was found that during the summer months only 20% of the infantile deaths were among breast-fed babies. Although it is difficult to draw conclusions from the death reports in Manila, as in many cases the condition is reported under the terms "convulsions," "congenital debility," "acute bronchitis," "acute meningitis," "enteritis," etc., yet post-mortem examination of a large number of these cases by McLaughlin and Andrews[3] has led them to think that over 50% of the infantile deaths in Manila were due to infantile beriberi. In other words, 25% of the total native death-rate in the city of Manila is thought to be due to this disease.

Infantile beriberi occurs invariably among breast-fed infants, and almost invariably among infants whose mothers show slight or marked evidence of beriberi. Consequently, as infantile beriberi is practically always associated with adult beriberi,—at the risk of telling you much that you already know, I shall briefly review the general subject of beriberi.

Beriberi has been known for many years in China, and is stated by Osler[7] to have been mentioned in possibly the oldest known medical treatise. It attracted much attention from the Anglo-Indian surgeons in the early part of the 19th century. Malcolmson, in 1835, published at Madras a monograph which is one of the first scientific reports of the disease. Recently Schaumann,[8] Frazer[9] and Stanton[10], of the Strait Settlements, and McLaughlin, Andrews,[4] Heiser,[11] Kilbourne, Bloombergh,[12] Chamberlain and Vedder,[13] of the Philippines, have shed much light upon this disease.

Beriberi in the Philippines is a polyneuritis affecting especially the laryngeal and cardiac branches of the vagus and the sensory and motor nerves of the lower limbs, which occurs in malnourished individuals who have lived on too exclusive a diet of polished rice. Among these individuals it is induced by any one of a series of exciting causes, such as exposure to cold or wetting, overwork, parturition, malaria or other intercurrent infectious disease. In the Far East, in China, Japan, the Philippines and the Strait Settlements, beriberi occurs among rice-eating people. In Newfoundland, Little[14] has reported a type of beriberi among the fishermen who have lived too exclusively upon white flour. Several cases have been reported from San Francisco[15] among the sailors who have lived almost exclusively upon small white beans. It has been reported from Australia, South America, the West Indies, among the fishermen of Norway and in certain institutions in Ireland and the United States. But wherever beriberi has occurred it has been associated, I believe, with too restricted a diet of rice, beans, wheat or other single article of food.

ETIOLOGY.

Although many theories of the etiology of this disease have been advanced, the evidence obtained from recent researches has practically eliminated the belief in an infectious origin for this condition, and has established, beyond any reasonable degree of doubt, the theory that the disease is due to a disturbance of metabolism and that, in the Philippines at least, the disturbance is intimately associated with a diet composed almost exclusively of rice that has been so prepared by milling as to be incapable of supplying all the nutritional demands of the human body. Relationship between the disease and the rice diet has long been suspected. The disease has been reported to be much more common among the natives in New Guinea,[18] who come in contact with Europeans and receive their pay in milled rice, than among the inland natives who raise and pound their own rice. Personally, I have never seen or heard of a case of beriberi in an American or European resident in the Philippines, nor among the wild tribes in-

* Read before the New England Pediatric Society, January 25, 1913.

habiting the inland regions of the large islands of the Archipelago. These inland people raise and prepare their own rice and are not dependent upon the milled rice that is commonly used by the lowland natives. Frazer and Stanton,[10] working in the Strait Settlements, reported in 1909 the results of an experiment of feeding laborers upon a diet of milled rice. They found that beriberi appeared among laborers fed upon milled rice and that it did not appear among laborers living under identically the same conditions who were fed upon a more varied diet, until their diet was restricted to milled rice. Chamberlain,[16] who, by the way, is a Harvard Medical School and Massachusetts General Hospital graduate, working in the Philippines, reported in 1911 upon the disappearance of beriberi from the Philippine scouts when a simple change was made in their dietary. Subsequently it was found that with the substitution of red rice for the milled or white rice in the dietary of the native government employees in lighthouses and government ships, and the native inhabitants of the Culion leper colony and the Insular prisons, beriberi practically disappeared. In 1911, however, when owing to a shortage in the rice market, white rice was temporarily restored to the dietary, beriberi promptly reappeared at the Culion leper colony. The exact nature of the nutritional disturbance is still undetermined. The belief of the American workers in the Philippines is that the condition arises from the failure of the milled white rice to supply a certain food element that is required by the human body. What this element is has not as yet been determined. By a careful analysis at the government laboratories in Manila,[17] it has been shown that it is not phosphorus, not inorganic salts, not succrose nor certain nitrogenous compounds. It has been shown to be soluble in cold water and in cold 95% alcohol, but insoluble in ether. It has been found to be dialyzable and absorbed by bone black or animal charcoal, but that it is not recoverable therefrom by maceration with water, absolute alcohol or ether. The percentage of phosphorus, of potassium and of amido-nitrogen have been shown to be reliable indices of the amount of the beriberi-preventing substance present in the rice.

Disregarding the exact nature of the nutritional disturbance that is the etiological factor of adult beriberi, it can be said that Infantile Beriberi in the Philippines is a disorder of metabolism, associated with a defect of certain unknown nutritional elements in the breast milk on which an infant is fed; that the disease is characterised clinically by cyanosis of the mouth and nose, slight dyspnea, periodic restlessness, insomnia, sometimes a slight cough, occasionally vomiting, tachycardia, slight edema of the legs with tenderness on pressure or motion, and possibly a change in voice or even aphonia; and that it results usually in sudden death. The disease occurs in nine-tenths of the cases among infants one to three months old and occasionally among babies four, five, six, seven and even ten months old, both sexes being affected. Native children alone are victims. The social condition is almost invariably poor. There is a slight seasonal variation in the occurrence of the disease, the largest number of cases occurring during the rainy season,—possibly because at this time other articles of diet are more expensive and the diet of the poor is more exclusively of rice. The infants are invariably breast-fed and almost always the mothers show slight or marked symptoms of beriberi.

SYMPTOMS.

The onset is insidious. The baby is plump and apparently well nourished; the face is round and chubby, sometimes almost swollen in appearance. Slight edema of the legs may usually be observed. Unless the infant is having a paroxysm of dyspnea or is in an advanced stage of the disease, it does not look sick, as it shows no paralysis and smiles and plays as a normal infant. Often the first symptoms noticed by the mother are restlessness, peevishness, a slight cough with dyspnea and perhaps cyanosis.

I have had a fat, healthy-looking baby brought to the hospital by a native mother, with the history that the baby turns black when it coughs. I have left the infant playing happily on the ward or nursing greedily at the mother's breast, instructing the nurse to watch and verify the mother's story,—and have been called back hurriedly a few hours later to find the baby cyanotic, gasping and so moribund that it has not responded to stimulation.

PHYSICAL EXAMINATION.

Physical examination shows usually a well developed and nourished infant about three months of age. The skin and mucous membranes of the face may be slightly cyanotic. The pupils are not remarkable; no strabismus or paralysis of the eye muscles is seen. The mouth and throat are seemingly normal; there are no enlarged glands in the neck; no enlargement of the thymus or thyroid glands is detected. The chest is of normal resonance, without areas of dullness. No bronchial breath sounds are heard; occasionally a few moist râles at the bases behind are detected. The heart is slightly enlarged to the left and occasionally enlargement to the right may be made out. The sounds are rapid, often clear; sometimes a slight systolic murmur is detected over the precordia. The pulses are rapid and often weak. The abdomen may be flat or rounded and tympanitic. The liver, spleen and kidneys are not remarkable. The genitals are normal. The legs show no paralyses; there is tenderness on pressure and movement of the legs, and slight edema over the shins. The knee-jerks are usually not obtained.

The temperature is normal or subnormal. Nothing abnormal is found in the blood. No albumin or sugar is detected in the urine.

MORBID ANATOMY.

Postmortem examination shows the subcutaneous tissues pale, watery and slightly edematous. The lungs sometimes show a little increased fluid in the pleural cavities; sometimes there is slight edema of the lung tissue. There is usually no evidence of bronchial inflammation,—no consolidation. A few subserous petechial hemorrhages are sometimes seen scattered over the visceral pleura. The walls of the right heart are markedly dilated and hypertrophied. No growths are seen on the valves. A few petechial subserous hemorrhages are scattered over the heart and pericardium. The gastro-intestinal tract usually shows no evidence of inflammation and no food elements other than milk curds. The genito-urinary system shows no abnormalities. The cause of death is seemingly due to failure of the respiratory center. During a paroxysm the infant shows more and more marked dyspnea and cyanosis. The breathing often becomes Cheyne-Stokes in character and ceases before the heart stops.

DIAGNOSIS.

The diagnosis is based upon the history, the appearance of the infant and the physical condition of the mother. The history is often that the baby has grown suddenly irritable; he may have a slight cough, grow cyanotic at times, have dyspnea and a harsh, crowing voice or he may even be aphonic; anuria may be complained of. The infant has always been breast-fed. He may perhaps look healthy, or he may be dyspneic and cyanotic without cause. The mother gives the history of having eaten milled rice almost exclusively. She shows some signs of polyneuritis, such as tender calf muscles, diminished or absent knee-jerks, varying grades of anesthesia of the legs, possibly some edema over the shins, dyspnea and tachycardia on slight exertion, and tells of feelings of numbness, weakness and formication.

The baby may improve rapidly or he may have an acute attack of dyspnea and die suddenly.

PROPHYLAXIS.

Prophylaxis consists of the proper nourishment of the mother during her pregnancy and period of lactation.

TREATMENT.

The treatment of infantile beriberi consists in giving the infant the nourishment that it needs. This has been accomplished by three methods:

First—Abundant feeding of the nursing mother. This method can be applied to a few hospital cases, but it is an economic impossibility to apply it to a community. It is often not of avail, moreover, in acute cases.

Second—Substitution of artificial feeding for the breast milk. This may possibly tide along acute cases in a hospital; but in a land where fresh milk is almost unknown among the poor and ice is a curiosity, artificial feeding means death, almost without exception.

Third—The giving of an extract of rice polishings, or "tiqui-tiqui." This preparation seems to supply the nutritional element absent in the breast milk. It is sweet and pleasant to take; it is not bulky and is easily prepared. It is efficacious and rapid in its action. Infants given 20 drops every two hours have shown almost immediate improvement; 5 c.c. are given daily.

CONCLUSIONS.

First—Infantile beriberi in the Philippines is a nutritional disease which occurs among native breast-fed infants.

Second—It causes about 25% of the total native mortality in the city of Manila.

Third—It is due to the absence of some as-yet-unknown nutritional substance in the breast milk of the nursing mother.

Fourth—It has been successfully treated by the giving of an extract of rice polishings, which is believed to supply the nutritional substance absent in the mother's milk.

Fifth—In the Philippines, where babies are almost always of necessity breast-fed, the reduction of the infantile mortality is dependent, even more than in other countries, upon the care and proper nourishment of the nursing mother.

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CHOLECYSTITIS AND CHOLELITHIASIS ASSOCIATED WITH PREGNANCY.

BY ROBERT M. GREEN, M.D., BOSTON.

Though it is generally recognized that cholecystitis and cholelithiasis, like appendicitis and other abdominal emergencies, may complicate pregnancy and the puerperium, yet the majority of textbooks have relatively little to say about the clinical aspects of their association. De Lee,[1] in his recently published "Principles and Practice of Obstetrics," speaks of these conditions somewhat more fully as follows:—

"It seems that pregnancy is a factor in the development of gall-stones, and it is not rare that the gravida has attacks of biliary colic. These seldom occur before the fifth month, but jaundice, with chills and fever, is more common than in the non-pregnant state. Labor may cause pain in the full gall-bladder, and the latter may be easily palpated during the third stage. In the puerperium attacks of gall-stones are infrequent. I have observed two cases, in one of which the symptoms were very stormy, with intense pain, collapse and vomiting, so that suspicion of the rupture of an abdominal viscus could well be entertained. Operation should be postponed, if possible, until after delivery, at least as late in pregnancy as possible, because premature labor may occur and the child be lost.

"Cholecystitis may complicate pregnancy, labor, and the puerperium. The symptoms are quite stormy and jaundice common. It is better to wait until after delivery for the operation, if possible, but in the presence of a strict indication, for example, a large empyema, one may have to drain the sac before labor. In one case the author had to make a differential diagnosis between puerperal infection and pus in the gall-bladder. Absence of local evidences of puerperal disease, signs of local peritonitis in the upper abdomen, with appropriate history usually indicate the exact source of the trouble."

The most recent really complete consideration of the subject of gall-stones in pregnancy was published in July, 1910, by Peterson.[2] He reported a fatal case of obstructive cholelithiasis in a multipara six months pregnant, in whom death was due to post-operative cholemic hemorrhage. He further collected from the literature 24 other similar cases of gall-stones complicating pregnancy, and 10 cases of this complication during the puerperium. These statistics he tabulates and analyzes. His bibliography of 50 titles forms a thorough and satisfactory list of references on the subject.

In June, 1912, in "A Statistical Study of a Series of (274) Abortions Occurring in the Obstetrical Department of the Johns Hopkins Hospital," Titus[3] reported one case of miscarriage apparently associated with gall-stones, in which, however, the exciting cause of the abortion was supposed to be "an x-ray photograph of the patient's gall-bladder taken about one week before hemorrhage from the uterus began."

In July, 1912, Branson[4] published an article on "Cholecystitis and Cholelithiasis in Their Relation to Pregnancy," in which he reviewed and discussed the entire question. His is the latest available contribution on this topic.

In view of the importance and interest of the subject, I am led to record the two following cases which have come under my observation:—

Case 1. I. C., a salesgirl of 22, had been married for three years, and during this time had had one miscarriage at four months, for which she was curetted, and one normal labor at full term. In August, 1911, she found herself again pregnant. On Nov. 4 she began to have a slight bloody discharge from the vagina, which continued until Nov. 14, when she began to have severe pains in the pelvis, bled profusely, and expelled a three months' fetus.

When first seen on the morning of Nov. 15, she was still flowing, but was not exsanguinated. Her pulse was 108 and her temperature was 100.°0. Her hemoglobin was 85%. Her general physical examination was normal. Vaginal examination showed a parous introitus, excellent perineum, a stellate tear of a hypertrophied and indurated cervix, through whose patulous os placental tissue was protruding. The uterus was in normal position and not tender, the fundus rising half-way to the umbilicus. There were no tenderness, masses, or resistance in the vaults. Under ether the cervix was dilated and the uterus curetted of a large amount of placental tissue. The uterine cavity was wiped out with gauze, irrigated with salt solution, and left empty.

The patient's temperature did not fall after operation, and she complained of some general abdominal pain. On the evening of Nov. 17 the temperature rose to 102.°2. An intrauterine douche was given, and on the evening of Nov. 18 her temperature was normal. On Nov. 19, however, she had an acute attack of severe pain in the right upper quadrant of the abdomen, where there was considerable tenderness and muscular spasm, but no mass was felt. There was nausea but no vomiting. On Nov. 20, the pain, tenderness and spasm continued, the temperature rose to 100.°0. The patient was slightly jaundiced and there was a trace of bile in the urine. The white count in the morning was 13,800, in the evening 20,200. On Nov. 21, the pain and fever had subsided, the tenderness and spasm continued, the white count was 17,600. On interrogation, the patient acknowledged having had previous similar attacks of pain, but never before so severe.

Her convalescence now continued normal and she was allowed to sit up on Nov. 26. She had a second attack of pain that day, and a third on Nov. 30, each lasting about 3 days, but less severe than the first. The physical signs were in each instance the same.

In view of these recurring attacks of pain in the biliary region, a diagnosis of intercurrent cholecystitis was made and operation was advised.

On Dec. 7 a high right rectus incision was made. The stomach was examined and found free from evidence of ulcer. The common bile duct was carefully palpated for its entire length, but no stone was found. The head of the pancreas felt normal in size and consistency. The gall-bladder was somewhat thickened and was surrounded by a few light adhesions, which were easily broken.

Walling-off gauzes were placed, the gall-bladder opened, and evacuated of an ounce of thick, dark bile, a culture from which showed a subsequent pure growth of staphylococci. No stones were found in the gall-bladder or cystic duct. The gall-bladder was stitched to the peritoneum at the upper angle of the wound and drained with a rubber tube. A cigarette wick was placed into the right renal fossa, and the incision closed to the drains in layers.

The patient had a normal convalescence except for a slight fever, which on Dec. 13, when the cigarette wick was removed, rose to a maximum of 101.°0. The gall-bladder drained freely, the bile becoming clear and golden-brown in color. With the removal of the stitches and rubber tube drain on Dec. 17, the temperature fell to normal and remained so. The sinus ceased to discharge on Jan. 4, 1912, and on Jan. 17 was entirely healed. Since that time, the patient has had no discomfort from the wound, her general health has been excellent, and she has had no recurrence of biliary pain.

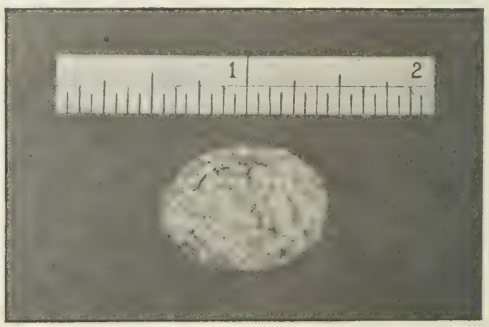
CASE 2. L. K., a negress of 38, had been married for seven years, and in that period had had two normal labors at full term. Her latest regular catamenia ceased on June 20, 1911, and as she did not flow in July, she considered herself again pregnant. On Nov. 14 she began to have a slight bloody discharge from the vagina, which continued until Nov. 17, when she began to flow profusely and to have severe pain in the pelvis. She miscarried of a four months' fetus, but continued to have some dark bloody vaginal discharge, associated with vomiting and severe chills.

When first seen on the morning of Nov. 29, she had a temperature of 100°, and a pulse of 100. Her general physical examination was normal. Vaginal examination showed a multiparous introitus and perineum, a bilateral tear of a hypertrophied cervix, whose canal was patulous. The uterus was in normal axis and not tender, the fundus rising halfway to the umbilicus. The vaults were tender, but no masses were felt. Under ether the os was dilated and the uterus curetted of a moderate amount of tissue, which by the pathologist was reported as inflammatory, without evidence of malignancy or of pregnancy. That the patient had miscarried, however, there is no question. The uterus was irrigated, and on account of profuse hemorrhage was packed with two gauze strips.

The patient's temperature remained at a constant elevation of 100.°0, which at first was attributed to a diffuse bronchitis which she developed. She complained of headache, had a profuse diarrhea, and seemed lethargic. There was moderate tympanites and soft abdominal distention. The spleen could not be felt. The Widal reaction was negative, the white count 14,000. On Dec. 25 the patient had a sudden severe attack of pain in the right upper quadrant of the abdomen, requiring morphia for its control. There was marked tenderness and spasm in the gall-bladder region, but no mass was felt. The pain subsided, but on Dec. 7 the temperature rose to 101.°8, and the conjunctivae became jaundiced. There was no bile in the urine. On Dec. 10 the pain recurred, and on examination there was felt projecting from below the right costal border a smooth, rounded, tense, tender mass, the size and shape of a small Bartlett pear. On interrogation, the patient gave a history of having had typhoid fever at the age of 14, but denied having ever had any attack of abdominal pain similar to the present.

In view of the history and of the presence of a tender tumor in the region of the gall-bladder, associated with jaundice, the diagnosis was made of acute cholecystitis probably associated with obstructive cholelithiasis, and immediate operation was advised.

On opening the abdomen by a high right rectus incision, the gall-bladder was found tense, purplish, and distended to the size above described. Walling-off gauzes were placed, the gall-bladder opened and evacuated of two ounces of colorless, cloudy, tenacious fluid, a culture from which showed a subsequent pure growth of colon bacilli. Engaged in the opening of the cystic duct was a granular, non-



Gall-Stone from Case II: actual size.

friable greyish-yellow calculus (See figure) the size of a small robin's egg. This was removed. Careful palpation of the common bile duct failed to reveal other stones. The stomach and pancreas appeared normal. The gall-bladder was stitched to the peritoneum at the upper angle of the wound and drained with a rubber tube. A cigarette wick was placed into the right renal fossa, and the incision closed to the drains in layers.

On the morning of the day after operation, the patient's temperature rose to 105°, but fell that evening to 103.°0, and steadily thereafter till on Dec. 17 it reached normal, where it remained during the rest of convalescence. The gall-bladder drained freely of normal bile. The drains were removed on Dec. 15, the stitches on Dec. 21. The sinus ceased to discharge on Dec. 30, and on Jan. 2, 1912, was entirely healed. Since that time, the patient has had no discomfort from the wound, her general health has been excellent, and she has had no recurrence of biliary pain.

From a study of these cases and of those previously reported in the literature, it seems fair to make the following

CONCLUSIONS.

1. That there seems to be a definite causal association of cholecystitis and cholelithiasis with pregnancy.

2. That symptoms due to either of these conditions may occur during pregnancy, during puerperium following labor at term, or after miscarriage.

3. That the existence of gall-bladder disease is not in itself a cause of miscarriage, but that miscarriage may induce the development of active symptoms from a process previously latent.

4. That cholecystitis or cholelithiasis occurring during convalescence from miscarriage should receive the same surgical treatment and bear the same prognosis as in cases not associated with pregnancy.

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DIFFUSE SUB-DURAL LIPOMATOSIS OF THE SPINAL CORD IN AN INFANT.

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AND
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Sub-dural lipomata are not uncommonly seen in cases of spina bifida and spina bifida occulta. Von Recklinghausen[1] has shown the significance of these tumors, and has called attention to the fact that they are almost invariably mixed tumors, rather than true lipomata; usually myolipomata or fibrolipomata. These mixed tumors either spring from the subcutaneous tissue and stretch toward the cystic myelomeningocele, or are true intradural growths, springing from the spinal membranes and projecting free into the cyst. Fatty tumors may also appear when there is no marked cystic enlargement of the spinal canal, but only a flattened serous canal, the remains of a shrunken cyst that had formerly existed over the sacral region. It is noteworthy that in such cases club-foot, a symptom so often associated with spina bifida, has occasionally been observed.

In spina bifida occulta there are sometimes found intradural lipomata which may be connected through a fibrous strand, piercing the membrana reuniens, with a similar growth in the subcutaneous tissue. These tumors lie in the canal itself. All such tumors, it is to be remarked, lie in lumbar or sacral portions of the cord.

Cases of intradural lipomata not connected with spina bifida are, on the other hand, extremely rare. We can only find two cases reported in the literature. The first of these is that reported by Gowers,[2] and so closely resembles some of the tumors above alluded to that there is more than a likelihood that spina bifida was present. Gowers' patient was suffering from tabes dorsalis. At autopsy there was found a small mixed tumor composed of fatty tissue and striped muscle, attached to the conus medullaris, and apparently springing from the pia mater, which was greatly thickened. The tumor measured half an inch in length, three-eighths of an inch in breadth, and half an inch in thickness. Its position was left-sided, stretching from the anterior to the posterior fissure; the shape was crescentic. Bands of fibrous connective tissue divided it into islands. In the anterior portion there was much wavy fibrous tissue and striped muscle. Here again a congenital origin is suggested by the presence of muscle.

The second case is that reported by Braubach.[3] His patient was a girl of five years, who had suffered since the earliest months of life from cramps, which had later been followed by motor paralysis, pain and incontinence of both rectum and bladder. At autopsy the brain and medulla were found normal. The lower two-thirds of the cervical cord and the upper one-third of the dorsal cord were compressed by a tumor of fat tissue, springing from the arachnoid, and loosely connected in places with the dura. The tumor is spindle-shaped and measures 12 cm. long by 3 cm. wide by 2 cm. thick. The cord is pressed forward and to the left. It is compressed and degenerated and lies, as it were, in a canal in the front of the tumor.

The present case was found in a male infant, aged ten months, from the Pathological Service of the Bender Laboratory in Albany. The clinical diagnosis was chronic internal hydrocephalus. At autopsy the dura was found to be normal and to reflect normally from an apparently greatly enlarged spinal cord, which was covered with a smooth glistening arachnoid coat. The enlargement of the cord was symmetrical from the medulla to a few cm. above the filum terminale, where there was a marked constriction. Below this point there was an ovoid swelling one to one and a half cm. in diameter. In the cauda equina, attached to the nerve trunks there were numerous small, white, firm nodules, 2 to 5 mm. in diameter. The diameter of the cord in its greatest part (cervical) was two by one and a half cm. The diameter of the dorsal cord averaged one by one and a half cm. (Fig. 2). On section, the cord itself seemed to be flattened, and presented as a greyish zone 2-4 mm. wide, occupying a portion of the periphery on the ventral side. The material composing the bulk of the enlarged spinal cord was firm and white. The cross section presented a reticulated appearance, resembling a cross section of the muscle of fish. Microscopical examination of fresh material, however, showed that this was fat in the form of large globules.

It is to be remarked that in this case there was a congenital absence of the right kidney and ureter, as well as a chronic internal and external hydrocephalus, and a cleft palate and hare-lip. There were no other findings of importance, except that the spinal canal was much larger than normal, to correspond with the greatly increased dimensions of the cord. Thus it is seen that this case, though not associated with a spina bifida, was certainly associated with other congenital defects, a fact which raises the question whether such intra-dural lipomata ever occur except in connection with congenital malformations.

The medulla showed attached to it at the cerebellar-pontine angles, two small white nodules, attached to the pia mater by broad pedicles, one to one and a half cm. in diameter, greyish-white in color, and offering little resistance to the knife (Fig. 1). These nodules showed on microscopical examination an appearance similar to that of the tumor in the spinal canal.

Microscopically, in stained sections, the tumors over the medulla show masses of large spherical fat cells, divided into lobes by strands of connective tissue, which spring apparently from a greatly thickened pia mater. The fat of these cells stains like normal fat with Sharlach R and Osmic acid. The tumors contain several large vessels, and are on the whole distinctly vascular. They are partially encapsulated by a thin band of connective tissue, probably the remains of the arachnoid. The spinal cord appears throughout greatly flattened and distorted, and connected closely throughout its length with a fatty tumor, of the same nature with those in the medulla, in which are imprisoned several nerve roots. (Figs. 3 and 5.) The connective tissue capsule is thicker than that seen in the tumor over the medulla. The filum terminale is encased in a similar fatty growth, which lies between a greatly thickened pia and a fibrous tissue capsule representing the arachnoid. The cauda equina appears as several nerve trunks encased in a fibrous tissue capsule and separated by diffuse masses of fatty tissue resembling that seen in the medulla and the cord, the whole being surrounded by a thick connective tissue capsule. In the conus medullaris there are several small ependyma-lined cysts with neuroglia tissue in the intervening spaces (Fig. 5). Throughout the tumor, there is no sign of embryonic fatty tissue or of anything which would indicate rapid growth. In the cervical region, however, the remains of the dorsal columns are represented by scattered nerve-bundles separated by strands of fibrous tissue continuous with that of the pia mater, in which are numerous fat cells, an appearance which suggests that there was at one time some degree of active invasion of the cord itself by the lipomatous cells. This tumor, therefore, must be regarded as benign and of congenital origin.

Microscopically then, we find that the tumor is intradural, lipomatous in nature, and essentially benign, though showing some evidence of slight invasion of the substance of the cord itself. The growth is surrounded by the pia arachnoid.

Finally, from perusal of the literature, it is evident that such a condition is exceedingly rare, except in connection with spina bifida. Furthermore, in the few cases where it has occurred in the absence of the latter condition, there has always been, with one exception, either some associated congenital malformation or something in the structure of the tumor itself to suggest a congenital origin. In brief, the question arises whether such a condition can arise independently of other congenital defects. The extensive and symmetrical involvement of the spinal cord makes this case unique.

Let us summarize briefly the findings in this case. Anatomically there are present two small white tumors at the cerebellar-pontine angles, and a spinal cord symmetrically enlarged throughout its length, except for a constriction a few cm. above the terminal filament, the enlargement being due to a similar firm white growth inside the spinal membranes, which has flattened the cord itself and crowded it ventrally. Microscopic examination shows this growth to be composed of cells having the appearance of normal fat cells, the fat contents of which react to Sharlach R and Osmic acid, like normal human fat. The fatty growth is entirely limited to the confines of the pia arachnoid. In addition there are present cleft-palate and hare-lip, absence of the left kidney and ureter, and chronic internal and external hydrocephalus.

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[1] Von Recklinghausen: Untersuchungen über Spina Bifida. Virchow's Archiv., 105. 1886.
[2] Gowers: Trans. Path. Soc., London, Vol. 27.
[3] Braubach: Archiv. für Psychiatrie, Vol. 15, 1884, p. 489.
For a brief general treatment of the subject the reader is referred to Lubarsch-Ostertag, "Ergebnisse der Pathologie und Anatomie," 1903; Erste Abteilung, p. 468.

DESCRIPTION OF FIGURES.

Fig. 1. Cerebellum, inverted, showing fatty tumors at cerebellar pontine angles.
Fig. 2. Spinal cord with the dura reflected, showing the cord and growth enveloped in the pia-arachnoid.
Fig. 3. Section of cervical cord, osmic acid impregnation, picric acid and acid fuchsin counterstain. Note flattened cord and connective tissue on dorsal surface, which surrounds nerve bundles in the dorsal columns.
Fig. 4. Section of lower lumbar cord; same technic as Fig. 3.
Fig. 5. Longitudinal section through the conus medullaris, showing fatty tumor and ependyma lined canals.

THE ABUSE OF THE X-RAYS IN THE TREATMENT OF SKIN AFFECTIONS.

BY JOHN T. BOWEN, M.D., BOSTON.

The attitude of the practitioner of medicine toward the adoption of new therapeutic measures must be regarded as essentially dependent on individual temperament. A short and easy road to a permanent cure is the aim of everyone engaged in trying to heal the sick, and to those having special opportunities, the testing of new remedies and methods of treatment is a privilege of the utmost importance and value. Such a privilege, however, is not vouchsafed to the many, and for them the decision as to what remedies are safe or valuable for present use, must be based on the testimony of others. It is here that the matter of temperament thrusts itself into the foreground. By one of somewhat conservative nature, who has seen many methods that have been heralded as marvellous in their results, either wholly superseded or reduced to a very subordinate place in the catalogue of resources, much is demanded of a new method before its adoption,—above all, a reasonable certainty that it will at least do no harm. For the enthusiast anything new is attractive, and the calm deliberation as to whether a worse subsequent condition may result, is consistently lacking.

The discovery of the Roentgen rays offered at the outset hopes of a wide field of application in the treatment of skin diseases. These hopes have been on the whole only partially realized.



FIG. 1.

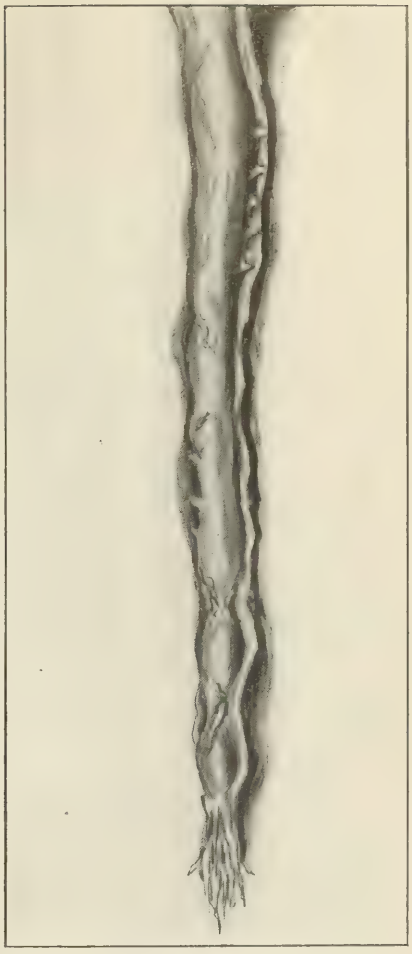


FIG. 2.

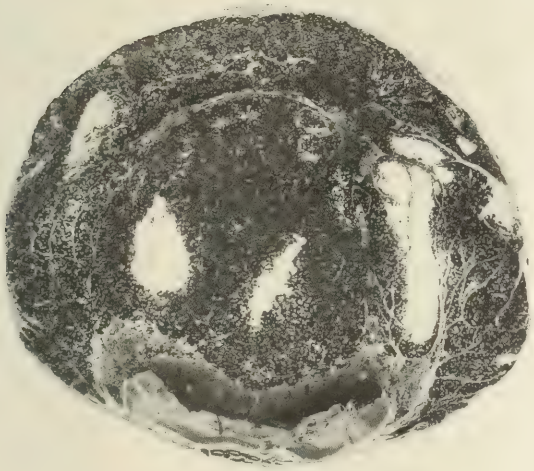


FIG. 3.

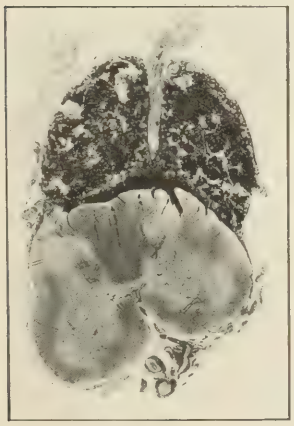


FIG. 4.



FIG. 5.

The place of the x-rays in dermatological therapeutics is at present a limited one, not so extended as that of many of the older methods that at times have seemed in danger of eclipse. This place, although small, should, however, be reserved for it. Unfortunately, the *abuses* of this treatment have had the result in great measure of prejudicing against its beneficial uses. Briefly, the legitimate use of the x-ray in this class of diseases is confined chiefly to the following cases: (1) Surgically inoperable epitheliomata, especially those involving the orbit of the eye. (2) Epitheliomata, or other malignant neoplasms in cases in which the patient absolutely refuses radical surgical intereference. (3) Small cutaneous epitheliomata in certain selected cases, in which a good cosmetic result is very important. (4) Sycosis, and obstinate pruritus of local or general character. (5) In a few other dermatoses, such as obstinate patches of psoriasis and eczema, in mycosis fungoides, and in a few rare affections, the x-ray may occasionally be used with great advantage.

The disadvantages of the x-rays are chiefly those resulting from its improper use. The question of susceptibility has been much discussed, and need not concern us now. My chief object is to call attention to the disfiguring results produced by many who make use of this method without proper training or experience. To use this method properly and safely one should have had a certain apprenticeship. No one, however brilliant, can seize a knife for the first time and perform expert surgery. In the same way, no practitioner can buy an x-ray outfit and properly treat, without practice, skin affections of which he has little knowledge. He thinks, perhaps, that he is sure of his diagnosis, and has read statements that the x-ray has given wonderful results in similar cases. It is from such sources as this that the many disfiguring scars and blemishes are produced, that have the double misfortune of prejudicing other physicians or patients against the legitimate use of this method. Such instances have come to my knowledge with deplorable frequency of late. To cite one or two recent cases at random:—

Case 1. A woman of 33 had had an erythematous and scaling eczema of the neck and parotid region and arms that had extended over several years and had not yielded to treatment. For nine months she had had a weekly treatment by the application of the x-rays to the affected parts. When seen, the whole of the area that had been exposed to the treatment was covered with pronounced telangiectases and atrophic scars. On the arms there had developed in addition a sclerodermatous condition. The eczematous condition was still present but was masked by the disfigurement resulting from the treatment.

Case 2. A woman of 45 had been exposed several times to the x-rays by a dentist on account of an obscure pain in the jaw. When seen there was marked pigmentation, erythema and scaling of the whole of the left cheek, to which the rays had been applied. The hair had fallen completely over the temporal region, which had not been properly protected from the action of the rays.

Case 3. A woman of 30 had had four years' previous to the time when she came for relief, a number of exposures to the x-ray for the removal of what she describes as a fine lanugo growth of hair on the chin and lower parts of the cheeks. The whole surface thus exposed was covered with numerous disfiguring telangiectases, and superficial and atrophic scars, so that the patient was much embarrassed when appearing in society. I have seen and treated this patient for the disfigurement described quite constantly *for the last three years,* and she is still under my care and following my instructions. I have succeeded in accomplishing a good deal as far as lightening the effect produced by the telangiectases is concerned. A partial improvement is, however, all that can be hoped for in such a case, but the disfigurement was so marked that the prospect of any betterment was eagerly welcomed.

These instances could be largely multiplied from my own experience alone. Conversation with those who have personal acquaintance with x-ray exposures confirms these observations.

Dr. Walter J. Dodd writes to me as follows: "With regard to our conversation of some days ago, concerning the injuries resulting from the use of the x-ray in both therapeutic and radiographic work, I would say that I have seen several cases this year that have shown marked erythema, and one case a severe alopecia, resulting from the use of the so-called dental coil, which is used in taking dental films. I have seen other cases that showed a considerable atrophy of the skin accompanied by marked telangiectases, resulting from repeated exposures in the treatment of skin lesions. I agree with you that it is to be regretted that such a useful agent, both in therapeutic and diagnostic work, should get into ill repute in the minds of the medical profession as well as the laity. In my opinion it is all due to a lack of knowledge of the dangers of these so-called "harmless machines." There is absolutely no danger to the patient today, if certain precautions are observed. By interposing a leather or aluminum filter between the tube and the patient all danger is removed; also the tube should be at least fourteen inches from the skin—twenty is better. Under no circumstances should skin lesions be treated week after week, as is done in some cases, by this method."

Furthermore, while small superficial epitheliomata, such as have been treated successfully by dermatologists for many years by means of curetting and cauterization, may be equally well and painlessly removed by the x-rays, the large and deeper seated growths are distinctly unsuited to this method. Harm is frequently done by temporizing with these inadequate means when radical surgery is imperatively indicated.

To emphasize once more the results of the abuse of this method of treatment, a patient not

long ago was advised by me to undertake exposure to the x-ray for the healing of an epithelioma of the eyelid, that was not suited to radical excision. The practitioner who sent the patient to me for an opinion, objected that he had seen so many bad results from the use of the x-rays in therapeutics that he was inclined to abandon it altogether. This prejudice cannot be wondered at in view of the unfortunate results so frequently seen. It is a fair question for discussion whether, as at present employed, this method of treatment may not, on the whole, be a source of more harm than good.

It has not been my purpose in this article to discuss freely the dermatological uses of the x-ray. This subject is far too extensive for my present space. Numerous lengthy articles, and even books dealing with this matter may be found in the literature. The x-ray has proved to be, in proper hands, a useful addition to our means of treating certain carefully selected cases of skin disease, especially the affections that I have mentioned. It is to the *abuse* of the method that I wish to call attention, and to show:—

1. That a great many cases of unnecessary disfigurement, more obvious than the original affection, are caused by an improper use of the x-rays.
2. That the cases suitable for this treatment can be selected only by those who have some considerable knowledge of skin affections.
3. That this method of treatment requires especial study and training and should not be regarded as an easy and safe procedure by those unskilled in its use.

A STATISTICAL STUDY OF REMISSIONS IN GENERAL PARALYSIS.*

BY HARLAN L. PAINE, DANVERS, MASS.

(No. 36 of the Danvers State Hospital Contributions.)

Since the opening of the Danvers State Hospital there have been nearly 17,000 cases admitted, and of this number 1,420 were diagnosed as cases of general paralysis.

Southard, working with Danvers State Hospital material, reviewed 250 autopsied cases and concludes, regarding accuracy of diagnosis, in general paralysis, as follows: The accuracy of diagnosis in general paralysis was 9 out of 10, that is to say, out of 10 cases, in which medical persons, or at least medical men of the average Danvers type, made the diagnosis, there would be one out of ten which would not turn out at autopsy to be a case of general paresis." Taking this percentage of error into consideration, there would be 1,279 that could reasonably be considered to be cases of general paralysis.

The clinical records of these 1,420 patients diagnosed as general paralysis have been analyzed and the cases that have shown remissions studied. One hundred and thirty-two patients showed improvement to such an extent that it can be said that the patient had a remission. On analysis 37 of these cases were rejected as not showing enough symptoms to make the diagnosis certain, leaving 95 that were undoubted cases of general paralysis that showed a remission.

No case was considered a case of general paralysis that did not show the following physical signs: Alteration of the pupillary reaction, as sluggish or stiff reaction to direct light; alteration of knee jerks; motor incoördination as shown by impairment of speech, handwriting, or tremor.

For the mental picture it was required that the patient should show memory defect, judgment defect and some form of emotional disturbance.

The degree of improvement required to be considered a remission was that the patient should be up about, free from conduct disorder, able to care for himself in every way, showing no periods of confusion, delusions or hallucinations. Slight deterioration usually was noted in the histories of these cases.

The 95 cases that have been studied showed the above physical and mental symptoms during their stay in this hospital, and improved to the extent noted above.

Out of these cases considered, 47 were cases whose conduct and symptoms would place them in the class of the exhilarated form of general paralysis, 37 belonged to the demented type, 11 to the depressed type.

In 29 of the cases, 30%, a history of syphilis was obtained, and the duration of the interval between the infection with syphilis, and the onset of the symptoms of general paralysis varied between 4 and 25 years, the average interval being 13 years and four months.

Eight of these cases received active antisyphilitic treatment; 6 at time of infection, 2 when their mental symptoms developed. In these 6 cases that received treatment at time of infection it is recorded that their treatment lasted two years. The average age of infection in 24 cases in which it could be ascertained was 24 years. The average age at which the general paralysis began in all the cases was 32 years.

Sixty-two of the cases gave a history of having been steady users of alcohol. In 7 it was definitely stated that the patient had never used alcohol.

In only 16 cases, or nearly 17% of the cases, were hallucinations recorded, 8 being wholly confined to the auditory sphere, 6 having both auditory and visual, 1 only visual, and 1 case suffering from all forms.

The duration of the general paralysis before the beginning of the remission varied between 2 months and 10 years, the average duration of the disease before remission being 1 year and 9 months.

The duration of the remission varied between

* Read before the New England Society of Psychiatry, Oct. 3, 1912.

2 months and 13 years, the average duration being 11 months in the 53 cases in which the history was sufficient to show; 36 cases left the hospital during their remission and were not again heard from.

Definite information was received that one case that left the hospital was committed to another institution after a remission of 20 months; 7 cases are in the hospital and are still enjoying a remission.

In the 52 cases that remained in the hospital until they died, it was found that 2 died in convulsions during the remission, and the others lived from 2 weeks to 5 years after the remission ended, the average duration in these cases being 1 year and 9 months.

The most interesting fact shown by the study of these cases is the presence of paralytic and apoplectic seizures. Only six of the cases gave a history of suffering from either a paralytic or apoplectic seizure before the remission, and only one showed a paralytic seizure, while two gave a history of convulsions. In three cases apoplectic seizures were noted, but they were limited to a loss of speech for a few hours.

CONCLUSIONS.

Therefore, from a study of unselected and consecutive cases of general paralysis admitted to this hospital during a period of 34 years, only one case with a history of a paralytic seizure showed a remission, and only 6 cases with a history of any form of cerebral insult showed a remission.

Inversely then, it may be said that if a case of general paralysis in its early stage has a paralytic seizure, the chances are very small that that case will have a remission.

Clinical Department.

NON-UNION OF THE CLAVICLE IN A CHILD.*

A CASE WITH A LESSON.

BY WM. PEARCE COUES, M.D., BOSTON.

Non-union of the clavicle in children is so rare that it is of interest to report a case, the first which has come to my personal attention in some years of treating many clavicle fractures in children. A remark of an expert surgical pathologist and surgeon concerning this case, that the clavicle would not unite without open operation no matter what the cause of the non-union was, stimulated me to careful study of the matter and a resolve to make it unite without operation if possible.

Florence B., eleven years of age, was seen at the surgical clinic of the Boston Dispensary in April, 1912. On March 16 she fell on the sidewalk over some wire. She struck, hitting her right shoulder. The blow was not a severe one. She was treated at the Relief Station immediately after the accident and presented herself for treatment at the Dispensary shortly after this.

There was nothing remarkable in the history. The mother and father were living and well. The father had had typhoid fever and nervous prostration. There were no other children and no miscarriages. The child had had mumps, measles and whooping cough, but no serious illness. There had been no eye trouble and no deafness; tonsils had been removed four years ago. When I saw the patient about April 1, the arm had been put up with a modified Sayre dressing. This had caused some pressure over the olecranon and there was a slough here that refused absolutely to heal, despite all measures. The arm was put up in a Velpeau with great care, but the slough was resistant to treatment. The elbow became very stiff and the hand began to assume the claw-like look of Volkmann deformity. After three weeks there was considerable callus over the clavicle fracture and it seemed as if it would soon be united, but shortly after a careful examination showed soft callus and no real bony union. The slough over the olecranon persisted.

A very careful examination of the child was made at this time. She was of average height for her age, very well developed and nourished. There were no scars on the lips and absolutely no other outward signs of inherited syphilis. Notwithstanding this an x-ray of the leg bone was taken which showed a quite marked periostitis of the tibia. It was found on careful inquiry that this was the mother's second marriage and that she had had a child by the first marriage which I believe did not live long, but she had had no miscarriages. An x-ray of the father's and mother's leg bones were taken which certainly was suspicious of specific periostitis.

The slough over the olecranon was dressed after this with mercurial ointment and the child was put on mixed treatment. In a few days there was a wonderful improvement. The slough healed almost like magic. The child felt very much better physically. (She had not been feeling well since the accident.) In six weeks the clavicle was practically solid. By August there was no pain or trouble and the child was well. Immobilization for practically three months.

Examination, December, 1912, showed the clavicle as solid as a rock and the child in perfect health. All movements of the shoulder were perfect. There was no deformity at the site of the fracture which could hardly be detected. There was, however, some shortening of the shoulder. The leg bones, which were quite rough and thick in June, have smoothed out entirely. Examination of the eye grounds of the father and mother and the child proved normal. There was no sign of any interstitial keratitis in the child. It was stated that the fall was a comparatively slight one which led to this accident, which is often the case in clavicle fractures in healthy children.

That the bones of syphilitics are prone to fracture under slight traumatism is well known. Dron[1] in 1871 showed that the fractures in syphilitics took a much longer time to become solid than in healthy people. That syphilitic bones should break spontaneously or with very slight

* Read at a meeting of the New England Pediatric Society, January 25, 1913.

traumatism where there is trouble easily determined by the macroscopic examination, does not seem remarkable, but the fracture of seemingly healthy bones in young syphilitics is another matter.

Charpy[1] studied this question and found that the resistance of a bone of this character is much diminished. For example, he found that the fibula would break when subject to a pressure of 150 or 100 kilograms and that it took the weight of 300 kilograms to break the fibula of a healthy man. The density of the bone is diminished; instead of being 1.60, it is 1.50. Thus we see that the syphilitic bone without apparent lesion has a lesser resistance and diminished density. The quantity of calcium in these bones is diminished. Thus it was found that in the fibula of tuberculous individuals there was found 2.92 of fluoride of calcium, in healthy people 2.43, and in syphilitics 1.99. Sometimes these fractures are produced by muscular violence and this fact should always be thought of under these conditions.

The key to the situation in this case was the stubbornness of the slough over the olecranon in healing, which led to the taking of an x-ray of the shin bones. I hope that if the report of this case accomplishes nothing of great interest it will help in teaching the often forgotten lesson,—when things do not go right in wounds and fractures think of syphilis.

REFERENCE.

[1] Gaucher: Syphilis des Viscères et de l'apparéil locomoteur, p. 545-547.

A CASE OF BLOOD CYST OF THE CHEST WALL.*

BY WILLIAM PEARCE COUES, M.D., BOSTON.

Marion W., five years of age, was seen at the Surgical Clinic of the Boston Dispensary, December 12, 1911. The history was as follows: The father and mother are living and well. The child has always been well except for pneumonia, whooping-cough and chicken-pox. Present Illness: For three weeks or more a swelling has been noticed over the anterior part of the left chest, extending up to the shoulder and to the anterior axillary line. The swelling has caused the child no inconvenience and has not been painful. Physical examination showed a well-developed and nourished child of five years. The hemoglobin was 85%. Examinations of the nose and throat were negative. The reflexes were normal. The abdomen was soft and there were no masses felt. Examination of the chest showed the following: There is a mass about the size of a small cocoanut occupying a position on the left anterior region of the chest, from under the shoulder to the anterior axillary line. This mass is not reddened or tender to palpation. There is no communication from the skin covering the mass to its substance. It has a semi-fluctuant feel, somewhat similar to that observed in certain lipomata. The mass can be moved fairly freely about on the chest but cannot be grasped entirely in the hand. There were no enlarged axillary glands felt. A radiograph of the chest is negative; no signs of a tumor being seen.

The wards of the Children's Hospital at the Dispensary not being completed the case was referred to Dr. James S. Stone at the Children's Hospital. Through Dr. Stone's courtesy I was enabled to follow the case at this institution. The diagnosis here was Cyst of the Axilla. An operation was done by Dr. Stone, January 1, 1912. "An incision was made over the tumor, parallel with and just above the lower edge of the pectoralis major muscle. The incision was carried down to the muscle so that the tumor lay entirely underneath it. Exposing the tumor it was found to be cystic and contained a blood-stained serum. With blunt dissection the tumor was readily shelled out except at its deeper portion. On the outer side it lay in direct contact with the larger vessels and brachial plexus. It extended far upward underneath the clavicle and on the inside it lay against the chest wall. On the outside against the pectoralis muscles. When the tumor was almost completely removed it ruptured, and the deeper portion, being very thin walled, had to be removed separately. The wound was closed by suturing the fascia by fine chromic catgut and the skin with plain catgut. One very small piece of rubber dam was inserted for drainage."

On January 13, temperature was 104.6, and the urine contained numerous pus cells. The wound was clean. The child was put on urotropin. On January 17, there was bright red blood in the urine. An x-ray of the pelvis was negative. On the 20th there was an irregularity of the heart but no other symptoms. On the 25th the irregularity had subsided; the child was up, and the urine clear. The wound was healed completely. Diagnosis of Acute Pyelitis was made. The child was discharged and was to report to the medical out-patient department but has not since been heard from at the Dispensary or Children's Hospital, although efforts have been made to get into communication with the mother.

IT is greatly to be regretted that the specimen was lost so no microscopic examination could be made. Macroscopically, the tumor was a thin walled cyst filled with what seemed to be altered blood or serum, into which there had been enough hemorrhage to give the fluid the outward characteristics of macroscopic blood.

The size, position and character of the cyst are of interest. In a considerable experience it has not been my fortune to see a growth of this character in this position.

"A cyst," according to Coplin,[1] "consists of a connective tissue membrane, a supporting wall lined by epithelium or endothelium, forming a cavity, the contents of which may be fluid or semi-fluid, uniform in composition or made up of a mixture of similar or dissimilar substances. When the wall of the cyst is passive and uninfluenced by the retained or extravasated contents in a mechanical way, only the cyst is said to be simple or unilocular. Cysts are divided into classes from their anatomic and pathologic characteristics. We may have retention cysts, exudation cysts, cystomata (hygroma), extravasation cysts, dermoid cysts, parasitic cysts, and, finally, cysts resulting from necrotic and degenerative changes in solid tissues."

* Read at a meeting of The New England Pediatric Society, Jan. 25, 1913.

The characteristics of this cyst, its location, macroscopical appearance leads me to believe, even without the pathologist's report, that in all probability it belongs to the third class, that of cystoma, that is, "a cyst of new formation." According to Coplin, "the wall is of mesoblastic origin lined by a flattened layer of connective tissue cells (endothelium)." The fluid in these cysts is most generally clear, but it may be colored or dark like blood, as a result of bleeding into its cavity. These cysts are most often encountered in the neck and axilla. They are for the most part of congenital origin, as Coplin points out, sometimes associated with macroglossia. They are nearly allied with cavernous lymph-angiomata.

Operations upon these tumors seldom allow of the exact anatomic structure, from which the cyst springs, being ascertained. This is on account of the often great depth of attachment, of hemorrhage, and of friability of the cyst wall, or all these conditions combined, as in the above case. Certainly it seemed as if this cyst in question did not spring from the axilla or the neck, but from the tissues forming the deepest part of the anterior chest wall under the clavicle. The only other cystic condition which one would consider in this case is the extravasation cyst. "These cysts are formed around distended or ruptured vessels. They may occur in any tissue. The cyst wall is usually thin and its inner surface smooth, but the reverse may be true." It does not seem as if the cyst in question belonged to this class.

The lipoma-like feel of the cyst was evidently due to its situation, directly under the great pectoral muscle. It is a point of value in the diagnosis of similar masses or tumor growths, that overlying muscle gives a feeling on palpation exactly similar to a solid or nearly solid tumor.

REFERENCE.

[1] Coplin, W. M. L.: A Manual of Pathology. Fifth edition. 1911, p. 361-365.

Medical Progress.

PROGRESS IN GYNECOLOGY.

BY STEPHEN RUSHMORE, M.D., BOSTON.

VAGINAL CORPUS AMPUTATION.—ALEXANDER OPERATION.—GONOCOCCUS VACCINES.—ROENTGEN THERAPY IN GYNECOLOGY.—ETIOLOGY OF UTERINE BLEEDING.

VAGINAL CORPUS AMPUTATION.

ATTENTION has again been called by Rieck[1] to the value of vaginal amputation or resection of the corpus uteri. The feature which he especially emphasizes in the operative technic is the suturing of the reflection of the bladder peritoneum to the posterior wall of the uterus at an early stage in the operation. It should be sutured below the line of the proposed amputation, thus enabling the surgeon to carry out the rest of the operation extraperitoneally. This advantage is certainly worth considering in the perfecting of the technic, but its value has not yet been demonstrated by a sufficient number of cases. After delivering the fundus through the uterovesical space and attaching the bladder peritoneum to the posterior wall of the uterus by a continuous suture, the upper part of the broad ligament is tied on each side and the fundus removed by an incision passing obliquely downward and forward. The vaginal wall is closed over the stump from side to side, the sutures passing deeply enough to check any parenchymatous bleeding of the uterus.

The procedure is a distinctly valuable addition to operative gynecology, and is rapidly becoming better known and more widely adopted. It is an excellent operation for hemorrhages from the uterus in which total hysterectomy is not indicated. It has the advantage of the abdominal subtotal hysterectomy, without the disadvantages of the abdominal operation. According to the conditions present, the corpus may be amputated or resected, and in those cases in which it is a distinct advantage not to cause cessation of the menstrual function, resection is the operation of choice. There is less loss of blood than in the wedge-shaped excision devised to accomplish the same result. The reports of those who have employed the operation are very favorable as to its comparative freedom from danger, its simplicity and its adequacy with proper indications.

As a method of dealing with early pregnancy in cases of tuberculosis, vaginal amputation of the corpus uteri is recommended by Kroemer.[2] The treatment of pregnancy complicated by tuberculosis of the lungs involves vexing questions. If palliative treatment alone is tried, the tuberculous process may advance with startling rapidity; and, in general, pregnancy exercises a very harmful effect on the patient with tuberculosis. If this pregnancy should go to term, the child is heavily handicapped in the struggle for existence. Inducing abortion can hardly be called a satisfactory method of treatment, on account of the high mortality, and premature labor gives even worse results. The only thing that can be said in their favor is that they are generally considered better than noninterference.

Prophylaxis may accomplish something, and as it is too much to expect that women with tuberculosis will avoid entirely the possibility of becoming pregnant, sterilization has been recommended and tried. As an efficient and satisfactory method of prophylaxis and as a means of treatment of pregnancy up to the fifth month, Kroemer recommends vaginal amputation of the corpus uteri. The convalescence is smooth and rapid, and the technic is easy. Briefly it consists in the following steps: The anterior vaginal vault is incised and the bladder freed to the peritoneal cavity. The edge of the peritoneal

reflection on the bladder is sutured to the vaginal wall to cover the bladder completely with serosa. The opening is made wide enough to deliver the fundus, the cervix being pushed toward the sacrum during the procedure. While this delivery is usually easy, even if a five months' pregnancy is present, laceration of the fundus should be avoided as considerable hemorrhage may occur. Clamps are placed on the broad ligaments, leaving in the tubes and ovaries, and incisions made between clamps down to the uterine arteries, which are clamped, cut and tied. Then a high amputation of the fundus is easily performed. The posterior wall is left higher than the anterior, and by it the stump is covered in with serosa. The broad ligament clamps are replaced by sutures and the adnexal stumps attached to the posterior wall of the cervix. Kroemer fixes the upper angle of the colpotomy wound to the cervical stump by a suture of silk-worm gut, to be removed in three weeks. The advantages of this form of treatment are (1) simple technic with slight loss of blood; (2) avoidance of drain on the patient by loss of body fluid during the puerperium, and possibility of later uterine bleeding; (3) certainty of avoiding later conception; (4) avoidance of the symptoms of the menopause as the ovaries are left in and a portion of the endometrium may be retained; (5) in some cases a cystocele may be cured by supporting it by the cervical stump.

ALEXANDER OPERATION.

The persistence of the Alexander operation for retro-displacement of the uterus as a well-recognized procedure, in itself indicates that it has some merit, though occasional sharp attacks are made in attempts to discredit it. The value of an operation can be estimated only after a comparison of what it is meant to accomplish with what it actually does accomplish, and as a preliminary in the discussion of the value of any operation the limits of its applicability must be settled. Some operators use the Alexander operation frequently and with great satisfaction to themselves and to their patients. Others reject it altogether, Schickele[3] thinks, because they make demands upon it which it cannot satisfy. First of all it should be employed only in cases of mobile retroflexion, in which the pessary retroflexion should be operated on, but in those uncomplicated cases in which operation is indicated, the Alexander-Adams operation is the method of choice. It may be used also as an accessory operation in cases of moderate descensus of the uterus following childbirth, but only the former group of cases is discussed by Schickele in this paper. About thirty per cent. of the cases in the Strassburg clinic were in young or nulliparous women. Encouraged by the good results in the early cases, the indications were extended to include cases in which some traces of inflammatory adnexal disease were to be made out, and even patients with large and heavy uteri. Relatively more recurrences were noticed among these cases, so that the practice of late has been to exclude all cases with adnexal inflammatory disease, and enlarged and hypertrophied uteri.

Of three hundred and fifty cases operated on, one hundred and seventy-one could be examined. Of these there were eleven recurrences, or six and four-tenths per cent. Of one hundred and thirty-six cases in whom there had been no sign of adnexal disease, or chronic metritis, there was one recurrence, following childbirth, cured by the use of a pessary. Among cases operated on since the exclusion of all inflammatory cases, there had been no recurrence.

A few words may be said about the technic. A short incision is preferred with splitting of the anterior covering of the canal for two centimeters to expose the ligament, if necessary. Care should be used in pulling on the ligament lest it break off. If it does break, the peritoneal cavity should be opened and the stump caught. Primary healing is important for a successful result. Schickele is of the opinion that with proper indications the operation is entirely satisfactory, and there is no need of an operation to take its place, as is suggested by so many operators.

GONOCOCCUS VACCINES.

Conservatism in the treatment of gonorrheal infections in the female pelvis has gained ground rapidly in the past few years. Only when the injurious effects of removing the pelvic organs were carefully studied, could a comparison be made with the less radical forms of treatment. The immediate danger of operation in the presence of acute infection must not be overlooked. Though distinctly better results are obtained by non-operative than by operative treatment, much remains to be desired when only thirty per cent. of the patients are freed from objective and subjective symptoms, and only seventy per cent. are freed from disturbing symptoms. The difficulties in the way of cure are the resistance of the gonococcus to treatment when it has penetrated the tissues of the internal organs, the difficulty of influencing sacs of pus by any non-operative treatment, and the difficulty of preventing re-infection.

It has not been possible to produce passive immunity to the gonococcus by the use of sera, but experiments to produce active immunity have been more successful. Especially in gonorrheal epididymitis and arthritis has vaccine therapy been efficacious in bringing about improvement and cure. Two questions with reference to the use of vaccines in chronic gonococcal infections of the pelvic organs in the female suggest themselves: (1) whether therapeutic results can be obtained; (2) whether the injection of the vaccine in the case of infection produces a reaction of sufficient specificity to throw

light on the nature of the infection. Two series of cases were treated by Fromme[4] and Collmann in attempting to answer these questions, and two methods of using vaccines were tried. In the former small doses, as favored by Wright, were employed. In the latter, larger doses of arthigon, (a gonococcus vaccine prepared by a manufacturing house in accordance with the directions of Bruck), were used.

To determine the value of the gonococcus vaccine as a method of differential diagnosis, eighty patients were treated by the injection of a small dose of vaccine into the thigh. The diagnosis of the presence or absence of gonorrheal infection was determined sometimes with certainty, sometimes only with probability, from the history and examination. The local reaction proved to be of little value; while it was marked in all the severe cases, it was also severe in several cases in which there was no evidence of gonorrhea. The reaction in the disease focus was little more conclusive. While some patients had pain in the abdomen, most did not, and several of the patients with no gonorrhea showed marked pain. Of these one was a virgin with a myoma. As to the general reaction, as manifested by a rise of temperature, apparently the more recently the fever of the attack had subsided, the more likely it was to recur following the injection. But the reaction seemed to be of little value in differential diagnosis.

Therapeutically, the vaccine was of more value. The diagnosis was made here by the finding of the gonococcus in the acute cases; in the chronic cases, by the history and course of the disease. Gradually increasing doses of vaccine, injected at intervals of four days were employed. The local, focal and general reactions, if present, diminished after the first injection and generally disappeared by the fourth or fifth. The symptoms in the cases of inflammatory tumors soon improved rapidly without, however, showing corresponding objective change. Acute gonorrhea seemed to be affected in no way by the vaccine therapy, as the disease progressed to infection of the vulvovaginal glands and of the uterus. When once in the uterus the infection was not controlled by the vaccines, for pyosalpinx developed while under treatment. Circumscribed foci of infection, as subacute or chronic pyosalpinx, on the other hand, showed rapid disappearance of the subjective symptoms, though even after weeks or months there could be made out little objective change. Of forty-five cases of pyosalpinx in various stages, ten seemed to be completely well, subjectively and objectively; nineteen markedly improved (tumor smaller and pain gone); six slightly improved and ten not improved.

Employing the larger doses of arthigon, one cubic centimeter, a reaction of diagnostic value was found, so that the authors regard a temperature of over one hundred and four-tenths degrees and a marked focal reaction as strongly indicating a recent gonorrheal tubal infection. Non-encapsulated infections, as in the urethra or cervix, show no reaction. Therapeutically the results are analogous to those with the smaller doses, and the relatively recent pyosalpinx, in which the febrile stage is passed, represents the most favorable cases.

From this study the authors conclude that vaccines may be considered a valuable adjuvant in the treatment of gonorrheal adnexal infections. They recommend the smaller doses, in fact, the smallest effective doses. In their cases no other method of treatment was used. With the addition of the usual treatment much better results may be expected and operative interference become even less frequently indicated.

It is interesting to consider here the conclusions of Schwartz[5] and McNeil, who have employed the gonococcus complement fixation test as a means of diagnosis. In infections below the cervix, except abscess formation, the complement fixation test gave a negative reaction. In infections of the cervix or higher portions of the genital tract, the test was positive in a sufficient number of cases to indicate that it may prove of considerable value in the diagnosis of infections of the uterus and tubes of obscure etiology.

ROENTGEN THERAPY IN GYNECOLOGY.

Since the introduction of the x-ray as a therapeutic agent, sufficient time has elapsed and sufficient reports of treated cases have accumulated in the literature to make possible some estimate of the procedure. It was to be expected that indiscriminate use would result in many failures, but in addition to failures, dangers have become evident. While even yet the nature of the action of the x-ray on normal and abnormal tissue is obscure, the late result in certain conditions is clearly relief of symptoms. Zaretsky[6] summarizes the results of a number of reported studies in which the influence on the course of gynecological diseases has been noted. In some conditions a cure has followed quickly in the experience of most investigators, while in others the efficacy is more questionable.

To the former group belong uterine bleedings without obvious cause, occurring about the time of the climacteric. There is considerable objection to calling these bleedings "climacteric," as the term suggests that they are a symptom of the normal menopause, a widespread misconception which has led to untold misery. The treatment in these cases is speedily efficacious, malignant disease having been excluded first, and the menopause quickly ensues. Uterine bleeding associated with the so-called metro-endometritis, not a very clearly marked clinical entity, also yields rapidly to the x-ray, and the more satisfactorily the nearer the patient is to the climacteric. Menorrhagia in younger women may be relieved by this treatment, and some cases of dysmenorrhea have been cured by a few exposures to the x-ray. The question of whether the

danger of permanent loss of function of the ovary is to be considered is answered in the negative, if proper exposures are made. Lasting suppression of menstruation following the x-ray is difficult to attain, even if sought, and doses quite effective therapeutically may be employed without danger of permanent harm.

Opinions as to the value of the treatment in benign uterine tumors are not unanimous. In some cases there has resulted a perfectly satisfactory cure; in others varying success or failure, with a few cases of death from hemorrhage. There is some basis, therefore, for the opinion that cases in which well marked bleeding is present should not be subjected to the treatment during the bleeding. The preferred time is just after menstruation has ceased. It has also been pointed out that increase of menorrhagia following x-ray suggests strongly the presence of a submucous myoma, which is generally regarded as unfavorable for this treatment. As a rule, small myomata in which the disturbances are not marked are the most favorable cases. In other cases, however, it may be tried if operation is contraindicated or refused, but if the symptoms are marked operation is always indicated.

In regard to the contraindications to the x-ray there is some difference of opinion, but generally severe anemia and marked disease of the heart and kidneys are regarded as definite contraindications, as is the presence of extensive inflammatory adnexal disease, of a pregnancy or of compression symptoms due to the tumor. Occasionally some general disturbances were complained of during or after the treatment but they were slight and transient. The symptoms of the induced menopause in those women near the climacteric were as a rule normal, that is, were considerably less marked than following an operative removal of the ovaries. The treatment has this advantage, that there is a gradual cessation of the function of the ovaries, and the organism has more time to adjust itself to the new conditions than if the operative removal of the ovaries is employed. A serious disadvantage is the time required, which may be months and even then operation may be necessary.

ETIOLOGY OF UTERINE BLEEDING.

Recent studies of so-called endometritis, metritis and metro-endometritis have considerably disturbed the older conceptions of these conditions. But while much that was formerly accepted is now seen to have had insufficient foundation in fact, it is not yet clear what is to be accepted in regard to the relation of these "inflammatory" conditions of the uterus to pathological uterine bleeding. It is not possible to reconcile the conclusions of all of the latest workers in this field and where the truth lies is not clear. It was in the hope of clearing up some of the doubtful points that the studies of Schickele[7] [8] and Keller were undertaken.

The material, four hundred and thirty cases, is sufficiently large and the investigation was carried on with sufficiently painstaking care to give their conclusions considerable weight. They found in cases in which there was no observable disease of the uterus and the ovaries, a hyperplasia of the uterine glands, without any of the symptoms so often referred to this condition, namely, pain during menstruation, profuse menstruation and discharge from the uterus. The hyperplasia occurred at a time when it could not be attributed to the normal premenstrual change in the glands described by Hitschman and Adler. Comparing these changes in the endometrium with those present in another series of cases in which there was obvious disease, and noting the symptoms, they conclude that there is no reason for accepting any etiological relationship between the glandular hyperplasia and the bleeding. While the two may occur together, the hyperplasia may occur alone, and rather more marked bleeding was noticed in cases in which no hyperplasia was present.

What all the cases of bleeding showed in common was, not change in the glands, but change in the interglandular tissue, namely, vascular dilatation, hyperemeia and serous infiltration of the mucous membrane, which is produced by the causes of the bleeding. The changes in the glands which have been noticed in the premenstrual stage are not specific, but are due to hyperemia at that time, and occur at other times if the hyperemia is present from any other cause. Evidence confirmatory of the view expressed above is the comparative frequency of failure of curettage to cure the bleeding, and among those cases which are improved after curettage, the comparative rarity of hyperplasia of the endometrium. This suggests that the so-called "endometritis" is not a disease entity but one of the manifestations of a pathological condition which perhaps lies in a faulty metabolism of the uterus.

Certain investigators have emphasized the importance of changes in the myometrium in the etiology of uterine bleedings, that is, the relative increase of the connective tissue, giving a form of atony of the uterus, favors the bleeding as the uterus fails to contract normally. But marked variations in the relative amount of muscle and connective tissue are described without corresponding variations in the bleeding, and some of the worst cases of hemorrhage have occurred from uteri in which the muscle predominated and was in fact quite normal.

The chief symptom of "chronic metritis," bleeding, cannot stand critical investigation. The variations in the histological structure of the uterus (muscle and connective tissue) are quite within normal limits and are to be traced back to variations in the condition of the uterus under the influence of age, menstruation and childbirth. They are in themselves quite insufficient to explain the pathological bleedings which are found. "Chronic metritis" does not exist as a sharply defined disease entity, with

"atypical bleeding" as its most important symptom, nor as a pathologico-anatomical finding, with the signs of connective tissue hyperplasia and vascular thickening.

Critical study of the relation of changes in the ovary to uterine bleeding, the so-called small cystic degeneration, leads to the conclusion that there is no constant relationship between these two conditions. The independent occurrence of the symptom and of cystic follicles of the ovary is so frequent that there is no basis for the claim that they are related.

The study of the normal as well as the pathological cases leads to the conclusion that the cause of uterine bleedings is to be sought outside of anatomical changes in the uterus. It is in the ovary, to which the uterus is subordinate in so many ways, that the cause is to be found. Thus far no constant anatomical changes have been made out in the sexual gland and we cannot form any estimate of the function of the ovary from its structure. Since thorough anatomical studies have thrown no light on the subject, the ground is cleared for further work directed along the lines suggested by physiology, from which alone progress may be expected. The results of work along these lines the authors will report later.

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Reports of Societies.

NEW ENGLAND PEDIATRIC SOCIETY.

Meeting Held at the Boston Medical Library on January 25, 1913.

James S. Stone, M.D., President; Fritz B. Talbot, M.D., Secretary.

Dr. William P. Coues, Boston, read two papers,

(*a*). A CASE OF BLOOD-CYST OF THE CHEST WALL IN A CHILD.*

(*b*) NON-UNION OF THE CLAVICLE IN A CHILD.†

Dr. Donald Gregg, Boston, read a paper on

INFANTILE BERI-BERI IN THE PHILIPPINES.‡

DISCUSSION.

Dr. W. B. Swift: Dr. Gregg's paper. I should like to ask the speaker if there is any typical appearance in the cross sections of the nerves that would enable one to differentiate from any other form of neuritis, whether peripheral, parenchymatous or interstitial. Lately I was interested in reading a paper by Dr. Andrews in which he has proved the malnutrition hypothesis by producing the disease in young puppies. He has fed with mother's milk and that has been followed by weakness and degeneration of the peripheral nerves and edema of the subcutaneous tissues, which are all symptoms of infantile beri-beri.

Dr. Gregg: Answering Dr. Swift. To the best of my knowledge there is nothing distinctive from the histological point of view. Cross sections of the nerves have been made, but do not show anything particularly distinctive. As I have never made a histological study of them myself, I cannot state whether it is perineural or interstitial, but the general opinion is that there is nothing distinctive in the type of neuritis. As to whether there are any cases of infantile beri-beri on the western coast of the United States or whether we are likely to come across any in the United States, I can merely say I have never seen any cases reported. There is no reason why it should not occur wherever there is adult beri-beri.

Dr. Talbot: Dr. Gregg's paper. I have been very much interested in Dr. Gregg's excellent paper and have been wondering while he was telling us about the diet, whether or not there was any connection in Manila between beri-beri and scurvy. The Scandinavian investigators have produced scurvy in guinea-pigs and a few dogs, and German investigators have produced it in rabbits. This was considered typical scurvy, but Prof. Reubner claims that it is not true scurvy. Beri-beri and, of course, scurvy is a disease which comes on a one-sided diet, or on a stale diet. I wonder whether scurvy and beri-beri come together, and if not, whether there is any scurvy in Manila?

Dr. Gregg: Answering Dr. Talbot. Scurvy is a rather rare disease, in my experience, in Manila. The natives have more or less green vegetables and they mix up their rice often with green vegetables to a certain degree. There is nothing in the infantile beri-beri to suggest scurvy. It always occurs in infants under three months. The differential diagnosis between scurvy and beri-beri is to be considered always, but the involvement certainly shows no evident malnutrition and no malformation. They are always pretty healthy looking babies. I have not seen a case of scurvy in the 2½ years I was in Manila. There are no signs of external hemorrhages. There is no particular periosteal tenderness, but the leg muscles are pretty tender and the whole legs seem to be painful on pressure or motion.

Dr. Elliott G. Brackett, Boston, read a paper on

DIFFERENTIAL DIAGNOSIS OF TUBERCULAR JOINTS IN CHILDHOOD.*

DISCUSSION.

Dr. Ladd: Dr. Brackett's paper. I would like to ask Dr. Brackett if there is any way by which he can distinguish a tubercular tonsil by inspection, not of the ulcerative type, but one that shows tuberculosis after it has been taken out?

Dr. Stone: Dr. Brackett's paper. There is great difference of opinion as to what constitutes a nor-

* See Journal, page 686.
† See Journal, page 685.
‡ See Journal, page 676.

* See Journal, page 673.

mal tonsil. It has been pretty definitely shown that size has very little to do with the presence or absence of tuberculosis. Many tonsils which appear on first inspection to be normal may contain small foci of tuberculosis. I think we shall have to wait on this matter until some of the throat men, as the result of their examinations, can tell us more in regard to tonsils.

We ought to use the advantages which we have at the present time as aids and as checks rather than as means by which we may obtain our first impressions. Our first knowledge, and that upon which we must always place our main reliance, we must get from careful histories and examinations. Later we may get what aid we can from the x-ray and from our other tests.

Dr. Scudder: Dr. Brackett's paper. I did not hear the first part of Dr. Brackett's paper, but was most interested in what I did hear. I agree with Dr. Brackett that it is important to emphasize the attempt to make a diagnosis in this group of chronic joint diseases so far as possible without depending upon special tests. The clinical story is of the very greatest importance in this group of cases, as Dr. Brackett has pointed out. In no group of cases has there developed less dependence upon physical signs than in cases of fracture of bone. Before we were able to make accurate diagnoses by means of the x-ray the physical examination had to suffice as a basis of diagnosis. I find today that the house staff of general hospitals where fracture cases are received for treatment depend primarily upon the x-ray, and that the house staff is losing, to a certain extent, the facility of diagnosis by physical signs. We are losing our cunning a little bit when we, as clinicians, depend too much upon special tests. Again in the group of diseases of the stomach, which is so much under consideration at present, there is a tendency to rely for purposes of diagnosis upon the special tests, and we know that the clinical story is of the very greatest importance in diagnosis of these cases. In gastric diagnosis the chemical, microscopical and x-ray facts are of very great assistance. I therefore agree with Dr. Brackett that in this special group of cases under consideration tonight we should depend more upon the clinical story and let special tests become more of secondary importance. And I would also emphasize the importance of this as a general principle which pertains in a large group of diseases. In other words we must not be diverted by special tests from the clinical story.

Dr. Prescott: Dr. Brackett's paper. When I was teaching at the Dispensary, the fourth year students were given cases to examine, to make a diagnosis. In February a young man, who was to graduate in June, was given an easy case to study. He was gone about half an hour when he came back and said he would not like to make an absolute diagnosis without having the man's stomach washed out and the contents examined, and then he ought to go to a surgeon and have his stomach opened to see if there were not an ulcer. It was a case of a man who, having taken a little too much drink had his stimulation cut off. The student was simply lost without having at his command a laboratory to make the analysis of the stomach contents or a surgeon to open the stomach and show him what was inside. This seems to me to be the danger which comes from too much over-specializing, a point which Dr. Brackett has brought out so well.

THE NORFOLK DISTRICT MEDICAL SOCIETY.

Meeting of February 25, 1913.

Dr. George A. McEvoy read a paper entitled

A NEW METHOD FOR THE DIAGNOSIS OF DISEASES OF THE STOMACH, WITH REFERENCE TO THE PROGNOSIS AND TREATMENT.

ABSTACT.

The writer described and demonstrated a simplified method of determining the position of the stomach through the use of a diagram. The method consisted in drawing a line from the end of the xiphoid to the umbilicus, a second from the middle of the clavicle parallel to the first line to about the level of the umbilicus, a third from the mid point of the first at right angles to meet the second, and the fourth from the end of the xiphoid parallel to the third to meet the second, thereby completing the diagram.

By the use of this diagram it has been possible to classify visceral conditions under three groups, which, it is believed, represent normal stomachs, stomachs the disorders of which are due to increased acidity, and others in which the symptoms are due to atony. It is expected through the intelligent use of this diagram to predict stomach disorders in their incipient stages and thereby afford the possibility of more prompt and effective treatment. The author distinguishes a broad stomach type from a narrow one and believes that the prolapse in the two cases as well as the dilatation vary according to a more or less fixed law. The symptoms also of the two types he believes may be predicted. This being the case the application of treatment becomes a relatively simple matter and the writer expresses hope that medical methods may again replace surgery.

Dr. Samuel Crowell read a paper on

GASTRIC SYMPTOMS DEPENDENT UPON DISEASES OF THE GALL-BLADDER.

ABSTRACT.

The author drew attention to the fact that affections of the gall-bladder were often responsible for symptoms simulating gastric disorders. Symptoms resembling chronic and acute indigestion are always present in gall-bladder disease, and it is usual for the first attack of colic to be preceded for a long period by mild disturbances of the stomach. The manifestations of gall-bladder disease are always referred to the epigastrium and not to the liver or gall-bladder. Such epigastric disturbance arises from infection of the gall-bladder and the bile ducts alone or accompanied by gall-stones. The writer warns against placing importance on the passage of gall-stones through the ducts as a cause of pain. This is often a fallacious diagnostic sign since, as a matter of fact, passage of gall-stones is very uncommon. Operations after colic show complete closure of the gall-bladder and common duct, either by swelling or by large stones firmly fixed and imbedded in the tissues. Two cases were quoted briefly to illustrate the points laid down in the paper.

Dr. C. P. Sylvester read a paper entitled

CHRONIC DUODENAL ULCER; ITS RÔLE IN CHRONIC DYSPEPSIA; ITS PRESENCE IN SYPHILIS.

ABSTRACT.

The writer discussed at length the sypmtomatology of chronic ulcer of the duodenum and pointed out the various fallacies in diagnosis due to the preconception that hyperchlorhydria, acid gastritis, hyperacidity and other so-called gastric diseases are pathological entities of common occurrence and painful symptoms. The incidence of duodenal ulcer, its occurrence in certain types of person, and its treatment, both medical and surgical, were discussed in considerable detail with reference to the work of Moynihan, Lane and others.

FIFTEENTH ANNUAL MEETING OF THE AMERICAN GASTRO-ENTEROLOGICAL ASSOCIATION.

Atlantic City, N. J., June 3 and 4, 1912. Hotel Raleigh.

(*Concluded from page 659.*)

SURGICAL MEASURES FOR THE RELIEF OF ABDOMINAL SYMPTOMS DUE TO PTOSIS OF THE STOMACH AND COLON.

Dr. Joseph C. Bloodgood, Baltimore: In the twenty cases, operated on since January, 1911, the indications for operations were stasis in the stomach, colon, or in both. All the cases had received medical treatment without relief. In formulating the operative procedure I was governed by the symptoms, x-ray findings, and conditions exposed on opening the abdomen. In most of the cases the x-ray findings were least helpful. I believe that I have demonstrated for the first time the relation of chronic dilatation of the duodenum to ptosis of the colon. The dilatation of the duodenum is the end result of ptosis of the colon. The stomach trouble comes on later, and the surgeon does not usually see the patients until they are in a very bad condition. The most satisfactory results have been obtained in the group of cases associated either with pyloric kink or with dilatation of the duodenum. The dilatation of the duodenum shows the simplicity of the relief of cases often diagnosed as chronic neurasthenia and many other conditions. The symptoms include pancreatic juice and bile in the stomach. The patients are usually very much depressed. For relief, resect the high right colon and suture the ileum to the transverse colon. The removal of the right half of the colon will not always relieve the patients of constipation and stasis in the colon. I have never resected the entire colon; but I believe that if we wish to restore the patient to a normal condition, we must do this. In some cases two operations may be necessary.

DISCUSSION.

Dr. Max Einhorn, New York City: I have in mind a condition somewhat similar to one that Dr. Bloodgood mentioned—a group of patients who have slight stagnation of the colon, in combination with bile and pancreatic juice in the stomach. On examining the stomach you will always find more residue of fat. In my cases we had to deal with an obstruction in the duodenum below the papilla of Vater. The main symptoms are severe pain and vomiting. The usual operation used to be gastro-enterostomy below Vater's papilla. No ptosis, as such, should be attacked by operation. If there are symptoms, an operation may be performed for their relief. There may be instances where operations on the colon are of benefit; but I think it an unnecessary procedure to subject a patient who is simply constipated to operation for prolapse of the colon, or any point of the intestines here and there. There must be something else present in order to render such an operation justifiable.

Dr. James Taft Pilcher, Brooklyn: There is another method that is applicable to these cases, which consists in raising these stomachs into the epigastrium, and raising the colon also, putting a row of six or eight sutures in the mesentery of the transverse colon and suturing it across the abdomen, two inches above the umbilicus. At the same time, the drag and the stasis that the condition occasions should be removed. Dr. Coffee, of Oregon, exhibited thirty or forty of these cases and the results were good; and in my repeated cases, the results have been satisfactory.

Dr. Jacob Kaufman, New York City: A very important question is, What is the primary factor that develops these conditions? Dr. Bloodgood's cases showed none of the conditions that Dr. Einhorn mentioned. I have seen few cases of the type which Dr. Bloodgood has presented, and in certain cases surgical intervention may be warranted. I think that we have, after all, to consider the cause of the primary factors,—the cause for the development of such pronounced types of atony and dilatation.

Dr. Walter B. Cannon, Boston: Most of these structures in the abdominal cavity are readily movable. If they have the specific gravity, approximately, of water, and are movable, I have some difficulty in seeing how there could be any great drag of one structure on another.

Dr. Allen Arthur Jones, Ann Arbor:, Mich.: I should like to ask Dr. Bloodgood whether he observed relief from symptoms such as he described, in cases operated on for floating kidney. I have seen two cases in which there was very signal relief from symptoms produced by a nephrorrhaphy. I ascribe considerable of their success to the fact that the transverse colon and cecum were lifted.

Dr. Chas. G. Stockton, Buffalo: In these cases I think the physician should consider the state of the abdominal walls. If there were marked tire and relaxation, it would be difficult to obtain that standard of intra-abdominal pressure to which Dr. Cannon has referred.

Dr. G. A. Friedman, New York City: Gastroptosis and enteroptosis are constitutional diseases. Many patients, besides these gastric and intestinal symptoms, have many general symptoms, and most of them are anemic. I cannot see how an operation can improve such a condition, when general treatment for the anemia is necessary. A patient with a gastroptosis may acquire an organic disease. The organic disease may be remedied surgically; but in the pure cases of gastroptosis which we see in the clinic, I do not believe that we should advise surgical interference.

Dr. Henry W. Bettmenn, Cincinnati: Nothing is clearer than that a merely anatomic relation of the

organs cannot be a matter of great importance. The point of drag is one that has worried me for a number of years. It is inconceivable to me that the lower abdominal organs do drag on the upper. If that were the cause of the symptoms, the placing of the patient on his back in bed for a number of days, or weeks, would overcome the symptoms. I think that the idea of the drag is erroneous, and will have to be given up. None of the patients whom I have seen who have had the colon raised up and attached to the abdominal wall, and the pylorus also raised, have been materially benefited; and some have been made considerably worse by the procedure. I believe that the use of the x-ray has led to an increase in the number of operations by those who do not thoroughly understand gastro-enterological problems, without a corresponding benefit. The surgeons in this department should go slowly. One patient will be benefited by the operation, where twenty will be either not benefited or made worse.

DR. A. L. BENEDICT, Buffalo: There is a difference between the stomach that is in a state of ptosis, and the stomach that is normal in its relation, but is dilated. In many case reports, the word ptosis refers merely to a slight dilatation of the stomach and a sagging of the greater curvature.

DR. LUDWIG W. KAST, New York City: The greater curvature of the stomach may be five or ten centimeters below the level of the umbilicus, and yet the stomach may still perform all its work. It may take a little longer to do it, but the stomach will still be within the physiological limits. A stomach with a less lowered curvature, may not perform the work required. We must differentiate between the position of the stomach and the function of the stomach. I should like to know whether Dr. Bloodgood advocates operation for change in position or for change in function.

HYPER- AND HYPO-TONICITY OF THE VAGUS AND SYMPATHETIC NERVES AS CAUSES OF DISEASE OF THE DIGESTIVE TRACT—VAGOTONIE AND SYMPATHICOTONIE.

DR. J. C. HEMMETER, Baltimore: Just as there is a myogenic and neurogenic tonus, so there is also a secretory tonus, which has not been so thoroughly studied. The latent period of secretion after stimulating the sympathetic or the chora tympani nerve supplying the sub-maxillary gland is greater after the nerve control over this gland has been abolished for several hours by freezing either nerve or by cutting it. This preparedness for giving a ready secretion upon adequate stimuli might be defined as secretory tonus. The threshold of stimulation also rises in experiments where the gland has been cut off from the nerve supply for several hours.

The entire neuro-muscular apparatus, both voluntary and involuntary, is in a condition of tonic activity due to the continual inflow of sensory impulses to the motor neurones of either spinal cord or brain or both. The doctrine of "Vagotonie" and "Sympathicotonie" assumes that the disturbances of peristalsis, innervation, and secretion in the digestive tract are due to permanently altered tonicity of the vagus and sympathetic; that is, either an exaggerated augmented, or a diminished tonicity of these nerves exists.

DISCUSSION.

DR. JACOB KAUFMAN, New York City: I believe that the study of physiology of the digestive tract and its disturbances will help us a great deal more to understand gastrointestinal disorders and the treatment of these conditions than will the mere consideration of anatomical or pathologico-anatomical facts. Cases of irregular growth might be attributed to an interference with the activity of the liver by lack of thyroid secretion. By studying more specifically the disturbance either of the pneumogastric nerve or the sympathetic nervous system in connection with the internal secretion, we shall be helped very much in solving these problems.

DR. LUDWIG W. KAST, New York City: There is an application of the neurological and secretory facts to the clinical problems. The antagonism between the two nervous systems creates a condition of equilibrium in different directions in the musculature of the secretory apparatus. We frequently see conditions in which the patient has increased hyperacidity, and in which the motility is very intense. The pyloric portion is in a state of contraction. Without having duodenal ulcer, these patients have hunger-pains, the contraction having reached such a degree as to become painful. After the test-breakfast is evacuated, the secretion still goes on without having any stomach-contents to act upon. That is the time when the opportunity is given for the development of duodenal ulceration. Atropin benefits this class of cases very much symptomatically.

DR. S. J. MELTZER, New York City: In such a vague field as gastro-enterology, so long as the investigators confined themselves to anatomy and chemistry, they had some facts to go on; but now that they are taking up the functional aspects of the matter, they are making wild hypotheses. The alleged facts that they have to go on have not been verified.

THE HISTORY OF RADIOLOGY OF THE DIGESTIVE TRACT FOR DIAGNOSIS OF ULCER AND CARCINOMA.

DR. J. C. HEMMETER, Baltimore: Experiments of the author aiming at the photograph of the human stomach by the Röntgen ray were published in the BOSTON MEDICAL AND SURGICAL JOURNAL, June 18, 1896. Investigations showing the possibility of photographing conditions accompanying cancer and ulcer by the x-rays and published in the *Archiv für Verdauungs-Krankheiten* in 1906 have been confirmed in this country and in Europe.

Mathematical or technical and personal or functional errors have to be avoided in the execution of the method. Failures to accomplish results by this method have been due to one or other of these errors.

A FEW IMPORTANT POINTS IN X-RAY EXAMINATION OF THE DIGESTIVE TRACT.

DR. FRANKLIN W. WHITE, Boston.: The subject is treated from the clinician's standpoint. Examination of the mechanical factors of digestion is of the greatest importance in diagnosis. The x-ray is a brilliant method of examination. Comparisons with other methods of testing the motility of the stomach in ptosis, spasm, ulcer, and cancer show a great variability in the results; and there is need for great caution in interpreting them. There is great necessity for a standard bismuth meal. A study of peristalsis is possible only with the x-ray. X-ray tests of secretion are of small value. The duodenum is very difficult to examine, and its examination may be assisted by artificial distention. Delayed motil-

ity is of great importance. The colon may be successfully examined giving bismuth meal and administering an enema; however, great care must be exercised else the value of the results be impaired by various sources of error. The x-ray should be combined with other methods of examination in making the diagnosis.

DISCUSSION.

Dr. John A. Lichty, Pittsburg: I should like to know how much and what kind of bismuth should be used. I am not able to get an entire filling up of the stomach, and should like some information in regard to this. I believe that the x-ray will never replace the stomach-tube, for while the x-ray gives us more definite outlines, yet, on some points the tube is superior. I had a case where it appeared to be cancer of the stomach, but at operation it turned out to be cancer of the colon. I wonder whether the bismuth itself does not interfere with the normal emptying of the stomach; that is, in neutralizing the hyperacidity which exists in many cases, and thus interfering with the emptying of the stomach.

Dr. John C. Hemmeter, Baltimore: Quite a number of cases of bismuth poisoning have been reported after these radiographs, and I have directed my attention to seeing whether something else could not be used. Bismuth, when used for the relief of ulcer, must interfere with the impulses from the stomach, so that the delayed peristalsis may be due to that. I have tried some other things: aluminum silicate, calcium carbonate and calcium phosphate, and have succeeded in obtaining good shadows with them. None of this material is absorbed. There are two errors that hinder progress: one, the mathematical; and the other, the functional. The former is in the apparatus; and the latter, in the person. The exposures now occupy only a few seconds.

Dr Seymour Basch, New York City: Abroad they have used barium for the last two years, with good results. It is cheaper than bismuth, and no poisoning has resulted from its use. There were no bad symptoms reported from the thousands of cases in which it was used. Americans should take it up.

THE LACTOSE TEST MEAL IN THE ESTABLISHMENT OF ALIMENTARY HYPERSECRETION IN THE DIAGNOSIS OF PEPTIC ULCER.

Dr. Dudley Roberts, Brooklyn: I have given at some length the results of studies carried on with the lactose test-meal, since the time of its presentation to the American Gastro-Enterological Association, one year ago, when used in normal cases, in enteroptic cases with different conditions of secretion and motility, in the various surgical reasons which cause gastric complaints, and in ulcer. Under normal conditions, one hour after the digestion of the test-meal described, there remained not more than 50 c.c. With this, there were found from 50 to 100 c.c. of gastric juice. There was then a normal ratio of more than 1 : 1.3 between the residue of test-meal and the gastric juice still in the stomach. From my experience, it might be assumed that when the gastric-juice residue was three times that of the test-meal residue, there was hypersecretion of marked degree. In all cases there was alimentary hypersecretion. In some instances, this was even up to 1 : 9. In one case of chronic appendicitis, there was a hypersecretion with a ratio of 1 : 3.1. This occurred in only one instance. In the ulcer cases, the degree of hypersecretion was low.

Dr. John C. Hemmeter, Baltimore: I should like to know how long after the operation for gastro-enterostomy Dr. Roberts observed the cases.

Dr. A. L. Benedict, Buffalo: A carbohydrate diet rather tends to hyperchlorhydria, but in our cases, a certain amount of glucose or cane sugar, or a mixture of the two, caused hyperchlorhydria. It was, however, only transitory. I should like to know whether this would have any connection with the effect of lactose.

Dr. Roberts: In answer to the first question, I would say that one operation was done two years ago; and the other, a year ago, with partial relief. Concerning the effect of lactose on the stomach; it is somewhat worked out by this series. There is a group of cases in which you might expect that the secretion would be low, and it works out low; then this group of ulcer cases, apparently, where the secretion is obviously high.

THE HEALING OF GASTRIC AND DUODENAL ULCERS WITH BISMUTH.

Dr. Charles D. Aaron, Detroit: Bismuth has been used as a medicinal agent since it was introduced by Oidier, of Geneva, in 1786. It was Kussmaul who systematized its use. The anodyne effect of this drug is now universally conceded. Research work on this subject has furnished evidence that the protection afforded by bismuth subnitrate in gastric and duodenal ulcer is both physical and chemical. Experiments on dogs show that a few hours after administration, bismuth is finely distributed over the gastric wall. This acts as a protective layer, and many remain undistrubed for several days. The chemical effect of bismuth subnitrate is due to the liberation of nitric acid during its decomposition. The treatment with bismuth can never be regarded as a substitute for the rest cure in the treatment of ulcer.

THE GASTRO-INTESTINAL DISTURBANCES OBSERVED IN PERNICIOUS ANEMIA.

Dr. Julius Friedenwald, Baltimore: My own observations extend over a series of fifty-eight cases of pernicious anemia, in all of which gastro-intestinal symptoms were noted. From a study of these fifty-eight cases it is evident that a large proportion are attended with gastro-intestinal disturbances, as well as with an absence of gastric secretion; there is present an achylia gastrica in about 70% of cases, and even in the stage of apparent recovery, the gastric secretion does not return. In a smaller proportion of cases, 20%, there is a marked diminution of the secretion; and in a few instances, about 10%, it remains normal.

It is quite probable that the poison which produces the hemolysis is the same which is also responsible for the alteration in the gastric secretion.

A CONTRIBUTION TO THE ETIOLOGY OF PERNICIOUS ANEMIA.

Dr. James Taft Pilcher, Brooklyn: From my observations of 433 cases of abdominal complaints, in which the symptom of achlorhydria hemorrhagica gastrica was present, I wish to offer the following facts for consideration: 1. Achlorhydria is merely a symptom denoting chronic gastritis. 2. It is usually evoked through extragastric irritative fac-

tors, which are often capable of correction. 3. There are present in such stomachs great numbers of bacteria, among which streptococci are especially to be noted. 4. Practically all recorded cases of authenticated pernicious anemia present the symptom of achlorhydria and the presence of occult blood in the stomach extract. 5. Thirty-four instances of pernicious anemia were noted in patients presenting the symptom of achlorhydria hemorrhagica gastrica. 6. Lack of hydrochloric acid and the presence of occult blood were shown to exist for a year before any blood changes were noted, in a few cases. In some, paraesthesia was evidenced some time previous to blood impairment; while others had suffered for years from chronic gastro-intestinal complaints. 7. Eighty per cent. of cases of pernicious anemia have increased temperature sometime during the course of the disease. 8. Pure cultures of streptococci have been found in patients with pernicious anemia who were running a fever. 9. Bacterial hemolysins and other toxic substances are known to produce anemia resembling the pernicious type. 10. Efforts to control the bacterial growth in the gastro-intestinal tract have caused complete remissions in this disease in some instances. 11. The phenomena of the blood picture characteristic of pernicious anemia may be explained by the action of toxins, which impair the formation of antibodies until a bacteremia is produced. 12. The toxins being eliminated by the profuse flora in the gastro-intestinal tract.

PERNICIOUS ANEMIA.

DR. G. W. MCCASKEY, Fort Wayne: The investigations of the last few years have placed pernicious anemia in a clearer light and indicated the direction in which we should look for the final solution. The classification of the different anemias is, as yet, unsatisfactory. The facts which form the groundwork of the clinical and pathological conception of pernicious anemia have reference to the blood picture, the data in regard to hematogenesis, and certain points in the clinical history and therapeutic results. There are several facts which appear to make the exclusive theory of toxic irritation of the bone marrow untenable. In the experimental anemia produced in animals by recin poisoning, the curious fact has been established that relatively large doses, producing a rapidly progressive anemia, are associated with a normoblastic bone marrow regeneration; while repeated small doses, acting more slowly, produce megaloblastic degeneration. Undoubtedly something besides the specific action of a toxin or group of toxins is necessary, and I believe that in embryological faults or tendencies at least a plausible explanation may be sought. The existence of such special tendencies is strictly in accord with well known biological laws, and squares with clinical observations.

DISCUSSION OF DRS. FRIEDENWALD'S PILCHER'S AND MCCASKEY'S PAPERS.

DR. J. A. LICHTY, Pittsburg: Everyone seems to agree that the underlying basis of anemia is some toxine; but we do not know what produces the toxine. Gastric disorders, nervous affections, etc., which we formerly thought were etiological factors, we now recognize as symptoms. It has not been my experience that all these cases have chronic gastritis. I should like to ask Dr. Pilcher whether he means that all his cases of anemia have had chronic gastritis. I have had in certain cases a gastric condition in which was found pernicious anemia; in the course of typhoid fever, for example. I might add that in some 70 or 80 cases, which I treated, all died but one; and that one probably will die. His was the only case in which there was no fault with the blood.

DR. A. L. BENEDICT, Buffalo: We know that pernicious anemia should be associated with achlorhydria hemorrhagica gastrica, but it is not always so. In my opinion pernicious anemia is simply a bad case of anemia, in which it is hard to trace the exact cause.

DR. JACOB KAUFMAN, New York City: Dr. McCaskey ably expressed it when he said that pernicious anemia is produced by toxine in the blood. First, where does the toxine come from? If we take the view of Dr. McCaskey, we shall readily understand that there is a certain group of cases in which the toxine originates in the gastro-intestinal canal. Chronic gastro-intestinal disorders are usually considered to produce the picture of pernicious anemia. We must not forget that the gastro-intestinal canal is not only secretory but is also excretory. It is certainly worth while to go into these questions, because the treatment depends on what you take as the cause in each specific case. I have seen excellent results in certain cases of pernicious anemia—in which gastro-intestinal disorders were not the cause of the disease—derived from blood cultures.

DR. WILLY MEYER, New York City: Last year I had two cases of pernicious anemia in which I did transfusion of blood. In both cases, the immediate result was excellent; but later one patient died. The other has remained improved.

DR. PILCHER: I do not think that every case into which the alkaloid substance has been introduced will develop symptoms of pernicious anemia. Some people react to the same substances differently. It is explained by idosyncracy. In regard to Dr. Lichty's not finding any chronic gastritis in some of his cases of pernicious anemia, I do not know what pathological data he has on that subject; but certainly those examining hundreds of cases find that all have pathological evidence of marked atrophy and chronic gastritis of the stomach mucosa.

DR. MCCASKEY: In regard to the rôle of the organisms, I think these organisms get into the gastro-intestinal tract incidentally or accidentally. They are important in the etiology of the disease. How large the bacteria's rôle in pernicious anemia is, is hard to determine. A negative finding is usually the result of the blood culture. The reason for achlorhydria is that there is little secretion—not enough to saturate the proteins. It is a condition of lowered quantity of secretion, and that may come from many causes.

CARCINOMA OF THE ESOPHAGUS FROM THE STANDPOINT OF INTRATHORACIC SURGERY.

DR WILLY MEYER, New York City: If progress is to be made in the radical surgical treatment of carcinoma of the esophagus, patients must come for operation earlier than at present, and their general health must be sufficiently preserved to warrant resection of the growth. The diagnosis is usually not difficult, even in the early stages. Diagnosis having been made, the cancer must be excised without regard to its location in the course of the esophagus. It usually covers too large a portion of the tube to

render possible the ideal operation. Often it is necessary to a resection within healthy tissue, later on. The feasibility of the latter procedure with good functional results has been proved. My experience has shown that the condition in which patients are received at present, does not permit of an operation of such magnitude as is required, at one sitting. A two-stage operation is required, the details of which are being worked out at present.

DISCUSSION.

Dr. Jesse S. Myer, St. Louis: There is no question in my mind but what the operation on carcinoma of the esophagus is a coming one. Everything depends on getting hold of the patient early. There is no way of making a diagnosis of carcinoma of the esophagus without the esophagoscope. It is surprising to me that so few enterologists have used the esophagoscope. It is so simple, and these patients suffer so intensely from their disturbances, that they are ready to permit you to use it. I urge the use of the esophagoscope on every one doing extra-intestinal work. If there is an element of doubt as to the exact condition, a section should be taken out and examined.

Dr. Walter B. Cannon, Boston: From a physiological point of view, I do not know of any reason why we should not cocainize above the vagus nerve, so that the innervation of the heart is not disturbed because of mechanical manipulation of the nerve. In a variety of animal observations made, if the laryngeal nerves are cut on both sides there will be a slight rapidity of the heart, but lower respiration. There will be a temporary loss of tone, in the absence of the vagus stimuli in the stomach and intestines.

Dr. Seymour Basch, New York City: One thing has impressed me, and that is the apparent simplicity of performing these operations if they are done early. We cannot, of course, tell people that they have a case of carcinoma, in these early cases. If the use of the esophagoscope is as easy as Dr. Meyer says, there will be no difficulty. In my experience, this operation is not such a simple matter; it is barbarous, and we all know that it is dangerous.

Dr. Meyer: Dr. Sharp, of Berlin, has devised a sound which has a rubber balloon, to be blown up with water, for use in early diagnosis. He claims that in no case could he do his diagnosing as early with the esophagoscope as with this sound. We use this for that purpose in the German Hospital. If both pneumogastrics are involved, we are not allowed to divide them both. If we could, in exceptional cases, divide both, and the patient would not die of paralysis of the heart or lungs, it would means a great step forward. All those working inadequately for certain ends should combine their forces; so that no matter what our specialties might be, one goal should be before us all.

Dr. Walter B. Cannon, Boston: I did not mean to have the inference made that it was perfectly feasible to cut both pneumogastrics without producing any harmful effects. I do not think there would be definite effects on the heart and lungs in cutting them, if the laryngeal were left. It is in relation to the alimentary canal that the trouble arises, there are disturbances of movement and secretion. By careful washing out of the stomach and the careful avoiding of epithelioma, a patient will live for a year with both pneumograstics cut; but it requires the greatest care.

Dr. Willy Meyer: In view of the extreme thinness of the esophagus, the nerves become intimately adherent to the tumor, and the greatest delicacy is necessary. In some cases it is impossible to operate. If there is support, the operation can be done.

CRYPTS AND COLUMNS OF MORGAGNI; THEIR RELATIONSHIP TO RECTAL DISEASES.

Dr. James P. Tuttle, New York City: The semilunar, or anal, valves, called also the pockets of crypts of margagni, dip down between the mucocutaneous lining of the anal canal, and extend more or less deeply into its caliber. The rectal columns attach their base at the upper margin between the valves, and furnish an exit for the veins of the rectum to an anastomose with those of the anus. To these two structures the crypts, and columns of morgagni, especially the latter, I wish to call your attention as influencing rectal diseases, such as pruritus ani, hemorrhoids, chronic spasmodic sphincter, obscure fissure, invisible ulceration of the anal canal and skin tabs. In operating for any of these conditions, one often fails to cure them unless these structures are properly attended to.

DISCUSSION.

Dr. Seymour Basch, New York City: There are three symptoms that are almost constant in these cases,—pain, bleeding and itching; but there are intervals, or cessations of one, two or all of these symptoms. There are many anal canals that we cannot thoroughly inspect without a general anesthesia. In probably half of my cases I can readily locate these points with the use of the speculum. The points to look at are in the right and left posterior quadrants and anterior mesentery. Occasionally they are found elsewhere. There may be only one of these that is pathological. The symptoms that these produce are often referable to the remote parts of the body. I attribute my failures to entirely relieve anal pruritis in some cases to the fact that I attempted to do it under local anesthesia. Pruritis is not the disease, but the symptom. One kind is where you see no external manifestations; the second is where there are distinct skin changes.

Dr. Willy Meyer, New York City: I should like to ask Dr. Tuttle whether he considers every crypt into which he can enter his probe, a pathologic crypt.

Dr. Tuttle: I do not consider every crypt a diseased crypt. It depends on how deep the probe will go in. If it goes no further than the subcutaneous tissues, I do not consider it diseased, but when a probe draws blood in one of the crypts, or excites itching or pain, then I have a pathological condition. There is no organ in the body too remote to be affected reflexly by one of these painful and concealed ulcers, and this applies to the reflex action of the crypts. In constipation or obstipation, stretching of the sphincter may relieve it for a while, but it will come back, if one of the crypts is diseased. Cutting gets at the bottom of the trouble, which stretching does not. The so-called watery urethral discharge is due, in a good many cases, to obscure fissure or inflammation in that front sinus. I have treated, within the last six months, seven of these cases, successfully.

The following officers were elected for the ensuing year: President, Joseph Kaufman, New York City; First Vice-President, J. C. Bloodgood, Baltimore, Md.; Second Vice-President, W. G. Morgan, Washington, D. C.; Secretary, F. W. White, Boston.

Book Reviews.

The History of the Prison Psychoses. By Drs. Paul Nitsche (*Dresden*) and Karl Williams, (Heidelberg). Authorized translation by Francis M. Barnes, Jr., M.D., and Bernard Glueck, M.D., Senior Assistant Physicians, etc., Government Hospital for the Insane, Washington, D. C. New York Journal Nervous and Mental Disease Publishing Co. pp. 84. 1912.

This, the latest addition to the admirable Nervous and Mental Monograph Series, is an elaborate historical review of the literature of the prison psychoses and their development in German literature since 1853. Heretofore our only guides in this field have been the incomplete and contradictory views of various writers, but here we have a critical digest of all the important German monographs on the subject and an authoritative summing up of the situation. This enables us for the first time to learn the accepted views to date on a number of vexed questions relating to mental disease in prisoners. There has been surprisingly little study of the subject in this country, and few alienists, whether connected with prisons or not, realize its importance either from a medico-legal or humanitarian point of view. In these pages they will find much to interest and instruct as regards the many ways in which prison life modifies the manifestation of mental disease and the difference in the frequency of its various forms in prison and outside life. Manic depressive insanity, for example, is seldom seen in prisons, while acute hallucinatory melancholia, a rare disease in freedom, is a characteristic psychosis of solitary confinement.

The principal contention among the various writers on the subject has been over the question whether or not there is a specific prison psychosis. Most observers believe that an actual prison psychosis does not exist as a clinical entity, but that imprisonment may modify in a characteristic manner the symptoms of all mental disturbances. Nevertheless, as far as the juvenile demential processes are concerned their peculiar symptomatology justifies the authors in considering them as special types well differentiated from those developing in free life. They are inclined to classify them as prison psychoses in the same sense that we use the collective term "traumatic neurosis" to describe the individual reactions and developments observed in free life as the result of accidents.

The translation is strictly literal and in places makes hard reading. There are also several instances of careless proof-reading, but in the main the text runs smoothly and does ample justice to this valuable contribution to the literature of psychiatry.

The Carrier Problem in Infectious Diseases. By J. C. G. Ledingham, M.B., D.Sc., and J. A. Arkwright, M.D. London: Edward Arnold. New York: Longmans, Green and Company. 1912.

This volume is the seventh in the series of International Medical Monographs, intended to present the refined judicial opinions of experts in special subjects of investigation. It aims to state the present sum of knowledge with regard to the rôle played by human carriers in the infectious diseases. After a brief introduction on the theory of carriers, the carrier problem is exhaustively considered, in a series of chapters, in its specific relation to enteric fever, paratyphoid fever, diphtheria, epidemic cerebrospinal meningitis, dysentery, and cholera. Each chapter is followed by a comprehensive, authoritative, alphabetic bibliography of references. These six diseases were selected since they are the only ones in which sufficiently exact knowledge has been worked out to warrant statements as to the importance of carriers. They may serve as examples, on the basis of which similar facts may be determined for other infections. The book should prove of great value as a work of reference for bacteriologists, epidemiologists, and public health officials.

Flatulence and Shock. By F. G. Crookshank, M.D. (Lond.). M.R.C.P. London: H. K. Lewis. 1912.

This thin volume, consisting of two papers read before medical societies in October, 1912, presents the author's original views on the subjects in question. In his preface he suggests a Freudian explanation of twentieth-century neurasthenia as a consequence of repression, and shock he considers a protective phenomenon. Every individual has his "shock-value," which does not differ essentially from his personal suggestibility, and which should be carefully estimated in advance of any surgical procedure. For neurotic flatulence, with eructations, he recommends *crème de menthe* as the best remedy. However much or little one may agree with the author's views, their piquant originality, point of regard, and apt phrasing are refreshingly stimulative. The book closes with an admirable alphabetic bibliography of sixty references to works bearing on the subject.

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PARANOIA IN THE COURTS.

At a recent meeting of the Society of Medical Jurisprudence of New York, Mr. Frank Moss, Assistant District Attorney, made an interesting address on Paranoia in the Courts, devoting special attention to three recent cases involving various phases of the subject. He considered two main points, paranoia as a defense in criminal cases and the credibility of a paranoiac as a witness, involving, among other things, his ability to remember and to appreciate the nature of an oath. The three cases he cited were those of Kane, a negro murderer, where alleged paranoia was pleaded as a defense, and of Robin, and Harry Thaw, both of whom have lately testified as witnesses in certain cases in the courts. In 1911 Kane was convicted of murder in the first degree, but before he was placed on trial an examination as to his sanity was held, and he was declared sane and responsible. His crime was a peculiarly savage one. On the platform of an elevated railroad station he fatally stabbed a man with whom he had had an altercation on a train, and in endeavoring to escape, rushing down the steps and through the streets, he stabbed no less than eight other persons in the crowd assembled (two of whom died in consequence) before he was arrested. Nor was this his first crime. In 1900 he was convicted of manslaughter in the first degree for fatally stabbing a man who, he claimed, had jostled him on the street, and he was sentenced to a term of years in Sing Sing prison. At his trial in 1911, as mentioned, the defence was paranoia. It was claimed that he was insane when he did the first stabbing, and that the records showed that while serving his sentence at Sing Sing he had been transferred to the State Hospital for Insane Criminals at Dannemora. On the other hand, the prosecution contended that if the defendant had had paranoia, a progressive and incurable affection, in 1900, he would have shown decided evidence of this during the years he spent in Sing Sing. As a matter of fact, he appeared perfectly rational and was regarded as a model prisoner until shortly before the expiration of his sentence in 1909, when he seemed to develop certain delusions, on account of which he was sent to Dannemora. It was declared therefore, that these delusions were either simulated or else manifestations of a prison psychosis, and the jury having brought in a verdict of guilty, the man was sentenced to death. Later the Court of Appeals confirmed the verdict, but expressed the opinion that, in view of all the circumstances, this was a case in which executive clemency might be advisable, and, accordingly, the Governor, acting in accordance with the suggestion, commuted the sentence to life imprisonment.

Justice Seabury, in charging a Grand Jury which had to consider whether or not to bring an indictment in a case where the testimony of a certain man adjudged insane (a paranoiac) would be of value, recently stated that if such testimony bore no relation to the special features of his insanity, and it was corroborated by other testimony, they were justified in indicting. The case of Robin, who was convicted of grand larceny in bank wrecking, was somewhat different, for while he had been pronounced insane by a number of expert alienists, the jury decided that he was not insane. Two years ago, when the alienists made their examinations, he appeared to have positive delusions, which could hardly have been simulated, as he himself denied that he was insane. These delusions, Mr. Moss thinks, may have been due to the peculiar circumstances of his position at this time. Thus he was under the most severe mental strain, being overwhelmed by vast business reverses and under a number of indictments. In addition, he was suffering great physical pain from renal calculi, for which he was taking large quantities of belladonna, and was altogether in a toxic condition. Later, all the paranoia-like symptoms seem to

have entirely disappeared. His intellect, as well as his memory, were remarkably clear, so that he was able to go successfully into many abstruse calculations, and his testimony proved of the greatest value in procuring the indictment and conviction of several dishonest bank officials. In the course of his remarks Mr. Moss said that in his opinion it would be an advantageous plan to have a good all-round general practitioner associated with the expert alienist in investigations into the sanity of persons accused of crime. The mind of the alienist, it seemed to him, runs too much in grooves, and he is apt to attach more importance to certain phases of a case than they really deserve.

The discussion on the address was participated in by a number of physicians and members of the bar, all of whom seemed to agree that there is too much confusion and uncertainty in regard to the subject of insanity, and that more or less change in its legal aspects is needed. Dr. Edward D. Fisher, professor of mental and nervous diseases in the University and Bellevue Hospital Medical College, said that the old name for paranoia, monomania, was expressive, because the paranoiac has certain fixed ideas which, no matter how he may be reasoned with, cannot be eradicated from his mind. If he has grown suspicious that a certain individual is injuring him, this fixed idea may go on increasing in intensity until he is ready to kill him; and, therefore, such a patient should be carefully watched. Paranoia is always an inherited or a congenital affection, and much study is often required to get at its exact history. The conscientious expert is never willing to accept a case until, after a careful examination of the patient, he has convinced himself that the side of the case he is asked to take is the correct one. Failing to be so convinced, he will refuse to appear. It is, of course, true that insanity experts frequently differ; but the same may be said to be the case among experts in all departments of knowledge. Dr. Fisher said that although there is now before the Legislature a bill designed to regulate expert testimony which has been prepared through the coöperative work of representatives of the State Medical Society and the State Bar Association, he had little hope that any great improvement could be effected in the matter.

In connection with the subject of this meeting it may be stated that some months ago the Society of Medical Jurisprudence appointed a committee to consider the desirability of changing the legal measure of responsibility of those mentally diseased or defective so as to accord more fully with the views of those best versed on the causes of mental defects. The object of the society was to take the initiative in an effort to ascertain whether the present knowledge on the subject, wise treatment of mental disorders, and public policy do or do not demand a change in the present legal concepts and the present legal attitude toward the subject. In pursuance of this, the coöperation of other societies has been invited and circulars have been sent to organizations and individuals, containing a summary of the substantive law in respect to those mentally deficient, as it exists in New York and other States, and asking for suggestions, observations and criticisms in relation to such law. The following is given as an example of the problem involved in the relation of mental defects to the criminal law: "The New York penal law (Section 1120) provides that 'A person is not excused from criminal liability as an idiot, imbecile, lunatic or insane person, except upon proof that, at the time of committing the alleged criminal act, the accused was laboring under such a defect of reason as either (1) not to know the nature and quality of the act he was doing, or (2) not to know the act was wrong.' Has the time now come when the legal definition of responsibility for crime is, in the light of recent progress in the investigation of mental phenomena and mental disorders, doing injustice? Measured by this rule insanity as a defense is not inconsistent with self-defense, or with deliberation, and there are within the rule no degrees of insanity. And with respect to this rule, if the accused has the requisite mental capacity he is guilty; if he lacks it he is not guilty. It is urged as an excuse for this apparently harsh rule, which holds all responsible who have the rational power of discriminating between right and wrong, that emotional insanity and irresistible impulse would afford a dangerous facility for escape from just punishment and salutary separation from society to the depraved and vicious, because the margin between disease of the brain, causing such propensity to unlawful acts, and mere depravity, moral turpitude or criminality, is slender." In the discussion at this meeting Dr. Frank W. Robertson, who is a member of the committee on the law of insanity, asserted that numbers of insane patients were entirely able to distinguish between right and

wrong, but, while they knew an act to be wrong, could not help doing it. The impulse might be so strong that they were unable to resist it. Therefore, he thought this part of the law should be changed, though, on account of the different views among experts, a satisfactory definition of insanity could scarcely be expected.

THE DEATH RATE AMONG INFANTS.

Stricter requirements for the milk supply, increased vigilance of local health boards, and the establishment of infant welfare stations where mothers are taught the proper care and management of their babies, have all combined to produce a steadily diminishing infant mortality. This decrease in the death-rate is, however, still far from what it should be. It is gratifying to note that all over the country the authorities are becoming more and more alive to the fact that a large percentage of the deaths among infants is strictly preventable. In New York, the Public Health Commission appointed by Governor Sulzer has advised that "each city with a population in excess of 10,000 and having an industrial population should have one infant welfare station for each 2000 inhabitants." In addition to the information given mothers at these stations it is planned to continue on a larger scale than ever the distribution of leaflets with simple directions as to the care and feeding of infants. Thus the problem of educating the mothers has been attacked in a systematic way in the State of New York.

The milk supply seems to present much greater difficulty. In our large cities this is met partly by charitable means, which is at best a poor solution of any problem. Pure and wholesome milk should be within the reach of the poorest as well as the richest without a resort to what practically amounts to the taking of alms. That this is possible seems to be proven by the investigation and experiments of the Monroe County Medical Society's Milk Commission. The Secretary of this Commission, Dr. John B. Williams, told the result of their investigation and experiment at the last International Congress of Hygiene and Demography. They came to the conclusion that wasteful methods on the farms, and the comptetition betweeen "small dealers, caused unnecessary labor in the handling of the milk, lowered the quality and raised the price. Their investigations were conducted in the city of Rochester and among the farms supplying the city. They based their conclusions on a study of 40 farms, 173 vendors and 5400 consumers. Being convinced that milk conforming to the standards was unnecessarily high in price, they conducted an experiment in which it was found entirely possible to supply milk to the consumer at one-fourth the usual price without having to invoke the aid of philanthropy. It is apparently impossible, even with the most stringent laws, to have a perfect milk supply when there are so many dealers handling it, and the farmers find it so hard to make a reasonable profit. There seems to be but one adequate solution and that is the operation and control of the whole milk business by the State or municipality. In the matter of water the precedent has long been set. The provision of pure milk at a price within the reach of all is as important and as much a public duty as the provision of pure water.

The third great menace to infant life is the house fly. If this filth carrier swarms in large numbers, all the efforts to provide good milk and to educate the mothers in its preparation will be largely futile. Owing to the gradual disappearance of the horse from the cities and the consequent absence of breeding places, the fly is not such a menace to the urban population as to the rural. Statistics for the State of New York show that the prevalence of diarrheas among infants in the country is greatest during the summer and fall and that infant mortality is but slightly lower than in the city. Undoubtedly the fly is in part responsible for this. In both city and country the coming months of July, August and September bring the heaviest mortality among infants, therefore our efforts should be redoubled with the three most effective weapons at our hand; first, the provision of a pure milk supply; second, instruction of the mothers in both town and country; and third, the elimination of the fly. That the work of the past has not been in vain may readily be seen by the report of the New York State Department of Health in its Monthly Bulletin for March, 1913. During the year 1912 the infant mortality for the whole State of New York was 108.9 per 1000 born living, while in 1904 it was 151. The result of the efforts put forth by the State of New York should encourage all State Boards of Health to increasing activity and vigilance during the coming year.

THE ABUSE OF HABIT-FORMING DRUGS.

THAT the lack of uniform laws in all States regarding the sale and use of poisonous drugs is largely responsible for the enormous increase in their consumption is the conclusion that must be drawn from Public Health Bulletin No. 56.[1] The mortality statistics of the Census Bureau report that for the last ten years the annual average of deaths indirectly due to poisons other than alcohol has reached the appalling figure of 5000. In 1906, according to Thomas F. Darlington, when an ordinance of the New York City Board of Health was enforced, the number of suicides from the use of carbolic acid in that city was reduced from 343 to 36.

The law requiring a poison label on arsenic, corrosive sublimate, prussic acid, or any other substance or liquid usually denominated poisonous, was the earliest of the laws designed to prevent accidental poisoning. This law was enacted late in the last century by the State of New York, and for over twenty years was the only attempt made to safeguard the public by legislation. The toxicity of morphine seems not to have been recognized until 1860 by Pennsylvania; and the habit-forming dangers of opium and its alkaloids were not legally restrained until twenty-five years later, when Ohio passed its anti-opium-smoking law. It is only in the last sixteen years that the bulk of our anti-narcotic legislation has been enacted, and the rapid spread of the use of narcotic drugs shows the impracticability of these laws. This was commented upon by the President in his message to the third session of the Sixty-third Congress, in which he stated that the ever increasing misuse of opium and other habit-forming drugs in the United States "may be attributed to several causes, but in a larger sense is due to the lack of control by the Federal Government of the importation, manufacture and interstate traffic in them."

In respect to the abuse of morphine and cocaine, we make a bad showing as compared to European States which have a more centralized system of government than ours in matters which affect the health of the whole nation. Thus in Germany, with a population of approximately 60,000,000 inhabitants, they consume only 17,000 pounds of opium yearly, as contrasted with our annual consumption of 400,000 pounds. It has been estimated by the best medical authorities that 50,000 pounds of opium annually should suffice for the legitimate needs of the American people. Consequently, it appears that we use at least eight times as much as we should. When we reflect upon the fact that fully 75% of our annual opium importation is manufactured into morphine, and that probably 80% of such morphine is used by victims of the habit, it becomes apparent that the situation needs the careful attention of our legislators. Not only is this true in regard to morphine, but also for other drugs with habit-forming tendencies. According to the authors of this Public Health Bulletin, who appear to have made an exhaustive study of the laws and regulations governing the manufacture and sale of all habit-forming drugs in every State in the Union, there is an increasing abuse of such drugs as chloral and allied hypnotics. But probably the worst of all is cocaine, which is taken illegitimately by the people at the rate of 150,000 ounces a year.

Making due allowance for the increasing tendency on the part of public health officials of all ranks from municipal to national, to present their arguments in such graphic figures that the suspicion of exaggeration must always be with us, we nevertheless believe that in this particular instance the dangers which beset us from drug addiction are not overstated. The remedy would seem to lie in Federal enactments which would be equally applicable to all States.

[1] Martin I. Wilbert and Murray Galt Motter, Digest of Laws and Regulations in Force in the United States Relating to the Possession, Use, Sale, and Manufacture of Poisons and Habit-Forming Drugs. Public Health Bulletin No. 56. November, 1912.

MEDICAL NOTES.

BUBONIC PLAGUE IN MANILA.—Report from Washington, D. C., on April 26 states that there have been five human deaths from bubonic plague thus far this year in Manila, P. I. The rat is the important factor in its transmission, and the Manila Board of Health has employed fifty additional rat-catchers in the effort to rid the city of these dangerous pests.

A LIVING CENTENARIAN.—Nathan Adkins, of Dorothy, W. Va., is locally reputed to have been born in 1805. His health is said to be still excellent.

SALE OF DR. FRIEDMANN'S VACCINE.—The recent sale of Dr. Friedmann's vaccine, as reported in the daily press, removes it from the field of legitimate medicine and places it in the category of proprietary remedies whose composition is

kept secret. Dr. Friedmann's methods of self-exploitation may be contrasted with the manner in which von Behring's beneficent discovery of diphtheria antitoxin was introduced to the world. The most charitable interpretation that can be put upon his conduct is that he has allowed himself to become the tool of American commercial promoters; but it is none the less painfully to be regretted that a member of our profession should forsake its dignity for the methods of charlatanism.

London Death-Rates for 1912.—Statistics recently published show that the total death-rate of London for the year 1912 was only 14.3 per 1000 inhabitants living. Among the several districts and boroughs the highest annual rate was 19.4 in Finsbury, a crowded central slum, and the lowest was 10.8 in Wandsworth and Lewisham, two populous southern suburbs.

A Prolific Father.—Reminiscences of Augustus the Strong are aroused by the report on April 28 from Walnut, Ark., stating that Thomas Ellison, of Newton County in that State, now 93 years old, who has been thrice married, has 50 children, ranging from 65 to 11 years of age, 125 grandchildren, 60 great-grandchildren, and 27 great-great-grandchildren. He himself was born in Clinton County, Ohio.

Feeble-Mindedness in Pennsylvania.—On June 14, 1911, there was appointed in Pennsylvania a commission to investigate "the segregation, care, and treatment of feeble-minded and epileptic persons" in that commonwealth. The report of this commission, recently published at the conclusion of its labors, is an interesting document, presenting many facts of general importance to other communities than those of Pennsylvania.

After careful investigation it was ascertained that 7326 feeble-minded, idiot, and epileptic persons were receiving care in institutions in the State; and conservatively estimated that 18,000 more such persons were at large and receiving no proper care. The report next summarizes the provision made for such persons in other States of the Union. After defining the grades of feeble-mindedness, and reviewing the provisions made for the care of aments in Pennsylvania, the report proceeds to specific recommendations for their improvement. Sterilization is approved in theory, but considered inexpedient. Segregation, compulsory in the case of women of child-bearing age, is deemed the essential element in dealing with the problem of the feeble-minded. Suggested legislation, covering the points in question, is appended.

BOSTON AND NEW ENGLAND.

The Cutter Lectures.—The Cutter Lectures on Preventive Medicine and Hygiene this year will be given by Dr. Mark W. Richardson, Secretary of the State Board of Health of Massachusetts, on "Health Administration." The subject will be considered from the standpoint of conditions obtaining in the Nation, State, City and Town. Especial attention will be devoted to a discussion of the opportunities for a life career in public health work.

These lectures will be given next week, on Monday, May 12, and Wednesday, May 14, at the Harvard Medical School, Amphitheatre Building E, at 3 p. m.

These lectures are given annually under the terms of a bequest from John Clarence Cutter, whose will provided that the lectures so given should be styled the Cutter Lectures on Preventive Medicine, and that they should be delivered in Boston, and be free to the medical profession and the press.

The members of all classes in the Medical School, the medical profession, the press, and others interested, are cordially invited to attend.

Reporting of Ophthalmia Neonatorum.—The Boston Board of Health again desires to call to the attention of the medical profession and midwives, the importance and necessity of reporting promptly all cases of ophthalmia that they may be called upon to visit. Within the past few weeks four physicians and one midwife have been summoned into court and found guilty. So many cases of neglected eyes have been found where physicians have failed to report as the law directs, that this Board intends to prosecute all cases where neglect on the part of the physician is found.

An Evening Ophthalmologic Clinic.—An evening ophthalmologic clinic was opened at the Boston Dispensary on April 29, and will be continued every Tuesday evening thereafter.

"The object of this clinic is to meet the demands of a large number of persons suffering from ocular troubles who find it too difficult to leave their work in the daytime and attend the regular dispensaries. It is also intended for those persons who do not wish to be the recip-

ients of charity at the free clinics and yet are unable to afford the regular oculist's fee.

"It is hoped to make this clinic, which was established in the interests of the public, self-supporting, and except under special arrangements for those who are unable to pay for their services, a charge of $1 will be made for the first visit and of 50 cents for each succeeding visit."

The clinic is under the charge of Dr. Edward Hartshorn.

A HOSPITAL BEQUEST.—The will of the late Edith Hill Crane, of Weston, Mass., which was filed on May 1 for allowance in the Norfolk County Registry of Probate, at Dedham, Mass., contains a provision whereby the Massachusetts General Hospital receives $100 annually for the maintenance of a free bed.

MILTON ACADEMY INFIRMARY.—Plans have recently been drawn and accepted for a new infirmary at Milton (Mass.) Academy.

"Construction will be of brick, with wooden floors and walls. The first floor will contain one large ward and one small ward, a diet kitchen, a nurse's room and bath, and locker room. Part of the second floor has been so arranged that it may be shut off from the rest of the building and used as a contagious ward. When not in use for this purpose it will be adapted to general hospital purposes. On this floor there is one large ward and three smaller wards and the stairs run direct from the floor to the outside of the building. Each floor has two sun rooms. In the basement there is a large diet kitchen which may be used in emergencies. In all there will be fourteen beds."

STATUS OF MILK LEGISLATION IN MASSACHUSETTS.—Since the publication of our editorial in the issue of the JOURNAL for April 24, (Vol. clxviii, p. 626) on "The Milk Problem in Massachusetts," Senate Bill No. 44 has been defeated in the Legislature, and the substitution for it of the Ellis bill has been refused by both houses of the General Court. Attention is now directed to the Bowditch bill, another substitute measure, apparently not desirable.

"The bill carries with it an appropriation of $10,000, and the proposition is to use the money as prizes for the smallest number of bacteria in milk—$150 for first prize, $100 for second, $70 for third, $50 for fourth, and ten prizes of $20 each. In determining the bacteria ten samples of milk taken in two months shall be submitted."

This bill is favored by the Massachusetts State Board of Agriculture, by the Massachusetts Dairymen's Association, and by the State Grange.

MOUNT SINAI HOSPITAL.—The recently published eleventh annual report of the Mount Sinai Hospital, Boston, records the work of that institution for the calendar year 1912. During this period the total number of consultations and treatments was 21,607, of which 4493 were in the surgical department. There were 301 deliveries in the obstetric department. In June, 1912, the new social service department was opened. The massage and dental clinics were closed during the summer. The need is reiterated for a new hospital building, both for the out-patient departments and to provide ward accommodation for patients too sick for ambulatory treatment.

REPORT OF BROCKTON BOARD OF HEALTH.—The recently published thirty-first annual report of the department of public health of the city of Brockton, Mass., chronicles the activities of that body for the calendar year 1912. The city death-rate for this year was 11.64 per 1000, the average death-rate for the past ten years 11.79. In 1912 only three deaths each were reported from scarlet fever and typhoid, 44 from tuberculosis, and 62 from pneumonia. There were 156 deaths of infants under one year of age. A total of 563 laboratory examinations was made by the city bacteriologist and inspector of milk.

BOSTON MORTALITY STATISTICS.—Cases of infectious diseases reported to the Board of Health of Boston, for the week ending April 29, 1913: Diphtheria, 36, including 1 non-resident; scarlatina, 40, including 2 non-residents; typhoid fever, 6, including 1 non-resident; measles, 154; tuberculosis 79, including 4 non-residents. The death-rate of the reported deaths for the week was 17.09.

NEW YORK.

HALL OF PUBLIC HEALTH.—A "hall of public health" was opened on April 16 at the American Museum of Natural History, where a largely attended meeting was held in the interests of the campaign for civic cleanliness instituted by the Health Department. Addresses were made by Prof. H. F. Osborn, president of the Museum, Commissioner Lederle, and others, and a number of motion pictures were shown. Among the features of the display in the hall of health are a gigantic model of the house-fly and other exhibits illustrating the relation of insects to the spreading of disease. The special appropriation of

$37,000 for the Spring cleaning asked for by the Health Department has now been voted by the Board of Aldermen.

International Congress of School Hygiene.—At the Fourth International Congress of School Hygiene, which is to be held in Buffalo August 25 to 30, ex-President Eliot of Harvard is to preside. The general secretary is Dr. T. A. Story, professor of hygiene in the College of the City of New York, and among the vice-presidents are Prof. W. H. Welch of Johns Hopkins University and Dr. H. P. Walcott of the Massachusetts Board of Health.

Physical Examination by Women Physicians.—Governor Sulzer has signed the Tudor bill, recently passed by the Legislature, which provides that where women are required to undergo physical examinations in obtaining employment such examinations shall be made by women physicians.

Bequest for Cancer Research.—The will of the late Henry Rutherford, of Grand Isle, Vt., who died in New York City, was filed there for probate on April 28. It contains a bequest of $200,000 to the Rockefeller Institute for Medical Research, the income of the fund to be used for cancer investigation.

A Physical Standard for Children.—It was announced on April 28 that the New York Milk Committee is to attempt the determination of a standard norm of physical development among American children.

"In carrying out tests and measurements, 100,000 children will be examined throughout the country. Results will be obtained through a series of competitive examinations of normally healthy children in county, city and State contests. On score cards furnished by the committee will be entered the weight, height, physical measurements, condition, and mental development, following examinations by physicians. Within one year, it is hoped, the standard of America's normally healthy child will be established beyond dispute."

Meeting to Commemorate Dr. Billings.—A meeting in commemoration of the life and services of Dr. John R. Billings, attended by many prominent persons, was held at the New York Public Library on April 25. The president of the Library, J. L. Cadwalader, presided, and among those who made addresses were Dr. S. Weir Mitchell, Sir William Osler, and Prof. William M. Welch of Johns Hopkins University.

Appointment of Dr. Schlapp.—Dr. M. G. Schlapp of Cornell University Medical College has been appointed by Mayor Gaynor one of the delegates to the National Conference on Charities and Corrections, to be held at Seattle in July next.

Sewage Contamination of Water.—Drs. G. J. Fowler and J. D. Watson, the English sanitary experts who were summoned to make an investigation of the problem, have submitted to the Metropolitan Sewerage Commission a report on the contamination by sewage of the waters of New York Harbor and of the Harlem and East Rivers and the lower Hudson. In this they urge the necessity for immediate action to remedy existing conditions and present comprehensive plans for the work, including an indorsement of the recent recommendations of the commission calling for the building of a sewage tunnel passing under Brooklyn to Staten Island and the construction of an island sewage plant three miles off shore.

Hospital Saturday and Sunday Association.—The sum of $105,000, or $10,000 more than in any previous year, was distributed on April 21, by the Hospital Saturday and Sunday Association, to the 46 institutions represented in the Association, in accordance with the amount of free work done by each. As usual, the Mt. Sinai Hospital received the largest award, which this year amounted to $9,129, and St. Luke's came next, with $6,148. The third on the list, getting $5,973, was the New York Hospital, and it is noteworthy that this is the first time that this venerable institution, the richest of its kind in the city, has asked to be the recipient of a share of the fund.

National Anti-Cancer Association.—In furtherance of the views expressed in the recommendations adopted by the American Gynecological Society and the Congress of American Surgeons, a meeting was called on April 22 by Dr. Clement Cleveland of the former society to organize a National Anti-Cancer Association, for the purpose of inaugurating and carrying on a campaign of popular education on the prevention and suppression of cancer. This is de-

signed principally for the benefit of women, and particularly as regards the early recognition of uterine and mammary cancer. The meeting was attended by a number of well-known physicians and surgeons, and of prominent women interested in philanthropic work, including Mrs. Russell Sage and Mrs. F. W. Vanderbilt, and the committee on organization was instructed to ask the coöperation of the Congress of American Physicians and Surgeons in Washington.

Recent Hospital Bequests.—By the will of the late Mrs. William S. Eaton of New York the Presbyterian Hospital is to receive $15,000, the New York Foundling Hospital, $2,500, and St. Vincent's Hospital, $30,000. The last-named bequest, however, is not effective until the death of her husband.

Current Literature.

Medical Record.

April 19, 1913.

1. Jacoby, G. W. *The Montessori Method from a Physician's Viewpoint.*
2. Downes, W. A. *Primary Splenomegaly of the Gauchier Type; Report of a Successful Splenectomy.*
3. *Baright, H. E. *A Method of Classification, Diagnosis and Therapy of Kidney Disorders, Based on Functional Testing.*
4. Pfender, A. *Barlow's Disease in an Infant Fed on Pasteurized Cow's Milk.*
5. Gillespie, E. *Some of the Common Forms of Insanity.*
6. Mulot, O. L. *A New Treatment for Acute Gonorrhea.*
7. Orr, T. G. *A Case of Acute Septicopyemia.*

3. Baright presents a new method of classification, diagnosis and treatment of kidney disorders, based on functional testing. He divides nephritis into three forms—vascular, tubular and uremic. Albumin and casts may be present in every type of renal disorder and therefore do not help to distinguish between types. In place of these there is a series of signs possessing true diagnostic meaning and value. Circulatory troubles are peculiar to vascular nephritis, anasarca and diminished capacity for salt excretion are peculiar to the tubular type, repugnance for meat, albuminuric retinitis and increase of non-protein nitrogen in the blood are peculiar to the uremic type. Aside from these clinical signs, there are the functional tests, each of which has its definite diagnostic significance. The phenolsulphonephthalein test is valuable for prognosis rather than for diagnosis, determining the extent or severity of a renal lesion but not its type. [L. D. C.]

New York Medical Journal.

April 19, 1913.

1. Baudler, S. W. *Vaginal Surgery.*
2. Browning, W. *American Assassins.*
3. Allfort, F. *The Needs of the Eye, Ear, Nose and Throat Surgeon in General Hospitals.*
4. Frank, R. T. *Contraindications to Curetting.*
5. *Cornwall, E. E. *Gastric Ulcer.*
6. Rayevsky, C. *The Hematological Equilibrium in Pulmonary Tuberculosis.*
7. Earp, S. E. *Chronic Interstitial Nephritis.*
8. Kerr, L. *Convalescing Children.*
9. Danziger, E. *The Nose and Throat.*
10. *Wilson, S. M. *Whooping Cough.*
11. Rohdenburg, G. L. *The Blood Catalase in Malignant Tumors.*
12. Macy, M. S. *Instruction in Sex Hygiene.*
13. Doyle, S. B. *Beriberi.*

5. Cornwall writes an interesting paper on the medical treatment of gastric ulcer. Practically every case, he says, is entitled to at least one chance to recover without operation. Rectal feeding in the beginning is essential in all severe cases and desirable in others. The ulcer is least irritated by a diet of modified milk and milk products, cereals and bland fruits. Spices, condiments, acids and sugar are especially to be avoided. Speedy emptying of the stomach is facilitated if the patient lies on his right side as much as possible during gastric digestion. Olive oil is soothing to the ulcerated stomach, is good food, and is laxative. Drugs are of very little use in the treatment of gastric ulcer.

10. Wilson reports good results with pertussin in whooping-cough. This is a vaccine made from the organism isolated by Bordet. Twenty to forty million bacteria were given (subcutaneously) at a dose. The writer observed that the paroxysms were rapidly controlled and that from that time on the patients were not infective to others. [L. D. C.]

The Journal of the American Medical Association.

April 26, 1913.

1. *Gatch, W. D., Gann, D., and Mann, F. C. *The Danger and Prevention of Severe Cardiac Strain During Anesthesia.*
2. Ebright, G. E. *A Case of Congenital Heart Disease.*
3. Morrison, E. E. *Report of a Case of Brain Tumor.*
4. Buford, C. G. *Large Urethral Caruncle in a Girl of Nine Years. A Preliminary Note, with a Summary of the Subject.*
5. Bassler, A. *Early Diagnosis of Cancer of the Esophagus. A New Technic of X-ray Examination.*
6. *Pope, S. *Simplified Transfusion.*
7. Zapffe, F. C. *Two New Circular Bone-Saws.*
8. Jackson, J. N. *Rectrocecal Appendicitis.*
9. *Black, J. H. *Prophylactic Vaccination Against Epidemic Meningitis.*
10. *Medical Ethics. By a Physician's Wife.*
11. *Hertzler, A. E. *Causes of the Migration of the Omentum.*
12. *Leary, T. J. *Surgical Method of Clearing Up Chronic Typhoid Carriers. Report of Two Cases of Removal of the Gall-Bladder and the Entire Cystic Duct.*
13. Dixon, S. G. *"The Branched Form of the Tubercle Bacillus" as a Specific Factor in the Treatment of Human Tuberculosis. A Preliminary Note.*
14. Hitz, H. B. *A Needle-Holder for Submucous Resection of the Septum.*
15. Eddy, N. B. *Recovery in Brain Syphilis After the Use of Salvarsan.*
16. Stone, W. J. *Complete Situs Transversus.*
17. Grover, A. L. *Fatal Peritonitis Due to Infection with Bacillus Coli.*
18. Crigler, L. W. *Burn of Eyeball Due to Caustic Contents of Golf-Ball.*

1. Gatch and his associates conclude, from experimental and clinical observation, that the Trendelenburg position is harmless for patients with normal hearts, provided their respiration is free and unobstructed. In a case of partial or complete failure or obstruction of respiration, the patient should at once be placed in the horizontal or semi-recumbent posture. The Trendelenburg position should be used only with the utmost caution in cases of cardiac disease. To prevent too sudden inflow and outflow of blood to and from the heart, the patient should be placed very gradually in and out of this position. Alcoholic patients should be given morphia and alcohol before anesthesia and should be anesthetized without cyanosis.

6. Pope does transfusion with two small glass tubes inserted into the donor's artery and recipient's vein and connected so as to give plenty of room for manipulation by a paraffine coated rubber tube or bit of catheter.

9. Black believes that prophylactic vaccination in epidemic meningitis produces in most cases a high degree of immunity, which is demonstrable at the end of one year. The procedure is of the greatest value in the control of this disease.

11. Hertzler believes that there are no inherent properties which cause the omentum to migrate; corn-pith migrates in the same way under same conditions. Fibrin formation is the requisite condition for migration.

12. Leary advocates the entire removal of the gall bladder and cystic duct as the treatment for clearing up chronic typhoid carriers. [E. H. R.]

Surgery, Gynecology and Obstetrics.

April, 1913.

1. *Eastman, J. R. *The Fetal Peritoneal Folds of Jonnesco, Treves, and Reid, and Their Probable Relationship to Jackson's Membrane and Lane's Kink.*
2. *Connell, F. G. *Etiology of Lane's Kink, Jackson's Membrane, and Cecum Mobile.*
3. Schrager, V. L. *Bilocular Hernia.*
4. Cary, E. *Chorio-Epithelioma: Recurrence After Three Years; Invasion of the Spinal Canal; Villi in Secondary Growth.*
5. Day, E. W. *Indications for and Results of Operative Treatment of Otitic Meningitis.*
6. Whiting, F. *Discussion of Dr. Day's Paper.*
7. Judd, E. S. *Prostatectomy.*
8. Remsen, C. M. *Acute Perforative Cholecystitis Complicated by General Peritonitis.*
9. *Leonard, V. N. *Post-Operative Results of Amputation of the Cervix.*
10. Miller, A. M. *Primary Traumatic Dorsal Complete Radiocarpal Dislocation.*
11. *Smith, J. T. *The Prognostic Value of the Leucocyte Count in Pelvic Suppurative Conditions.*
12. MacCarty, W. C. *Goiter and Its Relation to Its Structural and Physiological Units.*
13. *Williams, P. F., and Pearce, R. M. *Abderhalden's Biological Test for Pregnancy.*
14. *McCord, C. P. *The Employment of Protective Enzymes of the Blood as a Means of Extracorporeal Diagnosis.*
15. Zwalenburg, C. V. *Report of the Radical Operative Cure of a Double Obturator Hernia.*
16. Rockey, A. E. *Prostatectomy by a Composite Method.*
17. McGlannan, A. *The Open Treatment of Fracture of the Femur.*
18. Jackson, J. N. *Amputation Flaps.*

1. Eastman's beautifully illustrated article shows clearly the relationship between the fetal peritoneal folds of Jonnesco, Treves and Reid to the adult peritoneal conditions known as Jackson's membrane and Lane's kink. Eastman believes these latter conditions not to be inflammatory in nature, at least not of recent adult occurrence, but rather of persistence of fetal conditions.

2. Connell, discussing the same conditions, ascribes them to anomalous development, which may be either excessive rotation, delayed migration or anomalous fixation of fetal conditions. Cecum mobile is due to an absence of fixation.

9. Leonard, analyzing 128 cases of amputation of the cervix, states that hemorrhage is not uncommon (5 per cent.) and is due to sepsis rather than faulty suture. Ninety per cent. of patients show improvement in general health. Four-fifths of cases remain sterile after amputation. A pregnancy after amputation of the cervix has not more than an even chance of progressing to full time. Serious dystocia generally results, due to the cicatricial condition of the cervix.

11. Smith states that the leucocyte count in pelvic suppurative conditions is extremely variable, but is decidedly of more prognostic value than pre-operative temperatures. With a count of over 14,000 some trouble arose during convalescence in a majority of 100 cases. With a count of less than 14,000 trouble seldom developed in convalescence in 100 cases.

13. Williams and Pearce do not feel that Abderhalden's test for pregnancy can be accepted as an accurate clinical method until it has been more thoroughly investigated and the possible sources of error corrected.

14. McCord, however, using his own modification of Abderhalden's method believes the sero-diagnosis of pregnancy to be both reliable and practical and of great value to the obstetrician and gynecologist. [E. H. R.]

The Lancet.

April 5, 1913.

1. *Bell, W. B. *The Arris and Gale Lectures on the Genital Functions of the Ductless Glands in the Female. Lecture II.*
2. *Hall, F. de H. *The Lumleian Lectures on Intrathoracic Aneurysm.*
3. *Boyd, S. *Non-Parasitic Cysts of the Liver.*
4. *Lapage, C. P., and Mair, W. *Notes on the Pathology of Tuberculosis in Infancy and Childhood.*
5. Galbraith, S. N. *Acute Tuberculous Pneumonia; Recovery.*
6. Bankart, A. S. B. *The Technic of Excision of Cervical Ribs.*
7. Patterson, N. *Case of Epithelioma of the Auricle and Cervical Glands; Removal of Auricle and Glands.*

1. Cf. *British Medical Journal*, April 3, 1913.

2. In the third Lumleian Lecture, after briefly dwelling on prognosis in thoracic aneurysm and its relation to life insurance, Hall considers treatment. He does not think that Tufnell's starvation treatment has accomplished much; iodine is of great benefit in cases in which syphilis is an etiological factor; injections of gelatine have been of symptomatic value in a few cases; calcium salts have accomplished nothing. He discusses the question of tracheotomy in cases of urgent dyspnea, advising it only in extreme cases. Wiring the aneurysm is far more available in abdominal aneurysm than in thoracic cases; in rare instances it seems to give relief. Galvano-puncture should be reserved for extreme cases.

3. Non-parasitic liver cysts are in general associated with cystic disease of the kidneys; they may be present in children, but frequently do not develop until late in life. Boyd gives a historical review of this subject and discusses the theories brought forward to explain this disease. Cystic disease of the liver is not amenable to treatment; "solitary cysts," however, are of considerable clinical interest. Theo-

ries in regard to this condition are numerous; the best authorities regard them as of adenomatous growths, except in the case of rentention cysts. Several illustrative cases are given in detail and in tabular form are presented 34 cases collected from the literature. He discusses the clinical features of such cysts. The treatment is operative in all cases, although the prognosis is unfavorable.

4. Lapage and Mair discuss the pathological findings in 150 cases of tuberculosis, macroscopical, in which 89% showed glandular, 54% pulmonary, and 49% intestinal and peritoneal tuberculosis. In the glandular cases the bronchial and mesenteric were most commonly affected. In 28% of the cases of thoracic glands and in 32% of those with abdominal glands there was no evidence of any lesion in the areas drained by these glands. In the pulmonary cases, 54%, the surprising feature is the large number with cavity formation even in young children. The article, though short, is of interest and value.

[J. B. H.]

British Medical Journal.

April 5, 1913.

1. *Ryall, C. *A Lecture on Cancer of the Tongue.*
2. *O'Malley, J. F. *Enucleation of the Tonsils and Removal of Adenoids under Gas Anesthesia.*
3. *Watson-Wemyss, H. L. *A Case of Vaquez' Disease (Polycythemia with Plethora and Splenomegaly).*
4. Sanderson, W. *Tuberculoma of the Larynx.*
5. Blakeway, H. *An Account of a Teratoma of Unusual Size Affecting the Testicle of a Horse.*
6. Stephens, G. A. *Distilled Water Versus Salvarsan in the Treatment of Syphilis.*
7. *Bell, W. B. *The Arris and Gale Lectures on the Genital Functions of the Ductless Glands in the Female. Lecture II.*

1. This is a general clinical article on tongue cancer, briefly reviewing the subject as to diagnosis and treatment. In preventive treatment he states that tobacco is dangerous in all cases of syphilis and that its use should be prohibited in every case. All sources of chronic irritation in the mouth should be removed, although the prolonged use of strong stimulating lotions to clean up the mouth is dangerous. He urges that any chronic ulcer or papilloma refusing to yield to treatment be excised. He goes so far as to recommend the excision of the tongue in the case of a very extensive chronic syphilitic lesion unamenable to anti-syphilitic remedies. He goes on to discuss in some detail the radical operation and palliative measures. Among the latter he has tried with marked relief of pain the injection of the lingual vessels with paraffin. Finally, he believes that the thorough treatment of syphilis would well-nigh abolish cancer of the tongue.

2. O'Malley describes the operations mentioned in the title in considerable detail, urging that the removal of tonsils and adenoids be made operations of precision and not more or less "hit or miss," as many of them now are.

3. This is a detailed description of a case of polycythemia in the plethora and enlarged spleen, which the writer chooses to call "Vaquez's Disease."

7. In this second Arris and Gale Lecture, Bell discusses the relation of the thyroid to the genital system, the effects of thyroidectomy on the general metabolism, on the ovaries and uterus and on the genital functions in women in general. He then in a similar way takes up the relation of the pituitary to the genital system and the effect of pituitary insufficiency on the genital function; next he covers the same ground in relation to the thymus and suprarenals, and finally discusses the correlation of the internal secretions in regard to their genital functions.

[J. B. H.]

Edinburgh Medical Journal.

1. *Robertson, G. M. *General Paralysis of the Insane. I.*
2. Chiene, G. *Ruptured Ovarian Pregnancy.*
3. *Sherman, T. *Multiple Myeloma and Its Association with Bence-Jones Albumose in the Urine.*
4. *Lindsay, J. *Rheumatoid Arthritis in Children.*
5. Pirie, G. A. *Re-formation of Bone After Resection.*
6. Weber, F. P. *Nephritis in Secondary Syphilis.*

1. In a thorough consideration of general paralysis of the insane, Robertson considers the early diagnosis of this condition, the mental symptoms, physical signs and laboratory diagnostic methods. He discusses tabes with mental symptoms, cerebro-spinal syphilis with mental symptoms and general paralysis without clinical symptoms. He then takes up the etiology, prophylaxis and treatment of this disease. As a general review of the subject this article is of interest and value.

3. Sherman in his first lecture takes up the history of multiple myeloma in connection with albumosuria and considers its clinical characteristics, morbid anatomy and histology, with particular reference to the cells present in the blood and bone marrow. There is an elaborate bibliography.

4. Lindsay in a long article considers the subject of rheumatoid arthritis in children, taking up first etiology, such as unhygienic surroundings, injury, an apparently important factor, and septic foci in the body. He then takes up age and mode of onset. It is most frequently met with in the third, fourth and fifth decades. Among signs and symptoms he describes cutaneous changes, vaso-motor disturbances, muscular atrophy, tendon contracture, and enlargement of spleen and lymphatic glands. He discusses the changes shown by the x-ray. He briefly takes up the morbid anatomy and the prognosis. Treatment varies according to the stage and intensity of the condition. Among other factors in treatment he takes up diet, drugs, local applications and spa treatment.

[J. B. H.]

The Quarterly Journal of Medicine.

Vol. 6. No. 22. January, 1913.

1. *v. Bonin, G. *Study of a Case of Digipituitarism.*
2. *Butler, G. G. *The Fragility of the Red Blood Corpuscles.*
3. *Fowell, P. H. C. *Iron in the Blood.*
4. Naish, A. E. *Premature Ventricular Beats in Heart-Block.*
5. Laslett, E. E. *Observations on Auricular and Nodal(?) Extra-systoles.*
6. *Lewis, T. *Exceptional Types of Slow Heart Action.*
7. *Hume, W. E. *A Case in Which a High Speed of the Auricles Did Not Produce Tachycardia.*
8. *Garrod, A. E., and Hurtley, W. H. *Congenital Family Steatorrhea.*

1. This is a report of a case of acromegaly, with autopsy. The newer work on the pituitary body and its relation to the other ductless glands is discussed, but nothing new is presented.

2. Butler's very thorough study of the fragility of the red blood corpuscles in health and disease failed to bring out much that is new or important. The increase in fragility in congenital acholuric jaundice and the decrease in obstructive jaundice were confirmed. There was also found an increase in fragility from the action of CO_2, as in cyanosis, and a decrease on exposure to oxygen. The necessity for using a constant dilution of blood and freshly washed bloood corpuscles was demonstrated.

3. Fowell found Autenrieth's instrument for estimating the hemoglobin and the total iron of the blood

to be sufficiently reliable for clinical purposes. There was in all individuals an excess of iron above that which could be ascribed to the hemoglobin. In a case of hemochromatosis normal values were found for both hemoglobin and total iron, while in sulphemaglobinemia very low values for iron were found in proportion to the hemoglobin, a fact which may be explained by the presence of abnormal pigments not containing iron. In pernicious anemia a very marked increase of the "free" iron in proportion to the total iron was found, while in secondary anemia this ratio was normal.

6. Lewis describes three forms of slow action of the heart. In the first case there was a continuous slow action of the heart, each contraction of the ventricles being preceded by one of the auricles. At times, however, there was substituted a nodal rhythm, which was also slow and of about the same rate as the other. A hitherto undescribed form of slow action was shown in the second case, for no trace of auricular action could be discovered, either in polygraphic or electro-cardiographic records. The third case was one showing the Adams-Stokes syndrome, but not the signs of heart block. The ventricles beat three times for each radial puse-beat: the first of these ventricular beats was preceded by a normal "a" wave, the second was a premature ventricular beat, and was retrograde, the third beat was also premature, but was not retrograde.

7. In a few instances a high speed of the auricle has been reported, without a corresponding rate on the part of the ventricle. In Hume's case the auricular rate was 260, that of the ventricle about 87. There was a partial heart block. Later auricular fibrillation developed. The reviewer has seen a similar case of partial heart block with 2 : 1 rhythm, in which the ventricular rate did not go below 70.

8. The writers describe a very remarkable condition, hitherto unknown. In a family in which the parents were first cousins two out of five children were afflicted with the abnormality. This consisted in the passage with the stools of liquid fat. Investigation showed that only the digestion of fats was imperfect, tryptic digestion being normal. This probably acounts for the fact that the children's growth and well-being was not interfered with. The loss of fat with the stools was not so great as has been reported for cases of total exclusion of the pancreatic juice from the intestine, amounting to 25% of the intake. The administration of pancreatic preparations did not improve fat absorption. In the absence of jaundice and of intestinal disease the authors believe the developmental error to lie in the pancreas.

[W. T.]

Deutsches Archiv für Klinische Medizin.

February 18, 1913.

1. Baehr, G. *Polyuria in Subacute Nephritis.*
2. *Lüdke, H., and Fejes, L. *Studies on the Origin of Cryptogenetic Pernicious Anemia.*
3. *Fischer, J. *Relation Between Persistent High Blood Pressure and Kidney Disease.*
4. Weil, A. *Influence in Human Cases of Electrical Stimulation on Stomach Peristalsis and Secretion.*
5. Lipowetzky, L. *Sphygmobolometric Investigations in Health and Disease by Means of Sahli's Syhygmobolographic Procedure.*
6. Christen, Th. *Observations on the Improved and Simplified Sphygmobolometer.*
7. Sahli, Prof. *Answers to the Preceding Observation.*
8. *Kammerer, H., and Waldmann, A. *Determination of the Amount of Blood According to v. Behring and Other Quantitative Studies of the Constituents of Blood.*
9. Grund, G. *Firmly Bound Chlorine in Stomach Juice, Especially in Gastric Cancer.*
10. *Tachan, H. *Relation of Blood Sugar and Clinical Importance of Blood Sugar Determination in Diabetes Mellitus.*
11. Müller, J. E. *Rare Diseases Produced by the Diphtheria Bacillus.*
12. Wyss, H. *Negative Pressure in the Thorax.*
13. Aufrecht, Prof. *Method of Percussion.*

2. These authors take up the different alleged causes of pernicious anemia and discuss them. They then show that by increasing the virulence of certain of the common intestinal bacteria their hemolytic properties become more marked. They do not believe that auto-intoxication products alone can cause pernicious anemia. They do believe that inflammatory conditions of the intestinal mucosa may cause these hemolytic bacteria to become more active and that they will produce lipoid substances which will continue the irritation of the intestines. How these substances get into the blood and act on it and the bone marrow they do not attempt to say.

3. Fischer takes up a series of some 500 cases of persistent high blood pressure and makes a study of the renal condition. In all the cases of blood pressure over 160 that came to autopsy some degree of interstitial nephritis was found, although in some it was hardly more than the sclerosis of age in which there is no increase of pressure. He emphasizes the importance of microscopic examination of the kidney. His feeling seems to be that practically all of these high pressures are due to renal involvement and not simply sclerosis of the smaller vessels of the body.

8. By the use of tetanus antitoxin serum Behring evolved a method of studying the amount of blood in the body. This serum is not too rapidly excreted. He would inject a known amount, and after giving it a chance to mix in the circulation, take some blood and see what amount was necessary to contain so much antitoxin, and thus figure out the amount of blood. These authors found the method satisfactory. They found that the blood represents about 10% of body weight and that it varied very little in different conditions. They also studied the viscosity, specific gravity and percentage of blood to plasma in a variety of conditions.

10. Tachan, as a result of his studies on the sugar content of the blood in diabetes mellitus and other glycosuric conditions, concludes: Hyperglycemia during fasting or following 50 grams of white bread makes a positive diagnosis of diabetes mellitus possible. The lack of hyperglycemia during the above conditions suggests a renal diabetes. The height of the hyperglycemia is indicative of the severity of the disease. The following of it during the course of the treatment aids in the prognosis.

[C. F., Jr.]

Bullettino delle Scienze Mediche.

December, 1912.

1. *Santini, C. *Acute Necrosis of the Pancreas.*
2. Marchesini, O. *A Singular Case of Cancerous Fever.*
3. *Lussana, F. *The Hypoalimentary Doctrine in the Etiology of Pellagra.*
4. *Avoni, A. *Exclusion of the Duodenum.*
5. Osti, G. *A Case of Thrombosis of the Right Iliac Vein Extending to the Inferior Cava.*

1. From Ruggi's surgical clinic at Bologna, Santini reports an elaborate study of acute pancreatic necrosis, with a series of 32 experiments on dogs, from which he concludes that the condition is to be considered due to a fatty acidosis of the gland, caused by transformation of the normal neutral fat to acid fat by part of the pancreatic secretion. The principal causes of the action of the pancreatic juice are the traumatisms produced by rupture of the tubules on the stasis produced by tension in the parenchyma. Death is probably due to a toxemia produced by ab-

sorption of the products of necrosis of the gland, to partial peritonitis, and to an action on the solar plexus. There is an abundant alphabetic bibliography of the subject.

3. Lussana discusses the dietary theory of the etiology of pellagra, and especially the aplastic doctrine of its causation.

4. Avoni reports his three experimental and anatomo-pathologic researches on duodenal exclusion, from which he concludes that the alterations of the excluded duodenal loop are very slight. In all the cases observed there was noted a slight atrophy of the epithelial, and especially of the connective tissue. Parlavecchio's clamp, immediately after its application, at least, keeps the pylorus closed. [R. M. G.]

JANUARY, 1913.

1. *SCHIASSI, F. *The Action of Various Sugars on the Circulation of Cold-Blooded Animals.*
2. DELITALA, F. *Contribution to the Study of Juxta-Articular Tuberculosis of the Hip.*

1. From a series of animal experiments, Schiassi finds that glucose and saccharose produce in the isolated heart an augmentation of systolic excursion; levulose, a slowing of the rhythm, accompanied sometimes by increase of the excursion; lactose manifests sometimes a perturbation of rhythm, at other times an increase of excursion without change of rhythm. Glucose and saccharose, introduced into the circulation, almost always increased the excursion and the pressure; maltose increased the pressure and the frequency of the rhythm; lactose showed the rhythm and increased the systolic excursion. [R. M. G.]

FEBRUARY, 1913.

1. *RUATA, G. O. *The Navigable Canal and the Residual Waters of the Sugar Factory of Bologna.*
2. *LANZONI, O. *Anaphylaxis and Anti-Anaphylaxis.*

1. Ruata presents an elaborate study in sanitary engineering, with four large maps and a bibliography.

2. Lanzoni presents a synthetic review of some of the recently observed phenomena of immunity. [R. M. G.]

MARCH, 1913.

1. SANTINI, C. *New Method of Aponeurotic Plastic for the Cure of Direct Inguinal Herniae.*
2. *ALESSANDRO, F. *Fasting and the Secretion of Tears. (To be continued).*
3. PANZACCHHI, G. *Contribution to the Knowledge of Pupillary Mydriasis as an Objective Symptom of Pain.*

2. As an experimental ophthalmology contribution to the physiology of the lachrymal gland, Allessandro reports from Barbèra's labaratory at Messina the results of four experiments upon dogs, from whom the tears were collected in various stages of starvation. He concludes that in complete and advanced fasting, the lachrymal secretion diminishes slowly and gradually, but never ceases. It diminishes to a less degree in incomplete fasting. It is completely restored within a few days after realimentation. From this it appears that the difference between the state of inanition and that of normal alimentation and normal nutrition of the tissues of an organism is only quantitative. [R. M. G.]

THE SEI-I-KWAI MEDICAL JOURNAL.

FEBRUARY, 1913.

1. *SATO, S., ET AL. *References from the Journal of the Tokyo Medical Association.*
2. SEWAKI, H. *A Study on the Method of Increasing Body Weight (Fourth Report).*
3. SHIZU, S. *On Two Cases of Reflex Neurosis from the Nose.*

1. Sato reports a case of extradural fibro-sarcoma of the cervical portion of the cord, and another of chronic circumscribed meningitis of the conus medullaris. [R. M. G.]

MARCH, 1913.

1. *SEWAKI, H. *A Study on the Method of Increasing Body Weight. (First report.)*
2. *SEWAKI, H. *Fifth Report on the Method of Increasing Body Weight.*
3. HIGUCHI, S. *A Report of Laparotomies Performed in the Obstetrical Department of Tokyo and Tokyo Charity Hospitals, Commencing from September, 1911, and Ending in August, 1912.*

1. and 2. Sewaki reports the results of his experiments on the injection of typhoid bacilli, killed by heat or by the addition of urea, into rabbits and into man. He finds that in both, the injection of small quantities is followed by an appreciable gain in body weight, but the injection of larger quantities leads to loss of weight. "In order to obtain an increase of weight rationally, it is useful to estimate the opsonic index; and if it presents a negative phase, the injection is to be postponed until the appearance of a positive phase." [R. M. G.]

Miscellany.

A CASE HISTORY FROM FRENCH MILITARY SURGERY.

IN the issue of the *Paris Médical* for Dec. 28, 1912, is an account, by Dr. Mousson—Larranze, of Guillaume Loyseau, a military surgeon from Bergerac in Périgord, who was a favorite of Henry IV when the latter was King of Navarre. Loyseau saved the life of Henry's lieutenant, Geoffroy de Vivant, who was seriously wounded at the battle of Coutras in 1587. The history of de Vivant's case, as quoted in the issue of the *British Medical Journal* for Jan. 11, is as follows:—

"De Vivant received two spear wounds, one going through the whole thickness of the right arm, the other above the pubes, going upwards towards the stomach. By this blow de Vivant 'was thrown backwards on the crupper of his horse; the rider was going so fast that the wood of the spear broke, and the iron remained deeply fixed in the belly.' He had often been badly wounded before, but said he never felt such pain. He had been struck on his breastplate earlier on the same day with such force that the lance broke and the iron fell on the saddle between his thighs; it dropped out when he was taken off his horse, and hence was thought to be the cause of injury. When Loyseau saw him on the third day he found that the abdominal wound had been overlooked by the surgeons. Finding, however, that the severe pain persisted, that there was much bleeding into the dressings behind, and that there was continual need of the bedpan, he probed the wound and found about half a foot upwards from the opening a

hard foreign body. He made an incision four finger-breadths in length and found two splinters of wood. Later, as the pain and bleeding continued, he probed again and found the iron end of the spear; to extract this he had to enlarge the wound and pull the foreign body out with his hand. Just as Loyseau had done this the king sent for news of the patient. By way of answer the surgeon sent him the spearhead whereat His Majesty marvelled exceedingly, and abused the other surgeons for having overlooked such a wound. The next day the patient took some broth, and an enema was administered; part of both the broth and the enema came out through the wound. Loyseau then applied a balsam to the wound night and morning, forbidding solid diet. 'God so blessed this work that on the sixteenth or seventeenth day I applied only a solid vulnerary plaster, and the said Sieur De Vivant mounted his horse and came to sleep at Sainet-Sernin at the house of a relative of his, being perfectly cured.' ''

Without disparagement to Loyseau, his patient's recovery in this instance may fairly be regarded as miraculous. Loyseau subsequently cured King Henry of a chronic urethritis, and in recognition of this service in 1591 was appointed one of his surgeons in ordinary

THE ENCOURAGEMENT OF MEDICAL RESEARCH.

In the issue of *Science* for Feb. 21 is a communication from R. G. Hoskins, of Starling Ohio Medical College, suggesting ''a plan for the encouragement of medical research.''

''Judging by the number of bequests and endowments directed toward that end, the furthering of medical research is an attractive field for philanthropc endeavor if not for public investment. As one of the rank and file who are working toward the advancement of medical science I would suggest that no method of encouraging such research has heretofore been wholly successful. The foundation of institutes for this purpose is effective in case of the favored few who happen to be reached, but for most scientists (including the clinical variety), who are engaged in teaching in medical schools, who constitute the great proportion of the working force, such foundations are of little assistance.

''The most effective plan would seem to be that by which actual accomplishment is rewarded without unduly favoring any one. Such a result could be achieved by the simple expedient of endowing the periodicals devoted to the publication of research so that contributed articles could be paid for according to their merit. Such an arrangement would obviate the most discouraging feature of working in many institutions, the feeling that unusual effort is, from a selfish point of view, not merely futile but even detrimental, in that leisure for reading, recreation and family life is sacrificed without compensating gain.

''The plan in operation would be simplicity itself. Rewards would go automatically to those who earned them. The chief difficulty seemingly would be to secure editorial boards fair minded enough to decide justly upon the merits of each contribution, but that difficulty would be by no means insurmountable. In any case to assign a value to a given piece of research would be much easier than to forecast which of a dozen men would be accomplishing the most effective work ten years later, a forecast which, as a matter of fact, has to be made in each instance, before a desirable research or teaching position can justly be assigned.''

Despite the probable difficulties of administering justly such a scheme of subsidy, there seems in this plan much which deserves serious consideration.

LIFE HISTORY OF STOMOXYS CALCITRANS.

The recent work of Rosenau, Anderson, Richardson, Brues, and others on the transmissibility of poliomyelitis through the bite of *Stomoxys calcitrans* gives especial interest and importance to the study of the life history and habits of this insect. In the weekly report of the United States Public Health Service for Feb. 21 is published the following summary of established facts on this subject by M. B. Mitzmain, entomologist of the bureau of agriculture in the Philippines:—

''1. The age at which the female begins egg laying has been determined in bred flies as the ninth day.

''2. The maximum number of eggs produced by a single *Stomoxys* may be placed at, at least, 632, and possibly 820. As many as 20 depositions are made in the lifetime of a female. The maximum number of eggs deposited at one period was found to be 94.

''3. The incubation period for these eggs is 20 to 36 hours at a temperature of 29° C. to 31° C.

''4. The larval stage under favorable conditions is usually 7 to 8 days.

''5. The imago emerges from the puparium generally in 5 days.

''6. The fly of either sex takes its initial bite in 6 to 8 hours after emergence from the puparium. Flies of this species have been observed to feed experimentally on 17 species of vertebrates, including man, reptile, bird, and rodent.

''7. It has been demonstrated that in feeding on live stock *Stomoxys* probes a wound with its labium from which non-biting flies draw blood. Surra organisms have been demonstrated in the mouth parts and stomachs of house flies used in experiments in this connection.

"8. In considering the longevity of *Stomoxys calcitrans* it has been determined that a female can live a maximum of at least 72 days and a male a period of 94 days.

"9. The life cycle of *calcitrans* varies considerably according to the treatment the young forms receive. Under optimum conditions this is a period of 12 days, but under unfavorable surroundings in light and absence of moisture, the life cycle may be extended to 35 days."

These data are based on observations made in the two years' experience which the author has had in the study of this fly.

Correspondence.

NEEDS OF THE HARVARD MEDICAL SCHOOL OF CHINA.

Boston, April 29, 1913.

Mr. Editor: The Harvard Medical School of China is endeavoring to establish a working library. The effort primarily is to secure a file of standard current periodicals. At the present time the School is subscribing for the following journals: British Medical Journal, Lancet, Journal of Tropical Medicine and Hygiene, Transactions of the Soc. of Tropical Medicine and Hygiene, London; Annals of Tropical Medicine and Parasitology, Liverpool; Philippine Journal of Medical Sciences; China Medical Journal, Medical Review, Archives of Internal Medicine, Journal of Infectious Diseases, Journal of Medical Research, Journal of the American Medical Association, American Journal of Medical Sciences, Kala Azar Bulletin, Zeitschrift für Hygiene und Infektionskrankheiten, Centralblatt für Bakteriologie, etc., Archiv für Schiffs- u. Tropenkrankheiten, Berliner Klin. Wochenschrift, Wiener Klin. Wochenschrift, Deutsche med. Wochenschrift.

The efficiency of the library would be greatly improved if the back numbers of these journals for at least 10 or 12 years could be added to the current files. If that were done, the library would probably be the best medical library in China—such being the meagreness of equipment in medicine in that country.

The suggestion has been made that it might be possible to get donations of back files from alumni of the Harvard Medical School or a special donation for this purpose. On the chance that one or more of your readers might be able and willing to help in this manner, I am presenting the opportunity. Any communications regarding the Shanghai School and its purposes may be addressed to me at the Harvard Medical School, Boston, Mass.

Yours truly,

W. B. CANNON.

SOCIETY NOTICE.

BRISTOL SOUTH DISTRICT MEDICAL SOCIETY.—The annual meeting will be held at the New Bedford Public Library, Pleasant and William Streets, on Thursday, May 8, 1913, at 5 P. M.

Subject: "Diseases of the Stomach."

1. Medical Diagnosis and Treatment, Dr J. G. Hathaway.

2. Surgical Diagnosis and Treatment, Dr. P. E. Truesdale.

Discussion opened by Dr. F. B. Lund of Boston.

The Censors will meet at the same place at 3 P. M. to examine candidates. Diplomas must be brought to the meeting.

A. J. ABBE, M.D., *Secretary.*

RECENT DEATHS.

DR. MARY BEATTY CORNISH, who died recently in Everett, Mass., was born at Caledonia, Ont., in 1883. She received the degree of M.D. in 1906 from the University of Toronto, and subsequently served as house physician at the Children's Hospital in New York City, and as pathologist at St. Luke's Hospital, New Bedford, Mass. In 1911 she removed to Bridgewater, Mass., and in 1912 to Everett, where she was engaged in practise at the time of her death. She is survived by her husband.

DR. JOSEPH BENSON FENWICK, who died in Chelsea, Mass., on April 26, was born at St. John, N. B., in 1838. After receiving the degree of M.D. from the Harvard Medical School in 1872, he served for two years at the United States Marine Hospital, Chelsea, Mass.; and, subsequently settling in Chelsea, continued there in the practise of his profession until his death. He was for a time city physician of Chelsea, and a member of the staff of the Frost Hospital in that city. He was a Fellow of The Massachusetts Medical Society, and a member of the American Medical Association. He is survived by one son, also a physician.

DR. EDGAR GARCEAU, who died on April 29 in Boston, was born at Roxbury, Mass., in 1865, the son of a physician. He graduated in 1884 from the Roxbury Latin School, and in 1890 received the degree of M.D. from the Harvard Medical School. He served as house officer at the Boston City Hospital, and had practised his profession in this city until his death. He was gynecologic surgeon to the Boston Dispensary and to St. Elizabeth's Hospital, Boston, and consulting gynecologist to the Quincy (Mass.) City Hospital. He was a member of the Boston Society for Medical Improvement, L'Association Française d'Urologie of Paris, France, American Gynecological Society, Harvard Medical Alumni Association, American Medical Association, an honorary member of the Academia Nacional de Medicana de Rio Janeiro of Brazil, a member of the Massachusetts Medical Society, Roxbury Clinical Record Club, Boston Medical Library, Obstetrical Society of Boston, Massachusetts Benevolent Society, Association Internationale d'Urologie, and the American Urological Association. His best known work is his book on "Tumors of the Kidney." He is survived by his widow and by two sons.

DR. CHARLES H. KNIGHT, who died on April 29 in New York City, was born at East Hampton, Mass., in 1849. He was professor of laryngology in the Cornell Medical School, and surgeon and director of the Manhattan Eye, Ear and Throat Hospital.

CHANGES IN NAVY MEDICAL CORPS.

The following changes have been made in the Medical Corps, U. S. Navy, for the week ended April 26, 1913:—

P. A. Surgeon M. H. Ames, to duty Navy Yard, Boston, Mass. (from waiting orders).

Asst. Surg. J. A. Bass, from Naval Hospital, Canacao, P. I., to home, wait orders.

Asst. Surg. G. E. Thomas, from U. S. S. *Helena* to home, wait orders.

Surg. H. D. Wilson, from Navy Recruiting Station, Buffalo, N. Y., to U. S. S. *New Jersey*.

Surg. L. W. Bishop, from U. S. S. *New Jersey* to home, wait orders.

Assist. Surg. J. A. Tompkins, Naval Medical Reserve Corps, from Navy Recruiting Station, New York, N. Y., to Navy Recruiting Station, Buffalo, N. Y.

BOOKS AND PAMPHLETS RECEIVED.

Death by Electric Currents and by Lightning. By A. J. Jex-Blake, M.A., M.B. Reprint.

Original Articles.

THE EXCRETION OF FORMALIN IN THE URINE; AN INQUIRY INTO THE ACCURACY OF BURNAM'S TEST.*

BY GEORGE G. SMITH, M.D., BOSTON,
Genito-Urinary Surgeon to Out-Patients, Massachusetts General Hospital.
(From the Genito-Urinary Department.)

One year ago, Burnam of Baltimore described to this society a test for the detection of free formaldehyde in the urine after the ingestion of hexamethylenamin. This test differed from its predecessors in that it differentiated between formaldehyde and the compounds from which this substance is derived.

Burnam describes the test in these words: "This test consists of adding to the suspected fluid, 3 drops of 0.5% aqueous solution of phenolhydrazine hydrochloride and then 3 drops of a 5% aqueous solution of sodium nitroprusside, then an excess of saturated aqueous solution of sodium hydroxide. It is important that the solution to be tested, as well as the sodium hydroxide, be slightly warmed a little more than body temperature. When formaldehyde is present in solutions of 1-20,000, or stronger, there follows an intense blue color, which gradually changes to green, and then after a few minutes to brown. In solutions of less than 1-20,000 the first color is the intense green, which passes off into brown. The test is delicate down to 1-150,000 or less. When a solution is tested and found to be negative, as is the case when urotropin is noted, it can be acidulated with sulphuric acid, heated to boiling, cooled off and tested, when the reaction will be positive, due to the breakdown of urotropin into formalin."[1]

Since the appearance of Burnam's paper there have been published at least two articles upon this test.[2] [3] These disagree in certain minor conclusions, chiefly as regards the color obtained, but both are in accord with Burnam's statement that only in somewhat over one-half the cases to whom urotropin is given, does free formaldehyde appear in the urine. In a recent paper, Talbot and Sisson declare that "all children are capable of breaking down hexamethylenamin."[6]

The work reported in this paper aims to decide two questions: first, is Burnam's test reliable; second, why is not urotropin broken up in all urines?

Many careful observations upon the technic of Burnam's test have convinced me that it will always detect the presence of free formaldehyde in any urine, whether acid or alkaline, even to the stage of ammoniacal decomposition. The weakest solution which gives what I have considered a definitely positive reaction (a blackish-green) is in the neighborhood of 1-40,000; the blue color I have found only in solutions of 1-10,000 or stronger. It is desirable to warm the sodium hydroxide, as Burnam suggests; in the border-line cases, this may make the difference between a positive and a negative result. The degree to which the suspected urine is heated is also a factor of no mean importance, and in this series of observations I have tried to warm each specimen to the same degree, that is, until it began to feel distinctly warm to the hand. Five c.c. of urine will suffice. It is desirable that the specimen be examined within a few hours after urination, as ammoniacal changes on the one hand and the prolonged action of acid on the other, may influence the amount of formaldehyde.

Solutions of urotropin have always given negative results with the test, except when added to very acid urine. In such cases, formaldehyde is liberated promptly in quantity sufficient to give a faint test.

The preceding observations lead to the conclusion that Burnam's test is simple and accurate.

An understanding of the cause of the liberation of formaldehyde from urotropin is of considerable importance. The fact that hexamethylenamin and its compounds are the only drugs we have which really exercise much influence upon bacterial growth in the upper urinary tract, and the argument of Burnam, the truth of which is well sustained by experimental and clinical evidence,[8] that good results are obtained only when the drug is split up into formaldehyde and ammonia, make it extremely desirable that we should know the nature of this process. Burnam says (page 295, *Trans. American Urological Association,* 1912), "It is my impression that the formalin liberation is due to a specific function of the renal epithelium." That this theory is incorrect, and that the liberation of formaldehyde is not due to an enzyme or ferment, is proved by the following experiment.

Normal urine of a considerable degree of acidity was divided into two portions of 50 c.c. each. One of these was brought to the boiling point and boiled for ten seconds, in order to destroy all ferments. It was cooled, and to each of the two portions, and to 50 c.c. of distilled water for a control, grains 10 of urotropin were added. Free formaldehyde was absent from all three immediately after the addition of the urotropin. They were then incubated for one hour at 50° C.; at the end of that time both the urines were strongly positive for formaldehyde, the water was negative. Clearly such results rule out a specific function of the renal epithelium. It is evident, moreover, that the urine must possess some power, not due to a ferment, which is not present in distilled water.

With the hope of ascertaining the nature of this difference, a large number of urines from patients who had been given urotropin were studied in regard to their acidity according to litmus, and their hydrogen ion concentration; the findings were then compared with the results of the test for free formaldehyde.

* Read before the American Urological Association, Boston, April 17, 1913.

For instruction in the subject of hydrogen ion concentration, and indeed for many useful suggestions, I am deeply indebted to Dr. W. W. Palmer, Walcott Fellow in Clinical Medicine, Harvard Medical School, whose work with Henderson on the hydrogen ion concentration of urine has been published in the *Journal of Biological Chemistry*.[4]

The facts essential to an understanding of this question are these: the hydrogen ion concentration of a fluid represents the amount of free hydrogen ions in that fluid. The larger the proportion of these, the greater is its acidity,—that is, its power to combine with an alkali. Chemically pure water contains one ten-millionth gram of free hydrogen in one liter, a quantity which is more conveniently expressed by the logarithm -7. (It is customary to omit the minus sign.) Since it also contains an equal number of free hydroxide ions, it is neutral. In estimating the hydrogen ion concentration of urine a series of standards of the following values are used:—

7.40	Hydrogen ion con. of blood and of the most alkaline normal urine observed
7.20	
7.00	True neutrality
6.70	
6.30	
6.00	The average of 100 normal cases.
5.70	
5.30	
5.00	
4.70	The most acid urine observed.

(The above table is taken from Henderson and Palmer's article.)

Normal urines range from 5 on the acid side to 7.40 on the alkaline. Ammoniacal urines may have a hydrogen ion concentration as low as 9. The method of determining the hydrogen ion concentration by means of indicators has been shown by Salm, Sörenson, Henderson and others to be sufficiently accurate for clinical purposes.

The acidity of urine, as estimated by its hydrogen ion concentration, does not necessarily coincide with its acidity, as indicated by litmus. A series of 200 observations on specimens from 27 individuals gives the following comparisons:—

Reaction to litmus.	No. cases.	H. ion con.	Aver.
Very alkaline	14	8 to 9	8.72
Alkaline	25	7.20 to 9	7.70
Slightly alkaline	12	7.10 to 7.40	7.30
Neutral	17	7 to 8	7.20
Slightly acid,	16	5.85 to 7.40	6.97
Acid	88	5 to 7.20	5.95
Very acid	28	5 to 6.15	5.50

From these figures it appears that, although in a general way the litmus reading follows the hydrogen ion concentration, there is, nevertheless, considerable discrepancy. Thus, of the 17 specimens neutral to litmus, 15 had a hydrogen ion concentration of less than neutrality, that is, were really alkaline; of the 16 slightly acid to litmus, 11 were really alkaline; of the 88 acid to litmus, 9 were really alkaline.

From a practical standpoint, urines which give a blue color to red litmus may be confidently regarded as alkaline, 7.20 or less; those which give a strongly red color to blue litmus, as acid, 6.15 or above; those neutral to litmus are probably mildly alkaline, 7 to 7.20; those slightly acid to litmus may be acid, neutral or alkaline, 6 to 7.20.

The fact that the litmus test does not indicate the true acidity of urine may explain in part the statement made by Burnam and by L'Esperance (loc. cit.) that the reaction does not materially influence the liberation of formaldehyde.

Comparison of the hydrogen ion concentration with the presence or absence of formaldehyde shows that there is a constant relation between the two. Urines were tested after the ingestion of varying amounts of urotropin, from a single dose of five grains to four doses of ten grains per day. Every specimen which showed no formaldehyde was tested for urotropin, so that the question of the elimination of this drug might not be confused with that of its disintegration.

I have examined 213 specimens collected from 50 individuals, most of whom had normal kidneys. Positive tests are those which show more than a mere trace of formaldehyde.

One hundred and ten urines were positive. Of these 102 had a hydrogen ion concentration of 6.80 or more, that is, were truly acid. Eight had hydrogen ion concentrations of less than 7, that is, were truly alkaline. These were divided as follows: 7.10, 2 cases; 7.15, 1 case; 7.20, 5 cases.

One hundred and three showed no formaldehyde. Of these 82 had hydrogen ion concentrations of 7.10 or less, that is, were alkaline. Four were neutral. Seventeen were acid, of the following hydrogen ion concentrations: 6.85, 2 cases; 6.70, 3 cases; 6.30, 3 cases; 6.15, 1 case; 5.85, 2 cases; 5.70, 2 cases; 5.50, 1 case.

Assuming for the moment the correctness of the theory that acidity is the cause of formaldehyde liberation, how can one account for the number of exceptions to this rule? Several influences come into play to complicate the question. Let us take the case of a man who at 10.30 a.m. passes urine of 6 in which there is much free formaldehyde. His next urination at 1.30 p. m., shows a hydrogen ion concentration of 7.20 and still free formaldehyde. It is unlikely that the reaction shifted suddenly; he must have secreted an acid urine for a portion of the three hours, and it is probably due to the action of this acid urine that enough formaldehyde was liberated to appear in the total amount. Individuals with ammoniacal fermentation in the bladder may secrete a urine which is acid until it decomposes in the bladder. In this way enough formaldehyde to give the test may be liberated in the urine before it becomes alkaline, although the ammonia gives a low hydrogen ion concentration. These are not suppositions; they are based upon actual findings.

Of the 17 acid urines which contained urotro-

pin, but no free formaldehyde, two, one of 5.85, the other of 5.70, came from individuals who at the next urination showed plenty of formaldehyde, and were obtained, furthermore, within two hours after the ingestion of the urotropin. In neither case was urotropin present in these negative urines in quantities sufficient to give more than a moderately positive test.

Thirteen of the specimens, which although acid, contained no formaldehyde, were collected from old men with ammoniacal urine and infected kidneys. To exclude the influence of ammoniacal decomposition in the bladder the urine in these cases was obtained through an inlying catheter as soon as it issued from the ureters; the influence of time was thus excluded, and time, as will be shown later, may be a not inconsiderable factor in the liberation of formaldehyde. It was noted that free ammonia could be driven off all these urines by heating, and that, in several cases, the decrease in ammoniacal decomposition in the urine occurring after prostatectomy was accompanied by a greater liberation of formaldehyde.

The failure of certain acid urines to liberate formaldehyde may be thus explained, in 13 out of 17 cases, by the presence of free ammonia or by the exclusion of the influence of time.

There is, I believe, adequate evidence that urines of a hydrogen ion concentration of 6.70 or more do split up urotropin; that those of 7.20 or less never do so; that in urines between these limits formaldehyde may or may not be found. As further illustration of this, two typical series of observations are appended:—

1. Surgical Patient; Healthy Kidneys. 8 A.M. given seven grains urotropin.

Time of urinaton	Reaction to litmus	H. ion con.	Form.	Urot.
10 A.M.	Neutral	7.20	—	*
12 M.	Alkaline	7.40	—	**
2 P.M.	Slightly acid	7.00	—	*
4 P.M.	Acid	5.70	***	
6 P.M.	Acid	5.85	**	

2. Surgical Patient; Healthy Kidneys. 8 A.M. given seven grains urotropin.

Time of urinaton	Reaction to litmus	H. ion con.	Form.	Urot.
10 A.M.	Acid	5.30	***	
12 M.	Acid	5.50	***	
2 P.M.	Acid	5.50	***	
4 P.M.	Slightly acid	7.30	—	***
6 P.M.	Acid	5.50	***	
8 P.M.	Slightly acid	7.20	—	*

Note: * slightly positive.
** moderately positive.
*** strongly positive.

A conclusion similar to the one just stated was reached by Jordan. He showed, in some very careful work on urinary antiseptics, that in urine of average acidity, containing one part of urotropin in 1000, about 10% of the urotropin was split up into formaldehyde. In alkaline urines (measured by titration) urotropin was not split up at all; in neutral or faintly acid urines, only to a slight degree; in acid urines, to a considerable degree. "The process of conversion into formaldehyde," he says," is a simple chemical one, which occurs in all solutions of urotropin under conditions of dilution, temperature, acidity and time, which are identical with those occurring in the body."[7]

The fact that acidity is essential for the liberation of formaldehyde explains the observation of Burnam, which we were able to confirm in a few instances, that the spinal fluid may contain urotropin, but does not break it down. Spinal fluid has a hydrogen ion concentration of about 8.30 (personal communication from Dr. Palmer.)

As to the question whether all acids act upon urotropin to the same degree, I have the following data: sodium acid phosphate and B-oxybutyric acid were diluted, reduced to 5.30 and tested separately. Both split up urotropin in one hour, although not to the same degree.

A series of urines of varying hydrogen ion concentrations were paralleled by a series of standard solutions composed of acetic acid and sodium acetate. To 20 c.c. of each grains 10 of urotropin were added, the tubes were shaken and placed in a temperature of 85° F.

	H. ion con.	Result after 10 min.	After 1 hr., 45 min.	After 48 hrs.
Urine	5.40	***	***	***
Solution	5.30	**	***	***
Urine	5.60	***	***	***
Solution	5.70	*	**	***
Urine	6	—	**	*
Solution	6	—	trace	**
Urine	6.70	—	—	—
Solution	6.70	—	—	—

This experiment shows the urine to be slightly more active than the corresponding solution. It shows, however, a close parallel between their urotropin splitting powers and emphasizes as well the influence of time upon this process. The rapidity with which formaldehyde is liberated, at least in the test-tube, depends upon the acidity of the urine, the temperature and the amount of urotropin present. I am aware that formaldehyde may be found in specimens obtained by the ureteral catheter, and that a strongly acid urine will liberate formaldehyde in two minutes; the preceding experiments, nevertheless, indicate strongly the probability that the liberation of formaldehyde in man continues, provided the urine be acid, as long as urotropin remains in the bladder.

From the work done with this drug, I have reached these conclusions as to dosage and output: Five grains of urotropin, although often sufficient to give a strong formaldehyde test, does not apear in the urine with enough regularity to warrant its routine use. Grains 7 is nearly always followed by good quantities of formaldehyde or urotropin lasting for from 6 to 10 hours. Grains 10 every 8 hours or grains 15 at 7 a. m. and 6 p.m. is the dose which I should recommend.

The kidneys of chronic nephritis, to judge from a few observations, excrete urotropin much more slowly than do normal kidneys. One dose of grains 15 has given traces of formaldehyde in the urine for 36 hours. These urines are abnormally acid; formaldehyde has always been liberated.

In cases with persistently alkaline urine, we have tried to change the reaction by the use of various drugs. Sodium benzoate, grains 15 t.i.d. has had no appreciable effect; boric acid, grains 10 t.i.d. was effectual in several cases, but we are warned by some writers[5] of its toxicity. Sodium acid phosphate given directly after meals in one-half to one teaspoonful doses seemed more efficient than the other two, but in one case its use had to be abandoned because of the resulting diarrhea.

Among the 50 individuals whose urine we examined, there was only one (diverticulum of the bladder and pyonephrosis), in whose urine free formaldehyde was never detected.

CONCLUSIONS.

1. Burnam's test for formaldehyde in urine is definitely positive when this substance is present in the strength of 1 part in 40,000 or more.

2. The urine should be examined as soon as possible after it has been voided. A negative test at one time does not prove that formaldehyde is never liberated.

3. From the evidence at hand, we believe that formaldehyde is liberated from the hexamethylenamin by the acids of the urine, not by a specific function of the renal epithelium.

4. This process may take place in the kidney, but is continued in the bladder.

5. Litmus paper, as an indicator of the true acidity of the urine, was unreliable in about 25% of the cases examined.

6. The degree of acidity of urine, as measured in terms of its hydrogen ion concentration, showed in our cases a constant relation to its power to set free formaldehyde. The higher the acidity, the greater was this power.

7. The requisite amount of acidity, which is not great, is present in the majority of normal urines, and can be secured in almost all cases by the use of boric acid or sodium acid phosphate.

8. The writer disagrees with the statements of Burnam and L'Esperance that only 50 to 60% of individuals break up urotropin. Examination of 213 specimens from 50 individuals showed that only in the urine of one case was formaldehyde never found.

The writer wishes to acknowledge his indebtedness to those whose assistance has made this work possible.

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[6] Talbot and Sisson, BOSTON MEDICAL AND SURGICAL JOURNAL, April 3, 1913.
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[8] Mosso and Paleotti, Archiv. Ital. de Biol.

SEROUS AND SUPPURATIVE LABYRINTHITIS,—DIFFERENTIAL DIAGNOSIS.*

BY IRVING WILSON VOORHEES, M.S., M.D., NEW YORK CITY.

WHILE one of the most difficult problems in otology, the differentiation between serous and suppurative labyrinthitis is, nevertheless, one of the most important, since its exact determination involves both the loss of hearing and possible loss of the patient's life. If we operate on a serous labyrinthitis under the supposition that we are dealing with the suppurative type, we destroy the patient's hearing by our operative attack, when the hearing might have returned to normal if we had but used the expectant treatment. But, on the other hand, if we refuse to operate on a suppurating labyrinth, thinking that we have to do with a serous condition that will soon clear up spontaneously, we not only subject the patient to loss of his hearing, but expose him to loss of life from some complication of the suppurative process. We face, therefore, the very sharp horns of an unpleasant dilemma.

Gustav Alexander has asserted that non-suppurative (serous) inflammations of the labyrinth come on with well-defined, stormy labyrinthine symptoms, and while he differentiates six different stages in the onward march of the pathological process in the internal ear, he does not sufficiently differentiate between the types of disease.

Let us first take up the type known as

SEROUS LABYRINTHITIS.

We have to consider two forms of this condition: 1. The form which comes on as an accompaniment or result of some destructive process on the inner tympanic wall. When the bony labyrinthine capsule is eroded, the membranous labyrinth is directly affected by conditions in the outer world, such as changes in pressure and temperature of the atmosphere. This condition is known as fistula and is usually associated with a circumscribed labyrinthine inflammation. Any agent, therefore, which increases or diffuses this inflammatory process sets up very active symptoms, and the pathological process producing these symptoms is known as *diffuse serous secondary labyrinthitis, i.e.* a serous inflammation in the labyrinth secondary to some pre-existing destructive process of the labyrinth capsule.

2. The second form is a sudden non-suppurative inflammation of the labyrinth due to a disturbance in the vascular system of the middle

* Read before the Medical Society of the State of New York, April 30, 1913.

and internal ear. It can arise in the course of acute otitis, in the course of chronic otitis, in cases not perfectly healed after the radical operation, or a short time after the radical operation, and is often merely an adjacent edema in the labyrinth associated with a middle ear disease. This form is, therefore, known as *diffuse serous induced labyrinthitis.*

DIFFUSE SEROUS SECONDARY LABYRINTHITIS.

In the diffuse serous secondary labyrinthitis there is still some remnant of function, and either the hearing or the caloric or the turning test or the fistula symptom is present to a greater or lesser degree. Even when the hearing is completely lost, the caloric and turning tests are rarely entirely gone. The history of such a case is somewhat as follows:—

The patient has been under observation and has manifested signs of circumscribed labyrinthitis. Suddenly, severe dizziness ensues. The dizziness often sets in suddenly without any previous history of dizziness. There is marked rotatory spontaneous nystagmus to the sound side, and the patient has severe disturbances of equilibrium and frequent attacks of vomiting. The hearing is bad or may be gone entirely, conversation voice being perceived only *ad concham.* The caloric reaction is still present, or, if it is absent, the patient is usually totally deaf in the diseased ear, that is to say, both the vestibular and cochlear portions of the labyrinth are out of function. This secondary serous type comes on insidiously or after the radical operation, and the difference between it and diffuse suppurative manifest labyrinthitis can only be determined with certainty by exhaustive and accurate functional tests. So long as there is a remnant of labyrinthine function, that is to say, hearing, caloric reaction or turning reaction, we are not yet dealing with a suppurative diffuse disease, but with a serous labyrinthitis.

If a patient comes under observation suffering from diffuse serous secondary labyrinthitis, then we must wait until its course is run. This usually requires only a few days, but we must test the labyrinth function frequently during this time. If, after the disappearance of stormy symptoms a remnant of labyrinth function is still present, that is to say, if even a slight degree of hearing, caloric reaction, turning reaction or fistula symptom can be elicited, we should perform only the radical operation and subsequently make frequent functional tests to see if this remnant of function improves or becomes lost.

DIFFUSE SEROUS INDUCED LABYRINTHITIS.

During the radical operation there is doubtless considerable trauma and shaking up of the labyrinth, as a result of which a strong reactive inflammation is natural. In general, induced serous labyrinthitis takes place from one to three days after the radical operation. For the most part it comes on when the patient is feeling quite well, that is, when the patient on the second or third day after operation is beginning to recover from the disagreeable symptoms due to the narcosis and from the operative trauma. Suddenly, nystagmus to the sound side, dizziness, vomiting, disturbances of equilibrium (patient lying upon his sound side) set in. Functional tests show a marked diminution of hearing power or total deafness in the diseased ear, with retained caloric reaction. In nine out of eleven cases reported by Ruttin, the hearing power was diminished while the vestibular reaction was retained. The hearing power was absent with retained vestibular reaction in the other two. We must assume in the light of the evidence adduced by Voss and others, that there are cases of serous labyrinthitis with loss of hearing power and lost caloric reaction, but we have to consider these as if of the diffuse suppurative type, since we have no clinical guide as to the differentiation of the two conditions.

Doubtless in Voss's cases such a serous induced labyrinthitis did take place, with complete loss of function. It seems that, after an acute otitis, serous induced labyrinthitis occurs more frequently than in the course of chronic middle ear suppuration or than following the radical operation.

In diffuse serous labyrinthitis one sometimes observes, but not very often, nystagmus to the diseased side. According to Alexander, this corresponds to the first stage of irritation. However, we believe rather that in these cases showing nystagmus to the diseased side there is no demonstrable serous labyrinthitis present, nor is it possible to produce nystagmus attacks by movements of the head. We are led to this conclusion after observation of cases with labyrinthine fistula. Here, since the circumscribed lesion is already in the labyrinth, diffuse serous labyrinthitis comes on very quickly after a mastoid operation, and we are able to observe it in its very beginning since our attention is already directed to the labyrinth. In these cases the nystagmus is from the first directed toward the sound side. One can well imagine that induced serous labyrinthitis sometimes follows circumscribed inflammation, especially if there is disease of the labyrinthine wall. Induced serous labyrinthitis can go over into the diffuse suppurative type. This we must assume to have taken place if we find that the labyrinth function is completely lost. In this case the indication for labyrinth operation is present. Simultaneously, with more or less complete loss of function, both in induced and in secondary diffuse serous labyrinthitis, facial paralysis may arise. This we must regard as a manifestation of some inflammatory exudative process in the facial canal. The duration of the stormy symptoms is in general from three to eight days, after which a steady decline in the severity of the symptoms is the rule.

We frequently see cases which we must desig-

nate as transitory induced serous labyrinthitis. These are for the most part chronic suppurative middle ear processes, in the course of which the patients have become deaf without having lost the vestibular reaction. Histologic demonstration of such transitory serous labyrinthitis is to be found in the case of Herzog and in the cases of cholesteatoma deafness reported by Siebenmann and Nager. There probably occurs in unhealed radical-operated cases a disease in the labyrinth wall which leads, sooner or later, to labyrinth inflammation. Alexander's opinion is probably correct that the relatively frequent deafness in the operated ear, occurring after radical operations is to be explained in this way. Thus we might explain the case reported by Wojatschek, in which seven years after an operation for acute mastoiditis a serous labyrinthitis occurred, with loss of hearing and of caloric reaction. Two weeks later labyrinth function was almost completely normal again.

SUPPURATIVE LABYRINTHITIS.

This may be divided into diffuse suppurative *latent* labyrinthitis and diffuse suppurative *manifest* labyrinthitis. For convenience of study the latent type may be regarded as chronic, the manifest as acute labyrinthitis, although this classification must not be considered a hard and fast one.

DIFFUSE SUPPURATIVE LATENT LABYRINTHITIS.

The patient has had a chronic purulent otitis media for several months or years, with occasional attacks of severe dizziness. Upon examination there are no symptoms save slight spontaneous nystagmus in view to the right or left (first degree nystagmus). There is complete deafness, with no response to the caloric, turning or fistula tests. If osteosclerosis exists as a result of prolonged productive inflammation, the turning reaction may be present because of the so-called "compensation" reaction. To show this there must have been complete destruction of the nerve-endings and sense cells. If the latent labyrinthitis is of the sequestration type then the following diagnostic triad is present: Total deafness, inexcitability of the vestibular apparatus to caloric, turning and mechanical irritations and facial paralysis. Cases have been reported, however, in which nearly the entire labyrinth was extruded without facial paralysis.

DIFFUSE SUPPURATIVE MANIFEST LABYRINTHITIS.

The history of such a case is in outline as follows: The patient has had a middle ear suppuration for years. Suddenly, violent vestibular symptoms occur. There is severe dizziness with marked rotatory nystagmus to the sound side, together with vomiting and disturbances of equilibrium. Functional testing shows total deafness on the diseased side, with absence of the caloric, turning and fistula tests; in short, absolutely no function can be determined in the labyrinth by any of the tests which we now have at hand. It is also possible that a suppurative inflammation of the labyrinth can take place without the migration of bacteria, through the round window or through the oval window. The labyrinth suppuration arising in the course of an acute otitis we must look upon as possessing a special tendency to produce meningitis. The question therefore arises whether in a diffuse labyrinthitis, with complete loss of function following an acute otitis, the labyrinth should be opened or not, since one does not know whether it is a suppurative or merely a serous labyrinthitis. Unfortunately the number of observations is not yet sufficient to determine this. However, according to the latest opinion, we should doubtless wait to see whether the symptoms increase or diminish. As a rule, the labyrinthitis associated with an acute otitis appears to be merely of a serous nature; but even suppurative labyrinthitis associated with an acute otitis may heal, as the very carefully recorded case of Marx and the panotitis of Politzer have demonstrated. The possibility of spontaneous healing is likewise not to be denied in acute suppurative mastoiditis, but although knowing this possibility, no otologist in these days avoids operating on this account.

CONCLUSIONS.

Differential diagnosis between serous and suppurative labyrinthitis is frequently impossible. It is of supreme importance for the determination of operative procedures. In general, if the slightest remnant of function is still present the labyrinth should not be disturbed, *i.e.* there should be no shaking up, no probing, no meddling of any kind, and absolute quiet in bed should be enjoined. If the labyrinth is completely out of commission, the history of the case must be carefully weighed and as accurate a diagnosis as possible arrived at. One may wait with the knife in hand a week or ten days, and if there is the slightest pejoration of the symptoms a labyrinthine operation should then be performed.

DIFFERENTIAL TABLE.
(MODIFIED FROM RUTTIN.)

Type of Diseases.	Anamnesis (History)	Present Symptoms	Nystagmus	Hearing	Caloric Reaction	Turning Reaction	Fistula Test
Diffuse serous secondary labyrinthitis.	Dizziness some time ago	+	To sound side	— +	+ —	+ —	+
Diffuse suppurative manifest labyrinthitis.	Dizziness present or absent	+	To sound side	—	—	—	—
Diffuse suppurative latent labyrinthitis.	Dizziness some time ago	—	Absent or to both sides	—	—	— + if compensated	—

ACUTE ANGULATION OF THE TERMINAL ILEUM AS A CAUSE OF INTESTINAL OBSTRUCTION IN CERTAIN CASES OF ACUTE APPENDICITIS.

BY DAVID CHEEVER, M.D., BOSTON.

No more frequent and fatal complication of acute appendicitis exists than that comprising the various types of postoperative intestinal stasis. These may be assigned roughly to two main groups: First, those due to failure of peristalsis, resulting in intestinal paresis, distention, and stasis of the fecal current; and second, those due to mechanical obstruction resulting usually from kinks, twists, adhesions or bands. The most familiar examples of the first group are the cases of paralysis associated with peritonitis, causing a toxemia acting either after absorption or locally on the neuromuscular mechanism of the intestine; the paralysis due to trauma, seen in the course of long abdominal operations involving manipulation and exposure; and that due to mesenteric thrombosis. Many of these cases are relieved spontaneously or by appropriate non-operative measures, but not a few require interference by enterostomy, as an emergency measure to provide drainage until peristalsis may be restored, and no more anxious and difficult decision confronts the surgeon than when to interfere. The cases of mechanical obstruction forming the second group are sharply marked etiologically, but if they occur early they are unfortunately difficult to separate from the paralytic cases. This does not refer to the late secondary cases of ileus occurring weeks, months or years after the operation. Inasmuch as mechanical obstruction, once established, is rarely relieved except by operation, and since the mortality of such secondary interference, high enough anyway, is vastly increased by delay, it becomes imperative to make the diagnosis and proceed to the relief of these cases at the earliest possible moment.

Since in appendicitis the area immediately adjacent represents the usual region of peritonitis with resulting possibilities of adhesions, it is natural that the terminal ileum should be the most frequent seat of mechanical obstruction due to this cause. This is recognized by most surgeons and is mentioned by many writers on the subject of the post-operative sequelae of appendicitis. There is a small subdivision of this group of cases which seems to the writer to present a fairly clean-cut clinical picture, and therefore to offer possibilities of early diagnosis and successful interference justifying its brief presentation.

Three cases called attention to this condition:—

Case 1. Esther C., 7 years of age, entered the City Hospital December 8, 1906, with a story of abdominal pain and vomiting for two days. She presented the clinical picture of a spreading peritonitis of the lower abdomen and pelvis, probably due to appendicitis. Incision behind the right rectus showed free pus in the right iliac and hypogastric regions, and pelvis. The appendix was found acutely inflamed, hanging over the pelvic brim, and adherent to the lateral wall of the pelvis; the tip of the appendix was perforated and reached to the pelvic floor. The appendix was removed, the pus was wiped away and cigarette drains were carried to the right iliac fossa and pelvis. The case progressed favorably for three days, but on the fourth day distention, constipation and vomiting began. Readjustment of the wicks failing to relieve, the wound was explored hastily and fruitlessly owing to the patient's condition, and an ileostomy was made through a small incision in the left linea semilunaris. This artificial anus tided over the crisis and, on January 1, 1907, a loop of terminal ileum adherent in the pelvis and containing in its proximal portion the artificial opening, was excised and the bowel repaired by end-to-end anastomosis. The patient made a satisfactory recovery.

Case 2. Hugh McC., 24 years of age, entered March 6, 1907, with a history of abdominal symptoms for three weeks, becoming acute during the last two days. The abdomen was tender, dull to percussion and spastic in the right iliac and hypogastric regions. Incision showed free turbid fluid and a gangrenous appendix lying in the pelvis. It was removed and the infected area drained. The patient showed marked toxemia but rallied and did well for three days, when vomiting and distention appeared with failure to procure relief by enemata. Time was wasted by these measures and a final ileostomy did not avert a fatal result. Examination through the wound showed the terminal ileum adherent and sharply angulated in the pelvis.

Case 3. Edith D., 18 years, single, entered June 30, 1911, with a history of acute abdominal symptoms for four days. The whole lower abdomen was spastic and tender, especially on the right where a mass was palpable. On opening the abdomen through the right rectus a free turbid exudate was found with an incompletely walled-off abscess occupying the right half of the pelvis and right iliac fossa. The appendix was seminecrotic, perforated, and adherent to the wall of the pelvis and its tip to the pelvic floor. It was removed and the infected area drained in the usual way. Although very ill, the patient began a rapid convalescence with soft abdomen, good bowel movements and diminishing pulse rate. On the sixth day, elevation of the pulse and temperature with other symptoms suggested a residual abscess whose presence was not confirmed by digital examination. Distension began to appear but enemata gave some results. Time was wasted in the adjustment and withdrawal of drains and by palliative measures. On the eighth day vomiting began and the abdomen was reopened. Precious moments were lost in exploring and controlling the distended bowel which threatened fatal evisceration. The condition as to appendicitis was satisfactory, but the terminal ilium was found adherent along the tract formerly occupied by the appendix, and acutely angulated at the floor of the pelvis. The adhesions were separated, the ileum freed and additional drainage of the bowel established by a tube in the proximal limb. The patient left the table exhausted and died in twelve hours. The first misfortune was the failure to establish the diagnosis of obstruction earlier, the second was the choice of an exploration rather than ileostomy to relieve it.

Each of these cases presented at the time of primary operation a degree of peritonitis sufficient to warrant a grave prognosis, but in each case it was arrested and the toxemia controlled, promising recovery until the obstruction introduced a new element, fatal in two cases, fortunately relieved in one.

The mechanism of this complication is apparently clear. Studies on the cadaver and of bismuth radiographs indicate that in the majority of cases the terminal coils of the ileum occupy the pelvis, sharing its cavity with the pelvic colon. In many cases, especially if the colon and other pelvic viscera are distended, the ileum is largely forced out of the pelvis, but probably it is the rule that if traced backward from the cecum it will be found to run downward against the right aspect of the pelvic wall to its floor, if the length of the mesentery permits, and then partially fills the pelvis or is pushed upward by the other pelvic viscera, thus presenting a potential kink at its lowest excursion. If an acutely inflamed appendix lying in a mass of inflammatory exudate along the pelvic wall is now removed, there remains a bed of adhesive plastic exudate against which lies this terminal limb of ileum. Evidently the conditions are ideal for the formation of prompt and firm adhesions, especially if the usual postoperative paresis of the intestines is marked and prolonged, as in the case of a diffuse peritonitis. Probably in the majority of cases no definite harm results, or nothing worse than some degree of chronic ileostasis, but more rarely, owing perhaps to the crowding out of the pelvis of the rest of the ileum, an acute angulation occurs at the lowest fixed point, which, with condensation of the inflammatory adhesions, affords obstruction to the passage of the gas; then ensues dilatation, which in turn results in more kinking and a valve-like obstruction, which becomes fixed by the agglutination of congested serous surfaces.

It is not clear what means may be employed to prevent the occurrence of this series of events. It may be wise to encourage a knuckle of pelvic colon to lie against the bed of the appendix, or to place there a coil of ileum somewhat distant from the cecum to prevent the rigid angulation described above. The corner of a very long omentum might be adjusted there, probably at some risk of the formation of dangerous bands. It is probable that a drain covered with or composed solely of rubber tissue and flattened rather than rounded, adjusted over the appendix bed so that it intervenes between the pelvic wall and the ileum, may prove effective, since the exudative reaction occurring beneath it is less likely, after its withdrawal, to cause adhesions. Since the occurrence of the last case noted above, the writer has carried out this manoeuvre in a number of cases, approximately twelve, in which the conditions at the primary operation corresponded closely with those above described, and has not observed an instance of postoperative obstruction of this character. The evidence is too limited to be of much value.

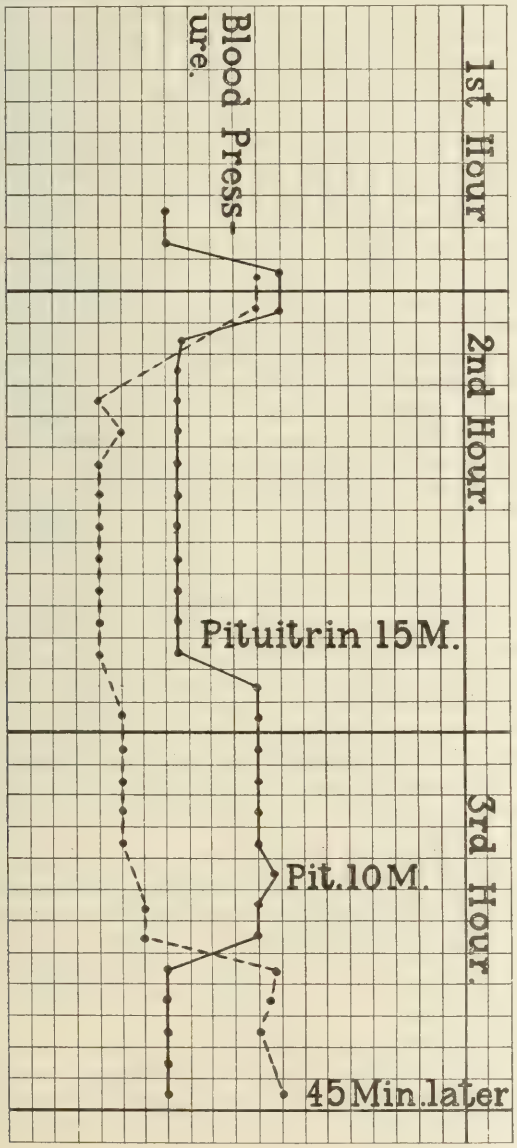
The therapeutic suggestion gained by a consideration of these cases is not new, but affords a clean-cut plan of procedure in a limited group of very grave cases. It may be summarized as follows: In acute pelvic appendicitis, where the inflamed or gangrenous appendix has been torn from its bed on the lateral pelvic wall, from brim to floor, the occurrence of the earliest symptoms of acute intestinal stasis, especially if appearing after an interval of a few days of normal convalescence, should lead to the assumption that there exists an acute angulation of the terminal ileum at the pelvic floor. After the elimination of ill-placed drains as a factor, at the earliest justifiable moment, the attack should be directed at that point by a secondary operation. If the patient's condition does not justify this, a better than forlorn hope is offered by ileostomy.

REPORT ON THE USE OF PITUITARY EXTRACT (PITUITRIN) IN SURGICAL SHOCK.

BY CHARLES A. HILL, M.D.,
Attending Surgeon, Presbyterian Hospital, Pittsburg, Pa.

Since the year 1784, when John Hunter first described "Shock," up to the present time, many theories as to its causation have been advanced, as well as many methods of treatment, both prophylactic, and otherwise. It is not my intention in this paper to enter into a discussion of the etiology of this condition, which has been so ably done by Crile ("Surgical Shock," 1899), but rather to outline briefly a method of treatment that has proven satisfactory in my hands. Surgical shock, according to Crile, may be defined as "low blood pressure." The symptoms of post-operative shock are similar to those following injury and consist of: (1) marked pallor and coldness of exposed mucous membrane with some slight evidence of cyanosis (2) small, irregular and rapid pulse; (3) a characteristic apathetic appearance of the patient. The length of time of operation has a distinct bearing, the more prolonged the operation the more likely shock symptoms will develop and is, according to some writers, more frequent after operation upon the viscera in the upper half of the abdomen. The essential factor, as Crile has shown, is the exhaustion of the vasomotor centers, resulting in the blood collecting in the splanchnic area and a resultant fall in general blood pressure. The heart is affected secondarily by the change in blood pressure, the lower pressure causing a venous stasis affecting the large, venous trunks and thereby interfering with its action. In studying the treatment of this condition it became evident that any drug that would cause a rise in blood pressure that would be sustained for some time after operation; would eliminate to a great extent the danger of shock symptoms developing. It was my privilege to do considerable clinical experimental work with pituitrin (Pituitary Extract), and the effect

noted upon the blood pressure of patients to whom this product was given before leaving the operating room was marked. I have inserted below a copy of an anesthesia slip, taken at random, the tracings on which show the characteristic action of this drug. You will note that at the time of beginning operation the blood pressure ran about 105, dropping to 80 a short time after the belly was opened and holding at this point, approximately, throughout the time of operation. My procedure is to give the pituitrin before the patient leaves the table and usually before closure of the abdominal wound is made. After the first injection in this case the blood pressure increased to 85 and then to 90 within a short time. At this point a second injection of 10 minims was given and forty-five minutes later the pressure registered 110. The pulse rate dropped in proportion to the increase in blood pressure. No evidence of shock was noted, although the operation was somewhat prolonged owing to the amount of work done.



The Presbyterian Hospital.

ANESTHESIA SLIP.

Name: Mrs. Martha Kenney.
No.:
Date: September 28, 1910.
Ward: Female.
Age: Twenty-five.
Diagnosis: Chronic endometritis, lacerated servix, adherent appendix, prolapse right ovary, cyst left ovary, retroflexion of uterus.
Operation: Currettage, trachelorrhaphy, appendectomy, oophorectomy (left complete, partial right), retro-peritoneal shortening (round ligaments).
Anesthetic and amount: 7½ oz.
Heart: Before, O.K. After, O.K.
Urine:
Tissue removed: Left ovary and part of right. Appendix and cervix.
Pathology seen by Operator:
Suture Material Used in Closure of Abdomen: 1. Peritoneum. 2. Muscle and fascia. 3. Subcutaneous skin.
Dressing:
No. of Drains: 1 uterine (rubber tube).
Operator: Hill
Assistants: Allison, Armstrong.
Anesthetist: Bruner.
Infusion:
Irrigation:
Enema:
Stimulants: Pituitrin.

Rockey,
Operating nurse signature.

REMARKS:

Blood supply to right ovary, ligated.

The above chart is but one of the many that could be given, but as it is my purpose to simply outline the treatment, the following instructions that are attached to each case record of an operative case for the guidance of the attending nurse will perhaps explain it best.

1. All patients before leaving the operating room shall receive pituitrin, 15 minims, hypodermatically.

2. After patient is returned to bed and only after recovery from anesthesia, the following rules must be followed unless otherwise ordered:—

1. Fowler position—15 inches elevation head of bed.

2. Enteroclysis. Use glass nozzle with two or more openings in same.

3. Hypodermics of pituitrin, 15 minims every three hours for four (4) doses.

4. Ice caps to abdomen.

5. Sips of hot water and hot tea shall be given. No cracked ice or cold water for first twelve hours.

6. Hypodermics of morphia, grain 1-6, et physostigma, grain 1-75, for pain or restlessness, to be repeated in three hours if necessary.

7. If necessary to take blood pressure and same is below normal continue pituitrin and add

hypodermics of camphorated oil, grains 2, every three hours. If blood pressure is high discontinue pituitrin.

8. Catheterize (if necessary) only every eight hours.

9. Liquids, consisting of water, coffee, tea, orange juice, meat juice, broths, may be given before first bowel movement, after which milk, soft diet may be allowed.

10. The bowels should be moved (unless contraindicated) on third day by castor oil, 1 oz., followed, if necessary, by milk and molasses enema. After operation on perineum or bowel cases, no enemas or cathartics shall be given unless ordered.

11. After operation on round and broad ligaments, patients shall not be allowed to turn on side until ordered to do so; but pillows may be placed under each side at different times. All other cases may be turned and change of position often is advisable.

12. After operation on perineum, patient's limbs shall be kept in close apposition and the parts shall be irrigated with boracic solution after each urination. The patient must be instructed not to separate limbs.

During the past two and one-half years and embracing about eight hundred abdominal operations where pituitrin has been used, I have not had in any instance a symptom of shock develop except in two or three cases a condition simulating "heart exhaustion" was noted. Whether or not this apparent exhaustion was due to over-stimulation is a question. Many other factors may have been responsible. These symptoms were only transient, the patient responding to stimulation after the administration of pituitrin was discontinued, and in each instance the patient made an uneventful recovery.

To again quote from Crile: "Surgical shock then is mainly due to a vasomotor impairment or break down. The cardiac and the respiratory factors may be considered of importance. However, the main effect is on the vasomotor mechanism. If the foregoing be true it will be seen how much more important is prevention than treatment. Prevention of shock may best be accomplished by taking into account all the known physiologic functions of every tissue and organ of the body in a way that would suggest itself to every practical surgeon. While the cause may be local, the treatment must be general."

Another point I wish to mention is the very happy result noted by several investigators as well as myself,—the elimination of gas from the alimentary tract. It would appear that pituitrin has a very marked effect upon the muscular coat of the intestine, causing an increase of peristalsis and facilitating the passage of gas.

Birdwell (*Clinical Journal*, September, 1911), in an attempt to solve the problem of overcoming the temporary paralysis due to exposure of the intestines following laparotomies, tried the injection of Pituitary Extract in a series of twenty uncomplicated cases. He found the results very gratifying, the drug having a very marked effect upon the muscular coat of the intestines. None of the patients so treated complained of flatulence and the early passage of flatus in each case was a marked feature as a rule. Doses of 0.5 to 1 c.c. were injected intramuscularly for one to three days, or until results were obtained.

ARTIFICIALLY DRIED CASEIN.—PRELIMINARY INVESTIGATION.*

BY HENRY I. BOWDITCH, M.D., BOSTON,
Physician in Charge Massachusetts Babies' Hospital.

CASEIN in the manufacture of cheese has held an important place in human diet for many years. It has also always been of important service to the growing child through the ingestion of milk. In recent years many important technical uses have developed, so that the manufacture of casein from milk has become an important industry. It has been used for years in making mucilages, buttons and in the production of paints, etc. Its value as a food has not been lost sight of and certain artificial preparations are on the market (Sanatogen, Plasmon and others). It is of this food value of casein I wish to speak, especially as regards its value in infant feeding.

Practically 21% of milk solids are composed of casein, which is the most important building and reconstructing element of the food. A certain amount of casein is essential for the vital functions of life, especially in early years, when other forms of proteid cannot be used. Casein is used in home modifications of milk and in the milk laboratory preparations. It is used here in solution or suspension, as in skim milk. It is further used as precipitated casein, as in buttermilk or the finely divided curd of "eiweiss" milk.

I shall limit myself in these few remarks to its economy as precipitated casein, in relation to the milk laboratory and possibly home modification of the future. Precipitated casein, curds or para-casein, finely divided and mixed with formulae to increase the protein content of infant feeding, has been used for the past few years, since Finkelstein has called our attention to his point of view of low sugars and high casein.

Its preparation is arduous. Up to the present it has had to be prepared from skim milk which has been pasteurized so that the curd can be more easily divided and passed through sieves. The whey under these conditions, which contains salts, sugars and lactalbumen, is usually thrown away.

If one stops to think that in making whey with raw milk in almost every instance in the home and laboratory our tough curd of precipi-

* Read before the New England Pediatric Society, March 1, 1913.

tated casein (curds) has been discarded. This is true of such laboratories as H. P. Hood and Company, D. Whiting and Company, and the Walker-Gordon Laboratory of Boston. In each case we throw away something valuable, approximately one-half of our food value of skim milk, which means a loss of 2½ cents (retail) on each quart of milk used. As an example, it is practically $1.00 to $1.25 per day where 40 to 50 quarts of milk are used, a total loss of $300 to $400 a year.

I have attempted to save this loss by keeping my curds obtained in making whey. I *first* tried the easiest method of drying the curd; the casein precipitated by rennet was squeezed free of whey, run through a meat chopper, washed, drained and dried by direct heat and afterwards again ground. This produced a tough, dark yellow residue, which proved to be not casein but a product of burnt casein in the presence of water, impossible of digestion. *Secondly,* I tried to free my curd from water, it was chopped, washed, ground in a mortar and drained. I extracted the water with alcohol, decanted and then extracted the alcohol with ether. This dried product gave me 90% pure casein. The temperature of drying was 40 to 50° C. The product was white, fairly easily powdered and ground (Insoluble Calcium Caseate).

In the *third* experiment I used the common method of purifying casein by dissolving the curd in an alkali, reprecipitated the casein with a dilute acid, washed and combined it with a soluble base, extracted the water with alcohol and ether and dried it in the manner of second experiment. This gave me 95% casein which was soluble in water. It thus appears that our casein curd can be saved. Can it be used in infant feeding?

Up to the present we have not questioned the proportions or percentages of casein in our milk formulae. The analysis of laboratory and home modifications made with skim milk and precipitated casein according to Finkelstein, I have found varied by as much as 15 to 20%. Food supposed to contain 2% casein, by Keldahl, gave 1.70%, while precipitated casein, supposed to contain 4.5%, was found to contain 3.99%. With a pure form of casein of known percentage we can add any exact amount to our food, either in the insoluble or soluble forms. Up to the present we have been accurate in our fats by using known percentages of creams in our mixtures; we further have been accurate in the percentage of our sugars by knowing the percentage of carbohydrates used in milk sugar, etc., and now we will be able, by using this dried stable form of casein to be more accurate in our casein percentage.

SUMMARY.

I have saved the casein curd that has previously been lost. The casein curd can be dried and made into stable, pure, soluble or insoluble powder. This powder may be used to increase the accuracy of our administration of casein. Cases are at present being fed on the basis of exact casein percentage, using soluble and insoluble form, and will be reported at a later date. In closing I wish to thank Mr. A. W. Bosworth, of Geneva Agricultural Station and Mr. Frederic W. Howe of the Walker-Gordon Laboratory for their interest, suggestions and material assistance.

Clinical Department.

TRANSDUODENAL CHOLEDOCHOTOMY

BY J. C. HUBBARD, M.D.,

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Consulting Surgeon, Leonard Morse Hospital, Natick,
Assistant in Surgery, Harvard Medical School.

D. C. A married woman of thirty-eight entered the Second Medical Service of the City Hospital January 8, 1913. The history was as follows:

She had had children's diseases, diphtheria at seven years, typhoid at eighteen years, tonsillitis at thirty-two years, influenza at thirty years.

Eleven days before entrance she was attacked by a sudden pain in the epigastrium. By the next morning the pain had disappeared, but returned again that night and has persisted since. At entrance her abdomen was sore and the pain was sometimes referred along the spine and even up under the shoulder blades, especially the right, never down to the thigh. Pain usually came on about fifteen minutes after eating, and was followed by vomiting which afforded partial relief. The vomitus was thin yellow and bitter. It never contained any blood, and there was no blood in the stools, She had never been jaundiced. Had been in bed for three days. Had taken little food.

On examination the important points were as follows: There was bile in the stools. Urine contained slightest possible trace of albumen. The sediment was composed of leukocytes, vaginal and bladder cells. The cells were bile stained. The skin was very sallow, but was not definitely jaundiced.

On January 9, the day after entrance jaundice was distinctly noticed. She had considerable pain and tenderness in the epigastrium.

Jan. 11, it was noticed that the stools contained bile.

Jan. 12, the stools were clay colored.

She was seen by me on the medical service in consultation and was transferred to the surgical service. The examination at that time was unimportant, except that the patient was deeply jaundiced, and the abdomen was tender and gave a sense of resistance in the region of the gall-bladder.

Operation, January 13. Incision over the gall-bladder through the rectus muscle. A much thickened gall-bladder presented itself immediately. Numerous adhesions between the lower portion of the gall-bladder and the intestines were broken up. Cystic duct and common duct could be felt as a thickened tube running down to the intestines. No stones felt in them. Gall-bladder opened. Wall very much thickened. Contained a little fluid, very little bile and no stones. A probe could be passed up toward the liver. No stones felt. After a long

search a small stone could be felt lying at the duodenal end of the common duct. Impossible to push it out. Anterior surface of the duodenum opened for about three quarters of an inch. Mucous membrane of the posterior part of the duodenum over the stone incised and stone pushed out. Incision in the anterior wall of the duodenum closed with cat-gut sutures and a second layer of pagenstecker burying the cat-gut. Rubber tube tied into the gall-bladder, and a wick below the gall-bladder left in. Abdominal wall closed tight in layers except for the tube and wick.

Following the operation the patient made a satisfactory convalescence. The wick was removed on Jan. 13, and the tube taken out on Jan. 24. On Jan. 11 there was practically no discharge from the wound and the patient was sent home in excellent condition.

In recent times the literature of this subject has been covered first by Hancock (*Annals of Surgery,* January, 1906) who was able to get together a total of sixty cases where a stone was removed by the duodenal route.

Cornell, writing in the *Wisconsin Medical Journal,* in April, 1908, increases the number to eighty-six. Since the publication of Cornell's article I have been able to find in the literature at hand the following isolated cases which have been operated upon. MacLean (*Annals of Surgery,* 1909, page 1273), one; Smythe (*Journal Tennessee State Medical Association,* November, 1910), one; Fobes (*Inter-State Medical Journal,* February, 1912), one; Meyer (*Annals of Surgery,* February, 1912), one; Williams (*Annals of Surgery,* October, 1912), one complicated case; Brewer, *Surgery, Gynecology and Obstetrics,* 1912, Vol. 14, page 437), one, a complicated case.

These, with the one reported above, make ninety-four cases.

The anatomy of the common bile duct is described by Testut (*Traite D'Anatomie Humaine,* 1912) as follows: Its length varies ordinarily from six to eight centimeters. The portion above the duodenum is ten to thirty centimeters long, the retroduodenal twenty to twenty-five, the pancreatic twenty to twenty-five, and the intraparietal ten to twelve millimeters. The intraparietal portion is that part which lies within the thickness of the duodenal wall. The common duct perforates the second portion of the duodenum obliquely. It passes first through the muscular layer, then the cellular layer and empties into a little reservoir (ampulla of Vater), in common with the duct of the pancreas. From this description of the ordinary anatomy of the common duct it will be seen that it is possible for a stone to become lodged in the duodenal wall before it reaches the ampulla. One method of reaching a stone in such a position is to open the anterior wall of the duodenum and remove the stone from within the lumen of the duodenum just as though the stone lay in the ampulla. After removal, some men suture the edges of the incision in the posterior wall of the duodenum to the duct as it lies in the intestinal wall. Kehr calls such an operation internal choledochoduodenostomy. Kehr reports, 1905, eight internal choledochoduodenostomies, making one hundred and two cases in which a stone was removed from the common duct by opening the duodenum.

I can see no reason why such cases should not be included in the cases of transduodenal choledochotomy, though none of the reviewers of this subject have done so. The difference between the two operations is so slight that it is not worth considering.

Judging from surgical cases, the frequency of a stone in the ampulla of Vater is slight.

Kehr, 1905, reports one thousand gall-stone cases in which he did two transduodenal choledochotomies and eight internal choledochoduodenostomies. In 1908 he reports three hundred and twelve gall-stone laparotomies, in which he did one transduodenal choledochotomy.

In the article written by Cornell the Mayos, in a personal communication, report that in over two thousand operations upon the gall-bladder or ducts done by them, only four times was a transduodenal choledochotomy necessary.

Kocher and Matte (*Arch. Klin. Chir.,* 1906, Vol. 81) in a hundred cases have done the operation but twice.

It seems to me that such surgical statistics are somewhat unreliable, as a stone in the ampulla of Vater is easily overlooked. There is a number of cases in the literature of such an occurrence where a stone in this position was missed at operation and found only at autopsy, and such a case follows.

I thought it more reliable to review the autopsies at the City Hospital done for known and unsuspected gall-stones. Of such cases there were 116. Among them were five cases where a stone was found in the ampulla. Possibly had some of these five cases come to operation the stone might have been removed by manipulation, making a typical transduodenal choledochotomy unnecessary.

In some cases there is a definite statement that the stone is impacted. The review of this series of autopsies gives a higher percentage of cases of stone in the ampulla than one would suspect from the surgical statistics.

At present there is no method of making an absolute diagnosis of the presence of a stone in the ampulla. Some of the cases have been jaundiced, some not, depending on the degree of obstruction.

Some of the surgeons writing on this subject have described at some length the technic. It seems to me, however, that there is nothing important in the technic more than what anyone used to surgery would naturally carry out. The important point is to get the fingers of the left hand under the duodenum behind the stone and keep them there until the stone has been removed.

The difficulties of the operation are those of

an ordinary gall-stone operation, depending largely on the amount of adipose tissue of the patient, which determines the accessibility of the common duct and the duodenum.

One of the arguments against the operation, advanced some years ago, was the fear of a duodenal fistula. This occurred twice in the series collected by Cornell. At present, however, the technic of intestinal surgery has advanced so much that such an occurrence should occur very rarely in uncomplicated cases.

The mortality of the operation is slight. Adding those cases collected in this paper to the series gathered by Cornell, the number of cases operated upon is 94; recoveries are 82; deaths are 12. If the internal choledochoduodenostomies of Kehr are added, the recoveries are increased by 8, the number of deaths remaining the same.

Appended are extracts from the autopsies at the Boston City Hospital, where stones were found in the ampulla:—

Autopsy I. G. Female, fourty-two years, married (II Surgical, vol. 540, p. 262). Six children. About a year has had digestive disturbances in the abdomen after eating. Past year has had occasional attacks of vomiting. Past three to four weeks increase of pain with more vomiting, and chills.

P. E. Slightly jaundiced, temperature 101; abdomen upper region rigid.

Operation. Oct. 25, 1909. Gall-bladder distended, containing muco-purulent material.

Discharged Nov. 17, in good condition, sinus draining. Entered again Dec. 20, 1909. (II Surgical, vol. 544, p. 120.) Since discharge has not improved much; has had three attacks of colic beginning with severe pain in the upper abdomen, reaching through to back and up towards the shoulders; vomiting, chills and fever. Last attack last night.

P. E. Not jaundiced, biliary sinus. Condition considered too poor for operation. Failed and died Dec. 30.

Autopsy, 09-194. (II Surgical.) Gall-bladder adherent to abdominal wall; wall thickened all through; ducts dilated. On opening the duodenum, there is seen on the posterior wall of its middle portion, an oval elevation 2-1-1 cm., which stands out in the lumen of the duodenum. This contains an extremely hard and movable body. Pressure on the bile passages causes bile to flow from a small papilla upon this projection and also from a very minute papilla, slightly above 1.5 cm. to the left of the mass. Evidences of pneumonia.

Autopsy II. M. Female, fifty years. (II Surgical, vol. 480, p. 128.) Entered Feb. 20, 1907. Family and previous histories not attainable. Physician says patient has been sick about a month.

P. E. Very fat; conjunctiva yellow. Died day of entrance. Autopsy 07-66.

Numerous dense adhesions unite the gall-bladder and the tissues about the common duct to the duodenum and the large intestines in this region.

Liver abscess cavities.

Gall-bladder and common duct firmly bound down to the tissues about them. Upon pressure of the common bile duct, bile escaped into the duodenum. Wall of gall-bladder, which is small, is markedly thickened throughout. The common duct is considerably distended. Its walls are thickened and near the ampulla of Vater there is a gall-stone 3 cm. in diameter. Numerous small stones scattered throughout the common duct, three facetted firm black stones. Evidences of pneumonia and acute suppurative cholangitis.

Autopsy III. E. Female, 43 years. Entered Aug. 31, 1909. (Vol. 144, p. 172.) Seven years ago typhoid (?) after that noticed that she was becoming jaundiced, which has continued to a greater or less extent up to the present time; frequent attacks of indigestion at intervals of a week to a month; has bilious attacks which come on with a chill lasting one-half hour, followed by fever. Says at first, feeling of soreness all over, slight cough, flatulence, nausea and vomiting, loss of appetite, swollen feet, ankles and eyelids, slight constipation, clay colored stools ending in diarrhea; increase in jaundice after each attack.

P. E. Deeply jaundiced; abdomen distended; slight dullness in flanks, changing on change of position. Patient gradually failed and died on Sept. 7.

Autopsy, 99-147. Gall-stone, 18-15-12 cm., in diverticulum of Vater; wall of common duct thickened; gall-bladder much contracted. Acute general peritonitis.

Autopsy IV. C. Female, 54 years, married. (I. Med., vol. 616, p. 26. Oct. 11, 1906) has had occasional pain, fever and chills, but no especial sickness; one child, three miscarriages. Has not been feeling well for some time; headache and shortness of breath with cough.

P. E. Signs of pneumonia, temperature 102, pulse 110, temperature came down; general condition fair; died on the twenty-sixth; vomiting a marked feature just before death; abdomen distended.

Autopsy, 09-81. Vol. 616, p. 28. Oct. 27, 1906, gall-bladder is distended with slight yellowish bile. At ampulla of Vater is impacted a rounded gall-stone, 9 cm. in diameter; two others are located at a point in the common duct a few cm. further back; by great pressure a small amount of bile can be forced by these concretions. Broncho-pneumonia.

Autopsy V. S. Female, 37 years. (Vol. 149, p. 260.) Six attacks like the present in the last twelve years. One child. Three weeks ago became jaundiced, felt pain in right side and back of head, vomited.

P. E. Jaundiced skin and conjunctivae, examination of abdomen negative, wrist drop, incontinence. Became worse, and died on the 24th.

Diagnosis, toxic paralysis.

Autopsy, 07-26. Jan. 24, 1907. Liver, large and bile ducts are distended and in several of them are gall-stones, all of which show facetted edges. In one instance the stone is situated in the central part of the liver substance. Gall-bladder 4 cm., 2-5 cm. walls are thickened. The ampulla of Vater is patent. Two large stones are situated in the common duct just at the mouth of the ampulla of Vater. Several of varying sizes are found in the distended common duct and hepatic duct. The demarcation between the contracted and thickened gall-bladder and the greatly dilated common duct is very definite.

RECURRENT VARIOLA.

BY EDMOND F. CODY, M.D.,
City Physician, New Bedford, Mass.

A SECOND attack of smallpox is of such rarity as to deserve recording. In the available works on the subject, few references are made to it. I can find but the following:—

According to Marson,[1] during the one hundred and nineteen years since the founding of the London Smallpox Hospital not a single instance has been recorded of a patient being admitted with smallpox a second time. Although Baumler,[2] "In the smallpox hospital in London, from the years 1836-1851, among 5797 cases, 47 cases occurred, therefore, less than one per cent. of second attacks."

MacCombie[3] writes, "I have not seen an attack of smallpox in any person who bore unmistakable evidence of having had smallpox." Immermann,[4] "Rarest of all, without doubt, are the true relapses, but such are really now and then observed. Somewhat more frequently, though rarely enough, second attacks occur, between which and the first attack (experienced in youth) a series of decades usually intervenes. Aitken[5] quotes a case reported by Roupel of three attacks, a lady of M. Guinet, who had it five times; a case of Matson of seven attacks; and one by Baring, a surgeon attacked on every attendance upon a case.

All agree that a second attack is mild. The classical case of Louis XV of France, who had an attack of the discrete form at the age of 14 and succumbed to confluent smallpox at 64, is the familiar exception.

B. P. F., age 50; had discrete smallpox at age of four; in proof of which many typical scars are to be seen distributed generally over the trunk. When mustered into the Federal service as a member of the local company Massachusetts Coast Artillery, at the beginning of the Spanish War, the medical officers verified his statement on physical examination and exempted him from the customary vaccination. Because of the presumed immunity by his early attack, he was employed by the Board of Health as general utility man at the smallpox hospital last June, for a short time while one patient was there.

March 15 the hospital was reopened as smallpox again appeared, and F. resumed work, transferring patients from their homes, destroying infected bedding, clothing, etc., mingling freely with the patients, who numbered eighteen.

March 30 he complained of headache, backache, and chilliness which aroused suspicion of possible second attack. After a few doses of aspirin he resumed work, feeling perfectly well.

April 4 he awoke and found a general maculopapular eruption on his body. Similar lesions were seen on the soft-palate; the varioloid ran a rapid course without incident.

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[2] Wilson: Modern Clinical Medicine, Infectious Diseases.
[3] Allbutt: A System of Medicine. Vol. iii.
[4] Nothnagel: Encyclopedia of Practical Medicine.
[5] Whittaker: American Text-Book of Theory and Practice of Medicine. Vol. ii.

Medical Progress.

REPORT ON PROGRESS IN PEDIATRICS. BOILED MILK IN INFANT FEEDING.

BY JOHN LOVETT MORSE, A.M., M.D., BOSTON.

THE effect of the heating of cows' milk on its nutritive value as a food for infants has been a matter of considerable interest to American pediatrists for some years. Two important articles on this subject have recently appeared. In one, Lane-Claypon[1] sums up the available data on the boiling of milk and compares the results in a considerable number of babies, part of whom were fed on breastmilk and part on boiled cows' milk. In the other, Brennemann[2] reports a comparative study of the digestibility of raw and boiled cows' milk, based on the results obtained in a young adult, who was able to empty his stomach at will. His findings are most interesting and throw much new light on the subject.

Janet E. Lane-Claypon, in her Report to the Local Government Board upon the Available Data with regard to the Value of Boiled Milk as a Food for Infants and Young Animals, summarizes the experimental evidence as to the comparative nutritive value of raw and boiled milk of the same and of a foreign species as follows:

I. There is no evidence to show that boiled cows' milk is markedly inferior to raw cows' milk as a food for young calves, at any rate after the first two days of life.

II. The salt content of the milk is of great importance.

III. If young animals are fed upon the milk of a suitable foreign species they appear to thrive somewhat better if the milk is given boiled than if given raw, the only exception being in the case of germ-free milk.

IV. In those cases in which the health of the animals was inquired into after the cessation of the experiment, no difference could be detected in the animals fed by different methods of artificial feeding.

V. All the animals fed by different methods of artificial feeding were inferior to the breast-fed animals, both at the time of the experiment and afterwards.

She points out that the clinical evidence as to the relative nutritive value of raw and boiled milk as a food for infants is rather scanty, that most of the available evidence is from sick rather than well babies, that details as to the source, quality and preparation of the milk are often lacking, that most of the series of cases have been small and that the observations have usually been of short duration.

She concludes from her study of the literature and from the unpublished results of Prof. Theimich of Magdeburg that the data available are insufficient to justify any definite conclusions as to the comparative value of raw and boiled human milk as a food for infants. She calls attention to the fact, however, that the

great variety in the chemical composition of the milks of different species justifies the assumption that the milk of each is especially adapted for the young of that species; and that the slight changes in the chemical composition produced by boiling might be expected, therefore, to have more effect on nutrition when the milk is of the same species than when of the less well adjusted milk of a foreign species. The evidence is sufficient to show, however, that many babies thrive well on boiled human milk. She concludes, therefore, that either the changes produced by boiling are insignificant or the fine adjustment of the milk to the species is not as important as usually supposed.

After reviewing the clinical evidence in regard to infants fed upon raw and boiled milk of a foreign species, she concludes that, if children healthy or not markedly atrophic are considered, no great difference can be detected between the nutritive values of raw and boiled milk, provided that the quality of the milk is the same. If markedly atrophic or sick children are considered, there appears to be a good deal of idiosyncrasy, some doing well only upon the one form of food and some only upon the other. The value of much of the clinical work on this subject is very much reduced by the absence of control cases and in this respect the earlier work is especially deficient, as also in regard to the details of the milk given.

She calls attention to the fact that the metabolism experiments which have been done in this connection show nothing as to the comparative value of raw and boiled milk as a whole, but merely as to the nutritive value of individual elements of the milk. She then reviews the stock literature as to the influence of the boiling of milk on the production of scurvy and rickets and wisely refrains from drawing conclusions.

She then reports her own study of a series of healthy babies at the Infants' Consultation of the Naunyn Strasse in Berlin. The babies were divided into two classes, those fed entirely or almost entirely on the breast and those fed entirely on boiled milk. One hundred and seventy of the first and 154 of the second series were under observation over four months. An examination of the babies still in attendance at the end of the first year showed that 30 of 116 of the first series and 31 of 120 of the second showed signs of rickets. There was a significant difference between the average weight of infants fed upon the breast and of those fed upon boiled cows' milk, in favor of the former. An analysis of the other possible factors showed that the most important factor in the production of this result was the method of feeding. This difference was greatest in the early weeks and months. The babies in the two series doubled their birth weight at about the same time.

These experiments unfortunately show nothing as to the relative nutritive value of raw and cows' milk in infant feeding. The results obtained in these infants fed on boiled cows' milk were, however, extremely favorable, and as the author says, "would scarcely be expected to be surpassed had raw cows' milk been used." She rightly, however, attributes the excellence of the results in large measure to the care and supervision exercised at and through the Consultation.

Brennemann, in his paper entitled "An Experimental Study of Milk Coagulation in the Stomach, Together with Clinical Observations on the Use of Raw and Boiled Milk" states that the housewife and dairyman are practically familiar with the fact that boiled milk forms a different curd from raw milk. Pediatrists have, however, quite ignored the fact that raw and boiled milk are not identical foods. If they have compared them at all, it has been rather from the bacteriological than from the physiological point of view. Boiled cows' milk forms in the stomach, as does human milk, nearly a liquid food, while raw cows' milk is not even a soft food, but a solid food, so solid, in fact, that unless modified in some way and given in careful moderation it may form hard masses that pass undigested throughout the whole alimentary tract and appear as hard curds in the stools.

He then calls attention to the fact that Talbot demonstrated that these hard, tough curds were casein curds in contradistinction to the small soft white curds formed from fat. This was denied by the Germans, who said that there were no such things as casein curds. He also shows that the explanation of this discrepancy was that Talbot and other American clinicians used raw milk mixtures, while the Germans used boiled milk mixtures. The Germans, like the Americans, found these curds as soon as they fed raw milk.

Brennemann and Ibrahim, working independently, offered as an explanation for the invariable occurrence of these hard curds when enough raw milk was fed, that, while boiled milk formed fine, soft curds in the stomach, raw milk formed large, hard curds that under given conditions would be passed through the whole digestive tract before they were completely digested. The evidence for this explanation is threefold:

1. Experiments in vitro. When rennin is added to raw milk in a beaker, at a proper temperature, the milk will quickly form a dense, hard coagulum that separates rapidly and completely from the whey. Boiled milk under the same conditions coagulates more slowly, separates less completely and forms a soft, finely divisible curd that differs but little from a thick liquid.

2. The clinical observation that babies fed with raw cows' milk will at times vomit hard, rubbery curds of enormous size.

3. When raw milk is injected into the rectum of babies and retained for a time, the next bowel movement will contain typical hard curds indistinguishable from those that occur when

raw milk is fed by mouth. If the milk is returned in a short time the curds are soft and white. If after four or five hours, they are smaller and harder, somewhat changed in color and rounded or bean-shaped, an exact parallel to what occurs when these curds are present clinically. When rushed through rapidly, as in diarrhea, they resemble more nearly a fresh milk coagulum. The longer they stay in the bowel the harder, more rounded and more stained they become. When boiled milk is injected in the same way, no such typical hard curds are formed.

He then attempted to explain the processes going on in the stomach that produced these hard curds, it being impossible to be certain that beaker experiments represented what took place in the stomach. Czerny maintained, for example, that the constant motion of the stomach prevents the formation of large, hard curds. The fact that large and unusually hard curds are formed from raw milk, when milk and rennin are constantly stirred or shaken in a glass shows conclusively, however, that motion does not prevent the formation of large hard curds. In fact, the whole curd content of the beaker is often collected in one hard mass.

The only way to determine whether there are other conditions present in the stomach that cause the milk to act differently from that in the beaker is by a study of what goes on in the stomach itself. Such a study is very difficult, however, because the stomach tube is, on account of the size of the curds, worse than useless. He was, however, fortunate enough to find a healthy young adult with normal digestion and normal stomach contents, who could promptly and with but little effort empty his stomach by the simple method of passing his finger into his throat. Forty experiments were made in this young man with raw and boiled milk and with various "milk modifiers." While these observations were made on the adult and only such application can be made to the infant as known identical, physiological conditions warrant, nevertheless, they can at least form a working basis for clinical observation in the infant.

He used certified milk, raw or boiled actively for five minutes, both being taken at 95°F. on an empty stomach in five minutes. The milk was usually whole, but sometimes fat-free. The contents of the stomach were vomited at various intervals. The curds from raw milk were hard and rubbery, always large, sometimes enormous. Some of them were four or five inches long and one or two inches thick, one being so large that it could not be vomited and had to be re-swallowed. The curds from boiled milk were small and relatively soft. The separation from the whey was complete with raw milk, incomplete with boiled milk. The whey left the stomach much more quickly when raw milk was used than when boiled milk was used. Complete emptying of the stomach occurred much later with raw than with boiled milk. The results obtained with pasteurized milk were midway between those from raw and boiled milk, but nearer to raw than to boiled, especially as regards the separation of the whey.

Raw milk was then taken more slowly, 20 to 45 minutes being occupied, in order to more nearly approximate the conditions in infancy. No curds were returned when 30 minutes or longer were taken in sipping the milk, simply whey. A few small curds were obtained when only 20 minutes was taken. The explanation is that when milk is taken slowly a small number of curds, too large to be returned, are formed. Laboratory experiments corroborate these unexpected findings, showing that fresh curds tend to coalesce as fast as they are formed.

The dilution of raw milk with an equal or greater amount of water resulted in the formation of smaller and more spongy curds. Dilutions with an equal amount of barley water reduced the size of the curds to that of peas or smaller. Sodium citrate in the proportion of two grains to the ounce prevented the formation of curds, and in smaller amounts reduced the size of the curds materially. Bicarbonate of soda had the same effect as sodium citrate. Five per cent. and ten per cent. of lime water did not prevent the formation of curds, which were about midway in size between those from raw and boiled milk, but made them much softer.

Brennemann believes that it is not unfair to assume that, as all the ferments of the adult are present and active in the stomach of the baby, the same relative reactions take place there as in the adult. He believes that there are certain symptoms which are common with the use of raw milk and which disappear when the milk is boiled. These are:

1. The hard or tough curds of infants' stools. These, he states, and quotes Ibrahim in corroboration, can be produced in every infant by giving it enough raw milk. They will promptly disappear when the milk is boiled. These curds are nearly always accompanied by other evidences of indigestion, especially diarrhea. Whether they are the result of some other factor in raw milk that produces dyspeptic symptoms or whether they themselves mechanically produce these symptoms remains to be demonstrated.

2. Diarrhea and dyspepsia. The improvement when milk is boiled suggests that the proverbial constipation from boiled milk may be due to the fact that boiled milk is more readily digested and more completely assimilated than raw milk.

3. Vomiting.

4. Colic and discomfort. These are often relieved when the milk is boiled.

The fact that boiled and citrated milk are peculiarly alike in their effect on digestion, although they have nothing else in common except the fact that by them the coagulation of casein is inhibited, leads him to believe that the deter-

mining factor in raw milk dyspepsia is the nature of the coagulum. He finally draws certain conclusions, namely: that raw milk and boiled milk are clinically very different foods; that the most striking difference between them, as shown experimentally, is in their reaction to rennin; that the casein of raw milk, unless modified so that it will not form hard, large coagula, offers serious difficulties in digestion that are not present in boiled milk; and, lastly, that these differences between raw and boiled milk should always be borne in mind in comparing clinical, therapeutic and experimental results in infant feeding.

[1] Lane-Claypon: Local Government Board Reports. N. S., No. 63.
[2] Brennemann: Journal American Medical Association, 1913, lx. 575.

Reports of Societies.

NEW ENGLAND PEDIATRIC SOCIETY.

Meeting Held at the Boston Medical Library, March 1, 1913. James S. Stone, M.D., President; Fritz B. Talbot, M.D., Secretary.

Dr. Alfred F. Hess, New York, read a paper on

THE PATHOGENESIS OF CASEIN CURDS IN THE STOOLS OF INFANTS.

ABSTRACT.

In the stools of infants we find besides small, soft fatty curds, larger and harder curds which were described a few years ago by Talbot. It has been shown that these curds contain some casein, but it has not been demonstrated absolutely where or how they are formed. By feeding the infants directly into the duodenum by means of the duodenal catheter, Dr. Hess showed that these curds disappear, only to reappear when mouth feeding was again instituted, thus showing that they are formed in the stomach, and if the stomach is circumvented, they disappear from the stool. A second argument leading to the same conclusion is the fact that the interior of these curds is white and not bile-stained as we should expect it to be were they moulded after having been mixed with the bile in the upper duodenum. By means of the catheter, it was shown that the trypsin in these cases is normal and likewise that these curds are so formed that they cannot be digested by the trypsin of normal children. Heating the milk to 170 degrees F. inhibits their formation. However heating it to 147 degrees for 45 minutes, which is the method of pasteurization advocated by the municipal boards of health, does not affect their formation. The question, therefore, is pertinent, whether milk should not be heated to this higher temperature and obviate this non-digestion of casein. The children showing these casein masses presented no other abnormal clinical symptoms. It is true that these curds are found somewhat more frequently in cases where there is some intestinal derangement. However, the primary factor in their formation is the delayed emptying of the stomach, and intestinal disturbance merely aids their appearance in the stool. Dr. Hess emphasized the point that this is not merely a raw milk phenomenon but also a pasteurized milk phenomenon, and also the fact that a substance, in this instance casein, which is readily digested by the intestinal ferments may escape digestion when it is given to the intestine in a dense and compact form such as these masses present.

DISCUSSION.

Dr. Fritz B. Talbot: I have been extremely interested in the interesting paper of Dr. Hess, which adds so much to our knowledge of the digestion of casein, and I think he should be congratulated for the careful way he has gone at the subject. It also gives us a new point of view from which to study the casein digestion. I agree with everything that he said with one exception, and that is something rather that he left unsaid. He said that in the majority of the children whom he saw that had casein curds it did them no harm, at least it did not seem to bother them much, and I think that this is quite true of a large number of babies that we see in our practice here. But there is a class of babies, not a large class, which have casein curds coincidently with acute digestive symptoms, and in that class, whatever may be the cause, those babies always become quickly better when the amount of casein is diminished in the food. There is one phase of the question which has puzzled me a great deal, and that is the fact that babies can apparently take, say, two-thirds whole milk and one-third water or barley water, as the case may be, and pass casein curds, and some of those babies that are having the casein curds have symptoms of indigestion, and when the milk is boiled or the milk is changed so that the babies do not have casein curds, why is it that those babies can digest the same amount of protein, or casein, which previously was apparently doing them harm?

Dr. Maynard Ladd: I was very much interested in this paper and particularly in what Dr. Hess said in regard to the emptying time of the stomach. The percentage of casein in the curds is an important factor. One case that I have been studying with the Röntgen ray, a normal breast-fed infant, on milk of a certain analysis, had an emptying time apparently of two and one-half hours. That same child on modified milk, of the same composition, with the percentage of casein in the same as in the breast milk, had the same emptying time, *i.e.* two and one-half hours. This child on subsequent days with the casein percentage raised to 3.50%, the other elements remaining the same, had the emptying time increased to six and one-half hours, and again to seven and one-half hours showing apparently that the increase in the amount of casein for that particular child (which represented fully five times as much as she was getting in the breast milk) more than trebled the emptying time of the stomach.

Dr. Hess, in closing: I have here some curds from the stomach which have been dried out and they can hardly be distinguished from those passed in the stool. They merely have been dried for twenty-four hours and have come to look very gradually like the curds in the stools. In one case the curds which were vomited were brown on one side like the curds in the stool; they evidently had been dried out on that surface against the mucous membrane. They are rather softer than the curds in the stool because they have not been compressed in going through the different valves and openings. The red ones are those spoken of in my paper as having

been injected with fuchsin, and which went through the gastro-intestinal tract for a second time.

DR. WILLARD S. PARKER, Boston, read a paper on

THE METABOLISM OF A CHILD WITH COMPLETE ABSENCE OF THE BILE FROM THE INTESTINES.

ABSTRACT.

George M., age four years, entered the Children's Ward at the Massachusetts General Hospital Sept. 28, 1912. He had had for two months a tumor in the right upper abdomen which on operation by Dr. Hugh Cabot proved to be a cyst of the biliary tract. The cyst could not be completely removed. After operation there was a biliary fistula, with complete absence of the bile from the intestine. A three-day metabolism period showed that the child's nitrogen metabolism was normal but that there was a great disturbance in the fat metabolism, the absorption being only 55% as against the normal of 88 to 96%, while the split fat 64% was much below the normal of 90%.

DR. ISADOR H. CORIAT, Boston, read a paper on

AMAUROTIC FAMILY IDIOCY.

ABSTRACT.

Two cases of amaurotic family idiocy with detailed clinical histories were reported, with photographs of the patients and the family pedigrees. The first case presented the unusual feature of a combination with hydrocephalus. The eye findings were typical in the two cases. Both cases were of Russian Jewish parentage and both showed strong hereditary traits (blindness, hyperthyroidism, hysteria and amaurotic family idiocy). Some general remarks were then made on the comparative race psychopathology of the Jew with particular reference to the development of amaurotic family idiocy. It was shown that the disease is due to the absence of a special type of resistance in certain constituents of the nerve cells, probably a recessive trait according to the Mendelian theory. This special lack of resistance is probably caused by the environmental strain and the persecution to which the parents of these cases are subjected as consanguinity and infection seem to play a minor rôle. It was further shown that the disease is really not a form of idiocy, as neither the macoscopical nor the microscopical appearances of the brain correspond to the pathological changes found in idiocy. It is really a special form of amaurosis associated with dementia and therefore the name of amaurotic family dementia was proposed for the disease.

DISCUSSION.

DR. CHARLES P. PUTNAM: Partly, perhaps, from coming in late, I did not grasp the reason why this is called a familial disease. In the cases mentioned no members of the family were apparently affected.

DR. J. L. MORSE: I have seen, I think, at least a dozen cases of this disease, but will refer to but one of them. This was the case of a child which was under observation for about one and one-half years, and somewhere midway in this time it suddenly began to develop symptoms of hydrocephalus. Repeated lumbar punctures showed the fluid under high pressure but absolutely normal in other ways. As I remember, that tendency lasted two or three months and then quickly disappeared again, the fontanelle became depressed and there were no further evidences of hydrocephalus. Of the cases which I have seen, there has been only one in which there was another case in the same family. I have not been over the literature recently, but my impression is that in the earlier reports there was quite a preponderance of several cases in the same family, but in the later literature most of the cases have been single ones. As I say, I may be wrong about this, not having gone over the literature recently.

DR. WALTER B. SWIFT: It is interesting to note at this time that Dr. Higier, Poland, reports a family in which two of the children had optic atrophy, two had cerebellar ataxia and one had this typical amaurotic family idiocy, showing that in all these lesions there is a similar degenerative process. These were members of a Jewish family.

DR. CORIAT, in closing: The disease is called a familial disease because in a very large percentage, I might say an overwhelming percentage, of the cases reported, the disease has occurred in more than one member of the same family. It occurred in two members of the family in one of my own cases, but there have been cases reported in the literature and also in some cases previously observed by me, where it occurred only in one. This tendency for an isolated case to appear is also found in other so-called familial diseases, particularly those disorders which we know to be strongly hereditary, such as Friedreich's ataxia. It was interesting to hear that the cases mentioned by Dr. Swift occurring in one family (amaurotic idiocy, primary optic atrophy, cerebellar ataxia) were also in children of Jewish parentage. This observation from the literature is the more valuable because the cell-finding in some forms of cerebellar hereditary ataxia are apparently identical with those found in amaurotic family idiocy. Concerning the development of hydrocephalus, replying to Dr. Morse's remarks, I would say that in my first case, which was under observation for one and one-half years, there has been a steady increase in the hydrocephalus, although the condition has been at a standstill for two or three months, and the head is now quite large with the fontanelles tense and bulging.

NORFOLK DISTRICT MEDICAL SOCIETY.

MEETING OF APRIL 3, 1913.

The regular meeting of the Norfolk South District Society was held at the United States Hotel in Boston, April 3, 1913, Dr. Charles S. Adams of Wollaston, presiding. The Secretary, Dr. Reardon of Quincy, included in his report of the previous meeting an abstract of the address given by Dr. John T. Bottomley on "Jaundice." Dr. Sturgis of Hull, appointed delegate to the meeting with the Accident and Insurance Board for consideration of the "Workingmen's Compensation Act in it Relation to Physicians," presented his report.

The address of the meeting was given by Dr. George M. Garland on "Pasteur the Man." The great scientist's humble origin, his earnestness as a student, his devotion and great popularity as a teacher were emphasized. The fact that Pasteur was not a physician, but that his great contribu-

tions to humanity were made as a pure scientist, was clearly shown. Pasteur's relation and interesting correspondence with Lister were described and some interesting letters were read.

The influence also of Fabré was referred to and a deserved tribute paid to Fabré's great achievements which the French Government has but lately recognized.

AMERICAN PSYCHOPATHOLOGICAL ASSOCIATION.

May 29, 1912.

The third annual meeting was called to order by the President, Dr. Adolph Meyer, of Baltimore, Md., in the State Psychopathic Hospital, Boston.

PRESIDENT'S ADDRESS.

Dr. Adolph Meyer, Baltimore: The chief topics of my address are some fundamental conditions under which the introduction of psychology and psychopathology in medical schools could find a satisfactory ground. Its foundation must be a critical extension of common sense psychology, with an emphasis on the dynamic features, and a careful training of the student in a critical handling of psychological forces and biological forces in general and in the study of their integrative factors. For this reason the student must broaden his over-simplified mechanistic views. It is essential that even in such matters as the physiology of the nervous system the student should also be trained in a critical use of biological concepts, *i.e.* in treating the data as functions and quantities which we must often be satisfied to measure in the light of the effect produced on the environment instead of expecting that unless we can get at the measure in terms of quantities antecedently absorbed from physical nature the function could not be studied scientifically. It is essential to view biological and psychological functions in the light of their "aufgabe," *i.e* the function to be performed, not merely in the light of "the stimulus" but of all the conditions on which the realization of the "aufgabe" depends; and the student must be trained to do this critically, as is done in serology and kindred fields of pathology. On this ground it is possible to do justice to the non-mental integral factors as well as the mental ones without any danger of neglect of the somatic components, or, on the other hand, of the psycho-dynamic component, and we can expect the student to recognize the facts in a sane and sound setting and to accept the methods of modern psychopathology as an extension of his training including even such issues as symbolisms otherwise unintelligible. In the courses themselves special care should be given to the broadening of a safe biological training on such matters as the sex life before full-fledged and perhaps one-sidedly psychologizing theories be given to the students. More and more psychopathology will also have to lead the physician to a broadening of his attitude into leadership in economic and especially also in ethical problems. We shall have to realize the "solidarity of mental hygiene and ethics." The best foundation for these developments will undoubtedly be the concrete work of a well-conducted psychopathic hospital, with its social service department; and also a sincere effort on the part of the divergent schools in psychopathology to make themselves clear and better understood by others rather than to point out the errors of the ways of others. For this reason the symposium was arranged to cover one concrete and definite case seen and studied by a number of members of the Association and brought up to see the different ways in which different men look for their facts and handle them. While theories may diverge, the facts hold them together.

PSYCHOLOGICAL SETTING OF IDEAS.

Dr. Morton Prince, of Boston: A perception, or idea of an object, may be regarded both as a process and as a group of conscious elements some of which are within and some without the focus of attention. For example, my perception of X, whom I recognize as an acquaintance, is much more than a cluster of visual sensations, but includes a number of imaginary memory images according to my previous knowledge of him. But this is not all when perception is regarded as a process, for the objects of experience have associative relations to other objects, actions, conduct stimuli, constellated ideas, etc. As a result of previous experiences various associations have been built up with objects and these complexes from the setting, or what Titchener calls the context, which gives the perceptions meaning. Perception takes on meaning. Perception takes one meaning as it is constellated with one complex and another meaning with another complex. Thus each of three persons, an architect the owner and a shopper, will have a different perception of a certain building which he knows to be a department store. Also, the perception will produce different effects upon the different observers depending upon the difference in setting. The settings may be partly or wholly unconscious. I may not be able by introspection to find in my consciousness a record of past experiences with an acquaintance, for example, which gives the setting to my present perception. In many cases a person is not able to explain his viewpoint which may be of a very definite, unusual or abnormal character. For example, one may have an abnormal fear, as of fainting or a particular disease, yet he can give no explanation of it. It is, however, quite possible that there may be in the fringe of consciousness thoughts of which he is not aware or for which there is amnesia after the attack. In many cases, for therapeutic purposes, I have changed the setting, the viewpoint and the meaning of the ideas of the patient by suggestive procedures, often by hypnosis. This is the goal of psychotherapy and in my judgment the one fundamental principle common to all technical methods of such treatment.

A CLINICAL STUDY OF A CASE OF PHOBIA.

Dr. Morton Prince, Boston: The patient is an unmarried woman, forty-one years of age. Her attacks, varying from time to time, present the following chief symptoms: 1. A feeling of unreality due to (*a*) "inability to feel the air," coupled with (*b*) a sensation of queerness of the body difficult to describe, a "pulling out feeling," a "horribly disagreeable feeling," (*c*) a feeling of "wildness," of insecurity, of inability to rush. There is also (2) confusion of thoughts, (3) at times, the usual anticipatory fear of attack usually ushering it in, and (4) the ordinary physical manifestations of fear. In addition she experiences visualizations of herself

in a convulsion. Furthermore, these attacks may be traced back either to some significant sensory stimulus or to some inciting memory images or thoughts.

Of these various syndromes, the "unreality of the air" is the most common and figures in all attacks. The experience of unreality is of two varieties: passive and unreality attacks accompanied by fear or panic. The latter constitute the phobia attacks proper. Visualizations of herself in a convulsion are common in both forms of attack. Her true obsession is the unreality of air feeling accompanied by fear. Careful examination disclosed that it is a phobia of insanity and death. These two main complexes cluster about a number of the patient's reminiscences and always stand back of the unreality of the air syndrome. It was also found that they had become engrafted upon an earlier fear of insanity which the patient had acquired through certain misconceptions concerning the nature and meaning of insanity during her early girlhood days. She was also beset by a fear of hell. These complexes,—insanity, death, hell,—furnished a special setting which determined for her the meaning of certain sensations and perceptions particularly at times when she was suffering of hepatic torpidity or felt otherwise depressed.

The fear of railroad trains, of being present among strangers, etc., which she experienced, was in reality due to her realization that, if an attack should occurr under such circumstances, she would be helpless and could obtain no relief. "There is, therefore, no symbolism and no abstruse or subtle meaning to the fear."

The indications for treatment are: First, find out the true object of the fear, the reason for the subject's phobia and then "build up new complexes and rearrange the old ones to form new settings for the disturbing ideas so as to give these ideas a new and healthy meaning."

DR. E. W. TAYLOR, Boston: The history of this patient is known by various physicians since she has been to nearly every neurologist in Boston. She has been a year and a half with Dr. Putnam, varying times with others and some months with me. She is a very open-minded woman, perhaps not so defensive as Dr. Putnam would be inclined to assume. She spoke very candidly of doctors with whom she had previously had dealings. She appreciated their efforts in her behalf and also their failures and from that point of view it seems interesting to give some of her own impressions. I would state at the outset, without the slightest disparagement of methods, that the so-called psycho-analytic method as practised by the followers of Freud did not appeal to her. That does not prove in the slightest degree that that was not the method by which improvement might not finally have resulted. but, as very faithfully practised by Dr. Putnam and practised faithfully by her, at the end of the period of treatment she was not improved. I know less about the treatment by other methods. She was apparently benefited to some extent by all to whom she went. She found something in each that was of practical use. I think Dr. Prince does not quite understand the amount of benefit she is getting from the Emmanuel treatment when he states that she is better under the Emmanuel treatment than any other, inasmuch as she told me that she was getting her chief benefit from her employment. My dealings in general with the patient were extremely interesting. She appeared to be a patient who was suffering from the fundamental inherent fears that I believe we all have, as Sidis has pointed out, namely, the desire for self-preservation, which, conversely, means the fear of death and the fear of insanity. I think that every man the moment he reaches self-consciousness, fears insanity; he aims to be normal and sound mentally; this is only secondary to the natural instinct of self-preservation which we recognize as fundamental. In this particular patient both of these factors came out very distinctly. My method with her was—she said it was beneficial—simply an elucidation of most of the facts which Dr. Prince has brought out. In many ways she has improved. She has discarded some of her fears and developed others. It seems in this case unprofitable and unnecessary to apply the sex ideas.

DR. JAMES J. PUTNAM, Boston: Dr. Prince has more than once in his paper stated that she said "Now I understand, I never thought of that before." "I understand that now." She said that to me at least a hundred times. As to the psycho-analytic methods she said: "I never before had any treatment which really made me understand myself and the nature of my trouble as the present one has done." I mention this to call attention to the fact that her manner and her frankness were a sort of defence neurosis. It was just because she was so ready to adopt the view of a person she was with that she deceived herself. When I was treating her last she seemed almost well and fear after fear disappeared. She was working and happy and going about and then came the prospect of the summer. I was going away, then came the need for protection and she had a relapse.

DR. ISADORE H. CORIAT, Boston: This patient was under my care for about a year and I saw her frequently, several times a month, during that period. When she first came to me the neurosis consisted principally of the fears and the impulse to collect useless objects plus losing her mind or fainting in public places. At first she did not dare go around without a member of her family and a nurse. The collections she made were wonderful and I still have spirit of ammonia and valerian which she always carried with her for the attacks. The analysis of Dr. Prince in the light of what I know of the patient seems to me to be prefectly applicable, and, while there may have been childhood conflicts which might have led up to these things I feel that the real starting point of her fears and realities was later than in childhood. My treatment consisted principally of re-education, of daily routine, and later of hypnosis in order to bring about a new psychological setting. I tried to substitute for the fears and unrealities a feeling of self-reliance and of confidence and of the realities of things.

DR. B. ONUF, New York: I think the subject extremely suggestive and interesting. I had one case that had many similar features. I believe if more were studied they would all be shown to have many features in common. One thing that struck me in my case was the extreme systematization of the ideas, which was also present in the case of Dr. Prince and Dr. Putnam. This systematization is so marked that it has a great deal of similarity with the systematization of a paranoiac. The question is: "What gives this systematization?" I think it is simply that all these ideas as they develop from each other have some element in common. I think that element is the emotional element and the emotional element is the feeling of wrong. In my

case a history of masturbation was present which dated back to childhood, and this patient persistently refused to believe that when she masturbated, she did anything wrong. I demonstrated to her that in her actions she gave proof of doing things that were not approved of because she maintained the greatest secrecy about the matter. This patient absolutely denied to herself facts that were absolutely apparent.

Dr. A. A. Brill, New York: You have noted that the case reported by Drs. Putnam and Prince was that of an unmarried woman. The main difficulties in the neurosis of this kind lie in the sexual life. As long as we cannot give that patient a substitute for her neurosis, which is the desire of ungratified or repressed libido, I do not see how we can cure her. I think the unmarried cases are the hardest cases. While they are with the doctor they tell the doctor they feel well, but later they return to their symptoms and so they keep on going from one doctor to the other.

Dr Ernest Jones, Toronto: The most fruitful way of approaching the anxiety states is to take the simpler forms first, those characterized by predominantly somatic disturbances, without the elaboration of complex forms. I think that the idea of death and hell and insanity in her case seemed to suggest very strongly the suppressed wish of begetting a child to her father. That seemed to me the kernel of her neurosis.

Dr. Morton Prince, Boston: As to Dr. Brill's statement that we know the main difficulty is ungratified libido I think this is a priori reasoning from his point of view. We do not know that is the case. There have not been any facts brought out to show that that is a fundamental cause. I do not think that unmarried women are more difficult to cure.

PSYCHOANALYSIS AND SOCIETY.

Dr. Trigant Burrow, Baltimore: Philosophically, psychoanalysis is but a name for the utter abrogation of religion and the apothesosis of sex. For, since psychoanalysis interprets neurotic disorders as consisting in the distortion of the psychic demands of sex into symbolic equivalents through the patient's repudiation of this primal instinct, it is but natural to expect that the logical therapeutic procedure in these conditions lies in reconverting such fruitless substitutes into their original trend through recourse to sexual indulgence. One would expect that conditions due to blocking of an outlet were to be relieved through clearing the outlet. We must understand, however, that sexuality has its psychic as well as its somatic aspects and clearly recognize that the affections which come within the province of psychoanalysis are essentially psychological disharmonies, and that their treatment depends, therefore, upon resort to psychological and not to somatic agencies. It, therefore, seems to me highly important to inquire into the social and moral aspects of the situation confronting us in this connection. Psychopathology recognizes that there is a psychology as well as an anatomy of disease. We now know that psychic disorders are not neural, but moral; and that these conditions reside not in the cortex but in the conscience. In other words the morbid process confronting us is essentially a disease of the totality we call the soul and consists of divided elements at war with one another, the one trend autoerotic, infantile, egoistic, unconscious; the other moral, social, altruistic, conscious. Now as the nature of a neurosis is a moral conflict in which the patient is torn between the contrary impulses of right and wrong, that is, of reason and instinct and as through recourse to repression and substitution such an individual has resolutely declared in favor of the latter, that is, of loyalty to self-imposed command, and resistance to the gratification of self, does it not follow that the appropriate avenue of sublimation for the neurotic in general lies in the direction of renunciation of character, of the moral ideal? In other words does it not seem that the logical sublimation for unconscious repression is conscious control? Character is respect for the permanent, the ulterior and the social as opposed to the immediate, the limited and the personal. In a word, it is loyalty to the social ideal. The question is then shall psychoanalysis seek to cure the neurosis through the shattering of the social ideal? Are we to say to the men and women who are made aware through analysis of the sexual complexes underlying their onerous ideals, "Let your ideals go! Ideals are phantastic, neurotic. Obey your instincts and so be at unity with yourself"? That is one way of deciding the issue, but it is the way of mediocrity and concession. It is the selfish, personal, and impermanent way, not the way that looks to the larger social interest. The conflict embodied in the neurosis is one which will continue while life lasts, for the infantile, instinctive demand is ever present and insatiate; but while admitting its importunities into consciousness, it seems to me the duty of the psychoanalyst to recognize and to take sides with the splendid power of resistance, so strong in the neurotic, against life's cruder demands and by converting it into a conscious, open, reasonable resource to assist him in the attainment of a higher manhood. He does not silence the lesser, instinctive need, it is true, but at least he contributes to the production of a higher, more conscious type. Perhaps from the viewpoint of therapeusis alone the attitude here taken is not the most immediately rewarding, but my position is that psychoanalysis is responsible not alone to the individual but to society as well, that it has to take cognizance of the civil as well as of the personal issues entailed. It seems to me, therefore, that to seek to remove unconscious repression through the sublimation afforded in conscious control is not only logically, but ethically, the only attitude of the psychoanalyst who is fully sensible of the deep social significance presented in the drama of the neurosis.

DISCUSSION.

Dr. James J. Putnam, Boston: I like the general trend of Dr. Burrow's argument so much that I should like to say a few words that may seem critical, but I am sure are not intended to be such. It would imply rather a supplement to his views rather than antagonistic to them. It seems to me that psychoanalysis is to be regarded as more or less on a par with the natural sciences and thus does a certain work and no more. The physicist deals in certain constructions which he assumes and therefore gets at certain working theories which are of great value. The biologic evolutionist does no more. It seems to me that the psychoanalyst really does not go back to the simplest form of the problem at all. He leaves the question of the origin of these instincts really untouched. What we really need and should study as a supplement to psychoanalysis is philosophy in one or another form. I think the

work is social, as Dr. Burrow states. We cannot really get hold of the social relationship and the psychogenetic aspect becomes of immense importance.

Dr. Morton Prince, Boston: Dr. Burrow's paper is one of much interest and a very timely one. I am not quite clear in my mind as to whether I understood his position and therefore I hope that he will not take what I have to say as a criticism on his paper. Every individual, of course, has certain instincts. The fear instincts are inherited just as reflexes are inherited and these instincts in the motive power calling into action are of biologic importance. They are necessary. Do not accept the idea that the main primitive force, so to speak, of man is the sexual. I can't believe, for example, because primitive man has had the conception of God, etc., that such a conception in our minds is an inherited trend of thought. On the contrary, I think it is entirely a matter of education on the part of the individual. It is the habit of life to explain certain forces in the universe.

THE OEDIPUS-COMPLEX IN THE PSYCHONEUROSES.

Dr. Isadore H. Coriat, Boston: The early sexual love of the son for the mother, which appears in either predisposed or exposed individuals during the early years of childhood, is termed the Oedipus-complex, as its psycho-sexual attributes are the same as those recorded in the Oedipus fable. This incest trend is repressed, however, but may appear later in life, when the infantile elements emerge from the unconscious, in the form of a compulsion neurosis, homosexuality, an anxiety neurosis or even in the form of masochism in which the inflictor of pain is identified with the subject's mother. The readiest method of getting at this Oedipus-complex in adults is through an analysis of the dreams, in which the incest phantasy may appear either literally or in a symbolized and disguised form. Four cases are recorded and the dreams analyzed, in all of which a strongly repressed Oedipus-complex furnished the main unconscious mechanism of the psychoneurosis.

DISCUSSION.

Dr. A. A. Brill, New York: It is a mistake to say that children who are predisposed to psychoneurosis usually show an exuberant love for the mother. I have found it in just as many normals. In the neurotics it comes to the surface. We all form the impressions of a man and a woman from our parents and we form the so-called mother image and father image and they remain the standards for future relations with men and women. That is when we meet with men or women we either like or dislike them, depending upon how they fit in with the child's image. Thus it is the parent's fault. Usually the mother will take the boy and give him too much love because she misses the Dantesque poetic love she has gotten before marriage. If she gives him too much love, if the mother allows a child to sleep with her until 10 years old, she is doing a wrong thing. It is no wonder he should keep it up.

Dr. Alfred Reginald Allen, Philadelphia: I believe this is a very common, if not always present, complex of early life and I think we find a residuum of the Oedipus, in the fact that the young boy, say from 7 to 14 years of age, wants to play with other boys and is ashamed of playing with little girls. What has happened to him is that he has repressed his love for his mother and he has symbolised all women with his mother and they are abhorrent to him. He has gotten to the point where the swing of the pendulum is in the other direction.

REMARKS OF PSYCHOGENETIC CONVULSIONS AND GENUINE EPILEPSY.

Dr. L. Pierce Clark. New York: The author pointed out that although epilepsy was an organic disease with either macroscopic or microscopic changes in the cortical elements, the clinical expression of the disorder was still frequently confounded with convulsive episodes of purely psychogenic origin. Frequently the two disorders exist in the same case, the two disorders were not mutually exclusive. He urged a fuller detailed analysis of all the fit types and not to be satisfied with the crude designations of grand mal, petit mal and psychic seizures of so-called genuine epilepsy. He believed that almost all the so-called psychic epilepsies were psychogenic in character and capable of being controlled or removed by Freudian analysis. Post-epileptic automatism and the manic periods were to be better explained on a basis of a dream state in which a wish fulfilment was the motive or ruling idea. Psychoneurotic individuals may not only have aura in their psychic episodes like genuine epilepsy but they may fall and injure themselves and in exceptional instances even pass urine, bite the tongue and lips and lose consciousness. Psychoneurotic epilepsies are differentiated from the truly epileptic in character in that the former are disorders of association of ideas, have great constancy, often prevented by hypnosis and often displaced or prevented by purely psychic treatment and in the majority of instances uninfluenced by sedatives. Amnesic periods are purely functional in character and intelligence tests reveal no real mental impairment as in that of the genuine disease. In his experience in the association state, epilepsy and psychogenic episodes, the latter are not so permanently or completely removed as in the uncomplicated psychoneuroses. The sexual element is not so dominant or marked. For two years he has submitted all his epileptics to psychoanalysis with considerable success, especially affording satisfactory results as an accessory to the so-called hygenic treatment of epilepsy. Again, too, the cured or arrested cases are aided in conserving their energies and given a better outlook on life. The author believes that the epileptic has a characteristic constitutional makeup which is independent of the deterioration characteristics of the established disease and would particularly ask clinicians to make their diagnosis and prognosis on the intensity of this state rather than upon any peculiarity of the convulsive phenomena themselves. He entered a special plea for the broadest biologic conceptions of the epilepsies as well as the psychoneuroses resembling the former.

DISCUSSION.

Dr. Ernest Jones, Toronto, Canada: We seem to be reaching the ground that the majority of cases diagnosed as epilepsy are truly of organic character, but in some cases we find psychogenetic convulsions which are truly indistinguishable from the true epileptic fit. This has been known for years although even yet there are some neurologists who do not accept it. It points out the fact that stress

cannot conclusively be laid upon the fit itself. I think it is a very safe rule to go by that one shall not make a diagnosis of genuine epilepsy unless there are other evidences apart from the character changes. Light can be thrown upon the psychology of these patients by psychoanalytic investigations and in a way that no organic or anatomical study can ever expect to. The changes in the cortex really throw no light upon the changes of the character and of the mental characteristics that we find in this disease.

Dr. A. A. Brill, New York: I have had some experience in analyzing cases called genuine epilepsy. One remarkable case was diagnosed and treated for 9 years. I treated it nine months and it is now almost two and one-half years since and she has not had any recurrent attack. I do not report her as cured, although the analysis is complete. I have treated a young girl in the Vanderbilt clinic who has been coming for four years and had a regular bromide rash and was supposed to have typical fits. I treated her by hypnosis with very good results.

PSYCHOGENIC DISORDERS IN CHILDREN.

Dr. Tom A. Williams, Washington: To treat a neurotic child by rest or other physical means is mere rule of thumb. The frequent failures which follow such an unscientific method are prevented by ascertaining and then rectifying unwise psychological factors in the etiology. The cases reported show the utility of proper psychopathological training in that they were all rapidly cured after months of failure by the empirical methods employed before they were seen by the author. For instance, a so-called chorea was found, by analysis, to be in reality a tic due to scrupulous ideas. The cause of an insomnia and nervousness after study was discovered to be induced by the apprehensiveness of the parents. The removal of unwise solicitude and by conscientiousness has kept the child well for 18 months. A case, showing tearfulness and distress due to unwise repressions, was cured in a few days after analysis had revealed the source of these. A case in an older child of developed obsessions and mental manias was traced to a jealousy complex. Psychomotor exercises along with the realization of the import of his own state produced recovery in a few months. Likewise simple explanation and psychomotor exercises served for the removal of pseudo-hallucinations and hysterical phobia in an eight year old boy. The discussion of the mechanism of the cases points to a mechanism by induction by unwise parental management rather than through the direct transference mechanism postulated by the followers of Freud from their analysis of adults.

Book Reviews.

Studies in Endocrinology. By Dr. Naamé. Paris: A. Maloine. 1913.

Endocrinology is the science of the internal secretions. These studies represent the author's opinions and experience in the antimicrobic opotherapy of various diseases which he considers due to functional or organic disturbances of the several glands by which the internal secretions are produced. Thus he explains the symptoms of Asiatic cholera and of tuberculosis, as caused by acute toxic hypoadrenalism secondary to vibrionic or bacillary invasion; seasickness as a reflex functional hypoadrenalism; hysteria as reflex functional hypoparathyroidism; epilepsy as dystrophic hypoparathyroidism; hyperemesis and the morbid cravings of gravidae as hypoövarian hypothyroidism; neurasthenia as due to general hypofunction of all the glands of internal secretion. Pertussis he treats by the administration of ichthyol, which he believes specific; but for the former group of diseases he considers opotherapy superior to chemotherapy or serotherapy. His work, which is entirely theoretic and empiric, is unsupported by experimental evidence. It is, however, ingeniously original, and repays consideration, even if it does not deserve acceptance.

Chloride of Lime in Sanitation. By Albert H. Hooker. New York: John Wiley and Sons. London: Chapman and Hall. 1913.

This volume aims to present a collection of all the data relating to the uses of chloride of lime as a disinfectant. The first third of the text consists of a series of seven expository essays on chloride of lime, its uses in water purification, in sewage disinfection, in street sprinkling and flushing, in epidemics, surgery and general sanitation, in farm and country life, and in the war against the common house-fly. The remainder of the volume consists of a series of 442 references and brief abstracts of periodical articles from recent literature on the above subjects. The whole book constitutes a useful compendium of information for sanitarians and those in charge of work connected with the public health.

Handbook of Diseases of the Rectum. By Louis J. Hirschman, M.D. With 172 illustrations, mostly original, including four colored plates. Second edition, revised and rewritten. St. Louis: C. V. Mosby Company. 1913.

The first edition of this book was reviewed in the issue of the Journal for June 23, 1910 (Vol. clxii, p. 871). In this second edition the text has been completely revised and rewritten; operative technic has been further simplified; new diagnostic methods, the use of quinine and urea local anesthesia, and the value of radiology in proctology are described; and forty new illustrations, including two colored plates, have been added. Despite these augmentations, the number of pages is conveniently reduced from 374 tc 339. The book is particularly to be recommended to general practitioners, and with the improvements of this edition should continue to afford them a service of increasing usefulness and information.

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TYPHOID FEVER IN MASSACHUSETTS.

THE month of May marks the recurrence of the typhoid season, and with it of the problem of controlling and eradicating this essentially preventable disease. There is, therefore, particular pertinence in the recent publication by the Massachusetts State Board of Health, in its monthly bulletin for February, 1913, of a preliminary report on "Typhoid Fever in Massachusetts" by a special committee, appointed to consider this subject, and consisting of Dr. Harry Linenthal, Dr. Charles E. Simpson, Dr. William W. Walcott, and Dr. Lyman A. Jones.

This report first points out, and illustrates by statistics, that the annual death-rate from typhoid fever is much lower in the large cities of Northern Europe than in the United States as a whole, in Massachusetts, or in the large cities of this country. During the four years from 1908 to 1911, inclusive, there were in Massachusetts only 5 cities and 24 towns whose typhoid death rates per 100,000 were as low as, or approximated, those of the three largest European cities in 1910. During the three years from 1908 to 1910, inclusive, the total death-rate per 100,000 from typhoid fever in Massachusetts was 13.6, nearly three and one-half times higher than the low average rate in the large European cities.

After discussing these statistics, the report proceeds as follows:—

"It is conservatively estimated that there are 8 cases of typhoid fever for each death from this disease, though the proportion may be greater or less in individual outbreaks. Assuming this proportion as correct, there are in Massachusetts each year over 70 cases of typhoid fever per 100,000 of population, equivalent to nearly 2500 cases annually over and above the present rate in the European cities previously mentioned. These cases are surely possible of prevention.

"In view of the fact that typhoid is a preventable disease, and that its occurrence in the State as a whole is so pronounced, causing many unnecessary deaths, it is astonishing to find how many difficulties at present exist, when it comes to the matter of prevention.

"Perhaps the greatest obstacle of all is the indifference, not only of the general public, but even of health authorities and physicians. Typhoid fever has been present so commonly year after year that it has come to be considered as a regular, almost a natural, feature of the life of the community. Through vaccination smallpox has been so far prevented that few people, including physicians, have ever seen a case. If a case is discovered, the disease occasions consternation, and the community submits to rigid regulations to prevent its spread. But the same community manifests comparatively little fear or uneasiness because of typhoid fever in its midst, even though, in individual years, the typhoid cases number a hundred for every case of smallpox.

"While many local boards of health are carrying on active campaigns with excellent results, other local authorities, more numerous, are handicapped, partly because they do not appreciate the importance of public health work, and partly because they do not know how to proceed, even though they may have every desire to do so. To a considerable extent this is the outgrowth of the system under which they are appointed.

"In cities, under their charters, the members of the board of health are usually appointed by the mayor. In consequence it happens not infrequently that the membership of the board changes entirely when there is a change in the local administration, the new mayor appointing to the health board his personal friends or supporters. The new appointees may be entirely unfamiliar with health work; indeed, they may not even be interested in it. Such course of action does not tend to secure an even and progressive administration of health laws.

"In towns the law provides that one member of the board of health shall be elected annually to serve for a period of three years; in towns with a population of 5000 or over it provides that one member shall be a physician. Were this latter practice universal much better health work would result."

The report then mentions specific instances in which conflicts have arisen between health officials and local political authorities, leading to interference with the functions of the former, and lack of a consistent sanitary policy.

"Another obstacle to the carrying on properly of health work is the lack of sufficient funds. This lack grows out of the popular and official ignorance as to the value of health work already mentioned.

"The idea has prevailed that the board of health existed merely to supply the means for the paying of political or other debts; that its work (which is too often the case) amounted to nothing; that there was little or nothing of importance for it to do, and that, in consequence, there was no real need for funds. Appropriations and salaries are always small; indeed, in many localities there is no appropriation whatever for health work. Bills incurred for health purposes are paid from the contingent or general funds after the selectmen or other officials have passed upon the necessity for the expenditure. Under the circumstances the wonder is not that so little has been accomplished, but that so much good work has been done.

"To secure better results there must be greater permanency in health departments. Interested and competent officials are needed, and when secured their tenure of office should continue during their efficiency. They should be paid adequately. The public should be taught that ample funds are necessary for the carrying on of health work; and that, although much less spectacular, there is much more virtue in preventing illness than in merely overseeing an epidemic after it has occurred.

"Within the last few years interest in country life and out-of-door recreation, especially during the warm season, has led to the establishment of numerous pleasure parks, summer colonies, and other places where out-of-door living may be enjoyed. Within the State many such places have sprung up rapidly, and often dwellings are thickly crowded. The majority of these localities are without water supply other than the well, or means of sewage disposal other than the common privy.

"In the absence of all sanitary regulation or supervision, the dangers from typhoid fever are great, there being many opportunities for the spread of the disease when once the infection is introduced. This criticism applies, also, to the many construction camps maintained in connection with steam and electric railway and power development during the past few years. There is urgent need for State-wide sanitary regulation of such summer colonies and construction camps."

The report next discusses difficulties having to do with the agencies through which the infection is spread,—the water supply, the milk supply, other food supplies, flies, contact and carriers;—and other difficulties, such as lack of care as to milk bottles, of investigation, isolation, and prompt reporting of cases, of instruction as to disinfection, and of effort to follow up carriers.

With regard to specific measures for overcoming these difficulties and continuing the steady reduction of typhoid which has been accomplished in Massachusetts during the past thirty years, the report speaks first of antityphoid inoculation:—

"Although every effort should be made to eradicate all sources of typhoid infection, this happy result is not immediately attainable, and the committee desires to call attention to the remarkable results following the use of antityphoid inoculation. During the past eleven months, since such inoculation has been carried out in the United States Navy, there has not been a single case of typhoid fever among the 64,000 troops so protected. When 12,000 inoculated soldiers were mobilized along the Mexican border last year, not one case occurred, though camp conditions were very similar to those at the time of the Cuban war, when typhoid fever was exceedingly prevalent.

"Similar success has followed the use of antityphoid inoculation in other armies, while in civil life evidence is accumulating to show the value of its use in protecting those exposed to infection.

"For these reasons the committee urges the use of antityphoid inoculation. Its use by hospitals for the protection of nurses and all other employees is especially urged; and likewise the material may well be used to inoculate the remaining members of a household when the presence of the disease is first recognized or suspected.

"What has been said concerning the difficulties encountered in the prevention of typhoid fever makes plainly evident the many factors entering into the problem. It shows unmistakably that the problem is far-reaching; that it is not confined to any one city or town; that no local board of health alone can solve the problem, though its own health conditions be perfect, because conditions beyond its borders may undo all that it has accomplished.

"In short, the work can only be done by some central organization like the State Board of Health, through its inspectors of health, cooperating with the local health authorities, and bringing up to a proper standard the health work in those communities as yet not sufficiently active or organized.

"In regard to legislation, the committee is strongly of the opinion that it should cover the whole State. Otherwise health administration will vary much in different localities, and the careless community will still be a source of real danger to its neighbors."

The report then outlines the plan of the committee for systematic reporting of typhoid cases throughout the State, in order that foci of infection may be promptly investigated and measures instituted to prevent further spread of the dis-

ease and to discover and eradicate sources of its dissemination.

Finally, the committee completes its recommendations as follows:—

"Much of the work against typhoid must be educational. It is necessary to convince the people, local boards of health and physicians, even, that typhoid fever is a preventable disease; that to prevent it their active coöperation is needed; that suspicious cases should be reported early, and should not wait upon positive Widal tests because it is this uncertain period, before a positive diagnosis can be established, that is the most dangerous of all from a general standpoint; for these cases not properly controlled may afford the starting point of an extensive outbreak.

"The committee is of the opinion that the physician who does not report a case of continued fever as a probable typhoid as soon as he has eliminated other common causes, and who does not in such a case take appropriate precautions, must shoulder very serious responsibility to the community for any subsequent results in the community.

"The use of Widal tests and blood cultures as an aid in making or confirming a diagnosis should be encouraged.

"All stools and urine from typhoid patients and carriers should be thoroughly disinfected, whether the patient is in the hospital or in the home, and whether the discharges enter the sewer or whether they are otherwise cared for.

"Local boards of health might very properly provide disinfecting outfits which should be loaned to householders for use when typhoid is present, since few householders have the necessary equipment, and if the providing of such equipment is left to the householder, the disinfection is often indifferently carried out.

"All convalescents from typhoid, whether in the hospital or in the home, should be detained until two negative examinations of the stools and urine have been obtained at an interval of one week.

"Carriers, whether transitory or chronic, should be restrained, by force if need be, from handling all food products. This should apply especially to those employed in dairies, in kitchens or dining-rooms.

"Circulars of instruction should be furnished to convalescents and carriers containing information as to precautions necessary to prevent the further spread of the infection.

"It is the purpose of the committee to render available the information collected by means of maps, card indices, etc.; that there shall be frequent meetings to discuss and tabulate the information obtained; that aggressive work be inaugurated in those places where typhoid fever has been prevalent, without waiting for the usual outbreak; and in case there is any suggestion of an outbreak in a given locality, that some one or more members of the committee will visit that place at once to confer with the local authorities as to what measures may be taken to avert the threatened outbreak."

This report, which is supplemented by instructive accounts of two recent local epidemics of typhoid fever, deserves the earnest and serious consideration of all physicians, with whom rests the ultimate responsibility for, and possibility of, the eradication of this preventable infectious disease. The work of the committee represents the type of effort required in preventive medicine of the future, and serves to define the problem, to point out the method of its solution, and to afford the means of its accomplishment. Particularly to be emphasized to practitioners is the desirability of the general employment of antityphoid inoculation. Local applications of this protective measure, by enterprising physicians in enlightened communities, should further demonstrate its efficacy, as has already been done in hospitals, armies, and navies. This, in combination with the universal practice of the other rigorous sanitary and preventive measures already well understood, but not yet fully practised, should soon reduce the amount of typhoid infection in Massachusetts to the minimum attained in large foreign cities, and ultimately accomplish its complete eradication.

THE EXPECTATION OF LIFE AMONG THE FEEBLE-MINDED.

The natural law of the survival of the fittest is exemplified in the results of an investigation into the relative mortality of mental defectives to the normal made by L. Pierce Clark and W. L. Stowell, published in the *New York Medical Journal* for Feb. 22, 1913. As the investigation of both classes was conducted during the same time, at the same place and under the same circumstances, the management and service being identical in both cases, the results are necessarily of unusual value. This is all the more the case as the numbers are sufficiently large to warrant one in eliminating the factor of coincidence which is so often the real explanation of seemingly striking statistical proofs. These observations were made upon 4000 feeble-minded with 8000 normals as controls. For a period of nine years the death-rate among the idiots was 19.6. Among the higher grades of mental defectives, those which the observers call simply the "feeble-minded," and which presumably in-

clude the "moron" type alone, the death-rate was only 6.5. But even this high grade class exceeded the normal in their death-rate by almost 50%, for the latter show the low rate of 3.38%. Thus the mortality rate increases with the descent in mentality. The deaths are due to a great multiplicity of causes, but pneumonia and tuberculosis seem to head the list. Sudden deaths and deaths after a very short illness often occur. The Mongolian idiots especially seem to have a habit of dying without warning. But this high mortality rate seems to occur chiefly in childhood. It lessens until the "teens" are reached, and after the age of twenty the feeble-minded in institutions have a better chance of life than the normal individual. This is probably due to the protection which the special care of institutions affords against the risk of accidents, infections and fatigue, which the individual coming in contact with the outside world constantly encounters. While nature aids us in the elimination of the unfit during childhood, those who survive remain with us as a constant source of worry and trouble. Our duty to society and to the race demands that we segregate these survivals so that danger of propagating their kind is reduced to a minimum. At the same time the dictates of humanity demand that this be done in a way that will cause the least unhappiness to the unfortunate victims.

INFANT MORTALITY IN THE STATE OF NEW YORK.

The death-rate among infants reflects in a very striking manner the good effect of preventive measures undertaken by public and private agencies, as well as the disastrous results from neglect of such measures. During the past decade a very gratifying advance in the reduction of infant mortality has been made in New York, as shown by the records of the State Health Department. No longer ago than 1904 the proportion of deaths under one year to 1000 births of living children was 151.0, while in 1912 it was 108.9. By 1907 this proportion had been reduced to 142.9, and by 1909 to 128.6. In 1910 it remained practically the same, but in 1911 it fell to 113.5, and in 1912, as mentioned, to 108.9. It is a significant fact that while the rate last year was 108.9 in the State as a whole, in the city of New York, notwithstanding its vast tenement-house population and overcrowded conditions, it was three points lower than this, 105, testifying to the value of the special efforts on the part of the Health Department and various benevolent organizations, working in co-operation for the protection of infant life. It should be noted, however, that in that city a considerably larger per capita appropriation is made for the work of the health authorities than in most of the other cities and towns of the State, while, as truthfully asserted by its officials, the State Health Department receives an appropriation far too small to make its efforts what they should be to assist local health officers in their work. The moral, of course, is that the Legislature and the governing boards of municipalities and towns should wake up to their responsibilities in this matter, and while too much cannot be expected at once, it would seem probable that the influence of the good work which has been accomplished in New York City will be felt at Albany and gradually have its effect throughout the State. One result, for instance, is the recommendation in the recent report of Governor Sulzer's Public Health Commission, that each city with 10,000 inhabitants, and having an industrial population should have one such infant welfare station, and that larger cities with an industrial population should have one such station for approximately each 2,000 inhabitants. Many of the cities besides New York have already accomplished much in this direction, as is shown by the general decline in infant mortality in the State which has been referred to. During the present year there is reason to hope that, with the more general and co-operative efforts of the various agencies now enlisted in the work of prevention, this mortality will be still further reduced. The country baby naturally has the advantage over the city baby, and the latter, therefore, stands in urgent need of all that can be done for improving its chances of life and health. In 1912, while the rural general death-rate in New York State was .6 per cent. greater than the urban, the rural infant death-rate was 1 per cent. less than the urban.

MEDICAL NOTES.

Historical Medical Museum.—The Historical Medical Museum, organized by Mr. Henry S. Wellcome, which is to be opened in London towards the end of June next, will include some objects of exceptional historical medical interest.

An important exhibit in the science section will be a large collection of the original apparatus used by the famous Galvani in making his first experiments in Galvanism in the 18th century. A remarkable collection of votive offerings for health will be exhibited. The custom of presenting these offerings in cases of sickness is a very ancient one, and the collection that will be shown is probably the finest ever brought together. It will include Graeco-Roman votive offerings of special anatomical and pathological interest, in silver, bronze, marble and terra cotta, together with a number of similar objects used for the same purpose in medieval and modern times. Ancient microscopes and optical instruments gathered from all quarters of Europe will form another important feature, and a selection of surgical instruments used by famous surgeons when operating on historical personages is promised. The collection of amulets and charms connected with English folk medicine will be very complete, and will constitute an exhibit of more than ordinary interest. A fine collection of early medical medals and coins from the Graeco-Roman period, ancient manuscripts and early printed medical books will also be shown, together with many other objects of interest to medical and scientific men.

London Death-Rates in March.—Statistics recently published show that the total death-rate of London for the month of March, 1913, was 18.5 per 1000 inhabitants living. Among the several districts and boroughs, the highest rate was 22.7 in Shoreditch, a crowded eastern slum, and the lowest was 12.4 in Lewisham, a populous southern suburb.

A British Centenarian.—Mrs. Margaret King, who died recently at Southport, England, is said to have been born on June 21, 1811, in Bristol. She was a niece of the poet, Robert Lovell.

Birth of a Greek Princess.—Report from Athens, Greece, announces the birth of another daughter on May 4 to the new king and queen of the Hellenes.

In the Interest of Good Roads.—The following is a press despatch from Luray, Va., on May 5:—

"Physicians of Scott County, Virginia, have hit on a novel way of aiding in the coming election to commit the country to the authorization of a heavy bond issue for the building of good roads. They have announced that if the election goes adversely and the people of the county do not recognize the need for better highways they will be compelled to double their prices for professional services. The doctors contend that the inadequate and unsafe roads render travel dangerous to themselves and their horses and that their carriages are quickly ruined by the rough usage."

Congress of American Physicians and Surgeons.—The ninth triennial Congress of American Physicians and Surgeons, and of its associated special societies, was held last week in Washington, D. C., under the presidency of Dr. William C. Gorgas. Full reports of the proceedings will be published in subsequent issues of the Journal.

For a Public Health Department.—Report from Washington, D. C., states that on May 6, President Wilson granted an interview, on the subject of the Owen bill for the establishment of a cabinet department of public health, to a representative joint delegation from the American Medical Association and the committee of one hundred on conservation of health of the American Academy of Sciences. The delegation consisted of Prof. Irving Fisher, Dr. A. Jacobi, Dr. G. H. Simmons, Dr. Harvey W. Wiley, Dr. Favill and Dr. John B. Murphy.

Transmission of Poliomyelitis.—In the weekly report of the United States Public Health Service for May 2, Drs. Anderson and Frost report several unsuccessful experimental attempts to infect monkeys with poliomyelitis through the bite of *Stomoxys calcitrans*, but do not consider that this result is of more than negative importance.

Coalition of Two Medical Schools.—It is announced that a coalition has been effected between the medical department of Willamette University, Salem, Ore., and the medical department of the University of Oregon, Portland, Ore. This amalgamation is to become operative at the close of the current academic year.

Henry Phipps Institute in Philadelphia.—On Saturday of last week, May 10, was formally opened the new building of the Phipps Institute of the University of Pennsylvania, which is devoted to the comparative study of tuberculosis.

"The building was designed by Grosvenor Atterbury of New York City. The plan is somewhat in the form of the letter "H," two main wings projecting towards the south, and enclosing an areaway planted with shrubbery. The building from this side has a rather unusual appearance, because each story above the second is set back from the front sufficiently to afford adequate porch and deck room, so that light and air is not cut off by the porches from the story above. This side of the building, when the window-boxes are in place and vines growing over the numerous trellises, will have the appearance of hanging gardens. The patients will spend all of their time in these open-air pavilions, both winter and summer. The east wing is devoted to research rooms and laboratories."

The principal address at the opening exercises was by Dr. Hermann M. Biggs, of New York City. Addresses were made also by Dr. William H. Welch, of Johns Hopkins University; by Dr. Theobald Smith, of Harvard University; by Dr. Alfred Stenzel, of the University of Pennsylvania, and by Dr. S. Weir Mitchell, of Philadelphia.

BOSTON AND NEW ENGLAND.

President of City Hospital Trustees.—At a recent meeting of the board of trustees of the Boston City Hospital, Mr. A. Shuman was elected its president for the twenty-second consecutive year.

Recent Hospital Bequests.—The will of the late Emma L. Waitt, of Newton, Mass., which was filed last week in the Middlesex Registry of Probate, contains bequests of $5000 to the Newton Hospital and $1000 to the North End Dispensary and Hospital.

A Living Local Centenarian.—Ralph Butler, of Dorchester, Mass, who is said to have been born on May 5, 1813, at Farmington, Me., celebrated last week his supposed centennial anniversary. He has led an active and diversified life as a miner, builder and merchant, and attributes his continued good health to his frugality in eating, to his confirmed optimism, to his habit of rising at 5 a. m., and to his lifelong abstinence from tobacco and alcoholic beverages. It may perhaps be suggested that his optimism is rather the result of his good health than its cause.

Cholera Aboard the "Claverly."—The British freight steamer *Claverly,* with a 5000-ton cargo of general Oriental merchandize, was detained at quarantine on her arrival at the port of Boston last week, on account of a supposed death from Asiatic cholera which occurred aboard shortly after the vessel sailed from Calcutta, India, on March 13. On her voyage, the *Claverly* had touched at Colombo, Port Said, and Malta. The crew is composed of Malays and Lascars, and several suspicious cases of illness among them were rigidly investigated. Bacteriologic examinations, however, were entirely negative, and after fumigation, the vessel was allowed to dock.

Instructive District Nursing Association.—The recently published twenty-seventh annual report of the Boston Instructive District Nursing Association records the activities of that organization for the year ended Jan. 31, 1913. During this period 107,969 visits were made on 10,784 patients by 70 nurses. The work of the staff nurses and of the pupils has now been coördinated so that there is no duplication. There is urgent need of more funds to permit the employment of more nurses and the further amplification and systematic development of their work.

Worcester City Hospital.—The recently published forty-second annual report of the trustees of the City Hospital of Worcester, Mass., records the work of that institution for the year ended Nov. 30, 1912. During this period 4854 patients received 83,439 days' treatment in the hospital, 18,935 treatments were given in the out-patient department, and 917 patients were treated in the accident room. There were 457 visits made to the tuberculosis dispensary, where 147 new cases were treated. Seventeen nurses were graduated from the training school.

Plans of the Avon Home.—It is announced that the Avon Home, on Mt. Auburn Street, Cambridge, established in 1847 by a gift from James Huntington, is to be converted from a home "for children found destitute," to a Children's Hospital.

"The cost of changing the home into a hospital, assuming that ten beds are maintained, will be about $8000 annually; on the other hand a successful beginning may be made on as little as $3000 or $4000 for alterations, and at the moderate expense of $4000 or $5000 for maintenance. The plant then is to begin moderately,

but promptly, with the expectation that funds will be forthcoming for future enlargement. About one-half the money needed for alterations is already in hand, and the sum now needed for the first year is approximately $7000.

"In recent years, besides the thirty or forty children taken care of at the home, as many more have been boarded. Last year, however, 142 children were cared for and 937 children were otherwise aided."

BOSTON MORTALITY STATISTICS.—Cases reported to Board of Health for week ending May 6, 1913: Diphtheria, 35; scarlet fever, 35; typhoid fever, 3; smallpox, 0; measles, 201; tuberculosis, 76, of which 3 were non-residents. Death-rate for week ending May 6, 1913, 17.87.

TONSILLITIS EPIDEMIC IN CANTON.—There is at present prevalent in Canton, Mass., a town of about 4000 inhabitants, a considerable and serious epidemic of streptococcic tonsillitis. Within the past fortnight there have been reported 364 cases and 16 deaths of the infection. As in similar severe epidemics that have occurred in Boston and vicinity at this season for the past two years, there is a tendency to peritoneal metastasis of the tonsillar infection, and to its association with pneumonia, bronchitis, and erysipelas; and it is to these complications that the fatalities have been due. It is averred that all the infected patients took milk from the same dealer, and on this basis the Massachusetts State Board of Health has ordered all sales from his establishment suspended for the present, and has advised the pasteurization of all other supplies. Similar sporadic cases have appeared recently, however, in the neighboring town of Sharon, and in other outlying communities, and the theory of milk-borne infection is not as yet proved. At Canton, churches, schools, and other public buildings have been closed indefinitely. Incidentally it may be noted that this epidemic has coincided, as in other instances, with a period of unseasonably cold, and dusty weather, conditions favoring the spread of an air-borne infection.

NEW YORK.

APRIL DEATH-RATES.—The weekly reports of the Health Department show for April a reduction in the death-rate in the city of just one point from that of April last year. The mortality in the month of April represented an annual death-rate of 15.09, as against 16.79 in March and 16.09 in April, 1912. There was a gratifying decline in deaths from pneumonia, and for, perhaps, the first time on record the mortality from lobar pneumonia was smaller than that from bronchopneumonia. Among the diseases in which there was a diminished fatality were the following: The deaths from typhoid fever decreased from 5 in March to 3.25 in April; the weekly average from scarlet fever, from 20.75 to 18.5; from influenza, from 37.5 to 11; from acute bronchitis, from 19 to 14.75; from pneumonia from 196 to 115; from bronchopneumonia, from 147 to 124; from tuberculous meningitis, from 21.75 to 20.75; from cancer, from 87.5 to 85.5; from organic heart diseases, from 216.25 to 203.25; from appendicitis and perityphilis, from 14.5 to 11.75; from hernia and intestinal obstruction, from 12.5 to 11.5; from Bright's disease and acute nephritis, from 133.5 to 119.25; and from puerperal diseases, from 19 to 13.5. Among the few diseases in which there was an augmented mortality were the following: The weekly average of deaths from measles increased from 19.75 to 22; from diphtheria and croup, from 37.5 to 41; from pulmonary tuberculosis, from 200.75 to 201.75; from apoplexy and softening of the brain, from 19.75 to 20.25; and from cirrhosis of the liver, from 21.5 to 24.

TYPHOID IMMUNIZATION.—Typhoid immunization has now been practised by the City Health Department since the first of January. When a case of typhoid is reported immunization is offered, with the assent of the practitioner in charge, to members of the household. Three doses are administered, from 3 to 7 days apart, the first one containing 500 million bacteria in glycerin solution; the others, 1000 million each. Over 1200 injections have been given, to about 400 persons, with no serious reactions. In the most pronounced one recorded all the symptoms subsided within 48 hours, and there was no other ill effect. Among those immunized but one person was attacked with typhoid fever. This was a child already in the stage of incubation, who came down with the fever two days after the initial dose, and the course was exceptionally mild, an abortive form of the disease. It cannot be said that the disease here was possessed of little virulence, for two other children in the same family died from typhoid just before the culture was administered to the remaining members. In a family of eleven there were

two cases of typhoid fever, and immunization was offered to the other nine members. Eight accepted, and did not contract the disease, while the one who declined was attacked with it soon after. In other instances persons exposed to typhoid and refusing immunization became ill with it, while of all persons receiving it, the only one taking the disease has been the child mentioned. The typhoid incidence in the city has been low, and the opportunities for immunization comparatively few, but as the season advances the injections will necessarily be increased, with the increasing incidence of the disease, and it is expected that a reduction in the proportion of direct contact infections shown in previous years will take place. As it has been intimated that exacerbations of tuberculosis follow the employment of typhoid immunization, the department has decided not to inject the culture in the presence of manifest tubercular or other serious lesions until this question has been settled by further observation. As to tuberculosis in general, the von Pirquet tuberculin test, unless especially contra-indicated, is now being performed on every child attending the children's classes at the tuberculosis clinics of the department. This test (while of value when negative, in both adults and children), when positive, in the absence of a localized reaction, is regarded as of little or no service in adults; but in children under five years of age a positive reaction is of considerable diagnostic importance in a case presenting doubtful clinical symptoms.

Kaiser Memorial Fund.—The executive committee of the Kaiser Memorial Fund, which is being raised in commemoration of the 25th anniversary of the accession of William II to the German throne, has sent out circulars asking for subscriptions, the money to go toward the completion and equipment of the "Kaiser Wilhelm Pavilion," a building now in progress of erection as a part of the German Hospital and Dispensary in New York.

New York Orthopedic Dispensary and Hospital.—The recently published forty-fifth annual report of the New York Orthopedic Dispensary and Hospital records the work of that institution for the calendar year 1912. During this period 6417 patients were treated, of whom 462 were in the City Hospital, 118 in the Country Branch, and the remainder out-patients.

Current Literature.

Medical Record.

April 26, 1913.

1. Scripture, E. W. *What is Psychanalysis?*
2. Gutman, J. *Gastralgia Nervosa and Its Differential Diagnosis.*
3. *Ritter, J. *The Albumin Analysis of the Sputum. Its Great Value as a Reliable and Positive Diagnostic Laboratory Method for Differentiating Pulmonary Tuberculosis from Other Pulmonary Diseases.*
4. M'Kinniss, C. R. *Epilepsy.*
5. Fedde, B. A. *The Management of the Puerperium and Its Minor Abnormalities.*
6. Am Ende, C. *Early Diagnosis of Tuberculosis, with Notes on Internal Antisepsis.*

3. Ritter is loud in his praises of albumin analysis of the sputum as a means of differentiating pulmonary tuberculosis from other pulmonary diseases. To 5 c.c. of sputum are added 5 c.c. of distilled water and 1 c.c. of glacial acetic acid. This is shaken occasionally for half an hour and then filtered, and the filtrate tested for albumin by Heller's test or the heat test or the ferrocyanide test. A single positive sputum finding is not pathognomonic, but a single negative albumin reaction rules out tuberculosis. A negative sputum for albumin is also microscopically negative for tubercle bacilli; in open cases both will be found in the sputum, in closed cases albumin but not bacilli. A positive albumin reaction is a sure indication of inflammatory invasion of the pulmonary parenchyma, hence the test is most valuable when the diagnosis lies between phthisis and simple bronchial catarrh, in which the lung substance is not involved. Albumin may be found in the sputum many months before tubercle bacilli can be demonstrated.

[L. D. C.]

New York Medical Journal.

April 26, 1913.

1. Pfahler, G. E. *Inoperable Primary Carcinoma of the Breast.*
2. Buerger, L. *Intravesical Diagnosis and Treatment.*
3. Burrows, W. F. *Operation, When Required, in All Common Rectal Diseases, Without General Anesthesia or Pain.*
4. Beers, N. T. *A Single Case of Vitiligo.*
5. Wiener, A. *Orbital Cellulitis.*
6. Gordon, M. B. *Thyroid Medication in Children.*
7. Knapp, M. I. *Newer Teachings of Diseases of the Gastro-intestinal Canal.*
8. *Williams, F. H. *Electricity in Rectal Diseases.*
9. Niblett, W. S. *Treatment of Tuberculous Bone Abscesses and Sinuses with Tuberculin.*
10. Massey, G. B. *Ointment in Granulating Wounds.*
11. Greene, H. M. *Syphilis.*
12. Douglas, C. J. *Morphine in General Practise.*

8. Williams sets forth the resources of electricity in the treatment of rectal diseases. Electrolysis, he says, is a safe and painless method of treating all cases of varicose internal hemorrhoids. There is no hemorrhage during or after treatment, and ulceration, stricture, fistulae and abscesses have never been observed as sequels. Cures are permanent. Weak and aged patients, who are unable to take a general anesthetic, stand electrolytic treatments admirably.

[L. D. C.]

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

MAY 3, 1913.

1. SUTTON, R. L. *Mycetoma in America.*
2. BUCHANAN, J. J. *Shattering of Femur with Extensive Compound Injury of Soft Parts; Recovery Without Operation with Useful Limb.*
3. RUBNER, M. *Modern Steam Sterilization.*
4. KRAMER, S. P. *A Possible Source of Danger in the Use of Antimeningitic Serum in Young Children.*
5. SLEYSTER, R. *The Criminal Physique. A Preliminary Report on the Physical Examination of One Thousand Five Hundred and Twenty-One Prisoners at the Wisconsin State Prison.*
6. CRAIG, C. F. *The Identity of Entameba Histolytica and Entameba Tetragena.*
7. GRINKER, J. *A New Method of Treating Neuralgia of the Trigeminus by the Injection of Alcohol into the Gasserian Ganglion.*
8. WALKINS, E. D. *Puzzling Gastro-intestinal Symptoms. Report of a Case.*
9. STEWART, J. C. *Benign Melanosis; a Supplementary Report.*
10. LEVIS, H. J. *An Eye Lesion Following Two Intravenous Injections of Salvarsan But Relieved by Its Further Use.*
11. LIKES, S. H., AND SCHOENRICH, H. *Meatotomy: a Simple Method.*
12. *Bacterial Vaccine Therapy: Its Indications and Limitations. Theoretical Considerations. (To be continued.)*

THE ARCHIVES OF INTERNAL MEDICINE.

MARCH, 1913.

1. *CECIL, R. L., AND LAMB, A. R. *Observations on the Complement Fixation Test for Syphilis with Cadaver Serum.*
2. *ROWNTREE, L. G., AND FITZ, R. *Studies of Renal Functions in Renal, Cardiorenal and Cardiac Diseases.*
3. MARINE, D., AND JOHNSEN, A. A. *Experimental Observations on the Effects of the Administration of Iodin in Three Cases of Thyroid Carcinoma (Two Human and One Canine.)*
4. *HOPKINS, A. H. *Concerning the Presence of Hemolysins in Stool Extracts.*
5. *AUSTIN, J. H., AND PEPPER, O. H. P. *Experimental Observations on the Coagulation of Oxalated Plasma, with a Study of Some Cases of Purpura.*
6. WELLER, C. V. *Primary Carcinoma of the Larger Bronchi. An Analysis of Ninety Cases with Regard to Pathology, Symptomatology and Diagnosis, and Report of a New Case.*
7. ERLANGER, J. *The Localization of Impulse Initiation and Conduction in the Heart.*

1. Cecil and Lamb discuss the reliability of the Wassermann reaction as applied to post-mortem sera and report their experience with the Noguchi modification on sera obtained after death. They find that in the testing of cadaver blood the use of the acetone insoluble residue of alcoholic antigen is preferable on theoretical and practical grounds to the pure alcoholic or aqueous extracts, for the reason that less anti-complementary substance is introduced. The serum to be tested should be collected from the cadaver as soon as possible after death, and the test performed at the earliest possible date. Infected and decomposed serum from either the cadaver or the living subject is not suitable for the complement finding test. In their series of 56 cases, the writers found that the Noguchi modification gave very reliable results.

2. Rowntree and Fitz report on recent studies of renal function in heart and kidney diseases. They find that the quantity of urine excreted is of little value in determining the condition of renal function. Specific gravity is less reliable, but the functional condition of the kidney can be determined much more accurately by the use of the functional tests than through ordinary clinical studies alone. The phthalein test is of great diagnostic and prognostic value, for prognosis more valuable than any other single test. In cardiorenal disease it is of value for determining the relative responsibility of the heart or kidney for the clinical condition. The lactose test is of great value in determining the existence of abnormal renal function. The salt test, considered alone, is of no value, and the potassium iodide test is of little value diagnostically or prognostically. Marked accumulation in the blood of incoagulable nitrogen in cases of nephritis is of considerable prognostic value. It is possible in cases of cardiorenal disease with varying degrees of chronic passive congestion and nephritis to determine which factor is of greater importance in producing the clinical picture. This can be done most readily by repeated phthalein tests. It is also possible to determine the presence or absence of impairment of renal function in cases in which clinically nephritis is suggested.

4. Hopkins undertook a large number of experiments to discover if possible whether extracts of stools from cases of progressive pernicious anemia contain hemolyzing substances not found in normal stools nor in stools from other diseases. His results were so inconstant that he considers the test unreliable, both for clinical diagnosis and for throwing light on etiology.

5. Austin and Pepper studied the various methods of determining the coagulation properties of the blood plasma of purpura, and the principles of coagulation in general. They find that a solution of hemolyzed blood cells is the most readily prepared and active thromboplastic solution. A delay in coagulation time of oxalated plasmas occurs on heating or standing. This is due to the formation of antithrombin and to the union of antithrombin with prothrombin. The coagulation time in such plasmas is greatly hastened by the addition of thromboplastic solution. The presence of hemoglobin in a plasma may be a source of error in the determination of fibrinogen. No method of study has yet offered a satisfactory explanation of purpura. [L. D. C.]

THE JOURNAL OF EXPERIMENTAL MEDICINE.

MARCH, 1913.

1. *HASTINGS, T. W., AND BOEHM, E. *A Study of Cultures from Sputum and Blood in Lobar Pneumonia.*
2. *PRATT, J. H., AND MURPHY, F. T. *Pancreatic Transplantations in the Spleen.*
3. EBELING, A. H. *The Permanent Life of Connective Tissue Outside of the Organism.*
4. WHIPPLE, G. H., STONE, H. B., AND BERNHAM, B. M. *Intestinal Obstruction. I. A Study of a Toxic Substance Produced in Closed Duodenal Loops.*
5. WHIPPLE, G. H., STONE, H. B., AND BERNHEIM, B. M. *Intestinal Obstructions. II. A Study of the Toxic Substance Produced by the Mucosa of Closed Duodenal Loops.*
6. *ROWLEY-LAWSON, M. *Extracellular Relation of the Malarial Parasite to the Red Corpuscle, and Its Method of Securing Attachment to the External Surface of the Red Corpuscle.*
7. ROBERTSON, T., BRADFORD, AND BURNETT, T. C. *The Influence of Lecithin and Cholesterin upon the Growth of Tumors.*
8. WOLLSTEIN, M., AND MELTZER, S. J. *Pneumonic Lesions Made by Intrabronchial Insufflation of Non-Virulent Pneumococci.*
9. FRASER, J. *An Experimental Study of Bone and Joint Tuberculosis.*

1. Hastings and Boehm studied 32 cases of pneumonia. Cultures were taken from both the blood and sputum. In nine cases the pneumococcus was isolated from both the blood and the sputum and five of these patients died. In twenty-one cases the blood cultures were negative. In two cases the streptococcus hemolysins was found in the blood.

2. Pratt and Murphy extirpated the pancreas of a dog and implanted some pancreatic tissue in the spleen. This pancreatic tissue lived and functionated four months. The small nodule of pancreatic tissue without demonstrable island of Langerhans prevented the development of diabetes, although carbohydrate tolerance was low.

6. Rowley-Lawson has continued her study of the relation of the malarial parasite to the red blood corpuscle. She believes that the malarial parasite is extra-cellular during its entire cycle. Illustrations are offered to show that the parasite secures its attachment to the outside of the red corpuscle by means of filamentous pseudopodia of two kinds. Rowley-Lawson believes that it is the pseudopodia encircling mounds of corpuscular substance that give the characteristic ring-form appearance. She has found no evidence of conjugation as described by Craig. The article is profusely illustrated. [R. I. L.]

Deutsche Medizinische Wochenschrift.

No. 13. March 27, 1913.

1. Vulpius, O. *The Treatment of Congenital Club Foot.*
2. Hürthle, K. *Promotion of the Blood Stream Through the Arterial Pulse.*
3. Leo, H. *The Action of Saturated Aqueous Camphor Solution .*
4. Biberfeld, J. *The New Drugs of the Past Year.*
5. Möllers, B. *Serologic Investigations in Lepers.*
6. Mühsam, R. *Surgical Experiences in the German Red Cross Hospital in Belgrade.*
7. Schliep, L. *Gunshot Wounds of the Joints.*
8. Lotsch. *The Action of the Pointed Projectile.*
9. Freund, W. A. *Emphysema.*
10. Salkowski, E. *Urinalysis.*
11. Schöne, C. *The Practical Significance of Blood-Pressure Measurement in Diphtheria.*
12. Cohn, M. *The Vermiform Appendix in the Roentgen Picture.*
13. Loose, O., and Steffen, E. *Corpora Amylacea in the Endoscopic Finding of the Posterior Urethra.*
14. Herrins, M. *The Present Status of the Treatment of Arteriosclerosis.*
15. Prinzing. *Critical Observations on the Problem of the Birth Decline in Germany.*
16. Finckh, L. *Medicine and Doctors in Recent Literature.*

No. 14. April 3, 1913.

1. Edinger, L. *The Function of the Cerebellum.*
2. Bàrany, R. *Localization in the Cortex of the Cerebellar Hemispheres.*
3. Uhlenhuth, P., and Emmerich, E. *The Behavior of the Rabbit's Testicle in Experimental Trypanosome and Spirochete Infection.*
4. Rothe, E., and Bierbaum, K. *The Experimental Production of Tuberculous Antibodies in the Cow, with a Contribution to Tuberculous Immunization.*
5. *Fundner. *The Influence of Increase of Intra-Abdominal Pressure, and the State of Fullness of the Stomach, on the Blood Pressure.*
6. Plehn. *A Case of Heart-Block with Adams-Stokes Symptom Complex.*
7. Huber. *Spinal Cord Changes in Spinal Progressive Muscle Atrophy.*
8. Richartz, H. L. *Carbohydrate Cures in Diabetes.*
9. Babitzki. *Anesthetization of the Brachial Plexus by Kulenkampff's Method.*
10. Rieck, A. *The Treatment of Excessively Severe Menstrual Hemorrhages.*
11. *Mehliss. *Trivalin.*
12. Polland, R. *The Treatment of Gonorrheal Processes with Tanargentan Sticks.*
13. Herz, P. *Moist Bandages and Moist Dressings in Acute Diseases.*
14. Schaefer, F. *A Contribution to the Action of Mercury Taken by Mouth.*
15. Schwalbe, E. *Medical High School Instruction.*
16. Krusins, F. F. *Ophthalmologic Studies in German East Africa.*
17. Dessaner, F. *The Technic of Roentgen Kinematography.*
18. Groedel, F. M. *Reply to the Above.*

5. From a series of human experimental studies Fundner concludes that in heart disturbances of digestive nature it is not simply a question of mechanic influences on the circulation, but that vagus and vasomotor reflex processes also play an important part.

11. From clinical tests of trivalin,—a combination of morphine, caffeine, and cocaine valerianate.—Mehliss believes that it is an efficient, detoxicated substitute for morphine in all cases as an anodyne, without influence on the heart, respiration, or sensorium. [R. M. G.]

No. 15. April 10, 1913.

1. Grober. *General Treatment of Infectious Diseases.*
2. Tachaw, H. *The Sugar Content of the Blood.*
3. Heubner, W. *The Chemotherapy of Tuberculosis with Gold.*
4. Leo, H. *The Action of Camphor Water.*
5. Merrem. *Appendicitis and Paratyphoid B.*
6. Vonn Gierke, E. *Autolytic Properties of Guinea-Pig Serum.*
7. Lade, F. *Experiences with the Hermann-Perutz Syphilis Reaction in Six Hundred Cases.*
8. Vulpius, O. *The New Bandage Treatment of Scoliosis According to Abbott.*
9. Biesalski, K. *Spastic Paralysis in Childhood and Its Treatment.*
10. Keinlein, H. *The Etiology and Treatment of Genu Valgum.*
11. Maass, H. *Congenital Forearm Synostosis.*
12. Herzenberg, R. *So-Called Navel Stones.*
13. Bley. *A New Instrument for Opening Hard Bandages, Especially Plaster Bandages.*
14. Mamlock, G. *The History of Medicine a Hundred Years Ago.*
15. Velde. *A Journey to Corfu and Levkas.*
16. Krusins, F. F. *Ophthalmologic Studies in German East Africa.*
17. Bönniger, M. *The Pharmacologic Foundations of Bromotherapy.*

Münchener Medizinische Wochenschrift.

No. 13. April 1, 1913.

1. *Schlimpert, H., and Hendry, J. *Abderhalden's Pregnancy Reaction.*
2. Freund, R., and Brahm, C. *Diagnosis of Pregnancy by the Optic Method and Dialysis.*
3. Loewi, O. *Dependence of Experimental Diabetic Disturbances on the Kation Mixture.*
4. Vulpius, O. *Arthrodesis of the Hip.*
5. Stern, C. *The Method of Using Salvarsan and Neosalvarsan; Infusion or Injection?*
6. Hoffmann, R. *The Anovarthyroid Serum.*
7. Walther, H. *Synthetic Hydrastanin-Bayer, a Substitute for Extr. Hydrastis Canadensis Fluidium.*
8. Dessaner, F. *Studies of the Hard Roentgen Rays with Reference to Penetration.*
9. Emmerich, M. *Rubidium in the Spring of the Adelholzen Bath in Oberbayern.*
10. Decker. *A Practical Artificial Bandage for the Anus.*

11. Freund, R. *History of the Sero-Diagnosis of Pregnancy.*
12. Abderhalden, E. *Remarks on the "History of Sero-Diagnosis of Pregnancy" by Freund.*
13. Lindig, P. *Action of Serum Ferments in Pregnancy and in Cases of Tumor.*

1. The writers report results on 316 cases in which they tried Abderhalden's dialysis reaction for pregnancy. The outcome of their earlier tests was unsatisfactory and this was shown later to be due to errors of technic, which were then remedied. The last 79 tests made with improved technic on 40 pregnant women and on 39 control cases showed not a single failure of the reaction. They consider the reaction to be specific for pregnancy when correctly performed according to Abderhalden's more recent methods. The technic and the sources of error are fully described. [G. C. S.]

Wiener Klinische Wochenschrift.

No. 14. April 3, 1913.

1. Obersteiner, H. *Pathological Conditions in the Central Nervous System.*
2. *Schenk, F. *Serum Diagnosis of Malignant Tumors.*
3. Arzt, L., and Kerl, W. *Biological Action of Radium.*
4. Glüch, A. *Experimental Investigation on Idiosyncrasy.*
5. Hatiegan, J. *The Clinical Significance of the Schulze Oxidate Reaction.*
6. Bauwitz, F. *Means of Removing Small Amounts at a Time of Gases and Fluids Containing Emanations.*

2. Various authors have attempted with more or less success the complement binding reaction in the serum diagnosis of malignant tumors. Dungern seems to have found a method of practical value.

Extract of tumors,—watery, ether and alcoholic,—proved of inconstant and non-standardizable values. This led Dungern to the use of extracts of normal human blood serum, *e.g.* alcoholic and acetone extracts, made by adding to 1 part serum 20 parts acetone and allowing to stand three days, after which the acetone was filtered off and boiled down at 37° moist heat. The concentrated remainder dissolved in one-tenth its volume and mixed with normal salt 1 : 5. Reaction dose 0.6, 0.4, 0.2.

These extracts reacted with most carcinoma sera, but with only a few leuetic tumors was it positive. By the addition of NaOH on heating the serum 93% gave a typical positive reaction. With the smaller doses benign tumors gave a positive reaction, with large doses became negative. It seems that the difference between malignant and benign tumors in this regard is a quantitative one.

It appears, therefore, that the method of Dungern may be further developed into a reaction of practical value, and may lead to a standardizable reaction. [F. S. K.]

Archiv für Klinische Chirurgie.

Vol. 100. Part 4.

25. *Katzenstein, M. *Causation of Gastric Ulcer. I. The Resistance of Living Tissue to Digestion. (To be continued.)*
26. *Henschen, K. *Nephropexy by Means of a Transplanted Sling of Fascia.*
27. Sasse, F. *Choledochoduodenostomy.*
28. Schepelmann, E. *Lung Surgery in Animals.*
29. Jeger, E., and Israel, W. *Substitution of the Transplanted External Jugular for a Portion of the Vena Cava in Animals.*
30. *Hadda, S. *Whitehead's Operation for Hemorrhoids.*
31. Miyouchi, K. *The Frequency of Varices of the Lower Extremity in the Japanese and the Results of Some Operated Cases.*
32. Bernstein, P. *The Theory of Hernia.*
33. Dobbertin. *Direct Permanent Drainage of Chronic Ascites Through the Saphenous Vein into the Blood Stream.*
34. Lucas, H. *Free Plastics on the Fascia Lata.*
35. Goto, S. *A Rare Case of Teratoma of the Upper Jaw.*
36. Uffreduzzi, O. *Pathology of Undescended Testicle. (To be continued.)*
37. *Minor Communications.*
    1. Idzumi, G. *A Case of Primary Carcinoma of the Liver in Infancy.*
    2. Toida, R. *A Case of Large Congenital Hour-Glass Gall-Bladder.*

25. In the first instalment of his work on the formation of gastric ulcer, Katzenstein takes up the underlying principle of auto-digestion. He finds that healthy, well-nourished tissue, as, for example, a section of lower intestine planted in the stomach, will be digested, whereas stomach and duodenum will not. Digestion of these implanted tissues is hindered by a diet which lessens the secretion of gastric juice, and by injections of atropine.

26. Henschen describes a new method for fixation of the kidney. A piece of fascia lata 20 by 15 cm. is stripped from the thigh and sutured about the middle and lowest thirds of the kidney so as to form an extra capsule. Other sutures are placed through this and fastened to neighboring muscles and fasciae to anchor the organ. Henschen seems to have done only one case by this method, but in this case there was no sloughing of the fascial sling.

30. Hadda's article is an exposition of the technic and advantages of Whitehead's operation for hemorrhoids. He takes up the objections to the operation, as stated by Gant, and answers them in a way very favorable to the operation. From experience with 223 cases, he concludes that the percentage of cures is greater and the percentage of recurrences less than after the various other operations in common use. [G. G. S.]

Deutsche Zeitschrift für Chirurgie.

Band 121. Heft 1-4. February, 1913.

1. Ewald, P. *The Causes of Knock-Knee and Flat-Foot.*
2. Cade, A., and Leriche, R. *Clinical, Pathogenetic, and Therapeutic Studies on the Gastric Crises in Tabes Dorsalis.*
3. Greene, O. *The Modern Bardenheuer Extension Treatment in Comparison with the Steinmann Nail Extension.*
4. Pólya, E. *Jejuno-colic and Gastro-colic Fistula after Gastro-enterostomy.*
5. Lanenstein, C. *I. Gunshot Injury of the Cerebrum by a 7-mm. Bullet, without Important Consequences. II. Crush of the Trunk, with Intraperitoneal Rupture of the Bladder.*
6. Lerda, G. *Contribution to Complete Plastic of the Cheek.*
7. Keppler, W. *The Bloody Reduction of Fractures in Poor Position.*
8. Molineus. *Clavicular Plastic from the Spine of the Scapula.*
9. Ernst, F., and Erkes, F. *Reply to the Observations of Dr. Rousseau.*
10. Greene, O. *A Contribution on Subcalcanean Dislocation of the Foot.*
11. Greene, O. *A Case of Isolated Fracture of the Tarsal Scaphoid.*
12. Eguchi, T. *The Knowledge of Traumatic Epilepsy after Head Injuries in the Russo-Japanese War.*
13. Gergö, E. *Subcutaneous Emphysema after Laparotomies.*
14. *Neu, H. *Effect of Roentgen Rays in Surgical Tuberculosis.*

15. Delfino, E. A. *A Peripancreatic Cyst Arising Between the Layers of the Transverse Mesocolon.*
16. zur Verth, M., and Scheele, K. *Plastic Induration of the Penis.*
17. Pfister, E. *Contribution to the Histology of Egyptian Vesical Calculi.*
18. Koga, G. *The Treatment of Spontaneous Gangrene of the Extremities.*
19. Boehm, C. *Cases of Stab-Wounds of the Heart.*
20. Schottländer, E. *An Interesting Case of Sarcoma of the Upper Jaw.*

14. Neu, in a thesis which received a prize from the medical faculty at Bonn, presents a critical review of the Roentgen therapy of surgical tuberculosis on the basis of previous experience as recorded in the literature, from which he cites 44 references. [R. M. G.]

Revue de Chirurgie.

March, 1913.

1. *Gorse, M., and Dupuich, M. *Cancer of the Tongue in Young Subjects.*
2. Cotte, G., and Alamartine, H. *Inflammatory Tuberculosis: Its Surgical Manifestations.*
3. *Regnault, J., and Bourrut-Lacouture. *Professional Aneurysm of the Superficial Palmar Arch.*
4. Chauvin, E., and Oeconomos, S. N. *Researches on the Nutrition of Anesthetized and Operated Patients.*
5. Chalier, A., and Bonnet, P. *Primary Melanotic Tumors of the Rectum.* (*Continued.*)

1. The authors report a case of cancer of the tongue in a man of 22, and collect from the literature 30 similar cases in persons not over 30 years of age. Of these only 8 were men. Syphilis is considered a much more important predisposing cause than tobacco.

3. The authors report a case of aneurysm of the superficial palmar arch, and collect from the literature 26 similar cases, in which the condition was supposedly due to trauma of occupation. [R. M. G.]

April, 1913.

1. *Soubeyran, P., and Rives, A. *Recent Fractures of the Os Calcis.*
2. *Mocquot, P. *Hemorrhages from Polyps of the Rectum.*
3. *Delore, X., and Arnaud, L. *Burns of the Stomach Following the Ingestion of Acids.*
4. *Alamartine, H. *The Actual Technic of Operations for Goitres.*
5. Solieri, S. *Epigastric Pain in Appendicitis.*
6. Chalier, A., and Bonnet, P. *Primary Melanotic Tumors of the Rectum.*

1. The authors present an admirably complete study and classification of fractures of the os calcis.

2. Mocquot reports a case of hemorrhage from a rectal polyp in a girl of twelve, and concludes that such hemorrhages from pendunculated adenomata come from the tumor itself, not from the adjacent mucous membrane; and that the hemorrhage is due to intermittent torsion of the pedicle.

3. The authors report three cases of burns of the stomach from the ingestion of mineral acids, and discuss treatment.

4. Alamartine presents a valuable and exhaustive study of the technic of thyroid operations. [R. M. G.]

Il Policlinico.

January, 1913.

medical section.

1. Fugoni, C. *Studies on the Carotid Glands of Luschka.*
2. *Jona, G. *The Hemolytic Icterus of Tuberculosis.*
3. Marcora, F. *A Rare Tumor of the Gall Bladder.*
4. Barberio, M. *A Rare Case of Cystadenoma of the Extrahepatic Biliary Tract.*

2. Jona describes five cases of jaundice associated with tuberculous conditions, and discusses the literature of "the hemolytic icterus of tuberculosis." These cases do not show choluria and the feces are highly colored. This acholuric hemolytic icterus is a rare syndrome. It may be temporary, chronic or terminal, most often the latter. [L. D. C.]

surgical section.

1. Gazzotti, L. G. *Experimental Contribution to the Study of Infibulation.* (*Conclusion.*)
2. Ghillini, C. *The Pathogenesis of Talipes Valgus.*
3. *Pignati, A. *Further Researches on the Process of Cure of Wounds of the Arteries, and on the Experimental Reproduction of Traumatic Aneurysms.*

3. Pignati concludes that longitudinal arterial wounds, treated with suture, heal with the formation of a cicatrix, which, in the greater number of cases, is capable of maintaining intact the function of the vessel. These scars consist chiefly of connective tissue, with very little regeneration of vascular elements. The experimental reproduction of traumatic aneurysms is found to be possible. [R. M. G.]

February, 1913.

medical section.

1. Fugoni, C. *Studies on the Carotid Glands of Luschka.*
2. Foscarini, R. *A Case of Secondary Pneumococcus Peritonitis with Subsequent Abscess of the Spleen.*
3. Mazzitelli, P. *Concerning a Case of Leishman's Infantile Anemia from Monte San Biagio in the Province of Caserta.*
4. *Maiolo, B. *A Comparative Study of the Clinical Methods for the Quantitative Estimation of Albumin in the Urine and in Pathologic Fluids.*

4. Mariolo made quantitative estimation of albumin in urine and in pleural and peritoneal effusions for the purpose of comparing the methods of Esbach, Tsonchija and Aufrecht. All three methods were employed in each case, and the fluids tested varied in temperature, acidity and dilution. He finds that none of the methods under examination is exact and that the discrepancies are considerable. The methods of Esbach and Tsonchija are strongly affected by temperature and somewhat by density. The amount of precipitate is inversely proportional to the amount of heat. Of the three methods, that of Aufrecht is the least inexact, especially in urine work. Of the other two, that of Tsonchija is slightly more accurate for pathologic fluids. [L. D. C.]

surgical section.

1. Alessandri, R., and Chiavaro, A. *Resection of Three-Quarters of the Mandible by the Oral Route, and a New Method of Definitive Mandibular Prosthesis.*
2. Putzu, F. *Contribution to the Study of Hernia of the Bladder.*
3. Fasano, M. *Primary Muscular Sarcoma, and Myomectomy.*
4. *Leotta, N. *Obliteration of the Mesenteric Vessels.* (*Continued.*)

4. Leotta reports a further series of nine operations on dogs in his experimental researches and clinical considerations on the above question. [R. M. G.]

Miscellany.

UNITED STATES CIVIL-SERVICE EXAMINATION.

PHYSICIAN (MALE).

June 4, 1913.

The United States Civil Service Commission invites attention to the fact that among the vacancies to be filled as a result of the open competitive examination for physician, for men only, to be held on June 4, 1913, it is expected to fill one in this position at $150 a month, for service in the Insane Asylum at Ancon, Canal Zone, for which an unmarried man is desired.

The Isthmian Canal Commission states that the appointee to the position mentioned above must be experienced in the treatment of the insane, and that one without this experience cannot be used.

Issued May 5, 1913.

CHANGES IN THE MEDICAL CORPS, U. S. NAVY, FOR THE WEEK ENDING MAY 3, 1913.

CLIFFORD, A. B., passed assistant surgeon. Ordered to Naval Medical School, Washington, D. C.

WARNER, R. A., passed assistant surgeon: Detached from YANKTON and ordered home, wait orders.

GRADY, RICHARD, dental surgeon. Commissioned a dental surgeon in the Navy, for duty at Naval Academy, Annapolis, Md., from March 4, 1913.

SOCIETY NOTICES.

THE NEW ENGLAND HOSPITAL MEDICAL SOCIETY.—The regular meeting of the New England Hospital Medical Society will be held in the Kensington Building, May 15, at 7.30 p. m. Paper, "The Use of Human Serum in Pregnancy," Dr. Olga Leary.

MARGARET L. NOYES, M.D., *Secretary.*

APPOINTMENT.

DR. CHARLES FAIRBANK PAINTER, professor of orthopedic surgery in the Tufts Medical School, has been appointed dean of the Tufts medical and dental faculties.

BOOKS AND PAMPHLETS RECEIVED.

Transactions of the American Pediatric Society, Twenty-fourth Session. Vol. xxiv.

A National Department of Health and the National League for Medical Freedom: or Organized Medicine vs. Organized Quackery, by William J. Robinson, M.D., Reprint.

RECENT DEATHS.

DR. GEORGE EDMUND STACKPOLE, of Malden, Mass., who died on April 22 in Brookline, Mass., was born at Parsonsfield, Me., in 1842. He received the degree of M.D. in 1870 from the Harvard Medical School, and subsequently practised his profession in Malden until his retirement in 1907. He was a Fellow of The Massachusetts Medical Society.

DR. JAMES VAN BRAKLE, who had practised for many years in Brooklyn, died at his home at Forest Hills, Long Island, on April 14, at the age of 85 years. He was graduated from the New York University Medical School in 1865.

DR. PARLEY H. JOHNSON, of Adams, Jefferson County, N. Y., died on April 16, at the age of 73 years. He was graduated from the College of Physicians and Surgeons, New York, in 1865.

DR. J. LESTER CARNEY, of Brooklyn, N. Y., died on April 22, at the age of 63 years. He was graduated from the Long Island College Hospital in 1888.

DR. DAVID COGGIN, who died on May 7 at Salem, Mass., was born in 1843. He received the degree of M.D. in 1868 from Harvard, and that of A.M. (Hon.) from Dartmouth in 1878. He practised his profession in Salem for over forty years, and during that time was in charge of the ophthalmologic and otologic department of the Salem Hospital. He was a retired Fellow of The Massachusetts Medical Society. He is survived by his widow, by two daughters and by one son.

DR. LOUIS ADOLPHUS DUHRING, who died last week at Philadelphia, was born in that city on Dec. 23, 1845. He received the degree of M.D., in 1867 from the University of Pennsylvania, and after serving as resident physician at the Philadelphia Hospital, studied dermatology for two years abroad. Returning to this country in 1870, he opened a dispensary for the treatment of skin diseases in Philadelphia, of which he was physician until 1880, and since that time consulting physician. He was clinical lecturer on diseases of the skin from 1871 to 1876, and since 1876 professor of dermatology at the University of Pennsylvania. He was the author of several well known works on dermatology, and a member of many medical societies. He was not married.

DR. ALICE GRAHAM, of Kansas City, Mo., who died on May 3, was born in 1860. She was founder of the Mercy Hospital for crippled children, Kansas City.

DR. GEORGE HANCOCK INGALLS, who died last week in East Kingston, N. H., was born at Canterbury, N. H., in 1860. He received the degree of M.D. in 1885 from the University of Vermont. After settling for a time at Belmont, N. H., he removed in 1893 to Jamaica Plain, Mass., where he continued active in the practise of his profession until his retirement in Nov., 1912. He served on the staff of the Faulkner Hospital, and was a member of the American Medical Association, the Massachusetts Medical Society, the Boston Clinical Club, and the West Roxbury Medical Club. He is survived by his widow.

DR. FRANCIS PARKER KINNICUT, who died in New York City on May 2, was born at Worcester, Mass., on July 13, 1846. He received the degree of A.B. from Harvard in 1868, and in 1871 that of M.D. from the College of Physicians and Surgeons, New York. He was physician to the Presbyterian Hospital, and consulting physician to St. Luke's Hospital, the Woman's Hospital, Babies' Hospital, and the Hospital for Ruptured and Crippled Children, New York. Since 1893 he had been professor of clinical medicine in the College of Physicians and Surgeons, and in 1906 to 1907 was president of the Association of American Physicians.

DR. GEORGE HERMAN POWERS, of San Francisco, Cal., who died recently at Detroit, Mich., was born in Boston on June 13, 1840. He received the degree of A. B. in 1861 from Harvard University, and that of M.D. in 1865. During the Civil War he served as assistant surgeon of the 117th Massachusetts Regiment. In 1866 he settled at San Francisco, where he soon became professor of ophthalmology and otology in the University of California, a position which he retained until the time of his death. He is survived by his widow, by two daughters, and by two sons, the latter both physicians.

DR. PATRICK J. TIMMINS, who died on May 14 at South Boston, was born in County Fermanagh, Ireland, on Feb. 28, 1851. After receiving his early education at St. McCartan's Seminary, Monaghan, he migrated to the United States in 1871, and for several years taught at Holy Cross, Worcester, Mass., and at St. Francis Xavier College in New York. In 1878 he received the degree of M. D. from Georgetown University, and subsequently served as resident physician at the Children's Hospital, Washington, D.C. In 1880 he settled at Troy, N. Y., and later removed to Malden, Mass., and to South Boston. He was president of the South Boston Medical Society. He is survived by one son, also a physician.

Original Articles.

TREATMENT OF LARYNGEAL STENOSIS FOLLOWING DIPHTHERIA.*

BY D. L. RICHARDSON, M.D., PROVIDENCE, R. I.

The treatment of stenosis of the larynx, due to any cause whatever, is a very perplexing problem. The larynx is a very constricted portion of the respiratory tract, and this constriction may be further reduced or quite closed by the movements of the vocal cords. Thus it does not require a very marked inflammatory or hypertrophic process at this situation to seriously interfere or quite obstruct the movement of air through it. The treatment of a pathological process in this situation is difficult enough owing to the inaccessibility of the organ, but since even temporary total obstruction must at the same time be avoided, treatment indeed becomes a difficult task.

The purpose of this paper is to deal only with stenosis due to a previous attack of an acute inflammatory process, usually diphtheria.

I shall first review briefly the pathology of the acute process and follow with the factors which lead up to the chronic stenosis which sometimes follows.

The local pathology caused by the Klebs-Loeffler bacillus is briefly as follows: The organisms multiply in the secretions which bathe the throat. The toxic products set up an inflammatory condition, consisting of redness and edema of the tissues. This is more or less rapidly followed by the formation of a pseudo-membrane. This membrane consists of fibrin, degenerated epithelium and leucocytes, and penetrates more or less deeply into the underlying tissues. Its color depends upon the amount of blood pigment incorporated in it. If this pseudo-membrane is forcibly removed more or less capillary bleeding ensues, but only superficial epithelial layers are removed. With the formation of membrane, the underlying tissues become more congested and edematous, until the fauces, larynx or nares are nearly or quite obstructed. When the membrane separates during recovery, ulceration and abscess formation are very rare. The tissues are edematous and red, but the mucous membrane is intact.

This process, as observed in the throat, where it can best be observed, subsides quite rapidly. The membrane cleaves off and the swelling, which is chiefly due to edema, disappears quite rapidly. The underlying mucosa returns to normal, rarely suffering any ulceration. If ulceration does take place, it is superficial and due to the forcible removal of the pseudo-membrane and such areas as are secondarily covered by an exudate due to other organisms.

Reasoning by analogy, it would appear that the mucosa of the larynx should likewise regain a normal condition rapidly unless it were further injured by operative means to overcome the temporary obstruction of the acute process. The means of relief are either intubation or tracheotomy. That these operative procedures are not a great menace to the larynx is shown by the fact that only from one to three per cent. of laryngeal diphtheria cases are left with serious subsequent stenosis. I doubt whether there is another inflammatory process of like intensity, save diphtheria, which would not be followed by a much higher percentage, and this is true because of the characteristics of the process. This view is taken from the observation of a few cases of laryngeal obstruction complicating measles and which were not due to diphtheria but to some other infection. I realize that this is an impression only, for I have never seen any facts upon it, I presume because so few survive this combination.

In all cases in which intubation is not required, the breathing gradually improves, voice returns, and I am not aware of subsequent stenosis in such cases. The same outcome is true of cases after extubation except one to three per cent. of all cases. There must be some reason for the subsequent stenosis in these cases and I will take up the factors leading up to it in the order of importance, as I see them:—

1. Prolonged intubation, laryngotomy or high tracheotomy. The introduction, presence, or removal of a laryngeal tube from the larynx probably does little damage unless it must remain for some time. It must do some harm and particularly in those cases in which much membrane has been removed during intubation by irritating the denuded areas. It probably causes or keeps up some hyperemia, swelling, secondary membrane, and by pressure has some effect upon the vocal cords and their controlling muscles. It is a foreign body and if it remains very long in the larynx certain changes will follow: thickening of the mucosa, ulcerations, granulation tissue and scar tissue, pressure paresis or paralysis of the vocal cords. Rarely a single one of these factors explains the obstructive result.

2. The severity of the attack and whether there is a secondary infection.

3. Injury to the larynx during intubation or extubation. I think it is the consensus of opinion that these procedures, carefully executed, do little or no damage. It is possible, however, when done by an amateur, who is likely to use much force in his excitement over a child who is in a serious condition. Stenosis of the larynx occurred before the days of intubation.

The pathological processes produced by these factors may be classified in order of importance as follows:—

1. Hypertrophic laryngitis. By this I mean a general thickening of the mucosa of the larynx including the cords. This is really the first step of the permanent changes in the larynx. When a tube is removed from such a larynx, the mucous membrane is still further thickened by an

* Read at a meeting of the New England Otological and Laryngological Society, January 21, 1913.

acute congestion which alone may suffice to obstruct breathing and demand reintubation.

2. Pressure or traction paresis or paralysis of the adductors or abductors of the cords. It is reasonable to suppose that the sudden obstruction after removal of the tube may be due to adductor spasm of over-stretched muscles, as well as to the fright of the patient. More prolonged traction or pressure or disuse will produce paresis or paralyses of the cords. In such a case, after the tube is removed, if the child is quiet or under an anesthetic breathing may be quiet for a time, but if coughing dislodges the cords which may have been plastered against the walls of the larynx, prolapse and difficult breathing ensue. More damage is done when the tube is too large for the larynx and after a time atrophy may ensue.

3. Granulations and ulcerations. These are prone to develop in the subglottic region. During intubation this space is more or less obliterated by the lateral displacement of the cords and it seems reasonable to suppose that the retaining swell on the tube may bring pressure upon the walls of the larynx which is on cross section elliptical at this point, the lateral diameter being the smallest. Ulcerations are frequent on the anterior wall of the trachea opposite the end of the tube, but this probably does not enter much into the laryngeal obstruction itself.

4. Cicatrices or bands. These are a later development in the regions of ulcerations and may go hand in hand with this process.

5. Persistence of membrane. This may be diphtheritic or probably more frequently secondary. It might be classified with the ulcerations.

In any given case it is not easy to distinguish the real cause of obstruction except by direct examination of the larynx. It is rarely a single process but rather a combination of two or more.

Treatment. So far as I know the only treatment of this condition in this country has been prolonged intubation with various types of tubes of increasing sizes, or occasionally by laying open the larynx externally and treating in an operative way the pathological condition found. This latter procedure is not much recommended because of the immediate danger to life and secondly because the second state is worse than the first. More recently direct examination of the larynx through the mouth has been made possible, and operative obstructions can be treated at the same time. Doctor Mosher has devised a very excellent open speculum and instruments for direct intubation. In 1909, Johnston of Baltimore urged direct examination.

Before presenting my cases, I wish to speak of the results and methods of others who have followed the usual methods. Rogers, of New York, has had a large experience with these cases. His methods of treatment have been taken from a paper by him and Dr. Delevan in 1905. They advocate continuous intubation with a hard rubber tube for a long period of time. The tube should be removed occasionally to be cleaned. For those cases who repeatedly cough the tube, he used either a plugged or a clamped tube. These are ordinary laryngeal tubes, constructed so that, in the first instance, a hard rubber plug screws perpendicularly into the lower end through a tracheotomy wound. In the latter instance, through a similar wound two clamps are passed in separately; grasp the lower end at the level of grooves on both sides of the tube in the larynx, and the projecting shanks are clamped together. In either instance, the tube is held in place by the piece projecting through the tracheotomy wound. Towards the latter part of the treatment laryngeal tubes are passed intermittently. Some are also specially constructed with larger diameters to bring pressure on hypertrophic membrane below the vocal cords. They report twenty-two cases, with one death from nephritis and pneumonia, two deaths from asphyxia, three failures to cure, two relapses after many months, four under treatment much improved, and ten recoveries with no symptom for at least one year from discharge.

In 1903, Berg of New York reported 17 cases developing among 578 intubation cases at the Willard Parker Hospital from 1900 to 1903. Of these seventeen cases, seven died, seven recovered, and three were transferred to other institutions. The treatment was by prolonged intubation and the length of time the tubes were worn was from two and a half to eighteen months.

In the *Journal of the American Medical Association* of Sept. 21, 1912, is an excellent paper by Dr. Dupuy of New Orleans. He presents five cases of stenosis in small children and one adult with syphilitic stenosis. The treatment consisted of prolonged intubation with metal tubes with a low retaining swell. Four cases were successful, one of these being the adult syphilitic case.

The number of cases which I have to present is not large and perhaps not complete enough to draw definite conclusions, but I personally feel that the results are very encouraging and that our methods are at least rational.

Between March, 1910, and November 1, 1912, we have had to treat nine stenosis cases. Two of these we inherited from the Rhode Island Hospital, when the Providence City Hospital was opened. The remaining seven developed among one hundred and fifty-two cases treated, or about four and six-tenths per cent. The number of intubed cases who lived has been eighty-nine and the incidence of stenosis seven and eight-tenths per cent. among the living intubed. Of the nine cases, two are dead, one from broncho-pneumonia at the end of two months' hospital residence and not long after tracheotomy was performed. The other died under ether during dilatation. Of the seven living cases, three are at home living and well, and

four are under treatment in the hospital. One of these four was discharged cured in July, 1912, but returned to us recently with another attack of laryngeal diphtheria for which she had to be intubed and later tracheotomized. Of this case I shall speak later.

The pathological condition, so far as I was able to observe in these cases, has been a hypertrophied laryngitis involving the cords, which were thickened and red. The cords in most instances did not move normally, but I was not able to detect paralyses. I am not an expert in examination of the larynx, and in some instances the view of the cords was only partial, at most the posterior two-thirds.

Our method of treatment has differed from the one usually prescribed. It seemed to me that the tube in a larynx, being a foreign body and capable of doing much damage, as shown by the post-mortem studies of these cases, was better out than in. Knowing, too, of the difficulty in getting rid of tracheal "cannulae," it would be rational to do a very low tracheotomy so as to keep the tracheotomy tube as far as possible away from the larynx, especially the subglottic region. The object of these two procedures was to give the larynx rest by removing the tube and diverting the air through another channel. That is what is done in almost any other surgical procedure. Another fact impressed me also. If the presence of the tube does injure the larynx, the sooner it is out the better, after being satisfied by a few reintubations that there was trouble ahead. I don't believe that intubation should be prolonged more than a month unless you are satisfied that one or two more extubations will find the child able to get along without the tube. In that time no very extensive damage had been done. Indeed none of our cases were old cicatrical cases because they did not reach that stage before they were tracheotomized.

The treatment then may be divided into:

1. Prophylactic.
2. Curative.

Prophylactic. The intubation tubes should be preferably of hard rubber with smooth surfaces and having well fitting obturators. Intubation and extubation should be done carefully without undue force. Force is not required if the operation is done properly. The tube should be the proper one for the child's age. Should he cough it repeatedly, it is better to do a tracheotomy than to force in larger and larger tubes. The tube should be removed at intervals of four days to a week to test the breathing. Soft solid food should be given to keep up nutrition. The last step in the prophylaxis is not to allow the tube to be worn much longer than a month.

Curative. The tracheotomy should be done as low as possible in the midline and the opening in the trachea should only be large enough to admit the tracheal cannulae easily. The tracheal cannula should be of the proper size and of sterling silver. The child should at once be given nourishing food, tonics if necessary, strychnia theoretically in paralysis cases, though I doubt whether it is of much use. In about a week, or as soon as the wound is fairly healed, the child should be gotten out of bed. It is surprising what a great change takes place in their general condition. All of our cases have gotten hale and hearty and this, I believe bears on the successful healing of the larynx. As to the subsequent treatment of the larynx, I can lay down no rule except don't do too much.

In our earlier cases we dilatated at intervals with intubation tubes of increasing sizes or with Schroetter's graduated hard rubber dilators. Of the latter we had some special small sizes made for certain cases. Later, however, Dr. Bacon, of Providence, who was our consulting man and to whom we owe much in getting us started in this work, suggested Dr. Mosher's open speculum and direct intubation instruments. Through his instruction and by points kindly given me by Dr. Mosher, the method has superseded the original method. The advantage is that you can see what you are doing. Dilatation is accomplished by two methods:—

1. By an Otis or a Kollman straight urethral dilator.
2. By successively larger intubation tubes introduced directly and which are not left in the larynx but are taken out after a few minutes.

The former method furnishes more rapid dilatation, and one can pass a stenosis that cannot be passed by a one-year tube. The Kollman dilator has the advantage of being a four-branch dilator. The intervals may be two weeks or a month. After the larynx has reached about normal size, that is, will admit a tube suitable for the child's age, he should be left alone unless subsequent contraction supervenes.

One of the first indications of favorable progress is the regaining of the voice, husky and low pitched at first. At intervals during rounds in the wards, the tracheotomy tube is plugged to see whether the patient can breathe through the larynx. When it is found that he can, a small wooden plug is put into the tracheotomy tube for twenty minutes or half an hour or two hours —as long as the patient can breathe without too much effort. The time is increased until the patient can go night and day without effort. The tube is then removed and the sinus closes very rapidly, within a few days. The child is then kept under observation for two weeks or more and then sent home.

A brief resumé of the nine cases treated is as follows:—

Case 1. Vincenzo A., aet. 17 months. Admitted Oct. 11, 1911, intubed with two-year tube. Extubed or auto-extubation fifteen times up to Nov. 21, a period of forty-one days. Oct. 25 peritracheal abscess was opened. Tracheotomy on Nov. 21 and a No. 3 tube inserted. Death occurred on Dec. 16 from broncho-pneumonia and nephritis. Tube cultures were positive.

Case 2. Helen T., aet. 2 years. Admitted on April 24, 1912, and intubed with three-year tube. Auto-extubed eleven times until May 2, a period of eight days, and a 5-6 year tube was the last one inserted. This tube should not have been used. Patient tracheotomized May 2 and a No. 3 tracheotomy tube inserted. Died while under dilatation (direct) while under ether, on July 12 before much progress had been made.

Case 3. Antonio L., aet. three years. Referred to Rhode Island Hospital, Dec. 7, 1909. There was cyanosis and marked retraction. Intubated at once with a three-year tube. This was removed in three days, but had to be replaced at once. For a period of twelve days the tube was coughed up so frequently that successively larger tubes were inserted until a twelve-year tube had been inserted and this stayed. He was admitted to Providence City Hospital, March 1, 1910. The tube had been coughed up or removed fifteen times between Dec. 10, 1909, and April 18, 1910.

A tracheotomy was done by Dr. Bacon April 30, and the laryngeal tube removed. Child was out of bed in four days and on house diet in one week. The larynx was left strictly alone except twice, once in June and again in December, to determine whether there was contraction. By June 11 he was able to speak aloud. The voice grew progressively louder and less husky. The tracheotomy tube was plugged at intervals until Jan. 25, 1911, and was removed Feb. 11. There was some slight obstruction at times after running or crying, but it was never serious. He was discharged June 3, 1911, with a strong voice, in good condition, but with a small tracheal fistula. The family physician called up twice after the child went home and said that he had been asked to see him because of dyspnea. We advised that he be left alone until he needed relief. The parents became worried and brought the child to the hospital July 8. He was kept until Aug. 19, and during the stay we saw no retraction whatever. At this time the tracheal sinus was closed by application of fused silver nitrate on a probe. He had been in the hospital about twenty months. It is seventeen months since he was discharged from the hospital. On Oct. 29, 1912, the parents brought the child to the hospital that we might see him. His general condition was good. His voice was husky and low pitched and breathing was audible at a short distance and after considerable exertion he has a little dyspnea. Patient is subject to colds but otherwise runs the streets like other boys. During the last seventeen months he has been admitted to the hospital with a well-marked case of measles. He had some retraction for two days but this passed away at the end of that time.

Case 4. Charles P., six months old. Referred to Rhode Island Hospital Oct. 1, 1909. Was intubed, extubed and discharged early in November, was readmitted late in November with laryngeal obstruction. Intubation impossible with a one-year tube. A tracheotomy was done. The child was sent home, and admitted to Providence City Hospital April 11, 1910. From that time to Sept. 19 the larynx was dilated at intervals of four days to one week with Schroetter's dilators up to No. 23. The tracheotomy tube was plugged at intervals until Nov. 30, when it was removed. During this period dilators were also passed until a three-year laryngeal tube could be inserted. Tracheotomy wound apparently closed in four days. Dyspnea gradually disappeared and voice became strong and he was discharged Feb. 21, 1911, after being in the Rhode Island and City Hospitals for about fifteen months. It is now nearly twenty-one months since he was discharged from the hospital.

Case 5. Matthew, C., three years old. Referred to City Hospital Feb. 7, 1911. Intubed at once. Extubed in four days. The dyspnea, instead of lessening, gradually became worse until March 28, when an attempt to pass a one-year tube was unsuccessful. Low tracheotomy was done under ether April 4. On June 7, after several failures to pass any instrument through the larynx, under direct laryngeal examination with ether an Otis urethrotome was passed and the larynx was dilated up to 35 F., after which a one-year tube was inserted with Mosher's introducer. The larynx was dilated eight times at intervals until September 9, 1911, both by direct and indirect intubation, until a three-year tube was passed. After being satisfied by plugging the tracheotomy tube that the child could breathe through the larynx, it was removed Sept. 26. The wound apparently closed in four days. Discharged Oct. 6, 1911, with a good voice and no dyspnea, after being in the hospital about eight months. It is now thirteen months since this patient was discharged from the hospital. On Oct. 29, 1912, he reported with his parents for examination. General condition excellent. Is not hoarse, no dyspnea even on exertion. Subject to "colds" attended by some cough and hoarseness which passes off in a day or two. Plays as a normal child.

Case 6. Angelina I., two years old. Was admitted Jan. 24, 1911. Intubed with a three-year tube. Was extubed or auto-extubed nine times between admission and March 9, 1911, a period of about 44 days. As large as an 8-9 year tube was used. Tracheotomy performed on March 10 and a No. 2 tube inserted. General condition became excellent. Dilatation was begun in April and was kept up at intervals for about ten months chiefly with Schroetter's dilators. We did not dare to use the direct method because she would stop breathing during manipulation. The tracheotomy tube was plugged at intervals from April, 1912, until June 15, 1912, when the tracheotomy tube was removed. Patient was discharged July 17, 1912, in good condition with a healed fistula. Treatment had been interfered with somewhat by intercurrent attacks of whooping cough and chickenpox. On Oct. 27, 1912, patient was again admitted with another attack of laryngeal diphtheria. Parents said that she had been as well as usual until eight days before admission when she was taken sick acutely with headache, hoarseness, and fever. Was up and about part of time until day before admission when she developed dyspnea. She was intubed on admission with a one-year tube which went in with some difficulty. She was relieved and temperature came to normal in a few days. Between Oct. 27 and Nov. 7 was extubed or auto-extubed six times. No larger than a 4-5 year tube was introduced. Tracheotomy was done Nov. 7 because of frequent auto-extubation and she is making good progress thus far. While there was some contraction in this case after discharge, her larynx was quite large enough to sustain life were it not for the renewed attack. Throat

and nose was postitive for Klebs-Loeffler bacilli in both instances.

Case 7. Stephen D., three years old. Admitted May 10, 1912. Intubed with a three-year tube. Extubed or auto-extubed five times between May 10 and June 15. Tracheotomy June 15. General condition poor. In six weeks general condition was excellent. Has been dilatated at intervals between Aug. 3 and Sept. 19 with Otis and Kollman dilators. The larynx was about normal in size at the last examination and we shall leave him alone unless contraction takes place. Tracheotomy tube has been plugged during daytime since Oct. 16. Voice began to return last July and is very nearly normal in pitch. We expect a result in this case within three months.

The condition of this child has not changed materially. His tube is plugged from ten to twelve hours a day, at present. His voice is very good.

Case 8. Max G., aet. two years. Was admitted Oct. 25, 1911. Intubed with a two-year tube. Extubed or auto-extubed seven times between Oct. 25 and Nov. 20. Tracheotomy was decided upon Nov. 20 but a peritracheal abscess was found and this was drained. When healed tracheotomy was done Dec. 9, 1911. This child for some time had to be fed by the nose because of regurgitation of liquids through the tracheotomy wound. There was evidently a tracheo-esophageal fistula due to unknown cause. Dilatation has been practiced at intervals between March 22 and Sept. 19, 1912. Tube has been plugged at intervals since February but it has been delayed by an attack of measles and chickenpox. In June we were nearly ready to remove the tracheotomy tube but we had to give it up because for some rather sudden reason he could not breathe with tube plugged. His tube has been plugged daily since Oct. 16 and his voice, though husky, is improving steadily. His cultures were positive for Klebs-Loeffler bacilli.*

This child has shown considerable improvement since November and within two weeks his tracheotomy tube has been plugged forty-two hours, forty-three hours, and forty-eight hours at a stretch, on three separate occasions.

Case 9. Guiseppe B., aet. three years. Was admitted Nov. 1, 1911, for measles with laryngeal obstruction. Cultures were even from his tube negative for Klebs-Loeffler. Was intubed with a three-year tube. In five days on proceeding to extube, no tube was to be found in the larynx. His bed and clothing was searched and a hasty digital examination of throat and naso-pharynx was made. Child began to breathe badly. The tube could be apparently felt in the neck and we too hastily concluded it was in the larynx. Tracheotomy failed to reveal the tube in trachea or bronchi. The tube was later found in the child's clothing but we have every reason to believe that the tube was in the esophagus and was spit up after the tracheotomy had been done. Dilatation has proceeded rather slowly because there is some tracheal constriction. It was begun in January, 1912, and is still practiced. At the last sitting, Nov. 16, a 4-5 year tube was passed by the direct method after the urethral dilator was used, but a one-year tube could not be passed before. Patient has no voice and cannot breathe with the tracheal cannula plugged.

Since the writing of this paper in November, this child has shown considerable improvement. December 18 the tube was plugged 10r ten minutes and gradually increased until it is plugged from eight a. m. until five or eight p. m. The voice began to appear about Nov. 29 and is very good.

Of the four cases which were sent home cured, the average hospital stay was about fifteen months.

* May 3, 1913: The tracheotomy tube in Case 8 of the above series, was removed twenty-five days ago. The child is now breathing through the larynx, and at this writing, doing fairly well.

CONCLUSIONS.

1. Intubation should not be prolonged much beyond a month.
2. A low tracheotomy should be performed.
3. Intermittent dilatation under direct vision until the larynx reaches about normal size and then only when stenosis develops.
4. Tracheotomy affords rest to the larynx and gets rid of a foreign body.
5. The danger of coughing the laryngeal tube is eliminated.
6. The treatment would seem to require a shorter period of time than that required for continued intubation with the hope of better results.

THE TREATMENT OF CHRONIC STENOSIS OF THE LARYNX AND TRACHEA.*

BY H. L. LYNAH, M.D., NEW YORK.

The different types of chronic stenosis of the larynx and trachea should be classified as follows:—

First, the Nervous Type. In this type of chronic stenosis there is a marked nervous element which accompanies laryngeal stenosis, and this element of impending fear induces a very violent adductor spasm. The spasm at times may be so great that the removal of an intubation tube is next to impossible, for the tube is held as in a vise. Often when one attempts to extract the tube it will be pulled off the jaw of the extractor and sucked back, as it were, into the larynx. When the tube, after great effort, is finally removed, there will be a violent spasm which necessitates immediate reintubation.

Second, Spasm Type Without Nervous Element. This is due to the long continued wearing of an intubation tube, the tube virtually acting as a splint to the intra-laryngeal muscles, holding them in a state of fixation or functional disuse. The abductors being held apart for so long an interval naturally disturbs the balance of power between the two opposing sets of muscles and promotes adductor spasm. The same condition is met with in retained tracheal cannula cases when there is inability of function of the muscles above the cannula from failure of air to pass through the larynx.

Third, the Polypoid Type. In this there is marked outgrowth of polypoid connective tissue

* Read at a meeting of the New England Otological and Laryngological Society, January 21, 1913.

at the base of the epiglottis and ventricular bands, which fall together and obstructs the larynx as soon as the pressure of the tube is removed, and immediate reintubation is necessary. This condition is supraglottic and to the finger feels like a ball of mush. Clinically this condition simulates the spasm type. In these three types the dyspnea is inspiratory.

Fourth, the Hypertrophic Subglottic Type. The stenosis is slow and gradual, accompanied by both inspiratory and expiratory dyspnea. The condition usually occurs at the cricoid level, but may involve the entire lumen of the larynx and trachea.

Fifth, Cicatrix Type. This type is due to traumatic pathological and surgical interference.

(*a*) Tracheotomies made imperative when intubation is impossible—as in acute diphtheritic stenosis.

(*b*) Sloughing of the anterior edges about the cannula, with dermatization and trabeculae of skin extending down on the lateral walls, or folding in of the tracheal rings with partial dermatization of the fistula.

(*c*) Over-riding of the anterior segments of the cartilage when the fistula is long and not in the median line.

(*d*) Polypoid outgrowths about the cannula and on the posterior tracheal wall.

(*e*) Bulging of the posterior soft parts forward, especially when there has been extensive perichondritis at the cricoid level.

(*f*) Septal formation following laryngofissure when the polypoid tissue becomes attached to the anterior cicatrix.

Sixth, the Atrophic Type. This condition occurs after long continued pressure by the dilating tubes. Thick sticking muco-crusts obstruct the larynx, there is loss of voice and at times extreme grade of dyspnea.

Seventh and Lastly. Obstruction of the upper respiratory tract by neoplasms, and the resultant contraction after their removal.

The Pathology. As my clinical and pathological studies have been confined principally to the stenoses following diphtheria, I will endeavor to give you a general résumé of the pathology from this standpoint, but at the same time I think I may add with comparative safety that all of the pathological lesions met with in the various forms of chronic stenosis, whether the primary cause be diphtheria, syphilis, or what not, follow this same course of new connective tissue, cartilaginous, and bony development. In other words, the generic process and end results are much the same. The changes inaugurated and carried on by the diphtheritic process may, therefore, serve as a pattern and a type for the chronic stenotic lesions of the larynx in general.

In laryngeal diphtheria the basis for the whole of the pathology of this condition is laid down in the beginning with the acute diphtheritic exudate and primary intubation. When the exudate resolves early the patient is able to remain without the tube on the first extubation, but when the exudate does not resolve early and extubation is performed the subglottic infiltration necessitates the wearing of a tube for a longer period. The tube virtually acting as a foreign body, causes pressure on the swollen laryngeal soft parts, and as it rides up and down or antero-posterior during the acts of coughing and swallowing, the unhealed ulcerations are increased, which also add to the necessity of prolonged intubation. These pressure ulcerations are most marked at the cricoid cartilage, and when of sufficient degree cause necrosis with absorption of the whole of the cricoid ring, with the frightful sequelae of persistent auto-extubation. With the absorption of the cricoid cartilage the tube can no longer be held in place by the retention swell, and is, therefore, auto-extubated, and as the tube is coughed out the larynx collapses, or the walls are sucked together by the first inspiration of the patient.

The once firm cartilaginous larynx at the cricoid level is now converted into a collapsible tube.

This auto-extubation is not due to pressure on the recurrent laryngeal nerves, causing a bilateral paralysis of the vocal cords, but to the absence of the cricoid, and consequently the tube cannot be held in place.

The recurrent laryngeal nerves show no sign of pressure, and a bilateral abductor and adductor paralysis of neural pressure origin, however attractive in theory, is not substantiated by fact, both clinical and histological.

This necrosis is the starting point of the subacute and chronic case. Round cell infiltration, followed by productive inflammation, which leads to the formation of new connective tissue, although reconstructive, obliterates the lumen. This new connective tissue is richly supplied with blood vessels. Now the changes next involve the cartilage, and the regeneration of the thin areas left undergo ossification, and where we once had a cartilaginous cricoid we now have new bone formation.

In the thyroid cartilage the same type of new connective tissue occurs. Polypoid projections which involve the base of the epiglottis are connective tissue, very vascular, and hang as elongated tufts arranged like a bunch of grapes with the blood vessels as the stem. The mucosa and submucosa may be extremely sclerotic and the cartilage may undergo metaplasia and ossification with projections into the lumen. The intralaryngeal muscles also show changes, though not to such a degree as one would suppose. However, there is some myocitis.

The arytenoid cartilages may be distorted and out of place; they may also be metaplastic and bony.

In the trachea villous polypoid projections extend into the lumen and polypoid outgrowths occur on the posterior wall. Though ulcerations

occur in the trachea there is little or no destruction of the cartilaginous rings.

The whole surface of the larynx is covered with epithelium of the transitional and stratified squamous varieties. In the trachea the epithelium is cuboidal, but is also absent in places. This may be due to rubbing off of the epithelium by the manipulation of the specimen. Those of you who are familiar with the handling of laryngeal specimens know how easy it is to brush off the epithelium. I could find no columna ciliated epithelium.

The Treatment. The different types seldom occur singly and all require prolonged intubation to effect a cure. For the nervous and spasm types an extremely narrow necked tube should be used, but it must have sufficient lumen for the patient to get air. The purpose of this tube is to allow for play of the abductor muscles. As the lumen of my narrow necked tubes was too small to admit of free passage of air, I devised another method by taking out the posterior portion of the tube below the head directly into the lumen. These tubes are made with three different sized fenestra, and they allow play of the muscles and at the same time sufficient air. The smallest abductor tube, as I call it, is inserted first, then the other sizes four to six weeks later and allowed to remain in until all signs of adductor spasm or holding about the neck of the tube has disappeared, after which time the patient is able to remain without the tube.

These nervous and spasm elements seem to act one upon the other; opiates and anti-spasmodics are of no avail, and these types are only overcome by general anesthesia. The spasm of the nervous element is more violent and comes on at once, while the other type is delayed and may not occur for several hours.

When polypoid outgrowths are present and mistaken for spasm the fenestra of the abductor tube will be completely occluded, and make it impossible for the patient to breathe. Under general anesthesia the direct laryngeal speculum is the greatest aid in determining this factor. For such cases an extremely large head and neck tube is necessary to press out these mushy-like masses. Under general anesthesia these patients will breathe, though with difficulty.

For the hypertrophic type: Gradual dilatation with special tubes measured in millimeters with increasing diameter should be used. The tube should dilate antero-posterior as well as laterally, and my tube of cigar shape accomplishes this purpose. It must not be forgotten that the hypertrophic type involves the entire lumen. These tubes are gradually increased in size until the largest possible dilatation is accomplished, but by the excessive dilatation more pressure will be put upon the intra-laryngeal muscles and spasm will result. There are cases, however, which never have any spasm, even when treated by the greatest dilatation; these have no nervous element and are anxious to remain without the tube.

The best control of telling how a case is progressing when treated by dilatation is by the absence of hemorrhage at intubation and extubation. The extremely vascular tissue will bleed at the slightest touch, but this will discontinue as soon as pressure mashes out the vascular supply. These tubes are changed once each week for the purpose of cleansing and a size one millimeter larger reintroduced.

The treatment of the cicatrix type is the same as in the hypertrophic, by dilatation, though when the tracheal fistula is low a special tube, with the greatest diameter from the retention swell downward, should be used. When the case is one of chronic stenosis from long wearing of a tracheal cannula with closure of the larynx above, they should be dilated from the tracheal fistula upward by means of sounds and then a suitable dilating tube introduced. Intubation is often extremely difficult in these cases, owing to a hypertrophy of the posterior tracheal wall with a projection into the lumen, and the tube as it enters the trachea will ride over this obstruction and appear in the wound. To overcome this, firm pressure should be made on the intubation tube at the site of the fistula to mash out this posterior hypertrophy and allow the tube to pass the fistula into the trachea below.

This tube should be preferably a post tube, which has a device which can be screwed into the tube to prevent its being dislodged during the act of coughing. The tracheal fistula should be curetted and all polypoid tissue removed, the edges sacrificed and the wound closed about the post. This tube should be worn for about one month, then the post removed, the tube changed and a larger dilating tube introduced. If this tube is coughed out it is not at all a difficult matter to screw the post back in place through the small fistula.

I have also employed a tube with its bridge attachment after exploring the larynx by laryngotissue, to endeavor to dissect out the new connective tissue; which I may add is an extremely difficult procedure owing to the friability and vascularity of the membrane, and this radical procedure I have abandoned as futile, for a pure cicatrix is added to the already complex pathology. I had fairly good results, however, and two out of five cases healed by primary union, but owing to infection taking place in these wounds, they usually heal by granulation.

The atrophic types with the thick sticky muco-crusts, which obstruct the larynx after a cure has been effected, should be treated by intra-laryngeal medication, internal administration of the iodides, and steam inhalations. I have had cases which were reintubated owing to this crusting and mucous obstruction which they were unable to cough out, and in each instance I have been able to reintubate with a large dilating tube, only to have this thick muco-crusty mass coughed out through the lumen.

The whole of the credit of intubation belongs entirely to the late Dr. Joseph O'Dwyer. Dr.

O'Dwyer recognized these chronic cases but he did not dwell upon the pathology of the disease to any great extent nor did he recommend treatment by special tubes. He did, recommend, however, that the duration of tubage should be prolonged. Dr. John Rogers, in his masterly monograph on this subject in 1905 was first to introduce special tubes to dilate the stricture. Working independently of Rogers during my early days as resident physician of the Willard Parker Hospital, in 1904, I met with a case of low tracheal stricture, for which I had a dilating tracheal tube made with its greatest diameter from the retention swell downward. I had the tube fashioned after urethral sound, and cured this case after seventy-eight days' treatment. I did not know how I had cured the case nor was I at all familiar with the pathology. I was simply working in the dark and no doubt that was the main reason why the patient recovered. I have been working steadily since that time and as I gained experience and became more conversant with the pathology I changed the tubes with an endeavor to overcome the pathological condition in each individual case.

For the persistent cough-up case, which invariably becomes a chronic if he does not die of broncho-pneumonia, and upon which high tracheotomy is usually performed, I devised a tube with the same diameter as the neck extending to the end of the tube, at which site there is a bulbous extremity which rests in the lower trachea. This put a stop to the coughing up but before the introduction of these tubes the patient was able to cough out tubes of greatest diameter. These tubes are held by the cartilaginous rings of the trachea where no ulceration is present. The only danger of these tubes is that they should not be left in longer than four days before they are changed, for the contraction about them at the cricoid level will be so great that extubation will be extremely difficult. In one case I forgot to change the tube for one week, and had extreme difficulty in raising the bulbous swell through the dense contraction in the larynx.

My post tubes are a modification of Rogers' clamp tube, but I think it is much simpler and easier to adjust and can be used at any age. His can only be used in older children and adults.

I have treated 50 cases of chronic post-diphtheritic stenosis during the past eight years. Thirty-two cases recovered, 8 died, 2 from failure to reintubate and 6 from intercurrent diseases during their treatment, and 10 are still under treatment in the hospital. The percentage of chronic stenosis has remained at or below one per cent. Four other cases which were also intubated were three post-operative chronic tracheal cannula cases for papillomata and foreign bodies and 1 carcinoma. I shall not burden you with any report of these cases. All of my cured cases have been shown before several of the medical societies of New York, and I consider none of them cured until they have remained without the tube for a period of from one to two years.

The Voice. The voices vary from husky to normal. In the cicatrix type the voice is not so good as in those treated by dilatation, and in one cicatrix case the voice was lost, for the scar when contracting pulled the vocal cord out of place. My average duration of treatment has been variable, seventy-six days to five years. The general average is from one to three years, the hypertrophic type being the most difficult to cure.

Feeding. All cases are allowed to run about and eat the same food as other children; they regulate the amount of food and eat with as much ease as a patient without a tube. Dysphagia occurs at times after the introduction of a large head tube, and again when the larynx has been dilated from the tracheal fistula upward. I have had one such case, in which interstitial emphysema so blocked the whole of the pharynx that gavage was impossible and the patient had to be fed per rectum.

DISCUSSION.

BY DR. EDWIN H. PLACE

Personally, I have enjoyed very much the papers tonight and especially the remarkable series of illustrations of the changes that occur in the larynx in these cases.

The marked contrast in the two methods of treatment is interesting: one in which the larynx is left alone primarily with secondary periodic stretching and the other in which intubation is continued for long periods using larger and larger tubes.

In my limited experience, the former method has been followed. Tracheotomy has been done as soon as possible as it became evident that the case would prove a chronic one. Recovery sometimes follows, simply leaving the larynx free from irritation by tracheotomy.

There have been only four chronic tubes in about 900 intubation cases at the South Department during the past six years. The percentage will vary with the total mortality of intubed cases. If there was a 50% mortality there should be a much lower incidence of chronic laryngeal obstruction than if there were a 10% mortality, other things being equal. For the fatal cases are especially the ones that would have been chronic tubes if they had passed the acute stage. As the mortality was below 20% in these cases it gives an incidence of about ½% of the surviving intubed cases.

Of these four cases two have completely recovered, one is able to breathe rather freely through the larynx and phonates, and the fourth, who was a woman addicted to alcohol and in whom suitable subsequent care has been impossible, still has complete obstruction. I feel that the prevention of this unfortunate result in laryngeal diphtheria is especially important.

It does not seem to me that the diphtheritic process is particularly the cause, as it is not really a destructive process as a rule. I am sure that some of the chronic obstructions after intubation did not have diphtheritic infection. The differential diagnosis is difficult and the case often shows alarming obstruction, preventing careful study. I have seen severe destructive lesions of the larynx in scarlet fever and measles in which no diphtheria was present.

Trauma in inserting and removing the tube, pressure on the soft tissues by too large a tube surrounded, as it is by the unyielding cartilage, are very important causative factors. Much skill is needed and beginners offer much more danger.

Dr. Mosher has suggested that the direct method might prevent trauma, and I think that there is a field for it, especially in the cases which already show a tendency to persistent obstruction. The indirect method will probably be preferred in emergencies, as the tube can be inserted as quickly or more quickly than the speculum alone.

THE DIETETIC TREATMENT OF CONSTIPATION.

BY L. H. NEWBURGH, M.D., BOSTON,

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Our understanding of the factors concerned in the passage of food through the gastro-intestinal tract has been greatly augmented within the last decade by means of the x-ray studies in this field. Cannon[1] has described in detail the normal mechanical activities of the cat's alimentary canal. (*a*) In the small intestine he observed chiefly two types of movement. (1) Rhythmic segmentation—which serves to thoroughly mix the food with the digestive juices and to promote absorption by pressing the mucosa against the chyme over and over again. The contents are not moved along the intestinal tract by segmentation. Hertz[2] has observed rhythmic segmentation in man. (2) Ordinary peristalsis which pushes the food slowly forward a few centimeters during each period of its activity. (*b*) In the cat, the food as it enters the colon, is pushed back into the cecum by the antiperistaltic waves which traverse the transverse and ascending colon. The proximal colon is finally filled by the chyme being pressed through the ileo-cecal valve.

A constriction ring now forms at the distal end of the intestinal contents, cuts off a segment of the hardening chyme, which is then slowly carried forward by an advancing wave. All the chyme, as it reaches a certain point, is thus cut into short segments and these are moved slowly along the descending colon. Block[3] has observed antiperistalsis in the human colon. Holzknecht,[4] as a result of his x-ray studies, believes that the human colon is at rest most of the time. He states that the advance of the colonic contents occupies but a few seconds in each twenty-four hours. The propulsion is an extensive and powerful act which makes itself manifest by the sudden moving forward of about a third of the whole colonic contents. Three or four such movements, lasting about three seconds each, recurring about each eight hours, suffice to empty the large intestine.

Schwarz[5] has also seen the powerful peristaltic waves described by Holzknecht but cannot agree that the colon is quiet in the interval. He affirms that the human colon is never quiet, but that it is always making small kneading movements resembling the rhythmic segmentation of Cannon. These movements tend to push the contents canalwards.

Having given this brief résumé of the movements of the intestinal tract, which of them are we to consider of greatest importance for propelling the food?

Miller and Hesky,[6] working with dogs, removed both muscular coats of the colon from cecum to rectum. They found that defecation was not disturbed except for a slight delay. Evidently the movement through the colon (under these conditions at any rate) must be caused by a *vis a tergo*—by peristalsis of the small intestine. Consequently, constipation cannot be due to atony of the musculature of the colon.

Hertz on the other hand found delay of food in the human small intestine only in lead poisoning and consequently believes that when evacuation is delayed the large intestine is the place of retention. If then, in simple constipation, the food reaches the colon within normal time limits. a mechanical explanation for constipation must be found in some abnormality of function of the colonic musculature. The following factors are considered: (1) decrease or absence of segmenting movements described by Schwartz. (2) Segmentation pushing the contents backward instead of forward. (3) Increased antiperistalsis. Schwarz, as the result of his observations on a large number of the habitually constipated, asserts that the cases may be separated into two groups: (1) Hypokinetic in which there is absence of physiological segmentation—delayed pushing of the chyme into the lower colon.

The fact that defecation is practically normal in dogs which have been deprived of their colonic musculature; that rhythmic segmentation in the small intestine of cats does not advance the chyme; that Holzknecht denies the occurrence of pendulum movements in the human colon and that Schwarz himself does not attribute great propelling ability to this movement, would lead one to believe that this need not be very seriously considered as a cause. (2) Diskinetic—in which the lower colon is filled in the normal time but segmentation pushes food in the wrong direction and there is a pathological increase of antiperistalsis. That segmentation may work in the wrong direction to produce constipation is even less tenable than that the latter may result from its absence. That increased antiperistalsis would be a sufficient force to keep

feces out of the lower colon seems reasonable; but we have no direct proof that it does occur. Schwarz assumed that it must take place because he observed that a bismuth meal reached the rectum within the normal time limits and that shortly thereafter, in the absence of defecation, the descending colon and rectum had become empty.

A critical review of all this work must lead to the conclusion that it has not been demonstrated that simple constipation is due to an abnormal motor activity of the intestine and accordingly we can find no firmly established scientific foundation upon which to construct our therapeutic procedures, but are compelled to use that treatment which empirically has been found most efficient.

If we investigate the habits of persons who are suffering from habitual constipation we find that the disease has usually followed certain definite changes in the diet. If these dietetic changes are adopted by a class of people who then become constipated as a class, we are more justified in believing that this factor is a causal one than if we can merely discover isolated individuals who have become constipated at some period after changes in diet have taken place. The Russian Jews who emigrate to the United States present just such a class. Large numbers of them come to the Out-patient Department of the Massachusetts General Hospital for the relief of symptoms which on analysis are found to be those of constipation. I have questioned a great many of these patients about the details of their food before and since leaving Russia and they have in the main all told the same story: In Russia they lived in the country or in villages. They either raised on their own land, or had easy access to green vegetables. These formed a conspicuous portion of one or two meals every day. Meat, on account of religious restrictions and because of its high price, was a luxury which was indulged in only about once a week. The bread* was of the coarsest variety, was often the main article of diet and was always eaten in large quantities. Milk, cream and potatoes were plentiful. Cereals formed a constant constituent of the diet. When the Russian comes to this country he is greatly impressed with the excellence of our American beef—he finds white bread more palatable than his native black bread. (An important step in the milling of white flour is the removal of the bran by a process called "bolting.") He is tired of cereals. In a very short time, therefore, his diet is almost entirely lacking in two features, namely (1) bulk, because of the absence of green vegetables and (2) the coarse cellulose envelopes of grains because of the absence of the coarse bread and the cereals.

That the isolated cases of constipation occurring among other foreigners and the American born are typified by similar dietetic restrictions is easily determined by questioning.

* The native "Schwartzbrot" is made of black rye meal, salt and water. This meal is the product of the first grinding, still contains all the coats of the kernel and is very coarse. Four pounds of this meal make a loaf weighing four and one-half pounds. It is used by the peasants solely because it is cheaper than the finer meals or the flours, the result of further grinding.



FIG. 1. Black Rye Meal. X8.



FIG. 2. Patent White Flour. X8.

All cases of constipation are not due to dietetic errors. Strictures, adhesions, enteroptosis, relaxed perineum, inactivity the result of chronic disease, etc., may cause it. But the author is convinced that all these varieties taken together form a small group when compared with the form under discussion.

The following histories exemplify constipation resulting from dietetic errors.

Case 1. H. C., age 36 years, clerk. Eleven years ago came to this country from Russia; since that time he has been severely constipated, often going three days without a movement. For the same length of time he has been greatly troubled with gas on the stomach which he is unable to raise. This is frequently so annoying that he feels as if he were choking. He has no pain. He has been constantly seeking relief for his constipation since coming to the United States, and asserts that he has consulted at least thirty doctors. One year ago he had an operation on his anus for cure of the constipation, without relief. His diet since coming to this country has consisted of white bread, butter, eggs, milk, farina or cream of wheat, meat and potatoes. He has had no oatmeal, cornmeal or cracked wheat or other coarse cereal and no green vegetables. In Russia he lived on large quantities of coarse rye bread (several pounds daily), oatmeal and green vegetables, vegetable soups and other foods as at present. Return to this diet was quickly followed by one or more large movements daily and the disappearance of all symptoms.

Case 2. H. N., age 66 years, merchant. Thirty or more years ago patient began to be greatly troubled with headaches and severe crampy abdominal pain. He was treated for "biliousness" without much benefit. The next physician told the patient that in the hot weather "his bowels were dry" and that this caused the constipation! The patient asks how this diagnosis explains the constipation during the cold weather. During the next five years, massage, electricity and the medicine ball were tried, all without effect and he had always to return to purgatives. About twenty years ago he began to use saline waters and feels sure that he took the water every morning for fifteen years. Three years ago the patient came under my care. All purgatives were forbidden and the constipation diet ordered. He states that after a few days' trial, his bowels began to move regularly, once or twice daily, and since that time he has considered himself fully cured.

Case 3. N. S., age 25 years, housemaid. Remembers no illness up to about two years ago. At that time she began to have sharp pain in the lower abdomen, first on the right side and later on both sides. At the same time she noticed a cutting pain in the epigastric region. The pains came on at irregular times, bore no relation to food and were not accompanied by nausea or vomiting. She had been constipated for many years and had taken a variety of laxatives. She noticed that the pain disappeared when she succeeded in having a good movement. After having had these pains for several months, fearing that she was seriously ill, she returned to Ireland and remained there eight months. While in Ireland she felt perfectly well, her bowels moved one or more times in the 24 hours, perhaps owing to the fact that she drank a quart or more of buttermilk daily. After coming back to this country, all her symptoms returned, her bowels moved badly, sometimes not for four days at a time. She began to vomit about three times a week and was almost constantly nauseated. Then pain in the back came on, grew very severe and was often bearing down in type. In August, 1912, she was seen by a surgeon who removed her appendix and left ovary. Six weeks later she began to have sharp epigastric pain daily, often relieved by taking food. She was almost as badly constipated as before and felt very miserable. Dec. 20, 1912, she was put on the constipation diet without meat. The bowels began to move once or twice a day. Within a week all symptoms were gone, she felt distinctly well and has remained so to date. The return of meat to the diet four weeks ago has given rise to no discomfort.

Case 4. H. E. C., age 46 years, cutter. Since childhood subject to "bilious attacks." For the ten years preceding 1901 suffered from dull pain and heavy feeling in epigastrium, never severe enough to prevent work or sleep. Bowels had moved two or three times a week. He was admitted to the Massachusetts General Hospital. His examination was negative save that slight tenderness in the right iliac fossa was noted. Appendectomy was performed, and an appendix normal save for a few adhesions was removed. The patient was well for the next four or five years. During that period he took particularly good care of himself and was not constipated. After that, constipation returned and the pain grew progressively more severe. Dec. 9, 1912, for several weeks has had disagreeable sensation in the small of the back but no real pain; is worried and lacks the sense of well-being. No cough, indigestion or urinary symptoms. His diet is as follows: Breakfast: small helping of oatmeal, two fried eggs, cocoa. Lunch: fish, white bread and butter, tea. Dinner: meat, white bread and butter, pie. He eats practically no green vegetables and no cereal. The patient was put on the constipation diet and cathartics forbidden. Dec. 15, 1912, has followed the diet, bowels move daily and he now feels perfectly well. Feb. 14, 1913, admitted to the Massachusetts General Hospital for acute intestinal obstruction. Two weeks ago gave up the diet. Up to that time had been perfectly well, since then getting more and more constipated. Bowels have not moved for four days. Two days ago began to vomit and has continued to do so about every hour since.

Examination of the abdomen revealed nothing abnormal. Bowels were moved by means of large doses of castor oil and oil enemata. All symptoms disappeared. The patient is now living on the constipation diet without return of symptoms.

If then the disease is due to the absence of certain articles of food in the diet, it ought to be cured by adding such articles. This is exactly what happens. The logical treatment of constipation must then consist in giving our patient a diet which contains sufficient bulk in the form of cellulose to make his bowels move normally.

The presence of cellulose in the diet presumably insures normal defecation for the following reasons: Cellulose has the property of holding large quantities of water. Bran, soaked in hot water for two hours, increased its volume threefold. Since it is not absorbed by the intestinal tract, it must consequently add two qualities to the feces, bulkiness and softness. Bayliss and Starling[7] studied the effect of stretching upon the smooth muscle of the intestine. They found that distension with a balloon caused contraction above and relaxation below the distending force. They called this the "law of the intestine." The result of this reflex is forward movement of the intestinal contents. The bulk af-

forded by the swollen mass of cellulose must accordingly act as a constant stimulus to peristalsis. The softness of the feces greatly reduces the work required to drive the mass forward.

We are now ready to consider the diet in detail. We must first carefully explain to our patient what we are trying to accomplish. He has in all probability been told that he must not eat this or that food; and he has in addition come to the conclusion that certain foods are bad for him. Very generally it will be found that he has gradually given up those very things which were most effective in causing evacuation of the bowel. His constipation has become progressively more obstinate during this period and the symptoms resulting therefrom have become more annoying. If these symptoms have been those of hyperacidity (which is not uncommon), or other gastric or epigastric distress, his physician will in all probability have progressively reduced the coarseness and bulk of the diet because he attributes the symptoms to these two factors. The patient must be made to understand that henceforth, the question is not what he should not eat but what he should eat. He must thoroughly grasp that his symptoms are entirely caused by his constipation, that if he eats enough of certain foods his bowels will move, his symptoms disappear and that then he may eat anything he pleases, provided always that he eats enough of the cellulose-containing foods. The most generally useful articles of diet in this connection are: among cereals, oatmeal, cracked wheat, cornmeal; among vegetables, lettuce, cauliflower, celery, cabbage, spinach, asparagus, tomatoes, beans and peas; among fruits, apples, grapes, prunes, eaten with the skin on, dates, figs and berries.

Although merely giving the patient a diet slip without a thorough explanation of what we are trying to accomplish, will usually meet with failure, nevertheless a menu such as the following may be found helpful as a basis for further elaboration:

BREAKFAST: Fruit, apple, grapes or berries. Cereal: large helping of oatmeal, cracked wheat or corn meal. Eggs, in any form, graham or whole wheat bread, toasted or not, coffee or tea.

LUNCHEON: Small helping of fish or meat with a large helping of spinach, cauliflower, cabbage, tomatoes, green peas or beans. Two or more slices of whole wheat or graham bread, or oatmeal crackers. Desert as desired.

DINNER: Unstrained vegetable soup. Small helping of meat, fish or poultry, baked potato, "jacket" and all, peas, beans, spinach or cauliflower; salad, made from lettuce, celery or asparagus; bread as at luncheon; desert as desired; coffee.

Laxatives and cathartics should not be prescribed for several reasons, viz: the patient will rely upon the medicine to relieve his ailment and neglect his diet; it is exceedingly difficult to procure normal movements by means of laxatives; griping and other unpleasant sensations are common; laxatives give a false hope by producing watery evacuation of part of the feces with a retention of the remainder which still acts as a source of symptoms. Even if laxatives produce the required result, most human beings would rather feel they are well because they are living properly than because they are taking a medicine. Obviously, there is a small group of cases, as in Case No. 4 above, who demand brisk catharsis in the beginning of the treatment; but after the first good movement, no further drug should be given.

A considerable number of the patients seek treatment for the relief of symptoms of hyperacidity—that hyperacidity is often due to constipation has been stated above. Here, entire relief is afforded through the dietetic treatment of the constipation, but frequently this takes several weeks. Very rapid relief may be obtained by omitting all meat, spices, condiments, tea and coffee for the first two or three weeks.

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THE FAVORABLE INFLUENCE OF PERIODS OF A PROTEIN FREE DIET IN CHRONIC NEPHRITIS.

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THE importance of a low protein diet in chronic nephritis has been recognized for some time.

Arnold[1] has taken 90 gm. as the maximum and 50 gm. as the minimum daily intake, as a general rule to be followed. With favorable cases he has allowed more than 90 gm. and in advanced cases less than 50 gm. daily. Other observers have advised similar restrictions. The improvement which follows such a restriction is for the most part to be explained as follows:

The elimination of the end products of protein metabolism, urea, ammonia, uric acid, etc., constitutes a large proportion of the total work which the kidney has to do. If for any reason there is a gradually progressive diminution in the ability of the kidney to excrete waste products the time finally comes when there is a tendency for the waste materials to accumulate in the blood. The presence of these accumulated wastes in turn stimulates the kidney to work all the harder in an effort to excrete them. Now for the first time there is clinical evidence of the decreased power of the kidney. This is seen in a gradual increase of the quantity and a gradual decrease in the specific gravity of the urine excreted and sometimes in a gradual increase of the blood pressure.

In this early stage the kidney is able by doing extra work to eliminate the waste materials. This extra work, however, only serves to wear the kidney out all the more rapidly, and finally the condition advances to a point where these products accumulate in the blood, exerting a toxic influence. As a rule, then, when clinical symptoms, such as headache, dyspnea, etc., first call attention to kidney disease, a retention of waste products already exists.

The treatment of such a condition, aside from correcting the underlying cause when possible and favoring elimination by the skin and bowels, is to relieve the kidney of as much work as possible, thereby resting the organ. This is accomplished, of course, by restricting the intake of those substances, the end products of which are excreted by the kidney. In practice, however, it has been considered unsafe to carry the restriction below the level at which the body will remain in nitrogenous equilibrium, viz., 50 gm. of 60 gm. Such a restriction represents about half the average daily intake of protein in health and necessarily relieves the work of the kidney considerably. The degree of relief will depend largely upon the ability of the kidney to perform its work. In the early stages it is more than probable that the retention of waste products will be overcome and all symptoms will be largely relieved. In the later stages, however, there will be retention and the symptoms will only be mitigated.

If now all protein could be restricted from the diet, the urinary nitrogen would only equal such amounts as result from the wear and tear of tissue protein. If under these conditions sufficient amounts of carbohydrates and fats are ingested to satisfy the energy requirements of the body the urinary nitrogen sinks to about 3 gm. or 4 gm. in 24 hours, representing a destruction of from 20 gm. to 25 gm. of protein. With such a marked restriction one would expect that, in all but the most advanced cases, the kidney not only would promptly clear the blood stream of the accumulated waste but would find an opportunity to rest and would thereby regain a part of its lost function, the degree of improvement being proportional to the amount of kidney tissue already destroyed. The reason why a total restriction of protein has not been advised is because it has been considered harmful if enough protein is not ingested to maintain the body in nitrogenous equilibrium. Furthermore, it has been considered that the sudden withdrawal of protein from the diet might in itself cause disturbances in the economy.

However, there is evidence that the sudden withdrawal of all protein from the diet causes no particular disturbance and that such a restriction can be maintained for from seven to ten days and possibly longer without resulting harm.

Folin[2] in 1905 gave a diet of "starch and cream," yielding only about 1 gm. of urinary nitrogen and 3000 calories, to four normal persons for a period of from seven to ten days without injurious effects. Again in 1908,[3] the same diet was given to eleven normal medical students for a period of seven days. During this period the men were under the observation of the writer, and aside from distaste for and the monotony of the diet no particular disturbance was noted. The influence of such a diet upon diseased conditions has been observed by the writer in a case of diabetes insipidus[4] and two cases of leukemia (unreported) for a period of a week, and no injurious effects were noted.

With these facts in mind it occurred to the writer that persons suffering from a decreased ability of the kidney to excrete waste products might be more promptly relieved and perhaps more permanently benefited if the usual restrictions of protein intake (50 gm. or more) were supplemented by periods of a diet practically free from protein, as the accumulated waste would be got rid of much more promptly, and a kidney no longer capable of removing the end products of 50 gm. of protein might again reduce the nitrogenous contents of the blood to normal. Furthermore, in advanced cases the institution of such a diet, at intervals, for periods of from one to seven days, according to the severity of the disease, would keep the accumulated waste at the lowest possible point, with considerable relief from the disagreeable symptoms.

In order to determine whether or not these results would be accomplished, seven cases of chronic interstitial nephritis, as diagnosed by an increased blood pressure and an increased quantity of urine with a low gravity, were selected. The majority of the cases showed secondary cardiac signs and must, therefore, be classed as advanced cases.

Aside from the ordinary cleansing baths and ordinary care of the bowels no other form of treatment was instituted. No medicine was given, and no restriction was placed upon water and salt. The only change from the patients' usual mode of life was the rest from work necessitated by their stay in the hospital, so that in so far as one can clinically control such observation the results obtained are to be ascribed to the protein restriction. In the first experiment the "starch and cream" diet was given for a period of five days. Owing to the lack of variety in this diet, however, it seemed desirable to select, if possible, a more general diet which would accomplish the same results. For this purpose the following foods, poor in protein (in this paper designated as "protein free"), were selected:

Sweets. Candy, honey, sugar, maple sugar, marmalade.

Fruits. Apricots, apples, bananas, blackberries, cherries, cranberries, currants, figs, grapes, huckleberries, lemons, musk melon, oranges, peaches, pears, pineapples, prunes, raspberries, strawberries, watermelon, citron.

Vegetables. Asparagus, string beans, beets, cabbage, carrots, cauliflower, celery, cucumbers, lettuce.

onions, parsnips, potatoes, radishes, rhubarb, turnips, spinach, beet greens, squash, tomatoes, Brussels sprouts, rice.

Starches. Arrowroot, tapioca.

Fats. Butter, olive oil, heavy cream.

Relishes. Olives, vinegar, lemon juice, cucumber pickles.

No difficulty is experienced in maintaining the caloric requirements of the body with these food materials and while their protein content is somewhat larger than that of the "starch and cream" the quantity of urinary nitrogen excreted is practically the same with both diets.

At the end of the protein free period amounts of protein not exceeding 60 gm. were added to the diet.*

When these experiments were begun there was no method of estimating the degree of waste retention in the blood stream, and conclusions had to be based entirely upon clinical evidence, such as relief of symptoms, lowering the blood pressure, improvement in cardiac signs and the diminished excretion of urine. Six of the seven cases are here studied from this point of view.

Recently, however, Folin[6] has devised methods for the determination of end products of protein metabolism in the blood, which open up the way for a much better understanding of the disturbances which result in diseases where the kidney fails to perform its function. By this means it is possible to diagnose the condition in the earlier stages and to determine with accuracy the results of diet restriction. Through the courtesy of Prof. Folin, who made such an examination of the blood in the remaining case (Case 6), I am able to produce evidence in support of the conclusions drawn from the other six cases.

The accompanying charts of the reported cases record in each instance the diet, the systolic blood pressure, the quantity of urine, and the total urinary nitrogen excreted, during the period of observation.

CASE 1. (Chart 1.) June 2, 1912. Female, 42 years of age. Scarlet fever at 19 years of age. Known to have albumin in urine for three years. Said to have high blood pressure for over a year. Complains of frequent headaches, dyspnea, palpitation, and swelling of ankles at end of day.

Examination. Hgb. 80%. No arteriosclerosis. Right border cardiac dullness 2.5 cm., left border 11.5 cm. from mid sternum. Systolic murmur at apex, aortic second accentuated. Urine, albumin 0.1% (Esbach). Rare hyaline and fine granular casts.

At the end of the protein free period (5 days) the following changes were noted:

Complete relief of symptoms. Ankles no longer swollen. Left border of cardiac dullness 9.5 cm. from mid sternum. Weight increased from 118½ pounds to 122¼ pounds. On the last day of observation (30 days), the patient stated she had not felt as well for five years. Hgb. 95%. Weight 128 pounds. Otherwise examination same as last note.

Subsequent History. Last seen five months later. During this period has been seen four times. No return of symptoms. Highest blood pressure recorded 165. Highest urinary nitrogen 9.8 gm. (61 gm. protein). Weight 131 pounds. Otherwise no change in physical examination.

CASE 2. (Chart 2.) March 9, 1912. Female, 30 years of age. Treated for heart trouble eight months. Complains of frequent headaches with nausea and vomiting, blurring of vision, dizziness, dyspnea, palpitation, unable to lie on left side. Large quantity of urine, slight swelling of legs.

Examination. No arteriosclerosis. Hgb. 90%. Pronounced throbbing of vessels of neck. Right border of cardiac dullness 2.8 cm., left border 11 cm. from mid sternum. Systolic murmur at apex. Aortic second accentuated. Slight edema of ankles. Urine, albumin 0.1% (Esbach). Rare hyaline cast. End of protein free diet (7 days).

Eyesight improved. Complete relief from all other symptoms. Left border cardiac dullness 9 cm. from mid sternum. Murmur less pronounced. Weight increased from 115¼ to 117¼ pounds.

Subsequent History. Soon after leaving the hospital the disagreeable symptoms returned. Weight fell to 114. Blood pressure on two occasions 225 and 240. Suspicions that more than 60 gm. protein were ingested were confirmed by finding on these two occasions a urinary nitrogen of 14.5 gm. (90 gm. protein) and 15.3 gm. (95 cm. protein).

June 13, 1912. Protein free diet for 9 days. (Chart 2A.) Improvement similar to that of the first period.

From this time until October, 1912 (five months) a diet approximating 60 gm. protein was prescribed but owing to the difficulty in maintaining the diet a protein free day was given every seventh day. During this period the only symptom complained of was an occasional headache. The blood pressure varied between 182 and 195 and she gained eight pounds. After this she disregarded advice because she "felt so well" and began to eat liberally of protein. Since then the blood pressure has gradually risen and the quantity of urine gradually increased but not until April 2, 1913 (seven months without diet restriction), have the symptoms become disagreeable. On this date she voluntarily requests to be placed under observation again.

CASE 3. (Chart 3.) September 19, 1912. Male. 44 years of age. Symptoms, dizziness, dyspnea, poor vision, cough when lies down. Very tired for eight months. Known to have high blood pressure since onset.

Examination. Slight arteriosclerosis. Right border of cardiac dullness 3 cm., left 12.5 cm. from mid sternum. Systolic murmur all over. Aortic second accentuated. Urine, albumin trace. Rare hyaline cast.

* These additions were made on the basis that 60 gm. of protein are contained in:

8 ounces of fresh beef,
12 ounces of fresh fish,
2 quarts of milk,
9 eggs,
21 ounces of white bread,
13 ounces of oatmeal (uncooked).

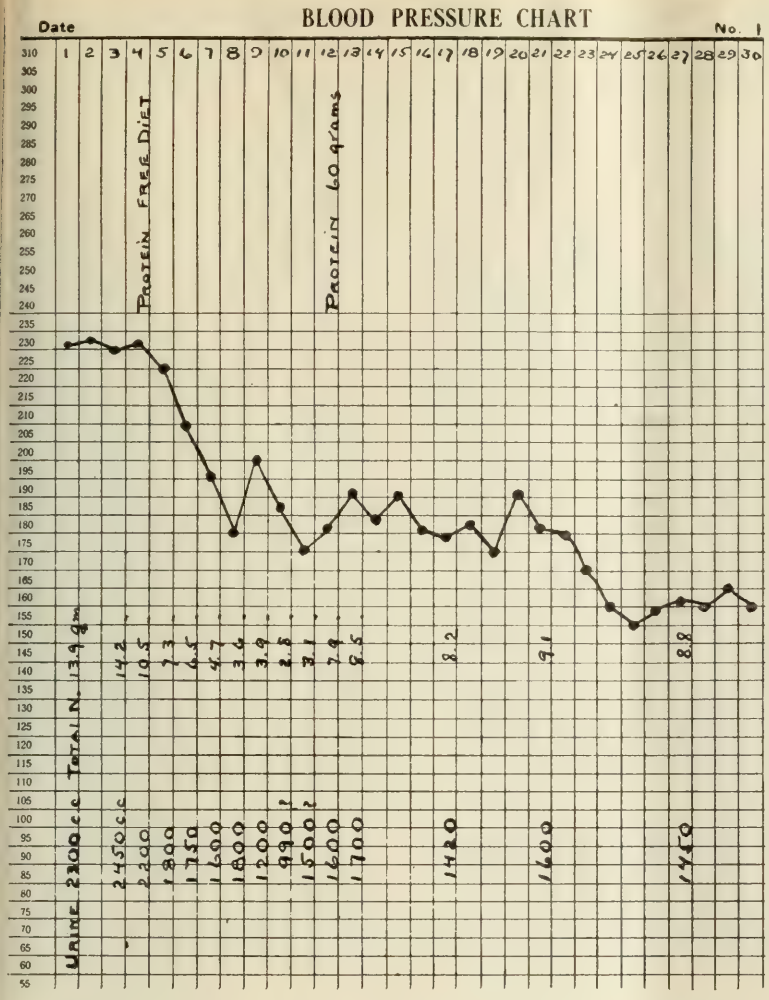
Better results are obtained if the food is weighed, but one can approximate the amounts as follows:

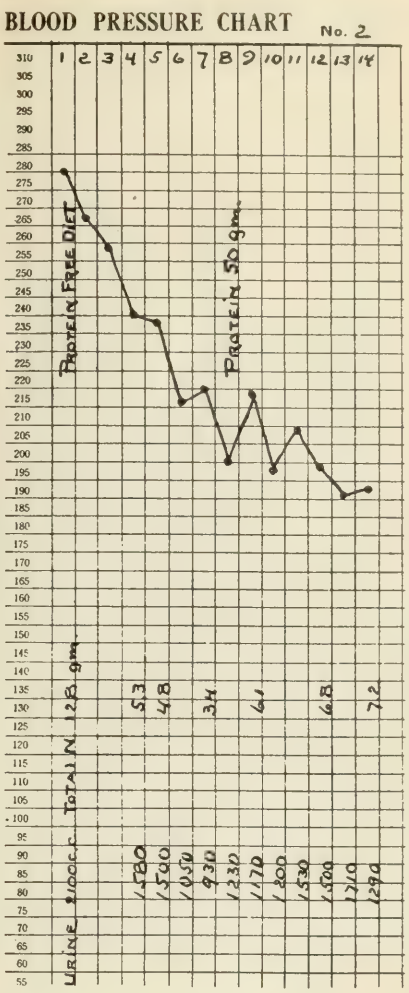
One cubic inch of meat weighs an ounce and contains about 5 gm. of protein.

One ordinary slice of bread weighs an ounce and contains about 3 gm. of protein.

Three tablespoonfuls of oatmeal (four tablespoonfuls if cooked) weigh 36 gm. and contain about 6 gm. of protein.

For additional variety the protein content of the common food materials can be obtained from Atwater and Byrant's tables.[5]





At the end of the protein free period (seven days) the symptoms entirely relieved. Has not felt as well for two years. Left border of cardiac dullness 9.5 cm. from mid sternum. Otherwise examination the same. Weight reduced from 180 to 174. Intentional lowering of full value of the diet.

March 15, 1913 (six months later). Feels strong and energetic. Has worked every day. Has not followed the prescribed diet of 60 gm. protein and while the blood pressure had increased from 150 to 200 there has been no return of symptoms.

Case 4. (Chart 4). December 3, 1912. Female, 45 years of age. Known to have high pressure for two years. Symptoms, dyspnea, palpitation, polyuria, weakness.

Examination. Hgb. 80%. No arteriosclerosis. Right border of cardiac dullness 2.3 cm., left border 10.5 cm. from mid sternum. No murmur. Aortic second accentuated. Urine, albumin, slight possible trace. Rare hyaline cast. At the end of the protein free period (eight days) all symptoms had practically disappeared and she felt strong.

Left border of cardiac dullness 9.5 cm. from mid sternum. Otherwise no change in the examination. Weight increased from 141 pounds to 146 pounds. No subsequent observation.

Case 5. (Chart 5). February 6, 1913. Female, 45 years of age. Headache for one year, dyspnea, slight precordial pain and swelling of the ankles several months. Poor vision three months. Tired all the time.

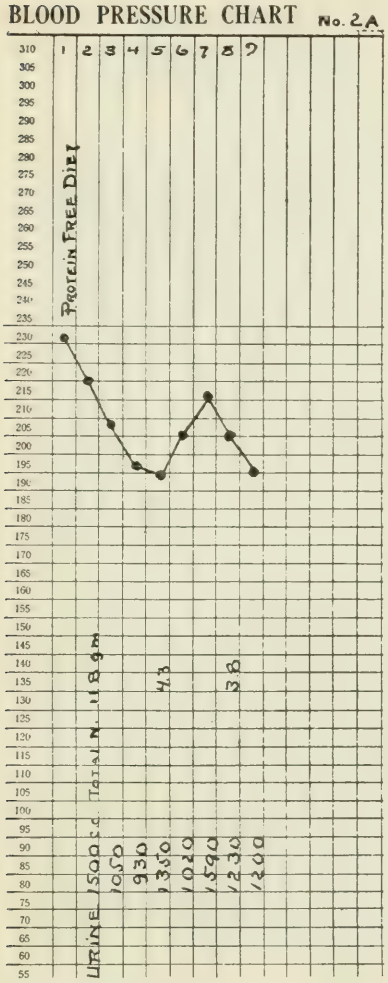
Examination. Albuminuric retinitis. Right border cardiac dullness 2 cm., left border 10 cm. from mid sternum. Systolic murmur at apex. Aortic second accentuated. Slight edema of ankles. Urine, albumin, slight trace. Rare hyaline cast.

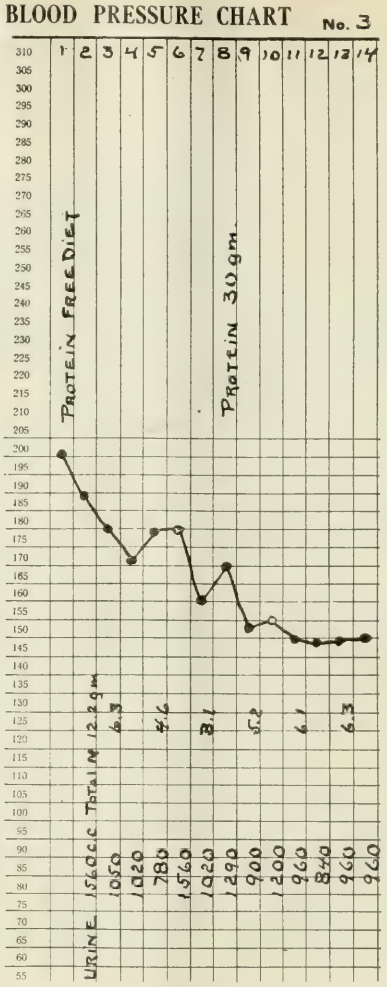
At the end of the protein free period (eight days) all symptoms were relieved and the eyesight improved. Left border of cardiac dullness 9 cm. from mid sternum. Otherwise no change in the examination. Weight increased from 150¼ pounds to 152½ pounds.

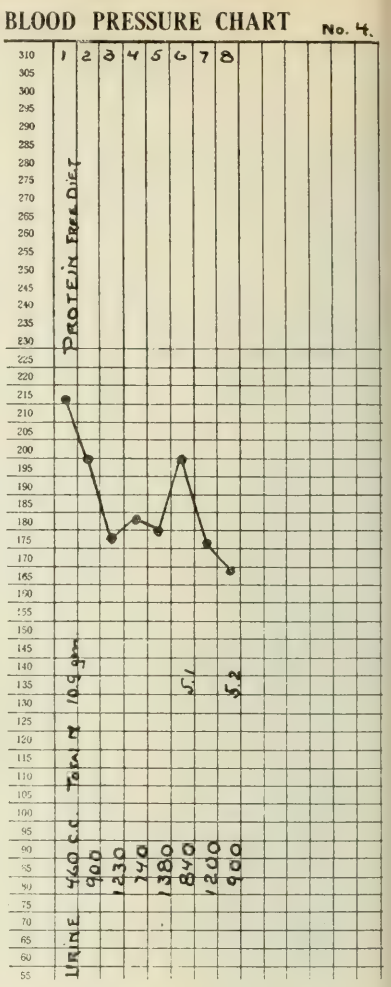
March 30, 1913 (six weeks later). Working every day. Feels more tired than usual at end of the day. Occasionally has slight pain around the heart. Eyesight improving.

Examination. No change noted in the heart. No edema of legs. Blood pressure has increased from 160 to 200. Diet of 60 gm. protein has been maintained as shown by the urinary nitrogen.

Observations are being continued with a protein free diet one day in seven.







CASE 6. (Chart 6.) March 1, 1913. Male, 52 years of age. Lead colic 20 years ago. Polyuria and up at night to urinate for some years. Headache and dyspnea for nine months. Smothering sensation in chest five weeks. Unable to work for past month.

Examination. Considerable degree of arteriosclerosis. Right border cardiac dullness 3.5 cm., left border 12.6 cm., from mid sternum. Systolic murmur at apex. Aortic second sharply accentuated. No edema.

Protein free diet for nine days.

Examination of blood, March 1, 1913 (first day of diet). Total nitrogen 44 mg. in 100 cc. (Normal does not exceed 30 mg.) Urea nitrogen 30 mg. in 100 cc. Uric acid 3.1 mg. in 100 cc. March 10, 1913. Total nitrogen 24 mg. in 100 cc. Urea nitrogen 14 mg. in 100 cc. Uric acid 3.5 mg. in 100 cc.

At the end of the period the symptoms had practically disappeared and the weight increased from 112 pounds to 117⅛ pounds. The left border of cardiac dullness was 12 cm. from the mid sternum but no other change was noted in the heart. Albumin and casts were still found in the urine.

Subsequent History. March 28, 1913. Has taken the diet approximating 60 gm. protein. Feels well and strong, ready to go back to work. Blood pressure has increased from 180 to 225.

CASE 7. (Chart 7.) December 4, 1912. Male, 51 years of age. Known to have a blood pressure between 180 and 220 for two years. Only complaints are dyspnea upon exertion (which might be explained by his weight of 208 pounds) of tireing more readily than usual and of passing large quantities of urine.

Examination. No cardiac enlargement. Sounds normals. Urine negative.

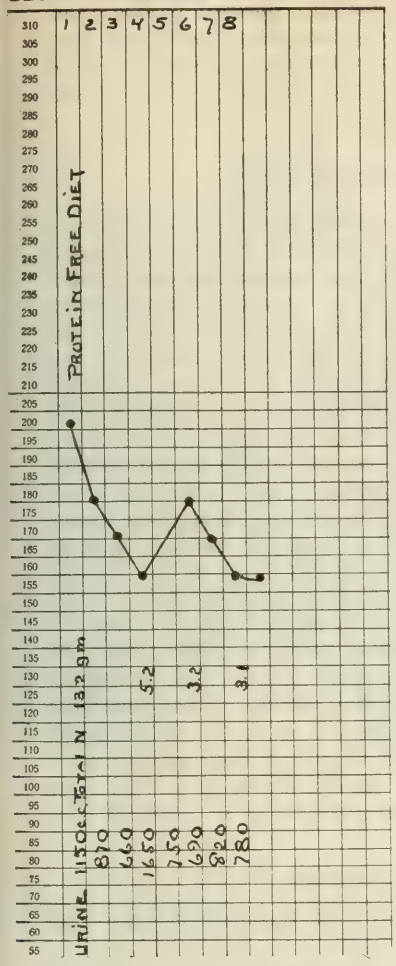
Protein free diet for five days. Weight at the end of the period reduced from 208 pounds to 202 pounds (intentionally).

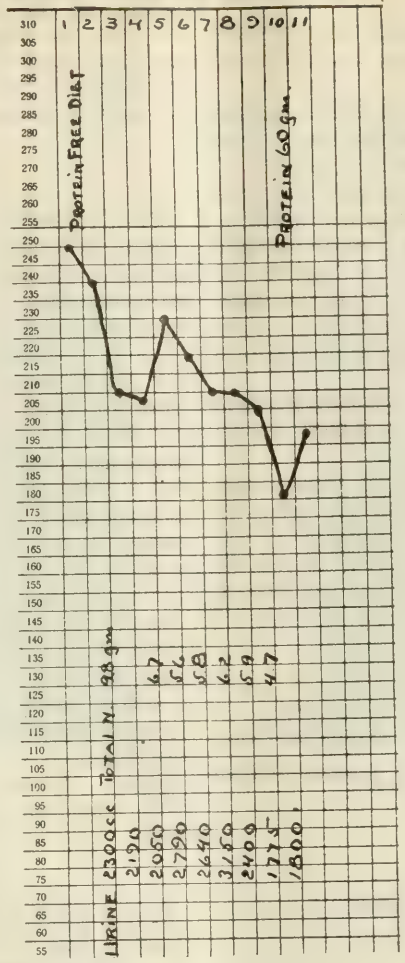
Subsequent History. Since this time has taken a diet approximating 90 gm. protein daily. Last seen March 1, 1913. During this interval five blood pressure observations have been made, the pressure never recording higher than 160. Has been perfectly well.

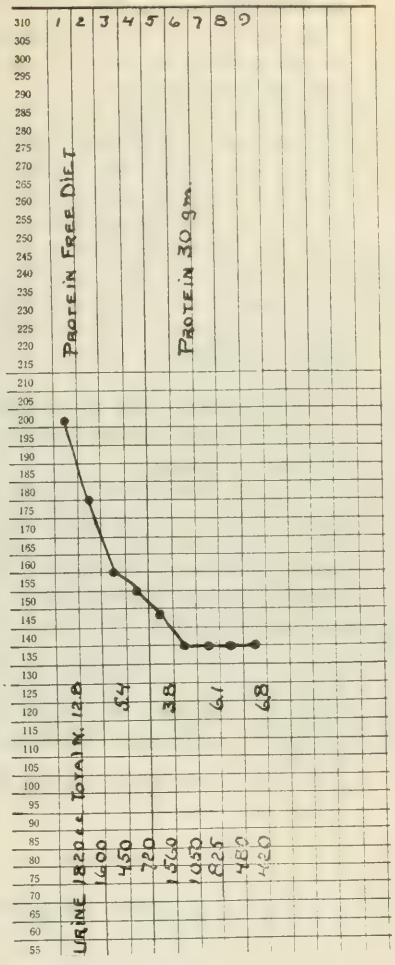
The diagnosis of an early stage of chronic nephritis is based entirely upon the age, the absence of other causes for a high pressure and the increasing quantity of urine.

SUMMARY OF RESULTS OBTAINED IN SEVEN CASES.

In every case the symptoms were promptly and markedly relieved. In every case there was a distinct fall in blood pressure.







In all but one case (7) the sudden fall in blood pressure was followed by a temporary rise on the fifth or sixth day. The explanation of this occurrence is not yet clear.

In all but one case (6) the quantity of urine fell to normal. In all but one case (7) there was a resulting decrease in the size of the percussion borders of the heart. In all but two cases (3, 7), in which the full value of the diet was intentionally lowered, there was a gain in weight. No particular change was noted in the character of the cardiac murmurs or the intensity of the second aortic sound. No particular change was noted in the quantity of albumin or the presence of casts in the urine. Three of the cases (1, 2, 7) were able, at the end of the period of restriction, to ingest from 60 gm. to 90 gm. protein without a return of the signs and symptoms. Three of the cases (3, 5, 6), judging from the gradual increase in the blood pressure and increase in the quantity of urine, still have some retention of wastes with a diet approximating 60 gm., yet they have continued practically free from symptoms for periods of from one to six months. That the accumulated waste products of nitrogenous metabolism are excreted as a result of such a severe restriction is proven by the blood examination in Case 6. Inasmuch as this is the most advanced case in the series there is little doubt but what a similar elimination occurred in all the cases.

CONCLUSIONS.

A protein free diet for a continuous period of from five to ten days can be maintained without harm to the individual.

With such a restriction the accumulated end products of protein metabolism in the blood are promptly eliminated, the nitrogen content of the blood falls to normal, and the kidneys and heart are given an opportunity to rest.

Such a restriction may be followed by a low protein diet for a considerable period of time, even in advanced cases, without a return of the disagreeable symptoms.

The following procedure, which was followed in the cases herein reported, is advised as the dietary treatment of chronic diseases in which there is a retention of nitrogenous end products.

A protein free diet should be given for a period of from five to ten days, according to the severity of the disease.

At the end of this period amounts of protein not exceeding 60 gm. daily should be added and maintained until,

(*a*) the resulting improvement of the patient will permit of a further protein increase (up to 90 gm. or 100 gm. as a maximum) or until,

(*b*) the signs and symptoms indicate that there is a reaccumulation of waste products.

In the latter event the protein free diet should be repeated. This same procedure may be employed at intervals of not less than six or eight weeks, or a single protein free diet may be given as often as once in seven days, without injurious effects.

As a caution it is to be advised that the diet be given under supervision, or controlled by the urinary nitrogen.

Further investigations are to be undertaken in order to study more thoroughly the influence of the extreme diet upon the nitrogen of the blood, the possible better tolerance of vegetable protein, and also the influence of salt restriction and medication in conjunction with the diet.

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JACKSON MEMBRANE.

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ETIOLOGY.

THE etiology of this membrane has been the cause of a great deal of discussion in the last few years. Hofmeister,[1] Connell,[2] Crossen,[3] Pilcher,[4] Hertzler,[5] Girster,[6] and Binnie,[7] consider it to be a primary or secondary pericolitis, while Mayo[8] believes it to be a fold of peritoneum caused by the cecum boroughing behind the parietal peritoneum, in a delayed descent. Dr. Flint[9] in his recent article believes from the dissection of a number of human embryos in different stages of development, that it is due to an embryonic fusion, between the rotated intestine and the posterior portion of the parietal peritoneum, in some cases the fusion extending to the omentum.

He says, "usually the fusion takes place only in the approximal portion of the peritoneum, and is probably due to some specific chemotactic action, as other parts of the peritoneum at this stage of embryonic life do not participate in this process. At times, however, the fusion is excessive and the attachments are formed with the cecum in the subhepatic position, extending over onto the lateral and ventral aspects of the cecum and embryonic colon. Given these attachments, the subsequent descent draws them out onto the thin veil-like structures that have been described as membraneous pericolitis. Both the veils and the parallel vessels in this indicate the path of the descent."

SYMPTOMOLOGY.

The clinical symptoms are those common to general enteroptosis, such as malaise, headache, backache, neurasthenia, nausea, loss of weight and sometimes vomiting, with dull pain through the right lower abdomen, most marked from the right iliac fossa to the region of the umbilicus, with slight tenderness over the cecum. As this condition is due to distention of the cecum with gas or feces, very often the gas may be heard gurgling out of the cecum at the time of palpation. This cecal distension is caused by stasis or obstruction to the cecum and ascending colon, caused by the membrane under consideration or an acute angleization of the colon at the hepatic flexure, if the membrane extends over to the omentum or transverse colon. In the cases in which the membrane extends down over the lower part of the cecum or even onto the ilium it often produces ilial stasis. This condition causes a bacterial invasion of the small intestine, extending up as far as the duodenum and gall-bladder. Jordan[10] shows there is a dilatation of the duodenum in practically all cases of ilial stasis.

DIAGNOSIS.

In the diagnosis of this condition we have two types to deal with.

1. The Jackson membrane causing stasis is diagnosticated by the symptoms of auto-intoxication and by the x-ray examination of the intestinal tract, showing a pathological residue remaining in the ilium with a dilated duodenum or a residue in the cecum or ascending colon showing cecal stasis.

2. That due to obstruction, caused by constriction of the bowel, which may occur at any point in the cecum, ascending colon or first half of the transverse colon or extending over an area of several inches as seen in Plate No.1. The obstruction may be due, however, to an acute angleization at the hepatic flexure as seen in Plate 3. The membrane not only causes obstruction but greatly enhances the peristaltic action of the bowel as seen in Plates 2 and 3.

The amount of stasis, site of obstruction and the peristaltic activity can only be diagnosed by an x-ray examination, as seen in Plates 1 and 1a.

TREATMENT.

The important question in the treatment of this condition is, whether it is causing stasis or partial obstruction. If neither of these conditions are present the membrane can cause no



I.



Ia.



II.



III.

arm and medical or surgical intervention is nwarranted.

If the Roentgen examination shows stasis or artial obstruction the membrane should be sevred and all raw surfaces covered with perioneum or omentum. In cases where this canot be done Lane's ileosigmostomy should be erformed.

Case 1. (Plates 1 and 1a.) Mrs. I. T., age 31, ne child age 9. Last four or five years dull pain n right lower abdomen, attacks of pain lasting rom two to three days with slight tenderness over ecum. Bowels always constipated. When bowels nost constipated pain more severe. Menstruation ıormal.

Examination. Pelvis negative, slight tenderness on deep pressure over cecum, no muscular spasm. Fecal mass almost always palpable in cecum. Temperature normal.

Roentgen Examination of Intestinal Tract. (Dr. Percy Brown.) Plate taken six and one-half hours after bismuth meal, shows bismuth in ileum and cecum, entering transverse colon.

Plate taken eight hours later shows cecum, hepatic flexure, transverse colon filled with bismuth. First part of transverse colon shows irregular outline with bowel but partially filled.

Several plates taken at different intervals show this condition present.

Diagnosis. Partial obstruction to first part of transverse colon and general ptosis.

Operation. Right rectus incision. Jackson membrane found, extending over cecum onto and constricting first four inches of transverse colon. Appendix normal. Appendix excised, membrane severed, raw surface covered with omentum. Uneventful recovery, patient leaving hospital in two weeks.

After patient was out of bed on eighth day bowels moved regular without cathartic. Patient gained fifteen pounds in eight months. No pain or tenderness, bowels regular.

Case 2. (Plate 2.) Miss E. W., age 25, single, referred to me by Dr. Ford. Cyst of left ovary and appendix removed four years ago. Pain in right lower abdomen off and on for last ten years. More severe last two years with attack of pain and soreness lasting one to four days. Dismenorrhea. Bowels slightly constipated, general malaise, headache and at times distressed and nauseated after eating. Lost ten pounds last two years.

Examination. Pelvis normal, slight tenderness over cecum, which was always much distended with gas.

Roentgen Examination of Stomach and Intestines. (Dr. W. J. Dodd.) Plate taken six and one-half hours after bismuth meal, shows no evidence of residue in the stomach. Most of the bismuth is in the ileum, cecum and hepatic flexure. Hepatic flexure is quite high, being four inches above the crest of the ilium.

Plate taken eight and one-half hours later shows a small amount of bismuth still in the ileum. Cecum, hepatic flexure and transverse colon are filled with bismuth. When in the prone position, the middle of the transverse colon crosses just above the brim of pelvis. Cecum, hepatic flexure and ascending colon seem to be matted together.

Plate taken thirty hours later shows a mass of bismuth still in the cecum, transverse and descending colon, filled with bismuth and there is some in the sigmoid.

From this set of plates we are led to conclude that in addition to a hammock shaped colon, there are adhesions between the cecum and ascending colon. Cecal stasis.

A series of four plates were then taken after the second bismuth meal. Outline of stomach normal. Pyloric sphincter normal. First portion of duodenum, irregular and somewhat elongated and is in close proximation with the hepatic flexure.

Although the first portion of the duodenum is irregular, it is normal in position and I believe this irregularity is due to adhesions extending from the cecum to the duodenum.

Diagnosis. Extensive adhesions involving the cecum, ascending colon and duodenum.

Operation. Right rectus incision. Cecum three times normal size. Jackson membrane extending from three inches above cecum up to hepatic flexure and onto first part of transverse colon, causing marked angleization at hepatic flexure. Adhesions extending from hepatic flexure to duodenum. Lane's kink caused by a membrane an inch wide, extending up over ileum one and one-half inches from cecum.

Kink freed, Jackson's membrane severed, raw surfaces covered with peritoneum, cecum plicated longitudinally. Uneventful recovery.

Case 3. (Plate 3.) Mrs. A. S., age 43, three children, referred to me by Dr. Drew. Pain in right lower abdomen most all the time during the last three or four years. Pain severe enough to keep patient awake at times during last four weeks. Neurotic temperament. Menstruation normal. Bowels always constipated more marked last four weeks.

Examination. Pelvis normal. Right kidney palpable with excursion of about two inches. Slight tenderness without spasm in right iliac fossa temperature and pulse normal.

X-ray examination of right kidney shows no calculi in kidney or ureter, by the injection of collargulum the x-ray shows the outline of the renal pelvis to be normal (therefore no hydronephrosis).

Roentgen Examination of Stomach and Intestines. (Dr. W. J. Dodd.) Plate taken six and one-half hours after bismuth meal shows no residue in stomach. Bismuth is in ileum, cecum and hepatic flexure. Plate taken thirty-eight hours later shows a mass of bismuth still in the cecum and transverse colon. From these plates we are led to conclude that there are adhesions between cecum ascending and transverse colon. Cecal stasis.

Another series of plates after a second bismuth meal shows the stomach, pyloric sphincter and duodenum to be normal.

Diagnosis. Adhesions between cecum, ascending and transverse colon, causing cecal stasis.

Operation. Right rectus incision. Jackson membrane found, extending over cecum, ascending colon to first part of transverse colon, causing acute angleization and partial obstruction at hepatic flexure. Appendix normal. Appendix excised. Jackson membrane severed, raw surface covered by peritoneum and omentum. Uneventful recovery, patient leaving hospital in twelve days. Ten months after operation no recurrence of pain, neurotic symptoms much improved. Constipation relieved, patient steadily gaining weight.

CONCLUSIONS.

The Jackson membrane is of embryonic origin.

All cases of suspected Jackson membrane should have a thorough x-ray examination of the gastro-intestinal tract.

All cases showing intestinal stasis of obstruction should be treated surgically.

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Clinical Department.

A CASE OF EMPYEMA DUE TO BACILLUS COLI.

BY ARTHUR L. GROVER, M.D., IOWA CITY, IA.

(From the Laboratory of Pathology and Bacteriology, Medical School, State University of Iowa.)

THE case that follows was brought to my attention Oct. 31, 1911, by means of pus taken from the patient at time of operation and given to the class in bacteriology as a routine sample for examination. On cursory examination with Loeffler's methylene blue a provisional diagnosis of staphylococcus was made. The students agreed with this diagnosis but reported that it was Gram negative. On this account and inasmuch as an empyema from a Gram negative staphylococcus seemed rather rare, it seemed best to carry the examination through further bacteriological procedures.

The clinical history was as follows:—

Mr. P., of ——, Ia., 45 years old, white, male, married and of good habits, was referred to the University Hospital by J. A. White, M.D., of Cedar Rapids, Ia., and entered the surgical service of William Jepson, M.D.

On examination nothing was obtained from either past or family histories. He said his present illness began August 12, 1911, when he was taken suddenly ill with severe pain in right chest followed by a chill. On the following day had two more severe chills. This attack was diagnosed as pneumonia. Patient showed no improvement, the pain continued with shortness of breath, and high temperature (104° F.) during first ten days of illness. The acute symptoms diminished somewhat, but shortness of breath and fever continued. On entrance to hospital he complained of pain and distress in right side. At this time temperature was 103° F., pulse 140, and respiration 36. The right pleural cavity was aspirated and pus found present. Physical examination revealed pathology in right chest only. There was dullness from apex to base both anteriorly and posteriorly with slight respiratory movement and no tactile fremitus. The breath sounds could not be heard in any part of the right side. There was no displacement of heart.

White blood count gave 28,000 leukocytes of which 85% were of the polymorphonuclear variety.

The patient had pleural cavity drained and made an uneventful recovery.

On examination of the pus by smears coccus-like microorganisms were seen arranged in the characteristic irregular grouping of staphylococci with a few in pairs and short chains. Many polymorphonuclear leukocytes were present in each field. The organism decolorized by Gram's method of staining.

Portions of the pus were smeared out on slant agar and on blood serum media and inoculated into bouillon. In twenty-four hours the bouillon showed some turbidity throughout and some dirty-white precipitate at bottom of tube. On agar there was along the line of inoculation a slightly raised whitish growth with rounded smooth edges. In blood serum a similar growth was obtained.

Smear examination again gave what seemed to be a Gram negative staphylococcus. In forty-eight hours no other change was noticeable except extension of growth on the cultures, so stab inoculations were made in gelatin medium. No liquefaction followed. The original cultures were next re-examined and it was noted that a few long chains of Gram negative bacilli were present. The material was plated out with the idea to get rid of contamination. A colony of Gram negative coccoid organisms was fished and reisolated. In time the same chains were again found and besides it was now noted that here were practically nothing present except bacilli, varying very much in size. It now seemed as if we must be dealing with one of the colon group, so the organism was cultured out in the regular routine manner for that group. It was found that it would coagulate and make acid litmus milk, form indol, would ferment dextrose, levulose, galactose, mannit, maltose, lactose, and dextrin with the formation of gas, but would not do so with saccharose. No motility could be observed. This proved the organism to be B. coli.

From this it is easily seen that morphological characteristics are unsafe at times in making bacteriological diagnoses.

The reported cases of empyema due to B. coli are very few. No attempt has been made to review the literature of the subject, but in a hasty running over recent reports no such report could be found. Osler in his "System of Medicine" states that empyema may be caused by the colon bacillus, but gives no history of any specific case.

Reports of Societies.

PHILADELPHIA COUNTY MEDICAL SOCIETY.

MEETING OF WEDNESDAY, APRIL 9, 1913, AT 8.30 P. M.
THE PRESIDENT, DR. CHARLES A. E. CODMAN IN THE CHAIR.

CASE OF CONGENITAL DIFFUSED LIPOMA OF THE FOOT AND LEG; WITH EXHIBITION OF A PATIENT.

DR. J. TORRENCE RUGH: The symptoms and diagnosis of this rare condition are discussed in the paper and the treatment reviewed. The patient is a

girl aged 6½ years with good family history. At birth there was marked enlargement of the second and third toes of right foot with a mass of fat underneath the front portion. There was no pain or tenderness and skin was normal in color and consistency. At six months the two toes were removed without difficulty. At 15 months a large mass of fat was dissected from under surface of the foot. The patient developed scarlatina in four days and part of flaps sloughed but healing took place eventually in two months. At 20 months enlargement of calf began of the same type as in foot. X-ray taken at six years showed no enlargement of bony structures. Specimen taken for examination from the foot mass showed a typical lipoma with no evidence of fibromatosis. Removal of masses will be attempted but failure with subsequent enlargement or recurrence of the mass will call for amputation above the margin of the upper mass.

THE NERVOUS SYMPTOMS OF PELVIC DISEASE.

Dr. F. X. Dercum: With the coexistence of pelvic disease and neurasthenia the pelvic symptoms may be more readily recognized by the patient and, therefore, become more prominent, because in neurasthenia the reaction of the nervous system to abnormal or pathologic impressions is greatly increased. In hysteria incautious remarks and injudicious statements by a physician may be very injurious. The suggestion of an operative procedure is accepted readily and sometimes a long series of operations has thus its beginning. It is hardly necessary to state that no relation exists between pelvic disease, epilepsy, chorea and other nervous diseases. The nervous symptoms which can be truthfully ascribed to pelvic disease are pain in the pelvis, pain referred to the back, to the top of the head, to the hips and to the thighs, with associated signs of general ill health. These symptoms cannot be dignified by the name of a nervous disorder, but are merely part of the symptom-group of the pelvic disease. Operation should be for the pelvic condition itself and not for the relief of an incidental nervous symptom. Operation is done just as we set a broken leg in an insane man, not because he is insane but because the leg is broken. It is important in considering operations upon neurasthenics to bear in mind that these patients are excessively sensitive to nervous shock. In such cases the operation, if not urgently indicated, may with advantage be preceded by a period of rest.

A MODIFICATION TO OBVIATE THE DEFECTS OF THE NEWER METHODS OF REPAIRING THE PELVIC FLOOR.

Dr. Barton Cooke Hirst: Injuries of the birth canal constitute more than half of all the diseases of women. All over the world there is a tendency to discard the older operations on the perineum and posterior vaginal walls such as Hegar's and Emmet's and to prefer the transverse incision with dissection of the recto-vaginal septum and to expose the levators and deep transverse perineal muscle, a method developed from Lawson Tait's original technic. The reasons for this unanimity of opinion would appear to be the failure of the older operations to expose and directly unite the muscles injured in parturition; the failure to restore to the pelvic floor the support and contour it possessed before childbirth. The newer technic, however, is not yet perfected. With a clear understanding of the injuries of the pelvic floor it is easy to devise a technic that shall actually expose all the muscles at the site of their original injury and that shall reunite them in their original anatomical relations. The modern transverse incision of the perineum, the recto-vaginal dissection and the junction of the injured muscles in the middle line do not accomplish either of these objects. It is possible to restore each one of the four muscles of the pelvic floor to its original condition, as in a nulliparous woman by the following technic: Incisions are made in the perineum and vagina as shown in the diagram. Flaps are then cut away and an incision is made on each side through the pelvic fascia to get at the levators and deep transversus perinei. These muscles are then joined. Finally the raw surfaces are united over the muscles as in the old Emmet operation, the perineal stitches uniting the superficial transversus perinei and bulbo cavernosus muscles where they are inserted in the perineal body. I am convinced that, however, this technic may be modified, the principles underlying it must be adopted in the successful operation of the future for the repair of the pelvic floor after childbirth.

MIDDLESEX NORTH DISTRICT MEDICAL SOCIETY.

The annual meeting of the Society was held April 30, 1913, at the New American Hotel at Lowell, Mass., Dr. J. B. Field, the President, in the chair. Fifty-five members were present. Resolutions on the death of Dr. Robert E. Bell and Dr. Merritt A. Long were read and accepted.

On the motion of Dr. J. A. Mehan it was voted to insert in the local newspapers on the first and second of each month, for three consecutive months, a notice to the effect that persons entitled to compensation under the Workmen's Compensation Act have the right to select their own physicians and are not obliged to accept the services of physicians provided by employers or insurance companies.

Dr. Howard K. Tuttle of the Tewksbury State Infirmary read a paper entitled, "Stab Wound of the Neck with Nerve Transplantation." The case which formed the basis of the paper was a man with an arm temporarily rendered useless by a stab wound of the brachial plexus. Through careful diagnosis and operation the patient was enabled to use a hammer in a blacksmith's shop with the affected arm. Stress was laid on the importance of early and adequate diagnosis of nerve lesions, together with the excellent results obtained through nerve surgery.

Dr. A. W. George of Boston read a paper entitled, "X-ray Diagnosis of Lesions of the Gastro-Enteric Tract." This paper was illustrated by x-ray plates, and was followed by discussion.

ESSEX NORTH DISTRICT MEDICAL SOCIETY.

A meeting of the Essex North District Society was held at the Y. M. C. A. building in Lawrence, Wednesday, May 7, Dr. W. H. Merrill presiding.

The Workmen's Compensation Act was the subject of discussion, and the address was by Mr. Edward F. McSweeney of the Industrial Accident Board. In introducing the speaker, Dr. Merrill gave a brief history of the Act and its application to physicians, the meeting of the Norfolk District Medical Society at which the subject was considered by delegates from the Accident Board and from the District Societies of the State and of the Conference held with the Board at the State House on the following day, which resulted in the appointment of an Advisory Council of Physicians. Mr. McSweeney explained the many difficulties which the Board encountered in administering this law, but showed that with coöperation and reasonable consideration on the part of physicians, insurance companies, and the Accident Board, the law was likely to prove beneficent to all concerned. The fact that the insurance companies were willing to agree (although not so compelled by law) to the desire of injured persons to employ their own physicians moved the most prominent objections.

The discussion was opened by Dr. Durant and was followed by Drs. Snow, McAllister, Mudge, Anthony and Burgess. It was generally agreed by the speakers that the appointment of a committee of seven physicians to coöperate with the Accident Board promised to solve the apparent inequalities which had arisen in the administration of this law.

Dr. George W. Gay of Boston spoke upon the Medical Defense Act of the Massachusetts Medical Society and its administration and history since enactment in 1908. Upon motion of Dr. Merrill the Society voted its approval and continued support of this Act.

Dr. Francis W. Anthony of Haverhill was elected President for the ensuing year, and Dr. J. Forrest Burnham of Lawrence was re-elected Secretary and Treasurer.

HAMPDEN DISTRICT MEDICAL SOCIETY.

The April meeting of the Hampden District Medical Society was held at Cooley's Hotel, Springfield, Mass., April 15. Dr. Allen G. Rice presented a paper, "Some New Methods of Etherization." The subject of Intratracheal Anesthesia was discussed, a new and practical apparatus for administration of ether by this method was presented and explained, and the advantages of this method in certain cases were shown and cases cited in which it had been used with benefit. Dr. David Clark presented a paper on "Vagitus Uterinus," describing in detail a recent case seen by the writer and Dr. Rice presenting a résumé of the literature upon this subject. The third paper of the meeting was presented by Dr. R. H. Seelye upon "Uterine Fibroids." The danger of degenerative changes was pointed out and the necessity of thorough dilatation and examination when polyp is suspected was emphasized. Methods of differential diagnoses were explained. Owing to danger of degeneration, prognosis without treatment is unfavorable. Choice of operation was considered, with quotations from Mayo concerning procedure in various conditions.

The meeting was followed by the annual dinner of the Society.

Book Reviews.

The Collected Works of Christian Fenger, M.D., 1840-1902. Illustrated. Two volumes. Philadelphia and London: W. B. Saunders Company. 1912.

These two volumes constitute a record of the work of a "great surgeon and teacher." The Fenger Memorial Association was formed by the Council of the Chicago Medical Society, as a tribute to its namesake, and a fund has been collected which shall be devoted to medical investigation.

"In response to requests from Dr. Fenger's assistants and pupils, and to wishes expressed by many surgeons in various parts of the country, the directors of the Association have caused to be published these volumes, which contain nearly everything that Dr. Fenger has written. The articles published in Danish have been translated."

There are seventy-five monographs of varying length, and covering an enormous variety of subjects, beginning in 1871 with a consideration of endoscopy, and ending in 1901 with a paper on "Conservative Operations for Renal Retention." Each one shows plainly the characteristics of Dr. Fenger: careful, thorough, painstaking study, minute observation, logical reasoning and definite conclusions. To many surgeons these monographs are familiar. They should be read by everyone who is interested in the advance of the science. In later years the study of the genitourinary tract was most definitely associated with Fenger's name, but at one time or another every great subdivision of surgery came within his careful enthusiastic scrutiny. The first volume contains a very interesting, but all too brief, autobiographical sketch, written in Danish while Dr. Fenger was staying in San Deigo in 1902, such an outline being "required of everyone who receives the order of Knight of Dannebrag."

It is unfortunate that this autobiographical sketch is not accompanied by a warm appreciation of this really great surgeon, an estimate which should have been written in warm words, by a friend, an associate and a surgeon. The personality and humanity of masters of surgery is almost as important as the results of their work.

The volumes are excellently printed and bound. The illustrations are fairly good.

Sex Education. By IRA S. WILE, M.S., M.D. New York: Duffield and Company. 1912.

In this volume the author undertakes to suggest and describe a definite method of imparting to the young that important information which passes nowadays under the name of sex educa-

tion. As an attempt to deal with a very difficult subject it is praiseworthy, even though one may not agree with all its details or suggestions. The author describes childhood as the age of mythology, puberty as the age of chivalry, and adolescence as the age of civic awakening, and outlines the method of instruction supposedly best suited for each. It may be questioned, however, for instance, whether for children the suggested story of the magic room and the teeny, tiny egg, as an explanation of how the baby came, is any improvement over, or even a desirable substitute for, the fine and beautiful old Teutonic myth of the stork, which remains as inalienable a right of childhood as the myths of Santa Claus or of Olympus. The story of the magic room may more nearly approximate the scientific facts, but it is not magical and it is not a myth. Nevertheless, the book is much to be commended as a frank, temperate and rational discussion of a very important and critical problem. It closes with an excellent biblography of literature on the subject.

Clinical Studies for Nurses. A Text-Book for Second- and Third-Year Pupil Nurses, and a Handbook for all who are engaged in caring for the sick. By Charlotte A. Aikens, Second edition. Illustrated. Philadelphia and London: W. B. Saunders Company. 1912.

This volume is intended for more advanced students in nursing. Its first edition was reviewed in the issue of the Journal for March 24, 1910 (Vol. clxii, p. 394). In this second edition, the chapters dealing with mental diseases have been largely rewritten; paragraphs have been added on anesthesia, operations, pellagra, and poliomyelitis; and many additions have been made in the way of practical points in nursing. The volume is increased from 510 to 569 pages, and the number of illustrations from 178 to 189. The terminal section consists of 600 questions for self-examination and review. The first appendix contains notes and tables on a number of hospital and invalid dietaries; the second deals with the preparation of surgical materials; the third consists of miscellaneous notes. The book should continue a useful guide for teachers and students of nursing.

Contribution to the Histologic Study of the Hypophysis During Gestation. By Dr. Alfred Siguret. Paris: Jouve and Company. 1912.

This thesis, with its amusingly elaborate multiple dedication, presents a characteristically Gallic cellular study of the pituitary in pregnancy. After a summary of the normal histology of the organ and of the various modifications described in it during gestation, the author describes the material and method of his experiments on rabbits and guinea-pigs, and the results derived therefrom. He finds that during pregnancy the glandular lobe of the hypophysis is the seat of manifest histologic modifications, among which are enlargement of the cellular columns, generalized hypertrophy of the cells and of the nuclei, and diminution in the number of chromophobic cells, with increase of the siderophilic cells. Colloid substances were not observed. These modifications appear at the beginning of pregnancy and do not seem to increase progressively with the age of gestation. The work is microscopic in method and temper, and though its facts be undoubted their important bearing is hardly apparent.

The Care and Treatment of European Children in the Tropics. By G. Montagu Harston, M.D., M.R.C.S., L.R.C.P. New York: William Wood and Company. 1913.

In his introduction to this book, Sir Patrick Manson points out that the teaching of tropical medicine has hitherto had reference to tropic diseases only in adults, not in children, and that the literature has been destitute of a work on tropical pediatrics. This lack the author aims to supply in the present manual for newly-arrived and junior practitioners in the tropics. After brief consideration of climatic factors, the incidence of disease, certain questions of hygiene and general welfare, and the care of European infants in the tropics, he deals in a series of 21 chapters with the principal tropic diseases as they affect children, particularly with reference to their symptomatology and treatment. There is an excellent terminal chapter on repatriation. The book is well illustrated with a series of 28 plates, of which three, including the frontispiece, are colored. It should immediately fill an important place as the only standard work on its subject.

Second Report of the Government Bureau of Microbiology. Sydney: William Applegate Gullick. 1912.

This second report deals with the work performed by the bureau during the years 1910 and 1911. This work very clearly separates itself into two main divisions, routine and investigation. Under the former are included the examination of dairy products, of materials, and of specimens from diseased persons, animals and plants, the preparation of vaccines, antitoxins, sera and bacteriologic products, and medico-legal examinations. Under the second division are included investigation of infectious diseases and pathologic conditions of men and animals, animal parasites, diseases of plants, and hygienic and economic examinations. The volume contains an immense amount of valuable material in well classified and systematic form.

THE BOSTON
Medical and Surgical Journal

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CANCER.

THE cancer situation is suggestive of the inexorable law of compensation upon which Emerson dwelt. The medical profession, with its humanitarian allies, has in recent years fought with much success tuberculosis, the veritable Captain of the Men of Death, and has notably reduced the percentage of its victims. The cancer mortality seems *pari passu* to have undergone a reciprocal increase. Young people do not die so much of tuberculosis—that disease of adolescence and early middle life; they live rather, many of them to succumb later to cancer. The mortality from this disease constitutes a very substantial proportion of that from all causes at ages 45 and over; and most deaths from this disease in the United States occur at ages 60 to 64. The law of compensation again asserts itself in that, whilst tuberculosis destroys chiefly the submerged strata of civilization; cancer, on the other hand, does the large part of its gleaning rather among the well-to-do in life, those who have never felt the stress of poverty, those accustomed to sanitary and eupeptic existence. In London, for example, the greatest cancer mortality is not in the East End, in "Darkest London"; but in Hempstead, Marylebone and Chelsea, which are of that city's wealthiest vicinities. In New York the like phenomena obtain. Patrician cancer has a predilection for the homes of the prosperous, scorning those of the squalid and the miserable; it is comparatively infrequent (although, of course, it does occur) in prisons, workshops and insane asylums. Cancer loves a shining mark, it has a ravenous penchant for the illustrious, those of great worldly importance, whom communities and nationalities can ill spare, those who have, through many years of superb activity, fairly earned *otium cum dignitate,* a serene and respected old age.

Most urgent, then, should be the elaboration of a prophylaxis and cure of cancer. For decades past medical scientists have been patiently and most zealously working on cancer problems; and their efforts have been and are being most nobly seconded by laymen and women able to provide the means by which such work can be done. As yet, however, only in the knife lies any hope of recovery from cancer; nor does surgery help, either, unless it be prompt and radical. And so vital is this matter to humankind that great medical bodies—the Clinical Congress of Surgeons of North America and the American Gynecological Society, are appealing to the lay press for education of the public (including nurses) in the recognition of this disease as early as possible; for only in its incipiency is cancer amenable to surgery. Herein are American surgeons following the lead of their German confreres, who have begun an anti-cancer propaganda. An essential factor in the German campaign is the urging all who have, or surmise they have, the initial symptoms of cancer to seek regular medical advice at once, either privately or in dispensaries, and not to waste precious time dealing with those who have not expert knowledge.

THE STRANGE CASE OF KASPER HAUSER.

Among the numerous cases of arrested mental development in children from simple sequestration of the individual, there is none of greater interest than the remarkable case so well described by Tredgold.*

In May, 1826, a boy of about sixteen years of age appeared near the gates of Nuremberg. He could not give any account of himself, or tell who he was or how he came there. He was very pale and of slight build. His feet were in such condition as to lead those who found him to suppose that he never had worn shoes. When he tried to walk he walked in the manner of a little child. On questioning him all the words that he could speak were "I will be a trooper as my

* "Mental Deficiency." London, 1908.

father was." He was hungry and thirsty, but would eat nothing except bread and water. In his hand there was a letter saying that he had been left with the writer, who was a poor laborer with ten children, in October, 1812. He could write a little and when a pen was placed in his hand he wrote the words "Kasper Hauser."

This youth was adopted by the Town of Nuremberg and his education was undertaken. He had no knowledge of the simplest facts. After his education progressed favorably for sometime he became ill and his education was stopped. After a time he progressed sufficiently to be able to speak. He said that he had always lived in a small cell, always underground; that when he awoke he found near him some bread and water, but never saw the person who gave it to him.

For a time he made great strides in mental development, but this was arrested and he showed no real capacity for work at any time. On Oct. 17, 1829, he was wounded by a stranger. In December, 1833, he was mortally stabbed by a stranger at Anspach, and died soon after. Autopsy showed a thickened skull and rather small brain which did not completely overlap the cerebellum. The convolution was smaller than normal.

The mystery of this youth's appearance and death has never been solved. It has been considered that he was the heir to a principality and was sequestrated in this manner to favor another dynasty. At all events the case exemplifies in a remarkable manner the effect of a prolonged isolation and non-use of the mind from childhood.

APOLLO SMINTHEUS AND THE PLAGUE.

It is seldom that the demonstration of a supposedly new scientific fact does not recall at least its adumbration, if not its definite earlier realization in remote times. An interesting example of this historic premonition, within recent years, is the recognition of the rat as a carrier of bubonic plague infection. It appears that from the most ancient days all rodents have been regarded with superstitious aversion as messengers of pestilential evil. In the Greek temple of Apollo at Chryse, for instance, there was a statue by Scopas, representing the deity with a mouse under his foot, apparently intended to symbolize the god of medicine crushing the malevolent agent of human destruction.

In December, 1899, in an article in the *Journal of Tropical Medicine* (Vol. II. p. 19), Dr. Sambon commented in part as follows on this early recognition of the connection between rodents and the plague:—

"This all important fact in the etiology of plague was so well known to the ancient Greeks, that in Asia Minor, at the very door of plague, they worshipped Apollo as . . . the destroyer of rats. This awful divinity was represented on monuments treading on a rat. In Roman times, when Aesculapius replaced the more ancient god of medicine, we again find the same fact recorded on a coin of Lucius Verus, struck at Pergamum. It represents Aesculapius with a rat at his feet, and a small naked figure standing by with arms outstretched."

Apollo, the destroyer of rats, was known by the epithet σμινθεύς, which is etymologically an abbreviated form for σμινθοφθόρος, "mouse-destroyer," from σμίνθος, the old Cretan word meaning mouse. Temples of Apollo Smintheus existed in several parts of Greece, and Strabo refers to one of these as a Sminthion. Under this term the god was invoked, as when, for example, in Homer's Iliad (I, 37), Chryses implores Apollo's aid in vengeance against the Greeks:—

"κλῦθί μευ, ἀργυρότοξ,' ὃς Χρύσην ἀμφιβέβηκας,
Κίλλαν τε ζαθεήν, Τενέδοιό τε ἶφι ἀνάσσεις,
Σμινθεῦ, εἴ ποτέ τοι χαρίεντ' ἐπὶ νηὸν ἔρεψα."

It is true that Apollo is often depicted, as in the above instance, bringing the plague as well as averting it; but that is not at all inconsistent with his divine character, or indeed with the primitive conception of the physician as having the power to cause as well as to cure disease. In any event the fact is of peculiar interest as representing an almost prehistoric recognition, probably based on unconscious, empiric, phylogenetic observation, of the association between rats and pestilential visitations of the plague, centuries before the complete modern scientific demonstration of their close etiologic relationship.

Pure Ice in Drinking Water.—Report from Washington, D. C., states that on May 17 the United States Public Health Service issued an ordinance requiring that all ice used to cool drinking water on passenger cars and inland steamers must be inspected and certified as pure by State or municipal boards of health.

THE DISCOVERY OF THE LARYNGOSCOPE.

GARCIA'S own words concerning his great discovery are of interest. They are taken from an article in *la Chronique Médicale* for February, 1913:—

"On a fine day in September, 1854, I was walking near the Palais Royal, thinking of my constant idea, so many times flouted as impossible, but always returning to me more and more insistently. Suddenly I had a vision of the two mirrors for laryngoscopy in their respective positions. This vision was as clear as if the mirrors were actually before my eyes. I ran immediately to Charrière to ask him to see if he did not have, perhaps, a little mirror mounted on a long handle. He told me that he remembered that he had shown a dental mirror like this in London in 1851, which was at that time declared to be unpractical. He hunted for it, found it and sold it to me for six francs. Immediately I went to another store and bought a common hand mirror. Then I ran home, impatient to commence my experiment.

"I warmed the little mirror by plunging it into warm water and wiping it carefully. I introduced it into my mouth and placed it against my uvula. Meanwhile I directed a ray of sunlight upon the glass in my hand. I then had the great joy of seeing my glottis wide open and so clearly that I could even see a part of my trachea. When my first agitation was a little bit over I started in to study more carefully the phenomenon presented to my eyes. The way that my glottis opened and shut without a sound filled me with astonishment."

After a year of autolaryngoscopy, Garcia communicated the result of his observations and a description of his laryngoscope to the Royal Society of London. His communication was very coldly received, the members declaring that his invention was of no practical importance.

Two years afterwards Professor Turck of Vienna, a neuropathologist, accidentally heard of Garcia's invention. He at once understood that the laryngoscope was of more use than to merely serve as a help in studying singing and that it was to render the greatest service to pathology. Thus, from the autolaryngoscopy of the artist Garcia, Turck evolved the science of laryngology.

HALLUCINATIONS FROM FLUE-GAS POISONING.

IN the issue of *Science* for May 9, Schneider reports his investigation of a supposedly "haunted" Boston house, whose inhabitants had experienced repeated auditory, visual, and somatic hallucinations, especially during the night. These phenomena he traced to a defect between the fire-box and flues of a hot-air furnace, whereby the atmosphere of the house was invaded by leaking gases of incomplete coal combustion. These gases, chiefly sulphurous oxide and carbon monoxide, produced a chronic intoxication of the inhabitants, characterized by anemia, malnutrition, loss of psychic power and diminished physical vigor, with acute nocturnal exacerbations which caused the sensory and mental hallucinations. This case the author cites to emphasize the often unsuspected risks of flue-gas poisoning from defective hot-air furnaces, and to suggest the likelihood of similar mechanistic explanation for other psychic and spiritualistic manifestations.

MEDICAL NOTES.

THE AMERICAN DERMATOLOGICAL ASSOCIATION.—At the thirty-seventh annual meeting of the American Dermatological Association, held at Washington, D. C., May 6, 7 and 8, 1913, the following officers were elected for the ensuing year: President, James MacFarlane Winfield, of Brooklyn; Vice-President S. Pollitzer of New York; Secretary and Treasurer, Oliver S. Ormsby, of Chicago; Member-of-Council, William A. Pusey of Chicago. Chicago was selected as the next place of meeting.

FLEXNER'S ANTIMENINGITIS SERUM.—In the issue of the *Journal of Experimental Medicine* for May, 1913, Dr. Simon Flexner presents the final report on a series of 1294 cases of epidemic cerebrospinal meningitis treated with the antimeningitis serum prepared and distributed by the Rockefeller Institute for Medical Research. Of these cases, 400 died, and 894 recovered more or less completely. The contrast of this mortality, 30.9%, with the usual mortality of 65 or 70% from this disease, indicates clearly the value of this method of treatment. Moreover, it not only produces a great decrease of fatality, but it shortens convalescence and diminishes the incidence of serious sequelae in those who recover. Flexner's antimeningtis serum, therefore, stands second only to diphtheria antitoxin as a curative agent. Its efficacy depends largely on the promptness of its administration.

Harvard Medical Expedition to the Tropics.—Report from Panama states that the party of investigators from the Harvard Medical School left that city on May 10 for Guayaquil, Ecuador. This party, which consits of Dr. R. P. Strong, Dr. E. E. Tyzzer, and Mr. C. T. Brues, has gone to study tropical diseases in Ecuador and Peru.

Increase of Cancer in England.—The British Society for the Relief and Prevention of Cancer has recently issued a summary of mortality statistics from cancer for the period from 1851 of 1910. These figures show that in sixty years the annual number of deaths from cancer has increased from 17,365 to 43,134, representing a rate increase from 497 per million to 960 per million. At this rate, within five years the deaths from cancer will be more than those from tuberculosis, and cancer will rank first as a cause of mortality.

Decreasing Death-Rate in Panama.—A recent report by Dr. Gorgas from Panama shows that in 1912 the annual death-rate among employees in the Canal Zone was only 7.14 per thousand, as against 10.42 in 1911 and 45.73 in 1905.

BOSTON AND NEW ENGLAND.

Continuance of Local Epidemics of Tonsillitis.—The epidemic of streptococcic tonsillitis in Canton, Mass., which we noted in last week's issue of the Journal, continues in somewhat abated form. Several new cases of the disease have occurred in families previously infected, and there have been three more deaths, making a total of 19. Meanwhile 47 cases of similar tonsillitis were reported among students at Wheaton Seminary, in the neighboring town of Norton; 17 cases in Easton; 8 in Norwood, and one in Milton. No more cases have occurred in Sharon, and as yet there have been no fatalities in towns other than Canton. On May 14 the Massachusetts State Board of Health sent the following letter of recommendation to the local board of health in each of about fifty towns surrounding the centres of the epidemic:—

"Gentlemen:—In view of the fact that tonsillitis of a severe type is prevalent in your neighborhood, you are urged to recommend to citizens and physicians under your jurisdiction:—

"1. That for the next month all milk be boiled before using.

"2. That all milk receptacles be thoroughly sterilized before use by boiling.

"3. That any milk suspected to be the cause of epidemic disease be discontinued immediately until investigation proves it to be safe.

"4. That persons sick with tonsillitis be subject to the same rules of quarantine as diphtheria; especially should they be kept from any relation to the handling of milk.

"5. That physicians report immediately to your Board cases of tonsillitis occurring in their practice.

"6. That your Board report immediately to the State Board of Health any unusual number of cases of tonsillitis in your community."

New England Deaconess Hospital Training School.—The fifteenth annual commencement exercises of the nurses' training school of the New England Deaconess Hospital were held in Brookline, Mass., on Wednesday of last week, May 14. Diplomas were awarded to six pupil candidates, graduates of the school.

Massachusetts Dental Society.—The forty-ninth annual meeting of the Massachusetts Dental Society was held in Boston last week under the presidency of Dr. Michael W. Flynn, of Pittsfield. Among the papers presented was one by Dr. Sidney J. Raugh, of Cincinnati, Ohio, on "The Practical Aspect of the Oral Hygiene Movement," in which he said in part:—

"There are three main branches to this movement,—education, dental inspection and free clinics. Organization is necessary. This means dental organization; no matter how large or small the population may be there must be a complete understanding amongst the members of the profession if anything is to be accomplished. Practically every large centre has a dental society which is a working force for the solution of all dental problems. If this be not the case the logical step is to make it such. Organize from this central body a strong oral hygiene committee, with a chairman who is imbued with the spirit of his work; without this there can be no success. Next, the authorities of the school system and health department should be approached and permission obtained to hold the first dental inspection."

The society also reiterated its approval of the Dental Nurse Bill, now pending before the General Court. At the concluding session, the following officers were elected for the ensuing year:—

President, Dr. Aurelius F. Wheeler, of Worcester; First Vice-President, Dr. Henry H. Piper, of Somerville; Second Vice-President, Dr. Adolphus F. Wyman, of New Bedford; Secretary, Dr. Asher H. St. C. Chase, of Everett;

Treasurer, Dr. Joseph T. Paul, of Boston; Editor, Dr. C. Edson Abbott, of Franklin.

BOSTON MORTALITY STATISTICS.—Cases reported to the Board of Health for the week ending May 13, 1913: Diphtheria, 37; scarlatina, 30; measles, 182, of which 2 were non-residents; typhoid fever, 1; tuberculosis, 48. The death-rate of deaths reported for the week was 16.38.

NEW YORK.

CLINIC IN GYMNASTICS AND MASSAGE.—At a meeting of the New York Society of Graduates in Medical Gymnastics and Massage, held on May 4, at the Academy of Medicine, it was decided to open, in the autumn, a clinic for the administration of treatments of this character. The clinic will be under the supervision of the medical advisory board of the society, and only patients presenting a prescription signed by a duly licensed physician will be treated. This society, which was organized less than a year ago, aims to put the form of therapeutics which it represents under the supervision of the medical societies of the State, and it also purposes to include in its membership only persons of good moral character, who are proficient in massage procedures and medical gymnastics.

TRINITY CHURCH DWELLING HOUSE PROPERTY.—A very interesting portion of the 500-page year book and register of the parish of Trinity Church, just issued, is that written by Miss Emily Dinwiddie in regard to the dwelling-house property of the parish, which now includes 366 houses, with accommodations for 882 families, or between 3000 and 4000 persons. The rents vary between wide limits. Thus, one small building rents for $12 a month for the entire house, while another building, a two-family house, rents for $1200 a year. The lowest rents for apartments in three-family houses are $7 per month for three rooms, and the highest, $25 a month for five rooms. Trinity's houses, Miss Dinwiddie says in her report, have some advantages which most homes, even of the very wealthy in downtown New York lack. They have, as a rule, large yards, which not only serve as playgrounds for the children, but are commonly utilized by the tenants for flower gardens and, in a few instances, for vegetable gardens as well. They are, in over two-thirds of the cases, private dwellings for only one or two families, giving an opportunity for quiet family life, with room for children to grow up and space for their play, totally different from the surroundings in New York's towering apartment houses and swarming barrack tenements. As compared with East Side houses equally far downtown, the contrast is marked. They are low buildings, not making dark cañons of the streets, and the large open spaces in the rear give abundant light for the back rooms. There are no rear tenements on the back of the lots. There are few stairs for the mothers and babies to climb. The bedroom windows do not open on airshafts, where one crying child keeps twenty families awake, and the rooms are on the average much larger than in the dumb-bell and other common tenement and apartment types. Large families are not excluded, but are welcomed as tenants, the only restriction being that they shall not take quarters too small for the number of persons. The houses, through the corporation's control, are kept free from saloons, gambling houses, and immoral resorts, and also from rag and junk shops, with their dangers to health and proper sanitary conditions. The rents have remained practically the same for a quarter of a century, and, probably as a result of this, the dwellings even of the tenants in very limited circumstances are free from the lodger evil in its dangerous form. Moreover, the corporation, on its own initiative, has instituted inspections of the houses for the purpose of discovering need for repairs or other defects which call for remedy, or for improvements of any kind.

BEQUESTS.—By the will of the late Mrs. Catherine Reilly of New York, $220,000 is left to charitable societies and institutions. Among the latter—each receiving $5000—are St. Francis' Hospital, Misericordia Hospital and St. Agnes' Hospital at White Plains.

APPOINTMENT OF DR. WILLIAMS.—It is now reported from Albany that Governor Sulzer is to appoint Dr. Linsly R. Williams and not Dr. Biggs, State Commissioner of Health, the salary of which position has been raised by the bill reorganizing the State Health Department to $10,000. Dr. Williams is an associate in clinical medicine, Columbia University, and visiting physician to the City Hospital on Blackwell's Island.

NEW YORK MILK STATIONS.—In New York City at present 55 milk stations for babies are maintained under the control of the municipal department of health, and 23 under private direction.

Current Literature.

Medical Record.

May 3, 1913.

1. Castelli, E., and Pinel, T. *The Pathogenesis of the Gastric Crises of Tabes.*
2. Bristol, L. D. *Newer Ideas Concerning the Problem of Cancer Etiology.*
3. Andresen, A. F. *Results of Operation for Gastric Ulcer. A Plea for Radical Operation When Operation is Indicated.*
4. Pollitzor, S. *The Passing of Parasyphilis.*
5. Stoll, H. F. *The Significance and Management of Hypertension.*
6. Smith, J. *Post-mortem Ophthalmoscopy. Segmentary Intravascular Coagulation.*

5. Stoll calls attention to the well-known fact that a certain degree of hypertension is necessary for some patients. In about 90% of persons with persistent hypertension there is a pathological process in either kidneys or arteries. These patients need hypertension and it is a mistake to reduce it unless it causes symptoms. Some of the hypertension in these cases, however, is incidental—due to the activities of life and toxins of various kinds. This hypertension should be combatted, and it is here that efforts to relieve the patient are usually successful.

[L. D. C.]

New York Medical Journal.

May 3, 1913.

1. Pedersen, V. C. *Hematuria.*
2. Bartow, B. *Shoulder and Arm Paralysis of Poliomyelitis.*
3. Howard, T. *Anomalies in Cardiac Rhythm.*
4. Rosenbaum, G. *The Travels of a Nail.*
5. Herman, J. L. *Paraurethrae.*
6. Healy, W. P. *Fibromyoma Uteri.*
7. O'Connor, J. I. *Carcinoma of the Stomach.*
8. Strauss, H. *The Internal Treatment of Nephritic Diseases.*
9. Parker, G. *Chronic Nephritis.*
10. Collier, G. K. *Edema of the Glottis.*

The Journal of the American Medical Association.

May 10, 1913.

1. Meltzer, S. J. *Simple Devices for Effective Artificial Respiration in Emergencies.*
2. *Strauss, H. *The Carbohydrate Treatment in Diabetes.*
3. *Lind, S. C. *Atypical Pharyngeal Diphtheria.*
4. Haythorn, S. R. *Tuberculosis of the Large Arteries. With the Report of a Case of Tuberculous Aneurysm of the Right Common Iliac Artery.*
5. Dorrance, G. M. *Treatment of Felons with Reference to the Pathologic Anatomy and Location of Incisions.*
6. Keen, W. W. *The Later Histories of Four Surgical Cases.*
7. Fox, H. *A Case of Annular Papular Syphilis in a Negress.*
8. Scaller, W. F. *Spasmodic Torticollis. Notes on the Etiology in Two Cases.*
9. Grimm, R. M. *Pellagra: Some Facts in Its Epidemiology.*
10. Osborne, O. T. *Prescription Nonsense; a Last Plea for a Useful Pharmacopeia.*

2. Strauss has lately used the polysaccharid of levulose, inulin, in addition to a fairly strict vegetable diet, in grave cases of diabetes. He gives as the advantages of the vegetable diet the following reasons: It excludes meat but is rich in alkalies, and not only poor in albumen and calories, but also especially adapted to allay hunger by its large volume, and first by its content of fluid. The kind of vegetable must be selected, however, which is poor in carbohydrate, but rich in fat, and the diet must be varied often.

3. Lind calls attention to cases of atypical pharyngeal diphtheria in which there are practically no symptoms and only slight redness of the pharynx, but which gives a positive culture. These cases are hence more than carriers and should be guarded against.

[E. H. R.]

The Lancet.

April 12, 1913.

1. Lindsay, J. A. *An Address on Some General Considerations Regarding the Relation of the Medical Profession and the Public.*
2. Walker, C., and Whittingham, H. *The Effect of General Contraction of the Peripheral Blood Vessels upon Mouse Cancers.*
3. Barker, A. E. *The Treatment of Large Herniae.*
4. *Monro, T. K., and Teacher, J. H. *Three Cases of Polycythemia, with the Report on the Necropsy in One Case.*
5. *Freyer, P. J. *A Series of Two Hundred and Thirty-six Cases of Total Enucleation of the Prostate Performed During the Two Years,* 1911-1912.
6. Morison, R., and Drummond, H. *Congenital Stricture of the Lower End of the Esophagus. Case Treated by Gastrostomy, Followed by Dilatation of the Stricture Through the Esophagus.*
7. Bruce, L. C. *The Records of Four Unusual Recoveries in Cases of Mental Disease.*
8. Guthrie, L. *The Lady Sedley's Receipt Book, 1686, and Other Seventeenth Century Receipt Books.*

4. Monro and Teacher discuss the general subject of polycythemia, which they divide into two classes, relative and absolute. The later group they subdivide into two classes: first, symptomatic or secondary polycythemia, in which there is an erythrocytosis analogous to a leucocytosis. This is met in chronic heart and lung diseases and in high altitudes. Second, they describe a primary polycythemia which is analogous to leukemia. They present the details of three cases with autopsy report in one. This showed marked arteriosclerosis and old infarcts of the spleen. There was no evidence of tuberculosis.

5. Freyer analyzes his results in a series of 236 prostatectomies. The mortality was 4.66%; the average age was 69 years; the average weight of the prostate was 2¾ oz.

[J. B. H.]

April 19, 1913.

1. *Trotter, W. *The Hunterian Lectures on the Principles and Technic of the Operative Treatment of Malignant Disease of the Mouth and Pharynx. Lecture I.*
2. Colyer, J. F. *The Morbid Anatomy of Periodontal Disease.*
3. *Pritchard, E. *Abdominal Pain in Infants.*
4. Tod, H. F. *Extradural Abscess at the Apex of the Petrous Bone. A Complication of Acute Inflammation of the Mastoid Process; Operation; Recovery.*
5. Barrington-Ward, L. E. *Pneumococcal Abscess of the Lung in Children.*
6. Wadham, F. J. *A Case of Periosteal Sarcoma of the Fibula with Unusually Rapid Though Typical Complications.*
7. Denyer, S. E. *A Note on the Use of Sugar in Heart Disease.*
8. Brown, W. *Freud's Theory of Dreams.*

1. In this long and general article, Trotter describes the forms of malignant disease as it affects the various parts of the mouth and larynx, with special reference to operative technic and lymphatic area involved in cancers of the various parts of this tract.

3. Pritchard has been able to find very little in the literature referring to abdominal pain in infants and its causes. Among these causes may be mentioned: (1), colic due to increased and painful peristalsis; (2), colic due to disturbances of the motor function of the stomach; (3), incoördination of the motor functions of the bladder; (4), referred pain from the thoracic organs; (5), renal colic; (6), spinal caries and osteomyelitis; and (7), peritonitis, appendicitis, etc. These various conditions and their symptoms and detections he goes on to discuss. [J. B. H.]

British Medical Journal.

April 12, 1913.

1 *Barr, J. *An Address on Rheumatoid Arthritis.*
2. *Luff, A. P. *The Harvcian Lecture on the Various Forms of Fibrositis and Their Treatment.*
3. *Fraser, J. *A Study of the Types of Organism in a Series of Bone and Joint Tuberculosis of Children.*
4. Fothergill, W. E. *Clinical Demonstration of an Operation for Prolapsus Uteri Complicated by Hypertrophy of the Cervix.*
5. Robinson, C. A., and Thomas, G. W. *A "Suppurating" Branchial Cyst.*
6 de Vertenel, E. *Two Cases of Penetrating Wound of the Heart, Treated by Operation.*
7. Bedford, P. W. *The Nascent Iodine Treatment of Lupus Nasi.*

1. Barr describes rheumatoid arthritis as a low, chronic polyarticular inflammation with frequent acute exacerbations. He believes that the cause is a mild chronic acidosis. He briefly discusses symptoms and treatment. (As it is not altogether clear which form of arthritis the writer refers to, the article loses much of its value.—J. B. H.)

2. Luff, under the heading of fibrositis, discusses the treatment of muscular rheumatism, which is "always a fibrositis," Dupuytren's contraction, fibrositis of fascia, bursae, joints, synovial tissues, et al. In treatment he believes that fibrolysin has a very limited field; he discusses treatment by external applications, heat, electricity, massage, diet and surgery.

3. Fraser finds that a "considerable proportion" of bone and joint tubercle of children in Edinburgh is caused by the bovine bacillus, introduced into the body by infected milk. Of the cases due to the human type, a large proportion of these is due to direct infection from a consumptive parent. [J. B. H.]

April 19, 1913.

1. *Bramwell, B. *An Address on Malingering, Valetudinarianism, and Their Prevention.*
2. *Bond, C. J. *Remarks on Malingering.*
3. Colie, J. *A Plea for Medical Referees versus Inspectors.*
4. Funk, C. *Studies on Beriberi.*
5. *Galloway, J. *Cutaneous Indications of Alimentary Toxemia.*
6 *Hertz, A. F. *Chronic Intestinal Stasis.*
7. Ledingham, J. C. G. *The Bacteriological Evidence of Intestinal Intoxication.*

1. Bramwell discusses malingering in detail with many illustrative cases. The article, in view of the working of the National Insurance Act in England and the Workingman's Compensation Act in this State is a timely and valuable one.

2. This covers the same ground as the above, though from a slightly different point of view.

5. Galloway divides the cutaneous manifestations of alimentary toxemia into four groups, which he describes in some detail. These groups are: (1), lesions arising from disturbances of blood vessels, such as urticaria and erythema; (2), conditions due to deep-seated inflammatory processes resulting in dermatitis and ulcerations; (3), purpura in its various forms; (4) pigmentations of varous kinds.

6. Hertz does not believe that ptosis of the intestines leads to stasis except in rare instances; perfect health is frequently associated with a pelvic caecum and transverse colon. In most cases of constipation a single part of the bowel, such as the rectum, colon, etc., alone is involved, and to this part treatment should be directed. [J. B. H.]

The Indian Medical Gazette.

April, 1913.

1. Lane, C. *Trichostrongylus Colubriformis (Giles, 1892). A Human Parasite.*
2. Roux, F. *Arsenic in the Treatment of Kala-Azar.*
3. Matson, H. S., and Singh, G. *Sanatorium Treatment for Phthisis in a Civil Hospital.*
4. Murrison, C. C. *The Sanitary Requirements in the Construction of a Slaughter-House in India.*
5. Smith, C. H. *Acute Yellow Atrophy of the Liver.*
6. Sumner, F. W. *Control of the Eye in Cataract Operations.*
7. Smith, F. F. S. *Extraction of the Lens in Its Capsule.*
8. Keelan, R. S. *A Case of Bagdad Sores, Showing an Apparently Long Incubation Period.*
9. Fraser, F. C. *A Case of Ovarian Fetation.*
10. Taylor, E. C. *An Unusual Case of Enteric Fever.*
11. Batavyal, K. L. *A Case of Hat-Pin in the Duodenum.*
12. Kennedy, R. S. *A Rough and Ready Field-Steriliser.*

The Quarterly Journal of Medicine.

Vol. 6. No. 23. April, 1913.

1 *Dunn, J. S. *The Use of the Oxydase Reaction in the Differentiation of Acute Leukemias.*
2. *Schryver, S. B., and Singer, C. *Investigations on the Gastric Juice in Malignant and Non-malignant Diseases of the Stomach and Duodenum. Parts II, III and IV.*
3. *Corbett, O. *The Quantitative Estimation of Amylolytic Ferments in the Urine as a Measure of Certain Pathological Conditions.*
4. *Weber, F. P. *"Beber's Sign" and Certain Cutaneous Phenomena Sometimes Associated with Heart Disease.*
5. Glynn, E. *Notes on Four Cases of Fulminating Pneumonia from a Public Institution.*
6. Browning, C. H. *Critical Review. Hemolysis in Its Clinical Aspects.*

1. Until a few years ago practically all cases of acute leukemia were classified as belonging to the lymphatic variety. Recent work, on the contrary, tends to show that the large non-granular mononuclear cells found in this type originate in the bone marrow, and the name acute myeloid leukemia is being employed for these cases. One of the most important means of differentiation consists in the demonstration of ferments in the cells, which is held to prove the bone marrow origin, for cells formed in lymph nodes contain no ferments. Dunn has investigated the indophenol-oxydase reaction in three cases of acute leukemia, and comes to the following conclusions: (1), the occurrence of a positive reaction

in large non-granular cells in acute leukemia is certain proof of their myeloid nature; (2), the absence of the reaction does not exclude a myeloid origin, for the reaction was found negative in the more embryonic forms of marrow cells, such as small myeloblasts and the earlier large myeloblasts.

2. This elaborate study of the gastric juice in various diseased conditions is not suitable to a short review, owing to the wealth of details. The writers show that if there is a large amount of nitrogenous digestion products there may be an apparent absence of "free" hydrochloric acid, although the "secreted chloride" is normal. Hence the classificaton of gastric juices on the basis of the presence or absence of free hydrochloric acid is fallacious. They recommend a classification based on the double consideration of the "secreted chloride" and the "peptic index." They introduce a new term in the shape of the "nitrogen factor," which consists in the quotient of the difference between phenolphthalein and dimethyl acidity divided by the nitrogen equivalent and multiplied by ten. A high nitrogen factor they found to be almost pathognomonic of delayed emptying of the stomach. The characteristics of the gastric juice in ulcer and cancer were found to depend more upon the site than upon the nature of the lesion. This uncomplicated ulcer of the duodenum and pylorus gave almost uniformly high values for the secreted chloride and peptic index, while in ulcer of the lesser curvature and body of the stomach the results were various, but an increased peptic index was never encountered. Similarly, in cancer of the stomach, if the disease was limited to the pylorus and obstruction was absent, the values for chloride were high or normal, never decreased, while cancer of the body of the organ gave strikingly low values for both secreted chloride and peptic power. The occurrence of a definite hyperchlorhydria with a greatly raised peptic index was found practically diagnostic of pyloric and duodenal ulcer, some cases of chronic appendicitis furnishing the only exception to this rule. It should be noted that in several cases in which the writers were led to assume a cancer of the stomach no gross lesion was found at operation. Thus, even with the most refined modern methods, the chemical analysis of the gastric juice may lead one astray. The methods advocated by the writers are more suited to research than for clinical purposes, being too elaborate for the resources of most hospitals, to say nothing of the practitioner.

3. Corbett has made a careful study of the amylolytic ferment in the urine in health and disease. He used Wohlgemuth's method. The chief value of the method seems to be in the diagnosis of lesions of the pancreas, a marked increase in the ferment value being always found, whether the disease of the pancreas was acute or chronic. Acute infections of all sorts were also found to be accompanied at times by high ferment values. The presence of increased ferment in many cases of puerperal eclampsia suggests the possibility of a lesion of the pancreas in this disease. The estimation of diastase as a measure of renal efficiency is discussed. There is no doubt of its value to compare the conditions of the two kidneys after catheterization of the ureters. In the mixed twenty-four hour specimen, however, a normal value for diastase might be found with considerable impairment of renal function, if there was much albumin in the urine, and in such cases the simultaneous estimations of the diastase in blood serum and urine become necessary. In chronic interstitial nephritis, on the other hand, the value for diastase proved a fair measure of renal efficiency.

4. Weber calls attention to the value of Osler's sign in the diagnosis of chronic and subacute malignant endocarditis. The sign consists in small pink swellings about the size of a pea which appear usually on the extremities. They are tender and disappear after a few days. They are the result of minute emboli in the skin and are practically pathognomonic of malignant endocarditis. [W. T.]

Wiener Klinische Wochenschrift.

No. 15. April 10, 1913.

1. *De Finger, E. *Mercury and Salvarsan; Remarks on Syphilis Therapy and the Most Serviceable Technic.*
2. Wiczkowski, J. *Contribution on Leukemia.*
3. Deutsch, F., and Hoffman, O. *Investigations on the Sympathetic Nervous System in Pulmonary Tuberculosis.*
4. Sohn, D. *The Effect of Benzol on Metabolism and Its Use in the Treatment of Leukemia.*
5. Byloff, K. *Aneurysm of the Abdominal Aorta.*
6. Skudro, S. *Effect of Mercury on Carcinoma in Mice.*

1. The author, inasmuch as salvarsan shows no advantage over mercury in secondary syphilis, concludes that the salvarsan mercury treatment is best adapted to abortive treatment of the primary stage and Wassermann negative sclerosis, also in the tertiary stage in which rapid action is desirable. On the contrary in Wassermann positive sclerosis and early secondary stages the salvarsan treatment would better be omitted. The omission of salvarsan does not preclude an encephilitis hemorrhagic, still the evil effects on patients treated with salvarsan, as, for example, the meta- and para-luetics, are lacking experimental proof. [F. S. K.]

Deutsche Zeitschrift für Chirurgie.

March, 1913. Band 121. Heft 5-6.

1. *Wetterstrand, G. A. *The Symptoms and Treatment of Perforated Gastric and Duodenal Ulcer.*
2. *Pawloff, A. *Accessory Ureters.*
3. *Molineus. *The Possibility of Bile-Duct Replacement by Implantation of the Vermiform Appendix.*
4. Rost, F. *Anatomic Investigations of Some of the Cutaneous Nerves More Important for Local Anesthesia with Reference to Their Points of Transit Through the Fascia.*
5. Knape. *Pancreatic Hemorrhage.*
6. Kuhn, F. *The Air Compressor in the Hospital. IV. Artificial Circulation by High-Pressure Massage.*
7. *Rubaschow, S. *Bradycardia in Liver Injuries.*
8. Horwitz, A. *A New Method for the Operative Treatment of Ischemic Contracture.*
9. Rosenthal, R. *Ascaridiasis of the Bile-Passages, with Reference to a Personally Observed Case.*
10. Hartlung, H. *Hypernephroma of the Kidney.*
11. Hollensen, M. *A Case of Hallux Varus.*

1. Wetterstrand finds that in Finland the majority of gastric perforations occur in men, in contradistinction to what appears to be the case in Middle Europe. The perforation takes place chiefly in the aboral part of the stomach. In 80% of the cases, previous ulcer symptoms can be recognized in the history. The character of the liver dullness is of great importance, since the dullness disappears or diminishes shortly after perforation. Each case should be treated according to individual circumstances. The total mortality is more (45%) than in the diffuse appendiceal peritonitides (39%).

2. Pawloff reports five cases of accessory ureter, and finds that in all such cases there are present two overlying renal pelves, separated by a partition of renal tissue. The hilus of both renal pelves lies in the normal place. The lower ureteral opening in the bladder corresponds to the upper renal pelvis. Accessory ureters are the cause of various renal affections. They need no treatment as such, but the consequent diseases may be cured by resection of the ureter or nephrectomy. Nothing can be said regarding the relative frequency of unilateral or bilateral ureteral duplicity.

3. Molineus reports a case in which he successfully replaced the common bile duct by the appendix. This suggests another surgical use of the appendix besides those for appendicostomy and for plastic reconstruction of the urethra in hypospadias.

7. Rubaschow selects from the literature 35 cases in which bradycardia is mentioned as a symptom after severe abdominal injuries of other organs than the liver and concludes that bradycardia cannot be considered an important characteristic symptom of liver injury, as averred by Finsterer. He also believes that Finsterer's explanation of the bradycardia is the effect of bile action. [R. M. G.]

ZEITSCHRIFT FÜR KLINISCHE MEDIZIN.

BAND 79. HEFT 3 AND 4.

1. *TECHAU, H. *Diagnostic Value of Pepsin Content of Urine.*
2. KAUFMANN-WOLFF, M. *Further Communication on the Fate of Syphilitics and Their Families.*
3. GRESSOT, E. *Hemophilia.*
4. *HANSSEN, O. *Action of Large Doses of Sodium Bicarbonate in Diabetes Mellitus.*
5. *GJESTLAND, G. *A Case of Paralysis Agitans with Enlargement of Parathyroid Glands.*
6. CURSCHMANN, H. *Intermittent Basedow Symptoms (in Tabes and Bronchial Asthma).*
7. GEORGOPULOS, M. *On the Poisonous Effect of Parathyroid Glands in Nephritis.*
8. BARSONY, T., AND EGAN, E. *Diagnostic Value of Echinococcus Complement Binding.*
9. *GOERDELER, G. *The Determining Points of Old Tuberculosis of the Lungs and Neighboring Glands.*

1. The author found pepsin estimation in the urine of no use as diagnostic of stomach conditions, either in a positive or negative way.

4. In diabetic coma, by the use of 4.0% intravenous bicarbonate of soda solution up to only 2.0 grams per kilo weight Hanssen brought on convulsions in three cases, post-mortem examination showing hyperemia and edema of the brain with cortical and more rarely subcortical hemorrhages.

5. The author considers this case unique. A patient with long-standing paralysis agitans (10 years) shows at autopsy markedly enlarged parathyroid glands. Microscopically these glands differ one from another, some evidently contain an excess of epithelial structure. In others, however, the epithelium seems overgrown by connective tissue; two contain blood and one pigment. Therefore it is uncertain whether we are here dealing with hyper- or hypoparathyroid function.

9. Goerdeler concludes, after an exhaustive study, that there are many signs formerly considered pathognomonic of healed tuberculosis which may, in fact, indicate other disease. Diffuse calcification and ossification in lungs are not necessarily indicative of old tuberculosis. So that this author would tend to discredit the amount of tuberculosis generally said to be present in the community, amounting, according to Nageli, to over 90% of the population. [J. B.A.]

IL POLICLINICO.

MARCH, 1913.

MEDICAL SECTION.

1. ANTONELLI, G. *Concerning Hemolytic Icterus.*
2. *FARMACHIDIS, C. *Experimental Studies on the Presence of Anthropotoxin in Expired Air.*
3. DE SANDRO, D. *Bacillus Oxalatigenes and the Possibility of a Bacterial Origin of Oxaluria.*

2. Farmachidis reports the results of elaborate experiments on rats with the expired air of patients suffering from respiratory and other diseases. Water of condensation was injected intravenously. He believes that the isotonic properties of the liquid injected do not explain the phenomena observed in the animals—tremors, convulsions, etc.—although considerable disturbance of circulation is undoubtedly produced by the sudden presence of any liquid. The results obtained show that expired air possesses a certain amount of toxicity for rats, whether the individual from whom it comes is sick or well, febrile or afebrile, or whether his respiratory system is normal or pathologic. [L. D. C.]

SURGICAL SECTION.

1. PEREZ, G. *So-Called Bone Cysts. (To be continued.)*
2. *LEOTTA, N. *Obliterations of the Mesenteric Vessels. (Conclusion.)*
3. MAGNI, E. *Two Cases of Multiple Peripheral Neurofibrosarcomatosis.*

2. From his experimental researches, and from a clinical study of 45 cases, collected from the literature, of hemorrhagic infarct of the intestine, Leotta concludes that resection of the loop, followed by entero-anastomosis is the operative procedure of choice in all cases in suitable condition. There is a bibliography of 202 titles. [R. M. G.]

APRIL, 1913.

MEDICAL SECTION.

1. SCORDO, F., AND RIZZUTI, G. *Clinical Observations and Bacteriologic Studies in an Epidemic of Infectious Jaundice at Tripoli.*
2. ANTONELLI, G. *Concerning Hemolytic Icterus.*
3. *TADINI, A. *Further Observations on Active Immunization Against the Pyrogenic Substance Contained in Typhoid Anaphylatoxin.*
4. FERNANDO, M. *A Contribution to the Study of the Mechanism of the Action of Aggresinic Exudates and of Anti-aggressinic Sera.*

3. Tadini reports results of an experimental study of the pyrogenic substance contained in typhoid vaccine and of active immunization against it. He found that animals vaccinated with killed typhoid bacilli are immune to the pyrogenic poison contained in these bacilli and also to that contained in typhoid anaphylatoxin. He therefore concludes that the two poisons are identical. [L. D. C.]

SURGICAL SECTION.

1. PEREZ, G. *So-Called Osseous Cysts. (Continuation.)*
2. AUSTONI, A. *Artificial Compression of the Hypophysis.*
3. *BARNABO, V. *Further Experimental Researches on the Internal Testicular Secretion.*

3. In a further experimental study of the internal testicular secretion of rabbits, Barnabo concludes that testicular transplants, whether entire or partial, do not take in the higher mammals, either subcutaneously or intramuscularly. That, nevertheless, during necrosis there is absorption of some internal secretion from the transplant, which causes regression of compensatory hypophysory hypertrophy and hyperfunction. The elaboration of an internal secretion is again proved by the injection of fragments of entire testicles, and especially by parabiosis between castrated and intact animals. The testicle upon which the operation of differential resection has been done, cannot produce such substances as render hypophysory hyperfunction useless, and cause regression of hypertrophy. It is doubtful, however, if the interstitial cells alone are concerned in the elaboration of the internal testicular secretion. [R. M. G.]

Obituary.

FRANCIS PARKER KINNICUTT, M.D.

In the death of Francis Parker Kinnicutt, May 2, 1913, the profession of medicine, a large circle of patients, and an even larger circle of friends, have sustained a grievous loss. Born in Worcester in 1846, of the best New England stock, and numbering among his forbears members of the Waldo, Salisbury and Lincoln families, he took his A.B. at Harvard in 1868. In college he was an original member of a club table of twelve, formed in the middle of the Freshman year—1865. He is the first of the twelve to die, the band remaining unbroken for forty-four years. After leaving Harvard he studied medicine at the College of Physicians and Surgeons, now the Medical Department of Columbia College, graduated in 1871, and then served a term as house physician at the Bellevue Hospital, after which he pursued his studies in Vienna, Heidelberg and London, and then entered practice in New York City. His qualities were such as to command success anywhere, and he naturally became assistant to and later partner of Dr. W. H. Draper, his brother-in-law, then and for many years following one of the leading physicians in the city. We can easily imagine how useful they were to one another. Of late, Dr. W. K. Draper, son of Dr. W. H., and Dr. Kinnicutt's nephew, has been his partner.

The list of his hospital, teaching and allied positions fills a page in the "Harvard Class of 1868" book, published in 1908. We can only mention the chief of them here. He was attending physician at St. Luke's Hospital, 1879-1896; to the Presbyterian Hospital, 1892, and in active service at the time of his death; Professor of Clinical Medicine in Columbia from 1893; an original member of the Association of American Physicians and its President in 1906 to 1907, a constant and absorbed attendant at the meetings, a frequent contributor of carefully prepared and noteworthy papers, and a participator in helpful discussion. He also did his share of public work. His mind was not eminently original, but his industry and enthusiasm for all pertaining to medicine, and his thoroughness, were unfailing and recognized by all. It was remarkable that full of work as he was, and inclined by nature to be unmethodical, he kept abreast of progress, quick to see the bearings of new principles and methods. His up-to-dateness was a source of wonder to all, and of despair to some of his friends. In dress he was very soigné, without being otherwise conspicuous. His good manners, in no way studied, were the outgrowth of his nature, always considerate of others, even of their failings. He had a sweetness of character almost feminine in kind and degree. His gentleness, tact, and sympathy kept him unspotted of the world. These qualities we sometimes see in men who are thereby unfitted to cope with the world and its market places. Not so with Kinnicutt, who combined harmoniously therewith an equal degree of manly strength and the power to control emotion and impulse by reason. The writer, whose intimate knowledge of Dr. Kinicutt extends over a half century, can not, at present, recall another member of our profession, of his time, so conspicuously endowed in those respects. These personal qualities, his enthusiastic love of his work, his thoroughness, made him the trusted physician, friend, the ornament of the profession that he was. To the poor or the outcast in the hospital he was the same courteous gentleman that he was to the fortunate in life. To nurses and students he was an example of what every physician should aim to be. So justly and so much was he beloved that the term "beloved physician" can be truthfully applied to him. Since a severe operation several years ago, he was, at times, conscious that he had a heart, but suffered no serious inconvenience from it. The past winter he took a holiday at Aiken and thought nothing of riding fifteen or twenty miles in the saddle. He was a good horseman and rode to hounds in England and in this country when he got a chance. The end came with absolute suddenness, just after he had read a very carefully prepared paper relating certain cases of oral sepsis which had been very baffling, but were finally elucidated by his persistent study. The meeting was at a friend's house, and he died sitting on the sofa while listening to commendations of his paper. Could an end be more desirable?

In his married and domestic life he was supremely happy. In 1874 he was married to Eleanora Kissel of New York City, and survived her only a year and a half. The active part which she took in the promotion of charities, both public and private, in city and state alike, and in the proper provision for the ash and garbage barrels which, at one time, lined the sidewalks in New York, are still fresh in mind. He leaves two sons, Francis H. of the New York Bar, and Hermann, banker.

Miscellany.

CAUSES OF DEATH IN THE UNITED STATES.

In a bulletin of the Census Bureau of the Department of Commerce, prepared by Dr. Cressy L. Wilbur, are presented the following considerations relative to causes of death in 1911 in the United States registration area:—

"There were 12,451 deaths from typhoid fever in the registration area of the United States during the year 1911, a slight decrease from the number for the preceding year. The death-rate was 21 per 100,000 population for 1911, 23.5 for

1910 and 21.1 for 1909. The rate for 1911 is the lowest from typhoid fever since the institution of the annual reports and probably the lowest in record. This fact and the progressive reduction in the mortality from this disease, from 32 per 100,000 population for the period 1901 to 1905 to 25.6 for the period 1906 to 1910, indicate that the public health officials of the country and the people who support their efforts are awakening to the necessity of wiping out this filth disease. The mortality from this cause in the United States is still far in excess of that of progressive European countries. If it could be reduced by three-fourths, so that it would be only 5 per 100,000 as in England and Wales, the Netherlands, and Prussia, for 1910, it would represent a saving of nearly 10,000 lives at the period of their greatest usefulness, as a rule, in the registration area alone.

The cities of 100,000 population and over having the highest death-rates from typhoid fever in 1911 were: Atlanta, 66.1; Memphis, 65.4; Nashville, 53.9; Birmingham, 45.5; and Spokane, 35.6—all but the last, cities of the South; while the lowest rates, valuable as evidence that the typhoid mortality of American cities need not exceed that of the well-regulated European cities, are recorded for Cambridge, 2.8, and Bridgeport, 3.8. Chicago and New York had the same rates for the year, 10.9; and several cities, besides Cambridge and Bridgeport, had rates under 10 per 100,000, namely, Worcester, 6; Paterson, 7; Jersey City, 7.2; Lowell, 7.3; and Boston, 8.7.

"The total number of deaths from all forms of tuberculosis in the registration area during 1911 was 94,205, the death-rate being 158.9 per 100,000—slightly lower than the rates for the preceding years, 160.3 and 160.8 for 1910 and 1909, respectively. The rates for the past three years are considerably lower than the annual averages for the quinquennial periods 1901 to 1905, 192.6; and 1906 to 1910, 168.7. There would appear to be a marked reduction in the death-rate from this disease, although the rate for the past three years has remained practically unchanged.

"The highest death-rates from all forms of tuberculosis shown for the States in the registration area were those of Kentucky, 229.3; Colorado, 218; California, 206.8; Maryland, 203.3; and the lowest rates were those of Utah, 46.8; Michigan, 96; Wisconsin, 103.8; Washington, 106.7; and Montana, 107.1. The high death-rate for the group of North Carolina municipalities, 256.8 per 100,000, was due to urban conditions and the large colored population.

"The cities of 100,000 population and over in 1910 having the highest death-rate from tuberculosis of all forms were Denver, 292.7; Los Angeles, 277.5; Albany, 269.4; Cincinnati, 265.3; and New Orleans, 260.5; while those with the lowest rates were Milwaukee, 106.5; Portland, Oreg., 106.8; Spokane, 109.4; Grand Rapids, 110.3.

"Organic diseases of the heart caused more deaths, 83,525, than any other disease or group of diseases shown in the Abridged International List, although the number of deaths from tuberculosis of all forms, 94,205, was considerably greater. The death-rate for 1911, 140.9, was slightly lower than that for the preceding year, 141.5, but the rate for each of these years was much higher than the rate for 1909, 129.7; and the rates for the quinquennial periods 1901 to 1905, 124.2; and 1906 to 1910, 133.2.

"The mortality from heart disease is largely that of persons of middle and advanced age; hence the age distribution of population is an important factor in the rate. The States with the highest rates are Vermont, 211.8; New Hampshire, 197; Massachusetts, 193.5; Maine, 179.8; and California, 178.7; while the lowest rates are shown for Montana, 80.8; Utah and Washington each, 82.8; Kentucky, 86.5; and Colorado, 89.4. Among the large cities the highest rates were shown for Albany, 237.7; Worcester, 228.8; San Francisco, 227.9; Nashville, 220.8; and Washington, 214.5. The lowest rates are shown for Scranton, 93.9; Minneapolis, 95.1; Milwaukee, 95.6; Seattle, 96.9; and Spokane, 99.6.

"The total number of deaths from pneumonia of all forms in the registration area in 1911 was 79,233, the death-rate per 100,000 population being 133.7. The death-rate of the white population, 128.4, was about one-half that of the colored, 252.2.

Among the death-rates from pneumonia (all forms) in the registration States in 1911, the highest were those of New York, 177.8; Massachusetts, 153.8; Connecticut, 153.5; Rhode Island, 152.1; and New Jersey, 151.4; and the lowest those of Washington, 64.8; Wisconsin, 85.7; Montana, 90.2; Michigan, 90.4; and Minnesota, 96.1. The large cities showing the highest death-rates from this cause were Atlanta, 227.8; Nashville, 222.6; New Haven, 212.1; York, 209.6; and Pittsburgh, 207.2.

Correspondence.

LETTER FROM FRANCE.

CONCERNING CERTAIN MENTAL CONDITIONS.

(From Our Special Correspondent.)

PARIS, April 29, 1913.

I was advised by a friend, the other day, to pay a visit to the *Salon des Indépendents*, and as I had never yet seen one of these exhibitions, I acted on his suggestion and went. "Don't waste any time on the first rooms," he said, "but go right through to the end where the cubists are,—it is an experience"!

Four or five rooms are there set aside for the works of this recent development in art, and I imagine that some such expression as this: "Mais enfin, ce qui se moque-t-on ici!" must involuntarily rise to the lips of each average visitor when he beholds this manifestation for the first time. It is difficult in mere

words to convey any adequate idea of this extraordinary attempt at evolving the new and the startling; certainly this would be quite impossible, without sitting down and taking detailed notes, and this I had not time to do. But these remarkable squares of canvas with paint on them did not move me particularly. Many years ago I had a rather extensive practice among the gentlemen of the brush, and especially among those that frequent the Latin Quarter, and I then learned that the painter must be classified in a genus quite by himself, to which the ordinary laws that govern the *homo sapiens* do not apply; and that it is trouble wasted to be unduly agitated by his succeeding outbursts and vagaries. There are now held each year in Paris four *Salons*, at which I suppose there are exhibited between ten and twelve thousand paintings; and to this number must of course be added the large quantities that are rejected, in any endeavor to form an idea of the annual art-output of this great centre. It follows, naturally, that in this immense mass the average painter is quite lost, and that unless he can hit on some fresh and striking way of attracting attention to his work, his chances of never making a sale are exceedingly great. *He*, it goes without saying, always represents these new endeavors as an earnest struggling after truth; and whether he be impressionist, post-impressionist, futurist, cubist or orphist, appeals for public sympathy toward one who has discarded the trammels of the venerable systems that have preceded his but that have been tried in the balance and found wanting. The real motive, however, is, I imagine, simply one of dollars and cents, for the reasons given above.

Now as regards the cubist manifestations in general, I am distinctly philosophical and optimistic. There is no use whatever in telling *me* that that is to be the art of the future. When the comely contours of the female form,—cheeks, chin, neck, shoulders, bosom, hips, thighs, etc., begin to appear to me in the shape of cubes, pyramids or parallelopipedons, I shall either infer that I have suddenly developed a record degree of astigmatism, or, if that proves untrue, I shall ask some kind friend to accompany me to a specialist to have my mental condition thoroughly investigated. Nor do I ever expect to see the portrait of a gentleman, or the view over a Spanish village, in the guise of a box of children's books of different shapes thrown in confusion over the floor. And, finally, I doubt very much whether the mainstay of the picture collections of our descendants will consist in pathological specimens, such as cases of rachitis, of osteomalacia, or of an apparently new disorder which we owe to those wielders of the brush, and in which the limbs are drawn out to an unconscionable length like those of the orang-outang, but curved.

Messieurs les cubistes, the search after "ter-rewth" is no doubt very fascinating and difficult; but she is certainly not concealed in the direction in which you are heading. A witty Frenchman went and had a look at these geometric ravings in color, and was particularly attracted by one, to which he refers in somewhat the following terms: "This represents a moonlight scene in Venice, unless you prefer to consider it a portrait of Mlle Gaby Deslys,—it is just as the spectator chooses."

Finally, some humble practical-joker among the exhibitors themselves has summed the entire question up in one picture. This remarkable effort represents, as nearly as I could make out, a culture-growth of spirochaetae in all positions and groupings, colored in gray, white and black,—a picture two and a half by one and a half metres in size,—underneath which the author has scrawled: "Ce que l'on voudra!" Bravo, unknown hero; that is just about the size of it.

But it was not so much the cubists that I wished to write about today, as a certain curious new literary departure that has been their outcome,—something that is represented to be an attempt to transfer the cubist ideas from art to writing. The leading spirit in this movement is, strange to say, an American lady, a Miss Gertrude Stein; and just as Allah had his Mahomet and Johnson his Boswell, so has the head of this new sect her interpreter in a certain Mabel Dodge (social status unknown to me). No one on earth, outside of this mutual admiration society of two, could understand what G. S. writes; and as G. S.'s last name has a German aspect, she will perhaps pardon me if in this connection I quote from a semi-German classic:

"Gott knows I meant somedings vhen foorst dis buch
I writ,
Boot Gott only wise vot das buch means now—for I
hafe fergotten it."

These lines, which referred to the philosophy of Hegel and Richter, are applicable in a certain degree to the prose productions of G. S., but only in part; for it is beyond question that even in the beginning not even she quite knew what she meant. But let me give some instances.

One of her writings now before me bears on the cover: "Portrait of Mabel Dodge at the Villa Curonia," and inside there are eleven printed pages. Now I will defy anyone to read those pages, without having seen the cover, and to derive the faintest atom of a conception as to what they are about. Thus the second paragraph runs as follows: "Bargaining is something and there is not that success. The intention is what if application has that accident results are appearing. They did not darken. That was not an adulteration." These lines can hardly be said to consist of words cast on a sheet at the hazard of a pepper-pot; but they can quite fairly be claimed to represent short sentences clipped at random out of a book and scattered over paper in the aforesaid manner. Farther on in the portrait of M. D. the author again remarks with the utmost perspicacity: "There has been William. All the time is likely. There is the condition. There has been admitting. There is not the print. There is that smiling. There is the season." Then comes the following pearl. "There is that where there is not that which is where there is what there is which is beguiling. There is a paste." You see,—no explanations are required for *that* prose; it is pellucid, diaphanous. Even a child could understand as he runs.

But this is only one style of the author; she has others. A second variety we will call that of the pious Buddhist, one of whose chief occupations in life is to mumble over to himself as many times as possible in the waking hours the sacred formula of his creed, "*om mani padme hum.*" Here is a specimen from G. S.'s works of what I mean: "One whom some were certainly following was one who was completely charming. One whom some were certainly following was one who was charming. One whom some were following was one who was completely charming. One whom some were following was one who was certainly completely charming." Here you see a luminous thought successively repeated almost word for word four times in one short paragraph, the only change being the shifting about of the two adverbs "completely" and "certainly." And she continues in this vein for three quarto pages! Her predilection for the word "certain," or "certainly," is something quite peculiar. On the first page of this article it occurs twenty-four times; in one paragraph of seven lines, eight times; and in a certain two lines, four times. Apparently G. S. thinks that this unending repetition leads to effect; so no doubt does the devout Buddhist. But the general consensus of opinion is that the eternal drivelling of a meaningless phrase, such as "the jewel in the lotus, amen," is the act of an imbecile.

Still another means for effect used by our author is the stringing together of a number of words all ending in *ing*: "certainly he was expressing something being struggling. Anyone could be certain that

he was expressing something being struggling." Here you have both the *certains* and the *ings*. Again: "Some certainly were wanting to be needing to be doing what he was doing, that is clearly expressing something." Finally: ". . . wanting to be needing expressing anything being struggling!"

But setting aside these little tricks of style, please do not fail to note once again her quite special lucidity of thought. Occasionally, when even herself wearied by this endless droning repetition, she resorts to alliteration, such as the following: "There is the likeliness lying in liking likely likeliness." What it all means appears to be immaterial, so long as the desired effect is obtained.

I showed some of this futurist prose to a friend of mine who is the possessor of a quick and nasty tongue, and he reacted even more promptly than is his custom. He exclaimed at once: "But I have seen this before." This hurt my feelings, as I had fancied I was serving him up fresh material. He continued: "A long time ago someone translated 'The Jumping Frog' into French, and Mark Twain was so overcome with delight at the result that he retranslated it verbatim back again into English. This is just the way the final text read."

I have been told that this new literature is an effort to reproduce thought, to exteriorize the subconscious self; well, if this is a sample of the state of affairs that prevails in our subconscious selves, it becomes a serious question whether they had not better be left quietly where they are, and not undergo exteriorization.

The editor of the paper from which I have made many of these extracts dryly heads one article by a few lines of introduction, in which he says that it concerns the only woman in the world who has put the spirit of post-impressionism into prose, and is written by the only woman in America who fully understands this prose. Wherein I beg to differ; this gibberish can convey no definite impression to anyone on earth, for the very simple reason that it contains not a semblance of a definite idea. Miss Stein's apologist writes: "Many roads are being broken today, and along these roads consciousness is pursuing truth to eternity." Now that looks like a mighty fine phrase; it unquestionably has a certain ring to it. Yet I should be glad if some kind reader would give me an idea of what it may mean? I fancy that this particular road is at most a very insignificant trail through a barren wilderness; and that instead of guiding the inquiring wayfarer to truth and eternity, it will meet with the fate of the path in the storybook, that dwindled to a squirrel-track and finally ran up a tree!

M. D. continues: "She is impelling language to induce new states of consciousness." Yes, I fancy that at least is true. "By her method she is finding the hidden and inner nature of nature." H'm; doubtful. "She always works at night in the silence and brings all her will-power to bear upon the banishing of preconceived images." In this it must be admitted that her success is unparalleled. "Concentrating upon the impression she has received and which she wishes to transmit, she suspends her selective faculty, waiting for the word or group of words that will perfectly interpret her meaning to rise from her subconsciousness to the surface of the mind." There you have the *modus operandi*, in case anyone is moved to become a follower of this new school. "In G. S.'s writing, every word . . . is so exquisitely rhythmical and enhanced that when read aloud and received as pure sound, it is like a kind of sensuous music." Now that is the climax to which a person can be brought who, as an old gentleman I once knew used to remark, "allows the pinfeathers of his imagination to fly away with the tail-feathers of his judgment."

If it had not been for the fact that this cubist literature has been taken quite *au sérieux* in certain quarters, and by no one more so than by the leader of the movement herself, I should never have thought of referring to it, looking on the whole affair merely as an interesting case for Lombroso, Max Nordau or Janet; but as it has undoubtedly attracted some attention both here, in London, and at home, it occurred to me that a few paragraphs on the question might not be out of place in a medical journal, even though it be one that does not pay any particular attention to mental disorders.

The latest report is that the musical clan has also begun to move, and that we shall soon be endowed with symphonies composed on cubist lines. Stirred to its very foundation by the noise that the other cubists have made in the world, it proposes to create new instruments, to emit sounds hitherto unknown to the ear; once armed with these new means of expression it will not be long in finding a way to use them, and we shall then be treated to something in music corresponding to the nightmare-painting down on the Quai d'Orsay, and to the "portrait of M. D." The notes of the scale will then no doubt be square, and the Melba of the coming era will have to have a right-angled mouth, in order to admit of the issue of rectangular sound-vibrations! Ours is unquestionably an age in which it is good to live! "S."

THE MILK COMMISSION OF THE NORFOLK DISTRICT MEDICAL SOCIETY.

MAY 10, 1913.

Mr. Editor: We wish to call your attention to an inaccurate statement in the paper of Dr. DeNormandie published in your issue of April 24, 1913, p. 617. He says: "We know of no medical society inspection of so-called 'inspected' milk."

The Milk Commission of the Norfolk District Medical Society was organized May 15, 1907. About 400 farms of dealers supplying the district were inspected and of these twenty-five were given our approval as trying to furnish reasonably clean fresh milk, suitable for the use of babies and invalids.

8,000 to 10,000 quarts of such milk are sold daily.

Yours very truly,

ROBERT W. HASTINGS, M.D.,
Secretary of the Milk Commission of the Norfolk District Medical Society.

REUNION CLASS OF 1883, HARVARD MEDICAL SCHOOL.

The class of 1883 of the Harvard Medical School is to hold its first reunion and dinner at the University Club, Boston, on May 26. Among the distinguished members of this class are General Leonard Wood, Dr. Raymond Guiteras and Dr. Eugene Fuller.

Those desiring further information may communicate with the Secretary of the Committee, Dr. S. H. Ayer, 318 Shawmut Avenue, Boston.

BOOKS AND PAMPHLETS RECEIVED.

Scarlatiniform Erythema by William Frick, A.M., M.D. Reprint.

An Unusual Case of Dilated Capillaries by William Frick, M.D. Reprint.

Fulguration and Thermo-radiotherapy by William Seaman Bainbridge, M.D., and Diathermy (Nagelschmidt) and Electro-Coagulation (Doyen) by Worthington Seaton Russell, M.D. Reprint.

Gunshot Injuries in Civil Practice by N. A. Powell, M.D. Reprint.

RECENT DEATHS.

DR. ROBERT WATTS EASTMAN, of New York, died May 5. He was born in Oswego, N. Y., in 1853, and was graduated from the medical department of the University of Buffalo in 1879.

DR. J. HAVEN EMERSON, of New York, died suddenly on May 4, at the age of 71 years. He was graduated from the College of Physicians and Surgeons, New York, in 1864. His son, Dr. Haven Emerson, is an associate in physiology and in medicine at Columbia University.

Original Articles.

PROTECTION OF MILK.

BY E. M. BUCKINGHAM, M.D., BOSTON.

The object of this paper is to call attention to what I believe is a real danger, that in seeking to make milk a safe food we may rely too much upon its treatment of heat, and too little upon its careful production, that we may thereby retard improvement in production, and that by improper pasteurization we may introduce a false security and for young children an especial danger. There are large financial interests concerned in showing, if they can, that pasteurization is always reliable and that care in production is not so reliable. I shall mention certain epidemics that would have been prevented, had there not been a failure in pasteurization which had been relied upon to the exclusion of watchfulness in production.

I would by no means deny what all know, that common disease germs are destroyed by a known amount of heat, nor even that milk so heated is apparently well borne by infants for a long time. I say apparently well borne, because I hope to show that much of the heated milk in use is not heated as it is supposed to be, to a definite temperature, but because of the difficulty of the process, is heated to an unknown temperature. This uncertainty deprives of value the clinical results seen in well babies, so far as they tend to prove that pasteurization does not hurt them. It also exposes them to whatever danger there may be in superheated milk and it deprives us of the certainty of freedom from danger, should disease germs be present and the desired temperature not be reached. There is no reason why milk should not be treated by heat in emergencies, but there is, perhaps, a reason why at present we should not rely upon it exclusively.

My attention was first called to uncertainty in the exact temperature, by observing that milk modified by lime water and an excess of sugar of milk and pasteurized, sometimes did, and sometimes did not turn brown. Inquiry brought the statement that under these circumstances a chemical change takes place at certain temperatures, but not at lower ones and that this change accounts for the discoloration. Farther inquiry of an expert developed the statement than an exact temperature is very hard to obtain. It is easy to see why. If milk is heated slowly, it remains some time at a fermenting temperature. If this continues too long, the milk is spoiled. It, therefore, is desirable to reach the desired temperature quickly, and this makes overheating easy.

Some years ago I wanted a ready means by which milk could be pasteurized by untrained nurses, acting with a simple apparatus which automatically would stop increasing the heat when the desired degree was reached. Thinking I had reason to believe that much of the so-called sterilized milk was really not heated to the boiling point, to find what might be the facts, a series of experiments were carried on by my interne, Dr. Baldwin, at the Children's Hospital. This was done in the ward kitchen. The milk bottle, containing a modification then actually in use, was fitted with a thermometer held by the cotton packing so that the bulb was in the middle of the milk, and the stem passed through a cork, fitted into a hole that had been drilled through the lid of the heater so that it could be read. The bottle was surrounded by water to the height of the milk, and did not rest on the bottom of the heater. Underneath was an alcohol lamp. I have, unfortunately, lost my notes, but the results were disappointing. While the thermometer seldom reached the boiling point, there were great variations. Opening the window or the door or both, made a difference, although the heater was not in the direct current. With both closed, it was impossible to move quickly about the room without sensibly affecting the thermometer. This work seemed of no value except as showing difficulty.

The Baltimore epidemic of septic tonsillitis reported by Hamburger in the *Journal of the American Medical Association,* April 13, 1912, was traced to a certain dairy. It was shown that just before the outbreak the pasteurizing plant was closed for repairs, the management relying upon cold weather to keep the milk from spoiling. This neglected to guard against disease germs and the result followed. The Chicago epidemic reported by Capps and Miller in the same journal, June 15, 1912, was also traced to a certain dairy. Milk from the infected dairy was supplied to a hospital among others. The supply of the children's ward, with seventy cases, was received raw, and was pasteurized by the hospital. There was no case of infection. The supply of the rest of the hospital was pasteurized by the dairy plant, and there were numerous cases among internes and nurses, as well as in the community, showing conclusively, if it needed to be shown, that some treatment by heat is efficient; but showing also that treatment by heat is of no value unless properly done. During the Boston epidemic of 1912, I am not now speaking of the more severe epidemic of 1911, I reported all the cases of tonsillitis seen by me up to the date of the circular of the Board of Health, together with their milk supply. The supply was quite various and no inference could be drawn. Neither was I able at that stage to clinically distinguish between the cases. Later, when they were over, I could say that two of the cases were sicker and longer drawn out than the others, that enlarged cervical glands in one of these cases broke down and needed operation; also that in this last household there was a slight case beginning on the same day. These

two households both got their milk from a supply previously under suspicion and which was now pasteurized. If these cases really originated in milk, it was a case of failure in pasteurization. In the *Journal of Medical Research* for April, 1912, Schorer and Rosenau report careful experiments upon pasteurization in commercial plants. They point out many sources of failure, amounting at times to many degrees of temperature. They were able, however, to reduce the error to a few degrees by employing an automatic regulator, reheating the milk that passed over in the first few minutes, and repeating this reheating as often as any interruption occurred in the process, by also taking especial precautions to ensure that the heated milk should be well mixed, by allowing a certain margin of safety by heating a little above the required degree and by maintaining the heat for a sufficient time. They conclude that their studies emphasize the necessity for official control over all pasteurizing plants. I would suggest that even a good operator will be subject at times to nagging in order to hurry the product to market when milk trains happen to be late. Therefore it would be better, if possible, to protect milk from disease germs in the first place rather than to infect and then disinfect.

It appears to me that enough has been shown to perhaps explain the difference of opinion among clinical observers as to the clinical effect of pasteurization. They have not all been dealing with the same thing.

The Boston epidemic of septic tonsillitis in 1911 was traced to the milk of a certain dairy. Great pains had undoubtedly been taken at this dairy to give a good supply, and no particular blame can be attached to it for not foreseeing what had not before happened. It is, however, true that the incident was used by many critics to show that this event proved the need for pasteurization, by showing that care in producing and handling milk had failed. This criticism appears to me unsound, because there was an epidemic of tonsillitis at the time in the region whence the milk came, while so far as I know no attempt has been made to show that there was an efficient medical and veterinarian inspection of the farms. Here seems an obvious failure in an otherwise good system, and one that can be remedied.

Davis, in the *Journal of the American Medical Association* for June 15, 1912, states that at the time of the Chicago epidemic, above referred to, some of the milkers were severely ill and continued to milk regularly. Hamburger, in a discussion reported in the same journal of June 22, 1912, states that at Baltimore, patients with sore throats kept at work on the farms. An English epidemic at Colchester was stopped by removing from the herd a single cow that had mastitis. Both the Baltimore and Chicago epidemics could then presumably have been prevented by an efficient inspection of men and beasts. Of course such inspection should be official. It does not then seem chimerical to hope that the era of general pasteurization should come to an end in the not distant future. Pasteurization certainly removes an incentive from the farmer to do his best and I can but think that the prevailing tone of discussion on this subject is unfortunate. Doubtless pasteurization will always have a place as an additional precaution in emergencies.

It would not be fair to suddenly demand of farmers that all should at once come up to the level of certified farms, but much dirt could be cleaned up at little expense, and proper inspection could be supplied by the State. Medical inspection should possibly include members of milkers' families, and non-reporting of slight cases of illness could well be penalized. In the case of typhoid, the cause of which is well known, a single case traced to a milker shows that he is filthy in his habits and is unfit to work on food. Whether he has typhoid or not, we do not want a man to go from the watercloset to the milkpail without washing his hands. The money cost of a modern milk plant is great, and for this reason consideration should be shown to men already in the business. Bulletin No. 46 of the United States Bureau of Animal Industry for 1903 shows however, on page 120, that by intelligent, unremitting industry, it is possible even with antiquated stables to get a low bacterial count, as low on one occasion as 1500. Therefore a farmer who cannot afford to renew his plant may yet hope to produce a clean milk.

The especial danger, if it exists, to which infants are exposed by pasteurization is scurvy. This has been attributed to changes in fat, in proteids, to destruction of ferments and to other causes. It may depend on something not yet discovered, and its existence has been denied. Laboratory work has been done in this direction, but the question is essentially a clinical one. Since 140° for a sufficient time destroys pathogenic germs, and since there ought to be a margin of safety lest the heat is less than is supposed, and since the degree of heat may also be greater than is supposed, the real question is—Do babies acquire scurvy from a continued diet of milk heated to say 145° or a little over?

In solving this problem there are difficulties. It is certain that scurvy is caused not only by heated milk, but also by various forms of incorrect diet. Duty to our patients requires us to modify such diets as well as to omit heat, but by so modifying, we throw these cases out of consideration. The known effect of orange and lemon juice is such that in most cases it is a duty to prescribe them, but this again complicates the case. Rigid scientific proof is to produce scurvy by giving a good food properly heated, and then to see it disappear on removing the heat, but with no other change whatever. This for obvious reasons has not often been done. A few cases have been reported in which the conditions have been met, excepting that we do not know the exact temperature, only that the

milk is said to have been pasteurized. There is not much likelihood of mistaken diagnosis because the diagnosis is easy if one recognizes its possibility, but the small number of reports, although to be expected as explained above, may reasonably be objected to. I believe that the most we can say at present is that at some temperature, not yet determined, scurvy follows if the condition is maintained too long. Even this is disputed.

I conclude that the production of a good safe milk is not so hopeless as some would have us believe, but that it should be guarded by an efficient official inspection; second, that pasteurization is efficient, but that it, too, has its dangers and should also be guarded by an efficient official inspection; and third, that there is some evidence that pasteurization is injurious to young children and that for the present a safe raw milk is to be preferred for them.

This paper was written for the report of the Boston City Hospital. The present epidemic at Canton, Massachusetts, began after the paper was in the hands of the printer. This epidemic apparently bears out my three conclusions, if we accept the report in the *Boston Herald* of May 11. First, it would seem that this epidemic could have been prevented by proper medical inspection, clinical inspection, of the *men* employed. Second, pasteurization failed because of some unintentional error that should have been detected by an expert inspector employed by the State. Third, that it did fail, shows that all negative cases from this plant are of no value whatever in solving the question whether or not pasteurization can cause scurvy.

THE CONTROL OF THE CARELESS AND INCORRIGIBLE CONSUMPTIVE.*

BY MARK W. RICHARDSON, M.D., BOSTON,

Secretary of the State Board of Health of Massachusetts.

The title of this paper carries with it almost of necessity four assumptions. First, that consumption, or tuberculosis of the lungs, is a disease communicable from person to person and, therefore, dangerous to the public health. Second, that such a disease must be the subject of adequate administrative control. Third, that this control, as exercised at the present time, is far from satisfactory, and fourth, that early and energetic action must be taken to correct the obvious defects in our prophylactic machinery.

The statement that consumption is a communicable disease will meet with no attempt at controversion from this audience. That consumption is a contagious disease is to my mind also incontrovertible, be the contact direct from the donor to the recipient as in droplet infection incident to cough, or as in kissing, or more indirect as seen in the use of common drinking cups or in the inhalation of dried sputum in the form of dust.

Our second proposition: That a disease thus shown to be communicable in a marked degree must be subject to adequate administrative control, needs no argument.

That this control of consumptives as exercised at the present time is far from satisfactory, is the almost unanimous opinion of those who know most about the subject.

It cannot be too strongly emphasized that the basic problem in the control of consumption is a sputum problem, and in this regard consumption does not differ materially from diphtheria, scarlet fever, and measles, but, although consumption causes annually nearly four times as many deaths as these other diseases combined, health authorities, even if they try their best, cannot begin to exercise, at the present time at least, over this disease the control easily possible with the other infections just mentioned.

The reason, of course, is not far to seek. Consumption is a slow-going process. The patient oftentimes seems and feels so well, that it is hard to believe such an individual dangerous to those in his immediate neighborhood. The relation of cause to effect seems so remote that its importance is oftentimes neglected. And yet the infection is a sputum infection just as much as it is in diphtheria, and, although running a chronic course, it is in a strict sense just as contagious. Indeed, if the annual consumptive mortality in a community occurred within a fortnight following an acute course of the disease, there would be no doubt or hesitation in the minds either of the health officials or of the laity, as to what measures of control should be immediately inaugurated. Nobody questions that chronic carriers of disease-producing germs such as those of diphtheria or typhoid must be brought under adequate control by force if necessary. The problem with the chronic tuberculosis germ-carrier is exactly similar. Such a carrier should be under immediate close supervision by the health authorities. To be sure, if he be intelligent enough and public spirited enough to take proper precautions, he may be allowed undoubtedly to associate with his fellows. If not, however, there is no reasonable doubt that he must be so restrained as not to constitute a danger to the public health.

Inasmuch as, therefore, there can be no doubt that the ignorant, careless and incorrigible consumptive is a great danger to the public health, why is it that most health authorities have made so little effort to control such a dangerous individual?

The chief reason for this failure to act has been, without question, the knowledge that public opinion in most communities would not support vigorously such a course. A second reason has been that few cities or towns have had at their disposal institutions properly equipped for

* Read at the Massachusetts Conference on Tuberculosis, Holyoke, Mass., March 22, 1913.

the care of such chronic diseases as tuberculosis. A third reason has been that many legal advisers to boards of health have ruled that the law, as at present enacted, would not justify the forcible restraint of these incorrigible consumptives, and that boards of health in attempting to enforce such restraint would thereby render themselves liable to suits for damages.

Personally, I do not believe these grounds to be well taken, and in support of my contention, I will cite the experience and practice of the Boston board of health. Boston has, of course, fairly adequate institutional equipment for the care, not only of its acute exanthemata and diphtheria, but also of consumption. The health department, furthermore, has detailed to it by the police commissioner, and for its especial service, 12 police officers. Whenever a case of disease dangerous to the public health is discovered, which case cannot be properly isolated at home, the patient is advised to go to the proper isolation hospital. If he refuses, the following procedure is carried out. The secretary of the board issues to the police officer the following order:

.....191....

To .....

Inspector.

You are hereby ordered to remove .....now ill with ..... at ..... street, to the Hospital for that disease.

By direction of the Board of Health,

.....Secretary.

It is arranged, furthermore, that an ambulance reaches the house simultaneously with the officer. The patient is then removed, forcibly if necessary, to the proper hospital.

The law under which this action is taken is Section 36 of Chapter 75 of the Revised Laws.

Chapter 75, Revised Laws.

Town Boards of Health shall provide Accommodations for Persons with Dangerous Diseases. Wage-earners held in Quarantine shall be compensated.

Section 36. If a disease which is dangerous to the public health breaks out in a town, or if a person is infected or lately has been infected with any such disease, the board of health shall immediately provide such hospital or place of reception, and such nurses and other assistance and necessaries, as is judged best for his accommodation and for the safety of the inhabitants, and the same shall be subject to the regulations of the board. The board may cause any sick or infected person to be removed to such hospital or place, if it can be done without danger to his health; otherwise the house or place in which he remains shall be considered as a hospital, and all persons residing in or in any way connected therewith shall be subject to the regulations of the said board, and, if necessary, persons in the neighborhood may be removed. When the board of health of a city or town shall deem it necessary in the interest of the public health to require a resident wage-earner to remain within such house or place, or otherwise to interfere with the following of his employment, he shall receive from such city or town during the period of his restraint compensation to the extent of three-fourths of his regular wages: *provided, however,* that the amount so received shall not exceed two dollars for each working day.

Once placed in such an isolation hospital, the patient may not leave without permission of the board of health, for, as stated in the above law, "all persons residing in or in any way connected therewith (*i.e.* the hospital) shall be subject to the regulations of said board of health," and the Boston board of health, as empowered by this section, has made the following regulation:

1. Whoever is infected with smallpox, scarlet fever, diphtheria, measles, typhoid fever, varicella, cerebro-spinal meningitis, anterior poliomyelitis or any other disease dangerous to the public health, shall immediately proceed to some isolated place or room designated by the board of health, and no person who has been so affected shall leave such place or room, and no article shall be removed from such place or room until the board of health shall certify in writing that all danger of communicating such disease to others is passed.

This regulation, furthermore, is made to apply not only to patients who have been forcibly placed in such hospitals, but also to those who entered such institutions voluntarily. The scope of action, moreover, has included such unreportable diseases as syphilis.

Under the above-mentioned statute and regulations, many cases of tuberculosis have been removed to the hospital. In most cases, the removal has not met with opposition. Forcible removal has been carried out as follows: 1910, 25 cases; 1911, 24 cases; 1912, 31 cases.

The validity of the Board's action has been attacked a number of times in the courts in relation to scarlet fever and diphtheria, but never with success. No patient forcibly removed for tuberculosis has as yet appealed against such action to the courts. The control just described can, of course, be exercised only within the city limits. Once out of the city, the health authorities become powerless further to restrain a consumptive. Cases, however, which through lack of settlement come under the charge of the State Board of Charity may be forcibly removed by this body in accordance with Chapter 395, Acts of 1904, which reads as follows:

[Chap. 395.]

An Act relative to the care of persons infected with diseases dangerous to the public health.

Be it enacted, etc., as follows:

Section 1. The state board of charity may, if found expedient, remove any person who is infected with a disease dangerous to the public health, and who is maintained or liable to be maintained by

the Commonwealth, to any hospital provided for state paupers, or may provide such place of reception for such person as is judged best for his accommodation and the safety of the public, which place shall be subject to the regulations of the board, and may remove such person thereto.

Section 2. Any expenses incurred in carrying out the provisions of this act may be paid from the annual appropriation for expenses in connection with smallpox and other diseases dangerous to the public health.

Section 3. This act shall take effect upon its passage. [*Approved June 2, 1904.*]

The State Board of Charity has never acted under this law in relation to tuberculosis. The law was passed to facilitate removal of lepers and it has been invoked only in cases of leprosy. As to action taken along similar lines by local boards of health other than Boston, I find only the following examples:

In Attleboro several years ago the local board of health had much trouble with a certain individual, now deceased, who was far advanced with tuberculosis. He was a miserable drunken person whom no one could control, and the board secured his admission to Tewksbury, from which institution he promptly eloped. The board, however, watching its opportunity, caused this man's arrest when intoxicated, as a common drunk, and he was committed to the State Farm at Bridgewater and treated there in a tuberculosis ward. At the end of his term, he returned to Attleboro and ultimately died there, no further attempt being made apparently to control his actions. Indeed, I understand that the Attleboro town solicitor gave as his opinion, that the existing law would not permit the board to restrain by force an incorrigible and careless tubercular person.

In Holyoke, furthermore, I believe the board of health arrested an individual sometime ago and arraigned him before the court because he left the tuberculosis hospital and refused to return. His case was continued, however, as he returned to the institution, where he died.

Haverhill is at the present time prosecuting an important case of the character under discussion. This individual was arrested on a complaint by the Haverhill Board of Health acting under Section 46 of Chapter 75 of the Revised Laws which reads as follows:

Revised Laws, 75.

Warrant may issue for Removal of Infected Persons

Section 46. A magistrate authorized to issue warrants in criminal cases may issue a warrant directed to the sheriff of the county or his deputy, or to any constable or police officer, requiring him, under the direction of the board of health, to remove any person who is infected with contagious disease, or to impress and take up convenient houses, lodging, nurses, attendants and other necessaries. The removal authorized by this section may be made to any hospital in an adjoining city or town established for the reception of persons having smallpox or other disease dangerous to the public health, provided the assent of the board of health of the city or town to which such removal is to be made shall first have been obtained.

A writ of habeas corpus is now sought by this man through his counsel, the writ being directed to the superintendent of the Haverhill City Hospital where the patient is detained. The patient claims that he has not tuberculosis and that he is being detained in violation of his constitutional rights. I may say, however, that similar habeas corpus proceedings have been instituted in the past against the Boston board of health without success.

As regards Section 46 you will also note that the removal contemplated relates only to institutions either in the affected community or in one adjoining thereto. Removal to more distant institutions such as the State sanatoria is not possible. It is, therefore, proposed to amend this section so as to allow such removal to be made to any public institution within the Commonwealth provided for such cases irrespective of the proximity of the institution to the community affected.

Finally, the opinion seems justified that health boards have support in law for much more drastic action as regards the careless and incorrigible consumptive than has been supposed, and that such legal support can be invoked with success, especially by those communities such as Boston which are provided with isolation hospitals for consumptives.

EFFICIENT BOARDS OF HEALTH.*

BY ROBERT N. HOYT, BOSTON,

Massachusetts Institute of Technology and Agent Wellesley Board of Health.

The twenty minutes allotted to me are not sufficient to permit a comprehensive treatment of so big a subject as Efficient Boards of Health. I shall limit my paper, therefore, to the statement of a few main essentials for efficiency and of a plan of coöperation among adjoining towns to secure public health service of a high order at a reasonable cost.

Public hygiene or sanitation is one of the youngest sciences and is still in the period of rapid growth. Important discoveries, like the finding of the germ of infantile paralysis and the demonstration of one means of the transmission of this disease, are being made each year. Any board of health whch is out of touch with progress in sanitary science, is fighting disease in the old, blind, ineffectual way. To know your enemy is as important in the fight against germs as in any other battle.

* Read at the Massachusetts Conference on Tuberculosis, Holyoke, Mass., March 22, 1913.

The busy member of an unpaid board of health naturally finds it hard to attend sanitary conventions, but it could be confidently predicted that a great improvement in local health work would result if more boards were represented at the meetings of the Massachusetts Association of Boards of Health, and other organizations interested in the prevention of disease.

Every local board of health should consider a library on public hygiene a necessary part of its equipment and appropriate ten to twenty-five dollars a year for the purchase of authoritative books and periodicals which will keep them informed in health matters. There is no board so poor that it cannot afford two dollars a year for the *Journal of the American Public Health Association*, and the weekly reports of the United States Public Health Service and other publications of Federal and State Departments can be obtained free of cost.

Boards of health thus in touch with modern ideas will devote a greater part of their activity to the control of real causes of disease and death and transfer the supervision of those things which are merely unsightly or disagreeable to other municipal departments. Most boards of health prosecute the person who offends the nostrils by carrying manure through the street, although it is not a menace to health, while they allow the same man to keep his manure pile and breed thousands of disease-carrying flies, if only a bad odor is not created.

Popular education along public health lines is not generally regarded as one of the duties of a board of health. And yet I believe that it is absolutely necessary in most communities because the autocratic or bureaucratic methods which prevail in Europe would not be tolerated here. Proper moral and financial support for the board of health will come only when the citizens of each community have been taught the advantage and necessity of efficient sanitation. Popular education should do away with a great number of nuisance complaints made in ignorance of what constitutes a menace to health. The complaint of a college graduate that a pool of stagnant water covered with an ugly green scum was the probable cause of several deaths in the neighborhood failed to arouse a single smile when related to an intelligent audience recently. One man actually rose to inquire if the scum were not a dangerous source of disease. This fear of the harmless is matched by an equally ignorant and more fatal disregard of the really dangerous.

Publicity regarding the various activities of the board should accompany popular education. Columns of "Health Notes" in the local papers cost nothing and are very valuable. Newspapers eagerly accept articles on communicable diseases, flies, mosquitoes and the care of infants in season, as good copy. The regular publication of the results of milk analyses is the most effective way to secure improvement in the milk supply. Lectures and exhibits can be provided at little expense by using the public school buildings. Good lantern slides and moving picture films illustrating lectures on tuberculosis, milk, flies and mosquitoes can now be secured. The Russell Sage Foundation of New York City has established a Department of Surveys and Exhibits, which is glad to assist in securing materials or making plans for public health exhibits. Several cities have arranged to have this department make comprehensive surveys and exhibits of their sanitary conditions.

The annual reports of local boards of health too frequently consist solely of unexplained statistical tables and obscure financial reports and are seldom read by the people for whose benefit they should be written. It is surely due to the tax-payer and citizen that a clear account of the prevalence of disease, the nature of his milk, water and food supply, and a description of the methods employed by the board of health to protect his health be published. In the matter of financial statements, Massachusetts has made a notable advance through its uniform classification of municipal receipt and payments, but, as the authors of this classification admit, it is only a first step towards a classification by income and expenditure. To secure a similar improvement in all branches of annual reports of boards of health, the New Jersey Health Officers' Association has published a Standard Outline, and the Massachusetts Association of Boards of Health is preparing a model form for the same purpose. These schemes do not prevent originality and are easily adapted to the needs of cities and towns of various size and condition.

Surgeon George B. Young of the United States Public Health Service says, "Vital statistics are the foundation of scientific public health work which cannot begin without access to compilations of vital statistics." And yet how seldom do we find properly compiled vital statistics with correct interpretation of their significance! Unfortunately, the tendency of Boards to figure death rates for advertising purposes is aided by the failure of the State to insist on the recording of deaths in hospitals and sanatoria in the place from which the invalid came. It is a matter of common occurrence that a circle of small cities and towns with relatively poor sanitation are able to boast of a low death-rate because large numbers of their residents die in the hospitals of the central metropolis. In the case of tuberculosis, it is especially important that all deaths of residents, whether in town or out of town, be recorded in their place of residence. The number of deaths from tuberculosis is generally the only accurate indicator of the prevalence of this disease, as only a small per cent. of the cases are reported. The application of the ratio of eight cases of tuberculosis for every death from that disease gives startling results in communities that have congratulated themselves on a healthful population because few cases were reported.

A centrally located office with telephone connection, is generally recognized as an indis-

pensable part of the equipment of the board of health, but the efficient office methods used by successful business firms are seldom adopted. The antiquated ledger is too frequently retained where the more elastic and available filing system might be introduced.

The bacteriological laboratory for the diagnosis of communicable diseases and the examination of water and milk is as necessary to the board of health as the hammer and saw are to the carpenter. The local laboratory can save valuable time over the more distant and overtaxed State Laboratory in the diagnosis of diseases. For milk and water examinations it is indispensable. It is safe to say that the municipality that does not have frequent milk analyses made is ignorant of the nature of its milk supply. Experience has shown that dirty milk may come from a beautifully equipped dairy even when regular dairy inspections are made, for it is impossible to visit all dairies frequently enough at milking time to control their methods.

The constant bacterial control of the water supply is one of the most valuable contributions of the local laboratory. Monthly analyses by a State Laboratory may not prevent or even detect the cause of a typhoid fever epidemic due to an infected water supply, as Rockford, Illinois, has learned to her sorrow.

To apply sanitary science to the various needs of a city, the board of health must have a specially trained executive officer or agent. Specialization is the secret of success in the treatment of disease as it is in other applied sciences. This fact has led the Massachusetts Institute of Technology, the Harvard Medical School and other colleges to establish courses in sanitary biology, sanitary chemistry and sanitary engineering to fit men for the position of health officer.

In small cities and towns, it may be difficult to obtain sufficient money to secure a well trained health officer and necessary assistants and to equip and maintain an office and laboratory. While the amount of work to be done is not as great as in a larger community, the need of a good executive and a good laboratory is just as great. An obvious solution of this problem is the co-operation of adjoining municipalities for purposes of sanitation, sharing the expense of salaries and of the one central office and laboratory. Frequently one small city or large town is surrounded by a ring of small towns, the whole forming one community, trading at the same stores, buying milk from the same dealers, attending the same churches and schools and to some extent served by the same water supply. It is obvious that there are many common sources of infection and that duplication in dairy inspection, milk analyses, etc., would be avoided by co-operation. The advantage of this plan over State control is that there will be more local interest in this small organization, directly supported and directly responsible to the little community it serves than in the case of a general State organization, and that it does not have to wait for the passage of an act by the legislature.

The chief difficulty in the way of coöperative health work is political jealousy. This obstacle is avoided by a plan now being developed by Professors Sedgwick and Phelps of the Massachusetts Institute of Technology, who have organized a staff of trained men prepared to give efficient health protection to any group of towns at actual cost. Being under the wing of an educational institution, the organization is freed from political or commercial affiliations.

This plan is already in operation in a group of towns about Boston, comprising Wellesley, Framingham, Needham, Weston and Belmont. Other towns have accepted part of the service. The organization consists, first of a board of advisory experts, consisting of professors in the department of biology and public health. Each member is a recognized expert in some line of public health work and stands ready to give his advice and assistance when needed. Second, there is a working staff of trained men consisting of a health officer, a bacteriologist, and chemist and a plumbing and sanitary inspector. These men, with their assistants, plan to care for a circle of towns from a central office and laboratory. An automobile and motorcycle and the telephone furnish quick communication with all parts of the district served. It is expected that similar organizations will shortly be brought together from other districts.

This Technology plan of expert public health work for small communities marks an important step in the direction of progress. When it shall have been fully developed by careful trial and study and has been made to conform to practical working conditions, it will undoubtedly mark a distinct advance in modern sanitary science.

OPEN-WINDOW SCHOOLROOMS.*

BY ALLEN G. RICE, M.D., SPRINGFIELD, MASS.,

President Springfield Association for the Prevention of Tuberculosis.

This paper is in the nature of a plea for the open-window schoolroom versus the open-air school. The relative hygienic value of the two is obvious; and some time ago the decision on this point was rendered in favor of open-air schools. It is, however, this very possession of superior hygienic value that constitutes, strange as it may seem, the greatest evil of open-air schools; for the accent is wrongly placed on the "open-air" whereas the "school" is deserving of at least equal emphasis. It would seem almost as though open-air schools were looked upon as an end when, as a matter of fact, they are merely a means, and at that a means not necessarily

* Read at the Massachusetts Conference on Tuberculosis, Holyoke, Mass., March 22, 1913.

justified by the end in view. True, for years educational systems sadly neglected the physical welfare of school children, concentrating their efforts upon mental achievements at the expense of bodily health. Not until about a generation ago did the physical well-being of school children arrest tardy attention; with the result that, as time has gone on, more and more stress has been laid on their physical condition, even at the expense of their mental training. The pendulum has swung far beyond the mean, as is often the case in reform movements, until today relatively undue prominence is being given the physical condition of school children. Open-air schools undoubtedly mark the height of excursion to this opposite extreme, and a steady return to more normal levels may be confidently expected. Nevertheless, the experience gained from open-air schools is invaluable, for it has taught lessons that will never be forgotten and has made possible reforms that will never suffer relapse. The sane deduction from this experience is, however, that the hygienic value of open-air schools is not absolutely greater than that of other somewhat similar innovations, but is only relatively so. If, therefore, other procedures provide for school children hygienic surroundings only slightly inferior to those of open-air schools, and at the same time furnish superior advantages in other respects, that work for a better and more equal correlation between the training of mind and body, it is certainly expedient to prefer them. Of all departures tending to better the hygienic environment of school children, open-window rooms approach nearest to open-air schools, and are, therefore, worthy of pertinent consideration.

An open-window schoolroom is one in which, as the name implies, the windows are kept open, possibly injurious draughts diverted by various adjustable window-boards, and the temperature of the room maintained by artificial heat at from fifty to sixty degrees Fahrenheit. Such rooms have passed beyond the experimental stage and statistics are now available which aptly demonstrate their hygienic value. The percentage of attendance, for example, is found to be distinctly higher than in ordinary closed schoolrooms, and only slightly lower than in open-air schools. The improved attendance means that there are fewer absences from such causes as minor ailments, colds, headaches, indigestion, and the like; while a careful perusal of the health records shows that the incidence of measles, chicken-pox, whooping cough, diphtheria, and scarlet-fever is distinctly less. Furthermore, a larger percentage of the pupils in open-window rooms are promoted at the end of the year than is the case among pupils in the closed-window rooms; and when a similar comparison is made between pupils in open-window rooms and open-air schools, the difference in favor of the latter is so small that it is practically negligible.

It is, however, only when the improvement in the general physical condition of open-window schoolroom children is studied that the great hygienic value of that institution is fully appreciated. Rosy cheeks, bright eyes, animated spirits, absence of uncontrollable restlessness on the one hand and of sleepy dullness on the other—both direct results of vitiated air—are strikingly manifest. Freedom from coughing and snuffling is an equally marked feature. The remarkably healthy general appearance of the pupils is a picture hard to draw, one that must be seen in order to appreciate that it is unexcelled by a similar portrayal of open-air school pupils. A detailed physical examination of open-window school children reveals a notable absence of anemia, fewer adenoids and enlarged tonsils, better teeth, a lessened tendency to glandular enlargement, and better nutrition. Moreover, such statistics as are available reveal some striking instances of gain in weight, and an average gain but slightly less than that obtained in open-air schools.

Such improvement in physical welfare is worthy of careful consideration, and especially so when it is recalled that the only factor responsible is fresh air. The progress noted in open-air schools, on the other hand, is due not to a single factor, but to a combination of several. In the instances, for example, of striking gains in weight among open-air school children, it must not be forgotten that these pupils are given more nutritious food, both in quality as well as in quantity, than they would otherwise obtain.

Open-window schoolrooms, therefore, compare favorably with open-air schools even from a hygienic point of view. From an economic standpoint, they are far superior. In the first place, as regards expense, the initial outlay for an open-air school is necessarily large. Either a ready-made building must be bought or leased, a building so situated as to afford a proper environment and so constructed that it can be easily altered for the purpose—two requisites well-nigh impossible of discovery in a city of any size—or an entirely new building must be erected. In either event, with the present high cost of building material the outlay is considerable. Even if the roof of a convenient schoolhouse can be pressed into service, the construction of a suitable floor and a super-roof is expensive. Furthermore, after a serviceable building is ready for occupancy a large amount of necessary equipment is imperative, such as sitting-out bags, heavy felt boots, blankets, dishes, cooking utensils, and the like, to say nothing of a means and a place to prepare food, and a warm spot in which to serve it.

The inauguration of an open-window schoolroom, on the other hand, entails an insignificant initial expense. Any ordinarily conducted schoolroom can be made an open-window room by simply opening the windows and fitting into the casings cheaply constructed window-boards, so adjusted that they effectually divert any possibly injurious draughts. No other changes are called for. Certain refinements have, however,

been developed, such as cheese cloth tacked across the open sash to keep out rain and snow in inclement weather; more elaborate and nicely adjustable window-boards; and other minor improvements of a similar nature,—all exceedingly inexpensive.

The cost of maintaining an open-air school is even greater than the initial outlay. In the first place, such a school requires the services of a specially trained teacher, and such a teacher commands and receives a commensurate salary. On the other hand, any regular teacher is competent to teach in an open-window schoolroom and is, therefore, undeserving of special compensation. In the second place, an open-air school draws its clientele from a large area, not infrequently from all over a city, instead of from a limited area, a contingency that must at once be met by transportation facilities. While in most instances each pupil must himself meet the expense of his transportation to and from the school, there are cities which furnish free transportation, thereby establishing a bad precedent. In any case, the time required for transportation is a distinct and avoidable economic loss, and some one has to pay the actual cost. An open-window schoolroom, on the other hand, draws its clientele from its usual specified area, and the time and cost of transportation is nil. In the third place, because many of the pupils in an open-air school come from such a distance as to make it physically impossible for them to go home for dinner and return in the time allotted for the noon recess, a mid-day meal has to be furnished. Whether the school supplies gratis a whole meal to each pupil, or whether each pupil brings with him part of his dinner, some preparation of food is required, which further adds to the expense of maintenance. In some instances the teacher, in addition to her work of instruction, acts as cook, but only too often another person is employed in that capacity. This practice of furnishing food to school children free, either in whole or in part, is a very serious matter. The laws of this Commonwealth and of others wisely make it illegal for cities and towns to give meals to school children at public expense; and food so given, although by charitable organizations, is a culpable evasion of the act and breaks the spirit and intent of the law.

There are, however, other economic grounds than that of expense from which open-air schools are prone to assault. In public school education, as in everything else of a public nature, the aim should constantly be to give the most good to the largest number at the least expense. If, therefore, fresh air is good for selected school children it is good for all school children; and it is absurd, inefficient, and poor economy to give it freely to a selected few at a large per capita expense and to refuse it to the remainder. It would seem that the open-air school has become a hobby that is fast being ridden to a fall by certain enthusiasts, who to prove their contentions point with jealous pride to the wonderful results obtained in less than one per cent. of school children and shut their eyes to the needs of the ninety-nine per cent. The benefits of open-air schools are not for a moment to be decried, but the narrow policy that selfishly ignores the needs of the great majority in order to justify itself is to be condemned. If there could be unlimited open-air schools to accommodate all school children, it might be another affair; but no municipality is so ideally prosperous. Until that millennium arrives it would seem more economical, both as regards immediate and remote results, to spend time, effort, and money equally for all.

From an educational standpoint there are serious objections to open-air schools. They must of necessity be conducted as ungraded schools. Experience and the history of education emphatically prove that more efficient instruction can be given and better results can be obtained in public schools through some method of grading. Therefore, the assertion of open-air school enthusiasts that pupils advance as fast and learn as much in their ungraded schools as in the graded schools, cannot in the long run be true. The instances reported in which this occurs must be exceptional. Open-window school rooms, on the other hand, do not furiously fly in the face of experience, and by retaining some scheme of grading furnish thereby more efficient instruction.

Lastly, from a moral point of view the open-air school is objectionable. It tends, first of all, to develop a child asymmetrically by over-emphasizing physical training. It leads a child to become unduly conscious of certain bodily defects that in most instances can be corrected by less drastic measures. In many instances it forces a suggestible child to believe that he is a little different from normal in other ways; that his condition demands a little more than is due the ordinary child. He sees that he is fed, clothed, and given time to sleep at some one else's expense; and he comes slowly to regard himself as a special case that must be cared for at public expense. He grows to feel that the world owes him a living and has got to give it to him.

Open-air school enthusiasts maintain that their pupils get more than ordinary mental and physical training in their schools, in that they are taught personal hygiene, household tasks, table manners and the like. Such arguments are vain attempts to bolster up a failing cause by practices that out-socialize socialism. A child cannot be successfully taught body cleanliness by taking him into a finely appointed bathroom, where there are hot and cold water, soap, brushes, and clean towels in abundance. He must be followed into his own home and there be taught to make the best possible uses of the facilities his home possesses. Neither can a child be taught table manners at a noon meal five times a week when in his own home sixteen times a week it is a case of grab and grub. Such ideas are fetishes worshipped by deluded partisans to

the detriment of the child. Instruction so given is rarely permanent and when lasting only serves to make the child ashamed, disgusted, and intolerant of his home.

The teaching of table manners is important and every child should be taught them, but the home and not the school is the place for such instruction. A very few parents resent this usurpation of their prerogatives by the school; some parents are indifferent; but far too many are only too glad thus to shirk the responsibility that is really theirs. Parents tend to become even further demoralized and perhaps pauperized when experience discloses the lamentable fact that in many instances a free meal constitutes the greatest inducement that influences them to send their child to an open-air school.

It would seem, then, that the open-air school is not the last word. Conceived with but a single object in view, instituted with impulsive enthusiasm, and developed not step by step, but at a single bound, its possible consequences along lines other than hygienic were not foreseen. Moreover, even from a hygienic standpoint, experience with the innovation has brought forth something of a shock, for it has not proved to be the panacea for the physical ills of school children that was confidently hoped for. Certain children have not only failed to derive benefit from it, but have even suffered harm; and its application has had to be restricted. Sober, second thought has disclosed that the failure to regard possible consequences of the innovation along lines other than hygienic has been disastrous for its continuance as a valuable public institution. From an economic standpoint the open-air school is a poor investment; from an educational point of view it is a step backward; and from a moral standpoint it is unwise.

It would seem necessary, therefore, to recede a bit from the perilously advanced position that has been taken, and the next step backward is the open-window schoolroom. Its hygienic value is an accepted fact; economically it demands a minimum expense and affords equal advantages for all; educationally it keeps step with progress; and morally it has nothing to condemn it.

CONTROL OF THE CARELESS AND INCORRIGIBLE CONSUMPTIVE.*

BY C. T. CALLAHAN, ESQ., HOLYOKE.

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THE discovery by the medical profession that tuberculosis is a communicable disease and that, to prevent the spread of the scourge, some control of the movements and conduct of persons afflicted with the disease is necessary gives rise to the very important question as to how far the State may invade the personal liberty of the individual in the attainment of its object. My treatment of the subject, "The Control of the Careless and Incorrigible Consumptive," will be that of a lawyer addressing himself to a consideration of the rights of the public on the one hand and of the patient on the other. Whether tuberculosis is a disease which can be cured, whether the danger of infection is so great as to threaten the whole community, and whether treatment of the disease in isolation may reasonably be expected to exterminate it are questions peculiarly for the determination in the first instance of the medical profession. If we except certain phases of the subject of insanity, it may be said that the law has always given profound respect to medical opinion. Thus, if the doctors should agree that tuberculosis was a communicable disease, menacing to the public health and that it could be appreciably controlled by isolation, their conclusion would be accepted by the courts as a fact of common knowledge and would be a strong element in their consideration of the extent of the powers of the State to suppress the disease.

Assuming the propositions advanced in favor of physical restraint to be established, how far can the State undertake to control the careless and incorrigible consumptive? In the last two centuries society has constantly enlarged its right to restrain persons afflicted with disease as a matter of self-protection. By the common law of England, the only remedy for the suppression of sources of disease was an action for damages or an indictment for nuisance. As medical investigation of public health probed deeper and deeper into the cause of disease, the law responded to the demands of the profession for corrective measures, and the enactment of such legislation has repeatedly raised the question how far the personal rights of the victim may be invaded in the interests of the common good. A few broad considerations lie at the foundation of all consideration and all discussion of the subject. It has always been held that, with birth itself, citizens are endowed with the right to enjoy life, liberty and property. But man has a right to natural freedom only in so far as the exercise of it is not inconsistent with the rights of others. The limitation is clearly stated in the preamble of our own bill of rights: "The body politic. . . is a social compact by which the whole people covenants with each citizen, and each citizen with the whole people, that all shall be governed by certain laws for the common good." In connection with this should be read the constitutional provision creating the right of men to enjoy and defend their lives and liberties, and the article granting full power and authority to the General Court to enact "all manner of wholesome and reasonable orders, laws, statutes, ordinances, directions and instructions. . . as they shall judge to be for the good and welfare of this Commonwealth."

The exercise of the police power thus con-

* Read at the Massachusetts Conference on Tuberculosis, Holyoke, Mass., March 22, 1913.

ferred on the Legislature has seldom been interfered with by the courts. In the phrase "wholesome and reasonable orders" and so forth, there would seem to be reserved to the courts a power to review and set aside an act of the Legislature relating to the public health which might unduly invade the personal liberties of citizens. But, as a rule, the courts have hesitated to place limits upon the legislative exercise of the police power. It has been held that it extends generally to the protection and preservation of the public health on the principle that the rights of individuals must give way to the community welfare. It has been held to be true of the right to personal liberty as well as the right to property. The power to hold persons in quarantine has been upheld. It has been clearly settled in this Commonwealth that "a man afflicted with the smallpox, or any other contagious disease dangerous to public health, has for the time being lost his right to personal freedom, and may be compelled to yield to restraint, carried, if necessary, even to compulsory isolation." So, that the public officers, in their discretion, might even remove to a hospital the person fallen ill, or care for him in the house in which he resided. On the general principle that individual right must yield to public right, it has been held that a person suffering loss of rents from the location of a properly conducted hospital in his neighborhood, has no remedy. The statute authorizing boards of health to require the vaccination of all the inhabitants, and imposing a fine for a violation of such requirement, was held constitutional in this State, and this decision was affirmed by the Supreme Court of the United States.

But decisions of this kind in this State appear to be limited to cases of smallpox or other virulent epidemics. That may be, and probably is, due to the fact that boards of health have been reluctant to exercise the powers conferred on them by the Legislature.

Before 1906 the statutes authorized boards of health, if a disease dangerous to public health broke out, or if a person was infected, to provide immediately a hospital or place of reception, and to cause any sick or infected person to be removed to it if it could be done without danger to his health, in which last event the house or place where the sick person was could be considered as a hospital, and the people living in the house could be subjected to the regulations of the board, and, if necessary, persons in the neighborhood might be required to move away. This power could be enforced by a warrant of the courts directed to a sheriff, or his deputies, or to any constable or police officer, requiring them, under the supervision of the board, to remove such person or "to impress and take up convenient houses, lodging, nurses, attendants and other necessaries." However, it was provided that these powers should not apply to smallpox except in cases of persons residing in boarding-houses or hotels, or in cases of two or more families occupying the same dwelling, or in other cases in which, in the opinion of the board and the attending physician, the case could not be properly isolated. In 1906, in addition to other amendments not necessarily material to this discussion, this statute was amended so that the power of removal of patients from their homes is no longer limited as to cases of smallpox, but appears to be restricted as to all diseases dangerous to the public health. It would appear, therefore, that even now the authority of removal in all cases is limited to boarding-houses or hotels or to dwellings occupied by two or more families, unless, in the opinion of the board, the case cannot be properly isolated. The opinion of the attending physician is eliminated as a factor in determining whether the case can or cannot be isolated, and, in all probability, the opinion of the board formed in good faith would be held conclusive in a case where the sick person was not living in a hotel, boarding-house or tenement building. By a later statute passed in 1907, the State Board of Health was authorized and directed to define what diseases shall be deemed to be dangerous to public health. I am informed that the State Board, in pursuance of this duty, has declared tuberculosis to be such a disease. Last year the Legislature recognized it in precise terms as a disease dangerous to the public health, in Chapter 151, amending Section 35 of Chapter 75 of the Revised Laws, relating to the establishment and maintenance of hospitals in cities and towns. In the amendment these institutions are described as "hospitals for the reception of persons having smallpox, diphtheria, scarlet fever, tuberculosis or other diseases dangerous to the public health as defined by the State Board of Health."

If we assume that in the statutes mentioned the Legislature has clearly expressed its intention to confer upon Boards of Health the power to enforce involuntary isolation in cases of tuberculosis, will the Supreme Judicial Court uphold the constitutionality of the Legislature's exercise of its police power in this particular kind of disease? The question ought to be put to that tribunal purely on its merits, and ought not to be complicated by unnecessary technicalities. It would be good preliminary tactics to codify all the statutes relating to public health, so there would be no possible question raised of the Legislature's meaning to bring cases of consumption within the power of boards to compel involuntary isolation.

Thus presented, the one issue for the court would be the constitutionality of the law. There can be little doubt that involuntary isolation will be resisted by many persons suffering from this disease. The issue presents some important and interesting considerations. It will be observed that the cases in which the exercise of the police power in the suppression of disease dangerous to the public health has been upheld, the courts had to deal with diseases vastly different in their nature, their infectiousness and their duration.

For example, in dealing with smallpox cases, it was indisputable that the disease spread rapidly, threatening entire communities, that isolation was necessary to its prevention, and, more important than all to the question before us, that, owing to the usual course of the disease, compulsory isolation was comparatively brief and meant no more to the patient, if he survived, than a temporary restraint of his personal liberty. I assume in favor of the medical profession that it would have no difficulty in establishing as facts in the case that tuberculosis is infectious and that isolation would tend to suppress it. But the issue presented, the invasion of personal liberty, guaranteed by all constitutions and by all law, is of such tremendous importance to the individual that I cannot conceive of a refusal by the court to receive evidence upon the question whether the law is "wholesome and reasonable" within the meaning of the constitution. Upon this question it is of prime importance to bear in mind that in the present state of medical treatment the curability of tuberculosis is at least in grave doubt. Unlike smallpox, diphtheria and scarlet fever, tuberculosis is not a disease of short duration. To isolate in some stages of it would mean a denial of personal liberty for life. Is the infectiousness of the disease of such a character that to allow unlimited personal liberty to its victims constitutes a real danger to public health? Would you be sure of your ground in maintaining that it assumed the character of an epidemic, as in the other diseases mentioned? If these questions can be answered affirmatively, would the court say that a law under which a sufferer might be deprived of his personal liberty for the rest of his days was "wholesome and reasonable"? To illustrate, it would be difficult to maintain that the application of such a law to cases of diabetes or pneumonia, for example, would be held "wholesome and reasonable." On the other hand, the peculiar disease under discussion, which enables its victim to walk about almost to his last hours, compelling him by its very agonies to cough into the air and to spit out, wherever he may be, germs that may prostrate others, would seem to fortify the demand of the doctors for power to control the movements of such agents of death. Whether authority to isolate, with its attendant restriction of liberty, severance of family relations and consequences to property rights, will be upheld by our highest court, I do not undertake to say.

However, it may at least be said that the contentions of the profession are entitled to the highest respect. A demand, fortified by so strong authority, should be passed upon as soon as possible for the common welfare. As citizens desiring the passage of "wholesome and reasonable" laws, we should all be anxious for the speedy determination of a question involving such tremendous consequences to mankind. As a lawyer, I shall be keenly interested in the court's treatment of it. By all means, press the issue. Ask for a codification of the statutes bearing on the subject. Proceed under them, and let the Supreme Judicial Court say the word which shall mean that the carrier of this disease may be isolated in the interests of the general welfare, or that the medical profession must define new rules, with penalties attached, for legislative sanction for the regulation of their conduct while at liberty.

ON THE FREQUENCY OF THE TRANSITION OF ULCER OF THE STOMACH INTO CANCER.*

BY JULIUS FRIEDENWALD, M.D., BALTIMORE,

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Much interest has been manifested in recent years, regarding the frequency of the development of cancer of the stomach upon the scar of an old ulcer.

Among the earlier writers, Cruveilhier (1839) and Dittrich (1848) were among the first to point to this condition, while Zenker in 1882 maintained that all cases of cancer of the stomach had their origin in simple ulcer. Hauser in 1883 was among the first clearly to point out histologically the transition of ulceration into carcinomatous proliferation. Since then various authors have differed widely concerning the frequency of this transition. Haberlen estimated 7% of cases occurring in this manner, Miculicz 7%, Lebert 9%, Rosenheim 6%, Fenwick 3%, Osler 2.6%, while Moynihan estimates it at 60%, William Mayo 54%, Graham 62%, and Wilson and MacCarty 71%. It is difficult to reconcile the great diversity of opinion of the various writers. While it is generally admitted that carcinoma of the stomach usually develops without presenting a previous history of prolonged gastric disturbance, it has frequently been maintained that this does not militate against the theory of the development of carcinoma upon the base of an occult ulcer, for Brinton has demonstrated the presence of gastric ulcer in about 5% of individuals, dying of diseases of all kinds.

Paterson has recently discussed this subject anew, and while he does not deny the possibility of a transformation of ulcer into cancer, he is doubtful as to the great frequency of this transition. He offers both clinical and pathological evidence in support of this view. In his clinical evidence he points out, that notwithstanding the fact that certain patients affected with carcinoma give a history of gastric disturbances lasting many years, this does not in any way indicate that these symptoms are due to ulceration; and furthermore, the fact that the patient has a history of gastric disturbance of long duration is not necessarily at variance with our views concerning the growth of cancers, for

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many cancers grow slowly, and extend over long periods.

He points to the fact that certain patients affected with cancer, upon whom gastro-enterostomies have been performed, often live two or three years after operation; on the other hand, he has observed cases in which cancer and ulcer of the stomach appear in the same individual independently, entirely separate from each other. In his pathological evidence Paterson points to the fact that, notwithstanding the statistics of Wilson and MacCarty, that 71% of cancers originate in the scar tissue of ulcer, the presence of the scar tissue is not necessarily evidence of non-malignancy, and the condition may be inherently malignant before it can be recognized as such, either clinically or pathologically. Again, ulcer of the duodenum is very frequent, while cancer is rare; and cancer is more common in the second portion of the duodenum than in the first, while ulcer is exceedingly rare in the second. If cancer develops from ulcer, then it should be much more frequently observed in the first portion of the duodenum. Paterson also points to the fact, that in many cases of ulcer gastro-enterostomies are performed, yet these patients rarely die of cancer afterwards, although the ulcer remains undisturbed. He points out, too, that but 1% of these cases die of cancer. Kocher reports 50 cases in which this operation was performed, the patients being observed for a period of from 2 to 12 years after operation, and in not one did a malignant change manifest itself. Gressot observed but 2.3% occurring after this operation.

Aschoff maintains that the relation existing between ulcer and carcinoma offers great difficulties, inasmuch as but very few writers have studied this question carefully. He notes the surprising fact, that a large number of chronic gastric ulcers, termed callous ulcer by the surgeons, which are apparently ordinary gastric ulcers, appearing microscopically as cancers, are really not ulcers degenerating into cancers, but cancers transformed into typical ulcers. In the material turned over to him by Enderlen, the typical appearance of ulcer could be regularly observed in the callous ulcers, while on the other hand, diffuse cancerous infiltration appeared in the base as far as the serous coat with relatively slight cancerous development in the borders, from which it may be definitely concluded that primary carcinoma with secondary ulceration existed.

In a study of 1000 cases of cancer of our own, in which careful records have been kept, there was a history of some previous digestive trouble in 232 cases (23.2%). Of the 232 cases 109 had slight attacks of indigestion for a period of five years or more preceding the present gastric disease, while 25 had slight attacks only during the last five years preceding the present disease. Of the remaining 123 cases, 32 had chronic indigestion more or less all of their lives, of which 29 had chronic indigestion mainly during the last five years preceding the present illness. Seventy-three cases gave a definite history of former gastric ulcer. It is therefore evident that in the 1000 cases, but 23 per cent. present a history of any previous digestive disturbance whatever, even in the slightest degree, and that but 7.3% give a direct history of ulcer. If, therefore, all of the former digestive disturbances be considered as due to ulcer, the formation of gastric cancer from ulcer could not have taken place in more than 23%; if all of the cases with slight digestive disturbances be disregarded in our series this percentage is reduced even to 12.3%. We therefore maintain, notwithstanding the sweeping statement of Wilson and MacCarty that "the 109 cases (71%) which present pathologic evidence, gross and microscopic, that is, large ulcers with scar tissue centers and overhanging borders, deep in the bases of which cancer is present, in almost every instance have unmistakably originated on the lesser curvature of the stomach, the usual site of gastric ulcer. Further, almost every case gives a clinical history of gastric ulcer for a long period of years preceding the relatively short period when the history became that of gastric cancer," that from a study of our own cases from a clinical point of view, as well as from the pathological studies of Aschoff, these figures are far too high, and that while we believe that gastric ulcers are at times transformed into malignant growths, we do not believe that this change takes place in more than 23% of cases and probably in not even so large a proportion.

TUBERCULOUS OSTEOMYELITIS OF THE DIGITS.

BY ROBERT M. GREEN, M.D., BOSTON.

Tuberculosis of the bones of the fingers and toes, frequently termed for convenience tuberculous dactylitis, or *spina ventosa,* is apparently essentially a disease of infancy and childhood, since it is seldom observed to occur among adults. Moreover it is apparently also a disease from which spontaneous and almost complete functional and anatomic recovery is the rule, since permanent disabilities due to it are seldom seen during life and deformities referable to it are rarely reported at autopsy. For these reasons, it seems of interest to review its history, pathology, clinical manifestations and course, and to consider the therapeutic measures by which its natural recovery may be favored or expedited.

HISTORY.

The most complete historic account of tuberculous osteomyelitis of the digits was published in 1909 by Velnet,[1] who chose it as the subject of his thesis as a candidate for the doctorate in

medicine before the Faculty of Medicine of Paris. According to this writer the disease was first recognized as a clinical entity and described in medical literature under the term "rihk alschukah" by Rhazes, the Persian physician, about 850 A.D. Later it was known to medieval surgeons by the successive names of *flatum spineum, ventum spineum,* and *spina ventositas.* The term *spina ventosa* was first applied to it about 1550, the word *spina* referring to the painful, pricking character of the lesion, the word *ventosa* to the associated enlargement and hollowing out of the bone. This fanciful term, however, has long since been discarded for the more accurately descriptive pathologic name of the disease.

Boyer[2] ,[3] at the beginning of the nineteenth century, was the first to give an exact and complete modern description of *spina ventosa* of the foot and of the hand. And Nélaton,[4] in 1836, was the first to affirm its tuberculous nature. From this time, knowledge of the nature of the disease progressed *pari passu* with the developing knowledge of clinical surgery and of bacteriology.

In 1895 Roentgen's discovery of the x-rays gave a great impetus to the study of this as of all bone diseases. But it was apparently not until 1902 that the systematic publication and report of cases of tuberculous osteomyelitis of the digits began. In that year Allaire[5] reported four cases, with skiagrams, two without concomitant ulcerations and two with ulcerations and fistulae. In the same year Kienböck[6] reported six cases; Redard and Barret[7] in 1906 reported one; and Freund[8], [9] five in 1908 and one in 1909. In the latter year also Veluet (op. cit.) reported 12 new cases, with x-ray diagrams; and in 1910 Iselin[10] reported 16 cases. Subsequent reports of cases will be noted in succeeding sections of this article.

PATHOLOGY.

Lannelongue described the pathology of *spina ventosa* as "an infiltration with tuberculous granulations, the formation of a sequestrum, which may involve the entire diaphysis of the bone, often with very considerable rarefaction of the old bone, and the formation of new bone under the periosteum." Kirmisson,[11] who calls the condition tuberculous osteitis, says of it; "Tubercular granulations are to be found either in the deep surface of the periosteum or in the tissue of the bone itself, and these in their growth cause swelling of the bone and the characteristic appearance of the affection." In favorable cases the process may become arrested and heal without sequestration; in others there are sinus formation, purulent discharge, and associated ulceration of the soft parts.

CLINICAL CONSIDERATIONS.

Tuberculous osteomyelitis more often affects the hand than the foot, and more often the phalanges than the metacarpals or metatarsals. It usually begins as a moderately painful and tender, slowly progressive, fusiform swelling of the affected digit, with some reddening of the overlying soft parts. The affection may be single or multiple. It is often associated with tuberculous processes in the lymph-nodes or serous membranes or with tuberculous foci in other bones. X-ray examination shows bone-destruction and rarefaction, with characteristic hollowing out of the diaphysis and inflammatory thickening of the surrounding tissues. As stated above, there may be sinus formation and suppuration, or the process may heal spontaneously by resolution and absorption. The disease may run a course of from six months to several years. The amount of permanent anatomic and functional damage depends largely upon the extent of bone destruction. The joints are fortunately seldom involved.

Clinically the differential diagnosis of this condition is chiefly from pyogenic osteomyelitis, sarcoma, and syphilitic dactylitis. The chronicity and absence of acute pyrexia and leucocytosis are sufficient to distinguish it from pyogenic osteomyelitis. Sarcoma is rare, is almost invariably single, does not suppurate, and in the skiagram presents bone destruction and neoplastic hyperplasia without inflammatory reaction. Syphilitic dactylitis is more often single than tuberculous dactylitis, is often associated with other syphilitic stigmata, does not suppurate, improves rapidly under general treatment with potassium iodide, and in the skiagram shows marked periosteal thickening without bone destruction.

TREATMENT.

In the treatment of tuberculous osteomyelitis of the digits, general hygiene and local rest by fixation hold the foremost place. If these measures be promptly instituted in the early course of the disease, the majority of cases recover with relatively little anatomic deformity or functional limitation. Cheyne[12] says in this connection: "It is remarkable how often, if the affected finger is properly fixed and kept at rest, and the child placed under good hygienic conditions, the swelling subsides and ultimately entirely disappears, leaving very little trace behind." The natural tendency to spontaneous recovery, therefore, can be much aided, the duration of the disease shortened, and the anatomic and functional result improved by prompt and conservative treatment.

Opinions differ as to the best therapeutic course to be pursued when bone destruction and suppuration occur. Cheyne (*loc. cit.*) advises incision and curettage. Kirmisson (*loc. cit.*) suggests puncture by the actual cautery or injection of the abscess cavity with iodoform and ether. All authorities are agreed that amputation is rarely or never indicated. Personally, from my limited experience, I am inclined to believe that even incision is seldom desirable. I

have seen fluctuant swellings, from which sinus formation seemed inevitable, absorb without discharging, and therefore without prolonged suppuration or cicatrix formation. Incision, on the other hand, makes these inevitable, complicates the dressing of the affected part, and in my belief increases the subsequent deformity and disability. In the majority of instances I believe in refraining from incision. Even an angry-looking, fluctuant swelling may generally be left with perfect safety to form its own sinus by spontaneous rupture; the resulting drainage will be just as effective, the scar less, the period of convalescence shorter, and the ultimate result more satisfactory.

In illustration of these principles of treatment, I wish to record briefly the clinical history of ten cases of tuberculous osteomyelitis of the digits from the surgical out-patient clinic of the Children's Hospital, Boston. For the privilege of observing and reporting these cases I wish to express my grateful acknowledgment to Dr. James S. Stone, surgeon-in-chief to the hospital.

Case 1. A. P. Age 2 years. Entered Dec. 4, 1909.

F. H. Mother living and well. Father dead.

P. H. Negative.

P. I. About four months ago swelling appeared on forefinger of left hand. Has increased in size. Very painful. Baby has rash on face.

P. E. On forefinger of the left hand is a fusiform swelling of the proximal phalanx. Some fluctuation, at inner aspect. Joints negative. X-rays show necrosis of the phalanx.

Patient did not return again until June 19, 1911. The process in the forefinger was healed, but a fresh focus had developed in the first phalanx of left fourth finger.

A splint was applied and worn continuously until Oct. 7, 1911, when patient was lost sight of.

Fig. I shows the radiographic appearance of the initial process in the proximal phalanx of the left forefinger, in this case in its acute stage.

Fig. II, taken 18 months later, shows this initial process healed, and fresh focus of infection in the distal extremity of the proximal phalanx of the left fourth finger.

Case 2. J. McC. Age 1 year. Entered Feb. 26, 1910. Rec. 8443.

F. H. Father and mother living and well.

P. H. Bottle-fed.

P. I. For one month middle finger of right hand has been swollen. Gradually has been getting larger. Not painful.

P. E. Well developed and nourished child. First phalanx of right middle finger is symmetrically swollen, slightly red, not specially tender. X-ray shows t. b. process in proximal phalanx.

A splint was applied and worn continuously until July 2. During this time two superficial fluctuating areas appeared and were incised. On Oct. 9, these wounds were completely healed. There was some deformity of the finger, but good function.

Fig. III shows the radiographic appearance of the affected phalanx in this case during the stage of active suppuration.

Case 3. E. G. Age 10 years. Entered Mar. 5, 1910. Rec. 8465.

F. H. Father, mother, one brother and one sister living and well.

P. H. Always well.

P. I. Five weeks ago a blister came on little finger of right hand. Child scratched it and it has become septic. Incised by private physician.

P. E. Child pale. Right middle finger much enlarged. Not tender, with two indolent ulcerating wounds of incision. No glandular enlargement at elbows or axilla. X-ray shows t. b. process in phalanges.

Treatment: Dorsal splint. Dry dressing. Bandage. The wounds discharged freely for a time, then gradually healed. The swelling diminished. The splint was omitted on June 18; and a spica bandage substituted. On July 16, 1910, the sinuses were closed. No local tenderness. Shaft of phalanx somewhat thickened. Some limitation of motion Aug. 7, 1911. Wounds healed. Almost complete restoration of function. X-ray and photograph Mar. 17, 1913. Same as at last note.

Fig. IV shows the radiographic appearance during the acute stage in this case.

Figs. V, VI and VII illustrate the functional and anatomic result 17 months later.

Fig. VIII shows the radiographic appearance of the completely healed process three years after the original onset.

Case 4. M. H. Age 17 mos. Entered April 6, 1910. Rec. 8602.

F. H. Unimportant.

P. H. Bottle-fed baby; chickenpox and mumps in infancy.

P. I. Middle finger of left hand swollen for six months.

P. E. Well developed and nourished child. First phalanx of middle finger of left hand swollen, but not red or tender. Joints not affected. X-ray shows erosion and destruction of first phalanx of left middle finger; joints and carpus not involved.

A splint was applied and worn continuously until Aug. 3, 1910. Once a swollen fluctuant area appeared, but was not incised and subsided. On Aug. 7, 1911, the process was entirely healed, with slight deformity and perfect function.

Fig. IX shows the radiographic appearance in this case during the acute stage of the disease.

Figs. X, XI and XII represent the functional and anatomic result 16 months later.

This case illustrates the advantage of not incising a fluctuant area.

Case 5. N. S. Age 3 years. Entered April 18, 1910. Rec. 8650.

F. H. Unimportant.

P. H. Breast-fed.

P. I. Discharged from Wellesley to Eye and Ear Infirmary for bilateral purulent ophthalmia. Left Infirmary last Friday. For two years has had

swelling of middle and fourth fingers of left hand, which were incised two months ago by private physician.

P. E. Well developed and nourished boy. At outer canthus of each eye is a scar of incision. Both conjunctival scars secreting freely, but not purulent. Under chin and on right cheek are suppurating superficial wounds. Over upper part of right shin is a discharging surgical incision, apparently superficial. About middle toe of left foot are several similar superficial suppurating wounds. Third and fourth fingers of left hand are enlarged and present several chronically suppurating incisions. X-ray shows tuberculosis of second phalanges of third and fourth fingers of left hand.

A splint was applied and worn continuously, with steady though slow improvement, until Aug. 10, 1910, when the case was unfortunately lost sight of.

Fig. XIII shows the radiographic appearance in this case, during the acute stage, with marked bone destruction and cavity formation in the affected phalanges.

Case 6. R. C. Age 3 years. Entered July 19, 1910. Rec. 9655.

F. H. Father, mother and one sister living and well.

P. H. Negative.

P. I. Middle finger of right hand swollen since last April.

P. E. There is a symmetrical swelling of the middle phalanx of the right middle finger. X-ray shows t. b. process.

Treatment. Splint and bandage applied. The finger swelling became fluctuant. It was not incised, however, but allowed to open spontaneously, and the sinus dressed. The sinus did not close till Mar. 4, 1912. The splint, however, was continued. On Mar. 17, 1913, there was excellent restoration of function, and splint was omitted. Very little swelling of finger.

Fig. XIV shows the radiographic appearance in this case during the acute stage of onset.

Fig. XV shows the radiographic appearance during the suppurative stage, with cavity formation in the bone.

Figs. XVI, XVII and XVIII represent the final functional and anatomic result of the healed process.

Case 7. M. K. Age 2½ years. Entered April 15, 1911. Rec. 9875.

F. H. Mother died of consumption. Father living and well. Two sisters living.

P. H. Unimportant.

P. I. Baby had pneumonia about two months ago. About same time small lump appeared on middle of back of left hand, which has steadily grown larger and for about three weeks has been red. Painful to touch.

P. E. Rather pale child. A slightly red boggy swelling on dorsum of left hand, not tender; joints negative. Examination otherwise negative. X-ray shows tuberculous osteomyelitis of the shaft of the middle metacarpal bone.

A splint was applied and worn continuously until May 22, 1912. On April 20, 1912, a fluctuant swelling over dorsum of affected metacarpal was incised. On Sept. 4, 1912, the process was healed, with excellent functional result and very slight deformity.

Fig. XIX shows the radiographic appearance of the middle metacarpal in this case during the active stage of the process before suppuration was established.

Case 8. E. D. Age 7 2-3 years. Entered Oct. 14, 1911. Rec. 10,558.

F. H. Father, and mother living and well.

P. H. Breast-fed. Mumps at 4 years. Otherwise always well.

P. I. Two years ago fell and hurt left little finger. Six months ago a sore appeared on the injured finger.

P. E. Well developed and nourished boy. Left hand shows considerable thickening and two discharging sinuses in the region of the fourth and fifth metacarpals. Similar lesion at base of first phalanx of right great toe. X-rays shows t. b. process of fifth left metacarpal and of first phalanx of right great toe.

A splint was applied to the hand, a plaster cast to the foot. The latter was worn until Feb. 13, 1912, the former until Mar. 1, 1913. Swelling over hand opened spontaneously and discharged. On Mar. 17, 1913, the foot was entirely healed, the hand nearly so.

Figs. XX, XXI and XXII show the radiographic appearance of the affected foot and hand in this case during the acute stage.

Figs. XXIII, XXIV and XXV represent the functional and anatomic result of the nearly healed process in the hand.

Case 9. F. F. Age 1½ years. Entered Nov. 4, 1911. Rec. 10,636.

F. H. Father, mother and three sisters living and well.

P. H. Delivery with ether and forceps at full term. Measles five months ago. Whooping cough five months ago. Mastoid operation four months ago.

P. I. Complains for past two months of swelling of various phalanges of both hands which do not appear to be painful. Little finger of right hand opened and pus drained two months ago but has not healed.

P. E. Little finger of left hand shows discharging sinus and two digits on the right hand show swelling of phalanges. X-ray shows t. b. processes.

Splints were applied, but the patient never again reported for treatment.

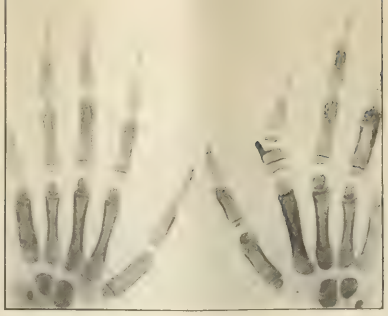
Fig. XXVI shows radiographic appearance of active tuberculous process in middle phalanx of left little finger; and more advanced process, with cavity formation, in proximal phalanx of right forefinger and in middle phalanx of right fourth finger.

Case 10. G. G. Age 11 months. Entered March 4, 1912. Rec. 10,954.

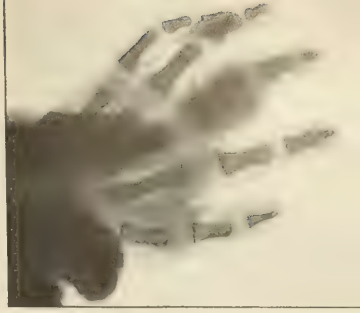
F. H. Father and mother living and well.



I.
Case 1. Dec. 4, 1909.



II.
Case 1. June 19, 1911.



III.
Case 2. May 3, 1910.



IV.
Case 3. March 5, 1910.



V.
Case 3. August 7, 1911.



VI.
Case 3. August 7, 1911.



VII.
Case 3. August 7, 1911.



VIII.
Case 3. March 17, 1913.



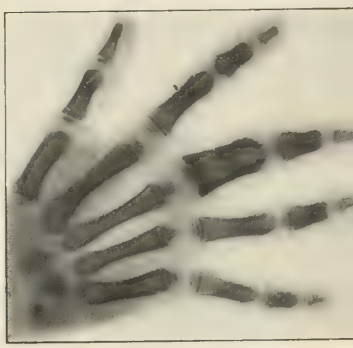
IX.
Case 4. April 6, 1910.



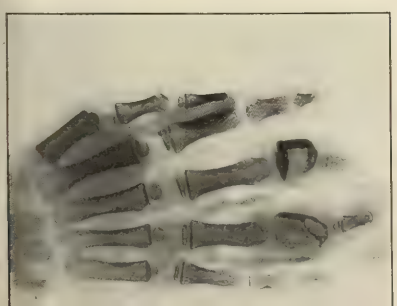
X.
Case 4. August 7, 1911.

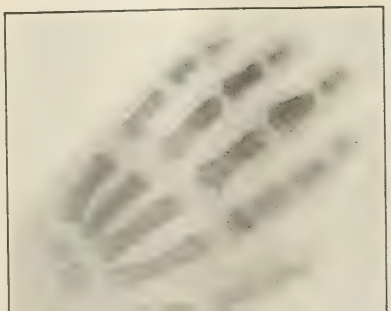


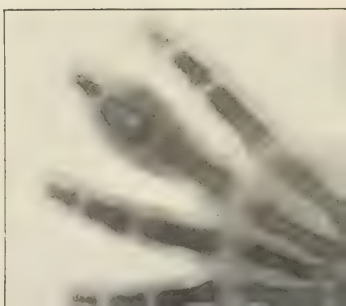
XI.
Case 4. August 7, 1911.

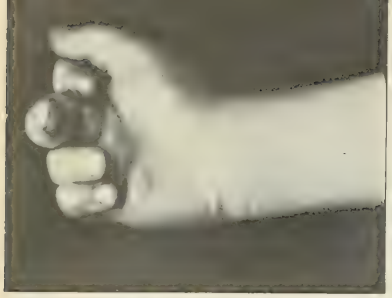


XII.
Case 4. August 7, 1911.

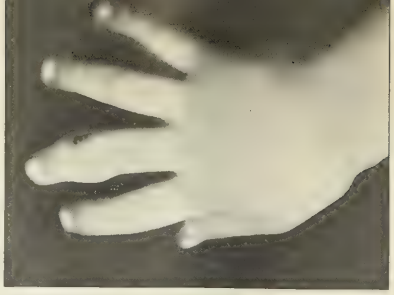




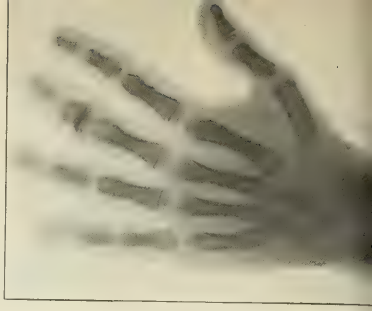




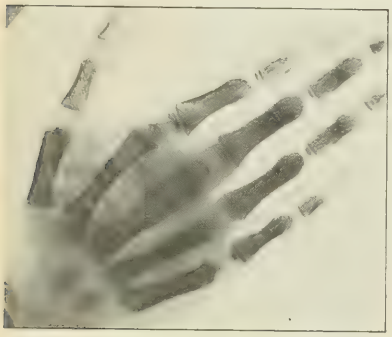
XVI.
Case 6. March 17, 1913.



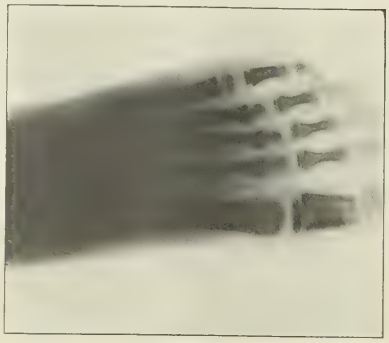
XVII.
Case 6. March 17, 1913.



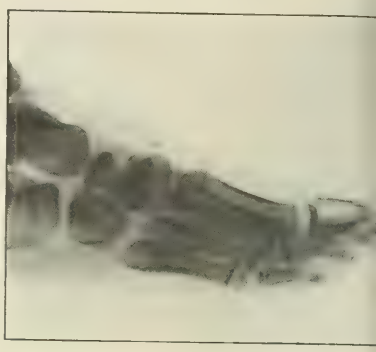
XVIII.
Case 6. March 17, 1913.



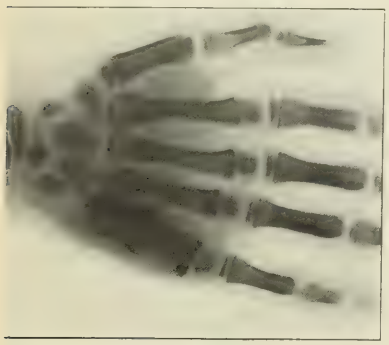
XIX.
Case 7. Jan. 10, 1912.



XX.
Case 8. October 14, 1911.



XXI.
Case 8. October 14, 1911.



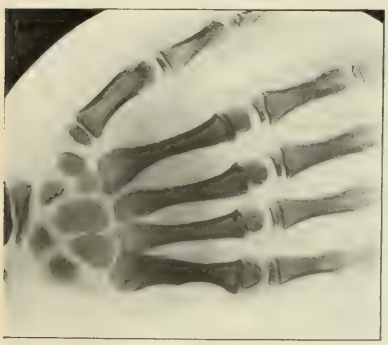
XXII.
Case 8. October 14, 1911.



XXIII.
Case 8. March 17, 1913.



XXIV.
Case 8. March 17, 1913.



XXV.
Case 8. March 23, 1913.



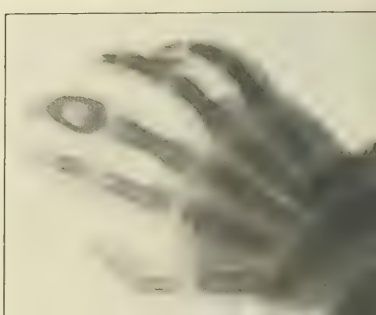
XXVI.
Case 9. November 7, 1911.



XXVII.
Case 10. March 4, 1912.







P. H. Full term, normal delivery, bottle-fed, whole cow's milk. Chickenpox at four months. No known exposure to t. b.

P. I. About two months ago appeared a swelling of fingers of right hand. The swelling increased in size and after about three weeks a swelling of middle finger of left hand was noticed.

P. E. Well developed and nourished child. The first finger, middle finger and little finger of right hand, have greatly enlarged spindle-shaped swelling. The middle finger of left hand is similarly affected. Other digits apparently normal. Hands have no other swelling. Indurated dark red nodule size of a dime on the right cheek.

Treatment. Splints and bandages were applied to both hands. On March 9 a discharging sinus appeared on right little finger. From June 8 to Sept. 17 the case was neglected by parents. On the latter date splints were reapplied, the fingers were then much more swollen and red. From Nov. 6, 1912, to Mar. 19, 1913, child was again neglected. On latter date, fingers still much swollen. Splints reapplied.

Fig. XXVII shows the radiographic appearance of the initial active process in this case.

Figs. XXVIII, XXIX and XXX represent the anatomic and functional condition a year later.

It will be observed that in none of these cases were the x-rays employed therapeutically. This method of treatment has been suggested and practiced, apparently to considerable advantage, by a number of French and German surgeons. Albert-Weil[13] in 1912 reported six cases of tuberculosis of the fingers treated by x-rays with beneficial results and marked acceleration of the healing process. Similarly in the same year Rollier[14] reported, in a large series of cases of surgical tuberculosis, several cases of tuberculosis of the fingers treated by prolonged exposure to direct sunlight. And Vignard[15] in 1913 has reported two cases of tuberculosis of the fingers treated by artificial heliotherapy. The latest and most complete summary of the Roentgen treatment of surgical tuberculosis is in a very recent article by Neu,[16] who reports from Iselin (*loc. cit.*) four cases of tuberculosis of the fingers and toes cured in an average of three exposures each to the x-rays. This work of Neu has been awarded a prize by the medical faculty at the University of Bonn.

The essence of all irradiation treatment of surgical tuberculosis is apparently its stimulative effect upon natural reparative processes. In tuberculosis of the digits it would seem to be a valuable adjunct to the primary treatment by hygiene and fixation.

CONCLUSIONS.

1. Tuberculous osteomyelitis of the digits is essentially a disease of infancy and childhood, presenting a definite clinical picture and tending strongly to spontaneous recovery.

2. Pathologically it is characterized by bone destruction and rarefaction and by chronic inflammatory reaction in the surrounding soft tissues. It may heal by resolution and absorption, or by sequestration, suppuration, and sinus formation.

3. Its differential diagnosis from pyogenic osteomyelitis, sarcoma, and syphilitic dactylitis may be made by clinical signs and x-ray examination.

4. Its prognosis for anatomic and functional recovery is good and is proportionate to the amount of bone destruction and scar-formation.

5. Therapeutically primary emphasis is to be laid upon general hygiene and local fixation. Incision should rarely be resorted to, since it complicates the dressing, protracts convalescence, and increases subsequent deformity and disability. Amputation is almost never indicated.

6. Probably treatment with the x-rays, or other forms of irradiation, is a valuable adjunct to the conservative therapeutic measures above described, since it expedites recovery by stimulating natural reparative processes.

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Medical Progress.

PROGRESS IN INTERNAL MEDICINE.

BY FRANCIS W. PALFREY, M.D., BOSTON.

In a general survey of the progress of medical science in its advance from early historic ages to the present day it is impossible to avoid the reflection how little the great bulk of the current literature of any year contributes to the total of medical knowledge. The current literature of any year, or even of any month of recent years, far surpasses in volume our standard text-books of medicine; yet each edition of the textbook which appears from year to year is but little enlarged over the previous one. The articles of the

periodical literature may be compared to the waves of the sea on a rising tide, each of which expends its energy to accomplish little, if any, advance. Countless waves rise, break and are forgotten, for every foot of rise in the true level of the tide.

For this reason it has occurred to the author, as the time for a new report on Progress has arrived, that it may be not unprofitable for once to consider not the individual articles of the past year, few of which among the many will not swiftly pass into oblivion, but rather the teachings of the past decade which have stood, at least so far, the test of time. For while no one can read but a minute fraction of the articles published, each one of us must inevitably miss a certain proportion of the corrections of errors and additions to knowledge that have received common acceptance. The attempt is here made, therefore, to enumerate in brief mention the chief points in which the teachings in vogue at the time of the author's graduation in 1902 have since been modified and augmented.

An aid in the preparation of this review has been the appearance in the past year of a new edition of Osler's "Practice of Medicine," to the predecessors of which for twenty years the American student of medicine has turned for much of his early knowledge. To insure a familiar sequence in this article, the different diseases are mentioned below in the order in which they appear in this work, and a further debt may be here acknowledged for guidance by its subject matter.

TYPHOID FEVER.—PARATYPHOID AND COLON INFECTIONS.

Our conceptions of typhoid fever have been considerably modified by the demonstration that the disease, at least in its early stages, is a septicemia. While the chief anatomical lesions are in the intestinal lymphoid tissue, it is amply shown that with few exceptions in the first week of symptoms, and in some instances before the appearance of symptoms, cultures made from the blood reveal the presence of the bacillus typhosus. This fact has been utilized in practical diagnosis, and the technic of blood culture as a routine measure has been developed and standardized so that it has become possible to recognize the condition with certainty much earlier than formerly. Bacteriological studies have also added to our knowledge of the transmission of the disease and the sources of epidemics. The contamination of water, of milk and of foods has long been known as the result of pollution by the excretions of patients in the active stages of typhoid fever, but it has not been generally known until lately to what an extent the bacilli are harbored and excreted by so-called *carriers*, who may not be known ever to have had typhoid fever. It has become probable that it is to these rather than to the acute cases that the endemic presence of the disease is due. In the transmission of infection much attention has been directed to the rôle of the house-fly. It is shown beyond question that the fly is capable of carrying the infection. In the etiology of large epidemics, however, contamination of a water supply still deserves the position of chief responsibility; evidence of this is the experience of the city of Philadelphia, in which the institution of a safe water supply in 1907 reduced the number of cases of typhoid fever to less than one-fourth of their previous occurrence. Prophylactic inoculations against typhoid have established their value. While it is still imperfectly known how long a period of immunity is conferred it is satisfactorily proved that in circumstances of special exposure to infection, as in army manoeuvers or among hospital attendants, it has been possible to eliminate the danger of incidence of the disease. In the treatment of typhoid a marked tendency is evident to allow a more generous diet than was formerly given. It may be that this tendency has been in some instances carried too far, yet it may safely be stated that with due caution in guarding against overtaxing the patient's powers of digestion it is commonly possible by rational feeding to maintain better nutrition than was possible under the restrictions formerly in force.

Blood cultures in cases of continued fever have in certain instances yielded bacilli of the paratyphoid and colon groups instead of the typhoid bacillus. The pathology of these cases is not as yet sufficiently known, but their clinical course is closely similar to that of a somewhat mild typhoid infection.

PYOGENIC INFECTIONS.—DIPHTHERIA.

Studies of types of general and of local sepsis due to cocci of the pyogenic group have led to the suspicion that these organisms, while morphologically similar in reality should be divided into more different varieties and strains than have heretofore been recognized. In certain epidemics as in that of tonsillitis in Boston in 1911, complicated in many cases by peritonitis, the peculiar features are best explained by a peculiarity of the infecting organism.

The diagnosis, both bacteriological and clinical, of diphtheria has been advanced by studies of bacilli and of diphtheroid inflammations which may simulate those of true diphtheria. In treatment the knowledge of serum diseases or anaphylaxis, which has taught us that a previous injection or other ingestion of certain substances may so "sensitize" an individual that subsequent injections of the same substance may be followed by serious or fatal reactions, suggests a possible explanation of certain instances of collapse or death following antitoxin injections. The fact that this has occurred in patients subject to asthma excited by the odor of horses, suggests that they may have been sensitized toward some substance contained in the horse serum of the antitoxin.

PNEUMONIA.—MENINGITIS.—INFLUENZA.—WHOOPING COUGH.—GONOCOCCUS INFECTION.

In acute febrile diseases, of which pneumonia may be taken as representative, studies of the circulation in life and of the distribution of the blood after death have rendered it probable that the fatal outcome is not as a rule due, as was formerly thought, to heart failure, but rather to vasomotor failure. As the course of the disease progresses and the patient's exhaustion increases, the blood pressure gradually falls although the heart beats with increasing rapidity. As the final collapse appears a further sudden fall in blood pressure takes place; the patient becomes pulseless although the heart may beat for a brief period with its rate undiminished. At post mortem in such cases the heart is not found distended as in cases of heart disease, but rather poor in blood. It seems probable that, except in heart disease, and in a minority of the cases of pneumonia, the immediate cause of death in febrile disease, and perhaps in all other fatal diseases, is not asystole, but rather the loss of vasomotor tonus from paralysis of the vasomotor center in the medulla, as has been studied, particularly in connection with surgical shock. It is known that the heart cannot continue to beat if the blood pressure in the coronary arteries falls below a certain level, but the fact that the blood pressure falls below this level is believed to be due to a paralytic dilatation of the abdominal and other peripheral vessels and not to cardiac insufficiency. In certain cases of pneumonia it is true cardiac insufficiency and dilatation with death from asystole is found. This is, however, the exception rather than the rule. The supportive treatment of pneumonia, therefore, is to be directed chiefly toward stimulation, not of the heart, but of the vasomotor center. For this purpose the most efficient agent at present known is fresh air; when the patient's bed is moved to a roof or balcony or to an open window the improvement, both subjective and objective, is often striking. Of the various drugs, caffein seems to be the most efficient; adrenalin may be tried but its action is of too brief duration to be of much service; strophanthin, intravenously, may be tried as a last resort. The value of strychnine and of camphor is disputed.

The work of Flexner and the serum treatment of meningitis is so well known that no description is needed. The evidence of its value is still accumulating.

In addition to the typical acute infection and to the chronic bronchitis due to the influenza bacillus, this organism has been found to be responsible for occasional cases of meningitis, of endocarditis, and of general septicemia.

In 1906 Bordet and Gengou described the organism now commonly accepted as the cause of pertussis. In the past year Mallory has demonstrated this organism with characteristic lesions in the trachea of children and has produced similar lesions in animals by infection with the organism. From his observations it is strongly suggested that a prominent cause of the symptoms is the mechanical interference of the organisms with the action of the cillia of the epithelium of the trachea and bronchi, preventing the normal propulsion of secretions toward the larynx.

Blood cultures and clinical studies have here shown that the former belief that gonococcus infection did not cause endocarditis is subject to occasional exceptions. A number of cases have been reported in which endocarditis developed and in which the gonococcus was cultivated from the blood. From the diagnosis of latent infections by this organism a complement fixation reaction has been developed which promises to be of service. Gonorrheal arthritis is a condition in which vaccine treatment has been extensively used, in many instances with apparent benefit.

BACILLARY DYSENTERY.—PLAGUE.

The bacteriology of dysentery has been carefully studied both in adults and in children. A large proportion of the more severe cases of infantile diarrhea have been brought under this head. Several allied organisms have been described, but that of Flexner seems to be the chief one in America. A serum treatment has been used with some success.

As medical investigation has extended itself from European civilization to remote parts of the world the so-called bubonic plague has attracted attention, in part from its importance where it has recently prevailed, but still more from its known power of epidemic invasion, as in the "black death" of the fourteenth century in Europe. Of great significance in preventive medicine is the rôle of the fleas of rats in transmitting the disease.

TUBERCULOSIS.

In tuberculosis the progress of the past decade has been more in the refinement and extension of principles previously known than in the development of new knowledge. In diagnosis the tuberculin reaction has been improved by the use of smaller initial doses to avoid severe symptoms. The cutaneous reaction of v. Pirquet has proved of value in children. The x-ray examination of the chest has supplemented older physical methods. A method of treatment which has gained ground of late years, although its value is not yet established beyond question, is that of the production of pneumothorax. Tuberculin treatments in many modifications have been carefully followed, but no distinct advances have been made. Much has been accomplished by emphasis upon early diagnosis, by the isolation and supervision of tuberculous cases and by the

extension of sanatorium treatment. The administrative methods of working toward these ends by class treatment, by social service investigation, and by popular instruction, show progress of the highest type.

AMEBIASIS.—TRYPANOSOMIASIS.—SYPHILIS.

The diagnosis of amebic dysentery has been somewhat complicated by the differentiation of amebae found in human stools into a number of different species, only some of which are pathogenic. In treatment there has been a revival of the use of ipecac, modified by giving the drug in salol-coated pills to avoid dissolution in the stomach. While this method is still on trial, some reported results are highly promising.

In tropical medicine perhaps the most important line of investigation has been that directed toward the study of trypanosomes, particularly with reference to the so-called sleeping sickness of Africa. The parasite of this disease has been identified and its presence in fluid aspirated from the lymph glands has been used extensively as a clinical test. The tsetse fly has been shown to be the source of infection in man. Various arsenical compounds, notably atoxyl and salvarsan, as well as antimony, have been used with considerable success in treatment.

In no disease have the advances of the past decade been more striking than in syphilis. The discovery of the *Treponema pallidum*, the so-called spirochete of syphilis, has been the entering wedge by which the subject has been laid open. The demonstration of this organism has made possible the positive clinical diagnosis of primary and other external lesions, and has further given conclusive proof of the syphilitic nature of pathological lesions studied at autopsy, notably in the heart and in the arteries. Next came the Wassermann reaction of complement fixation, which has revolutionized the clinical diagnosis of syphilis, and has also furnished a means of determining the adequacy of treatment. The Noguchi reaction of similar nature is perhaps of no less value. More recently the luetin test, a cutaneous reaction, has been introduced; while not yet finally established, it may be found to play an important rôle. In treatment, the discovery of salvarsan ranks as one of the highest achievements of scientific medicine.

HOOKWORM DISEASE.—TYPHUS FEVER.—YELLOW FEVER.—ACUTE POLIOMYELITIS.—RHEUMATIC FEVER.

The recognition and control of hookworm disease, especially in Porto Rico, is a fair illustration of the success of modern medicine on a large scale. As a result of the knowledge that the source of infection is the fecal discharges of infected persons and that the means of entry is through the unprotected skin of the feet and legs, the prophylaxis has been advanced. In the cure of infected persons the thymol treatment has proved entirely adequate.

Typhus fever in its old form has long been rare. There is some reason to believe that it was spread by vermin which have been eliminated by modern sanitation. It is probable, however, that typhus fever in a modified form has reappeared in the condition known as Brill's disease, of which a number of cases have been reported.

The abolition of yellow fever, first in Havana and more recently in the Canal Zone, has robbed the tropics of one of their worst dangers.

The recent prevalence of infantile paralysis has led to an enormous amount of study upon this subject. The most practical result so far attained is the proof by Rosenau, apparently conclusive, that the transmission is by means of flies.

The long continued search for a bacterial cause of rheumatism has perhaps been ended by the demonstration of the *Micrococcus rheumaticus* of Poynton and Payne. This organism has not yet been universally accepted, but its claims are stronger than those of any previously proposed.

PELLAGRA.—BERIBERI.

The sudden leap into prominence in Southeastern America of pellagra has made this disease one for which it is necessary for all to be on the watch. Its nature, however, still remains a mystery. Its connection with the eating of Indian corn at present seems less likely than was formerly supposed.

In beriberi the question of diet in connection with the etiology is much discussed. Among Oriental races it seems to have been established that the use of rice which has been subjected to a polishing process leads to the appearance of beriberi. The disease has occurred, however, in places where rice does not form an important staple of diet. The prevailing belief at present is that the cause of beriberi is a deficiency in the diet of some necessary substance present in the surface of rice grains which is provided in a normal diet also by other forms of food.

DIABETES.

This subject has been studied chiefly with regard to the influence of internal secretions, not only of the pancreas, but also of the thyroid, the parathyroids, the chromaffin system and the hypophysis upon the sugar metabolism. The results are well stated in the recent writings of von Noorden, whose work, with that of his associates, has done much to advance this subject. It is believed that the immediate cause of the glycosuria in diabetes is the appearance of an excess of sugar in the blood, due to an abnormal discharge of sugar from the liver. This discharge of sugar from the liver may be stimulated

by overaction of the chromaffine system, which may in turn be stimulated by the central nervous system. Excessive discharge of sugar from the liver is normally inhibited by the internal secretion of the pancreas; this action of the pancreas may be increased by the influence of the parathyroid glands or diminished by that of the thyroid and of the hypophysis. Diabetes may theoretically be produced by any of these influences which lead to an excess of sugar in the blood, but practically in human cases the fault lies either primarily in the pancreas or in the influences which bear upon its action in controlling the mobilization of sugar.

GASTRIC ULCER.—GASTRIC CANCER.—CIRRHOSIS OF THE LIVER.—ACUTE PRIMARY PERITONITIS.

For an extended summary of this subject the reader is referred to the author's report in this JOURNAL in 1911. Of chief importance have been the introduction of the Lenhartz diet and the increasing application of the operation of gastroenterostomy.

In the diagnosis of cancer of the alimentary tract the extension of the use of tests for occult blood, especially the guaiac and the benzidin tests, has proved its worth. The significance of evidence of gastric stasis as reason for suspicion of pyloric cancer has been more fully realized, while the importance attached to the presence or absence of free hydrochloric acid in the result of test meals has lessened. A contribution of great interest has been the demonstration from the Mayo Clinic of the frequence with which cancer is found to have developed upon a pre-existent ulcer.

Mallory's studies upon the histologic types of cirrhosis form an important contribution. Clinically most has been written upon the rarer forms, especially syphilis of the liver and pigment cirrhosis, or hemochromatosis, often associated with diabetes. Capsular cirrhosis has received attention in connection with polyserositis and adhesive pericarditis.

Purulent peritonitis occurring without obvious antecedent diseases of the abdomen has been reported in a considerable number of cases. Many of these have been pneumococcus infections, but those in our recent epidemic of tonsillitis were due to a streptococcus.

ASTHMA.—DISEASES OF THE KIDNEYS.—DISEASES OF THE BLOOD.

The theory of the nature of asthma has received new additions from the similarity of the asthmatic paroxysm to certain manifestations of anaphylaxis. The use of subcutaneous injections of adrenalin for the relief of symptoms in the attack has proved of value in many cases.

The diagnosis of nephritis, especially in the late stages of chronic parenchymatous and in chronic interstitial nephritis, has been materially aided by the realization of the significance of increased blood pressure. In the treatment of renal insufficiency much has been written on the limitation of protein in the diet, and also of the exclusion of salt. The practical results of these measures, however, have not been conclusive.

With the introduction of improved and simplified methods of blood examination the past decade has been filled with careful studies of the anemias and of allied diseases. Chlorosis has been brought completely under control by the use of iron, but pernicious anemia still proves refractory. In leukemia of the splenic myelogenous variety, systematic exposures to the x-ray have been found to have considerable effect in temporarily checking the disease, but the ultimate result is not altered. In hemorrhagic conditions transfusion has been applied with striking success.

DISEASES OF THE HEART.—THYMIC ASTHMA.

Since this was the subject of the author's report of last year it may here be passed lightly. The most important advances have been in the investigation of the muscular function and its disorders, notably heart block and auricular fibrillation, and in the recognition of the rôle of syphilis in causing disease both of the myocardium and of the valves. In aortitis and in aneurysm, the syphilitic basis has been established in a large proportion of the cases.

Disturbance of respiration associated with enlargement of the thymus has long been recognized, occurring in paroxysms often fatal. In recent years a number of reports have appeared of surgical removal of the thymus. Yet there is reason to hope that the necessity of this operation may be slight if the present promise of the x-ray treatment of thymic hypertrophy is confirmed.

GRAVES' DISEASE.

Discussions of this disorder have been much in evidence both from the medical and from the surgical points of view. Of late years there has been a tendency, as mentioned in Crile's recent article, to believe that the hypertrophy and overactivity of the thyroid are manifestations of a disturbance not primary in that organ, but rather secondary to some influence which abnormally stimulates the function of the thyroid. The source of such stimulation, according to Crile, may well be in the muscular system or in the neuromuscular apparatus which, according to psychologists, originate the emotions. However this may be, practical experience leaves no doubt of the importance of bodily and psychic rest in the treatment of the disease. This has been recognized both in the medical treatment of the condition and in the management of cases preparatory to operative treatment. Much has been done in attempts to influence the disease by means of extracts and sera, but certain success

has not yet been attained. In drug treatment the neutral bromide of quinine has been favorably mentioned.

THE HYPOPHYSIS.

Of the various glands of internal secretion, of which so much has been written of late, the pituitary body has received its share of attention. This organ is divided into an anterior and a posterior portion. Each of these portions apparently performs certain functions by means of internal secretions, the functions of the two being distinct from each other. The anterior portion seems to have to do with skeletal development, which is stimulated by its overactivity. The influence of the posterior portion is more complex, the evidence tending to show that its overaction leads to glycosuria, loss of flesh and activation of the generative organs, while deficient function produces increased tolerance for sugars, adiposity and lessened sexual activity. From this and from other evidence, it seems to be proved that in acromegaly and gigantism the condition is not, as was formerly supposed, a lack of pituitary function, but rather an excess of function of the anterior portion. Moreover, a new clinical type of disorder has been described, attributed to deficient function of the posterior portion, characterized by adiposity, lack of sexual development, both genital and extragenital, increased tolerance for sugars, and certain nervous and mental disturbances. Cushing has recently described cases in which disturbance appears to have been present in the function of both portions of the hypophysis, with increased activity of the anterior lobe and deficient function of the posterior, evidenced by skeletal overgrowth, combined with adiposogenital dystrophy.

Such a general review of the field of internal medicine, inadequate as it may be, at least serves to correct in the mind of one discouraged at the futility of much of the current literature the impression that practical medicine is not advancing. It is true that much that is written is mere repetition, and that many lines of investigation have led into obscure regions, in which the promise of valuable discoveries is slight. The complexity of methods and of theoretical considerations has become to some extent a barrier between medical science and practical medicine, yet can we maintain that this barrier is insurmountable when from the remotest regions of medical science comes a practical aid like the Wassermann reaction? The many unworthy reports are quickly discarded and forgotten, but those that receive reliable confirmation deserve general recognition as true progress.

Illness of the Mikado.—Report from Tokio, Japan, on May 25, states that the Emperor Yoshihito is ill with pneumonia, but that the crisis occurred on May 23 and he is expected to recover.

Reports of Societies.

COLLEGE OF PHYSICIANS OF PHILADELPHIA

Meeting of Wednesday, April 2, 1913, at 8 P. M. The President, Dr. James C. Wilson, in the Chair.

THE DEVELOPMENT OF THE NASAL ACCESSORY SINUSES IN MAN.

Dr. Warren B. Davis: This paper is a synopsis of a year's research work done in the laboratories of Friedrickshain Krankenhaus, Berlin, and in the Daniel Baugh Institute of Anatomy, Philadelphia. The material studied consisted of 145 specimens (290 lateral nasal areas) forming a series covering all stages of development from the sixtieth day of embryonal life to maturity. Numerous lantern slide illustrations made from drawings of selected specimens are used. Sixty-day embryos showed presence of concha inferior, two ethmoidal conchaem agger nasi and beginning development of the processus uncinatus. The superior concha and processus uncinatus contain at this time no cartilaginous structure.

Eighty-five-day embryos showed the early development of the bulla ethmoidalis and beginning lateral pouching from the infundibulum ethmoidalis which represents the primitive ostium maxillaris. There is also in the spheno-ethmoidal recess an evagination of the mucosa in a postero-inferior and slightly lateral direction, representing the primitive sinus sphenoidalis. In a 137-day fetus this development has distinctly extended into the posterior portion of the cartilaginous nasal capsule. The portion of the capsule forming the antero-inferior wall of the primitive sinus becomes the concha sphenoidalis or ossiculum Bertini.

Ethmoidal cells develop from the preformed ethmoidal furrows. During the fourth fetal month there appear cylindrical extensions of epithelium into the lateral ethmoid masses which by the seventh or eighth fetal month become hollowed out and form primitive ethmoidal cells.

The usual number of ethmoidal conchae in fetal and also in post-natal specimens was three; four were not uncommonly present and in one fetus five were clearly demonstrable.

The expansion of frontal cells, of the infundibulum or of infundibular cells it distinctly seen in late fetal and term specimens, yet in the average case one cannot say definitely which expansion represents the primitive frontal sinus until after the sixth month of post-natal life.

In the second year the frontal sinus usually begins its ascent into the vertical portion of the frontal bone and in the third year its highest point averages 3.8 mm. above the level of the nasion. The diameters show a gradual increase which by the 16th year usually reaches the average adult size.

The sinus maxillaris showed an increase in size which averaged approximately 2 mm. in both the vertical and lateral diameters and 3 mm. anteroposteriorly for each year up to the eighth year after which the increase is less rapid. The floor of the average maxillary sinus after the eighth year is below the level of the nasal floor.

The ostium maxillare has no embryological significance. The youngest specimen showing such an opening was four years and three months old. Accessory ostia were present in 15 per cent. of all cases between 4 and 24 years of age. Accessory ostia were present in 37.5 per cent. of all cases in which tuberculosis was the cause of death, and in only 7.7 per cent. of cases in which death was from other causes. This suggests that the lowered vitality due to tuberculosis may be a predisposing factor in the development of the accessory ostia. In 76% of cases having accessory ostia there were mucous cysts varying from ½ mm. to 10 mm. in diameter arising in the mucosa lining the medial wall of the sinus maxillaris.

The development of the sinus sphenoidalis was found to be more rapid than is described in textbook descriptions. It develops in a postero-inferior and slightly lateral direction at first occupying a position antero-lateral to the body of the sphenoid and bounded anteriorly by the concha sphenoidalis or ossiculum Bertini. During the second year there is beginning extension into the body of the sphenoid and also a rapid increase in an infero-lateral direction thus bringing the wall of sinus early into close relation with the cranial nerves passing lateral to the body of the sphenoid. The resorption of bone extends medially and posteriorly, and by the sixth to the eighth year has extended beneath the anterior portion of the hypophysis and the sphenoidal septum has been decreased to about 1 mm. thickness. Later recesses may extend in any direction but are most frequently found in the pterygoid processes.

Dr. W. M. L. Coplin: Dr. Davis's conclusions and beautiful illustrations seem to establish the possibility of transfrontal infection of the basal area of the brain at a very much earlier period that has been held to be likely or possible. His study shows conclusively that we have been wrong in putting the development of the sinuses at so late a period as has been believed.

Dr. Davis, closing: The point brought out by Dr. Coplin was illustrated in the lantern slides showing the stages of development at the various ages. Coronal sections of an 85-day embryo showed the primitive sinus sphenoidalis beginning as an evagination of the mucosa in the extreme posterior portion of the naso-pharynx and sagittal sections of a 137-day fetus showed its distinct projection into the posterior nasal capsule. Many cases in the series had died of nasal diphtheria and I was struck by the fact that the diphtheritic membrane in practically all cases completely filled the ethmoidal cells and in many cases partially filled the frontal, sphenoidal and maxillary sinuses.

PRINCIPLES OF SOCIAL SERVICE AND THEIR APPLICATION IN PRACTICE AT THE STATE TUBERCULOSIS DISPENSARY, PHILADELPHIA.

Dr. Albert P. Francine: Social Service Work is today an essential supplement to the medical service of hospitals which bids fair to become a factor quite as important as the hospital work itself. The Department of Health of Pennsylvania has set a standard of efficient and far-reaching Social Service Work in the operation of the State Dispensary for Tuberculosis. The system enables us to follow for years the patients discharged from sanatoria and to carry the principles of prevention into the homes. The coöperation between the dispensary and the dispensary nurse can hardly be over-emphasized in importance. The nurses are directed to consult personally with the district superintendents of the Society for Organizing Charity or other agencies about the needs of a case. The coöperation of these charitable organizations is worthy of all praise, yet it is only just and right since the medical care is given by the State. That a social worker should be also a trained nurse, I should say this is advisable only in so far as all education and training tend to develop character and ability. The very first thing we have to impress upon our own Social Service workers, who are all trained nurses, is to adopt the point of view of the social worker and submerge that of the trained nurse. What the physician wants is an intelligent account of the home conditions. Social Service shall be made a part of the training of nurses. The theory of social service is to help the patients to help themselves and we continually impress upon them their responsibilities. It is a well-recognized principle in our work to induce members of the patients' families to come to the dispensaries for examination and we insist that every member shall come and the work of the nurse is never considered complete until this is accomplished. If you expect to have the incipient case of tuberculosis voluntarily walk into the dispensary for examination you will be disappointed. They don't know they are sick and their friends don't know it. It should be remembered that at one stage of the advanced case the disease was curable. The fundamental principle of tuberculous dispensary work among the poor is first and foremost to get the case away to a sanatorium. It is not only unfair to the patient, but to his family to try to treat him in his home. No one can offer evidence to prove that among the indigent treatment at home can compare with sanatorium treatment either as to results or prevention. Personally I believe this applies almost equally to the well-to-do.

DISCUSSION.

Dr. A. B. Hirsh: I hope that Dr. Francine will put these facts before the people of the State as the problem is a sociologic one upon which the public needs much education. Regarding the overlapping of charitable work I believe the solution lies in a united effort between dispensaries and like institutions and an organization such as the Society for Organizing Charity.

Dr. James Tyson: Dr. Francine has struck the keynote in the treatment of tuberculosis by his insistence that the successful treatment of this disease must be in a sanatorium, and I confess to some surprise in hearing that there are still those who take a different view. In my experience the dispensary treatment of tuberculosis is not as much of a success as we would like to have it. I believe it ought to be followed up whenever possible with the aid of the social worker who can do more good in the home of the patient than the physician can in the dispensary.

Dr. C. L. Minor, Asheville, N. C.: The care of the dispensary cases of tuberculosis, I believe, is a problem for statesmen, sociologists and for the police more than for the doctor. The chief reason that the sanatorium fails—in so far as it does fail

—is that it is essentially a training school, and that in all schools there are some pupils who cannot, or will not, be taught. Those who come from the vicious poor of our slums prefer to be unhygienic. We can take the advanced case into the hospital and keep the patient there until he dies. We can take the intelligent poor into sanatoria and teach them, but what we are to do with the slum class, gentlemen, I do not know, unless we forcibly detain them in proper institutions.

Dr. Morris J. Lewis and Dr. William J. Taylor read papers upon "The Treatment of Chronic Sciatica," reporting cases successfully treated by operation.

Dr. Astley P. C. Ashhurst: My own impression is not that the operative treatment of sciatica has fallen into "innocuous desuetude" on account of the surgeon, but that the physician has forgotten about it. A German surgeon named Pers has reported 47 operations for sciatica; and among 42 uncomplicated cases there were only three recurrences. He found that in most of his cases the adhesions were far up in the sciatic notch and that the operation was consequently more difficult than in exposing the sciatic in the upper part of the thigh. The great difficulty lies in the selection of the cases for operation. A great many cases called sciatica are simply instances of referred pain. In a patient seen last autumn thought to have sciatica I diagnosed Pott's disease. The man was subsequently admitted to Dr. Lewis' ward in the Orthopedic Hospital for some lung condition and later died from tuberculous meningitis. Another patient recently in Dr. Harte's service at the Orthopedic Hospital, presented the typical deformity seen in sciatica with pain along the sciatic nerve. We made a diagnosis of sacro-iliac sprain and after the application of a plaster jacket the man got well. I wish the physicians would tell us the cause of the adhesions found around the sciatic; whether they are due to infection or to trauma. It is rather unsatisfactory to operate for the relief of lesions of whose pathogenesis we have no idea.

Dr. John B. Roberts: I think the authors of these papers are right in saying that we, who are surgeons, and those, who are medical men, do not frequently enough subject cases of chronic neuralgia of any nerve to surgical treatment. If we do not know the cause of pain along nerve trunks we should look for it even if it is necessary to make an incision to find out.

Dr. A. B. Hirsh: I recall the detailed report of a series of cases in which sciatica was directly connected with constipation and in which correction of the intestinal condition cured the symptoms. An effective non-operative method of treating sciatica, particularly that variety which the speakers believe needs surgical treatment,—perineuritis with adhesions between the nerve and its sheath, is the use of the wave current, the high voltage, low amperage, static current evolved by William J. Morton and elaborated by William Benham Snow. In an acute case a week to ten days of daily applications will remove the exudate. Men in Philadelphia and other cities have been using the plan to the exclusion of operation for a number of years. Their reticence as to its efficacy is due to the desire to collect a large number of cases before the method is made more widely known.

SOUTH BOSTON MEDICAL SOCIETY.

The South Boston Medical Society held its annual dinner at the Boston City Club, at 7 P. M., May 19, with Dr. Wm. H. Ruddick in the chair. Paper was read by Dr. H. D. Arnold Blett. Subject:

CARDIO-RENAL DISEASES.

Paper discussed by: Dr. Geo. G. Sears, Dr. John T. Bottomley, Dr. F. T. Lord, Dr. E. E. Southard, Dr. Wm. H. Devine, Dr. E. S. Boland, Dr. H. J. Keen, Dr. E. T. Tracey and others.

The following Resolutions were adopted by the society:

Dr. Patrick P. Timmins who died May 5, was a practitioner of medicine in South Boston for more than 30 years.

He was a member of this society since its organization in 1905, having served as its president in 1908 and 1909.

His kind and gentle nature, his marked ability in his chosen profession, gave him a warm place in the hearts of his patients; this was manifested in a marked degree by their solicitude during his last illness.

He was an eloquent patriot of the land of his birth, and a loyal zealous citizen of his adopted country.

We honor him as a member of our profession, as a representative of our society, and as a patriot.

Resolved: That this expression of our esteem for him, and our appreciation of his many noble qualities, be placed on the records of our association, and a copy forwarded to the family of Dr. Timmins.

William H. Devine, M.D.,
E. S. Boland, M.D.,
R. N. Daley, M.D.,
Committee on Resolutions.

Book Reviews.

A Reference Hand-Book for Nurses. By Amanda K. Beck. Third edition; revised. Philadelphia and London: W. B. Saunders Company. 1913.

The first edition of this convenient little manual was reviewed in the issue of the Journal for July 6, 1905 (Vol. cliii, p. 27). The changes in this third edition consist in the addition of a number of new formulae and simplified methods, the elimination of some tables the use of which has been largely superseded, and the insertion of considerable fresh material, such as the technic and indications for baths, and lists of the instruments needed for various surgical operations. The book should maintain its obvious usefulness for nurses and for physicians interested in the practical details of nursing.

A Collection of Papers. Published previous to 1909. By William J. Mayo and Charles H. Mayo. Two volumes. W. B. Saunders Company. 1912.

Collected Papers by the Staff of St. Mary's Hospital. Mayo Clinic, Rochester, Minn., 1911. W. B. Saunders Company. 1912.

It is a moderate statement that a thoroughly satisfactory review of the best medical works is either impracticable or impossible within the usual limits. This is particularly true of the volumes issued during the past year from the clinic of the Mayos in Rochester. We are here directly concerned with three volumes, two of them dealing with early papers published before 1909 by William and Charles Mayo only, and the third being the volume of Collected Papers by the staff of St. Mary's Hospital for 1911, a staff which now comprises no less than 23 well known men, and the editor of the year books, Mr. Niellish.

The two volumes containing the papers published previous to 1909 are of interest, not only for the information which they contain, but also because, as the editor says in the foreword, "They mark points in the development of the work of the Doctors Mayo and also record interesting historic events in the progress of general surgery from the date of the earliest papers, written in 1884, to the present time." This period, of course, corresponds with the era of great surgical advances made possible by Lister's demonstrations of the principles of antisepsis, and the volumes, therefore, make an admirable index of the character of these great advances, illustrated by extraordinary surgeons, placed in almost ideal conditions, and unhampered by tradition.

These two volumes contain 150 papers, upon the widest possible variety of subjects, including mastoid and sinus operations. The sequence of chapters is the same anatomical classification as that followed in the volumes of more recent papers. The first of the two volumes contains photographs of the Mayos, at the time of graduation and at the present time, interesting witnesses of the kindly touch of nearly 30 passing years, and sufficient proof that hard work alone is not an enemy to good health.

The 1911 volume comprises 55 papers, including a brief "In Memoriam" of William Worrell Mayo, who was the first of the family to come (in 1845) to this country. He was born in 1819, near Manchester, England, and died at the age of 90, in Rochester, where he had lived since 1863. It will be a surprise to many who have forgotten how recent is the conquest of the West to read that he "was surgeon with the band of settlers who checked the advance of the Sioux Indians at New Ulm, Minn.," after they had massacred the whites, in 1862.

Almost two-thirds of the 55 papers, and much more than this proportion of the pages of the volume are written by the members of the staff other than the Mayos themselves. Many of the longest monographs are from the hands of the youngest men. The familiar order of subjects is followed: Alimentary Canal Hernia, Genito-urinary, Ductless Glands, Thorax and Extremities, Technic and General Papers. The illustrations are very numerous and most excellent. The papers without exception deserve careful reading; they cannot be satisfactorily outlined. Indeed this fact suggests the one element which might with advantage be added to these volumes—it is that each writer should summarize his conclusions at the end of his paper, so that the busy surgeon may get the substance of the work, and perhaps later examine the methods by which these conclusions are reached. A few of the papers include such conclusions, and it is to be hoped that in the future it will become a routine feature of the volumes.

The books demonstrate that a hospital, entirely apart from a medical school, may be made, by able and energetic men, both a research laboratory and a technical workshop for the benefit of the general surgeons all over the country.

The Internal Secretory Organs: Their Physiology and Pathology. By Prof. Dr. Artur Biedl, Vienna. With introductory Preface by Leonard Williams, M.D., M.R.C.P., Physician to the French Hospital, etc. Translated by Linda Forster. New York: William Wood and Company. 1913.

It is not to be questioned that one of the most important fields of research both for practical and theoretical medicine in the immediate future will be a study of the internal secretions. Much experimental work has already been done, but hardly more than enough to demonstrate the necessity of more far-reaching investigation in the future. This volume, well translated by Linda Forster, brings our knowledge of the subject adequately up to this time. The subject matter, as might be anticipated from the title of the book, concerns itself, after a brief general statement, with the thyroid apparatus, the thymus gland, the suprarenal system, the hypophysis, the pineal body, the generative glands, the pancreas, and also with certain matters concerning gastric and renal secretions. Admirable as the text is, to students of the subject the list of literature appended will be of even greater value. Of this there are about 150 pages of references printed in small type. Such a book needs no commendation. It stands as a monumental contribution to an exceedingly difficult and involved subject.

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WORK OF COMMITTEE FOR PUBLIC HEALTH AMONG WOMEN.

IN Massachusetts, during the past four years a movement has been slowly growing, called the Committee for Public Health Among Women of the American Medical Association. This committee is in connection with a nation-wide movement, sanctioned by the House of Delegates, who appointed the first chairman, Dr. Rosalie Slaughter Morton of New York City. It came into being because of the very valuable work that women, medical and non-medical, were doing in municipal work and in prevention of tuberculosis. It seemed wise, therefore, to give the women of the American Medical Association an opportunity to see what they could do by themselves, and this committee was formed.

After her appointment, Dr. Morton immediately began a movement for organization of women physicians throughout the country. Various states that were naturally grouped together were put in the charge of chairmen, and these chairmen were given the name of the Central Committee. The next sub-division was the appointment of a secretary for each state, then a secretary for each county in the state, and another for each large city, as, for example, Boston.

Each of these physicians upon accepting the office was pledged to do all she could to stimulate interest in the work, and to help as far as possible, in pushing forward the cause of preventive medicine.

The object was not to start independent lines, as much as to work with already formed organizations. To this end the members of the committee have endeavored to forward the work of various societies already established for the improvement of the health of the public, and to help wherever possible where women felt the need and desire for more information relating to health and hygiene.

The work was taken up with great enthusiasm, and in the four years since it was started has grown steadily, the amount done in Massachusetts this past winter being double that of two years ago. The subjects are various. The society desiring a lecture or talk is requested to write to the city or state secretary, as the case may be, stating the need, the class of people to be reached, time, etc.

In Massachusetts there have been 132 lectures given to 10,968 people, representing 49 different organizations, while in Boston, despite the fact that so many other courses of lectures are being given, about half of this number were reached. This fact is felt by the committee as being less desirable, as there is undoubtedly greater need for knowledge on these important topics in many places where information is less easily reached, and attempts are constantly being made with a view of spreading the gospel of better health in the country districts. The work is entirely gratuitous, the lecturers and workers having this year even paid expenses for stamps and printing themselves. These talks have been invariably well received and listened to earnestly and attentively. Often many questions were asked and deep interest shown by the girls and women addressed. Many were not formal lectures but were given as talks, sometimes the arrangement being simply that the girls or women were to ask questions freely, to be answered by the physician. Several men physicians have also given talks to large groups of women, such as the Boston Municipal League.

It is certain that an immense amount of interest in good health has been fostered. Requests are constantly being received for the furtherance of this work next year. It can hardly be doubted that the people believe in it and find that the talks are of real value to them, in the struggle for better understanding of the ways of right living.

The excellent work which this organization, fostered by women physicians, has been doing is not so widely recognized as its significance warrants. One reason for this, possibly, is the fact

that the work has gone on quietly without undue advertisement and also largely without the cooperation of physicians in general. The time has doubtless come when more could be accomplished through combined efforts on the part of both men and women interested in the problems of public health. In these matters of public concern the question of sex is becoming less and less conspicuous and it is evident that the more completely and harmoniously physicians of the two sexes work together the more definite and far-reaching will be the results. It is to be hoped, therefore, if this work on the part of women in public health education is to be continued and grow more effective that their efforts may be more widely known and recognized and a more cordial coöperation be secured.

THE MEANEY BILL.

There is before the present legislature the so-called "Meaney Bill," House Bill No. 2416, entitled "An act to require the labeling of receptacles containing pasteurized milk and milk produced outside of the Commonwealth."

Although this bill would seem to have merit in at least two respects as regards the quality of milk furnished to the citizens of the Commonwealth, this merit is apparent and not real. Entirely aside from the fact that this bill would place upon the dealers in milk a severe handicap through its requirement that special labels be placed upon a large proportion of the milk drunk in Massachusetts, this bill is based upon several misconceptions as to what may or may not be considered proper milk. One main contention is, of course, that milk produced outside of the Commonwealth is older and less clean than that produced within and, therefore, of a quality inferior to Massachusetts milk. This does not by any means follow, however. In the first place, it has not been proved that the dairies outside of Massachusetts are to any appreciable extent less sanitary than those of Massachusetts. In the second place, the mere fact that milk comes form a nearby source does not necessarily ensure a correspondingly excellent quality. It may be said without fear of contradiction that milk properly produced and handled, coming from the northern part of New York State, might very well be of better quality, even though seventy-two or ninety-six hours old, than that coming from an infected or badly conducted dairy within thirty miles of Boston and but twelve hours old. Witness our recent typhoid and tonsillitis epidemics from milk produced at our very doors!

Then, too, supposing one lived in Boston, must the milk which comes from just over the line in New Hampshire and produced 24 hours previouly suffer equally with milk from northern New York State the opprobrium of being labeled as out-of-State milk? In other words, it is not the distance which milk travels, nor the length of time necessarily which elapses subsequent to its production that is important; it is the manner of production and the care in transportation or handling that counts, and these being proper, there is no reason why out-of-State milk should not be exactly as healthful as that produced in the State of Massachusetts. Indeed, it might be more healthful.

As regards pasteurization, there is no doubt that this process is used on occasion to make marketable milk which otherwise would be unsalable, and if all pasteurized milk were of such a character a label indicating pasteurization might be of service to the consuming public.

Public health officials, however, are coming more and more to believe that pasteurization of all milk is desirable and that it is to be the final solution of our ills as far as epidemics due to contaminated milk are concerned, and every effort should be made to combat the idea that pasteurized milk is necessarily an inferior milk. It is in many instances highly superior. One fact, however, is insisted upon by all experts on milk questions, and that is that pasteurization is a process which must in the final analysis be sharply defined and closely supervised, preferably under municipal or State control.

In this connection we would point out the fact that there is no indication in the bill under discussion as to what "pasteurized milk" shall necessarily mean. Shall it mean a temperature of 150° F. for half an hour, as it properly should mean; or shall it mean a temperature of 170° F. for five minutes; or shall it mean, as has been stated in some milk regulations, the exposure of milk to any degree whatever of artificial heat?

All of these considerations must be borne in mind by the Legislature if they would avoid making one more great blunder in their treatment of the milk question. They have erred already in rejecting the only good bill before

them—the "Ellis Bill." They cannot compensate for this error by enacting into law House Bill No. 2416, which will simply impose great hardship upon the milk dealer, with a necessarily increased price in all probability to the consumer, without in any way improving the character of the milk supply or the health of the persons who consume that milk supply.

THE PREVENTIVE VALUE OF PASTEURIZATION.

ONE would think that with all the agitation we have had of late years on the milk question that epidemics caused by milk would be on the decrease. As a matter of fact, they are on the increase. It was only three years ago that Boston was startled by an epidemic of scarlet fever, with 800 cases, and two years ago this month we had an epidemic of tonsillitis, with over 1000 cases. Shortly after this epidemic in Boston, Chicago had a similar experience, and then Baltimore had a serious sore-throat epidemic. Within five months Greater Boston has had five milk-borne disease epidemics, four of typhoid and one of tonsillitis, this being the second sore-throat epidemic in two years.

It is a matter of record in all of these epidemics that they were caused by raw milk or by improperly pasteurized milk, and as soon as the Board of Health ordered the milk perfectly pasteurized the epidemics at once ceased. No amount of inspection can prevent these epidemics, and the milk inspector of Boston once made the statement that if a physician was placed on every farm supplying Boston with milk, that even then one could not guarantee that the milk would be safe.

The solution of the problem lies in pasteurization, not only under official surveillance, but in the final container, or by some other method that would ensure that all the milk be heated to the required temperature for the requisite period of time. The only sure method of safeguarding milk consists in heating it to a temperature of 145 degrees and holding it at that temperature for thirty minutes. Today the great cities of Chicago and New York have established regulations requiring the pasteurization of milk, the United States Government has made it compulsory for government employees in Washington to use either an extremely high grade raw milk or pasteurized milk, and very recently the seventeen milk experts of America meeting in joint convention as the National Commission on Milk Standards voted that all milk should be pasteurized by heating at 145 degrees for thirty minutes.

It is now an established fact that at least five diseases may be transmitted by milk: typhoid fever, diphtheria, scarlet fever, sore throat and tuberculosis in children. It is also well known that there have been epidemics of these diseases caused by raw milk or by improperly pasteurized milk, but there is no record of an epidemic of disease traced to milk that has been heated to a temperature of 145 degrees for thirty minutes.

The inspection of dairy farms by efficient inspectors will clean up the premises where the milk is produced and give us clean milk; the analysis of milk in the laboratory will detect adulteration and prevent fraud; but no amount of inspection and no amount of analyzing will always prevent dangerous bacteria from getting into milk. An efficient system of pasteurization will safeguard the public health, and as proof of this statement it is only necessary to mention the fact that whenever an epidemic has been caused by milk the board of health has immediately ordered the milk pasteurized.

MEDICAL NOTES.

ANNOUNCEMENT OF DARTMOUTH MEDICAL SCHOOL.—The following recent announcement of the Dartmouth Medical School is of significance as affecting the conditions of medical education in New England, and as bearing on the inevitable relations between medical instruction and the hospital clinics which are available only in large cities:—

"The trustees of Dartmouth College have voted, after the year 1914, to suspend for the present, instruction in the last two or clinical years of the Medical School and to concentrate the resources of the school upon the first two years in medicine. Students thus trained will be well qualified to enter the third year of the courses offered by the best city medical schools and may there complete their clinical preparation for the degree of doctor of medicine. The reason given by the trustees for this action is that because of its location the school has found difficulty in meeting satisfactorily the steadily advancing requirements set by the medical profession for a larger supply and variety of clinical material for purposes of instruction."

American Association for Promoting Hygiene and Public Baths.—This Association met in the City Hall Annex No. 2 in Baltimore on the 13th, 14th and 15th of May. Papers and discussions were participated in by members and delegates from Eastern, Western and Southern cities. Dr. Simon Baruch, the president, delivered an address at McCoy Hall, Johns Hopkins University, also Prof. William H. Welch of Johns Hopkins and Dr. S. R. Fulton, secretary of the Maryland State Board of Health.

The officers of the Association, elected for 1914, are: Dr. Simon Baruch, New York, president, re-elected; Rev. Mr. Thomas M. Beadenkoff, Baltimore, vice-president; Dr. J. Leonard Mason, Newark, secretary. The place of meeting for next year is Newark, N. J.

Centralization of Public Health Administration in Switzerland.—Report from Berne, Switzerland, on May 17, states that a federal referendum, recently held, has authorized a revision of certain articles of the constitution which define the powers of the central government in matters of health administration.

"The effect of this revision will be to enable the government, and not the cantons, to deal with especially dangerous, widespread, or malignant diseases of men and animals. The measure is aimed especially at tuberculosis, but also at cancer, goitre, puerperal fever and feeble-mindedness, such as wholly to incapacitate a person from earning a living even by mechanical work. Tuberculosis is responsible for about one-seventh of the deaths annually occurring in Switzerland. The mortality from cancer, according to the Swiss medical profession, is higher than in any other country on whose mortality statistics reliance can be placed."

This action is evidence of a tendency to vest the power of supervising public health in federal rather than in local authorities.

Opening of a New French Hospital.—Report from Aix-les-Bains, France, states that on May 15 the new Leon Blanc Hospital, presented to that city by the late J. Pierpont Morgan, was formally opened by the local mayor in the presence of representatives of the French Government, of the Red Cross Society, and of various medical organizations.

Antityphoid Inoculation in the French Army.—In January, 1912, voluntary antityphoid vaccination was first established in the French Army. Since that time 62,788 men have been inoculated, with the same strikingly beneficial results that have attended this procedure in other countries.

"Official statistics show that in France no case of typhoid fever has occurred among the soldiers vaccinated, who, on Dec. 31, numbered 37,140. On the same day only one case was reported among the 13,290 vaccinated men in Algiers-Tunis; that was in a soldier who had come from Morocco. In Morocco the results were as follows: In Eastern Morocco the morbidity and mortality were *nil*, whereas among the non-vaccinated the morbidity was 38.23 and the mortality 5.51 per 1,000. In Western Morocco the morbidity among the vaccinated was 2.96 and the mortality 0.09 per 1000, whereas among the non-vaccinated the morbidity was 168.75 and the mortality 21.29 per 1000. Taking the average typhoid statistics for the whole army it is estimated that antityphoid vaccination has, among the 62,788 men treated, prevented 2,101 cases of disease and 266 deaths during the year 1912."

Bequest to a St. Louis Hospital.—The death in Paris on May 9 of Mary Carter Gregory releases a bequest, in the will of her late brother, Charles R. Gregory, of $10,000 to St. Luke's Hospital, St. Louis, Mo.

A New Institute of Medical Research.—Report from Berkeley, Cal., on May 14, announces that Mrs. George William Hooper, of San Francisco, has transferred to the University of California the sum of $1,000,000 for the establishment of an institute of medical research in memory of her late husband.

"The foundation is to be controlled by an advisory board of seven members constituted as follows: The president of the Carnegie Foundation, who is now Dr. Pritchett; the professor of pathology at Johns Hopkins University, the director of the Rockefeller Institute for Medical Research, the president of the University of California, the dean of the Medical School of the University of California, E. D. Connolly, representing Mrs. Hooper, and a seventh member to be chosen by the Western members of the advisory board."

Tuberculosis Appropriations in California.—Report from Sacramento, Cal., states that on May 9 the State Assembly passed bills appropriating $20,000 for the maintenance of a State department of tuberculosis, $2000 for the treatment of residents with the disease, and $5000 for the dissemination of knowledge as to the best means of preventing its spread.

BOSTON AND NEW ENGLAND.

MASSACHUSETTS COLLEGE OF PHARMACY.—At the forty-fifth annual commencement exercises of the Massachusetts College of Pharmacy, held in Boston recently, the degree of doctor of pharmacy was conferred on 35, and that of pharmaceutical chemist on 8, candidates.

BOSTON CITY HOSPITAL TRAINING SCHOOL.—The annual graduating exercises of the Boston City Hospital training school were held on Friday of last week, May 23. Diplomas were conferred on 24 pupil candidates. The principal address was by Miss Mary M. Riddle.

CHILDREN'S HOSPITAL TRAINING SCHOOL.—The annual graduating exercises of the Children's Hospital Training School are to be held in Boston on Thursday evening of this week, May 29.

LECTURE BY DR. COLEY.—On Thursday afternoon of this week, May 29, Dr. William B. Coley, of New York, will deliver at the Harvard Medical School, under the auspices of the Alpha Omega Alpha Fraternity, an illustrated lecture on "Some Aspects of the Cancer Problem."

MILK AND BABY HYGIENE ASSOCIATION.—The recently published fourth annual report of the Boston Milk and Baby Hygiene Association records the work of that organization for the past season. During the year 1912, over 3000 babies were cared for, and 9 milk stations were maintained. For the current year $2000 are needed to continue these stations, $2000 to open new stations in Roxbury and Dorchester, and $3000 for the salaries of additional temporary nurses at each station during the months from June to October.

REPORT OF FITCHBURG BOARD OF HEALTH.—The recently published twenty-third annual report of the Board of Health of the City of Fitchburg, Mass., chronicles the activities of that body for the calendar year 1912. During this period the total death-rate was 12.87 per 1000 living, that of infants under one year was 104.6 per 1000 births. Thorough physical examination of all school-children was made by the school physicians, and 49 tuberculous patients were aided by the Board. The reports of the school nurse, and of the inspectors of milk, plumbing and meats are appended.

NEEDS OF NORTH SHORE BABIES' HOSPITAL.—The work and needs of the North Shore Babies' Hospital are described, as follows in part, in a recent letter to the daily press:—

"It is not sufficiently well known that an excellent place is now provided where small children of Essex County who are taken sick in the heat of the summer can be taken and receive the best medical treatment. This place is the North Shore Babies' Hospital. Originally started by several persons in the town of Peabody who saw the necessity of such an institution, it was at first located on Baker Island in Salem harbor, and for two or three years good work was done there. The cool, pure sea air there is of the best and gave some advantages which the Floating Hospital of Boston has given the small children of Boston in its sails down Boston harbor.

"It became clear after a while, however, that the difficulty of reaching the island was too great, and another place must be secured. By this time persons in Salem, Beverly, Danvers and a few in Lynn had become interested. A careful search for the best place was made all along the North Shore in Beverly, Salem, Marblehead, Swampscott and Lynn. Finally an ideal spot was secured in the Ropes estate, consisting of a fine mansion and several acres of improved land on tide water, with a good beach, in North Salem. The mansion was entirely remodelled and fitted for hospital uses and is opened for patients during the three or four warm months of the year.

"Everyone should bear in mind that such a place is provided and the hospital deserves a more general and hearty support, which it will no doubt receive when the matter is called to their attention."

WORK OF THE BOSTON DISPENSARY.—The current issue of the *Boston Dispensary Quarterly*, published last week, shows that during the quarter ended March 31, 1913, 30,624 visits were made by patients at the various clinics of the Dispensary, an increase of 4419 over the corresponding period last year. It is announced that hereafter the recently established evening ophthalmologic clinic shall be held twice each week, instead of once as at first.

RECENT HOSPITAL BEQUESTS.—The will of the late Josiah Oakes, of Malden, Mass., which was filed on May 12 in the registry of probate at East Cambridge, Mass., leaves an estate of $260,000 in trust to his daughter, but provides that in the event of her death, without issue, after 15 years, the sum of $10,000 shall be given to the Malden Hospital for the establishment of a free bed, $10,000 to the proper persons to be used for

the suppression of tuberculosis in Malden, the residue to be divided equally between the Massachusetts General Hospital, Boston, the Carney Hospital, South Boston, and the Free Hospital for Women, Brookline.

Boston Mortality Statistics.—Cases of infectious diseases reported to the Boston Board of Health for the week ending May 20, 1913: Diphtheria, 48, of which 4 were non-residents; scarlatina, 47, of which 9 were non-residents; typhoid fever, 1; measles, 146, of which 1 was non-resident; tuberculosis, 86, of which 2 were non-residents. The death-rate of the reported deaths for the week was 16.66.

NEW YORK.

Workmen's Compensation.—Governor Sulzer has vetoed the Foley-Walker workmen's compensation bill, passed at the recent session of the Legislature, which was condemned by some of the labor organizations on the ground that it permitted the insurance of the compensation fund by casualty companies. The system established in the bill was the same, however, as that in Massachusetts, and the act was approved by many officers of trade unions, as well as a large number of employers.

A New Chief at Ellis Island.—Dr. L. L. Williams of the United States Public Health Service, who for the last few months has, with the permission of the government, been acting in an advisory capacity in connection with a New York municipal committee of investigation, has just been detailed as chief medical officer at the immigrant station on Ellis Island.

New Appointees at Hoffman and Swinburne Islands.—Dr. C. F. Clark, chief medical officer of the hospitals on Hoffman Island, and Dr. C. S. Hudson, chief medical officer of the contagious station on Swinburne Island, having been promoted to positions as deputy health officers, Health Officer O'Connell has appointed to their places Dr. J. R. Hicks of New Brighton, Staten Island, formerly of the army, and Dr. A. A. Mendez of Brooklyn.

Work of Russell Sage Foundation.—A commission of the department of surveys and exhibits of the Russell Sage Foundation has been making an investigation of the economic and health conditions of the city of Newburgh, on the Hudson, and at a large meeting of the citizens, held May 16, presented its report. It was anticipated that there might possibly be a hostile demonstration on this occasion, as the report reflected rather severely on some of the city officials, but no dissatisfaction was expressed. The school board was especially criticized by the commission, as the investigation showed that the public school buildings were badly lighted and ventilated and that no attention was paid to the physical condition of the pupils.

Typhoid Fever at Catskill.—While New York City is looking forward to the early increase of its water supply by the completion of the great Catskill system, the State Board of Health comes out with a report to the effect that typhoid fever, from contaminated drinking water, has for some time been unusually prevalent in the village of Catskill. As a matter of fact, however, Catskill village is remote from and has no connection whatever with the watershed of the Esopus (the source of the supply for New York), which is among the lofty mountains of the western Catskills. The trouble with the drinking water of the village in question is that it is pumped up directly from the Hudson River, which is polluted with the sewage not only from the cities of Cohoes, Watervliet, Rensselaer, Troy, Albany, and Hudson and of many smaller places on the Hudson, but also with that of many populous places along the Mohawk, which empties into the Hudson. The State Health Department has found that the results of repeated analyses justify the conclusion that this public water supply, even after settlement, shows clearly the typical pollution of the lower Hudson River. Thus, the total number of bacteria per c.c. is excessively high for a potable water, while organisms of the colon bacillus type were isolated in nearly all test volumes as small as one c.c., and repeatedly in volumes as small as 1-10 c.c. As a result of its investigation the department has urged upon the local authorities the following recommendations: 1. To take immediate steps for the construction of works to purify the present water supply or to develop a new, adequate and safe supply from Potuck creek or other suitable source. 2. Pending the permanent improvement of the supply, to establish a temporary and inexpensive plant for the chlorination of the present raw river water, under the direction of a sanitary expert, in order

to reduce to a minimum the danger of water-borne infection.

Recent Hospital Bequests.—By the will of the late Hugh D. Auchincloss, a bequest of $7,500 is made to the Presbyterian Hospital of New York.

The late Charles Schoolhouse of New York, shortly before his death, which occurred on May 7, requested that certain gifts should be made to charitable objects which were not mentioned in his will, and his son and executor has announced his intention to carry out this wish. Among these oral bequests are $1,000 each to Mount Sinai Hospital, the Montefiore Home and Hospital for Chronic Invalids, the German Hospital and Dispensary, the New York Skin and Cancer Hospital, the New York Society for the Relief of the Ruptured and Crippled, and the Blythedale Home for Tuberculous Children.

Civic Street Parade.—Hitherto the police and the street cleaning departments have had their annual spring parades on different days, but this year the municipal authorities determined to have not only these two, but every other department of the city government combine in one grand civic street parade, to be reviewed by the mayor and other officials. May 17 was fixed upon as the date for this, and on that day the event came off with great éclat. There were, in all, 23 divisions, most of which had with them floats of various kinds, and there were some 12,000 marchers and 560 vehicles in line. In the dock and ferry department division was the corps of lifesavers, many of them decorated for heroic deeds, assigned to the recreation piers in summer, and the fire department division was accompanied by 90 men, women and children who had been rescued from impending death in fires. One of the floats displayed by the charities department represented the operating amphitheatre of the Kings County Hospital, Brooklyn, with the figure of a patient on the table and surgeons, nurses and orderlies performing their appropriate functions; while in a large decorated car rode a smiling bevy of nurses from the training school of the City Hospital, Blackwell's Island. The health department had no less than 20 floats. On one of these was a large tombstone, representing the annual death-rate in 1868, 27.90, and beside it a small tombstone representing the 14.12 rate in 1912; and another float carried a huge hypodermic syringe, with statistics inscribed on it, illustrating the successful use of diphtheria antitoxin. Altogether, the parade was a most impressive demonstration and one, in point of novelty, organization and variety, such as New York had never seen before.

This World's Hugest.—On the basis of the last census, and of immigration, birth, and death-rates since that time, it was estimated by the Health Department of May 19 that on July 1, 1913, New York will become the largest city in the world, with a total of 5,372,983 inhabitants. Of its present white population, 45.4% is foreign-born, 15.4% native-born of native parentage, and 38.8% native-born of foreign parentage.

Current Literature.

Medical Record.

May 10, 1913.

1. Bryant, J. D. *Consultations Without Scars.*
2. Thompson, W. G. *Osteitis Deformans (Paget's Disease).*
3. *Dana, C. L., Berkeley, W. N., Goddard, H. H., and Cornell, W. S. *The Functions of the Pineal Gland. With Report of Feeding Experiments.*
4. Nammack, C. E. *Salvarsan in Cryptogenetic Pernicious Anemia.*
5. Rolph, F. W. *The Dissolved Albumin Test for Gastric Cancer.*
6. Griffin, E. A. *Cryptic Polypus in the Nasal Pharynx of a Child.*
7. Tousey, S. *Case of Exophthalmic Goiter Cured by X-ray.*

3. Dana and Berkeley discuss their observations on the functions of the pineal gland, and Goddard and Cornell report on numerous clinical and animal experiments. From their series of fifty or more cases they are inclined to believe that pineal medication is sometimes of value in children whose mental development is retarded. Just how the gland produces mental improvement is unknown. Possibly the secretion of the gland acts as a ferment, facilitating exchange of nutrient material in the brain cells. In cases of total idiocy, the writers found the gland useless. [L. D. C.]

New York Medical Journal.

May 10, 1913.

1. Stoner, G. W. *Insane and Mentally Defective Aliens Arriving at the Port of New York.*
2. *Cole, L. G. *Preliminary Report on the Diagnosis of Postpyloric (Duodenal) Ulcer by Means of Serial Radiography.*
3. Brauth, J. H. *High Tension, High Frequency Currents.*
4. Wyeth, G. A. *What the Practitioner Should Know of the Wassermann Reaction.*
5. Dynan, N. J. *Psychogenic Psychosis.*

6. Hartshorne, I. *Eye Strain Symptoms in General Practice.*
7. Grushlaw, I. *Indications for Operation on the Inferior and Middle Turbinates and Septum.*
8. Frescoln, L. D. *Hospital Prophylaxis.*
9. Funke, J. *Carcinoma of a Hyperplastic Hypophysis.*
10. Milne, L. S. *Tuberculosis of the Liver with Jaundice.*
11. Doroff, L. A. *The Duodenal Tube.*
12. Levyn, L. *Biostatistics of the Jewish Race.*

2. Cole presents a preliminary report on the diagnosis of duodenal ulcer by means of serial radiography. The method depends on recognizing the actual deformity of the gut, caused by the induration or cicatricial contraction surrounding an ulcer. By means of serial radiography it is possible to reveal all of the usual pathological findings of duodenal ulcer. [L. D. C.]

The Journal of the American Medical Association.

May 17, 1913.

1. Cannon, W. B. *Antivivisection Legislation; Its History, Aims and Menace.*
2. Reed, A. C. *Vertigo.*
3. Watters, W. H. *A New Differential Leucocyte Count Chart.*
4. *Levy, R. *Laryngeal Tuberculosis.*
5. Leale, M. *Thrombophlebitis of the External Iliac Vein.*
6. Wiener, J. *Skin-Grafting Without Dressings.*
7. Creel, R. H. *Plague Eradication in Porto Rico.*
8. Torek, F. *The First Successful Resection of the Thoracic Portion of the Esophagus for Carcinoma. A Preliminary Report.*
9. Wetherill, H. G. *Successful Transplantation of Graft Without Periosteum.*
10. Furniss, H. D. *Impacted Ureteral Calculi Released by Fulguration.*
11. Singley, J. D. *Bursting Rupture of the Stomach of Extraordinary Extent.*
12. Soper, A. C., Jr. *A New Bottle-Holder for Feeding Babies.*
13. Skillern, P. G. *Cases Illustrative of (1) Fracture of Carpal Scaphoid with Luxation of Semilunar, (2) Fracture of Carpal Scaphoid with Palpable Deformity.*
14. Pusey, B. *A Sclerocorneal Trephine.*
15. Graham, H. F. *Shelf for Rectal and Vaginal Operations.*
16. Bendell, J. L. *Longitudinal Fissured Fracture of the Lower End of the Radius.*
17. Olsho, S. L. *A Diagram for Teaching the Varieties of Regular Astigmatism.*

4. Levy points out that recent statistics show that tuberculous laryngitis exists in 50 per cent. of those who die of tuberculosis. It is rare in children under 12 years of age. Among the earliest of signs is intermittent hoarseness. It has been found that the lesion, in the majority of cases is on the same scale as the lung affection. Another early symptom is excessive sensitiveness and irritability of the pharynx. Pain is of uncertain significance. Diagnosis in the absence of cough and sputum can sometimes be made by rubbing the suspected larynx with a pledget of cotton, and subjecting this to bacteriologic examination. Curability depends largely on early diagnosis. Tuberculin is of value in only a limited number of cases. [E. H. R.]

Archives of Internal Medicine.

April, 1913.

1. Stewart, G. N., and Laffer, W. B. *A Study of Vasomotor Reflexes Elicited by Heat and Cold from Regions Devoid of Temperature Sensibility (in an Unusual Case of Post-Typhoidal Neuritis.)*
2. Stewart, G. N., and Walker, O. C. *Vasomotor Reflexes Elicited by Heat and Cold from Areas Deprived of Temperature Sensibility by a Traumatic Lesion.*
3. Neilson, C. H., and Bounot, E. *A Method for the Quantitative Determination of Pepsin by Using a Colloidal Suspension of Egg Albumin.*
4. *Bass, M. H., and Wessler, H. *Heart Size and Heart Function in Children, Showing Orthostatic Albuminuria: An Orthodiagraphic Study.*
5. *Marvin, D. *A Preliminary Report on the Effect of Strychnine and Digitalis on Man.*
6. Opie, E. L. *Human Botryomycosis of the Liver.*
7. Bailey, C. H. *A Case of Foreign Body in the Heart.*
8. *Pollock, L. J., and Treadway, W. L. *A Study of Respiration and Circulation in Epilepsy.*
9. *Neuman, L., and Behrend, E. B. *A Modification of Russo's Urinary Typhoid Fever Test, with a Report of Its Use in One Thousand Cases, and a Complete Bibliography.*

4. Bass and Wessler made an orthodiagraphic study of orthostatic albuminuria at the pediatric clinic of the Mount Sinai Hospital in New York, examining especially the relationship of this condition to the cardiovascular system. In their series of cases selected at random they found relative cardiovascular insufficiency fairly common. Hypertrophy and dilatation were rare, but a considerable number of the hearts failed to become smaller after exercise, indicating insufficient contraction. A tendency of the pulse to become smaller (sometimes impalpable) after exercise was very common among the children examined. In 30% of the cases hearts of the vertical or drop type (described by Kraus) were found.

5. Marvin reports results of experiments on the effect of strychnine and digitalis on man. His material consisted of groups of medical students at the University of Vermont. He found that strychnia had practically no effect on the rate of respiration, but a constant effect in slowing the pulse rate. There was marked increase in blood-pressure after doses of gr. 1-30 or more. With digitalis the writer observed no effect on the rate of respiration. The pulse-rate was slowed eight beats per minute by a dose of 14 minims of standard tincture. Increase in blood-pressure was marked, the maximum being reached in five hours and the pressure gradually falling to normal in fifty hours.

8. Pollock and Treadway made a clinical study of respiration and circulation in epilepsy. They find that there are present in many cases rhythmical variations of blood-pressure other than those due to respiratory movements. Before a convulsion there is a preliminary rise in blood-pressure followed by a sudden drop and then (just before the convulsion) a period of apnea. During the convulsion the pulse is rapid and the blood-pressure relatively low. The changes in the respiratory and circulatory systems observed by the writers in some of their cases suggest that the site of discharge is in the medulla and pons.

9. Neuman and Behrend write an exhaustive paper on Russo's urinary typhoid fever test, making a complete review of the literature and offering a modification of the test with report of results obtained with it in one thousand cases. The writers preface their remarks by saying that this methylene-blue test is only a corroborative test and not intended to replace the blood culture or the Widal. The modified technic of the Russo test suggested by the writers is as follows: Make an aqueous solution of methylene blue of such concentration that, when thoroughly mixed, it will just be translucent. In an ordinary test tube put enough of this solution to fill the bowl, then fill the tube with urine, mix thoroughly and note the color reaction. Emerald or mint green indicates a positive reaction, while any tinge of blue renders it negative.

The writers have found a positive reaction constant in typhoid and very rare in other conditions. Its early appearance is valuable in indicating prompt isolation of a suspect. Its prognostic value is doubtful.

[L. D. C.]

THE JOURNAL OF EXPERIMENTAL MEDICINE.

APRIL 1, 1913.

1. CHURCHMAN, J. W. *The Selective Bactericidal Action of Stains Closely Allied to Gentian Violet.*
2. MARINE, D. *The Metamorphosis of the Endostule (Thyroid Gland) of Ammocoetes Branchialis (Larval Land-Locked Petro-myzon Marinus (Jordan) or Petromyzon Dorsatus (Wilder).*
3. ZINSSER, H., AND YOUNG, S. W. *On the Possible Importance of Colloidal Protection in Certain Phases of the Precipitin Reaction.*
4. MANWARING, W. H. *The Relation of the Leucocytic Bacteriolysin to Body Fluids.*
5. WOLLSTEIN, M., AND MELTZER, S. J. *The Reaction of the Lungs to the Intrabronchial Insufflation of Killed Virulent Pneumococci and of Plain Sterile Bouillon.*
6. ROBINSON, G. C. *The Influence of the Vagus Nerves on the Faradized Auricles in the Dog's Heart.*
7. EPSTEIN, A. A. *Further Studies on the Chemistry of Blood Serum.*
8. JOBLING, J. W., AND BULL, C. G. *Studies in Ferment Action. VII. Toxic Split Products of Bacillus Typhosus.*
9. TYTLER, W. H. *A Transplantable New Growth of the Fowl, Producing Cartilage and Bone.*
10. *MURPHY, J. B. *Transplantability of Tissues to the Embryo of Foreign Species. Its Bearing on Questions of Tissue Specificity and Tumor Immunity.*
11. ROUS, P. *False Transitions between Normal and Cancerous Epithelium.*

10. Murphy finds the developing chick embryo a very satisfactory host for various tumors. He studied particularly the Jensen rat sarcoma inoculated into the chick embryo. The rat tissues grown for long periods in the chick show no adaptation to the new species. These cells grow almost until the time of hatching, but even after growth in the embryo cannot be successfully implanted in the adult chicken. The method appears to be a valuable one for the further study of tumors and their specificity. [R. I. L.]

MAY 1, 1913.

1. LAMBERT, R. A. *Comparative Studies upon Cancer Cells and Normal Cells. II. The Character of Growth in Vitro with Special Reference to Cell Division.*
2. LINTZ, W. *The Bacteriology and Vaccine Therapy of Distemper in Horses.*
3. *DRAPER, G., AND HANFORD, J. M. *Experiments on the Transmission of Scarlet Fever to the Lower Monkeys.*
4. LEWIS, P. A., AND MONTGOMERY, C. M. *Experimental Pulmonary Tuberculosis in the Dog. The Effect of Large Amounts of Tubercle Bacilli of Bovine Type Introduced Directly into the Lungs by Way of the Air Passages.*
5. GAY, F. P., AND ROBERTSON, T. B. *The Antigenic Properties of Globin Caseinate.*
6. PEARCE, R. M. *The Renal Lesion of Experimental Cantharidin Poisoning.*
7. JONES, A. P. *The Value of Mallory's Connective Tissue Stain for the Demonstration of Variation in Thyroid Colloid.*
8. *FLEXNER, S., AND CLARK, P. F. *Paralysis in a Dog Simulating Poliomyelitis.*
9. DARLING, S. T. *The Immunization of Large Animals to a Pathogenic Trypanosome (Trypanosoma Hippicum, Darling) by Means of an Avirulent Strain.*
10. BUTTERFIELD, E. E., AND PEABODY, F. W. *The Action of Pneumococcus on Blood.*

3. Draper and Hanford were unable definitely to establish the transfer of scarlet fever to higher and lower monkeys. Some of their experiments were suggestive.

8. Flexner gives a final summary of nearly 1300 cases of epidemic meningitis treated by the serum prepared by the Rockefeller Institute. The mortality of all cases was 30%. The average mortality of the disease not treated by serum is at least 70%. Furthermore, complications and sequelae are reduced in number. [R. I. L.]

MÜNCHENER MEDIZINISCHE WOCHENSCHRIFT.

No. 14. APRIL 8, 1913.

1. *NOGUCHI, H. *Discovery of Spirocheta Pallida in the Central Nervous System in Progressive Paralysis and in Tabes Dorsalis.*
2. *MAYER, M., ROCHA-LINA, H., AND WERNER, H. *Studies of Verruca Peruviana.*
3. HOFFMANN, M. *Double-Breaking Myelin in Cataracts.*
4. HARBITZ, F. *Congenital Tuberculosis.*
5. GROEDEL, F. M. *Roentgenological Demonstration of the Appendix.*
6. KELLNER. *Mongoloid Idiocy.*
7. MEHLER, H., AND ASCHER, L. *Chemotherapy for Tuberculosis Experiments with Borcholin (Enzytol).*
8. SCHWENKE, J. *The Diagnostic Significance of Döhles Leucocyte-Inclusion in Scarlet Fever.*
9. LENSSER. *The New Spring of Kissingen and Its Significance for Cardiac and Vascular Disease.*
10. GOLDSTEIN, K. *A Case of Acromegaly after Castration in a Grown Woman.*
11. NEUDÖRFER, A. *Pylorospasm and Gastric Ulcer.*
12. SULTAN, C. *A Non-Indication for Resection of the Intestine.*
13. KANNGEISSER, F. *Has Blood-Relationship of Parents a Harmful Effect on the Health of Children?*
14. STURM, J. *Orthotic Albuminuria in Tuberculosis.*
15. FREUND, R. *Action of Serum-Ferments in Pregnancy in Cases of Tumor. Reply, etc.*

1. Noguchi reports having discovered the spirocheta pallida in the brains of 48 parasyphilitic cases out of 200 examined and in the posterior columns of the cord in one case out of 12 examined. The organisms were few in number and were discovered only by patient search and with the aid of improved technic, which is described.

2. In a single undoubted case of Verruca Peruviana, the writer discovered in the cells of the skin-lesions inclusions which suggest that the disease is produced by a member of the group of Chlamydozoa. Inoculation into monkeys was successful.

[G. C. S.]

No. 15. APRIL 15, 1913.

1. KAPP, R. *Physiological Surgery.*
2. *DOINIKOW, B. *Reaction of the Nervous System of Healthy Guinea-pigs to Large Doses of Salvarsan.*
3. BETTMANN. *Combined Treatment of Lupus with Old Tuberculin and Aurum-Colium Cyanatum.*
4. SCHAYER. *Note on Testing Renal Function.*
5. SCHLECHT, H. *General and Local Eosinophilia in Hypersusceptibility to Organic Arsenic.*
6. *KALL. *Practical Use of the Provocative Salvarsan Injection.*

7. Müller, M. *"Vasocommotia Cerebri," a New Severe Symptom-complex of the Salvarsan Infusion, etc.*
8. v. Dapper-Saalfels, C., and Jurgensen, E. *Indications for the New "Luitpold Sprudel" of Kissingen.*
9. Hauser, H. *Quadruplets and Their Mother.*
10. Schwarz. *Rupture of the Pregnant Uterus After Previous Cesarean Section.*
11. Reichmann, M. *Localization of Foreign Bodies in the Eye.*
12. v. Recklinghausen, H. *A New Apparatus for Measuring the Arterial Pressure in Man.* (To be continued.)

2. According to various observers, Doinikow believes that cerebral symptoms following the injection of salvarsan are due to a recrudescence of the syphilitic process; to neuritis probably produced by too high dosage or poor preparations of the drug; to edema or encephalitis owing to the reaction of the nervous system to the disease; and finally, to thromboses or hemorrhages produced by the drug in hypersensitive individuals or in normal individuals by too high dosage. To determine experimentally how important the drug is in producing cerebral reaction, Doinikow has injected healthy rabbits repeatedly over a long period of time with much higher dosage correspondingly, than that used for therapeusis. In no cases were changes in the central nervous system produced, but after single lethal doses in certain animals thromboses and hemorrhages were found in the brain.

6. Kall has found the injection of salvarsan useful as a provocative test to render the blood serum positive to the Wassermann reaction in cases of primary syphilis with a negative reaction, in untreated cases of secondary and tertiary syphilis, and in cases of suspected congenital syphilis. This reaction may be of doubtful value in certain cases of tertiary or cerebral lues or in differentiating syphilis from malignant disease. Kall emphasizes the importance of using the Stern modification of the Wassermann reaction in addition to the original test. The serum should be withdrawn on the day following the salvarsan injection, on the seventh and fourteenth days, and if necessary at intervals of from four to six months. [R. F.]

No. 16. April 22, 1913.

1. Seitz. *Galvanic Nerve-Muscle Irritability in Pregnancy. The Tetany of Pregnancy.*
2. Vogel. *Asthenia of Connective Tissue and Its Relation to the Healing of Wounds and Scar Formation.*
3. *Finsterer. *The Free Exposure of Inoperable Cancer of the Stomach to Roentgen Rays, and Its Consequence.*
4. Rominger. *The Production of Complement Fixation Reactions by the Addition of Chemicals to Normal Serum.*
5. Lele. *The Treatment of Brow Presentations.*
6. Grund. *Atrophic Myotonia.*
7. *Trautmann. *Tuberculosis of the Cervical Lymph Glands in Relation to the Tonsils and Lungs.*
8. Praetorius. *Pemphigus Malignus Cured by One Intravenous Injection of Blood.*
9. Wolf. *An Unusual Interference to Replacement in a Typical Fracture at the Ankle with External Luxation of the Foot.*
10. v. Recklinghausen. *A New Apparatus for Determining Arterial Blood Pressure in Man.* (Conclusion.)
11. Eijkman. *The Cause of Beriberi.*
12. Hellin. *The Influence of Induced Paralysis of the Diaphragm on Lung Diseases.*

3. Finsterer believes that cancer of the stomach should be removed in all cases when possible. In all inoperable cases gastro-enterostomy should be made whether or not the pylorus is obstructed. Finsterer describes his technic for freeing the tumor from the surrounding tissues in order to expose it to subsequent x-rays. Finsterer reports cases treated in this way. He believes the procedure is simple, that certain cases show considerable improvement, and that by it, metastases arise less quickly in neighboring lymph glands or organs.

7. It has been shown that tuberculosis of the glands of the neck is usually a secondary infection originating from any part of the mucous membrane of the mouth, nose, pharynx or larynx. The tonsillar ring is constantly exposed to infection, and on account of its anatomy affords an excellent portal of entry. Trautmann believes that tuberculosis of the glands of the neck should be treated not only locally, but also by extirpation of the tonsil on the affected side to prevent reinfection from an unrecognized focus. This operation should be performed even though the tonsil appears normal, and despite the fact that tonsillectomy is no longer regarded as a harmless and technically simple procedure. [R. F.]

Wiener Klinische Wochenschrift.

No. 16. April 17, 1913.

1. *Frankel, S., and Kirschbaum, P. *Adigan: a New Digitalis Preparation.*
2. Bauer, J. *Anabolic Ferments in the Serum in Endemic Goitre.*
3. Hesse, M. *The Use of Active and Inactive Serum in "Complement-Effacing Attempt."*
4. Clairmont, P. *Experiences in Field-Surgery.*
5 Steiner, R. *A Case of Dilatation with Hypertrophy of the Colon.*
6. Ferrari, H., and Urizio, L. *The Meiostagmine Reaction, Using Lecithin Extract.*

1. The authors conclude that by the use of adigan the saponin-body effects which manifest themselves by gastro-intestinal irritation are obviated in digitalis therapy. [F. S. K.]

No. 17. April 24, 1913.

1. *Epstein, E. *The Abderhalden Test for Carcinoma.*
2. Luithlen, F. *Differences in the Skin Reaction in the Infection of Serum and Colloidal Substances.*
3. Dautwitz, F. *Report from the Radium Institute at St. Joachimsthal.* 1912.
4. Wiener, E. *Vibrio Findings in a Yamen Sore.*
5. Jainpolsky, F. *Initial Sclerosis at the Caruncular Lacrimales.*
6. Neumann-Kneucker, A. *Cold-Conduction Anesthesia of the Inferior Maxillary Nerve.*
7. Novak, J. *The Treatment of Shoe Pressure.*

1. The results of this investigation are summarized as follows:—

(*a*) Of 37 examined sera of patients with carcinoma all but one, which was obtained from a patient 80 years old and very cachectic, digested carcinoma albumen. In none of these cases was placental albumen attacked.

(*b*) Seventeen of 18 sera from gravidae attacked placental albumen.

(*c*) Of 47 sera from patients, definitely not carcinomatous but suffering from severe disease and general debility, 46 did not have the power to digest carcinoma albumen. [F. S. K.]

No. 18. May 1, 1913.

1. Mannaberg, J. *Attempts to Influence Basedow's Disease by Exposure of Ovaries to the Roentgen Rays.*

2. *Ekler, R. *Experience with the Biological Diagnosis of Pregnancy After Abderhalden.*
3. Izar, G. *Antigens for the Meiostagmine Reaction.*
4. Fieber, E. *Surgical Experiences and Observations from Belgrade During the Balkan War.*
5 Lauber, H. *A Case of Cyclic Oculomotor Paralysis.*
6. Lundstrom, E. *Cases Illustrating Arsenic Poisoning.*

2. The author states that the dialysing method is easier than the optical method of performing the test for pregnancy. He describes the necessary apparatus, stating that suitable membranes permeable for peptones and impermeable for albumen are now kept in stock by a German concern. He describes the technic and the method of obtaining the serum—as a Wassermann puncture—which must be absolutely hemoglobin-free.

His results may be recorded as follows: 37 gravidae; all positive; 25 non-gravidae, all negative.

The material consisted of: 11 in early weeks, 5 in second month, 6 in third month, 3 in fourth month, 2 in sixth month, 4 extrauterines, 6 retained products post abortion.

The diagnosis of the early gravidae was later confirmed by the progress of pregnancy. Extrauterine and post-abortion cases proved pathologically after operation. Complications of pregnancy do not affect the reaction.

Among the negative cases were 4 endometritis, 4 chronic metritis, 4 myomata, 1 salpingitis, 1 cystoma *two months post partum*, 1 retrouterine exudate, 1 vesico-vaginal fistula *six months post partum*, 3 amenorrhea, 2 carcinoma of breast, 1 pyelonephritis and 1 man.

Therefore he concludes that the Abderhalden method is a sure means of determining pregnancy, and should be more widely used. [F. S. K.]

Deutsches Archiv für Klinische Medizin.

March 11, 1913.

1. Jacob, L. *The Specific Gravity of the Urine in Disease; Its Dependence upon the Whole Dried Residue and the Individual Part of the Urine.*
2. Baetge, P. *Eventratio Diaphragmatica with Electrocardiographic Studies.*
3. *Roth, O. *The Study of "Ictère Hémolysinique."*
4. McCrudden, H. *The Importance of Calcium for Growth.*
5. Renner, O. *The Innervation of the Kidneys.*
6. *Freund, H., and Marchand, F. *The Importance of Glycemia in Fever.*
7. Wittich. *The Value of the Karell Cure in Treatment of Circulatory Disturbances.*
8. Benedict, T. G. *Influence of Increase in Nourishment upon Metabolism.*
9. *Nonenbruch, W. *A Study of the Function of Congested Kidneys.*
10. Focke. *The Importance of the New Work of Gottlieb and Ogawa on the Digitoxin Resorption for the Practicing Physician.*
11. Gottlieb, R. *Answer to the Preceding Criticism of Focke.*
12. Citron, J. *The Importance of Antibodies in Tuberculosis.*
13. Schürer, J. *Remarks on the Preceding Discussion.*

3. Roth in this paper takes up the question of the presence of isohemolysins in cases of anemia and anemic jaundice. In a severe case of primary anemia which he studied at length he found a marked evidence of autohemolysis and autoagglutination of the erythrocytes. By careful study, however, he came to the conclusion that this destruction of the red cells was due to a faulty structure on their part and that any serum treated the same way would destroy them. This is interesting as it will make all the claims for a specific active body in the serum void unless the resistance of the corpuscles has been well studied and found normal.

6. Freund and Marchand take up the question of glycemia in a series of normal and a large series of pathological conditions. It has frequently been stated that the sugar in the blood is increased during febrile conditions. They conclude that frequently an increase of sugar in the blood is observed during a fever, but that it does not bear as direct a relation to the height of the fever as it does to the kind and severity of the infection.

9. Nonenbruch in taking up Schlager's and others, tests in passive congestion of the kidney found that the nitrogen and water retention characteristic of vascular nephritis existed but in a different nature than when the glomeruli were permanently injured. The percentage of nitrogen might be quite high and therefore the retention due entirely to the lack of water elimination. The same could be said of the salt retention of tubular disease. [C. F., Jr.]

Revue de Médecine.

April, 1913.

1 Mabille, H., and Pitris, A. *A Case of Post-Apoplectic Anemia of Fixation, Having Persisted for Twenty-three Years.*
2. Froment, J., and Monod, O. *The Sign of Provost-Lichthein-Dejerine.*
3 Constaing and Filderman. *Dental Erosion, Regarded from the Standpoint of General Pathology. (Continued.)*
4. Lafforgue, M. *Associated Pneumococciae; Malaria and Pneumococcia.*
5. Revillet. *Three Cases of Vesical Paralysis and of Sudden Death Met in the Course of Pneumonia.* [L. H. S.]

Annales De L'Institut Pasteur.

March 25, 1913.

1. Besedka, A., Ströbel, H., and Japille, F. *Anaphylotoxine, Peptotoxine and Peptone in Their Relation with Anaphylaxis.*
2 *Nicolle, C., Blaizot, L., and Conseil, E. *Etiology of Recurrent Fever and Its Mode of Transmission in the Louse.*
3. Truche, Ch. *Studies on Ricin.*
4. Cesari. *Studies upon the Bacillus of Schmorl.*
5. Chonkewitch, J. *Investigations upon the Bacterial Flora of the Large Intestine in Cattle and Sheep.*

2. These authors studied an epidemic of recurrent fever which occurred in Tunis and its vicinity. In this paper they review the work on the etiology of this disease and the attempts to show the method of transmission of the spirilla. Their suspicion, as that of others, has centered upon the louse. Their experiments, which consisted in lice biting the sick and then other humans, turned out negative. They dared try it on humans because a dose of salvarsan quickly cured the condition. They persisted in their study of the louse, however, and found that the spirillum disappeared very quickly after it entered the lice, but about the eighth day reappeared in the lacunal spaces and there alone. Studying now this spirillum, they find it will produce recurrent fever in monkeys on injection. Apparently it has not been tried out in the human but they feel sure that it also transmits the disease to man through some cutaneous injury. The mode of transmission from the closed lacunal spaces of the lice to the human organism is unsettled. This disease, they think, can now be classed with typhus

fever, as one which can be eradicated by the extermination of the head and body louse. [C. F., Jr.]

Sei-I-Kwai Medical Journal.

April, 1913.

1. *Sewaki, H. *Second Report on the Method of Increasing Body Weight.*
2. Nagayama, S. *Does the Action of Salvarsan Give Some Influence to Gastric Juice upon the Albuminoid Digestion?*
3. Mogi, S. *On a Case of Deformed Aorta and Heart.*
4. Nomura, K. *On the Treatment of Epilepsy.*

1. In his first report (see Journal, p. 710) Sewaki undertook to demonstrate the effectiveness of antityphoid inoculation in increasing the body weight. In this second report, he discusses indications and contraindications for its employment. He believes its use is best controlled by the white count and determination of opsonic index. He further reports the tabular protocols of 12 additional series of experiments to determine the effect of other injected substances on the body weight. [R. M. G.]

Miscellany.

AMERICAN COLLEGE OF SURGEONS.

An American College of Surgeons was organized at a meeting in Washington on Monday evening, May 5, 1913. Four hundred and fifty prominent surgeons of the continent of North America came together at the invitation of an Organization Committee which was appointed by the Clinical Congress of Surgeons of North America at its meeting in November, 1912. This committee consisted of Edward Martin of Philadelphia, Emmet Rixford of San Francisco, John B. Murphy of Chicago, Rudolph Matas of New Orleans, Albert J. Ochsner of Chicago, Charles H. Mayo of Rochester, Minn., Frederic J. Cotton of Boston, George Emerson Brewer of New York City, J. M. T. Finney of Baltimore, W. W. Chipman of Montreal, George W. Crile of Cleveland and Franklin H. Martin of Chicago.

The invitations, which resulted in this large gathering of surgeons in Washington, were extended by the Organization Committee after a carefully prepared campaign in which each large university city on the continent was visited by a member of the committee who met, in person, a group of selected men brought together by a committee of three in each locality, which committee had been authorized by the Organization Committee to extend an invitation to the surgeons in their locality to meet the representative of the Organization Committee. These five hundred men who were invited to the meeting in Washington, four hundred and fifty of whom responded, represented all branches of surgery and surgical specialties. The surgeons responding to the invitation were designated the Founders of the College.

The Call of the Meeting was read by Franklin H. Martin, Secretary of the Committee. This call, which is herein quoted in part, summarizes the work for which the Committee was authorized:

"First, It should formulate a minimum standard of requirements which should be possessed by any authorized graduate in medicine, who is allowed to perform independently surgical operations in general surgery or any of its specialties.

"Second, It should consider the desirability of listing the names of those men who desire to practice surgery and who come under the authorized requirements.

"Third, It should seek the means of legalizing under national, colonial, state or provincial laws, a distinct degree supplementing the medical degree, which shall be conferred upon physicians possessing the requirements recognized by this law as necessary to be possessed by operating surgeons.

"Fourth, It should seek co-operation with the medical schools of the continent which have the right to confer the degree of M.D., under the present recognized standards, and urge these colleges to confer a supplementary degree on each of its graduates who have, in addition to their medical course, fulfilled the necessary apprenticeship in surgical hospitals, operative laboratories and actual operative surgery.

"Fifth, It should authorize and popularize the use of this title by men upon whom it is conferred, and its use should especially be urged in all directories of physicians in order that the laity as well as medical men can distinguish between the men who have been authorized to practice surgery, and those who have not."

The Founders Organization was then completed by the election of Edward Martin as Chairman and Franklin H. Martin as Secretary and the authorization of an order of business.

Much interest was manifested in the method to be pursued in the selection of the members of the Corporation and in the method of conferring fellowships. A series of resolutions covering this subject were offered by the secretary and adopted.

The prospective Fellows are to be divided into four classes, A, B, C, and D. Classes A, B, and C are by resolution to be admitted without the formality of submitting to an examination under the following resolution:

"*Resolved,* That the A class shall consist of founders of the college.

"The B class shall consist of the members of the special surgical societies constituting the Congress of American Physicians and Surgeons and one hundred each, nominated by accredited committees, from the Surgical Section of the American Medical Association, from the section on Obstetrics, Gynecology and Abdominal Surgery of the American Medical Association, from the General Surgical Section of the Clinical Congress of Surgeons of North America, from the

Division of Surgical Specialties of the Clinical Congress of Surgeons of North America, from the American Association of Obstetricians and Gynecologists, from the Surgical Section of the Canadian Medical Association, from the Southern Surgical and Gynecological Association and from the Western Surgical Association.

"The C class shall consist of surgeons of prominence of five years in the practice of surgery or a surgical specialty and who, in the opinion of the Committee on Credentials, are eligible for fellowship in the College without formal examination."

For all others, coming under class D, the following resolution was passed:

"*Be it Further Resolved,* That the Board of Regents, through the Committee on Credentials, limit the admission of the Fellows to classes A, B, and C until the Board of Regents formulates a standard of requirements for class D and reports the recommendations back to the Board of Governors for approval at the meeting to be called by the Board of Regents in Chicago, November, 1913."

It will be the spirit of this Association to open the fellowship to all competitors in surgery without favor. Scientific attainments, surgical ability, unquestioned moral character, measured by the College's standards, shall constitute the measure for fellowship.

There are many hundreds of surgeons on the continent, who are not included in classes A and B, who fall into the C class. Applications from these men will be welcome and their names will have the most careful consideration by the Committee on Credentials.

All applications for membership should be forwarded to the secretary of the corporation. It would add to the ease of the work of the Committee on Credentials if references in the way of vouchers or recommendations from one or more well-known surgeons accompany each application for fellowship.

The first convocation for the formal conferring of fellowships will occur in November, 1913, at a time and place that will be designated later. The first directory of Fellows will be distributed at that meeting. For that reason the applications for fellowships on the part of A, B, and C classes should be filed as promptly as possible in order to facilitate the correcting of lists for publication.

DR. FRIEDMANN'S VACCINE.

SINCE the sale of Dr. Friedmann's vaccine, noted in the issue of the JOURNAL for May 8 (p. 702), medical interest in the possible value of his method of treating tuberculosis has naturally much diminished. On May 9, Dr. John F. Anderson and Dr. A. M. Stimson, of the United States Public Health Service, reported in part as follows, to the National Association for the Study and Prevention of Tuberculosis, the result of their official study of the vaccine:

"We must not lose sight of the possible therapeutic value of this preparation, and on the other hand it is necessary to guard against too great an optimism in respect to its merits. Without presenting in detail the condition of patients under observation, we are in a position to state that the facts thus far observed do not justify that confidence in the remedy which has been inspired by widespread publicity. In our opinion harm may have been done by this undue publicity insofar as it has lessened the confidence of tuberculosis persons in well recognized methods of treatment or interrupted their use, and we are constrained to advise against any lessening of those well known measures which not only had effected cures, but which have reduced the incidence of the disease. We are aware that Dr. Friedmann does not wish to be judged scientifically on newspaper statements and he would undoubtedly disclaim responsibility for certain of those which have appeared. Nevertheless it is on those that the public bases its opinion until replaced by reliable and unbiased scientific pronouncements, supported by convincing data.

"In our series of patients Dr. Friedmann has almost exclusively made use of the intra-muscular method alone in pulmonary cases, and a very considerable proportion of them have either developed no considerable infiltrate at all or have suffered from abscess formations. It is evident, therefore, that a very considerable portion of these patients may expect their treatment at the hands of Dr. Friedmann to extend over a long period.

"Concerning the cultures submitted to us we may state that a series of experiments is under way. The bacillus has been found to be an acid-fast organism having properties quite different from those of any tubercle bacillus with which we are acquainted. It appears to be identical with an organism cultivated from a few loopfuls of the material used for injection which Dr. Friedmann permitted us to place on culture media in his presence. We requested Dr. Friedmann to furnish us with a large amount of this material for examination, but this he has declined to do. We can state, however, that living acid-fast bacteria are being injected by the intramuscular and intravenous method, although we are ignorant of what medium they are suspended in or what additional substance or substances may be contained in the final mixture."

On Monday of last week, May 19, the New York Friedmann Institute, the first of the 36 projected state institutions under the terms of sale, formally opened its doors for the reception of patients. As yet, Dr. Friedmann's preparation has not been licensed under the vaccine act, and therefore cannot be shipped in interstate commerce.

MASSACRE OF CHINESE LEPERS.

A recent communication from China confirms the report, published in the issue of the Journal for Jan. 23 (p. 138), describing the massacre of 39 lepers on Dec. 14, 1912, at Nanking, the capital of the province of Kwang-Si.

"For eight years Catholic missioners had cared for these lepers, who, like hunted beasts, had taken refuge in some woods a short distance from the suburbs of the town. Recently they had bought near this place a plot of ground on which they were erecting a leper hospital. Though they were at first promised the support of the authorities, it soon became evident that the people of the higher classes were opposed to the movement. The missioners, however, went to the president and pleaded the cause of the lepers. They were received with the greatest courtesy and assured of official co-operation. Then, like a bolt from heaven, came the news, 'All the lepers have been killed.'

"The confirmation of the report only added more terrible details. A hundred soldiers had surrounded the lepers so that none could escape. Then, driving them like cattle to the slaughter, they plunged them into a trench, the bottom of which was covered with a thick layer of wood. The order 'Cha!' ('Kill!') was given and the guns were fired upon the unfortunate victims. Afterwards petroleum was poured over their bodies and the rising flames announced that the 'notables' of the city had conquered.

"A crowd of people witnessed this inhuman spectacle without a sign of pity and the instigators of the crime have shown no evidence of remorse for their cruelty. They have, on the contrary, started a man-hunt, offering a reward for the disclosure of lepers, who are seized, shot and burned as were those first taken. The Government is proud of its exploit and looks for universal approval."

A SPANISH SURGICAL ROMANCE.

There is a flavor of high Castilian romance about the following tale, reported from Madrid on May 6, involving a Spanish surgeon in an unusual suit for damages:

"Señor Gomez Lopez del Navarette, a well-known diplomat of Barcelone, was in love with an actress, Señorita Dolorez Riverode Romanones, who is the daughter of an aristocratic Spanish family, whose name she brought into great notoriety by going on the stage. A young, but already famous surgeon, was also a suitor for Dolorez, and her affections wavered so uncertainly as to cause a duel between the young men in which the diplomat was wounded in the leg.

"Immediately Dolorez was at his side and nursed him devotedly. Several doctors were consulted, but the leg only became worse. At last Dolorez persuaded her lover to consult his rival, the brilliant young surgeon. He did so and the surgeon said that amputation would alone save his life as gangrene had set in.

"More persuasion by the actress, who assured him that her affections were now fixed, was needed before the young diplomat would consent to the operation. The operation was eventually performed and Señor Navarette provided with an artificial leg.

"In spite of her previous protestations Dolorez had now to confess that she could never marry a man with one leg. Not long after she married the young surgeon. This aroused Navarette's suspicions and he visited the doctors whom he had consulted before the operation. They all assured him that gangrene was, in their opinion, quite impossible. He is now bringing an action for damages against his successful rival."

Correspondence.

POLISHED RICE AND BERIBERI.

Post Hospital,
Plattsburgh Barracks, N. Y.

May 15, 1913.

Mr. Editor: In a recent communication in your Journal on the subject of "polished" rice, Dr. Horace Packard leaves in my mind the impression that he considers the eating of "polished" rice to be a matter of importance in this country. Such an idea is, I believe, erroneous. For two years I have been connected with the experimental beriberi work in the Philippines, and with the selection of rice for the use of the "Philippine Scouts." Beriberi has disappeared from the organization known as the "Philippine Scouts" as a result of certain changes in the dietary, the most important of which were the substitution of undermilled for highly milled rice, and the addition of beans to the ration. I fully believe that the use of a diet consisting *chiefly* of "polished" or highly milled rice will lead to the development of polyneuritis in birds and beriberi in man. In the Orient the milling of rice is a most important matter, since hundreds of millions of men live almost exclusively on that grain. In the United States, however, no such importance attaches to the methods of preparation, since rice is used to such a limited extent in the dietary. "Polished rice" does not contain any harmful element, but merely *lacks some substance which is necessary to nerve nutrition.* When used as an occasional component in a mixed dietary the neuritis-preventing substance which is lacking in the rice is supplied from other components and no harm results. Beriberi occurs only when the individual subsists *almost exclusively* on highly milled rice.

Many other articles of diet are as deficient in the neuritis-preventing substance as is highly milled rice. Little has shown that beriberi develops among fishermen in Canada when they are living chiefly on bread made from white flour. (Whether the neuritis-preventing principle was originally absent from the flour or had been destroyed by heat is not evident.) Dr. Creighton Wellman, in a paper read May 8, 1913, before the American Association of Tropical Medicine in Washington, showed that in many common breakfast foods, and in both Irish and sweet potatoes, there was

not enough of the neuritis-preventing element to maintain health. Therefore polyneuritis developed in fowls subsisting exclusively on these articles.

Several states have passed, or have pending, legislation prohibiting the sale or production of "polished rice." Such legislation is of great importance in Oriental countries where beriberi is a scourge, but is most ill-advised in the United States where rice is little used and where beriberi rarely if ever occurs. If the profession advocates such unnecessary legislation it but weakens its own authority on sanitary matters. A resolution opposed to such legislation in the United States was passed by the American Association of Tropical Medicine at the meeting in Washington May 6 to 8, 1913.

Aside from the main issue this legislation is ill-advised because the expression "polished rice," *as used in the United States*, is not synonymous with "highly milled" rice. The term "polished rice," as used by the trade in America, means rice coated with talcum and glucose. An undermilled rice which is beriberi-preventing might be coated in this manner and then would be called "polished." On the other hand a highly milled beriberi-producing rice if not coated with talcum and glucose would not be classed as "polished," yet would be dangerous if it constituted the chief article of diet.

As used in the Orient the term "polished rice" means rice which has been deprived of nearly all of its pericarp, together with most of its aleurone layer. White rice, scoured rice, steam-mill rice, machine rice, uncured rice and highly milled rice are other terms used to express the same degree of milling. Contrasted with "polished rice" is the "unpolished rice" which is beriberi-preventing. It has a large part of the pericarp, or inner skin, left on the kernel. Other terms for this quality of grain are undermilled rice, cured rice, red rice, hand pounded rice and whole rice.

Yours respectfully,

W. P. Chamberlain, M.D.,

Major, Medical Corps, United States Army.

THE RADIOGRAPHY AND TREATMENT OF FRACTURES.

May 14, 1913.

Mr. Editor: The Committee on Fractures of the American Surgical Association desires to have two reprints of any paper dealing with the non-operative or operative treatment of *open or compound fractures*, which have been published within the last five years.

The Committee also desires papers on the *medico-legal relations* of *radiography* to the diagnosis and treatment of fractures.

If authors on these subjects have no reprints, the Committee would be pleased to receive memoranda of the places of publication of such papers.

John B. Roberts,

Chairman Committee on Fractures,

313 S. 17th Street, Phila.

CHANGES IN MEDICAL CORPS, U. S. NAVY, FOR WEEK ENDING MAY 17, 1913.

Cather, D. C., passed assistant surgeon. Detached from U. S. S. *Vermont*, to wait orders.

Hart, S. D., assistant surgeon. Ordered to Atlantic Reserve Fleet.

Alfred, A. R., surgeon. Detached from the Receiving Ship at Mare Island, Cal., and ordered to Naval Proving Grounds, Indian Head, Md.

Angony, G. L., surgeon. Ordered to Navy Recruiting Station, Richmond, Va.

Stoops, R. E., passed assistant surgeon. Detached from Naval Hospital, Great Lakes, Ill., and ordered to Naval Training Station, Great Lakes, Ill.

Lyon, W. C. assistant surgeon. Detached from Navy Recruiting Station, Richmond, Va., and ordered to Navy Recruiting Station, Galveston, Texas.

Koltes, F. X., passed assistant surgeon. Detached from Nav. Train. Sta., Great Lakes, Ill., to *New Jersey*.

Cottle, C. F., passed assistant surgeon. Detached from Nav. Hosp., Great Lakes, and ordered to Nav. Train. Sta., Great Lakes.

Davis, R. G., assistant surgeon. Detached from Nav. Proving Grounds, Indian Head, Md., and ordered to Asiatic Sta.

Robertson, G. E., assistant surgeon. Detached from Marine Expeditionary Force, and ordered home, to wait orders.

Zalesky, W. J., passed assistant surgeon. Ordered to *Helena*.

Hough, F. P. W., passed assistant surgeon. Ordered to Naval Hospital, Canacao, P. I.

Sullivan, N. R., assistant surgeon. Ordered to Naval Hospital, Canacao, P. I.

Mahoney, J. A., acting assistant dental surgeon. Ordered to *Saratoga*.

Benton, F. L., surgeon. Detached from Marine Expeditionary Force, to wait orders.

Melhorn, K. C., passed assistant surgeon, detached from Naval Hospital, Newport, R. I., and ordered to *South Dakota*.

Robbins, I. W., assistant surgeon. Detached from *South Dakota*, and ordered home, wait orders.

Rose, M. E., acting assistant surgeon. Ordered to Navy Yard, Philadelphia, Pa.

RECENT DEATHS.

Dr. Jesse William Henry, a retired physician of Brooklyn, N. Y., died May 16, in his 84th year. He was a native of Connecticut, and was graduated at Georgetown, D. C., in 1866.

Dr. Edward F. Brooks, of Newburgh, N. Y., was killed in his automobile at a railroad crossing on May 13. Dr. Brooks was 43 years old and was graduated from the medical department of New York University in 1894.

Dr. David B. Schwartz, of Brooklyn, N. Y., who died at Pasadena, Cal., on May 16, was born in 1883. He was not married.

Dr. Elmer E. Brown, who died at Philadelphia on May 23, was born in 1857. After engaging successfully in business for some years, he entered the Jefferson Medical College, from which he received the degree of M.D. in 1897.

Original Articles.

STUDIES IN BACTERIAL METABOLISM.

IX.

THE RELATION OF BACTERIAL METABOLISM TO INTERNAL MEDICINE.*

BY ARTHUR I. KENDALL, PH.D., CHICAGO.

Professor of Bacteriology, Northwestern University Medical School.

The history of science furnishes many instructive instances where purely empirical methods have developed in response to the stress of practical needs. Often these purely empirical methods have deviated somewhat sharply from the beaten path, and not infrequently subsequent investigations have shown them to be starting points for entirely new conceptions of the subject. The history of diphtheria antitoxin furnishes an extremely interesting and instructive example of such development. Prior to the discovery of antitoxin and subsequently even bacteriology was concerned largely with the diagnostic aspect of medicine, that is, its province was definitely limited to the etiological relationship of bacteria to disease. The advent of antitoxin, however, changed the view point of at least those engaged in its production. They were compelled to study those factors which influence the appearance of toxin in cultures of the diphtheria bacillus, since diphtheria toxin is essential for the production of antitoxin. In the early days of antitoxin production, when the factors influencing the appearance of this diphtheria toxin were unknown, it was observed that the toxicity of cultures of the diphtheria bacillus, even of the same strain was notoriously variable. At one time a potent toxin would be obtained, while again, with apparently the same conditions, scarcely any toxin would be formed, even when the same strain which had previously produced a potent toxin was employed. In 1888 Roux and Yersin[1] studied this phenomenon in some detail. They noticed that toxin production had a rather definite relationship to the reaction of the medium, for at the start the diphtheria bacillus usually brought about an acid reaction in broth. Later, as the organisms increased in numbers the reaction tended to become alkaline. During the period of acid production, little or no toxin appeared to be formed. During the second period, as the reaction became alkaline, toxin production began. In 1893 Theobald Smith[2] called attention to the fact that broth cultures of the diphtheria bacillus remained alkaline even from the start if sugars were carefully excluded from the media in which they were grown. Later, Spronck[3] studied the phenomena involved anew, and rediscovered the fact which Smith had previously called attention to, namely, that the muscle sugar of the meat from which the broth is prepared was responsible for this change in reaction. Spronck also confirmed the observation of Reux and Yersin, that the initial period of acid production was one in which toxin is not formed in measurable quantities. Finally, Smith[4] demonstrated conclusively that, while the observations of Roux and Yersin, and of Sponck were correct so far as the gross facts were concerned, yet the acid formation *per se* was not the factor which prevented the appearance of the toxin as they had supposed. Smith mixed toxin with 3.6 per cent. of lactic acid and incubated them at 37° Centigrade for several weeks. At the end of this time the potency of the toxin was proved to be unaltered and the experiment was discontinued. He also definitely proved that the presence of the muscle sugar in some manner prevented the formation of diphtheria toxin; that the elimination of this sugar and a liberal supply of oxygen were the two prime requisites for the production of a powerful toxin. The initial acidity which is observed in cultures of this organism not previously freed from muscle sugar is due to the action of the bacilli upon this sugar, and that only when this sugar is used up is there toxin formation. During the period of toxin production the reaction of the medium becomes progressively alkaline. It appears, then, that fermentable sugar exercises a profound influence upon toxin formation by the diphtheria bacillus. Dr. Smith tells me also that the same phenomenon is equally true for the production of tetanus toxin. It should be added that an alkaline reaction *per se* is not sufficient to prevent the utilization of sugar if it be in the medium. Irrespective of the reaction of the medium, utilizable sugar is attacked in preference to the protein constituents. It appears, then, that the absence of utilizable sugar is the condition which influences most profoundly the appearance of toxin in cultures of the diphtheria bacillus. When such sugar is absent, toxin formation proceeds; when it is present, toxin formation does not take place.

Similarly, the products of metabolism of bacteria such as *B. coli* are influenced profoundly by the presence or absence of utilizable carbohydrate. In plain broth (freed from sugar by the well known Smith method) *B. coli* produces ammonia, hydrogen sulphide, phenol, indol and other decomposition products of protein origin. The reaction becomes progressively alkaline, a strong, foul odor develops. This is bacterial putrefaction. The same bacillus grown in precisely the same broth with the addition of one per cent. dextrose (or other utilizable sugar) will produce carbon dioxide, hydrogen, lactic and smaller amounts of other fatty acids. The reaction becomes progressively acid, the odor not unpleasant. This is bacterial fermentation. The colon bacillus utilizes sugar in preference to protein when both are simultaneously offered to it in the same medium. The protein in the sugar-free and sugar-containing media is the

* Read before the Suffolk Medical Society, March 5, 1913.

same in the experiment quoted. The addition of the sugar has shielded the protein from bacterial attack. It is worthy of note that this same preference of *B. coli* for sugar is made use of in freeing the media from sugars prior to making these experiments. If this process of freeing the medium from sugars by fermentation with *B. coli* is allowed to proceed too far—if the sugar is exhausted before the bacteria are killed, in other words, products indicative of protein breakdown appear. In like manner, the fermentative action of bacteria in general is judged by the production of acid, or acid and gas in certain so-called sugar media. These sugar media are fundamentally the same—plain, nutrient sugar-free broth. To this sugar-free broth is added the desired sugar. If the organism in question "ferments" one of these sugars, chemical analysis will show that the reaction becomes acid, and that the sugar is gradually destroyed. If the organism does not "ferment" the sugar, the reaction becomes more or less alkaline, and the sugar may be recovered quantitatively at the end of the experiment.

This shielding action of sugars for protein can be observed in other phenomena of bacterial growth. It is a well known fact that the cholera vibrio liquefies gelatin under ordinary conditions. This liquefaction is due to the fact that the vibrios decompose the gelatin with the formation of simple compounds which are soluble instead of being insoluble as is the unacted-upon gelatin. Gorini[5] found that the cholera organism would not liquefy gelatin readily if certain sugars were added to it and that the so-called "cholera red" reaction was not produced if the organisms were grown in broth containing sugars. Similarly, Auerbach[6] found that *B. proteus* (proteus vulgaris) did not liquefy gelatin if it contained sugars that this organism could ferment. Both Auerbach and Berghaus,[7] who studied the phenomena involved in this problem more in detail, believed that the acid formed in sugar media was the cause of the inhibition of proteolysis by the proteus bacillus. Berghaus performed a very ingenious series of experiments which at first sight appear to confirm this assertion. He inoculated *B. proteus* into sugar gelatin and plain gelatin. The sugar gelatin became acid in reaction, and gas bubbles appeared in it. The plain gelatin (sugar-free) became alkaline and rapidly liquefied. This liquefied gelatin was filtered through a Pasteur filter to separate out the bacteria, leaving the fluid gelatin containing the proteolytic enzymes of the proteus bacillus dissolved in it. This sterile, liquid gelatin was added to some sterile sugar gelatin which previously had not liquefied when it was inoculated with proteus bacilli. The gelatin liquefied rapidly. In other words living proteus bacilli would not liquefy sugar gelatin; the enzymes from these same bacilli *grown in sugar-free gelatin* would liquefy gelatin whether it contained sugar or not. It is worthy of note that the sugar gelatin acted upon by *B. proteus* did not contain proteolytic enzymes in measurable amount. At first sight this situation seems paradoxical. The explanation, which seems to fully meet and fully correlate them, is a very simple and direct one. *Living* proteus bacilli select sugar in preference to gelatin and utilize it for their metabolic needs. The action on gelatin under these conditions is minimal. In sugar-free gelatin, on the other hand, the bacteria are forced to obtain their full food requirements from the gelatin and other proteins of the medium. The gelatin is acted upon apparently by a liquefying enzyme (proteolytic enzyme) excreted by the bacteria. This enzyme is soluble in gelatin and prepares it for bacterial metabolism. This enzyme remains in the gelatin after the bacteria are removed by filtration and it is this enzyme which liquefies sugar gelatin when bacteria are not present. The proteus bacilli apparently do not secrete a proteolytic enzyme when they are using carbohydrate, so that no liquefaction takes place under these conditions. It will be seen, therefore, that these experiments do not depend upon the presence of acid for their explanation; the fundamental feature of the situation is that living bacteria of the type mentioned act upon sugar in preference to protein (gelatin) if they can get it; under these conditions no proteolytic enzymes are formed in demonstrable amounts. In the absence of sugars the bacteria are forced to utilize protein. The visible action of these organisms upon sugar-free gelatin is brought about by a proteolytic enzyme which they excrete and which remains dissolved in it. The liquefaction of sugar gelatin by this ferment is not at all comparable to the conditions under which this ferment is actually produced. The production of the ferment involves the proteolytic activity of living proteus bacilli; the action of the ferment separated from these bacilli is a purely passive one and under these conditions gelatin will be attacked irrespective of any substances dissolved in it, provided the physical conditions are suitable. The fermentation of sugar does not apparently call forth this enzyme. The presence of a small amount of sugar at first appears to inhibit or prevent proteolysis; after the sugar is used up, however, if the reaction has not become too acid for the bacteria to grow, the proteolytic ferment appears and the medium begins to liquefy. The whole series of phenomena involved hinges on the sparing action of carbohydrate for protein, shielding the latter from bacterial metabolism. It is a noteworthy fact that the composition of the bacterial bodies themselves varies according to the nature of the medium in which they are grown. Lyons, and independently, Cramer, observed that bacteria grown in media rich in carbohydrate contained about twenty per cent. less nitrogen and a like excess of extractive in their bodies compared with the amounts of these substances which appeared when they were grown in an excess of protein, but no carbohydrate.

To recapitulate: qualitative evidence of the

sparing action of utilizable carbohydrate for protein, the former shielding the latter from bacterial attack, has been produced, which appears to warrant the assumption that the nature of the metabolic products of bacterial activity varies according to the substratum upon which they are grown. If they are grown in purely protein media, the products of their metabolism are largely nitrogen-containing. They are putrefactive, they may or may not be malodorous, and they may be toxic. The *same* bacteria grown in the *same* protein, to which is added utilizable carbohydrate produce non-nitrogenous "fermentative" products which may be irritative, rarely or never truly toxic. They are, however, acid in character. The pathogenic bacteria, such as the diphtheria bacillus, produce powerful extracellular toxins in sugar free media; they produce innocuous acids in the same media containing, however, sugars in addition. Bacteria of the colon type produce indol, phenol and similar products in sugar free media; lactic and similar acids and other non-nitrogenous compounds in sugar media. Liquefying bacteria change gelatin to relatively simple, soluble compounds in the absence of sugar, but leave gelatin or other protein practically intact if sugars are present. The phenomena involved in this discussion may be stated as follows: "Fermentation takes precedence over putrefaction," meaning by this that bacteria which are able to utilize both carbohydrate and protein act upon the former in preference to the latter when both are simultaneously present in the same medium. This shifting of metabolism is not a purely academic distinction—it contains theoretical possibilities which are of considerable interest from many ponts of view. Before discussing them, however, certain other evidences of the correctness of this assertion of the sparing action of carbohydrates will be introduced. First of all, certain features of bacterial metabolism which are not brought out by these purely qualitative studies must be considered. Although the dictum that "fermentation takes precedence over putrefaction" is qualitatively evident, it must be apparent from purely *à priori* considerations that there is also another factor involved in bacterial metabolism. Bacteria, in common with all known living things, are nitrogen-containing. Hence, bacteria, even when they are utilizing carbohydrate in preference to protein, require a certain amount of the latter for their nitrogen requirement. A somewhat crude illustration will make this need for nitrogen clear. Bacterial life may be likened roughly to that of a locomotive. A locomotive is built of steel and iron; it is run with coal and water. When a locomotive is built, the structural requirement, aside from loss of parts and small repairs, is ended. The fuel requirement, on the contrary, is not ended until the machine goes out of commission. The fuel requirement, then, represents a steady consumption of material, and is by far the greater of the two. In a like manner the bacterial body is built up of complex, nitrogen-containing substances: this is the structural requirement. The fuel requirement, as is the case with the locomotive, is much greater than the structural requirement. When the bacterial body is complete, the structural requirement aside from losses incidental to the formation of enzymes, etc., is practically ended. The fuel requirement, on the contrary, is a continuous one. The structural requirement is extremely small; the fuel requirement may be very large, comparatively. The structural requirement must be made good in terms of nitrogen. Many bacteria can utilize either nitrogenous substances (protein or protein derivatives) or carbohydrates for their fuel. If both are presented to the organism simultaneously, the utilizable carbohydrate appears to be the one selected for fuel.

Some idea of the theoretical structural requirement of a bacterium may be obtained from the following figures: *B. coli* is a cylindrical organism about one micron in diameter and two in length. (A micron is one one-thousandth of a millimetre). The actual cubical contents of a colon bacillus are, therefore, 0.001 x 0.001 x 0.7854 x 0.002 mm. This is equal to 0.00000000157 cubic millimetres. If the specific gravity be assumed to be that of water (it is probably slightly greater, the figure quoted being about 1.040) the weight of a colon bacillus will be 0.00000000157 milligrams. That is to say, fifteen hundred million *B. coli* would weigh about one milligram. Remembering that fully eighty-five per cent. of this weight is water, the actual solid material in the body of an organism of the size of *B. coli* is very little.

It is actually possible to measure quantitatively the sparing action of carbohydrate for protein. This is accomplished by comparing the rate and amount of ammonia formation in media with and without utilizable sugar, but otherwise of the same composition. The ammonia content is a fairly accurate index of protein breakdown. (For the exact details and analytical figures of a long series of metabolism determinations made according to this method see Kendall and Farmer,[8] from which the figures quoted here are taken). The facts brought out by such a series of determinations are interesting and significant. They are briefly as follows:

1. Bacteria which cannot utilize sugar break down as much protein in sugar-containing media as they do in media of the same composition, but without the sugar. Such bacteria are "obligately carnivorous."

2. Bacteria which can utilize sugar, break down less protein in a sugar-containing medium than they do in one of the same protein content, but without sugar.

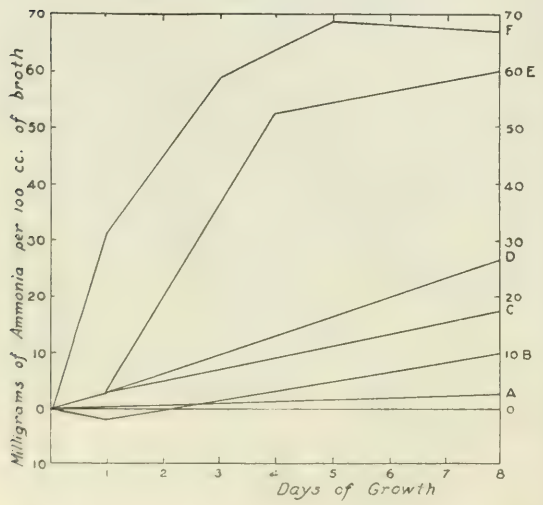
3. All bacteria break down some protein (aside from those "nitrifying bacteria" which occur in the soil) as judged by the increase in ammonia content and other evidence of protein katabolism, whether protein alone, or protein and carbohydrate is being acted upon. In other

words, all bacteria need at least a minimal amount of protein in their dietary. This explains the well known fact that bacteria cannot grow in pure sugar solution.

A careful analysis of the analytical figures obtained from a series of comparative studies of the metabolism of certain bacteria derived from the intestinal tract of man brings out in a striking manner not only the sparing action of carbohydrate for protein, but also certain features relating to the metabolism of the more strictly pathogenic bacteria as contrasted with that of the more saprophytic and parasitic forms. Qualitatively, the more pathogenic bacteria are less active culturally (chemically) than the less pathogenic bacteria. The following table of the more important characteristics of certain of the pathogenic and non-pathogenic bacteria of intestinal origin illustrates this well known fact clearly:—

	Dextrose	Lactose	Saccharose	Mannite	Milk	Gelatin	Indol
B. dysenteriae (Shiga)	+	—	—	—	±	—	—
B. dysenteriae (Flexner)	+	—	—	+		—	—
B. typhosus	+	—	—	+	+	—	—
B. paratyphosus alpha	g	—	—	g	+	—	—
B. paratyphosus beta	g	—	—	g	±	—	—
B. coli	g	g	—	g	c	—	+
B. proteus	g	—	g	—	p	+	+
B. mesentericus	+	—	—	—	p	+	+

+ = acid, or liquefaction of gelatin, or indol formation.
— = alkali, or non-liquefaction of gelatin.
g = gas production.
± = initial acidity followed by alkalinity.
c = coagulation of milk.
p = peptonization of milk.



It will be seen that the more strictly pathogenic bacteria, the dysentery group and *B. typhosus* produce acid, but no gas in dextrose. Milk is acidified, due to the fermentation of the small amount of dextrose in it, but the reaction then tends to become alkaline as the protein is attacked. Gelatin is not liquefied and indol is not produced. These reactions are minimal; they are about the slightest that can be given in such media by any known bacteria. The fermentation of dextrose leads to the formation of lactic acid, but not to deeper seated change in the sugar. Lactic acid still contains considerable energy in it. The paratyphoid bacilli break down dextrose, in part at least, much more deeply. A portion of the molecule is reduced to its lowest terms, carbon dioxide and hydrogen. No energy is left in these compounds. There is little evidence of proteolysis; the protein molecule is not broken down deeply by these bacteria. They are, however, less pathogenic on the average than typhoid bacilli. The colon group and *B. mesentericus* on the contrary, break protein deeply, the latter more so than the former. They form indol, and doubtless, other products of protein degradation not recognized at the present time. It is an interesting fact to note that *B. coli* does not liquefy gelatin and that it is more often associated with morbid processes than are either *B. mesentericus* or *B. proteus*. The gross facts, the increase of cultural activity with a decrease in habitual pathogenic powers is the essential feature of this tabulation.

Turning now to the actual measure of the relative proteolytic powers of these bacteria, it is found that the more pathogenic types, *B. dysenteriae* and *B. typhosus*, utilize but little protein in their dietary; they do not break protein down deeply or extensively. The amount of protein breakdown is fairly measured by the increase of the ammonia content in the medium in which they are growing. The accompanying table, and particularly the chart, show graphically the amounts of protein broken down by these various organisms in milligrams of ammonia per one hundred centimeters of broth. Two kinds of broth are included: One, sugar-free, contains the usual protein constituents of standard nutrient bouillon. The other, dextrose broth, contains precisely the same constituents as the plain broth, and in addition one per cent. of chemically pure dextrose. The sugar-free broth, containing only protein and protein derivatives, necessitates a purely protein diet for the bacteria grown in it. The dextrose broth offers a choice between protein and carbohydrate. The structural requirements of the bacteria must be obtained from protein; the fuel requirements may be obtained theoretically from either protein or sugar. The results of these paralleled experiments, made under precisely the same conditions, illustrate forcibly and quantitatively the nature and extent of the sparing action of sugar for protein, as measured in terms of protein decomposition.

The curves are accurately constructed from analytical data as follows (see Kendall and Farmer, *loc. cit.* for further information):—

Uninoculated plain and dextrose broth is analyzed for its ammonia content. The amount found is plotted as zero (0-0). The ordinates in-

dicate milligrams of ammonia per one hundred cubic centimeters of broth, the abscissae duration of the experiment in days. The light line (O-A) represents the amount of ammonia formation (increase over that of the uninoculated control) in dextrose broth. The heavy lines (O-B to O-F inclusive) indicate the corresponding ammonia increase over the uninoculated control in sugar-free broth. The sugar broth provides the bacteria with both carbohydrate and protein; the plain broth provides protein alone. The results: the organisms considered in this connection are *B. dysenteriae* (Shiga and Flexner), *B. typhosus, B. paratyphosus* alpha and beta, *B. coli, B. proteus* and *B. mesentericus.* All of them utilize dextrose, forming in it either acid or acid and gas. The curve shows that all of them produce about the same amount of ammonia in sugar broth, indicated by the line O-A. This amounts to about two milligrams of ammonia per one hundred cubic centimetres of broth in eight days. This ammonia represents the waste from the protein broken down by these organisms for their structural needs; inasmuch as they are all about the same size, it is not wholly surprising that this "structural waste" should be about the same for all. The corresponding amounts of ammonia broken down in sugar-free broth are indicated by the lines O-B to O-F inclusive. The lines have the following significance: O-B represents the amount of ammonia produced in sugar-free broth by *B. dysenteriae, B. typhosus* and *B. diphtheriae* respectively. It is the same practically for all of them. The line O-C represents similarly that of *B. paratyphosus* alpha and beta: O-D *B. coli,* O-E *B. proteus* and O-F *B. mesentericus.* The amounts of ammonia formed by these bacteria in sugar-free broth are very significant. The more pathogenic bacteria, typhoid-diphtheria, form but little ammonia, representing but little proteolysis; the more saprophytic forms, on the contrary, as *B. proteus* and *B. mesentericus,* break protein both deeply and extensively. This is in harmony with their observed cultural and chemical characteristics.

It might be assumed that bacteria grown in the sugar broth grew very little, and that the growth in the sugar-free broth was very luxuriant. The reverse is more truly the case. For example, *B. coli* at the end of six days, numbered about 2,000,000,000 living organisms in sugar broth, while there were 1,200,000,000 *B. coli* (living) in the plain broth. The sugar broth contained more bacteria by actual count than the plain broth, and yet the ammonia content was much less. The utilizable sugar, therefore, appears to have shielded the protein from bacterial attack. The "structural" requirements are very small, as has been outlined above. At first sight this relatively small difference in protein breakdown in both sugar and sugar-free media by the more strictly pathogenic organisms might seem disappointing; it might appear that these pathogenic bacteria, rather than the more saprophytic forms would be those which should bring about a deep-seated change in the protein molecule. A moment's reflection, however, will make the facts as they are observed in these experiments quite logical in the light of what is known of these organisms clinically. Deep-seated protein breakdown means extensive liquefaction of protein; if the typhoid bacillus were to break down protein to any such degree, the resulting lesions would be quite fluid, due to the accumulation of soluble protein decomposition products around the foci of bacilli. A huge pus pocket would accumulate in the spleen in a case of typhoid, for example, and such is not the case. There is little indication of proteolysis in uncomplicated lesions due to this organism. The slight sparing action of dextrose for protein also appears disappointing, amounting as it does merely to about three times the total amount of protein break down in sugar-free media. This slight sparing action is very important, however. The diphtheria bacillus forms strong toxin in sugar-free media, none in sugar media. A thousandth of a cubic centimetre of this toxin (from sugar-free broth) will kill a guinea-pig weighing 250 grams in four days. The corresponding sugar-containing broth will not kill guinea-pigs with many times this dose. Here the very slight difference in action on protein results in a most striking difference in the toxicity of the resulting product; the one (sugar-free) being strongly toxic; the other (sugar containing, but the same protein) practically atoxic in any amount. The sugar-free broth contains the products both of structural and fuel waste from protein decomposition, since the bacteria must get both their structural and fuel material from protein. The sugar-containing broth appears to contain the same "structural" waste products of protein origin for reasons given above; the fuel requirements, however, are derived from fermentation of dextrose. The structural requirements being practically the same, it appears to be logical to attribute to the utilization of protein for fuel rather than the utilization of sugar for fuel the observed toxic products. It will be remembered that only nitrogen-containing products of bacterial origin are capable of stimulating the formation of antibodies according to our present-day knowledge, hence the sparing action of sugar for protein is of more than academic interest; it has a real clinical bearing.

A few instances drawn from many fields of bacterial activity in which this sparing action of carbohydrate for protein plays a prominent part are introduced here by way of illustration.

1. It has long been known experimentally that the addition of sugar to the applied water of sand filters will tend to inhibit nitrification. Sand filters owe their efficiency largely to the action of microörganisms, chiefly bacteria, which collect on the surface of the sand, forming a continuous layer, through which the water must pass. This layer, the "Schmutzdecke" digests, as it were, the water as it passes through the

bodies of the organisms composing it, reducing the organic matter from various stages of complexity successively through albuminoid and free ammonia to nitrites, and finally nitrates. This process is a proteolytic one complex to be sure, and involving symbioses before the process is complete, which are not fully understood. The addition of sugar to the water simply furnishes to those bacteria which can use it a carbohydrate source of fuel, which in conformity with what has gone before is promptly utilized by them. Nitrification therefore ceases. This inhibition of nitrification has frequently been observed where large amounts of brewery waste are run directly upon sand filters. Brewery waste is rich in carbohydrates, which are promptly used by the bacteria of the "Schmutzdecke" in preference to the nitrogenous constituents of the water. Here again nitrification is interfered with as long as sugar is present in the applied water.

2. The addition of sugar to eggs prior to freezing them for shipment is another example of the protective action of sugar for protein. Ordinarily such eggs do not become "rotten, filthy and decomposed," but ferment instead. The government failed to realize this phenomenon when several cans of eggs containing from 10,000 to 10,000,000 *B. coli* per gram egg were seized because they were supposed to be rotten on the grounds that colon bacilli were found in them in large numbers. Chemical analysis failed to reveal the slightest increase in putrefactive products in these eggs, in spite of the high content in fecal bacteria, either qualitatively or quantitatively. These eggs were perhaps slightly acid, but there was no proteolysis. The eggs were not measurably decomposed.

3. The actual composition of bacteria themselves plays a theoretical part in the manufacture of bacterial vaccines. Vaccines are used extensively in certain fecal types of disease; such vaccines should possess the maximum immunizing value. If the presence of utilizable sugar in considerable amounts in the media in which such bacteria are grown will reduce the nitrogen content of their bodies about one-fifth, it would be logical to grow them in a protein medium free from sugars, at least until the exact influence of this variation in nitrogen in terms of immunizing power can be determined experimentally.

4. The use of sugar-free media, to which are added definite amounts of various sugars is made use of very extensively in the cultural diagnosis of bacteria. It is obvious that such media must be freed from all sugars prior to converting them into media containing definite sugars. The preference of bacteria for utilizable sugar explains very simply and directly the fact that bacteria "ferment" certain of these carbohydrates. If they "ferment" certain sugars, the reaction of the medium becomes progressively acid; if they do not "ferment" these sugars, the reaction tends to become alkaline. The selective action of these organisms for specific sugars is the basis for these tests. The same protein is offered in every case. Bacteria which cannot utilize the sugars must act upon the protein.

5. The bacteriology of the intestinal tract is perhaps the most complex, and the most important field for the study of bacterial metabolism, so far as medicine is concerned. The relations of intestinal bacteria to diet, to acute and chronic infections of the alimentary tract and to diseases of obscure origin which are empirically found to be influenced by diet represent a phase of the subject which is practically untouched.

The normal nursling has a distinctive and monotonous flora, fermentative in character, which is called into existence by the monotonous diet (breast milk), which contains about four times as much carbohydrate (lactose) as protein. The organisms represented, *B. bifidus* and *B. acidophilus*, are among the best known examples of almost purely obligate fermentative bacteria. They cannot utilize protein to advantage for fuel purposes. The normal adolescent and adult have a very different bacterial flora in their intestinal tracts. The diet is varied, the proportion of carbohydrate to protein becomes more nearly equal, and the flora is composed largely of bacteria which can readily accommodate their metabolism to these variations in the composition of the food. The most common organism is *B. coli*. This organism is one of the most labile in its ability to accommodate its metabolism to dietary alternations in the intestinal tract. Qualitative changes in diet in normal adults are less likely to be accompanied by visible changes in the morphology of the intestinal flora than in infants, for this reason. *B. coli* adapts its metabolism to a varied diet, while *B. bifidus* is less plastic in this respect. Marked changes in the type of microbic decomposition of foods in the intestinal tract, therefore, can be brought about without a corresponding morphological deviation in the bacterial flora. The addition of carbohydrate, for example, to the diet of the host may result in the suppression of indican in the urine. The colon bacillus, which formed indol from the protein of the diet, now produces lactic acid from the added carbohydrate. Morphologically, the organisms are the same whether they are forming indol or acid. Hence it will be seen that the chemistry rather than the morphology of the flora must be called upon to explain the changes in the excretions. Indicanuria is a much discussed and little understood result of intestinal processes. The formation of indol is almost wholly due to bacterial action upon protein. *B. coli* and *B. proteus* appear to be the chief organisms concerned. Indol is produced whenever protein is in considerable excess in the intestinal tract: stasis, which ordinarily results in a differential absorption of carbohydrate; excessive feeding of protein; deficient carbohydrate in the diet, or the administration of carbohydrate which is easily and rapidly absorbed (as dextrose)—all may lead to indol formation. Excess of carbohydrate, prompt protein absorption, or diarrhea all tend to diminish indol formation

and absorption. By careful analysis of these factors it is usually possible to determine the salient features involved in any given case, and to institute appropriate measures to combat them.

Bacterial infections of the intestinal tract offer a wholly new field for direct therapy along the lines indicated. It is practically impossible to sterilize the intestinal tract, either by chemical means or by prolonged fasting. Even during starvation there is a reduced, but nevertheless considerable accumulation of intestinal secretions and detritus which provide sufficient food for very considerable number of bacteria. It is a noteworthy fact that *B. coli* can utilize this intestinal waste, and experience indicates that even bacteria of exogenous origin thrive upon the secretions and body tissue when all food is withheld for days, consequently sterilization of the intestinal tract, either in health or disease, is not practicable. Prof. F. C. Shattuck realized this long ago. In 1897 he published an article on "Diet in Typhoid,"[9] in which he maintained that judicious feeding was the proper course to pursue in this disease, on the theory that the conservation of the patient's strength was an important factor in bringing the case to a successful termination. The relatively slight loss of weight and the lowered mortality observed in his series of patients are mute witnesses of the correctness of his theory.

It must be conceded that there is no specific treatment for typhoid—indeed, with the exception of those diseases in which the acute causative factor is a toxin which can be neutralized by a specific antitoxin, as in diphtheria, this is a very general statement applicable to almost all bacterial infections. Chemotherapy has made considerable progress along certain lines, but so far the diseases of spirochetal or trypanosomal origin are the only ones in which definite results have been obtained. Careful nursing and supportive treatment are important, but non-specific adjuncts to nature which, after all, is the active force in combatting bacterial infection.

Before discussing the application of the principles outlined above to intestinal diseases, especially acute infections of exogenous origin, as typhoid fever, which will serve admirably as an illustration, a few facts relating to the bacteriology of typhoid can be advantageously considered.

The generally accepted theory appears to attribute the typhoid syndrome largely to the lysis of typhoid bacilli in the blood stream with the liberation of endotoxins. These endotoxins (alien protein) bring about a series of abnormal reactions, anaphylactic in origin, which give rise to many of the symptoms. The tendency is to explain most of the symptoms and results of typhoid infection on this basis (Coleman and Buxton[10]).

It is worthy of note that an enormous number—billions—of killed typhoid bacilli injected into the body as a vaccine will not reproduce a symptom complex resembling typical typhoid fever in man, even when these injections are spaced at intervals which should theoretically induce an anaphylactic reaction. The disturbance produced is usually very mild and transitory in character, certainly not comparable pathologically or clinically to typhoid. Living typhoid bacilli and *only* living typhoid bacilli do that. This implies that the development of typhoid bacilli *in vivo* plays an essential and important part in the production of the typhoid state. For two weeks (the incubation period of typhoid fever) changes which partly, at least, are of an unknown character are going on. During this time the natural defences of the body are partially overcome, and the typhoid bacilli get the body on the run, as it were. The nature and extent of the damage accomplished in this incubation period have an influence on the subsequent clinical course of the disease which cannot be predicted or estimated. Ordinarily this initial damage is completely lost sight of.

One of the striking objective events of a typical case of typhoid fever is a noteworthy loss of the body weight, which results in emaciation and is due to the destruction of body protein. This loss of weight is probably of a triple origin—a febrile loss due to the febrile reaction, a loss due to the restriction of the diet, that is to say, partial starvation, and a toxic loss due to the action of toxins of bacterial origin. It is probable that the febrile and toxic losses are phylogenetically closely related. Neither the febrile loss nor that due to partial starvation can account for all of the observed diminution in weight. Even absolute starvation on water alone will not result in emaciation so marked as that exhibited by a typical typhoid patient. It is, therefore, logical to attribute some importance to the action of bacterial toxins in this connection. A normal man who has been starved will regain weight rapidly on a purely protein diet. A typhoid patient, on the contrary, will ordinarily not gain weight, but will actually lose weight on such a diet; the patient appears to be distinctly harmed, and the symptoms aggravated by a purely protein diet. Relative starvation is preferable to pure protein in this disease. In this sense the typhoid patient differs markedly from a normal individual. It is very interesting to read the various items of the Shattuck diet in this connection. There is in it a very decided preponderance of carbohydrate foods. Recently Coleman[11] has studied the effects of various foods on typhoid patients, and he finds that an excess of carbohydrates in the diet actually seems to conserve body weight Coleman and Shaffer[12] studied several cases of typhoid chemically and clinically, and showed definitely that a diet rich in carbohydrates caused a retention of body protein as shown by the nitrogen balance and the weight curve. Their conclusions are as follows:—

"1. By the use of diets of high caloric value and especially rich in carbohydrate it is possible to retard and, if the carbohydrate supply be sufficient, to prevent the febrile loss of body-

protein-nitrogen in subjects of typhoid fever.

2. By such dietetic treatment the "toxic" destruction of body protein, as well as the destruction due to simple pyrexia in this disease may, therefore, be *either prevented or compensated for.*

3. The behavior of kreatin and of total sulphur in our experiments appears to show that febrile destruction of body protein, including the action of pyrexia and of toxins, is actually retarded or even wholly prevented by the intake of sufficient carbohydrate.

The prevention of the febrile loss of body protein is, therefore, probably not to be explained by a mere compensatory retention of food protein.

4. The results support the belief that in fever there is a greater need for carbohydrate; that if the food does not contain sufficient carbohydrate the body protein is drawn on perhaps to supply energy in an available form; but that, if sufficient carbohydrate be available from the food, the body protein is protected from the febrile destruction.

5. If, as seems probable from our results, the "toxic" destruction of body protein may be prevented by large carbohydrate intake, the mechanism of this "toxic" destruction cannot be a direct (poisonous) injury to body cells and proteins.

6. To maintain nitrogen equilibrium in typhoid fever the food must contain 10 to 15 gm. nitrogen in addition to much carbohydrate. Our experiment shows no advantage from a further increase of food-protein."

In the light of the ill effects of a purely protein diet this is suggestive. Physiologists have long known that carbohydrate "spares the body nitrogen," consequently physiological loss of weight due to simple starvation should be largely prevented by such foods. The amazing fact remains that in Coleman's cases not only was the loss of weight attributable to partial starvation prevented, but in addition practically all the loss attributable to the febrile reaction and to the toxemia was also markedly reduced. The general symptoms of toxemia were greatly modified.

The explanation that presents itself to account for this reduction in toxemia when the patient is on a liberal diet containing an excess of carbohydrate is a simple one. The maintenance of a high physiological sugar content in the body, and consequently in the blood, influences the metabolism of the typhoid bacilli directly, limiting their action on the body tissues. The typhoid bacilli get their *fuel* energy largely from sugar (dextrose), although their nitrogen requirements are necessarily of protein origin. The waste from the utilization of carbohydrate by bacteria may be irritative, practically never toxic. It is almost certain that the waste products of their *structural* requirements are of comparative little magnitude. The bacterial waste from *fuel* needs, particularly when this fuel waste is derived from protein break down (body tissue in this case) is the more dangerous factor. It is comparatively simple to understand the changes in the metabolism of the bacteria in the intestinal tract where they are directly in the path of the carbohydrate that is added to the diet, and in this connection the change in the nature of the products of metabolism of the normal endogenous intestinal flora may well play a part. *B. coli,* for example, forms lactic acid in place of indol, if sugars are available. This may lighten the load on the liver and kidneys, since practically no indol is formed to be excreted through the urinary tract. In the body itself, on the contrary, the typhoid bacilli might seem at first sight to be widely separated from utilizable carbohydrate. Anatomically, typhoid bacilli cause focal necroses in the various organs of the body, but it should be remembered that necrotic tissue is rather readily permeable to crystalloids. It is very probable that the dextrose of the blood, which is maintained at the highest physiological level on a diet rich in carbohydrate (carbohydrate absorption is only slightly impaired in typhoid) seeps into the areas where the organisms are active and therefore reaches them without difficulty. This dextrose is utilized by the typhoid bacilli in preference to the tissue of the host for their fuel; the character of the products of fuel wastes consequently become acid in place of being alkaline, nitrogenous and toxic, as would be the case if the dextrose content of the blood were diminished. This explanation involves no theoretical difficulties, and the observed clinical results of a liberal carbohydrate diet in reducing the loss of body protein (loss of weight), in suppressing the toxic state, and in general favorably influencing the course of the disease are in accord with the chemical and clinical results which have been observed empirically in many cases where this diet has been introduced. Furthermore, this dietary procedure is physiologically correct; it furnishes a simple and direct method for influencing specifically the activities of the typhoid bacillus. Coleman,[13], Crohn[14] and Gardner[15] have reported 174 cases of typhoid fever treated along these lines with a mortality of 12. All except a very few of these patients were charity cases, in whom typhoid is usually somewhat more severe than corresponding cases in private practice.

The importance of small feedings, rather frequently repeated, should be borne in mind in treating typhoid fever from the bacterial point of view. At least a minimal concentration of utilizable sugar should be maintained in the intestinal tract, and in the body as well. Infrequent feedings, even if they are relatively generous, fail to do this because the carbohydrate is absorbed as a rule comparatively rapidly from the tract, leaving a residuum of protein if the bowel movements are not frequent. The abstraction of carbohydrate forces the bacteria to utilize protein, be it body tissue or intestinal residuum.

There are certain limitations and even dangers which might be attributable to a diet rich in carbohydrate. These objections, however, are more theoretical than real. The gas bacillus (*Bact. Welchii*) might become active when there is considerable utilizable carbohydrate in the intestinal tract, provoking a severe diarrhea, or even becoming invasive. This is unlikely to happen unless the food of the patient contains these organisms. Lactose is particularly to be regarded in this connection for this sugar is the one commonly utilized as the principal source of carbohydrate in the various "sugar diets." Lactose is physiologically the best sugar to use, it might be added. Spores of the "gas bacillus" are not infrequently found in commercial lactose, derived from the milk from which lactose is obtained. Sterilization of lactose in the autoclave will ordinarily remove this source of danger. It is almost certain that neglect of this precaution will lead to false ideas of the legitimate use of this and other sugars, not only in typhoid fever, but other diseases where it may be used as well.

Even if a diarrhea associated with the presence of the gas bacillus should become manifest, it can be checked by the administration of a good grade of properly prepared buttermilk, a temporary restriction of the carbohydrate and a proportionate reduction in the remainder of the food. A careful survey of the intestinal flora should suffice to give ample warning of these undesirable complications. So far as the available statistics show, a gas bacillus infection has never been suspected, and certainly not demonstrated following the use of carbohydrate in typhoid fever. Flatulence and tympanites are usually reduced, rather than aggravated by a diet rich in sugars. (For the dietary details, and much valuable information regarding the use of sugars in typhoid fever, see Coleman.)

The blood of diabetics contains an excess of dextrose. From what has been stated it would seem that typhoid fever should be rare in them, or at most occur in but a mild form. It should be remembered that the "natural resistance" of the tissue of the diabetic is distinctly lowered, as is evidenced by the relative frequence of bacterial infection in them. Furthermore, even normal, healthy tissues are rapidly invaded post mortem by bacteria, consequently the exact resultant between the influence of excessive sugar in the tissues on the one hand, and the effect of lowered tissue resistance on the other would be difficult to determine *à priori* in terms of vulnerability to typhoid infection.

In any event, the results of the administration of a diet rich in carbohydrate cannot be judged solely by clinical standards; cryptogenetic changes involving the shifting of metabolism of bacteria and its attending train of chemical readjustments in the host and parasite as well must be correlated with quantitative as well as qualitative measurements before the solution can be regarded as established on a firm basis. This involves the recognition of unexpected factors which purely *à priori* reasoning cannot predict, and which qualitative observation cannot fully interpret.

SUMMARY.

Evidence both qualitative and quantitative, has been presented, illustrative of the nature and extent to which utilizable carbohydrate spares protein and protein derivatives from bacterial attack. The carbohydrate protects protein largely from bacterial break down.

The sparing action is not complete, but it results in the practical elimination of nitrogenous products, incidental to bacterial development, some of which may be toxic, and the substitution for them of substances which are non-nitrogenous, which may be irritative, but probably never truly toxic. This evidence has been introduced here chiefly to indicate how the principle involved may be made use of theoretically in the treatment of diseases of bacterial origin, where the anatomical features of the disease are such as to permit the utilization of carbohydrate by the invading micro-organisms. The object of the diet rich in carbohydrate is twofold: physiologically to provide the patient with a readily assimilable food requiring a minimal amount of digestive energy to prepare it for the tissue needs, and bacteriologically to shift bacterial metabolism from the destruction of body tissue for their food requirements to the utilization of carbohydrate for at least the major part of their dietary needs. This does not directly result in annihilation of the invading bacteria, but it certainly approaches their metabolic reformation. The shifting of metabolism to sugars appears to deprive these microbes of one of their most potent weapons of offense, and forces them to act on the defensive; forcing the parasite to act on the defensive theoretically at least permits the host to rally and to strengthen its defensive and even its offensive powers earlier in the battle. The initial damage, brought about when the host is temporarily overwhelmed by the initial onslaught of the invaders (which is accomplished largely during the incubation period of the disease) cannot be estimated at present, and perhaps cannot be undone. The final struggle between host and parasite can be influenced directly, and favorably.

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COMMON COLDS AND VACCINE THERAPY.*

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IT is timely, at this season of the year, to review the etiology and treatment of that condition which we, with primitive vagueness, designate as "common colds." We talk and write volumes about such rare diseases as leprosy and smallpox, but neglect the omnipresent little colds, with which few diseases can be compared in seriousness.

(BOSTON MED. AND SURG. JOUR.) In an editorial says: "Could the sum total of suffering, inconvenience, sequelae and economic loss resulting from common colds be obtained, it would at once promote this affection from the trivial into the rank of the serious diseases." "Taking cold" like charity covers a multitude of sins from an acute coryza to puerperal sepsis. Even with physicians colds sometimes conveniently "run into" diseases too numerous to mention. How often one hears, "He had a cold and it ran into measles, scarlet fever, pneumonia, tuberculosis, influenza, typhoid fever, malaria, or rheumatism," *ad infinitum*. After the baby was born she "caught cold and had a terrible fever." A fine cloak behind which dirty fingers may be safely hidden. "He had a cold and it settled on his lungs," etc., a common excuse for failure to diagnose incipient cases of tuberculosis.

The phrase "taking or catching cold" is certainly not a scientific one, but it conveys to the minds of most of us a definite train of symptoms usually referable either to the nose, throat, or bronchi. The most common condition is an acute rhinitis, acute pharyngitis or laryngitis. The laity usually mean an acute coryza or rhinitis when using this term.

Are colds due to drafts, emphatically, No! but to infection. Drafts have for centuries borne a bad reputation, much of which is entirely undeserved. The definition of draft in the dictionary is a current of air passing through a channel or small aperture. But defined by our grandmothers it was an uncanny something, stealing upon us unawares from every crack or crevice, to be spoken of with bated breath and avoided like a pestilence at any cost, but which at last caught us no matter how tightly we nailed the windows down. It is impossible for any one to pass a single day without exposure to drafts, unless he seals himself in a glass case. So-called ventilation means a draft. Everytime you go through a door you are in a draft, everytime you ride in an automobile or open car you are in an extremely strong draft, in fact, drafts are, like the poor, always with us, yet we do not always catch cold. The only thing one needs to fear from so-called drafts is the temporary discomfort or congestion of the mucus membrane from the cold, or possibly a stiffening of exposed muscles, unless the draft be germ laden, when a cold may be attributed to a draft. This popular bogy "drafts" is fast proving an alibi in the form of the ubiquitous bug.

"Colds seem to be the exclusive privilege of civilization. The human race, probably, did not snuffle much until it lived in houses and wore clothes. Not fresh air, but the want of it, is the cause of many diseases, as fresh air with sunshine is Nature's disinfectant, and none better will ever be invented."

The drafts to which colds are often attributed are in reality the result of the beginning coryza, one of the first manifestations of which is the subjective chilly sensations, effect rather than cause, due to slight increase in bodily temperature. Presumably this phase of the disease gave rise to the false name "colds." The bacteriologist will grant you that cold draughts, wet feet, etc., may result in a hypersecretion of mucus on the mucous membrane, supplying an excellent culture medium upon which the bacteria, commonly present throughout our breathing highway, grow very rapidly.

The tuberculosis patient does not "take cold" while undergoing the fresh air treatment, although he and his friends were sure the exposure would result fatally. Open-air treatment of pneumonia, now universally adopted, would seem to eliminate cold alone as a factor in the causation of respiratory troubles. If one contrasts the condition of a pneumonia patient indoors and out, one would not question the therapeutic advantages of fresh air, which costs nothing, and is equally available for the rich and poor. Careful perusal of the reports of Arctic expeditions will show that "common colds" are practically unknown in the Arctic regions, where cold drafts abound, but the temperature is not conducive to bacterial longevity.

In summer we have very few colds. Why? We certainly have more drafts with all the windows and doors open. It is because we have better ventilation, wear lighter clothing, ride in open cars, do not congregate so often in ill-ventilated theatres, air-tight churches, railroad trains, etc. We spend most of our time either outdoors or else in buildings where the heat makes proper ventilation (which means drafts) compulsory. It is the individual who coddles himself, hugs the radiator, wears mufflers, chest protectors, etc., who most frequently has to consult the physician for respiratory infections.

The man spending his evenings in the smoke beclouded, sealed club-room, with his boon companions, who attributes his frequent colds to the chilling which he feels on going into the so-called night air, is very much mistaken. Our heat-regulating mechanism is sufficiently finely adjusted to take care of these sudden changes in temperature, otherwise we would "take cold" after every cold bath, instead of experiencing that fine glow which invariably follows a healthy

* Read before the Middlesex County Medical Society of Connecticut, April 10, 1913.

reaction. No amount of draft will produce a cold unless there are present some of the germs so prevalent in the respiratory tract.

Brady says, "Cold has no demonstrable etiological relation to respiratory disease, and that clean drafts are not only harmless but beneficial. The phrase "catching cold" is meaningless, misleading, and should become obsolete. The groundless fear of cold constitutes a hysteria. So far as we know, the true predisposing factors of respiratory disease are dietetic sins, unhygienic clothing, over-heated apartments, and defective ventilation. He further states that prophylaxis consists in directing intelligently man's instinctive effort to secure bodily comfort together with reasonable isolation of every case of respiratory disease."

The profession is rapidly coming to consider a "common cold" as an acute bacterial infection of the mucous membranes of the nose, pharynx, tonsils, larynx, trachea, or larger bronchi.

Colds are transmitted from one individual to another, either direct or indirect contact, just as diphtheria is contracted from diphtheria. If one person has a cold some one or all of the members of the household may contract it from him. There are unquestionably epidemics of simple colds, which run through schools, offices, institutions, etc. During the act of sneezing many myriads of germs are forcibly thrown into the air. Someone has aptly said that sneezing or coughing without the intervention of the handkerchief was a crime against society, as well as a breach of etiquette.

The disease is transmitted by sneezing, coughing, kissing, etc., very frequently among children by the promiscuous use of the same handkerchief. To prevent colds a judicious isolation of cases would work wonders.

Especially to be emphasized is the advisability of separating snuffling children from their fellows in school, not only as a means of preventing the spread of colds, but as a means of eliminating those diseases called by Dr. Hutchinson the Herods of today. One is struck by the difficulty of differentiating a so-called common cold from the prodromal catarrhal symptoms of measles, scarlet fever, whooping cough, or diphtheria; hence, if every sniffling child was sent home by the school nurse, not only would that individual child be benefited by the timely rest, but it would be a tremendous factor in eliminating epidemics of the contagious diseases. One might ask, When is a cold not a cold? The answer being, when it is measles, whooping cough, scarlet fever or diphtheria.

"In about half of seven thousand tabulated cases of pneumonia the disease followed a so-called cold; in one-eighth of the cases, an attack of influenza, and in about as many more cases the cause was divided between bronchitis and so-called exposure."

It is a woefully familiar statement in the history of tuberculosis, that the trouble began with a bad cold.

There is no specific germ of cold, but L. Emmett Holt found that the bacillus influenza played an important part in respiratory infections, being second in importance only to the pneumococcus in the winter, but practically disappeared in the summer. He found it present more frequently associated with symptoms of the lower respiratory tract and with mild general symptoms.

The incidence of the bacillus influenza varies in different years, being much more frequently encountered during some winters than others. Bacillus influenza soon dies out in cultures, so has to be sought carefully and prayerfully.

We have unfortunately contracted the habit of attributing to the bacillus influenza all severe coryza, etc., regardless of the bacteriological facts in the case, so that "grippe" has become our winter dumping ground, as malaria is our summer catch-all. That we may have a symptom complex, which clinically is not to be distinguished from influenza, but which is due to other organisms, generally the pneumococcus, is undoubted.

Curschman failed to find the Pfeiffer or influenza bacillus in 49 out of 77 cases of clinically typical grippe.

Leede brings forward many cases to prove that influenza, as known to the practitioner, may be excited by different bacteria, of which the pneumococcus is the most important.

The editor of the A. M. A. says, since the pandemic of influenza in 1889-90, epidemics of coryza, sore throat and bronchitis have usually been called influenza because of the characteristic contagiousness of the infection, the persistence of symptoms, prostration, etc. But he says this diagnosis has not been confirmed by bacteriologists. Lord found 30% of cases of ordinary coryza to contain influenza bacilli, while only 6% of so-called cases of grippe yielded it. The most prominent organisms found were the pneumococcus, bac. segmentosus and streptococcus.

In acute pneumonia, the pneumococcus predominates, often associated with the staphylococcus and sometimes the bacillus influenza. Streptococcus, while often present, is usually in small numbers. The character of cultures from bronchitis closely simulate those of pneumonia.

In coryza, the pneumococcus is by all odds the most frequent offender, but the staphylococcus, micrococcus catarrhalis, and a pseudo K. L. are frequently found, and often associated. In addition, the bacillus segmentosus, a bacillus of the diphtheria group, which is believed to be concerned in the production of common colds, is frequently present.

Allen speaks of this germ as the coryza segmentosus, because it is so often encountered in acute coryza.

In chronic rhinitis I have sometimes isolated the ozena bacillus, the colon or the tetragenous. No specific micro-organism has been found, hence no one germ can be termed the "cold

germ,'' as different bacteria predominate in different seasons and individuals.

Colds are self-limited, which means that being of bacterial origin an immunity is produced in the blood against the causal organisms. This acquired immunity may be and usually is of rather brief duration.

Having established the fact that colds are infections and due to the action of bacteria, the only logical method of treatment presenting itself is one which increases the resistance of the patient to these invading germs. This desideratum is not obtained by any or all of the coryza or rhinitis tablets on the market, neither will it result from the use of the venerable prescription, namely, place your hat on the bedpost, and drink rock and rye until you see two hats, but it is produced by the active immunization of the individual against the organisms causing the trouble.

By immunity we mean that condition which prevents the gaining of a foothold by germs or bacteria in the living body, or that condition which overcomes and neutralizes their harmful products, or destroys the organisms themselves. This active immunity is obtained by means of vaccines or bacterins, which are simply sterilized emulsions of the causal bacteria, standardized and injected hypodermically. Vaccines stimulate the organism to the production of antibodies and opsonins, which prepare the germs for their destruction by the leucocytes. Bernard Shaw in his play, ''The Doctor's Dilemma,'' cleverly defines an opsonin as ''what you butter the disease germs with to make your white blood corpuscles eat them.''

The initial step in the use of vaccines is, of course, a careful determination of the nature of the particular infection, without which an attempt to use vaccines would be absolutely futile.

METHODS OF TAKING CULTURES.

From the anterior nares, if the secretion is abundant, fairly good cultures may be obtained by instructing the patient to blow the nose thoroughly, then passing a curved pliable swab upwards and backwards into the posterior naso-pharynx. Dr. Holt recommends cleansing the mouth with sterile water, then pass a curved swab behind the soft palate into the naso-pharynx. Cultures from bronchitis are obtained by inducing a hard cough by pharyngeal irritation, and catching on a swab the resulting secretion. One swab is utilized for making successive inoculations on blood agar, while from another, smears on slides are made for the determination of the character of the bacterial flora, as a control for the cultures. This is quite important as forms of bacteria are sometimes present on the slides, which are absent from the cultures, either because the media used was unsuitable or they were overgrown by the more hardy but often less pathogenic varieties, in which case another effort must be made to isolate them. In infections of the respiratory tract one seldom, if ever, obtains pure cultures. Usually, however, there is one germ which predominates, hence, is considered as the etiological factor, but since the others may be and probably are contributing causes, it is best to incorporate them in the vaccines.

In chronic conditions of the nose and throat it would be folly to use vaccines to the exclusion of other necessary measures, such as the correction of abnormalities of the air passages, removal of growths, etc. Proper hygiene of the mouth should early be taught to all children, including correct methods of respiration. The toilet of the nose should frequently be made by douching with mild antiseptics, or salt and water to remove the germ-laden accumulation in the nares. Attention to diet should not be neglected in our efforts to cure the sufferer from chronic colds.

Vaccine treatment of colds should be especially directed to the prevention of future attacks. The earlier the treatment is begun the shorter will be the duration of a given cold, and the less danger from extension to adjacent parts. In an acute attack of coryza, bronchitis, etc., a dose of stock vaccine should be administered at once, until an autogenous one can be prepared. It is best to keep on hand such a stock vaccine, containing numerous strains of each of the germs commonly responsible for respiratory affections. Such a one we have labeled ''The 57 varieties.'' It is, of course, a sort of shotgun prescription: some one of the shots, however, are pretty sure to strike the target. The others do no harm, but serve to increase the individual's immunity for the germ which he might possibly pick up next time.

The best time for the administration of the first dose is in the evening when the patient can go to bed, because the immediate effect is to slightly lower resistance. By the next morning, however, the immunity factory has usually turned out sufficient immune bodies to produce a definite improvement in the patient's condition. If no amelioration in the symptoms has been noted, a second but larger dose may be given at the end of twenty-four to forty-eight hours. If the autogenous vaccine is ready, it should be substituted at this time. Oftentimes only one dose is required to put the repair crew in action with their ever ready ''repair kit,'' the leucocytes. If further treatment is necesasry the vaccine should be administered at intervals of three to five days.

The use of vaccines or bacterins in these acute catarrhs shortens the attack very materially. If taken at the onset we often entirely do away with the long drawn out stage characterized by a thick mucopurulent discharge. They minimize the dangers of complications and extension to bronchi and lungs. They also influence very favorably the general tone of the individual, many people actually increasing in weight under vaccine treatment.

In the treatment of chronic catarrhs by vaccines it is essential that any infected sinuses, etc.,

etc., be adequately treated surgically, as the medication is not designed to supplant surgical measures, but to supplement them.

An occasional bacteriological examination, during the course of subacute or chronic affections, is quite an important part of the therapy, to indicate the presence of a newly acquired infection as, of course, the immunization by the pneumococcus would not prevent the entrance of the streptococcus, etc. While bacterins are invaluable in the treatment of acute and chronic infections of the nose and respiratory tract, and are attended with almost constant success, it is as a prophylactic that they give most brilliant results.

The immunity occasionally lasts a year or more, but usually from four to six months is the average duration. To the individuals subject to recurrent colds, as many are during the winter months, it proves a great boon. In these cases it is well to make an autogenous vaccine from the first cold, to which may be added, if so desired, the other "cold germs" from stock. This may be given in increasing dosage with seven-day intervals, until four to six doses are administered, which generally produces sufficient immunity for several months. If one prefers to wait until the onset of the next cold before beginning the treatment, the attack can almost invariably be aborted and immunity completed as described above. This procedure may be repeated at the end of six months, or delayed until such time as necessity demands.

The dosage which seems to give the best results are pneumococcus, M. catarrhalis, M. Tetragenous, each 125,000,000; Streptococcus, 50,000,000; Bacillus influenza, B. septus, B. Friedlander, about 100,000,000; Staphylococcus, 400,000,000 to 800,000,000. The vaccine should be prepared so that eight minims carries the requisite number of sterile germs, as larger amounts of fluid are more apt to produce local reactions.

The best site of inoculation is deep into the deltoid muscle after having sterilized the skin by means of alcohol or iodine. The hypodermic syringe should be sterilized by boiling, or by immersion for five minutes in alcohol 70 to 80%.

The negative phase or reaction has to my mind been over-estimated. Very occasionally one gets a little general reaction, such as one or two degrees of fever, slight malaise, feeling of fullness in head, but those who react in this way often give the most rapid and brilliant cures. It is a question whether this should be considered a reaction, as such an elevation of temperature may frequently occur in the usual course of an acute infection. The patient occasionally tells you that his symptoms were slightly aggravated a few hours after the first injection, but this is transitory, disappearing in ten to fifteen hours.

As prevention is the keynote of present day medicine, I would suggest the use of diphtheria vaccines as a prophylactic during seasons of epidemics in schools, or institutions, just as we now use the antityphoid vaccination. It would produce a more lasting immunity than the use of antitoxin for this purpose, obviate any danger from subsequent anaphylaxis, and be much cheaper.

Through the courtesy of Dr. Kate C. Mead and Dr. William E. Fisher I am permitted to report the following cases, for whom vaccines were prepared in this laboratory:—

Acute coryza, eighty cases were treated with excellent results in seventy-two, six individuals were unimproved, while the other two failed to return so were probably cured.

Chronic catarrh or rhinitis, thirteen cases treated with marked improvement in twelve, and some improvement in one.

One case of ozena responded very well to prolonged treatment by autogenous vaccine.

Four cases of chronic bronchitis. Decided improvement in three, and cure in one.

Nineteen cases of hay fever. One patient showed marked improvement, and was kept quite comfortable during the entire season. Next year she had no return of her trouble. Four showed no effect from the vaccines, while the others presented considerable improvement.

Six cases of bronchial asthma. Four showed considerable improvement, evident by shortened attacks, with increasing length of the interval between paroxysms. Two were unaffected by treatment.

One case of acute tonsillitis, cure after one dose.

Three cases of chronic tonsillitis, cure with two to four doses.

None of the cases under personal observation showed any rise of temperature following the injection of the vaccine.

In a personal communication Dr. Mead stated that the coryza vaccine was given in cases of either simple cold and sore throat, or of true grippe. In most cases where the vaccine was given on the first day the cold was aborted at once. If the treatment did not begin until the second or third day, several doses were necessary.

The studies of recent years have taught us to look with considerable respect upon the all too prevalent infectious cold as a far from trivial affection, but one capable of inflicting serious injury upon its numerous victims. If we could only bring ourselves to a realizing sense of the importance of these common forms of infection, and face the question fairly and squarely, we would institute a campaign to prevent colds, by proper ventilation, hygiene, the reasonable isolation of cases, and prophylactic immunization of those subject to cold, which would materially decrease our fatalities from pneumonia, tuberculosis, measles, scarlet fever, and whooping cough, not to mention the lesser benefits arising from increased efficiency and personal comfort. The best way to cure colds is not to catch them.

SUMMARY.

1. Colds, so-called, are unquestionably due to infection by micro-organisms.
2. Colds are contagious.

3. Colds can be largely prevented by reasonable isolation of every case, and preventive inoculation.

4. Colds can be aborted or their course shortened by vaccine treatment.

5. The treatment of acute and chronic inflammation of the respiratory tract by vaccines is specific.

6. A symptom complex resembling influenza may be due to other organisms.

It is only too true that one swallow does not make a summer, neither do a few cases prove conclusively the value of a new method of treatment. It is, however, my firm conviction that with a properly prepared vaccine, containing the etiological germ, administered with proper dosage, and intervals, success will always attend this method of treatment.

The doctor who off hand condemns vaccines has either never used them, has not mixed them with brains, has expected them to do the impossible, or he has not had the infecting germ in the vaccine used.

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AN ETIOLOGICAL FACTOR IN CARCINOMA AND ITS POSSIBLE INFLUENCE ON TREATMENT.

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FOR more than a year an investigation on the etiology of malignant tumors has been under way and is at present being actively prosecuted. While the results obtained up to the moment are too few in number and too indeterminate in character to warrant any positive statement, the author feels that the facts already elicited are of sufficient significance to render advisable their presentation to his many fellow-workers in this most important field. For this reason the following brief statement of the experiments has been prepared.

It is a well authenticated fact that these tumors are found most commonly in individuals in the years of waning activity. That is to say, the appearance of malignant growths is synchronous with the marked metabolic changes associated with the other retrogressions of advancing years. With the diminution of the metabolic one anticipates a similar decrease in the purely excretory functions. So long as the change in one parallels that in the other, the equlibrium of the earlier years is maintained. But if through some cause the excretory function suffers a more rapid impairment, an accumulation of waste products in the system must inevitably result. Such an accumulation could operate only unfavorably upon the general organism and not impossibly might produce in given groups of cells a morbid activity producing other and deleterious wastes. Further, should some extraneous cause operate to produce waste—and possibly poisonous—matter in excess of the capacity of the impaired eliminative machinery, the result might be the same.

In connection with this latter thought, another important consideration, complementary to the foregoing, presents itself. It is generally conceded that many of the malignant growths are primarily of traumatic origin. Traumatism must be thought of in its broadest sense; the filling up of a gland causing mechanical pressure, the formation of scar tissue—in short, anything that tends toward irritation. Wherever there is injury, nature rushes to the front; greater cellular production takes place, the extent depending upon the health of the individual. If, however, the control of this production be abnormal, the increase may be so great as to cause pressure which, in turn, breaks down the surrounding tissue by affecting the blood and nerve supply. Under certain conditions these degenerative changes may result in a further production of deleterious chemical compounds. It has been established that certain waste products have a decided action on the inhibitory centers. In the event of the condition just mentioned, cellular production might be subject to constantly decreasing control resulting in a constantly increasing velocity of growth. Thus directly through the impaired elimination of normal waste, or indirectly by the formulation through exogenous causes of abnormal waste, groups of cells might be excited to a pernicious activity. This in turn, might be productive of other deleterious wastes through which the control of nerve centers regulating cell growths might be injuriously affected and the exercise of their function inhibited. Finally, such inhibi-

tory effects not improbably would show progressive characteristics as the influence would propagate its own cause.

In any case, that irritation is a factor in the causation of malignant tumors may be regarded as well established. But this in itself fails to resolve the main problem. One might argue that the irritation or trauma might lower the resistance locally and thus offer a focus for bacterial or parasitic development. Equally well might it be assumed, as has already been said, that such irritation was the genesis of abnormal cell activity, in the course of which toxic substances would be formulated. Should these toxins act upon nerve centers inhibiting their control of cell growth, the abnormal increase in the rate of proliferation would induce an extension of the traumatic condition which was the original cause. Thus the condition would be self propagating and its rate of progress limited only by such factors as the rapidity of elimination or destruction of the toxic substance or substances, the resistivity of the nerve centers as determined by general bodily health and other similar antagonistic effects. Further, such an hypothesis would serve as well to explain such sequelae as metastatic growths and the assumption of malignancy by primarily benign tumors as would the other existing theories.

But if this theory of the origin of carcinomata be correct, then the tissues undergoing these pernicious changes should contain the toxic substances responsible for their continued growth and propagation. A failure to isolate such substances would not wholly negative their existence as they might readily be compounds of such intense toxicity that the observed effects could be produced by quantities far less than could be detected by any chemical means. If, however, appreciable amounts of the toxin or toxins were present, they should be susceptible of isolation. An investigation of the chemical theory thus outlined must, of course, find its starting point in an attempt to demonstrate the presence of such compounds in the substance of malignant growths. After repeated experiments, the following procedure was adopted.

METHOD OF PROCEDURE.

From cases of operable tumor where a diagnosis of carcinoma had been positively established, both by clinical and microscopical findings, the freshly extirpated growth was carefully freed from fat and extraneous tissue adhering to it, the material itself cut into very small pieces, and the mass digested with water at 100° for many hours. When the digestion was complete, the mass was filtered to remove the exhausted residues, the clear filtrate containing those portions of the tumor which were soluble in water. By acidifying this filtrate and again boiling, the soluble proteins were coagulated and the precipitate thus formed removed by a second infiltration. The protein-free filtrate was exactly neutralized and the solution evaporated on the water bath to a syrup consistency. This syrup was carefully extracted with pure alcohol and the extract, after the removal of the alcohol by distillation, repeatedly treated with ether. The residue, insoluble in the ether, was then dissolved in water, the solution rendered strongly acid and again thoroughly extracted with ether. This time the ethereal extracts were collected, the solvent removed by distillation and the final residues again dissolved in water. The aqueous solution was rendered alkaline, boiled for half an hour and again filtered. On the spontaneous evaporation of the filtrate long white, needle-shaped crystals separated and these were purified by repeated recrystallization from water. These crystals in their purified form are the basis of the subsequent investigations. Up to the present their exact nature is not known, and extensive and exhaustive investigation will probably be required to determine their exact chemical constitution. This part of the work has been undertaken by an expert organic chemist and the investigation is already well under way. Whatever the exact chemical constitution of this compound may be, this much is evident, that the substance or substances secured by this method of procedure have been freed from all organic life and any results obtained by its use must be referable to its own inherent chemical nature and not to the presence of organized life in any of its manifold forms. The crystals show a sparing solubility in water—about 4 parts in 100—and for convenience sake, carefully sterilized aqueous solutions were used in all the subsequent investigations.

EXPERIMENTS ON TOXIC ACTION.

Having isolated a substance from the malignant growths, the next step was to determine its physiological action. Rabbits were selected for the initial experiments as they are not normally subject to tumor growths—a condition which, of course, forbade the use of mice or rats. Eight healthy animals were selected for the first experiment, four for injection with the solution and four to be used as controls. Each member of the first group was subjected to the influence of the substance, the condition of experiment with each showing some minor variations, but all following the same general plan. At the time that the regular injections were made on the experimental animals, sterile salt solution was injected under precisely the same conditions into the controls. The results obtained with the first group may be briefly considered as a whole. Each of the four received an injection of 0.25 c.c. of the sterile solution, corresponding to 10 milligrams of the active substance, the operation being performed under strictly aseptic conditions. In each case a local disturbance developed at the point of inoculation, which gradually increased in severity. In addition, there devel-

oped a general constitutional manifestation, which included an increase in temperature, with much restlessness followed by a somewhat lethargic condition with an apparent dullness of all the senses. The constitutional symptoms persisted for perhaps 24 hours, after which three of the rabbits were restored to their normal activity and apparent good health for a period of several days. The fourth rabbit—No. 3 of the series, developed a septic condition, probably as the result of faulty technic, and died at the end of the third day. After the period of several days of apparent good health, a gradual change was observed. The rabbits slowly lost in weight, there was a progressive diminution in activity and bodily strength; they became anemic, as evidenced by the pallor of the membranes—in short, a general cachectic condition developed, which terminated fatally in less than three months. The local disturbance, in the meantime, showed induration with a continued increase in area. In one instance there was marked breaking down, attended by the complete destruction of a large amount of tissue. In each instance the rabbit presented the clinical picture of malignant disease, the degree of the development of the specific manifestation varying with the site of the inoculation. The post-mortem examination showed extensive and characteristic glandular involvement.

The results obtained from this preliminary experiment indicated that the tumor extract possessed: first, a marked toxicity, and, second, the power to reproduce in healthy tissue growths similar to that from which it was itself derived. In the course of the subsequent experiments the latter point was still more strikingly illustrated Five rabbits used in the immunization experiments shortly to be described, each received several sub-lethal doses at ten-day intervals. Although the abdomen was the site of all injections, the primary lesions developed severally as follows: one in the thyroid; one on the right cheek, involving the nose and orbit; one on the left foot; and the remaining two in the head, one on the left side of the lower jaw, the other involving the left eye. All of these showed the characteristic progress of a general cachexia, which in every instance has ended fatally. The necropsies have all shown the establishment of numerous metastatic growths, the uniform picture being that of general miliary carcinomatosis. The histological examination leaves no doubt as to the malignant character of both primary and secondary lesions.

During the course of the initial experiments a second series was carried out to determine the character and degree of general toxicity of the tumor substance. For this study both guinea-pigs and rabbits were used. With the former it was found that 0.5 c.c. of solution corresponding to 20 milligrams of active substance, when injected subcutaneously into a 250-gram guinea-pig, would produce death in about two hours, the general course of the intoxication being tetanic in character. The autopsy showed a marked venous engorgement throughout the body, with increase in quantity of fluid in all the cavities. This latter was especially marked in the peritoneal cavity, where some 10 c.c. of a brownish exudate was found. This exudate, when carefully removed under strictly aseptic conditions and kept in a sterile tube, would produce an intoxication in a healthy guinea-pig similar to the one described on the injection of a quantity not exceeding 0.2 c.c.. The increase in the toxicity of this exudate over that of the original substance offers an interesting point for further investigation.

Parallelling the experiments with the guinea-pigs, a number of studies were made on healthy adult rabbits. The subcutaneous injection of 0.5 c.c. of the solution produced an intoxication in the rabbit, differing only in degree from that of the smaller animal, and ending fatally in about 12 hours. It will be noticed that the lethal dose is identical with that used in the first experiments in which only slight primary effects were noticed. This is explained by the fact that the material used in the first experiment was the first prepared, and consequently at a time when the experimental technique was in process of evolution. That it was less pure than the succeeding preparations was evidenced by the fact that the crystals had a distinct brownish color, while all the later samples were a pure white. With the exception of the four animals of the first experiment, however, all other injections were made with the pure, uniform material of later preparation.

Since the peritoneal exudate of the poisoned guinea-pig showed a marked increase in toxicity, it was thought well to try its effect on the rabbits. Of this exudate, 0.5 c.c. was injected intraperitoneally into a healthy adult rabbit. An intoxication similar to that already described rapidly set in, and, the symptoms developing far more rapidly than in the previous experiments, the poisoning ended fatally in an hour. From this it is probable that the tumor extract excites a pernicious cell activity, in the course of which toxic matter is formed. Furthermore, the production of fresh poisonous material must progress at a rapid rate, as one-twentieth of the peritoneal exudate causes death in the rabbit in one-twelfth of the time which the exciting dose of the pure extract requires. While the general clinical picture produced by the two substances is the same, the tremendously increased virulence of the exudate bespeaks either a very much greater concentration of the original toxin or the presence of a new, more powerful substance similar in its character to the first.

A decision between these two hypotheses can only be reached by experimental study, and an investigation along this line has already been begun. In any case it has been demonstrated that the tumor substance exerts a high degree of toxicity upon both guinea-pigs and rabbits, and in the case of the former the exudate which

forms a characteristic feature of this and similar intoxications, while exhibiting the same general clinical picture, is far more toxic than the original substance. In fact, throughout the study of the acute intoxications the differences observed were those of degree and not of kind.

With the completion of the experiments just detailed the necessity arose for certain control determinations defining the specificity of the tumor extract. On the one hand the bases used in the preparation of the material might be responsible for the toxic phenomena exhibited, and, on the other hand, the poisonous substance might result from the treatment of any tissue, normal or otherwise, by chemical reactions involved in the processes of separation. In order to resolve these points the following experiments were undertaken:—

In the first case a salt was prepared from the base used in the separation, and lactic acid, the latter selected as it is found in small amounts as a constituent of normal tissue. Repeated injections of this material in quantities much larger than were used with the extract, failed to produce other than most temporary and evanescent effects. Further, repeated injections into the same animal have failed to produce the slightest evidence of disease even after many months' time and the administration of large quantities of substance. The wholly negative character of these careful and extended experiments warrants the conclusion that the mineral portion of the tumor extract as conditioned by the method of separation is wholly without influence in the production of the observed phenomena.

As the starting point for the second control experiment, tumors were selected which clinically and histologically gave absolute evidence of their benign character. These were treated in precisely the same manner as the malignant growths, and as a result of the various operations a crystalline product was obtained which differed materially in appearance from that derived from the carcinomata. Following the technic adopted with the earlier experiments, doses of this material were injected into both rabbits and guinea-pigs. Neither with doses ten times that of the lethal dose of the carcinoma extract nor with repeated injections over a long period of time, has it been possible to produce local or constitutional symptoms of intoxication, the effect of the injections being no more than would have been obtained with similar doses of normal saline solution. In short, neither the material used in the separation, nor the method itself, can produce the specific poison of the malignant tumor extract. Further, benign tumors contain no toxic substance or substances; none, at least, that are separable by the method employed.

The result of these experiments warrants the following conclusion: Carcinomata contain some substance or substances which are susceptible of isolation, and, which, when injected into healthy tissue, produce results which are dependent upon the inherent chemical nature of the material itself.

The direct implication of this conclusion was the possibility of producing an antibody, the effects of which would directly antagonize the toxic action of the tumor substance. To this end a series of immunization experiments were undertaken, the details and results of which will be next considered.

For these experiments 53 healthy adult rabbits were selected. These were all injected subcutaneously in the abdomen in the same manner, under carefully maintained aseptic conditions, with small repeated doses at ten-day intervals, according to the following schema:—

	VOLUME.	ACTIVE PRINCIPLE.
I	0.1 c.c.	0.004 grams
II	0.25 c.c.	0.01 grams
III	0.5 c.c.	0.02 grams
IV, V and VI	0.25 c.c. each, in all	0.03 grams*

Thus, in a period of 50 days the animals received 64 milligrams of the toxic substance, divided into six doses. Of the 53 animals originally selected, five developed signs of malignant disease during the process of immunization, and though in these cases the injections were discontinued, the tumors continued to increase and have all terminated fatally. These were the animals described in the earlier part of this paper. Ten more of the animals have developed signs of constitutional disturbance of a greater or less severity.

While no palpable growths are to be found it is not improbable that these animals also are the hosts of malignant growths, which in time will prove demonstrable. The remaining 38 rabbits are apparently in complete and perfect health, and in most instances have increased somewhat in size and weight during the immunizing period. Only these latter healthy animals have been used in the subsequent experiments.

Blood was withdrawn from these animals by plunging the needle of a sterile syringe directly into the heart; the animals apparently experienced no great discomfort, and in every instance have recovered from the operation. The 40 c.c. of blood thus withdrawn was allowed to coagulate spontaneously and the serum removed and stored following the familiar technic for the preparation of immune sera. Needless to say, during both the operation and subsequent handling of the serum, every precaution was observed to insure continued sterility.

The first experiment with the serum was performed as follows: Two guinea-pigs of about the same weight were selected and into the first was injected 1 c.c. of the rabbit serum, while the control animal received a similar quantity of sterile salt solution. The experimental animal

* It will be noticed that in non-immunized rabbits this dose would kill in 12 hours. In the present instance some of the animals showed transitory evidence of intoxication, and the subsequent doses were reduced to that of the second injection, which had been shown to be readily tolerated.

experienced a period of dullness after the injection, which lasted for perhaps three hours. This gradually passed away, however, and the animal was soon restored to apparently normal health and activity. Two days after the immunizing dose, 1 c.c. of the tumor extract was injected directly into the abdomen of each of the animals. The control guinea-pig, after exhibiting the characteristic symptoms, died in about 30 minutes. The immunized animal, on the other hand, showed not the slightest effect, either at the time of the injection, or in the period of several weeks which has since intervened. Obviously an immunity was conferred upon the latter animal by the serum injected.

A second set of experiments was now performed on guinea pigs, in which the poison and serum were administered simultaneously. The results are tabulated as follows: (It will be noted that double the lethal dose was used.)

NO.	4% SOLUTION OF POISON (IN C.C.)	SERUM (IN C.C.)	RESULT.
1.*	1.00	0.00	Death in 22 minutes.
2.*	1.00	0.00	Death in 24 minutes.
3.	.99	.01	Slight temporary constitutional disturbance.
4.	.99	.01	No other effect.
5.	.98	.02	No initial effect.
6.	.98	.02	Later both animals died. Post-mortem showed that injection puncture had pierced liver, causing general peritonitis.
7.	.95	.05	
8.	.95	.05	Same as 3 and 4.
9.	.90	.10	
10.	.90	.10	Same as 3 and 4.
11.	.98	.02	Repetition of 5 and 6.
12.	.98	.02	Same as 3 and 4. The minimum constitutional effect shown with this proportion.

* Controls.

With the exceptions noted above, the animals are all in excellent health.

Similar experiments upon rabbits, using the same procedure as above, have been carried out, special care being taken with the technic. The results have been even more satisfactory, no death having resulted in the experimental group.

In conclusion, the facts elicited up to this point in the investigation may be briefly summarized as follows:—

SUMMARY.

1. A procedure has been developed whereby a substance or substances may be isolated from carcinomata, the method precluding the presence of organic life in the end product.

2. This end product has been shown to be of a highly toxic character.

3. The peritoneal exudate produced by a fatal intoxication is far more toxic than the original substance.

4. The tumor substance has been shown to possess not only a general but also a specific toxicity, since on injection into rabbits in doses of less than lethal amount it will produce well-defined, well-characterized carcinomata, the site of the primary lesion being different from and independent of that of the injection.

5. The appearance of the primary lesion is followed by the development of numerous metastatic foci in different parts of the body, while the characteristic cachexia manifests itself.

6. The poisonous tumor preparation has been shown to be characteristic of carcinomata.

7. By the repeated injection of very small doses a large number of rabbits have been immunized.

8. The serum from the animals thus immunized possesses the power of antagonizing the toxic action of the tumor substance. This has been demonstrated by injections of the serum either previous to or simultaneous with that of the tumor poison. In both events no effect is observed from quantities of the poison which, if injected alone, would produce a rapidly fatal intoxication.

9. With the simultaneous injection of poison and antibody it has been shown that one part of the latter will effectually antagonize 99 parts of the former.

THE NEGLECT OF HYDROTHERAPY IN AMERICA.*

BY JOSEPH H. PRATT, M.D., BOSTON.

A STUDY of the causes underlying the neglect of hydrotherapy in this country leads to the conclusion that the chief fault is with the medical schools. There is no American university except Columbia that requires of its medical students a practical knowledge of the subject. In a few institutions, and of these the Jefferson Medical School deserves special mention, courses of lectures and demonstrations on hydrotherapy are included in the regular instruction.

At Columbia the course in hydrotherapy is obligatory to the senior students. The final examination contains not less than two questions on hydrotherapy. In addition to a course of systematic lectures, sections of the class receive practical instruction in the hydrotherapeutic department of the Vanderbilt Clinic on two afternoons of each week. Time has been found for this course at Columbia, although twenty years ago the head of the medical faculty stated to Dr. Baruch that the curriculum was then so overcrowded that instruction in hydrotherapy was impossible. The same excuse is made by

* Presented at a meeting of the Medical Staff of the Clifton Springs Sanatorium, Clifton Springs, New York, Dec. 28, 1912.

many medical schools today. No one will dispute the fact that the medical curriculum is overloaded, but as Dr. Baruch has pointed out, "much time that is now wasted in teaching the properties and application of drugs, which are rarely used in practice, could be profitably devoted to the clinical study of the action of the most powerful remedial agent." Time can certainly be found in the clinical years by omitting non-essentials to teach thoroughly the principles and applications of hydrotherapy, and time will be found when teachers of medicine discover the truth that thermic stimulation in some of its many forms is indicated in nearly every case of disease they are called upon to treat.

For about a quarter of a century Vienna was the only university in the world where instruction in hydrotherapy was given. Its leadership in this branch of therapeutics was due to Wilhelm Winternitz, justly called the father of scientific hydrotherapy, who from 1865 until the present has been investigating, teaching, and practising the use of thermic stimuli in the treatment of disease.

At the age of twenty-five, two years after his graduation, Winternitz was made a naval surgeon. While at sea on a troop-ship a febrile epidemic resembling influenza broke out among the men. The supply of drugs on board was quickly exhausted. The only therapeutic agent at hand was water. With fear and misgivings he began to treat his patients with this unfamiliar form of treatment. To his surprise the sick men were more quickly restored to health by the excellent action of water than by the quinine and other antipyretic drugs he had previously employed.

His military service at an end he betook himself to Gräfenberg, the home of the empiric Priessnitz, and strove, by observations on himself and others to solve the contradictions of the hydrotherapeutic system then in vogue. In 1865, he was then 31, he established at Kaltenleutgeben, with the aid of Oppolzer, the first clinic and institute of hydrotherapy, with 18 beds. This now accommodates 400 in-patients besides a large out-patient department.

In 1879 he completed his great work in two volumes, entitled "Die Hydrotherapie auf physiolgischer und klinischer Grundlage." He recognized that it was necessary in this new subject, much misunderstood and much misrepresented, to describe in detail both the physiological experiments and the clinical observations that he made. In this work, as he says in the preface, he has rejected the use of the "hollow phrase." He tells us that it was his aim throughout to have every deduction based upon a fact. Examine this work now, after a period of 33 years, in the light of the science of the present day and see how well he accomplished this aim. He made careful observations with sphygmograph, plethysmograph and thermometer, and describes much that was new regarding the action of thermic stimuli on the body. To illustrate the character and value of Winternitz's physiological work I wish I could reproduce one of his plethysmographic records. It demonstrates clearly the fact discovered by him, that a cold (6.2° C.) sitz bath produces a striking increase in the volume of the arm. He also found that a Sitz bath of warmer temperature (28° C.) diminished the size of the arm. These and other observations showed that thermic stimuli applied locally to one part of the body may influence profoundly the circulation in other regions by dilating or contracting the vessels according to the temperature employed. The application of these physiological facts in treatment is clearly set forth by Winternitz in his book. It is discouraging to know that this great work by Winternitz failed to arouse the interest of scientific physicians.

In 1881 he was made professor in the University of Vienna and soon afterwards established at his own expense a department for hydrotherapy in connection with the Vienna general policlinic. In 1890 he founded a journal devoted to hydrotherapy—the *Blätter für klinische Hydrotherapie*. He himself has been a constant contributor to the literature on this subject. If you turn to the latest issue of the *Zentralblatt für die gesamte innere Medizin* (Dec. 21, 1912) you will find the abstract of a recent paper by the same Wilhelm Winternitz on the physical treatment of chlorosis. This remarkable old man in a paper[2] on adaptation to Intense Thermic Stimuli, read last October before the Austrian Balneological Congress, showed how closely he still follows the advances of medical sciences in their relation to hydrotherapy. As is well known, the body accustoms itself to intense thermic stimuli, but how this is brought about is not clear. He refers to Pauli's investigations on the colloid chemistry of muscle contraction and to Zuntz's theory and the bearing of this recent work on the physiology of the adaptation to hot and cold baths. His first paper dealt with hydrotherapy. That appeared fifty years ago, and we have just seen he is still writing on the same subject. Such life-long devotion to any cause is rarely seen.

Winternitz had been teaching and practising hydrotherapy for more than thirty years before Germany realized the need of instruction in the subject. There seems little doubt that the awakening was due far more to the rise of the "nature doctors," than to the scientific work of Winternitz. Chief among these irregular practitioners was Father Kneipp. This man, ignorant as he was of medical diagnosis and the indications for treatment, had an immense following. More than 400,000 copies of his book "Meine Wasserkur," were printed. To Kneipp, however, must be given the credit of interesting the general public of Germany in hydrotherapy and thermotherapy.

Baruch says that the damage wrought by the Naturärzte on the status and on the income of the medical profession created great alarm. Credé in 1895 insisted on the need of applying

hydrotherapy in hospitals and of teaching it in the schools. A "commission for the revision of medical examinations" was appointed. The distinguished professor Kussmaul, who was the chairman, reported that "it cannot be denied that the faith in prescriptions is waning among educated people and that confidence in dietetic remedial methods and in the curative power of water is in the ascendant. Of hydrotherapy the young physician knows almost nothing when he leaves the university. Unfortunately he sooner or later may encounter discomfiture when an uneducated water doctor steps in and cures the patients after he had failed." Kussmaul insisted upon the necessity of teaching hydrotherapy in the universities. In other papers I have described the rapid advance of hydrotherapy in Germany during the past fifteen years.[3]

Although hydrotherapy is not taught in our schools there is no reason why physicians cannot acquire a practical knowledge of the subject. There are excellent text-books in English and opportunities for experience and skill are to be found in the private practice of any physician. The unpleasant truth cannot be denied that most of us, after the student years in school and hospital learn few new technical methods of any kind. I wonder how large a proportion of the doctors who graduated twenty or thirty years ago have never studied any new text-books on diagnosis and treatment since they began to practice. I received as a gift the medical library left by a physician of good standing who practised in a suburb of Boston from the time of his graduation from Harvard in the late thirties for a period of forty years. There were two hundred or more volumes. Practically all the books had been published between 1830 and 1840, and only one bore a later imprint than 1850. His chief work on the practice of medicine was the Philadelphia reprint of Tweedie's System, published in 1840. He owned a Laennec purchased in his student days. I searched in vain for the works of Graves, Stokes, Watson or Latham, all published prior to 1850. He did not even have Wood's Practice, which was the standard American text-book of medicine for many years, and the first edition of which appeared as early as 1847.

The yellow streak which runs through all forms of physical therapy deters many good men from investigating the value of hydrotherapy. Fifty years ago the country was dotted over with hydropathic resorts where cures were promised for all forms of supposedly incurable diseases. Claims scarcely less false are found in some writings today.

At the Boston Medical Library there is little if any demand for hydrotherapeutic literature or for that in any other branch of physical therapy except Roentgenology. This is doubtless the case in other parts of the country. Dr. S. Solis Cohen thinks the neglect of hydrotherapy is largely the fault of the medical societies. In a recent discussion he said, "Let a man report to the ordinary medical society—not excluding this Section of the American Medical Association—the results that follow scientific electrotherapy, hydrotherapy, aerotherapy, pneumotherapy, thermotherapy, psychotherapy, phototherapy—anything except x-rays, which are getting to be semi-respectable—and at best he is listened to with polite indifference. Commonly he is not listened to at all. It takes the heart out of one to be treated in that way!"[4]

There are some signs of increased interest in hydrotherapy, and mention should be made of these. The officers of the medical and pharmacological sections of the American Medical Association have in recent years sought repeatedly to have papers on this and allied subjects. Excellent text-books on the subject have been written by American pioneers in hydrotherapy—Baruch, Kellogg, and Hinsdale, and Solis Cohen's System of Physiological Therapy, in eleven volumes, contains many valuable articles. In an increasing number of hospitals the authorities are installing good equipments for hydrotherapy and mechanotherapy.

This is encouraging, but it must be admitted that in some of the hospitals with hydrotherapeutic departments the apparatus is not used at all and in others I have visited the work done is not such as to deserve commendation. It is essential for success that the hydrotherapeutic treatment in hospitals should be under the immediate direction of a physician trained in hydrotherapy who is in a position to devote a large portion of his time to this work. Usually the all important details, in regard to temperature, duration of the bath or douche, and often the selection of the procedure are left to the nurses and masseurs who give the treatments.

Hospital authorities will in time realize that the selection of a trained man as director of the department of physical therapeutics is even more important than the selection of apparatus. The man with the simplest equipment can do much, while apparatus without the man who understands its use is simply a waste of money. In some institutions the arrangements for hydrotherapy are apparently left in the hands of the architect. In looking over the plans of a new and richly endowed hospital I noticed that about half the space allotted to hydrotherapy is to be devoted to sulphur baths! At the present time time it would be difficult in America to find trained physicians to take charge of hydrotherapeutic departments. The young men of the right type fail to see a career for themselves in this new line of work, which to them, as to their teachers, often seems less commendable than that of the ordinary physician or laboratory worker.

During the past ten years a systematic effort has been made by a number of physicians in Boston to further the study and use of hydrotherapy in that city. The leader in this movement has been Dr. James J. Putnam. An in-

stitution for hydrotherapy and thermotherapy was established in the fall of 1903. The board of directors has included some of the leading medical men of Boston. During the past ten years 230 physicians have sent patients to the institution. Personally I have made use of the facilities afforded in the treatment of a large proportion of the ambulatory cases of chronic disease that I have seen. My therapeutic resources would be much crippled were the establishment to close.

This original undertaking has been commended by a number of writers, and in a few American cities institutes modelled somewhat after that in Boston have been established. The influence of this modest pioneer effort has been felt even across the Atlantic. Dr. R. Fortescue Fox[1] in the course of a series of lectures on medical hydrology before the Royal Society of Medicine in London, made the following statement: "For many years I have been impressed by the need for suitable institutions for hydrotherapy in this country. They might well be modelled on the pattern of the Baths of Boston, open to the use of all medical practitioners, under skilled professional control, and served by attendants trained in the technic and in the use of instruments of precision. From such institutions the services of the attendants would be available outside for the treatment of acute disease. Within its walls many physicians who have to deal with chronic disorders will find new and unexpected possibilities. And the remedies would be applied as they should be applied, under their own care and observation. Moreover, the great interest of conducting a course of physical treatment, with the necessary skilled assistants, would stimulate many medical men to independent research—and would in time confer educational value upon an institute of this kind. What I have said applies to most of our large towns, but especially to London."

An analysis of conditions as they exist in the Boston institute is not encouraging. Although a large number of doctors have sent patients, many have sent very few cases and their patients took so few treatments that it is unlikely that any benefit was obtained. That most of the doctors who referred patients disclaimed any knowledge of hydrotherapy is not surprising. That more have not utilized the facilities of the institute for acquiring knowledge of hydrotherapy has been disappointing. The lack of interest in new methods of treatment that have been introduced from time to time is not easily explained. The hot air douche is extensively used in Germany and Bier found it of great value in the treatment of trigeminal neuralgia. Schultze[5] reported in 1907 that Bier had treated successfully by hot air massage twelve out of twenty patients who had entered the hospital for the operative treatment of neuralgia. The following summer one of Bier's hot-air douches was installed in our institute and an announcement giving a brief statement of Bier's method was sent to over one thousand physicians. From that day to this we have never had a case of trifacial neuralgia referred for this treatment.

From the outset we insisted that each patient bring a prescription from the attending physician, in order that the details of temperature, mode of application and duration be in his hands rather than in that of the attendants. Naturally this attempt failed as most of the doctors were ignorant of these details and disinclined or too busy to learn them. The prescriptions that were sent often read "tonic baths" or "eliminative baths," and sometimes simply "the baths." An outline of hydrotherapeutic prescriptions was then prepared. I hoped this would lead to a study of the excellent text-books on hydrotherapy from which the list had been prepared and then the physicians would be able to write their own prescriptions and modify them for the needs of the individual patient. Instead of stimulating further inquiry this list was regarded as unsuitable owing to the large number of treatments given. Yielding to the request for a simpler and shorter outline, I prepared a brief introduction to the use of hydrotherapy in chronic diseases and included a small number of selected prescriptions.

I believe now that if such an institute is to be really efficient physicians skilled in hydrotherapy should prescribe and supervise the treatments of all the patients. To adopt the plan of leaving this work to the doctors who have not a working knowledge of hydrotherapy is to invite failure.

That our institute is held in esteem by former patients was indicated by subscriptions from them of nearly a thousand dollars last summer. This was given for the purpose of furthering the work and of paying off a debt incurred during the preceding year.

The institution would be placed an a sound financial basis if it received a support from the doctors which for a city the size of Boston would be ridiculously small. It is depressing to think of the suffering that could be lessened if the medical men were alive to the opportunities offered. Let me cite an illustration. In Berlin 504 cases of sciatica were treated in Brieger's Hydrotherapeutic Institute from 1903 to April, 1905.[6] At that time our institute was the only place in Boston where the methods employed in many of these cases were available. During the same period we had three cases.

In investigating the cause of the neglect of hydrotherapy by the practitioners in Boston one cannot depend too largely upon this single cooperative institute. Some physicians say that they send every case in which the treatments are indicated, others assert that many patients refuse to go owing to lack of faith in such forms of treatment and to others the expense is prohibitive. The suggestion has been made that a change of location would greatly increase the number of patients.

If attention is turned to the public hospitals of

the city the true explanation for the lack of interest in our undertaking will be found. The statement was made by one of the trustees of the Boston City Hospital that if the medical staff evinced a keen desire to have and to use a hydrotherapeutic department the board of management would favor its establishment. That was nearly ten years ago and there are still no facilities at this hospital for hydrotherapy, and I never heard of any concerted effort on the part of the physicians to obtain them. At the Massachusetts General Hospital, largely through the efforts of Dr. J. J. Putnam, a hydrotherapeutic department was equipped in 1906.

Although visits to the Out-Patient Department averaged more than 400 daily during 1912, the number of hydrotherapeutic treatments given usually ranged from 10 to 15. Last year the total number of cases treated in the hydrotherapeutic department was 390, a decrease of 62 from that of the preceding year. Two explanations of their failure to refer more cases for treatment were given by the attending physicians and their assistants: (1) Forgetfulness of the existence of hydrotherapeutic facilities in the hospital; (2), frank acknowledgment of ignorance of hydrotherapeutic indications and technic.

A personal appeal to refer patients to the hydrotherapeutic department, and to study the indications and effect of the treatments used there was made. Outlines for hydrotherapeutic prescriptions were placed in the clinics. This attempt to arouse interest has had no apparent effect except to increase slightly for a few days the use of hydrotherapy.

This is not surprising. The men in the clinics are busy and often have to see within a short time a large number of patients. Why should the young assistants not use the drugs recommended by their teachers and by the writers of the current American text-books, rather than methods of treatment of which they heard nothing during their student days? Then it is so easy in any hospital to fall into the routine of giving a popular "tonic" mixture such as is found in the formulary of every hospital.

Successful therapy, however, can never move in the ruts of routine. We are called upon to treat sick men and not diseases, and we treat sick men and sick women, not collectively, but as individuals, as sick John and sick Elizabeth. The cure of the body often depends on improving social conditions, on regulation of the habits of daily life and on the cure of the soul.

A course of hydrotherapeutic treatments frequently produces benefit indirectly as in the following case:—

A woman came to the hospital complaining of nervousness and pain in various parts of the body. The physical examination revealed nothing abnormal. For four months the treatment consisted of three teaspoonfuls daily of the elixir of iron, quinine and strychnine phosphates. I prescribed an electric light bath and a partial ablution to be followed by an hour's rest. This was given every other day. In a month she reported that she was feeling much better. At that time an assistant in the clinic discontinued the baths and put her back on the elixir. An inquiry into the daily life of this patient is illuminating. She rises early in the morning and works until nine o'clock at night. She has four young children and a lodger. She never goes out for a walk and rarely leaves the house except on Sunday. She never lies down during the day and is almost all the time on her feet until about nine o'clock, when, household duties finished, she sits down and sews for an hour. Now it is clear that this woman needs rest and recreation more than baths or the elixir. Yet the hydrotherapeutic treatment furnished some rest and relaxation and hence was beneficial in several ways. She has now been instructed to take a walk every day and to cut down her hours of work. In order to take the walk the baby must be cared for by a sister-in-law, who was willing to do this while the patient was taking the treatments at the hospital, but it is doubtful if she will consent to do this extra work to enable the sick woman to take a walk for pleasure. Nervous people often obtain mental and physical refreshment from the thermic stimulation of the skin by hydrotherapeutic procedures that they do not get from walking or other exercise. With these facts before one does it seem a matter of indifference whether this woman gets the elixir or the hydrotherapeutic treatment?

The following case is one in which hydrotherapy seems to have been the method of treatment that was clearly indicated. I saw the patient at the time of her first visit to the hospital. When the physician who had taken the case handed her a prescription for a mixture containing bromides, gentian and nux vomica, I asked if hydrotherapy might not be tried. To this he readily consented. It was a mild case of manic depressive insanity following childbirth:—

The patient was a woman of thirty years of age who, since the birth of her baby four months previously, had been greatly depressed. She had taken no interest in the child although she "wished no harm to come to it," and had never taken care of it herself. She said she did not care to live, but denied that she had any suicidal impulses. Her physicians at her home in Vermont had given her tonics and sedatives and much of her time was spent walking in the open air and calling on her neighbors. She dreaded to be left alone, and had vague fears when she attempted to work. Prior to the onset of the present illness she had always been in excellent health. There was no history of neurotic tendencies in her family. As her condition showed little improvement she came to Boston hoping that the change would be beneficial. As the depression continued she visited the hospital a week after her arrival.

She was given an electric light bath to the point of perspiration and then friction with a wet mit, beginning with water at 70°, and followed by an hour's rest before dressing. This was repeated daily, gradually reducing the temperature of the water. Improvement which dated from the first treatment was rapid and continuous. The depression left her and she felt "splendidly." Three weeks later a few days before returning to Vermont she had slight depression which she attributed to a fear that she might

be unable to take up her work. Certainly the line of treatment here followed was rational. If all the hospital had to offer her was the mixture of gentian, nux vomica and bromides it would have added nothing to the treatment of her family practitioner.

I have described these cases in some detail because I wish to make it clear that the hydrotherapeutic treatment was better for these patients than the drugs prescribed or any other drugs, hence it was not a matter of inconsequence whether hydrotherapy or some other treatment was used. I will grant that the effect in both instances was chiefly psychical, through the action of the thermic stimuli on the nerves of the skin, but it brought about an improvement that the psychical action of the drugs had not produced. The beneficial effect of a few days' vacation at the seashore is also largely psychical, but the same psychical effect cannot be produced by staying at home and looking at pictures of the sea.

To you who have worked long with the methods of physical therapy what I say may seem trite and self-evident, but it is not so. Many times have I tried to make these truths clear to my colleagues in Boston, but without success. It will be no easy task to convince the physicians of America that they must use hydrotherapy if they are to do their full duty to many of their patients, but we must labor to that end. The obligation to teach hydrotherapy cannot much longer be ignored by medical faculties.

In this sanatorium, generously endowed by its noble founder and free from commercialism, you have the privilege and opportunity to advance the study and practice of hydrotherapy and allied forms of treatment, and of raising this important, but neglected branch of therapy to a position of dignity and esteem.

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New Instrument.

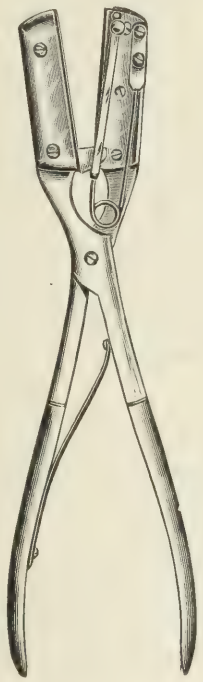
APPENDIX EXCISOR.

BY J. EMMONS BRIGGS, M.D., BOSTON.

This instrument was designed by Dr. J. Emmons Briggs of Boston, and is manufactured by Codman and Shurtleff.

By one compression of the handle, the appendix is first securely clamped beyond the point where it is to be amputated, preventing soiling of the wound by regurgitation of the contents. A further compression of the handles brings into apposition the shear blades which accomplish the amputation and the firm compression of the handles forcibly squeezes the stump of the appendix, thus preventing the escape of fecal matter from the cecum and positively checking hemorrhage from the appendiceal artery. When the grip upon the handles is relinquished, the blades of the instrument open, releasing the stump of the appendix, but still grasping the amputated appendix with its proximal end securely pinched.

The instrument in general appearance resembles a hemorrhoid clamp with a male and female blade. The under surface, which comes in contact with the cecum when in use, is



serrated, parallel with the long axis of the instrument and acts as a clamp to the stump of the appendix. Along the centre of the male blade is situated one shear blade, held in position by three screws, permitting easy removal for sharpening. This fits into the depression in the female blade, fashioning the shears with which the appendix is amputated.

On the superior surface of this instrument, the male blade is provided with an automatic clamp and spring which is set like a trigger over a pin at the end of the instrument. The proximal end of the spring clamp is fenestrated, and through this opening passes a wedge-shaped projection of steel, attached to the female blade, which acts both as a guide to the automatic clamp and as a release cam. The function of this is to automatically release the blade of the clamp which grasps the appendix at its distal side just before it is severed by the shearing blades.

The meso-appendix is first grasped with artery forceps and separated; the appendix is then held in a perpendicular position, placed between the blades of the appendix excisor. With one compression of the handles, the appendix is grasped upon the distal and proximal side and amputated between those points. By opening the hand, the blades spring open, releasing the stump of the appendix but still securely holding the amputated appendix, which cannot be removed from the forceps, except by setting the trigger over the pin. The stump, which has been rendered bloodless and sealed by firm compression, may then be treated by inverting it into the cecum or by any method which the surgeon may elect.

ADVANTAGES OF THE INSTRUMENT.

It simplifies technic, saves time, avoids possibility of spilling septic material from the interior of appendix or cecum, during and following amputation. The new technic consists in applying the appendix excisor, compressing the handles and discarding the excisor containing the appendix.

Old Technic. Applying artery forceps to appendix on proximal side, then distal side, amputating with knife, scissors or thermocautery, then discarding two pairs of artery clamps, knife or scissors and appendix.

Reports of Societies.

NEW ENGLAND PEDIATRIC SOCIETY.

THE TWENTY-SIXTH MEETING OF THE NEW ENGLAND PEDIATRIC SOCIETY WAS HELD AT THE BOSTON MEDICAL LIBRARY, MARCH 29, 1913.

The following papers were read:

DR. J. MASON KNOX, Baltimore, read a paper entitled:

DIABETES IN EARLY INFANCY.

ABSTRACT.

The patient was an infant of eight months. The onset of the disease was insidious, but the course rapid, ending in coma after a recognized illness of three weeks.

Autopsy Findings. There was a diminution in the number and size of the Islands of Langerhans.

Fifteen cases of probable diabetes, under one year were found in literature from 1852. In several of these the disease seemed to follow an injury to the central nervous system. In one or two others excess of sugar in the diet may have been a factor.

Symptoms. The symptoms were increased hunger, thirst, loss of weight, polyuria and glycosuria, often ending in coma.

Treatment. The treatment to be similar to that of adults. The carbohydrate tolerance should be determined and the sugar content of the milk mixture correspondingly reduced.

"Oatmeal days" were shown to be helpful in one instance.

DISCUSSION.

DR. T. M. ROTCH: We are much indebtel to Dr. Knox for having given us this interesting paper, because it brings to our notice the great importance of recognizing the disease early. Not very long ago it was almost unknown that it occurred in the first years. I think that his number of cases is larger than I have previously seen reported and that it will draw the attention of the practitioner to the fact that it does exist in babies and should be recognized. I have nothing to add beyond that the disease at this early stage of life has not been studied as much as it should have been and that we are still rather in the dark about it.

DR. F. L. MORSE: I have been very much interested in this subject in the last few months, and have just finished correcting the proof of an article on Diabetes in Infancy and Childhood, which is to appear shortly in the BOSTON MEDICAL AND SURGICAL JOURNAL.* There is one thing I would like to say about Case 15. I took the liberty of writing to Dr. Eaton and learned that the child died a few months afterwards, so that this adds one more to the list of Dr. Knox's fatalities. I have never myself seen a case of diabetes under one year, but I have had two cases between one and two years, both nearer one than two years. Neither of them had had any history of diabetes in the family. One of them had always been carefully fed, with no excess of sugar. The other had been fed on nothing but condensed milk, in large amounts. The duration in the first case was between three and four weeks; the first symptom was polyuria, and the thing which first attracted the mother's attention was the deposit of sugar on the vessel and on the floor. In the second case the duration was apparently only about a week, and the first symptom which really drew attention to it was the onset of diabetic breathing. The child died the same night that I saw it in consultation. There is really not much to be said on the subject after listening to Dr. Knox's paper. But the thing which interested me a great deal in looking up the subject was the frequency of lactosuria and galactosuria in babies, especially when they have some disturbance of the gastroenteric tract. I am also inclined to think that a glycosuria is not so very uncommon in babies, that is, an alimentary glycosuria of temporary duration.

DR. H. W. GOODALL: I do not know that I have very much to add to the discussion as I have never observed diabetes in an infant. It has, however, occurred to me that possibly the severity of the disease in children may be, in some way, largely due to the failure to store up glycogen and to transform sugar into fat.

As is well known, all rapidly growing cells are comparatively rich in glycogen and it is to be supposed that any interference with its storage might be followed by serious results.

It has also occurred to me that something can be done in the way of preventing glycosuria in children. The sudden change from one carbohydrate form to another, as from lactose to maltose, might encourage the production of a glycosuria if the enzymes, or other functions that take care of sugar are not fully developed. A more gradual change,

* See JOURNAL, Vol. clxviii, No. 16, p. 530.

however, would allow sufficient time for the ferments to develop. Experiments have been done in which carbohydrates have been fed in gradually increasing quantities to carnivorous animals, with the result that the corresponding ferments, not normally found in the animal, have developed.

Dr. R. W. Hastings: I would like to ask Dr. Knox if he has made any trial with the Metchnikoff tablets. For a case seen last summer, a child a little over two years who was referred to me because he was drinking three or four quarts of water a day, and the analysis of whose urine showed 5 or 6% of sugar, I made use of oatmeal and also the Metchnikoff lactic acid tablets. After about six weeks the sugar absolutely disappeared from the urine. This was distinctly a case of alimentary glycosuria, for the child had been fed very freely on sugar, the child coming from Savannah, and had had it in large quantities in connection with his food. He returned to Savannah and this winter developed colds. With the infectious throat disturbance the sugar all came back again and the doctors down there decided to send him to the Johns Hopkins Hospital for observation. There under a strict diet with restriction of starch and sugar, the sugar all disappeared again. The nurse has written me two or three times since his return home and says that the slightest increase in the amount of starch causes the immediate appearance of large quantities of sugar. I would like to ask it Dr. Knox recommends the lactic acid tablets, or if lactic acid milk had been tried in any of those infants under a year.

Dr. Knox: I have never given lactic acid tablets to children under one year, but have used them with older children suffering from certain forms of intestinal indigestion. The case to which reference has been made, I understand left the hospital practically sugar free, but it was felt that there was a constant decrease in tolerance for carbohydrates and that the final outlook was not good. The connection between diabetes mellitus and the injuries of the central nervous system in young babies is particularly interesting. The cases are too few to make any general deductions but as far as they go, they suggest that real diabetes mellitus may follow alterations of the central nervous system. In Case 2, which seems to be unquestionably diabetes mellitus, the condition followed concussion of the brain. The child fell out of its nurse's arm and struck his head and had many convulsions shortly afterwards. It seems quite certain that diabetes mellitus does occur in early infancy, and is the same disease that is present more frequently in adult life. In a certain number of cases, it is unrecognized because of the failure to make routine urine examinations in early infancy.

Dr. L. H. Newburgh, Boston, read a paper entitled:

THE USE OF STRYCHNINE IN BROKEN CARDIAC COMPENSATION AND IN THE COLLAPSE OF THE ACUTE INFECTIONS—A PRELIMINARY REPORT.

ABSTRACT.

There is no pharmacological basis for the assumption that strychnine, in medicinal doses, has either a pressor effect or that it increases the work of the heart. Mayer and Denys showed that nothing less than the convulsive dose raised the blood pressure; and Igersheimer showed that the heart was not affected until enormous doses were reached and that this affect was a slowing of the circulation. The strychnine used by me was tested on frogs and found to be highly active. The drug has been given to eight cases of broken cardiac compensation in very large doses with an entirely negative result. It has also been given in large single and repeated doses to eight cases of pneumonia in all stages, and to eight other persons all of whom showed hypotension. No effect on pulse or on systolic or diastolic blood pressures was observed.

Dr. D. L. Edsall: I have watched Dr. Newburgh's work with a great deal of interest, all of it having been done in my wards at the Massachusetts General Hospital. I have, therefore, had an opportunity to see the precise conditions in the patients a great deal of the time while he was doing the work but left the work entirely in his hands, and I am quite confident in saying that there was no manifest change in the condition of the patients in the past on very large doses of strychnine. One of the points studied was the effect of strychnine as a stimulant to the cardio-vascular system. It is from studies of this kind that we are probably going to get some clearness of vision in regard to a very confused subject, and to ascertain the actual clinical value of those drugs that are used for their effect upon the cardio-vascular system.

Dr. W. P. Lucas: I have been carrying out some experiments with strychnine in cardiac conditions in children and find that the blood pressure findings are very much harder to get than in adults and cannot be as accurately recorded. The findings have been absolutely negative as far as I could see. In the worst cases of dilatation it is almost impossible to get accurate blood pressure findings in children. While they have been on strychnine, the symptoms, as far as I can make out, have not been benefited and there has been no progress.

Dr. G. C. Shattuck: As a house-officer, particularly, I had the opportunity to use stimulants in a considerable number of cases of pneumonia, typhoid and heart disease, and had the usual experience that stimulants were far from satisfactory in the infectious diseases. I tried strychnine in a number of cases of typhoid which showed circulatory weakness, and in most of these cases saw no definite benefit. In a few cases I observed well-marked changes in the heart sounds and pulse after the use of strychnine. I saw similar changes for the first time at the Channing Home where a patient with phthisis had taken 1-30 of a grain three times a day for several days. When the visiting physician examined the patient, he said the heart was working too hard, and asked what drugs were being used. The heart sounds in this patient were considerably louder than normal, the second aortic being especially accentuated, and the pulse bounding. I am aware that such manifestations follow excitement or various other stimuli, and that there are many possible errors in clinical observations of this kind. But later, when I observed the same signs in typhoid patients who were taking strychnine, and noted that the signs developed especially in cases that had taken the larger doses for several days, the signs seemed to have added significance. The signs disappeared when the drug was omitted. There was also a case of pneumonia which behaved strangely. I remember it clearly on that account. In this patient the pulse improved markedly after the administration of strychnine. Benefit lasted for a day or two then the condition got worse, and the dose of strychnine was doubled. The pulse improved again promptly

and remained good for 24 hours or so, when the condition again became serious. Without omitting the strychnine, various other stimulants were ordered. The patient responded always with definite improvement such as I have never seen equaled by any other pneumonia patient. Although these observations were not controlled by blood pressure tests, which were seldom used at that time, most of them were corroborated by one or more persons, and they made so strong an impression on my mind that I hesitate to believe that there are no conditions in which strychinine is of value as a stimulant.

DR. J. M. KNOX: I am much interested in this subject, partly so I suppose because I have heretofore had some faith in strychnine, especially in its effect upon children. Some years ago Dr. Cook carried on a series of observations with cases at the Thomas Wilson Sanitarium to determine the effect of the blood pressure, the systolic pressure only was taken, of strychnia, digitalin and salt solution. His results showed that the rise in pressure following digitalin was more prompt, but of less duration, the curve having a sharper summit. Following strychnia the rise was a little less prompt but the effect was longer. The salt solution was a little less certain, but usually the rise in blood pressure was not so great, but the duration extended over a number of hours making a very obtuse summit to the curve. These observations were made shortly after the beginning of the use of the instrument for measuring the systolic blood pressure and the results may have been untrustworthy.

DR. NEWBURGH: Replying to Dr. Shattuck, we know, of course, that strychnine does increase the reflex irritability of the cord and undoubtedly has an effect upon the reflex mechanism. We also know that the intensity of the heart sounds varies greatly under a number of conditions. For one thing, excitement makes the sounds louder, as is shown in patients who are examined as they come into the out-patient department for the first time, and again two hours later when the sounds are not nearly so loud. Possibly the loud sounds observed by Dr. Shattuck may have been due to increased reflex irritability of the cord. Whether that would mean that the drug was acting in a beneficial way or not, I cannot say. I have had no experience with cases of typhoid fever or with children. I assume, however, that the same thing would hold for children. As to the results of Cook and Briggs I am simply unable to explain them. I have been over all their charts many times, and cannot find why there is this difference. On the other hand I should like to ask why caffein under the same conditions had no results. It is as easy to explain one as the other.

Book Reviews.

Life and Letters of Dr. William Beaumont. By JESSE S. MYER, A.B., M.D. With fifty-eight illustrations. St. Louis: C. V. Mosby Company. 1912.

This very interesting and valuable volume of medical biography, appearing at the centennial of Beaumont's entry into the practice of medicine, is an important contribution to the history of our profession. The introduction by Sir William Osler, Bt., M.D., F.R.S., gives earnest of its merit, and this promise is abundantly borne out by the performance. The material is derived largely from a collection of original documents, manuscript, memoranda and letters preserved by Beaumont's daughter, "including hitherto unpublished data concerning the case of Alexis St. Martin." The story of this famous and familiar case is told anew and in full. Indeed this history deserves to rank with the celebrated crowbar case of Phineas Gage in the case annals of American medicine. An appendix contains an account of Alexis St. Martin's last days, and a collection of literature references and abstracts of cases of gastric fistulae prior to that of St. Martin. Beaumont's fame is intimately associated with this case of his most celebrated patient; but his worth and greatness as a physician and a man far transcend this particular aspect of his work. It is for the record and preservation of these that we are most indebted to the author of this volume.

School Janitors, Mothers, and Health. By HELEN C. PUTNAM, A.B., M.D. Easton, Pa.: American Academy of Medicine Press. 1913.

The first three of the five essays that compose this volume were originally published as serials in the *Child-Welfare Magazine.* The other two are reprinted from other journals. Together they aim to make "a constructive appeal to organizations of mothers to fulfil their responsibility for children's well-being outside the walls of the family residence as well as inside," in other words, to constitute mothers the Argus-eyed keepers of the ways and habits of school janitors. There is much in the book that is sensible. When it errs from the path of practicability, it does so from mistaken zeal and from the limitation of view which is a characteristic and probably an essential of efficient reformers. From the author's standpoint, man is apparently considered largely responsible for the hygienic evils of school-life, as for most others. The remedy is obvious. It need scarcely be said that, despite the merits of this book, the reformed spelling in which it is printed is hardly at present to be approved.

The Care of the Skin in Health. By W. ALLAN JAMIESON, M.D., F.R.C.P.E. London: Henry Frowde and Hodder and Stoughton. 1912.

A little primer written by one who has had thirty years' experience in the study of skin diseases and whose name is well known in dermatological literature. It is quick and easy reading, and deals only with facts that everyone should know.

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MADAME DE SÉVIGNÉ AND HER PHYSICIANS.

During the seventeenth century, Vichy was one of the chief watering-places of Europe, as it is still the most frequented in France. Situated on the river Allier, not far from Moulins, it has been celebrated since Roman times for its hot mineral springs, which recently, like most other such thermal waters, have been discovered to owe much of their virtue to radioactivity. The Romans knew the town as *Vicus Calidus*, a name later mitigated into Vichy. Thither celebrities in all ages have repaired for their annual "cure," to counteract the results of their unhygienic living during the remainder of the year.

Among those who thus patronized Vichy for its healing waters and incidental social diversions was Madame de Sévigné, the famous French marquise, who, after her husband's death, carried on with her daughter, Madame de Grignan, the celebrated correspondence which has justly given her a place among the great letter-writers of history. The season at Vichy usually began about Whitsuntide, and in one of her letters dated May 20, 1676 (as quoted in the issue of the *British Medical Journal* for Sept. 28, 1912), Madame de Sévigné describes her life there as follows:—

"I took the waters this morning, my dearest, Oh how nasty they are! . . . We go at six o'clock to the spring, everybody is there. We drink and make very wry faces, for only fancy! they are boiling hot and have a very unpleasant taste of saltpetre. We go and come, take a walk, hear mass, pass the waters, speak confidently of the manner in which we do this; this is the only subject of conversation till noon. Then we dine. After dinner we spend the afternoon with some one of the party. Today it is my turn to be hostess. . . At five o'clock we take a walk in delightful country. At seven we have a light supper and at ten we go to bed."

Again, under date of May 28, 1676, she writes naively of the details of the hydrotherapy and of her doctor:—

"I began the douche today. It is a fairly good rehearsal of purgatory. One is naked in a little underground place, where there is a pipe of the hot water, which a woman plays on you wherever you wish. This state, in which one scarcely retains a fig leaf by way of clothing, is somewhat humiliating. I should have liked to have had my two maids that I might see some one whom I knew. Behind a curtain is placed some one who keeps up your courage during half an hour. In my case it was a doctor from Gannat, whom Madame de Noailles has taken with her to all her watering places. She likes him much. He is a very honest fellow—not a quack, and without prejudices. She sent him to me out of pure friendship. I will keep him, whatever it costs, for the doctors here are unbearable, and this man amuses me. He is not like an uncouth doctor. . . He has wit and good manners. He knows the world, and I am satisfied with him. He talked to me while I was in torture. Picture to yourself a jet of water as boiling hot as you can imagine thrown against any part of your poor body. At first the alarm is spread everywhere in order to stir the spirits into movement. Then an attack is made on the joints which are affected. But when they come to the nape of the neck it is a kind of fire and a surprise beyond understanding. That, however, is the essence of the matter. Everything has to be suffered and one does suffer everything, and one is not burnt, and afterwards we go to a warm bed where we sweat profusely and it is that which cures us. Here, again, is where my doctor is good. For instead of leaving me to two hours of the boredom, which is inseparable from the sweating, I make him read to me and that amuses me."

This doctor appears to have made a great hit with his patroness, for on June 1, she says of him:—

"He is a good liver; he is not a quack; he practices medicine as a gentleman."

Some ten years later, Madame de Sévigné was again taking the cure at Bourbon-Lancy, a smaller neighboring watering-place, the Roman *Aquae Nisincii*. Here, however, she had a different doctor, one Amiot, of whom also she

seems to have held high opinion, and of whom she writes, under date of Sept. 22, 1687, as follows:—

"We have a doctor who pleases me. This is Amiot, a man with a reasonable dislike of bleeding. He has a good opinion of Vichy, but is convinced that the water of this place will do me at least as much good. As for the douche he will have it administered as delicately as if he did not wish me to have it at all. He says we should inform M. Alliot that the remedy is too violent and more apt to excite the nerves than to cure them; that purging the humours and the sweatings which the water and the hot baths will cause will be enough. He speaks sensibly and will guide me with the greatest care."

That Amiot had "a reasonable dislike of bleeding" shows him at least to have been a man of sense. Evidently he was a conservative, not given to drastic measures in therapeusis. Later Madame de Sévigné writes of him:—

"Besides being a very good physician, he has here a little apothecary who is capacity, wisdom, and experience itself. Both say, No douche. They would think it a crime to attack a health such as mine. In a word, they excite confidence by being the first to condemn their remedies when they are not suitable."

Madame de Sévigné died on April 18, 1696. Unfortunately the medical details of her demise have not been preserved. The account of her physicians, however, and of the manner of French hydrotherapeusis in the seventeenth century, remains of perennial historic and literary, as well as medical interest.

THE COMMON COLD.

It has been well observed, "Could the sum total of suffering, inconvenience, sequelae and economic loss resulting from common colds be obtained, it would at once promote this affection from the trivial into the rank of the serious diseases." A monetary estimate, based on English conditions is before us—during the eight weeks of March and April, probably every other person living in Great Britain suffers from a cough or cold, or both. What then do 23,000,000 colds cost? The expense of such an experience varies, of course, with the individual. Convert the computation into dollars and cents. The $10 a week clerk, who loses one day from his work and has his efficiency lowered ten per cent. for three days more, has cost somebody nearly $2.50. A cabinet minister comes higher, of course. Should so great a man become confined to his room for two days and do a reduced amount of work for two days more, he may cost the country something like two hundred dollars (although malicious persons of the opposite party might declare that the less his activity the greater would be the nation's advantage and profit). The estimate concludes the direct cost of twenty-three million colds to be $28,750,000, with a loss by absence from work of $15,625,000, and from lowered vitality of $12,000,000, a total of $56,375,000. This is for Great Britain during March alone, March being responsible for one-fourth the English colds. Multiply now by four, and then double the result, because our population is twice that of Great Britain; the total certainly deserves a place at least in the imposing tables of how much our people spend on liquor, tobacco, jewelry, pensions, education and foreign missions.

We submit that monetary statistics do not furnish an altogether satisfactory evaluation of the losses by colds. It is the sequelae of the common cold that are of intrinsically dreadful import. Consider only two of these—the diseases which claim half all human mortality in the civilized world, tuberculosis and pneumonia.

Beginning with low temperature weathers and going well into the spring, pneumonia, the most seasonable of all important diseases, takes its greatest toll. Nor does merely cold weather yield many pneumonia cases; but rather the swift meteorological change, the alternating cold and warm day, with germ-harboring dust swept about by winds, are the ideal conditions for the development, not only of the common cold, but also of the pneumonia to which it leads. The cold generally begins with the nostrils and extends gradually (when not properly treated) down the respiratory passages to the bronchi and too often also to the alveoli.

Sneezing, nasal obstruction, headache, coryza, initial dryness of mucous membranes, with difficulty in phonation and deglutition, chill and fever, pain in the thorax and in the bones and joints (from the general toxemia)—how often, especially among the poor are such symptoms neglected until lassitude, exhaustion, loss of flesh, marked temperature, pulse and respiration deviations from the normal, dyspnea on exertion, and finally the blood-streaked sputum of early tuberculosis supervene. How frequently is such the history of a neglected cold, of which the laity

are prone to make light as being "nothing but a cold."

Most colds are the result of specific invasion, and various bacteria have been found in exudates from the upper air passages. Predispositions to such infection are such as make colds the peculiar possession of civilization. Superheated houses, saturated with the exhalations of people crowded in them, lead to many colds. "The stove is a mesmerist that plays no small part in the reduction of human beings to a state of idiocy. The mephitic vapors in the atmosphere of a crowded room contribute in no small degree to bring about a gradual deterioration of intelligences, the brain, that gives off the largest quantity of nitrogen, asphyxiating the others in the long run." Here is a sentiment quite scientific, which would seem to have been taken from one of our excellent modern text-books on hygiene. It is instead to be found in a novel of de Balzac, written seventy years before our systems of sanitation were conceived.

It may further be noted that wet feet greatly predispose; unhealthy noses and throats are very liable to colds and should be appropriately treated for their avoidance. Indigestible food, over-eating (with unlimited potations), not eating enough—such factors engender the "catarrhal habit," evidently by reason of intestinal autotoxemia. Practically all children of the poor have catarrh; such would probably not be the case were starches and sweets decreased in their dietary. Children are oftentimes more pampered than starved. This is unwisdom, despite the dictum of a popular medical writer that "a child should have what it wants when it wants it." Bad teeth and unhygienic mouths, by reason of the bacteria development possible in and around them, foster catarrhs and no doubt lead to colds.

In counting the mischief wrought by colds, their infectious nature must not be lost sight of. Through one case practically the whole force of an office or a factory may be made ill, and oftentimes acutely, too. It would be found "to pay" far better in the end, to send such a patient home until his sneezing and his snivelling have ceased.

Boston Dispensary Nurses' Home.—It is announced that the nurses' home of the Boston Dispensary is to be enlarged by the addition of another house on Jefferson Place.

THE BINET-SIMON TESTS FOR MENTAL DEFICIENCY.

In our issue of February 13, 1913, we took occasion to sound a note of warning upon the placing of implicit reliance upon any rule of thumb diagnosis of the mental capacities of children. We pointed out the fact that artificial aids to diagnosis while often helpful should not be relied upon to the degree that common sense would be relegated to the background. In this connection it is interesting to note that the interpretation of the Binet tests as applied by Dr. Goddard have been still further revised and elaborated by him. In the April number of the Training School he contributes an article that shows some rather radical departures from the manner in which the test has been heretofore applied by him and his assistants. This is especially noted in the matter of the time limit set for the performance of various tests. He says, that he has come to the conclusion that the time limit is to be "used as a general guide. If directions say to allow a minute for this test, the child may take a minute and five seconds and still be credited if the examiner feels that he has made an honest effort and done it carefully even though he has taken a few seconds over time. How much allowance will be made must depend upon the judgment of the examiner."[1] It is a cause for regret to many that the idea should have got abroad that the Binet tests were capable of intelligent application by persons who were untrained in medicine and in the psychology of child life. Now that their most scientific and learned exponent in this country has himself sounded the note of warning in their application we are more than ever inclined to our original position that these artificial aids must be used with extreme caution. We have said that it is better that those applying them have medical knowledge as well as a knowledge of psychology. The reason for this must be apparent on a little reflection. To illustrate we may cite the instance of all those tests which are meant to bring out the power of muscular coördination. Lack of coördination may depend upon many diverse conditions which do not necessarily carry with them any mental deficiency whatever. The cerebral palsies, choreas, muscular weaknesses from poliomyelitis and some cases of Friedreich's ataxia are examples in point. Likewise the proper interpretation of the child's power of vision and hearing are in the strict

sense of the term medical problems and a failure to estimate them correctly might very well invalidate the results of certain of the tests.

That these artificial aids are of great value we do not for a moment deny but we must agree with Cornell that "the supposition that a child is slightly feeble-minded who is two years, or four years, or any other arbitrary number of years behind the average mentally is fallacious." This author cites the case of two six-year old children who passed the ten-year old test whereas the brightest boys in the truant schools and the Philadelphia house of detention seldom pass the 11-year old test, no matter how old they may be, and this difference he ascribes entirely to differences of environment. The children who passed the test for a mental age so much higher than their chronological age were the daughters of professional men, surrounded by stimulating influences while the boys came from the lowest homes.[2] No less an authority than Tredgold says that he believes that there are cases of children who never can learn the things usually taught in the schools and who are nevertheless not feeble-minded. He cites instances of dullards in school who from the standpoint of the teacher were mentally deficient but who afterwards made a tolerable success in life and who were regarded by their fellows as having more than a modicum of common sense.[3] To successfully apply the Binet tests and to rely absolutely upon their findings in forming a conclusion of the mental capacity of the child requires a perfect standardization of conditions that is well nigh impossible in practice.

To make a diagnosis based entirely upon the direct evidence which such a test affords without taking into consideration the physical condition of the child, his ancestry, his racial origin, and his home surroundings is in our opinion a most unscientific procedure.

[1] Henry H. Goddard: Standard Method for Giving the Binet Test, The Training School Bulletin, April, 1913.

[2] Walter S. Cornell: Health and Medical Inspection of School Children, p. 419.

[3] A. F. Tredgold: Mental Deficiency, p. 142.

THE SPRINGFIELD ACADEMY OF MEDICINE.

THE Springfield Academy of Medicine at its regular monthly meeting on May 13, 1913, voted to purchase a permanent home, the property selected being an old brick residence with large grounds, situated in the center of the city. The Academy was founded in 1907 and now numbers 150 members in Springfield, Holyoke and surrounding towns. The society meets once a month from September until May and for each meeting a speaker of prominence from out of town is secured. It is confidently expected that the new quarters just acquired will greatly enhance the success and value of the society's meetings. Few changes will be necessary in the house to make it suitable for the needs of the Academy. The first floor will provide a large hall for meetings, also two reading rooms, a dining room and a kitchen. On the second floor a laboratory will be installed and the beginnings of a medical library will be housed. Several sleeping rooms will be maintained for the use of members, visiting speakers and other guests. The new home with the necessary changes will cost more than $20,000 and this sum will be raised by the issuing of bonds.

ANNUAL MEETING OF THE MASSACHUSETTS MEDICAL SOCIETY.

THE one hundred and thirty-second annual meeting of The Massachusetts Medical Society will be held in Boston on Tuesday and Wednesday of next week, June 10 and 11, at the Copley Plaza Hotel, Copley Square. On the morning of the first day clinics have been arranged at the various hospitals, illustrative of many of the subjects to be discussed at the section meetings. The section meetings of medicine, surgery, and tuberculosis will be held on Tuesday afternoon, the subject of the section on medicine being a symposium on nephritis. On Tuesday evening the Shattuck Lecture will be given by Dr. Harvey Cushing, of Boston, on "Diabetes Insipidus and the Polyurias of Hypophyseal Origin." On Wednesday morning will be held the annual meeting, and at noon the annual discourse will be delivered by Dr. Homer Gage, of Worcester, Mass. On Wednesday afternoon, the combined meeting of the sections of medicine and surgery will be held at the Boston City Hospital, being devoted to a symposium on diseases of the gallbladder. The annual dinner will be served at the Copley Plaza Hotel at 7 P. M. on June 11. In view of the interesting subjects of the program provided, a large attendance of members is expected at this year's meeting.

MEDICAL NOTES.

A British Centenarian.—Frederick Halsey Janson, who died recently at Hove, England, is said to have been born on Feb. 8, 1813. He was the oldest solicitor in the United Kingdom, having been admitted to the bar in 1835.

Italian Congress of Occupational Diseases.—The fourth Italian Congress of Occupational Diseases is to be held at Rome next week, from June 8 to 11 inclusive, under the presidency of Dr. Guido Baccelli. The subjects proposed for special discussion are ankylostomosis, professional blood diseases, infant mortality in relation to the occupations and social condition of parents, dermatitides, and the professional occupational pathology of railway employees.

Award of Riberi Prize.—Report from Turin, Italy, states that on May 9 the Royal Academy of Medicine of Turin awarded the Riberi Prize of 20,000 francs, to Dr. Luigi Pagliani, professor of hygiene at the University of Turin, and dean of its medical faculty, for his recently published "Trattato di Igiene."

A Russian Centenarian Nurse.—Miss N. M. Bashmakoff, of the Russian Red Cross Sisterhood, who died recently at St. Petersburg, is said to have been born in 1809, and to have served as a nurse during the Crimean War under the celebrated Russian surgeon Pirogoff.

BOSTON AND NEW ENGLAND.

Boston State Hospital.—The recently published fourth annual report of the trustees of the Boston State Hospital, records the work of that institution for the year ended Nov. 30, 1912. At the close of this period there were 1185 patients under treatment in the main hospital and 83 in its newly established psychopathic department, which has averaged over 100 admissions a month since its opening. The special report of the director of this department outlines its purposes and activities. The pathologist's report shows that 40 autopsies were done during the year. Eighteen nurses were graduated from the training school.

Boston Infirmary Department.—The recently published sixteenth annual report of the Infirmary Department of the City of Boston records the work of the Boston Infirmary for the year ended Jan. 31, 1913. During this period the average actual population at the Long Island Hospital has increased to 893, that at the Charlestown Almshouse had decreased to 94. The report of the visiting medical staff particularly emphasizes the importance of the pathologic work of the hospital. Plans have been drawn for a new nurses' home to accommodate the training-school, from which 19 nurses graduated last year.

Opening of New Milk Station.—On Monday of this week, June 2, was opened the new Dorchester milk station of the Boston Milk and Baby Hygiene Association at Dorchester House, near Field's Corner. Beginning on this date, the price of milk at all the stations of the Association was reduced from ten to nine cents a quart.

Closing of Cohasset Schools.—The board of health of Cohasset, Mass., has recently ordered the public schools and halls of that town temporarily closed, owing to the local prevalence of scarlet-fever, measles, and diphtheria.

Jefferson Medical Alumni of New England.—The annual reunion and dinner of the New England Alumni Association of the Jefferson Medical College of Philadelphia was held recently in Boston. Dr. John C. Berry, of Worcester, Mass., presided. The following officers were elected for the ensuing year: President, Dr. Albert R. Rice, of Springfield, Mass.; vice-president, Dr. James L. Harrington, of New London, Conn.; secretary, Dr. C. A. Riley, of Allston, Mass.; and treasurer, Dr. F. I. Payne, of Westerly, R. I.

A Rhode Island Leper.—Report from Narragansett Pier, R. I., describes the discovery in that town on May 21, of a case of leprosy in the person of a man, resident there for 25 years, who is thought to have contracted the disease while a boy in China.

Opium Seizure in Providence.—Report from Providence, R. I., states that on May 27 a considerable amount of opium and manufacturing utensils was seized in a raid by federal customs officers on the store of a local Chinese resident. On Feb. 8 $12,000 worth of opium was seized at the same establishment.

A CENTENARIAN.—Mrs. Nancy C. Rogers, who died recently at Montville, near New London, Conn., is said to have been born in August, 1809, in Groton, Conn. She was never ill until six months before her death.

FOUR LIVING CENTENARIANS.—Mrs. Louise Waterman Carpenter, of Worcester, Mass., is said to have been born on Aug. 26, 1806, in Michigan.

Mrs. Eliphalet Dorr, of Milton Mills, Me., is haid to have been born on May 6, 1813, in Acton, Me., and celebrated recently her supposed centennial anniversary.

Benjamin Priest, of Canaan, Me., is said to have been born on May 12, 1812, and is reported to be still in excellent health and able to do light work about the farm.

Thomas Spillane, of Weymouth, Mass., who is locally reputed to have been born in 1812 in Ireland, has recently had pneumonia but is now convalescent.

BOSTON MORTALITY STATISTICS.—Cases of infectious diseases reported to the Boston Board of Health for the week ending May 27, 1913: Diphtheria, 59; scarlatina, 27, non-resident, 3; typhoid fever, 4; measles, 197, non-resident, 1; tuberculosis, 67, non-resident, 4. The death-rate of the reported deaths for the week was 17.94.

NEW YORK.

SANITARY AND MORAL PROPHYLAXIS.—On May 22 the Society of Sanitary and Moral Prophylaxis held, at the New York Academy of Medicine, a memorial meeting in honor of the late Dr. Prince A. Morrow, who founded the society and was its president from its organization until his death. There was a large attendance and addresses were made by Ex.-President Eliot of Harvard, the Rev. J. P. Peters, W. A. Purrington, formerly counsel to the New York County Medical Society, and Dr. E. L. Keyes. The last-named said the society had started eight years ago with a small membership, and today there were 2000 members in New York City, while similar societies, inspired by Dr. Morrow, extended from coast to coast. Tons of literature had been disseminated in schools, colleges, and clubs, and in the army and navy. Legislatures had become interested, and educators had been aroused to the necessity of throwing light upon the sex relations. The movement had already developed to such an extent that it was not necessary for the boys and girls of our land to obtain the first knowledge of the functions of their own bodies from their associates in the streets.

ANTI-CANCER ASSOCIATION. — The National Anti-Cancer Association was formally organized at a meeting of physicians and laymen held at the Harvard Club on May 22. The medical societies represented were the American Dermatological Association, American Surgical Association, American Gynecological Society, American Laryngological Association, American Genito-Urinary Association, American Neurological Association, American Ophthalmological Society, American Otological Association, American Orthopedic Association, and American Association of Pathologists and Bacteriologists. Various other societies also will be asked to join the movement. The followings officers were elected: President, George C. Clark, New York; vice-presidents, Dr. Clement Cleveland, New York; Dr. L. M. McMurtry, Louisville; Dr. Edward Reynolds, Boston; Dr. Edward Martin, Philadelphia; Dr. L. F. Barker, Baltimore; secretary, T. M. Debevoise. The chairman of the Executive Committee is Dr. G. E. Brewer, New York, and other members of the committee are Drs. J. E. Simpson, Pittsburg; Joseph Bloodgood, Baltimore; A. D. Bevan, Chicago; Jeff Miller, New Orleans; Charles Power, Denver; F. J. Taussig, St. Louis; and Reuben Peterson, Ann Arbor. There is also a laymen's committee, headed by James Speyer of New York.

A LIFE TABLE.—A life table, based on the mortality of New York City in the three years 1909 to 1911, inclusive, has been prepared by the Health Department, and is of the same character as one based upon the triennium 1879-1881 which was compiled under the direction of the late Dr. John S. Billings on behalf of the federal census authorities. From this it appears that a child under five years has a life expectancy of nearly 52 years, as against 41 years thirty years ago. The expectancy of a child between 5 and 10 years has been prolonged from 46 to 51 years, while that of a person between 25 and 30 has increased from 32.6 to 34.3. Between the ages of 40 and 45 the expectancy has decreased six months, and at all ages above 40 there is a constantly increasing diminution ranging from 6 months at 40 to 3 years and 3 months at 85. Up to the age of 40 the expectancy is greater among females than males, and above

40 the reverse is true. Eighty-nine per cent. of the saving of life is in the earlier years before the twentieth year, and this is attributed largely to the decrease in the mortality from malnutrition and gastro-intestinal affections in infancy and from diphtheria and other infectious diseases; while the decreased expectancy of life after the age of 40 is attributed in great measure to the increase in cancer and cardiovascular and renal disease.

Chapel of the Sacred Heart.—The Chapel of the Sacred Heart, on Blackwell's Island, built at a cost of $75,000, was dedicated on May 18 by Cardinal Farley. There is another Roman Catholic chapel on the island, and this one is primarily for those suffering from tuberculosis. Its construction and equipment, therefore, have been of a special character.

Open-Air School.—A new open-air school building being required by the Tuberculosis Preventorium for Children, at Farmingdale, N. J., Mrs. Andrew Carnegie and Mrs. Henry Phipps have each contributed $1000 towards the $10,000 it is estimated to cost.

Recent Bequests.—Among the charitable bequests in the will of the late Theodore Goetze of New York are $6000 each to St. Joseph's Hospital and the Seton Hospital for Consumptives, and $5000 each to St. Mark's Hospital and the German Hospital and Dispensary.

Two Centenarians.—Mrs. Jane Rich, a respected resident of Mount Vernon, N. Y., died from cardiac disease on May 18, at the age of 100 years and one month.

Bartholomew Gulguski, a native of Austria, died on May 19 in Brooklyn, N. Y., at the alleged age of 104 years.

Current Literature.

Medical Record.

May 17, 1913.

1. Adami, J. G. *Certain Elementary Concepts in Education Applied to Medicine.*
2. Syms, P. *The Prevention and Cure of Cancer.*
3. Meyer, W. *The Surgical Treatment of Cancer of the Esophagus.*
4. Soper, G. A. *The Purification of New York Harbor.*
5. Rawls, R. M. *Cancer of the Uterus.*

May 24, 1913.

1. Fishberg, M. *Abortive Pulmonary Tuberculosis.*
2. King, W. H. *A Consideration of the Therapeutics of Intestinal Auto-Intoxication.*
3. Maverick, A. *Blunders Made by Nature. The Part Played by Nature in Causing Diseases of the Genito-urinary Organs and the Skeleton.*
4. Rankin, E. G. *The Compulsory Detention of the Homeless Tuberculous.*
5. Cunningham, W. P. *Tuberculides.*
6. Brady, W. *The Prevention of Adenoids.*
7. Bull, C. P., Jr. *A Drop Method of Giving Ether with a Closed Inhaler.*

New York Medical Journal.

May 17, 1913.

1. Biggs, H. M. *Venereal Diseases.*
2. Swift, H. F. *Dispensary Facilities for the Treatment of Syphilis.*
3. Keyes, E. L., Jr. *Dispensary Treatment of Gonorrhea.*
4. Goldwater, S. S. *Hospital Accommodations for the Treatment of Venereal Diseases.*
5. Longcope, W. T. *The Relationship of Syphilis to Internal Medicine.*
6. Gleason, J. H. *Hypertrophy of the Prostate.*
7. Upshur, J. N. *Gastro-intestinal Therapy.*
8. Friedman, H. M. *Medical Experts.*
9. Kennedy, J. C. *The Surgical Aspect of Gastric Ulcer.*
10. Suggett, O. L. *Neosalvarsan.*

May 24, 1913.

1. French, T. R. *Nitrous Oxide Gas, Essence of Orange Ether, and Sequestration in General Anesthesia for Operations in the Upright Position.*
2. *Satterthwaite, T. E. *Recovery in a Case of Influenzal Meningitis Complicated by Pneumonia.*
3. Dyer, I. *Should an Interneship Be Required?*
4. Kopetzky, S. J. *The Menière Symptom Complex.*
5. Pratt, J. A. *Direct Laryngeal Examination.*
6. Maloney, W. J. W. A. *The Enhancing of Auditory Acuity by Psychological Methods.*
7. Jackson, A. B. *The Treatment of Tuberculosis.*
8. Talmey, B. S. *Sexual Problems of Today.*
9. Ballin, M. J. *A Case of Total Deafness Following a Dose of Quinine.*
10. Lynch, K. M. *Gastroptosis and Coloptosis Transversa as Seen from Post-Mortem Examinations.*

2. Satterthwaite reports what appears from the history to be a typical severe pneumococcus pneumonia with meningeal symptoms. "The sputum was rusty and streaked with blood. No influenza bacilli were found in it but the diplococcus of pneumonia (Fränkel's) was discovered." No lumbar puncture was done, as "the influenzal bacillus is not always found even in the fresh spinal fluid." The diagnosis "was made on the first day the patient was seen, so that the presence of the influenzal bacillus as a factor in the diagnosis was negligible." It is hard to believe that the writer expects this case to be accepted as one of influenzal meningitis without bacteriologic evidence. The only basis for the diagnosis given is the history that during the previous week the patient "had been suffering from prostration, cough, bronchitis, and the usual manifestations of a mild influenza (grippe), which had kept him indoors, though he had not called in a physician." [L. D. C.]

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

MAY 24, 1913.

1. *SMITH, T. *An Attempt to Interpret Present-Day Uses of Vaccines.*
2. HALL, F. P. *A Plea for an Institute of Human Embryology.*
3. SCRIPTURE, E. W. *Speech Without a Larynx.*
4. HEINEMANN, P. G. *The Germicidal Efficiency of Commercial Preparations of Hydrogen Peroxid.*
5. *CECIL, A. B. *A Method of Performing External Urethrotomy in Impassable Stricture.*
6. BASS, M. H. *Acute Rheumatic Orchitis. Report of a Case Associated with Erythema Nodosum and Acute Torticollis in a Child Aged Two and One-Half Years.*
7. BACHMANN, R. A. *Venereal Prophylaxis: Why It Sometimes Fails.*
8. LUCAS, W. P., AND OSGOOD, R. B. *Transmission Experiments with the Virus of Poliomyelitis. Finding the Virus in the Nasal Secretion of a Human Carrier Four Months After the Acute Stage of a Second Attack of Poliomyelitis.*
9. ROSENAU, M. J. *The Mode of Transmission of Poliomyelitis.*
10. HOPKINS, J. G. *A Method for Standardizing Bacterial Vaccines.*
11. HESS, A. F. *Report of a Group of Infants Infected by a Tuberculous Attendant.*
12. HAZEN, H. H. *Oily Injections of Salvarsan—A Warning.*
13. JONES, E. M. *New Ether Pad and Cone.*
14. MYERS, B. L. *A Method of Controlling Rectal Hemorrhages.*
15. TOUART, M. D. *A Plaster-of-Paris Splint.*
16. JENNINGS, J. E. *A New Tonsillectome.*
17. POWER, H. *An Original Method of Testing for Potassium Iodid in the Urine.*

1. Smith's article on vaccines gives a comprehensive and learned exposition of the subject and is well worth study.

5. Cecil uses a solution of 1 gm. medicinal methylene blue to 200 c.c. of distilled water injected into the urethra before operation for stricture. This stains the urethral mucous membrane dark blue and makes the finding of the tract back of or at the stricture easy. [E. H. R.]

THE AMERICAN JOURNAL OF THE MEDICAL SCIENCES.

APRIL, 1913.

1. *DEAVER, J. B. *A Year's Work in Hysterectomy.*
2. *JOSLIN, E. P. *Diabetic Standards.*
3. RIESMAN, D. *High Arterial Pressure: High Pressure Hypertrophy of the Heart.*
4. *LEE, R. I., AND WHITE, P. D. *A Clinical Study of the Coagulation Time of the Blood.*
5. PHILLIPS, J. *The Value of Massage in the Treatment of Various Disorders in Children.*
6. *HILLMAN, O. S. *Some Hematological Findings in Pellagra.*
7. NEUHOF, S. *Complete Heart-block, with Rapid Ventricular Activity.*
8. *ERDMAN, S. *Acute Effects of Caisson Disease or Aeropathy.*
9. *BASSOE, P. *The Late Manifestations of Compressed Air Disease.*
10. *WESSLER, H. *Persistent Ductus Botalli and Its Diagnosis by the Orthodiagraph.*
11. THOMAS, T. T. *A Study of Empyema, with Special Reference to the Feasibility and Importance of Dependent Drainage.*
12. *FISKE, C. N. *The Effects of Exposure to Intense Heat on the Working Organism.*

1. Deaver's article is an analysis and summary of 109 cases of hysterectomy for various conditions, with conclusions as to their teachings with regard to the indications for operation. With regard to fibroids, while it is not stated that all fibroids should be removed when discovered, the presence of any sypmtoms is made an indication for operation. Waiting for the menopause in the hope of their disappearance is condemned. In 13 cases the uterus was removed on account of hemorrhage on suspicion of the presence of carcinoma, in two of which the suspicion was confirmed. The mortality of the series was one-tenth of one per cent.

2. Joslin's article is a report of certain cases illustrating what is to be considered as successful response to dietetic treatment in cases of diabetes of various types. In all instances the patients were observed over a period of many years with careful regulation of diet.

4. Lee and White report a new method for testing the coagulation of the blood, and show that in the 125 cases tested the tendency to bleeding corresponded closely with the coagulation time so determined. The test is performed by withdrawing blood from a vein by a glass hypodermic syringe and discharging it into a small test tube, which is rotated endwise every thirty seconds until the blood maintains its surface contour when the tube is inverted.

6. Hillman's studies of the blood in pellagra have not resulted in constant findings, but demonstrate in some cases chloranemia, leucocytosis or lymphocytosis.

8. Erdman, from the constant occurrence of gas emboli in the veins and right heart of autopsied cases of caisson disease, accepts the theory that gas embolism is the cause of symptoms. Analysis of gas aspirated from the right heart of one case showed nitrogen 80% and CO_2 20%.

9. Bassoe describes the occurrence of certain late manifestations or permanent results of compressed air disease, and reports illustrative cases. These fall into three classes: (1), cases in which spinal cord symptoms suggested the name "caisson myelitis"; (2), cases of permanent joint affections typical of arthritis deformans; and (3), cases of permanent ear affections.

10. Wessler and Bass report five cases in which the diagnosis of persistent ductus arteriosus is supported by strong evidence, and reproduce the fluoroscopic tracings of these cases, showing in all a prominent shadow, which is taken to represent the pulmonary artery.

12. Fiske's article describes the occurrence of heat exhaustion and prostration on war vessels and summarizes numerous reports of conditions under which these disorders have occurred. The factors suggested as contributory are numerous, but the point most emphasized is the author's belief that imperfect circulation of air is of no less importance than high temperature and humidity. [F. W. P.]

SURGERY, GYNECOLOGY AND OBSTETRICS.

MAY, 1913.

1. *FOERSTER, O. *On the Indications and Results of the Excision of Posterior Spinal Nerve Roots in Men.*
2. BAUER, A. *Discussion of Prof. Foerster's Paper.*
3. *HECHT, D'O. *The Surgery of Spinal Cord Tumors from a Neurologic Viewpoint.*
4. OCHSNER, A. J. *The Field of Usefulness of the Clinical Congress of Surgeons of North America.*
5. *NEUHOF, H. *Experimental Ligation of the Portal Vein; Its Application to the Treatment of Suppurative Pylephlebitis.*
6. *SCHLIMPERT, H. *Concerning Sacral Anesthesia.*
7. *MURPHY, J. B. *Osteoplasty.*
8. STANDISH, M. *Extirpation of the Lachrymal Sac.*
9. KANAVEL, A. B. *A Consideration of Final Results in Hypophyseal Surgery.*

10. Huffman, O. V. *Ectopic Pregnancy Associated with Anomalous Fallopian Tubes.*
11. Frazier, C. H. *Certain Problems and Procedures in the Surgery of the Spinal Column.*
12. *Trout, H. H. *Proctoclysis—an Experimental Study.*
13. Peterson, R. *The Present Status of the Radical Abdominal Operation for Cancer of the Uterus.*

1. Foerster gives as the indications for excision of the posterior spinal nerve roots: violent neuralgic pains of whatever origin, the visceral crises in tabes and spasticity and spastic paralysis. His article is thoroughly convincing and well illustrated with excellent examples of cases.

3. Hecht gives his reasons for believing that the surgery of the spinal cord in the case of tumors should be of the most radical nature.

5. Neuhof shows experimentally that gradual ligation of the portal vein is perfectly compatible with life and advises this operation in all cases of suppurative plyephlebitis.

6. Schlimpert's excellent article on sacral anesthesia is well worth the careful study of any one interested in this new form of anesthesia. It seems as if this was a method of future promise, especially for the operations of gynecology and the anal region.

7. Murphy's article on osteoplasty is a revelation of the tremendous possibilities in this line of surgery. The article does not lend itself to review, but is well worth study and is beautifully illustrated.

12. Trout, in treating over 2000 cases by proctoclysis after operation, shows conclusively that ordinary tap water is better borne, is more efficient in relieving thirst and does less harm than the so-called normal, but often not isotonic—salt solution. He also shows how much harm can be and undoubtedly is done by the intravenous injection of salt solution, which is not isotonic because it contains too much salt. [E. H. R.]

Münchener Medizinische Wochenschrift.

No. 17. April 29, 1913.

1. Klein, G. *Roentgen-ray Treatment of Carcinoma of the Uterus, Breast and Ovaries.*
2. Hirsch, G. *Roentgen-ray Treatment of Myoma and Fibrosis of the Uterus.*
3. Riemer. *The Alkalinity of Media in Its Relation to the Agglutinative Powers of Typhoid Bacilli.*
4. Froesch, H. *A Complement Fixation Reaction in Congenital Feeble-mindedness and Other Degenerative Processes of the Central Nervous System.*
5. Halpern, J. *The Sero Diagnosis of Tumors by Deviation of Complement.*
6. *Hermann, F. *The Use of Abderhalden's Pregnancy Reaction.*
7. *Faulhaber. *The Diagnosis and Treatment of Chronic Ulcer of the Pylorus.*
8. Schmidt, J. E. *Stenosis of the Small Intestine.*
9. Hüssy, P. *A Case of Fatal Peritonitis After Cervical Dilatation.*
10. Lewinsohn, B. *A New Heart Pleximeter.*
11. Grund. *Atrophic Myotonia (Concluded).*
12. v. Reichmann. *A Method of Estimating the Pressure of Cerebro-spinal Fluid.*
13. V. Düring, E. *The Seat of War in Montenegro.*

6. Hermann has made the Abderhalden pregnancy test in over one hundred cases. It must be made according to Abderhalden's technic in every detail. What few errors in diagnosis have been made have shown a positive reaction in non-pregnant women. Hermann has never seen a negative reaction when pregnancy exists. Hermann believes that the reaction is of great value. He considers it of as much importance as any other serological investigation.

7. Faulhaber's article on chronic ulcer of the pylorus will be reviewed in the next number. [R. F.]

No. 18. May 6, 1913.

1. Seihrt, E. *The Thyrogenic Etiology of Hemorrhagic Metropathics, with Remarks on the Theory of Eclampsia and Repeated Abortion.*
2. Gebb, H. *Experimental and Clinical Studies on the Chemotherapy of Diplo-bacillus Infections in the Human Eye.*
3. *Bernoulli, E. *The Influence of Digitalis on Cardiac Action After Muscular Work.*
4. Kielluethner. *The Value of Intra-vesical Operations.*
5. Hahn, H. *The Successful Treatment of Bleeding in Hemophilia by the Thermo-cautery.*
6. *Merckens, A. *A Case of Severe Melena Neonatorum Cured by the Injection of Defibrinated Human Blood.*
7. Ertl, F. *Clinical Experiences with Drugs for Alleviating Labor Pains.*
8. Spitzy, H. *An Instrument for the Radical Cure of Phimosis.*
9. Jores, L. *An Improved Method for the Preservation of Anatomical Specimens.*
10. Sehrwald, E. *Erysipelas and Tatooing.*
11. Falkner, A. *The Treatment of Tuberculous Peritonitis by Iodides.*
12. Cohn, P. *The Treatment of Iritis by Sodium Cinnamate.*
13. Gunsett, A. *A Source of Error in Determinations by Sabouraud-Noiré Tablets.*
14. Freudenberg, A. *A Perineal Pad Heated by Electricity.*
15. Artenau, G. *Bad Reichenhall.*
16. *Faulhaber. *The Diagnosis and Treatment of Chronic Ulcer of the Pylorus. (Concluded.)*
17. Wilke, A. *Arnold Heller.*

3. Bernoulli measured the rate, regularity and force of the pulse in normal individuals after specified amounts of work in a tread mill before, while and after digitalis was given in medicinal doses. The results of these observations show that the normal heart muscle at work does not react in any demonstrable fashion to digitalis. Therefore digitalis is not a cardiac tonic in the usual sense of the word. Bernoulli concludes that the use of digitalis is not indicated to spare the reserve strength of the heart in surgical operations, nor should beneficial results be expected in cases of decompensation as long as the conditions which caused decompensation are maintained. In other words, digitalis can only work to best advantage when the heart is rested as much as possible by quiet in bed.

4. Merckens assumes that melena neonatorum is due to lack of thrombin in the blood, by which the normal coagulability is lost and a tendency to hemorrhages from mucous membranes is produced. For treatment of this condition he advocates the intramuscular injection of twelve c.c. of defibrinated blood. The blood is drawn from a healthy individual, defibrinated by shaking with glass beads, and allowed to stand for half an hour before injection. In this way toxic manifestations are avoided. The bleeding is relieved by a direct stimulation to thrombin formation or by the addition of ferments which stimulate blood coagulability. He describes a case treated in this fashion with marked benefit.

16. Faulhaber believes that chronic ulcer at the pylorus may be recognized by as sharply defined a symptom complex as characterizes duodenal ulcer. There are three cardinal symptoms:—

1. Pain, coming periodically after intervals of freedom for months or weeks, and beginning within two hours after the ingestion of food.

2. Continued hypersecretion. This may consist of anything more than twenty c.c. in a fasting stomach, but is more marked after a test meal. The gastric

contents usually contain an excess of free HCl and pepsin.

3. Pylorospasm, an important symptom, not occurring in hyperchlorhydria without ulcer, nor in gastric atony with organic obstruction. It is recognized by the tube and the x-ray. The fasting contents contain no sarcinae or gross food residue. The bismuth test meal remains in the stomach for at least six hours while the peristalsis is normal or increased.

Faulhaber has found the treatment of this condition unsatisfactory, either by medical or surgical procedures. But surgical intervention seems indicated since the tendency to chronicity is mainly due to a vicious circle formed by the pylorospasm and hypersecretion. Whether excision of the ulcer or gastroenterostomy should be made cannot be stated. In any case the outlook is unfavorable. [R. F.]

DEUTSCHE MEDIZINISCHE WOCHENSCHRIFT.

No. 16. APRIL 17, 1913.

1. ZANGEMEISTER, W. *Puerperal Inversion of the Uterus.*
2. ARNETH. *The Action of Thorium-X on the Life of Blood Cells. (To be concluded.)*
3. FRÄNKEL, E. *Tubercle Bacilli in the Circulating Blood.*
4. SHIBAYAMA, G. *The Action of Serum and Toxin in Rectal Use.*
5. *NEMMSER, M. *Repeated Serum Injections and Hypersusceptibility.*
6. ANITSCHKOW, N. *The Pathologic Changes of Internal Organs in Experimental Cholesterin Ester Fattening.*
7. RENSS. *Diaphragmatic Hernia or Unilateral High Diaphragm.*
8. HARZBECKER, O. *The Origin of Pectineal Hernia.*
9. VON GAZA. *Tissue Necrosis and Arterial Erosion Bleeding After Use of Old Novocain Solutions for Infiltration Anesthesia.*
10. REINHARD, H. *The Drug Treatment of Inadequate Pains During Labor.*
11. LANG, J. *The Therapy of Inflammations in the Mouth, Pharynx, and Larynx.*
12. FORBÁT, A. *Fragments in the Sputum of Consumptives.*
13. COUTS, M. *The Perennial Intermittent Fever of Mucous Colitis.*
14. ROSENHAUPT, H. *The Drug Treatment of Nervous Vomiting in Early Childhood.*
15. DUTOIT, A. *High Altitude and Diabetes.*
16. SPALTEHOLZ, W. *Introduction into the Study of Medicine.*

5. Nemmser considers that the danger of anaphylaxis after repeated serum injections is much less than the danger of omitting the specific therapy in cases in which it is urgently necessary. Until, however, the question of anaphylaxis is wholly cleared up, it would be advisable not to use the serum needlessly or in moribund cases, in order not to discredit the agent in the eyes of the public. In the preparation of curative sera all possible measures must be employed to diminish their anaphylactic action, as warming the serum to 56° C. [R. M. G.]

No. 17. APRIL 24, 1913.

1. TRENDEL, G. *Pulmonary Gangrene and Its Treatment.*
2. HERRINS, K., AND ROSENBERG, M. *Marmorek Serum in the Treatment of Pulmonary Tuberculosis. (To be concluded.)*
3. ALLARD, E. *Cymarin, a New Heart Tonic.*
4.* SCHÜRMANN, W., AND HAJÓS, E. *Experiences with Tellurium Media in the Bacteriologic Diagnosis of Diphtheria.*
5. ARNETH. *The Action of Thorium-X on the Life of Blood Cells. (Conclusion.)*
6. SAISAWA, K. *Contribution to the Etiology of Multiform Exudative Erythema.*
7. ZALOZIECKI, A. *Autolytic Properties of Guinea-Pig Serum and Thereby Conditioned Sources of Error in the Wassermann Reaction.*
8. JOLOWICZ, E. *Autolytic Properties of Guinea-Pig Serum and Thereby Conditioned Sources of Error in the Wassermann Reaction.*
9. *GROEDEL, T., AND GROEDEL, F. M. *The Technic of Roentgen Kinematography. (Third Communication.)*
10. WEICKER. *Experimental Investigations of the Zenner Tuberculosis Preparation "Tebesapin."*
11. MÖLLERS, B. *Rejoinder to the Above Remarks of Dr. Weicker Regarding Gastric Administration of Tuberculin Preparations.*
12. SCHALL, M. *Technical Novelties in the Domain of Medicine, Public Hygiene, and Care of the Sick.*
13. MEYER-LIERHEIM. *Tuberculosis and Isolation.*
14. HERRINS. *Transactions of the Prussian Chambers of Physicians in the Year 1912. (To be concluded.)*
15. *HOLLÄNDER, E. *Medico-Historic Remarks on the Human Aquarium.*

4. The authors believe that the addition of tellurium to Loeffler's serum-agar makes a medium which facilitates the bacteriologic diagnosis of diphtheria.

9. The authors describe, with diagrams and plates, their method of combined cardiac Roentgen kinematography and electrocardiography.

15. Holländer contributes a record and account of a medieval frog-swallower, similar to the human aquarium, described in an article by Sternberg, reviewed in the issue of the JOURNAL for April 3, 1913, (Vol. clxviii, No. 14, p. 524). [R. M. G.]

No. 18. MAY 1, 1913.

1. KOLLE, W., HARTOCH, O., ROTHERMUNDT, M., AND SCHÜRMANN, W. *New Principles and New Preparations for the Treatment of Trypanosome Infections.*
2. HERRINS, K., AND ROSENBERG, M. *Marmorek Serum in the Treatment of Pulmonary Tuberculosis. (Conclusion.)*
3. HAMPELN, P. *Pulmonary Hemorrhage in Perforated Aortic Aneurysms.*
4. KENPER, E. *Mclubrin as an Antirheumatic and Antipyretic.*
5. PANKOW. *The Anatomic Foundations of Placenta Previa, and Their Importance in Treatment.*
6. HEGLER, C., FRAENKEL, E., AND SCHUMM, O. *The Theory of Congenital Hematoporphyry.*
7. WEIHRAUCH, K. *Determination of the Resistance of Erythrocytes in Tuberculosis.*
8. HOLLÄNDER, E. *The Genesis of Omental Tumors.*
9. QUADFLIEG, L. *Contribution to M-Stern's Modification of the Wassermann-Neisser-Bruck Reaction.*
10. SUNDE, A. *Frontal Herpes Zoster with Bacterial Finding in the Gasserian Ganglion.*
11. FISCHER, W. *The Frequent Appearance of Exanthems after the Use of Copaiba Balsam.*
12. WIEMANN. *Cartilage Reefing in Protruding Ears and Othematoma.*
13. HERRINS. *Transactions of the Prussian Chambers of Physicians in the Year 1912.*
14. DEICHERT, H. *Leibniz on Practical Medicine and the Organization of Public Hygiene.*

No. 19. MAY 8, 1913.

1. *VON BEHRING, E. *A New Protective Measure Against Diphtheria.*
2. SCHUBERG, A., AND BÖING, W. *The Mode of Infection in Trypanosome and Spirochetal Diseases.*

3. Uhlenhuth, P., and Mulzer, P. *The Infectiousness of the Milk of Syphilitic Women.*
4. Krause, P. *The Occurrence of Varicella in Adults.*
5. Queckenstedt. *Pernicious Anemia.*
6. Gudzent, F. *The Change of the Blood-Picture in Chronic Articular Rheumatism.*
7. Plesch, J. *Emphysema.*
8. Frühwald, V. *Contribution to the Knowledge of Postoperative Fatalities in Abnormal Smallness of the Aorta.*
9. Bönniger, M. *Gastric Function and the Mind.*
10. Abbott, E. G. *The Correction of Lateral Spinal Curvatures.*
11. Senator, M. *More on the Etiologic Relations Between Rheumatics and Nasal Diseases.*
12. Reckzeh. *The Question of the Cause of Origin of Hemorrhoidal Knots.*
13. Sato, K. *A New Hemometer.*
14. von Lorenz. *Roentgen Photographs with Light-Sensitized Paper.*
15. Krenzfuchs, S. *Roentgen Treatment in Gynecology.*
16. Hirschberg, J. *Marcus Elieser Bloch* (1723-1799).
17. Marnlock, G. *Two Letters of Frederick the Great to Dr. Bloch.*
18. Strohmayer, W. *The Question of Incest.*

1. Von Behring reports at length his new method of active immunization against diphtheria. His preparation is a mixture of very strong diphtheria toxin with antitoxin, in such proportion that in the guinea-pig test it shows only a slight toxin excess. One or two inoculations of this, he believes will produce a protracted immunity to diphtheria, and he reports cases which seem to give warrant to this belief. [R. M. G.]

Deutsche Zeitschrift für Chirurgie.

April, 1913. Band 122. Heft 1-2.

1. Muroya, S. *Experimental Investigations on Novocain in Paravertebral Injection.*
2. Goebel, W. *Surgical Experiences from the Balkan War.*
3. Polacco, A., and Neumann, A. *The Etiology, Symptomatology, and Pathogenesis of Acute Intestinal Strangulation.*
4. Speck, W. *Radial Dislocation of the Hand, with Isolated Volar Luxation of the Scaphoid.*
5. Warschaner, O. *Free Fascia Transplantation.*
6. Mayesrina, J. *A Case of Erythromelalgia Successfully Treated by Foerster's Operation.*
7. Kuhn, F. *Sugar Infusion as a Prophylactic Against Thrombosis.*
8. *Dumont, F. L. *Experimental Contributions to the Pathogenesis of Acute Hematogenous Osteomyelitis.*
9. *Leriche, R. *Surgical Reflections on Heliotherapy, Especially in Tuberculous Affections in Childhood.*
10. Bertelsmann. *Shall One Operate in the Intermediate Stage of Acute Appendicitis?*
11. Bertelsmann. *The Technic of Appendectomy.*
12. *Leriche, R. *Stretching the Solar Plexus for Tabic Gastric Crises.*
13. de Groot, S. B. *Rejoinder to Ritter's Critical Observations on My Work on the Appearance and Disappearance of Lymph-Nodes.*

8. Dumont finds, from a series of animal experiments that it is possible to produce by intravenous injection of hemolytic staphylococcus cultures, without trauma, in young rabbits an acute hematogenous suppurative osteomyelitis whose clinical picture corresponds to that of man. For the production of osteomyelitic foci, the virulence and not the variety of staphylococcus is of importance. There is no specific "bacillus osteomyelitidis." The etiology of the disease rests on the anatomic relations of the bone vessels and the biologic properties of the staphylococci. The article closes with an admirable alphabetic bibliography of 153 titles on the subject.

9. Leriche believes that to Poncet belongs the credit for first demonstrating the efficacy of heliotherapy in tuberculous and non-tuberculous affections.

12. Leriche describes a case in which stretching the solar plexus relieved tabic gastric crises, after section of the sixth, seventh, eighth, ninth, and tenth posterior thoracic nerve roots had failed to give relief. [R. M. G.]

Revue de Chirurgie.

May, 1913.

1. *Forgue, É., and Étienne, E. *Pathologic Anatomy of Tendinous Synovitis with Riciform Grains, and the Mode of Formation of the Capsule and of the Grains.*
2. Bérard, L., and Alamartine, H. *Accidents and Technic of Jejunostomy.*
3. Venot, A., and Parcelier, A. *Primary Carcinoma of the Jejuno-Ileum. (To be continued.)*
4. Potel, G., and Veandeau. *The Surgery of Tumors of the Spine and of the Spinal Cord. (To be continued.)*

1. Previous authors have described three layers in the capsule of tendinous synovitis with riciform grains. Forgue and Étienne believe they have demonstrated that the internal layer is not continuous, and that the synovial cavity is therefore bordered by the middle layer, which contains structures analogous to these grains. They consider that none of the previously advanced theories of the disease is free from criticism, but that the grains are only a formation from a follicular point of departure and resulting from the double process of destruction and cicatrization, characteristic of tuberculosis, the former manifested by modifications of the follicle, the latter by the participation of the connective tissue in the formation of the grains. [R. M. G.]

Bullettino delle Scienze Mediche.

April, 1913.

1. Beccari, L. *The Function of the Sinus, and Automatism of the Frog's Heart.*
2. *Longo, C. *Concerning the Action of Sodium Chloride on Normal and Pathologic Kidneys. (To be continued.)*

2. Longo, in a series of clinical and experimental studies, considers the importance of sodium chloride in the dietetic régime of nephritics. [R. M. G.]

Miscellany.

NOTICE OF THE DEATH OF AMOS BANCROFT.

[The following notice of the death of Amos Bancroft, M.D., was found among the papers and in the handwriting of his kinsman, Dr. George C. Shattuck (1783-1854).]

Amos Bancroft* was the 4th son of Capt. Edmond Bancroft, a farmer and militia officer, occupying a reputable position in society at Pepperell, Middlesex County and Common-

* Dr. Amos Bancroft took his A.B. at Harvard in 1791, his M.B. in 1794, M.D. 1811, and died in 1848.

wealth of Massachusetts. His mother's maiden name was Rachel Howard, daughter of a respectable farmer in Chelmsford. She had been previously married to Jonathan Barron, a subaltern officer in the provincial army, who was killed in battle on the shores of Lake George in what was called the morning fight, a battle between the English and French, the English army commanded by Sir William Johnson. The first fruits of this second marriage was a daughter, who was married to Timothy Farrar, for more than forty years judge in the courts of New Hampshire, and who died recently at an advanced age, exceeding a century. Amos was born May 23d, 1767, in a heroic age when fathers were wont to offer up to their country on the altar of liberty their oldest sons. Edmond and Jonathan, his eldest brothers, belonged to Prescott's Regiment, the oldest of whom, while encamped on the tented field spent out on Prospect Hill, Charlestown, died of the natural small pox. Jonathan, a mere stripling, fired with the enthusiasm of the day, enlisted during the war, the War of Independence. He recently departed at the age of 86. Thomas, the 3d son, remained at home to aid in cultivating the farm for the support of the family and payment of the taxes levied to carry on the war. He also recently died at the age of 82. The fourth son, the subject of our present notice, was sent by his father to Harvard University, and here he was graduated in 1791. He afterwards studied medicine with Dr. Oliver Prescott of Groton, simultaneously attending the medical lectures delivered at Cambridge by Drs. Warren, Waterhouse and Dexter. Experience as army surgeon in the War of Independence had impressed on the mind of Dr. Warren the importance of a knowledge of anatomy. He founded the medical school, taking on himself the two most difficult branches, anatomy and surgery. I say difficult, because the people demanded skill in surgery, and at the same time were ready to stone to death any violation of the sanctuary of the grave, however ignominious or vile had been the life of the tenant. At this time was confided to young Bancroft procuring a subject for dissection. He had recourse to the gallows at Worcester, where had been hung a murderer and parricide. Bancroft had marked the grave, and favored by darkness cautiously proceeded to the spot, determined to present an acceptable offering to science. While exhuming, he learned he was watched. He fired from a pistol a blank cartridge, frighted from the field the conscientious opponents of dissection, and conveyed to the eloquent professor of anatomy the subject. Ever afterwards Dr. Bancroft had the friendship of his teachers and of his medical brethren. This parricide and murderer, had first killed his own father, and afterward, on the hypothesis of insanity, was delivered to the keeping of a humane deputy sheriff, who took pity on him, and afterwards slew this humane interceder for his life. The bones of Samuel Frost, the name of the criminal, born in No Town,* county of Worcester, have taught osteology in the cabinet of Dr. Bancroft to not a few who have since been useful members of the medical profession, his pupils. Dr. Bancroft commenced the practice of medicine at Westford, and on the death of Dr. Ward of Weston, removed to that town, where he acquired an extensive practice. In 1811 an opportunity to purchase an eligible farm in Groton, the residence of the accomplished speaker of the House of Representatives, the Hon. Timothy Bigelow, Dr. Bancroft removed to Groton. There he divided his attention between medicine and agriculture, in both of which he acquired reputation. The sustained corn and the rescued from the grave both did sound his praise. As a physician his characteristic was discrimination, decision, and unflinching fidelity to his patient. He enjoyed extensively the friendship of his professional brethren. His youngest son he has educated to the profession to inherit his reputation.

As a gentleman he was courteous, as a citizen patriotic, as a neighbor obliging, as a friend given to hospitality, as a husband kind and faithful, as a father instructing his children to prepare for independence by wholesome lessons of self dependence. His infirmities were the familiar infirmities of his profession and of old age. He often deferred claims for compensation until his services ceased to be sufficiently remembered, and then enforced payment. He was sometimes offensively tenacious of the rights of property, especially where boundaries in land title were involved.

He left a widow and six children, three sons, and three daughters, the latter of whom are all married to educated men. His oldest daughter, Abigail, is married to the Rev. Ephraim Abbott of Harvard; his second, Lucy Miranda, is married to George Thacher, Esq., of Monroe, in the county of Waldo and state of Maine; and his third daughter, Sarah Savage, is married to the

* No Town, in which Samuel Frost, the criminal, was born, was the name given to a part of Leominster in olden time

Hon. Asa F. Lawrence, Esq., counsellor at law, of Pepperell, in the county of Middlesex and Commonwealth of Massachusetts. He lost, a few years ago, an accomplished daughter, Mary Ann, who died of consumption.

His oldest son, Charles, is a farmer on the homestead, his second is in commerce in the city of New York, and his third son and youngest child is a physician in Groton, his native place.

There is a thrilling interest in the account of the last day of his life and the incident of his death. At 1.00 a. m. he called on a beloved sister of a departed wife at the house of the Chief Justice of this Commonwealth, at half past ten o'clock he went to State Street, where he declined the further attendance of a friend, such was his indomitable habit of independence, or rather of self dependence.

From the Granite Bank he passed up on the south side of the street in front of the Merchants' Exchange, where he was knocked down by a spirited horse moving with the acquired momentum of rapid driving over the slippery pavement, notwithstanding a vigorous effort of the driver to rein him in until brought upon his haunches. Deaf and purblind, the aged physician was a ready victim to the stunning blow. Senseless and blood pouring from his ears, a vigilant and humane police officer, stationed by a good city government there to protect the citizens from accident, bore him in his arms to a neighboring apothecary's shop, where a recumbent posture and rest and volatiles favored returning circulation and respiration. When sufficiently revived, he was conveyed in a carriage accompanied by Dr. Kneeland and Dr. Salter, to the residence of his lady's brother, Mr. Samuel Kneeland, where the anxious wife met him to witness his death. He revived into a consciousness of his condition and suffering, exclaimed, "Help me if you can." Soon, after an ineffectual effort to puke, he sank into a lethargy, experiencing a death-like one by apoplexy.

A COURT PHYSICIAN UNDER THE THIRD EMPIRE.

An item in a recent issue of *La Chronique Medicale* notes the publication of a book, "La Famille Impériale," containing the private letters writen in 1856 to his wife by Dr. Barthez, then physician to the infant Prince Imperial of France at St. Cloud. These letters, briefly abstracted in the issue of the *British Medical Journal* for May 17, 1913, recount in considerable intimate detail the life of the imperial family, besides recording the doctor's trials and perplexities in the discharge of his duties.

The physician had to use a good deal of diplomacy in the exercise of his functions. Neither Napoleon 111 nor the Empress Eugénie had much faith in rational medicine. The empress professed to believe that all doctors were ignoramuses who never worked. She scoffed at their endeavors to cure diseases and prevent death, a thing which she declared to be impossible, since when the hour had struck the player on the stage of his life must make his exit. This fatalistic attitude, though unreasonable, is at any rate intelligible. But it is not easy to understand how Her Majesty could have been led to say that doctors never gave a thought to the relief of suffering! This statement is all the more amazing since the Empress who—wrongly as it turned out—believed herself to be pregnant, expressed a wish that she should be chloroformed when the expected hour of sorrow arrived. "It is even possible she may compel Jobert to give her the anesthetic without cause, solely that it may be ascertained whether she could be pregnant." The Emperor thought there was an immediate remedy for every pain. Induced pain he bore with stoical fortitude. He rode on horseback with sores on the thighs and legs caused by recently applied blisters. He did not complain of the production of pustular eruptions on the back by the use of irritants. It was even believed that he applied moxas to himself. To all this he submitted with such patience that no one about him was aware of his sufferings. This recalls the heroic endurance which he showed at Sedan, when, with a stone in his bladder, he remained on horseback throughout that fateful day. But of "spontaneous pain" Barthez says he was very intolerant. He was subject to cutaneous neuralgia, which made him "indescribably impatient." He reproached the physicians for the failure of their remedies and was inclined to put his trust in any quack he came across. Barthez gives an example of the methods that had to be adopted by an official doctor to make his services acceptable to capricious royal personages. He says: "The Empress was pleased the other day to wet her feet badly. She lunched without changing her shoes, and after lunch did not wish to disturb her attendants, who were reposing. So she kept on her wet shoes, with the result that she caught a tremendous cold, which starting from the nose descended to the throat, then to the bronchi." With some difficulty Barthez induced her to interrupt her course of sea bathing, but she insisted on accompanying a water party on the Nive. There was first a drive in an open carriage, then a sail lasting two good hours, and finally the return in the evening in an open carriage from Bayonne to Biarritz after sundown. Barthez forbade the trip, and even threw himself in mock-heroic style at the

feet of the Empress. She raised him up, punctuating her refusal to obey with a playful slap on the face. Barthez was forced to go in one of the boats. He salved his professional conscience by having a sedative potion made up; this he gave to a gentleman who was to be in the Empress's boat, begging him to make her take it on the way. He thought it likely, however, that the physic was thrown into the river.

Apparenty Macbeth was not the only monarch disposed to put medicine to a baser use than that for which it was intended by the physician.

OPHTHALMIA NEONATORUM IN GLASGOW.

AN item in the issue of the *British Medical Journal* for May 17, 1913, describes a memorandum recently issued by the medical health officer of Glasgow, submitting a report by Dr. Florence Mann on the experience of his department in dealing with ophthalmia neonatorum.

"The report covers a period of seventeen months, during which time 341 cases occurred; this is equal to 9.4 per 1000. In only 31 per cent. of the cases was the gonococcus recovered, but as the taking of swabs becomes more usual it is thought that a higher percentage will be obtained. It is usually regarded as being present in about half the affected cases. In at least 9 per cent. of the cases syphilis was also present, and in contrasting the results of the eye affection in children with and without syphilis Dr. Mann shows that of the non-syphilitic cases 81 per cent. made an absolute recovery, but of the syphilitic cases only 48 per cent. Total blindness followed in 1.2 per cent. of the former and 8 per cent. of the latter. This observation is most significant. In 3.5 per cent. the symptoms developed within twelve hours of birth, 56 per cent. occurred within the first four days, 3.2 per cent. after the fourth day, and 8.5 per cent. after the eighth day. Treatment at home was found to be unsatisfactory in many instances, and such cases were admitted to the reception home. Dr. Mann came to the conclusion that it was wise and even advisable in many instances to take the children into the home without the mothers. Under these conditions the children did well. Written directions are issued by the department for the guidance of the nurses attending the cases."

These data are of interest as affording a comparison of the methods adopted in Boston for the reporting, diagnosis and prophylaxis of ophthalmia neonatorum with those obtaining in this Scotch city of similar size and efficient civic organization.

Correspondence.

CANCER.

BOSTON, May 22, 1913.

Mr. Editor: In an editorial on Cancer in to-day's issue of the JOURNAL, the following statement occurs: "As yet, however, only in the knife lies any hope of recovery from cancer." Probably the writer had in mind the deeper forms of this disease only. If, however, he included superficial cases, I think the statement might well be qualified, in view of the success obtained in healing some forms of superficial cancer with pure radium bromide both in Europe and in this country, and to particularize, during the past ten years at the Boston City Hospital. No one familiar with the results of radium treatment will question its value and efficiency in suitable cases and, in my opinion, radium in its field can and should displace the knife wherever practicable.

Yours very truly,

FRANCIS H. WILLIAMS, M.D.

CHANGES IN MEDICAL CORPS, U. S. NAVY, WEEK ENDING MAY 24, 1913.

STONE, E. P., medical inspector. Detached from Navy Rectg. Station, Denver, Col., to sick leave.

PRYOR, J. C., surgeon. Detached from Naval Medical School, Washington, D. C., June 1, '13, to N. Dakota.

PLEADWELL, F. L., surgeon. Detached from *North Dakota* and ordered to Naval Medical School, Washington, D. C.

DESSEZ, P. T., passed assistant surgeon. Detached from *Tonopah* and ordered to *Castine*.

WARNER, R. A., passed assistant surgeon. Ordered to Naval Hospital, Washington, D. C., temporary.

ALLEN, D. G., assistant surgeon. Ordered to Naval Hospital, Newport R. I.

KUSEL, G. C., D.R.C., assistant dental surgeon. Commissioned assistant dental surgeon in the Dental Reserve Corps of the Navy from April 23, 1913.

TURNER, V. E., D.R.C., assistant dental surgeon. Commissioned assistant dental surgeon in the Dental Reserve Corps of the Navy from April 23, 1913.

DONNELLY, WILLIAMS, assistant dental surgeon. Commissioned assistant dental surgeon in the Dental Reserve Corps of the Navy from April 23, 1913.

ENTINGE, E. J., passed assistant surgeon. Detached from Naval Station, Guam, and ordered to Supply.

CURTIS E. E., passed assistant surgeon. Detached from Supply and ordered to Naval Station, Guam.

SOCIETY NOTICE.

MASSACHUSETTS MEDICO-LEGAL SOCIETY.—The annual meeting will be held in Room 125 of the Copley-Plaza Hotel, Boston, on Tuesday, June 10, 1913, at 2 o'clock.

Preceding the meeting, the Annual Lunch will be served in Room 123 at 1.30 o'clock. Annual reports and election of officers.

The following papers will be read and discussed:

1. Progress of the Criminal Law. Hon. Joseph C. Pelletier, District Attorney for Suffolk County.
2. Medical Expert Testimony. Francis Hurtubis, Jr., Esq., of Boston.
3. Suggestions in Making Autopsies in Case of Suspected Poisons. William F. Whitney, M.D., of Harvard Medical School.
4. Two Cases of Sudden Death. Ephraim W. Norwood, M.D., Medical Examiner, of Spencer.

OLIVER H. HOWE, M.D., *Recording Secretary.*

Cohasset, May 23, 1913.

Original Articles.

PSYCHOLOGY AND THE PHYSIOLOGICAL SCIENCES.

BY ROBERT MAC DOUGALL, PH.D., NEW YORK,

Professor of Psychology, New York University.

The study of mind has many natural points of contact with the physiological study of the body. Mental and physical activities form a single complex of phenomena, such that conditions in the one field continually force themselves upon attention in a study of the other. In the practical treatment of either mind or body also the correlative system of attitudes and changes must be taken into account. The physiologist, as a matter of fact, does not confine himself to a scrutiny of purely physical functions in his work at large; but notes, often in minute detail, the concomitant fluctuations in consciousness. In certain cases these mental phenomena constitute the only accessible manifestation of subtle physiological modifications which he can trace directly in their earlier and later stages. Where physiology thus becomes schematic or speculative it is just these psychological conceptions upon which it must depend for guidance. In a similar way the psychologist does not limit his view to purely mental phenomena, but finds it important to embrace the correlative system of physiological change as well, whether he seeks theoretical knowledge or its practical application to affairs. It is thus a matter of interest to each science alike to conceive clearly its own scope and its relations to the other.

The sciences contributory to any branch of study fall into two general groups. The first comprises those which afford conceptions necessary to the treatment of its data. These are of methodological value only and render common service to many different forms of investigation. The conceptions of mathematics, for example, are indispensable wherever measurement and computation are required. Geometry and mathematical physics are instruments necessary to all sciences dealing with spacial magnitudes and the relations of ponderable bodies. Units of time are essential to the description of change at large, whether viewed from the physical or the psychological point of view. At the same time these concepts provide none of the special data with which the concrete sciences deal. They afford only the general forms in terms of which its problems are to be stated or its results expressed. As the relation which psychology and physiology bear to this system of concepts is neither unique nor characteristic they need not be further discussed.

The second group of sciences is composed of such as deal with phenomena which the student finds it important to take into account in the description of his own subject matter. For the psychologist there enters into this group all studies of the physical and social concomitants of subjective activity. The general problem of mental science may be described as the correlation of its own special data with the larger world of orderly change which experience presents. These correlations are of two general classes,—those affecting the conditions under which mental activity takes place and those in which its results are expressed. Psychology is related on the one hand to sciences in which the structure and functions of the human body are studied, together with the action upon it of physical agents and changes; on the other, it is indebted to those which deal with the transformations man has wrought in the material world and the institutions in which human ideals are embodied. Thus both the physical and biological sciences and the human and social must be taken into account.

The body and its changes are of significance to the psychologist because they provide a common measure of phenomena for the reduction of which subjective reflection fails to provide a sufficient basis. Within the latter field a logical order alone is discoverable. Uniformity of temporal relations between successive phases or individual constituents of consciousness cannot be established. In order that mental phenomena shall receive this form,—as the general conceptions of science require,—a system of events must be sought within which the conception of uniformity is determinable; and with the elements of this quantifiable and predictable order the individual phenomena of consciousness must be affiliated.

In this respect physiological change is but part of a larger field of transformations associated with changes in the specific contents of consciousness, upon the whole of which the psychologist draws in his work. To the portion of this general field which lies beyond the organism itself he must indeed largely turn. These remote physical changes, it is true, cannot be directly correlated with the reconstructions which occur in consciousness, but must be immediately construed as producing changes in bodily condition. Nevertheless, changes in the latter field are for the most part removed from easy observation and their determination is frequently difficult if not altogether impossible, while the external conditions and agencies are both more readily determinable and constitute the second term of the relation as actually given in consciousness. For example, it is to an opening of the gas-cock and increase in combustion that one naturally turns in explaining a change of brightness in the visual field, not to an extension of the explosion area or a more complete chemical reaction in the nervous centres. Similarly, one's impression of multitude in a stage mob is ascribed to the suggestions which color and movement convey, instead of to such factors as

the amount of reflex pursuit-movements provoked in the eye, and its effects. So also the final arousal of attention is explained in terms of the successive strokes of the gong, not as a summation of overlapping waves of physiological disturbance.

The correlations in terms of which, on this side, the psychologist is to state his results are thus the system of physical agencies which act upon the human body and the nature and activities of the organism itself. The body and its changes afford three groups of facts with which the phenomena of consciousness may be correlated. These are the anatomical form of the body and its parts, the characteristic functions associated with each organ, and the qualitative rearrangement of substances which underlies structural modifications and functional activities alike.

Anatomy, physiology and chemistry thus form a group of sciences which in an especial sense are contributory to psychology. Anatomy includes not only the study of normal forms of structures, but also that whole series of variations which the organism presents; and physiology comprises the investigations of abnormal quite as much as typical functions. Thus, while pathology performs for the psychologist a service identical with that of structural and functional analysis, though within a more limited field, it cannot be regarded as a fourth contributory science, but must logically be considered a special modification of one or the other of these two more general inquiries.

Gross anatomy and histology together constitute the structural analysis of the body. Its study affords the psychologist a general scheme in establishing the mind's formal and organic relations to the world at large. The body is the mind's limiting and determining agent. Upon the system of impressions which its sensory organs make possible depends the form of the perceptual world and the qualitative content of represented as well as presented experience. Similarly upon the character of its supporting structures and system of muscles depend the range and form of reactions which the organism makes to these impressions. The structural scheme of the body at large, together with the special modifications which it presents, thus conditions the qualitative manifoldness of the system of impressions and the interpretation it receives in terms of an objective reality existing in space and time. On the other hand, it defines and limits the use which is to be made of these impressions in the guidance of conduct and realization of human ideals. Upon it, therefore, rests the relational form which experience possesses for each subject.

In order to understand the content and connections of mental phenomena, introspective analysis must, therefore, be supplemented by a study of the physical organism. This inquiry, primarily concerned with nervous reactions as the immediate correlative of consciousness, logically extends to a consideration of the whole structural character of the organism and its ecological relations with the environment. Upon the nature and range of the sensory and motor organs which it possesses and the systematic relations it maintains with the rest of the world depends the characteristic form which consciousness takes in each organic type. Human experience, for example, confronts a world of sights, sounds, tastes, odors and tangible objects because of the particular group of special senses the body possesses; and that world is counted, ordered and related through systematic motor reactions which depend upon the anatomical features of the muscular and supporting structures and the degree of development they have attained.

The body is thus the determining condition of the mind's special features; therefore, in order that a scientific study of the individual consciousness shall be completed a thorough-going examination of mind in all its historical relations is necessary. The developmental processes of the two, as well as their immediate reactions, have parallel courses, and their disjunction as empirically conditioned phenomena is inconceivable. It is, therefore, important for the psychologist to extend as fully as possible his knowledge of the special connections which exist between the form and appearance of particular mental functions and the succession of changes in organic activity and development; for in individual and species alike typical forms of organization are correlated with the reactions of which the organism is capable and the consciousness which accompanies them.

The study of anatomy finds its psychological application in the establishment of correlations between consciousness and its immediate physical conditions. In this connection it performs two services. For specific differences in the qualitative content of consciousness it provides a structural basis, as when visual qualities are referred to the organ of sight and auditory to that of hearing. In the general results of anatomical study the psychological student seeks such a structural basis for each order of sensation and class of mental reaction, if not for every unique modification which introspective observation reveals.

This relation must be read both positively and negatively. In the typical constitution of the body and its development is to be sought the general physical condition of normal consciousness; and in terms of lesion, disturbance of function and arrest of growth, the limitations and pathological modifications which appear in individual life are to be interpreted. Thus the phenomena of vision in the peripheral field, or in color blind subjects, is explained in terms of histology which reveals the modification or lack of certain structural elements in the eye.

Anatomy affords data for an explanation of the processes as well as the constituents of consciousness. The swiftness of sensori-motor re-

flexes in contrast with the slowness of voluntary movements is anatomically explained by the existence of reactive ganglia in the spinal cord and cross-connections which allow the reflection of stimuli at nervous levels far below the cortex. The mapping of brain lesions and degenerations has helped us in understanding both motor paralysis and the various sensory anesthesias. Histology has established in its gross features the structural basis of association and diffusion, in the breaking up and redistribution of bundles of nerve fibres and in the synapses of the neurones.

All this adds no new quality to consciousness, but it brings to view another systematic process of change with which familiar mental modifications may be correlated. The establishment of these connections then becomes the starting-point for a dual prediction. On the basis of symptoms which consciousness presents, and without physical examination, the anatomical locus of a psycho-physical disturbance may be determined; and from the place and character of nervous lesions the specific defect with which it is correlated in consciousness may be inferred.

But anatomy renders still another service. The discovery of new structural complexities in the organic basis of consciousness may lead to a re-examination of the psychological data, and a fresh determination or classification result. A reconstruction in our conception of the character and relations of external stimuli frequently provokes a transformation in the form of perception. The sound which we had referred to a room above us may perceptibly shift in its location at the moment when we apprehend that it actually originates in the room below. In the same way a change in our conception of the organic basis of experience may affect the character of the latter. The information that two points have been applied to the skin, in experiments on touch discrimination, has such an effect when an illusion of singleness had previously existed. The unity of the impression at once disappears and a sensible duality succeeds. So important is the adaptational reference of consciousness that we largely discriminate or overlook its elements acording to the demand for such analysis as a condition of effective response.

The psychological service rendered by physiology is analogous to that of anatomy; the two differ only in the specific character of their correlations. For each variety of functional activity a structural basis is to be predicated, whether its existence has been demonstrated or not. Of these two physical systems physiology bears the more direct and intimate relation to psychology. The processes of consciousness are correlated with structure only through the mediation of functional activities whose form depends upon that permanent structural basis which anatomy reveals. The features of the spinal cord, for instance, are made psychologically significant solely by their determination of physiological processes. The same is true of sense organs, of the cerebral structures and of the supporting and muscular tissues which condition the subject's reaction upon the world.

The conception of these relations between mind and body must be carried to the utmost intimacy and detail. The fluctuations in any individual's view of life, as well as his general temperamental attitudes, are related to the systemic condition of the organism and its changes. Every man is more or less of an optimist after a good dinner, and the discerning landlord knows that an occasional banquet helps to keep the tenants satisfied. "The well fed man is disposed for the play," as one might paraphrase the cry, *panem et circenses!* The constant stomachic irritation of the dyspeptic patient is so closely related to the sourness of his fretful mind that we conceive the disease symbolically, and speak of *dyspeptic* views of life. The term "jaundiced," primarily descriptive of physical disease, is likewise made to do service in the characterization of mental attitudes.

The physiology of the ancients rather than their psychology needed rectifying when they divided the temperaments of men into classes according to the prevalent bodily humor, and called one sanguine, another choleric, a third phlegmatic, and a fourth melancholy. The influence of drugs is but a special instance in a larger class of relations. The subjective sense of elation and self-confidence which successful accomplishment brings may be simulated by the use of alcohol; and physical disease may give rise to the same spiritual depression produced in other cases by failure in one's enterprises. Hashish and opium are keys to evanescent paradisaical states and man has immemorially sought anodynes for his pain, or a vicarious experience of perfection, through the use of drugs.

But these exceptional mental states, which we thus refer to functional disturbance or permanent organic modification, are less important to note than the uniform association of physical conditions with the normal phenomena of consciousness. Seeing involves changes in the pigment cells of the retina as well as excitation of the optical tract and stimulation of nerve-masses in the occiptal lobe of the brain. Hearing is dependent upon certain adjustments of the ear-drum and bones of the middle ear as well as stimulation of the auditory fibres and of nervous tracts and ganglia analogous to those connected with the rise of visual sensation. The mouth may be wiped of taste as the lips of moisture by drying its interior surfaces, or by severing the nerve which connects the taste-bulbs with the brain. Every sensation thus depends in a threefold way upon changes in the physical coefficient,—stimulation of the sense organ by an external agent, propagation of a wave of molecular reconstruction along the conducting nerve, and functional activity in the cerebral cortex.

From the side of development, equally with that of function, the fundamental nature of this

correlation appears. The materials of mental growth are to be found in the manifold stimulation pouring in upon the organism from the external world. If this system of continuous impressions be excluded the very possibility of development is withdrawn. It is only in its later derivative forms, if at all, that activity can go on in independence of external stimulation. Both historically and teleologically the thinker who seeks to shut out the distracting system of sensory impressions and to carry on his reflection in a condition of abstraction from his surroundings, is still in connection with that world. His thought is a reconstructive process concerned either with the facilitation of reaction or with the clarification of its grounds. For the materials with which he thus deals the thinker is indebted throughout to the impressions which the external world affords. If arrested at any stage, the loss of such stimulation prevents all further enrichment of the mind's inner content and limits the organization of individual experience with which it is continuously occupied. If excluded from its beginning the process of mental development will lack its very point of departure and systematic ground. To repress the system of reactions which normally follows upon stimulation is no less disastrous. The well-born child would be made an imbecile as effectively by the prevention of all free movements as by the exclusion of sensory stimulation.

The qualitative content of consciousness under any specific set of conditions is determined both by the nature of the stimulus which acts upon the organ of sense and by the character of the structures in which the stimulus sets up activity. As the latter are twofold in type it follows that the mental content is contingent upon three factors,—the character of the presented stimuli, the structure of the sense organs, and specialization of the central nervous cells in which functioning is aroused.

Sensory consciousness reflects, in general, the series of differences which obtains within the external world. One form of stimulation arouses a sensation of light, another of sound; one gives rise to a sensation of color, another to that of brightness; one provokes the sensation of green, another that of red; and so on. But the system of presented stimuli affords only the theoretical limits of possible sensation; it does not determine its actual content in any individual case. The specific quality of consciousness depends also upon the second of these factors,—the system of sensory structures which the organism possesses. Each special sense is conditioned upon the differentiation of a part of the body surface in such a way as to make it responsive to a limited class of stimuli alone. The range of physiological responses which the individual makes will thus depend upon the number and character of the differentiated mechanisms which he possesses.

In its relation to the general system of agencies which the external world comprises, the group of sense organs thus represents a selective limitation in the range of stimuli, and is correlated with the general character of the organism and its system of habits. It is the distribution of these structures which determines the actual qualitative content of consciousness for each individual. Light and the existence of an eye, sound and the possession of an ear, are correlated facts. As many such classes of sensational qualities exist for the individual as he possesses mechanisms of sense. Within this field a second form of selective limitation is also to be noted, in the existence of characteristic thresholds of effective stimulation for each sense, which in a new way determines the range of differences of which the individual can become aware.

In the third place, the constitution of the central nervous system and its formal reaction upon stimuli must also be taken into consideration. This form is, of course not independent of the character of the stimulus with which it is habitually associated. The central nervous mass may be described as a system of projection points for the whole sensory and motor surfaces of the body. It does not possess an independent field of activity and therefore contributes no new simple quality to consciousness. Its various local responses are indeed so constitutionally reflective of the stimulus that no qualitative modification follows even when the stimuli which have aroused functional activity are exceptional and abnormal. The habitual condition on which visual sensation depends is a photo-chemical process in the retina of the eye, set up by the action of light which falls upon it; but the pressure of the finger-tip upon the side of the eyeball, over the retina, produces those concentric zones of faint color which we call phosphenes; a current of electricity transmitted through the eyeball is accompanied by flashes of light; a blow upon the occiput causes one to see stars; an epileptic discharge within the lobe of the brain is marked by sensations of light; the stimulation of the same centres through the action of drugs has a like effect, and excitation through associated cerebral centres produces visual hallucination.

The response of the centres is thus characteristic and persistent. By a multitude of different stimuli a qualitatively single sensation is aroused. Light stimulation, mechanical pressure, electric discharge, direct concussion, circulatory irritation and associational excitation are responded to in a unique and uniform way, by the rise in consciousness of a visual quality. In the same way do the impinging of air waves upon the ear, the reception of a blow upon the temporal lobe, the administering of a dose of quinine, the acceleration of aural circulation, lesions within the brain, or cross-excitation of the auditory centres provoke a series of responses having the common qualitative characteristic of auditory sensation. The law extends throughout the range of central reaction to stimuli; the quality of sensory consciousness cannot be determined without taking into ac-

count the specific energies of the central nervous system.

The physical correlate of consciousness may, of course, be conceived in more extended or more limited terms. In its narrowest application it excludes not only the whole system of changes in the world external to the body, but also that part of the process of physiological change lying outside of the central nervous system. Functional activity in the cerebral cortex is the immediate physical correlate of consciousness,—in other words, central neural excitement is the proximal event in the succession of changes with which consciousness is temporarily associated. No earlier phase in that continuous process is marked by this unique accompaniment, whether it lie beyond the body or within it, in mechanical apparatus or conducting nerve, in spinal column or inferior masses of the encephalon. Nor is any stage subsequent to the cortical excitation so characterized. Consciousness arises at this sole point in the succession of events.

Further, it arises in connection with cortical activity whatever be the origin or consequence of such excitation. The stimulus which normally conditions the activity in question may be lacking, and thus the relation of the content of consciousness to the external world be distorted; the reaction in which mind customarily finds its expression may fail, and the relation of the will to the world be misconstrued; but if the central nervous activity be once set up a specific consciousness appears whether it be a well-grounded perception or a sensory hallucination, an actual adaptive response or a delusion of the will.

Disturbances of the central and of the peripheral processes thus affect consciousness in characteristically different ways. The destruction of sight through injury to the eye arrests the power to add to the store of visual impressions but leaves the product of past experience unaffected. Milton's poetry is a procession of visual imagery for which, in "Paradise Lost," he was compelled to draw wholly upon memory. The loss of control over any set of muscles limits the individual's future reaction upon the world, but in no way changes his representation of its character or interferes with his imaginative treatment of its materials. If, on the other hand, the blind subject has suffered from a lesion in the occipital lobe of the brain, visual perception thereafter will indeed be impossible; but in addition the whole substance of visual imagery will disappear from the individual's mental world. Likewise if the interference with voluntary movement be due not to an external obstacle, such as muscular fatigue or the loss of a limb, but to lesion in the motor areas of the cerebrum, there follows not only a cessation of the reaction itself but the very capacity to imagine the character of the act in question vanishes along with it.

The study of the physical organism does not end with the description of its reactions and functional processes,—of muscular contraction and glandular secretion, of transpiration and osmosis, etc.; it extends also to a minute analysis of the qualitative constituents of the body and their syntheses. Chemistry, in its pursuit of this inquiry, is related to both anatomy and physiology in the service it renders to psychology. The chemical compounds of the body are in part the basis of structure and in part the product of function. The material condition of any physiological activity includes not only structure and its specialized cell-units, but also the chemical nature of the substances which compose them. The constitution of nerve-matter, no less really than qualitative and intensive aspects of stimulation, or medullary sheath and synapse, conditions the form of the molecular wave which is propagated along the fibre, as well as the character of the so-called explosion within the ganglion. The phenomena of grey light and color vision may be correlated with the distribution of the rods and cones, but it is immediately dependent upon photo-chemical processes occurring in the visual purple.

Physiological action at large is a process of chemical decomposition and recomposition. Nervous and muscular propagation depend upon waves of reconstitution which vary correlatively with the tissues in which they take place. In terms of these two constituents, structural form and chemical reaction, the whole system of organic functions is finally reducible. In connection with every form of mental change, therefore, the chemistry of metabolism must be considered by the psycho-physiologist.

Besides a study of the chemical reconstruction itself this includes an analysis both of the substances upon whose transformation function depends, and of those which result from such activity,—that is, of the products of assimilation and dissimilation alike. Many facts have already been established in this field. The sense of bodily well-being is conditioned upon the nutritional state of the body and free elimination of waste products. The feeling of fatigue results from the presence of specific chemical poisons due to muscular and nervous activity. The presence of drugs in the blood is indicated by characteristic changes either in the special content of consciousness or in its general activity and relations. A dose of santonin colors the visual field yellow, a pinch of quinine sets the ears ringing to an internal rhythm. A glass of alcohol accelerates and disorganizes mental activity, while it deepens the sense of reality; a pellet of opium or hashish exalts and distorts consciousness to a still greater degree; a whiff of ether abolishes it altogether. Qualitative changes in the blood supply, as well as lesions of the central nervous system, condition various forms of more permanent psychical disturbance.

In a similar way the system of mental activities is correlated with specific forms of chemical disintegration. Thinking is accompanied by the transformation of nervous substances in the

cortex, which liberates heat and produces chemical compounds of lower grade. Changes in the composition of perspiration and saliva accompany the occurrence of certain forms of emotional excitement, such as the anticipation of food or an outburst of rage.

Thus with every form of conscious change there is to be assumed not only anatomical and physiological conditions, but also a chemical product as well as a chemical basis. If the establishment of the relations which exist between organic structure and the form of consciousness be part of the psychologist's work; if it be also part of that work to determine the physiological function which is correlated with each phase of the changing consciousness, it is no less his task to work out the chemical reconstructions which accompany its modifications.

With this group of sciences must be connected still another, which differs from them only in representing a more complex phase of psycho-physical correlation. This is the science of embryology,—or rather of physical growth and development at large, including post-natal as well as embryonic and foetal periods. As each phase of mental activity at any moment is referable to an underlying physiological process and the chemical changes upon which it depends, so is the succession of functions and stages which ontogenetic evolution presents to be correlated with waves of reconstruction taking place in the physical organism in the course of its individual history. The changing mind is the expression of a changing body and cannot be made intelligible apart from the latter system of phenomena.

In conceiving this whole series of correlations it is the mental system which is commonly made the starting-point but the form of statement is of secondary importance if the fact of correlation itself, and not its implications, be in question. Expressed in this alternative way we say that the character and activities of the mind are embodied in the features and reactions of the organism. For these bodily signs and conditions we look primarily to posture, action, and other expressive changes. Diagnosis is thus made on the basis of functional, not structural, characteristics.

The conception of systematic co-ordination between mind and body is carried a step farther when permanent structural features are added to reactions and functions as part of the physical index of mind; yet this is constantly done in greater or less degree. Though to all persons the ugliness of Socrates may not present the paradox it offered to the Greeks, it is still a general human judgment that character is not only expressed in special acts, but also correlated with particular anatomical features. Either an ultimate constitutional parallel exists, or the habitual activities in which mental traits are reflected mould the features, and the disposition of the body as a whole, to sympathetic forms which we unhesitatingly interpret in subjective terms.

The stamp which can be imposed upon the body in the course of a single life is necessarily limited to its minor and more easily modifiable features. Certain professional habits and modes of life, certain occupations which subject those who follow them to deforming or poisoning agents, have well defined diatheses which are interpreted without hesitation. But the obvious elements of these changes are practically confined to the muscular and fatty tissues, and to dermal alterations due to interferences with the digestive and eliminative processes. The larger anatomical features of the body remain practically unaffected by the fortunes of the individual and reappear unchanged in his offspring.

This whole group of phenomena, however, may be regarded from another standpoint, namely in its bearing upon the problem of mental development in the species. The body cannot be conceived as an organ of mind in any sense which separates the destinies of the two and makes of the mind an independent entity, as the user of an instrument is independent, in nature and origin, of the implement he employs. The individual mind is not given as a determinate reality which is later brought into connection with the body as a medium of expression. Mind has logical priority only from the subjective point of view; if organic life be taken as the starting-point of reflection, the current formulas may be reversed and the mind called the instrument of the body, for the term then stands for the system of biological functions regarded subjectively.

The character and range of experience are essentially related to the sensory and reactive mechanisms of the physical organism. The body is the mind's limiting and determining condition as well as its agent. Both the quality of its constituents and the level of its combinations change with every variation in the type of structure which supports it. The developmental histories of mind and body have followed parallel courses, the incidents of which are interlocked at every stage.

Not only must the system of mental activities be viewed in its relation to the constitution of the body and its reactions; but the configuration and habits of the psycho-physical type as a whole must be conceived in its ecological relations with the surrounding world and its forces. The primary relation of the organism to its environment is that of a food-consumer to its source of supply. Appropriative reaction is thus the basal activity with which all others are connected. Such reaction is valuable only in so far as it is specific and intelligent, in the sense of being discriminative and selective. It must, therefore, be under the guidance of sense. Discriminative sensibility makes possible the series of reactions upon which life depends. The number and quality of the objects to which reaction is made, as well as the range and character of the movements themselves, depend upon the nature and variety of the sense organs possessed by

the organism. Sensation and movement are universally combined in a unitary process which we describe as discriminative reaction.

With the features of organic development are thus correlated both the type of apprehension and the form which reaction takes. The reflection of the world in consciousness is conditioned by the differentiation of the sensory surfaces, the perceptual use of which requires also the development of motor control. The evolution of intelligent reaction upon the world, therefore depends as essentially upon the elaboration of peripheral mechanisms as upon the development of central processes. Through the former are given the diverse materials of experience which it is the function of reflection to coördinate and transform into a rational system.

The rich and varied stimulation which is received from the external world arouses the mind to those inner activities upon which all mental development is conditioned. The necessity of a full and free access to the materials of experience is a fundamental concept of educational method. The system of senses conditions the variety of impressions, and the arrangement of skeletal and muscular structures determines the form of the reaction. Abundant stimulation and full organic development are thus the logical ground not only of practical efficiency but indirectly of all theoretical reflection upon experience as well.

The process of perception is elaborated in dependence upon a system of motor reactions, the character of which determines the form and adequacy of one's intuition of the world. Pure sensory apprehension does not exist, since that interpretation of sensation through which the objective world is represented in consciousness can proceed only on the basis of adaptive reactions to stimulation, by which the relations of sensory complexes are established through actual exploration, until the field of perception becomes a system of intelligible symbols which is instantly and correctly apprehended.

The perceptual world presented in consciousness at any moment is thus a complex product which can have arisen only from manifold and repeated experiences, in which the sensory content has been subjected to experimental variation and associated with specific forms of self-activity and its objective limitations. The more variously we have reacted upon the physical world the more full of meaning is the system of sensory stimulations which it affords and the more extensive our discrimination of its characteristics and relations. To a being sensorially perfect, but incapable of reaction upon its environment, the world in which we live must remain a pure phantasmagory of shifting sensations, a dream of impalpable subjective visions.

The features of the world which the senses of a given animal reveal to it are, therefore, intimately dependent upon the character of its exploring and manipulative organs as well as the range of its special sensation. The mechanical limits placed upon its reactions are at the same time conditions which determine the form and extent of its interpretation of sensory impressions. Without those surface differentiations which permit distinct physiological reactions to a multitude of modifications in the stimuli, no differential response would of course be possible, and discrimination would lack its fundamental significance. But were the development of sensory modifications never so perfect, it would still be useless as a medium of perception so long as organic adjustment through the control of muscular functions remained in abeyance.

In view of the system of relations in which it thus stands, it must be said that to know the individual mind is to be acquainted with the constitution and hereditary aptitudes of the body and the whole system of environmental conditions under which it has taken shape. Air and soil, climate and scenery, stimuli and foods enter into the making of every individual; and no less do the influence of fauna and flora, of domestic and economic conditions, of the available materials which are worked up in the service of life and the forms in which they are cast.

With the metaphysical problems to which psycho-physical phenomena give rise psychology has no concern. Whether reality be construed in terms of consciousness, as reason or will,—bodily effects being regarded as its phenomenal expression; or be conceived in terms of matter and force,—the phenomena of consciousness becoming functional products of their organization; or be formulated in terms of both consciousness and material existence, the temporal phases of which present parallel changes, the empirical correlation of the two series remains unaffected. The association of these processes is a given fact, and with that alone the psychologist has to do. It is one and the same system of experiences which is interpreted through these alternative concepts. The metaphysical formulation is a purely reflective comment upon the order of reality which remains unmodified by the form which this interpretation takes.

In so far as psychology has to deal with the question of the relation between mind and body it is solely the form of their empirical correlation which concerns it, and not their existence as metaphysical reals. For reflection in certain of its aspects the association of consciousness with the process of neural activity may present a stupendous mystery and the chasm which separates mind and brain remain unbridgeable; but for the psychologist the recognition of their association in our experience must simply be postulated as the necessary point of departure. To raise the question how physical energy can be transmuted into consciousness, or a neural change condition mental activity, is to pass over from the field of science into that of metaphysics. Science is nowhere called upon to discuss the possibility of interaction, such as the transfer of motion or psycho-physical interchange, but is concerned solely with a

correlation of the contents of experience in terms of quantitative and temporal units.

For psychology the question is always one of fact concerning either the immediate observation of temporal associations between the two series of events, or the theoretical extension of their field on an inductive basis. The reality of the psycho-physical relation as a datum, the specific nature of the correlations it presents, and the scientific limitation and distribution, complete the series of aspects which this problem presents to the psychologist. The first he touches only in so far as it is made a methodological assumption; the correlation is given in experience, not speculatively assumed. It is not a concept to be validated as an explanatory formula but a datum of intuition. In the sense in which the existence of consciousness and the external world must be assumed in order that the question of psychology may be raised at all, just so must their correlation in individual experience be posited as a fact if the attack upon individual psychological problems is to be made possible.

It is, therefore, with the second of these three aspects that the psychologist's work actually begins. The specific psycho-physical correlations are not assumed. They are matters to be experimentally demonstrated, and the working out of their features in detail constitutes the task of experimental psychology in this field.

The question of distribution is, of course, determined by the existence of the psychical, not of the physical term. To speculate concerning the correlation of consciousness with all physical phenomena is to raise a metaphysical question, not one of science. It is the existence of consciousness which affords the subject matter of psychology; its distribution therefore establishes the limits of the field within which psychological concepts shall be applied.

The range of interest in organic processes and living change at large is thus not identical in the cases of psychologist and physiologist respectively. The distinction touches both the extent of the two fields and the incidence of attention within any system of phenomena. For the physiologist it is the whole series of changes presented by living substances which engages attention. Wherever these phenomena are to be found the problem of establishing their form and connections is raised, and with its determination his work is completed. In his sight the existence of a correlative consciousness in any given case is a mere incident, a concomitant which appears in connection with certain of the processes he studies; but which is not—even in such cases—an essential aspect of the phenomenon. On the contrary, a reference by the physiologist to this mental concomitant may in strictness be said to indicate a defect either of method or of data.

The states of consciousness are not stages or elements in the succession of changes which the physiologist describes. Neither as products nor as conditions should they be introduced into the physiological series. In practical relations a representation in terms of consciousness often supplements the statement of physical series of changes, as when a physician urges the value of confidence and mental serenity in his patient. In physiology itself, when the obscurity of certain phases in any process makes a purely physical statement impracticable, the situation is treated in terms of the mental correlative which characterizes it. But in its strict sense the procedure of physiological science should be restricted to a statement in terms of the qualitative, temporal and geographical changes of material substances and forms alone.

On the other hand, it should be clearly perceived that in whatever way it touches this field the interest of psychology is still ultimately the form of the mental reaction alone. With the organic series of changes as such he is never concerned. The physiological system is merely a medium through which the psychologist views his own proper objects.

That a student, walking close to the boundary of his science, should be tempted to step over into the neighboring field is natural. The psychologist may for a time leave his inquiry to study a purely physiological problem which has been raised in the course of his investigation; and the physiologist may similarly be led to formulate strictly psychological problems as a corollary of his own researches; but in each case the original undertaking is replaced by a new and independent aim which necessitates a reconstruction of the whole attitude and arrangement of materials. As in his use of physical agencies to produce sensory stimulation, the psychologist is not studying a problem in physics, so in his approach to a psychological problem through the observation of organic changes he is not studying a problem of physiology.

Neither psychologists nor physiologists keep this distinction uniformly clear. At the same time such crossing of the line is not to be wholly deprecated. The two studies are mutually assistive and the technical preparation which either has received in the study of his own problems may be the best possible qualification for approaching a special problem in the adjacent field, when he has once clearly formulated it. Historically, the debt has been large on both sides. Introspective study of the psychological system of phenomena has often been the guide in formulating general schemes of organic or functional relations, to be tested by physiological experimentation; and the determination of organic structures and chemical changes has directed and modified the psychologist's conception of the relations of consciousness. We may, therefore, conclude that the more exact and comprehensive knowledge in either field becomes the greater will be its contribution to progress in the other science.

THE DIGESTIVITY OF THE HUMAN GASTRIC JUICE COMPARED TO THE DIGESTIVITY OF VARIOUS REMEDIES RECOMMENDED IN DISORDERS OF THE STOMACH.

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"The stomach is not a test tube," has been said frequently as a warning to the fallacy of accepting in toto the finding of experiments as representing what actually takes place in the human stomach. It is also fair to state that these tests were not performed to prove any preconceived opinions, in fact I was somewhat surprised at the results. Further, adopting the caution of Mr. Mill, "To discriminate accurately between what we really do observe and what we only infer from the facts observed," I will consider first the experiments and the results, and then later some inferences that seem fair, probable and prominent.

After finishing a gastric analysis and finding the secretion normal I decided to compare its digestivity, as determined by its action on discs of coagulated egg-albumin, with the digestivity of some of the pharmaceutical preparations. The gastric secretions used throughout these experiments were obtained by giving the patients the routine test meal of bread and tea, waiting one hour, removing the gastric contents by the tube; the contents were then filtered, and the filtrate used in the tests.

It will be helpful to describe this first set of tests, although they were crudely performed; the results caused the later observations. Seven test tubes were used; in each were placed three discs of egg albumin and, with the exception of the last tube, a fl. ℥ ss of the solution to be tested. The tubes with a thermometer were placed in a water bath and heated. I was unable to observe this series accurately, the tubes were not agitated, the temperature was maintained at about 130° F. for about four hours. In Table No. 1 will be found the contents of each tube, with the observations made at the end of four hours.

Table No. 1. Test Series No. 1.

Tube No.	Contents.	Results.
I	Gastric juice. Patient A. S. Total acidity 72 or .26% Free H Cl 52 or .19%	Discs: approximately three-fourths digested. The remainder was very soft and transparent.
II	Ess. Pepsin (Fairchild). Alcohol 18.5% by vol.	Discs: no effect, firmer. Flocculent precipitate.
III	Ess Pepsin (N. F.). Pepsin. Wyeth. Rennin. Wyeth. Alcohol 5% by vol.	Discs: no effect. firmer. Flocculent precipitate.
IV	Elixir Lactopeptin. (N. Y. P. Co.) Alcohol 19% by vol.	Discs: no effect, firmer, stained carmine. Flocculent precipitate.
V	Elix. Digest. Comp. (N. F.). Pepsin. Wyeth. Diastase. Wyeth. Pancreatin. Armour.	Discs: no effect, firmer, stained carmine. Flocculent precipitate.
VI	Pepsin (Wyeth) gr. xxx. Ac. hydrochl. dil. m. lxxx. Aq. distill. q. s. ad. fl. ℥ i.	Disc: slight digestive effect. Flocculent precipitate.
VII	Ac. hydrochlor. (C. P.) gtt. v. Ess. Pepsin (Fairchild) fl. ℥ ii.	Discs: surfaces slightly transparent, edges still preserved. Flocculent precipitate.

On observing these tubes I thought that the flocculent precipitates were caused by the digestion of the albumin, but on shaking the tubes the discs were observed as noted. I suspected, and the later tests proved, that these precipitates were caused by the heating.

The results were brought to the attention of a local druggist; he repeated some of the experiments, following generally the directions as given in the U. S. P. (1900) for the assay of pepsin. The tubes were kept in the water bath at 125° F. for two and a half hours, agitated every ten minutes. In these directions, it is stated that the egg should be immersed in boiling water for fifteen minutes, the albumin separated from the yolk and finely divided by passing it through a No. 40 sieve. I pointed out that if this were done, it would be impossible to decide the effect on the albumin on account of the precipitation caused by the heating, therefore discs were used. In each tube there were a fl. ℥ ss of the solution and three albumin discs. The preparations tested and the results are appended

Table No. 2. Test Series No. 2.

Tube No.	Contents.	Results.
I	Elix. Diges. Comp. (N. F.). Pepsin. Wyeth. Diastase. Wyeth. Pancreatin. Armour.	Discs: no effect, firmer, stained carmine. Flocculent precipitate.
	Control.*	Precipitate.
II	Elix. Lactopeptin (N. Y. P. Co.). Alcohol 19% by vol.	Discs: no effect, firmer, stained carmine. Flocculent precipitate.
	Control.	Precipitate.

* Controls, contained no discs, the tubes were not agitated and were kept in the water bath for one hour at 125° F. The tubes in this and the subsequent series were corked.

The controls proved conclusively that the precipitates are caused by heating.

Tube No.	Contents.	Results.
III	Ess. Pepsin (Fairchild). Alcohol 18.5% by vol.	Discs: no effect, firmer. Precipitate.
	Control.	Precipitate.
IV	Ess. Pepsin (N. F.). Pepsin. Wyeth. Rennin. Wyeth. Alcohol 5% by vol.	Discs: no effect, firmer. Precipitate.
	Control.	Precipitate.
V	Pepsin (Wyeth) gr. xv. Ac. hydrochlor. dil. m. xl. Aq. distill. q. s. ad. fl. ℥ ss.	Discs: slight effect, softer. Precipitate.
	Control.	Precipitate.

I decided to test other preparations. Dr. Louis R. Wiley assisted me in Test Series No. 3. In each tube were placed a fl. ℥ ss of the preparation and the albumin discs. All the tubes were kept in the water bath at 125° F. for three hours, and inverted twice every ten minutes.

TABLE No. 3. TEST SERIES No. 3.

Tube No.	Contents.	Results.
I	Liquid Pancreopepsin (Warner). Alcohol 10% by vol.	Discs: no effect, firmer. No precipitate.
II	Control.	No precipitate.
III	Elixir Peptenzyme (Reed and Carnrick). Alcohol 16.14% by vol.	Discs: no effect, firmer. Precipitate.
IV	Control.	Precipitate.
V	Ess. Caroid. (Mead, Johnson & Co.). Alcohol 12% by vol.	Discs: no effect, though softer. Precipitate.
VI	Control.	Precipitate.
VII	Elix. Lactated Pepsin (P. D. Co.). Alcohol 15% by vol.	Discs: no effect, firmer, stained carmine. Precipitate.
VIII	Control.	Precipitate.

On reflection, I realized that if any comparisons were to be made between the digestivity of the gastric juice and of these preparations, the conditions present in the human stomach should be imitated as far as possible. I found in Beaumont's classical work, that the range of the temperature of the stomach under all conditions was between 98° F. and 103° F. Howell states that the optimum temperature of pepsin ranges between 98.6° F. and 104° F., and that exposure to 176° F. results in the inactivation of the pepsin. In my future experiments I therefore decided to keep the water bath between 100° F. and 104° F. These remedies act in the human stomach as does the gastric juice, therefore when they are compared in tests outside of the body, it should be done at the temperature of the human stomach (98° F-103° F.) and not at 125° F. To imitate the peristalsis, the tubes were inverted twice every ten minutes. The coagulated egg-albumin was prepared as follows: the egg was placed in boiling water for five minutes and then transferred to cold water.

In considering the following experiments it must be remembered that though the stomach is not a test tube, it is also true that the gastric juice is not accustomed to working in a test tube; and be it also remembered that these remedies, with one exception, are manufactured products—we may say made in test tubes—so that the element of artificiality could be considered to favor the remedies. Be that as it may, the gastric juice and the remedies were under the same normal conditions, in similar amounts (fl. ℥ ss), and the amount of albumin was always the same (10 grains). Dr. H. C. Wood, Jr., suggested to Dr. Wiley that a weighed amount of albumin should be used, and the weight noted at the end of the test. The albumin was cut into small blocks; it required two or three blocks to weigh 10 grains. This shape gives the observer a better opportunity to detect any digestive effect. It is more probable that the stomach receives an egg in this form than if passed through a No. 40 sieve. Beaumont also states that soft-boiled eggs are digested in the stomach in three hours, whereas it took about six and a half hours for the gastric juice to digest soft boiled eggs in a vial kept at 100° F. with frequent agitation. Therefore the conditions of the later tests are as follows: the water bath was kept between 100° F. and 104° F. for six hours, each tube contained a fl. ℥ ss of the solution with ten grains of the coagulated egg albumin, the tubes were inverted twice every ten minutes. The following tests were then performed:—

TABLE No. 4. TEST SERIES No. 4.

Tube No.	Contents.	Results.
I	Gastric juice, patient M. K. Total acidity 62 or .21%. Free H Cl 34 or .12%	Blocks: entirely dissolved. Slightly cloudy.
II	Artificial gastric juice Ac. hydrochlor. .2%. Pepsin (Armour) .3%. Aq. distill. q. s.	Blocks: slightly rounded, very slightly firmer. 8½ grains.
III	Elixir Lactated Pepsin (P. D. Co.). Alcohol 15% by vol.	Blocks: no effect, edges unchanged, firmer, stained carmine. Slightly cloudy. 7½ gr.
IV	Same + .2% H Cl.	Blocks: edges slightly rounded, firmer, stained carmine. Cloudy. 9 grains.

Tube No.	Contents.	Results.
V	Liquid Pancreopepsin (Warner). Alcohol 10% by vol.	Blocks: no effect, edges unchanged, firmer. Clear. 9½ grains.
VI	Same + .2% H Cl.	Blocks: very slight if any effect, edges unchanged, firmer. Clear. 9½ grains.
VII	Ess. of Caroid (Mead, Johnson & Co.). Alcohol 12% by vol.	Blocks: edges slightly rounded, very slightly if any firmer. Cloudy. 7 grs.
VIII	Same + .2% H Cl. Slight precipitate before test.	Blocks: edges sharp, slightly firmer. Cloudy. 8 grains.
IX	Elix. Digest. Comp. (N. F.). Pepsin. Wyeth. Diastase. Wyeth. Pancreatin. Armour.	Blocks: no effect, edges sharp, firmer, stained carmine. Cloudy. 7 grains.
X	Same + .2% H Cl.	Blocks: edges slightly rounded, firmer, stained carmine, surfaces smeary and sticky. Cloudy. 8½ grs.
XI	Elixir Peptenzyme (Reed & Carnrick). Alcohol 16.14% by vol.	Blocks: no effect, edges sharp, firmer. Cloudy. 7 grs.
XII	Same + .2% H Cl.	Blocks: no effect, firmer, edges unchanged. Cloudy. 9½ grains.
XIII	Ess. Pepsin (N. F.). Pepsin. Wyeth. Rennin. Wyeth. Alcohol 5% by vol.	Blocks: edges very slightly rounded, surfaces slightly sticky, firmer. Cloudy. 6¾ grs.
XIV	Same + .2% H Cl.	Blocks: edges rounded more so than in No. XIII., surfaces more smeary than No. XIII, firmer not as marked as No. XIII. Cloudy. 6½ grains.
XV	Elix. Lactopeptin (N. Y. P. Co.). Alcohol 19% by vol.	Blocks: edges very slightly rounded, surfaces slightly smeary, firmer, stained carmine. Cloudy. 7½ grs.
XVI	Same + .2% H Cl.	Blocks: edges very slightly rounded, surfaces slightly sticky, firmer, stained carmine. Cloudy. 9½ grs.
XVII	Ess. Pepsin (Lilly). Alcohol 17% by vol.	Blocks: edges slightly rounded, surfaces sticky, firmer. Cloudy. 7½ grains.
XVIII	Ess. Pepsin (new formula). Pepsin. Armour. Rennin. Wyeth. Alcohol 20% by vol.	Blocks: edges slightly rounded, surfaces sticky, firmer. Cloudy. 7½ grains.
XIX	Same + .2% H Cl.	Blocks: edges rounded, surfaces sticky, slightly firmer. Cloudy. 7 grains.
XX	Ess. Pepsin (Fairchild). Alcohol 18.5% by vol.	Blocks: edges very slightly rounded, surfaces not sticky, firmer. Cloudy. 7 grains.
XXI	Same + .2% H Cl.	Blocks: edges slightly more rounded than No. XX, surfaces slightly sticky, firmer. Cloudy. 7 grains.
XXII	Ess. Pepsin (R. S. & Co.). Pepsin. Armour. Contains .12% H Cl. Alcohol 18% by vol.	Blocks: edges fairly rounded, surfaces barley sticky, firmer. Cloudy. 7 grains.
XXIII	Ess. Pepsin (R. S. & Co.). % H Cl. increased to .2%. Pepsin. Armour. Alcohol 18% by vol.	Blocks: edges slightly rounded, more so than No. XXII, surfaces sticky, firmer but not as marked as No. XXII. Cloudy. 7½ grains.

In Test Series No. 4 I was assisted by W. W. Nofer, P.D.

In this series it was suggested that the addition of .2% HCl would increase the digestivity of the various preparations. This addition was made, as indicated in the series; it will be noticed that the addition probably was futile. Where there was any marked change, the blocks were heavier.

In considering Test Series No. 4 it is noticeable, that though the albumin does not show any great digestive effect, they all show some loss of weight. To demonstrate if the alcohol present in the various preparations was responsible, Test Series No. 5 was conducted. The arrangements were identical with Test Series No. 4.

Table No. 5. Test Series No. 5.

Tube No.	Contents.	Results.
I	Gastric juice. Patient H. W. V. Total acidity 54 or .19%. Free H Cl. 50 or .18%.	Blocks: digested in 4 hrs. 40 min.

Tube No.	Contents.	Results.
II	Gastric juice fl. 3 iiiss. Alcohol fl. 3 ss.	Blocks: edges rounded and softened showing decided digestive effect, softer. On account of the softness of the albumin, all the pieces could not be weighed, the loss however, being only ½ or ¾ grains. Cloudy. 6¼ grs.
III	Gastric juice fl. 3 iii. Alcohol fl. 3 i.	Blocks: surfaces sticky, edges rounded showing some digestive effect, slightly firmer. Cloudy. 8¾ grs.
IV	Distilled water.	Blocks: no effect, swollen appearance, some small pieces of albumin broken off by inverting, the loss about ½ grain. Clear. 16 grains.
V	Distilled water fl. 3 iiiss. Alcohol fl. 3 ss.	Blocks: swollen appearance, no effect. Clear. 16¾ grs.
VI	Distilled water fl. 3 iii. Alcohol fl. 3 i.	Blocks: no effect, swollen. Clear. 16 grains.
VII	Pepsin (scale) Ray Chem. Co. .3% sol. distilled water.	Blocks; no effect, edges unchanged, slightly firmer. Cloudy. 8 or 9 grains. Record not definite.
VIII	.3% pepsin sol. fl.3 iiiss. (Ray Chem. Co.). Alcohol fl 3 ss.	Blocks: no effect, edges unchanged, firmer. Cloudy. 8¾ grains.
IX	.3% pepsin sol. fl. 3 iii. (Ray Chem. Co.). Alcohol fl. 3 i.	Blocks: no effect, edges unchanged, firmer. Cloudy. 9½ grains.
X	Pepsin (scale) (Ray Chem. Co.) gr. xv. Distilled water fl. ℥ ss.	Blocks: edges rounded, surfaces moderately sticky, may be slightly firmer. Cloudy. 4¼ grs.
XI	Pepsin (scale) gr. xiii ⅛. (Ray Chem. Co.). Distilled water fl.3 iiiss. Alcohol fl.3 ss.	Blocks: surfaces sticky, edges rounded, slightly firmer. Cloudy. 5¼ grains.
XII	Pepsin (scale) gr. xi ¼. (Ray Chem. Co.) Distilled water fl. 3 iii. Alcohol fl. 3 i.	Blocks: edges somewhat rounded, surfaces slightly sticky, firmer. Cloudy. 6½ grs.
XIII	Hepptine. Lab. of Applied Physiology.	Blocks: no effect, edges unchanged, surfaces not sticky, firmer. Cloudy. 7¾ grs.

From Series No. 5 we note that alcohol when added to distilled water does not interfere with the absorption of water by the coagulated egg-albumin, nor cause any loss of weight, Tubes No. IV, V and VI.

It was suggested that the pharmaceutical preparations would have displayed greater proteolytic power if they had been diluted. We see by Test Series No. 4 and No. 5 that the various preparations caused a loss of weight without the blocks showing any gross change indicative of digestive effect. To demonstrate, if the loss of weight is really due to a digestive action, it would be necessary to test the various solutions at the end of the test for the products of digestion,—for peptones, or it would be easier to inactivate the enzymic content by previously boiling the preparation, then testing it, for if there were any loss of weight of the albumin it would be due to physical or chemical action, and not due to enzymic activity. To study the effect of dilution and of heating, together with some other tests, Test Series No. 6 was performed under the same arrangements as Series No. 4 and 5.

TABLE NO. 6. TEST SERIES NO. 6.

Tube No.	Contents.	Results.
I	Ess. Pepsin (Fairchild). Alcohol 18.5% by vol.	Blocks: no effect, edges unchanged, surfaces very slightly sticky, firmer. Cloudy. 7 grains.
II	Ess. Pepsin (Fairchild). *Boiled for one minute.* Cloudy, marked flocculent precipitate.	Blocks: no effect, edges unchanged firmer, surfaces no change. Cloudy. 7¼ grs.
III	Ess. Pepsin (Fairchild). 4% aqueous solution.	Blocks: no effect, edges unchanged, surfaces not sticky, no change in consistency, appear slightly puffed. Slightly cloudy. Some small pieces broken off. 11½ grs.
IV	Ess. Pepsin (Fairchild). 4% aqueous solution. *Boiled for one minute.* Slightly cloudy and opalescent.	Blocks: same as No. III. Cloudy. Some small pieces lost. 10¾ grains.
V	.2% H Cl.	Blocks: no effect, edges unchanged, puffed, less opaque, softer. Clear. Some small pieces lost. 16 grains.

VI	Ac. H Cl. Dil. M. xl. Distilled water q. s. fl. ℥ ss.	Blocks: no effect, edges unchanged, soft, slightly puffed, slightly less opaque. Clear. Some small pieces lost. 10½ grains.
VII	Pepsin (scale) gr. xv. (Ray Chem. Co.). Distilled water fl. ℥ ss. Yellow tinge, slightly cloudy.	Blocks: edges rounded, surfaces smeary, same consistency or slightly softer. Cloudy. 3¾ grains.
VIII	Pepsin (scale) gr. xv. (Ray Chem. Co.) .2% H Cl sol. q. s. fl. ℥ ss. Yellow tinge, slightly cloudy.	Blocks: edges rounded, surfaces smeary, same consistency or slightly softer. Cloudy. 2½ grs.

These are the experiments. I believe that they were accurately performed as described, the results carefully noted. They represent what was observed.

Bear in mind the object of these tests, as indicated in the title. It is practically impossible to make these comparisons except as has been done. If we were to introduce into the stomach any of these preparations to observe its activity, how could we separate the action of the gastric juice which would be present and acting? It is not an assay of pepsin; it is to determine the clinical value of these preparations as they are placed in the physician's hands. When these remedies are prescribed the patients do not use them in a manner similar to the method of assaying pepsin (U. S. P.). It may be emphasized that only 10 grains of albumin were used in each fluid half ounce.

What are some of the valid inferences that may be drawn from these results? Undoubtedly the most striking is that normal gastric juice has shown the greatest proteolytic power. Therefore, when there is a deficiency of the gastric juice, we should endeavor to re-establish the production of normal gastric juice, before replacing it by these various remedies. In Test Series No. 5, we see that the gastric juice which had entirely digested the albumin in Tube No. I had its activity retarded by the addition of alcohol, for in Tube No. II, with a fl. ℥ ss alcohol there remained 6¼ grs. of albumin and in Tube No. III, with fl. ℥ i alcohol, there remained 8¾ grs. Although this does not prove that alcohol does not increase the quantity of the gastric juice, it does prove that alcohol *per se* does interfere with digestion. It may be fairly admitted that alcohol by increasing the total quantity of gastric juice by its direct and indirect stimulating effect overcomes the interference that its presence causes. When a well person requires alcohol to complete his digestion, he is probably committing some error in diet. When a patient presents some deficiency of digestion the indications will, in a large proportion of cases, be better met by presenting to the stomach some easily digested food efficiently prepared from fresh products than by stimulating the impaired mucosa to greater effort by the administration of alcohol. I am not one that believes that alcohol has no place in the armamentarium of the physician; in my experience there are some indications that are best met by alcohol. The temperance question and the question of alcohol as a food are not before us. We see by Test Series No. 5 that the albumin under the conditions of the test, probably absorbs water, for the albumin was six grains heavier at the end of the test, Tube No. IV. Hepptine, Series No. 5, Tube No. XIII, described as "the pure gastric juice of living pigs," was kindly furnished by the Laboratories of Applied Physiology. In their literature, it is stated, "The juice does more than merely digest the food found in the stomach into which it is introduced—re-establishes its normal secretion, a function which is not performed by any pepsin or preparation of pepsin". . . "is not intended to act directly upon the food, consequently its therapeutic value cannot be computed by the ordinary test tube method, it not being an artificial digestive." Considering the source of Hepptine, I thought that in these tests it would approach the activity of the gastric juice. It showed practically no digestive effect. I have never used Hepptine and cannot speak of its clinical value.

In Test Series No. 6 we see that ess. pepsin (Fairchild), as far as the final results are concerned, was not affected by boiling, Tube No. II. From this the conclusion seems probable that the loss of weight in Tube No. II is not due to enzymic action but to some undetermined physical or chemical action, for physiologists state that pepsin in solution is inactivated by heating to 176° F., the ess. pepsin (Fairchild) was boiled actively for one full minute. Before the final word is said on this point the test should be repeated, tests should be made to determine the boiling point of ess. pepsin (Fairchild), and also to determine if there are present in the essence any substances which protect the pepsin content from the inactivating effect of the boiling. On account of the presence of the alcohol, it would be well to test an essence of pepsin that had been subjected to a temperature of 212° F. in a closed container. Dilution of ess. pepsin (Fairchild) did not favorably affect it; the boiled specimen here also gave the same result, Tubes No. III and No. IV.

Hydrochloric acid in the proportion of .2% did not affect the absorption of water by the albumin, Tube No. IV, whereas the proportion of 1.6% checked the absorption, for the albumin weighed only a half grain more, Tube No. VI. What boiled and diluted specimens of the other preparations would do, can only be determined by performing the tests. It cannot be inferred in any way that the pepsin used in the prepara-

tion of these various products is inert, perhaps it is inactivated or its activity greatly retarded by the various menstrua. We see that scale pepsin, 15 grs. to a fl. ℥ss of distilled water, reduced the albumin to 4¼ grs. (Test Series No. 5, Tube No. x), and to 3¾ grs. (Test Series No. 6, Tube No. vii). Scale pepsin in the proportion of .3% (as found in the gastric juice) did not exert any great effect, the albumin weighed 8 or 9 grs. (Test Series No. 5, Tube No. viii. The reader may make other deductions by studying and comparing the tables. The first three series demonstrated as far as visible results could be judged, that the higher temperature of 125° F. did not cause any greater digestive effect than did the temperature of 100° F. to 104° F.

Many other tests could be performed along these lines, for instance, comparison of the various makes of scale pepsin; comparison of the effect of the same preparation on albumin boiled for different periods of time, as ten, fifteen, twenty or thirty minutes; dried albumin might be used; indicators other than egg albumin could be employed; rocking water-bath might be constructed to represent continuous peristalsis.

A practical inference suggests that when we prescribe pepsin we will probably get better results by ordering scale pepsin dispensed as a tablet, capsule, or in sealed packages, to be freshly dissolved in water and taken about a half hour after meals. If hydrochloric acid is indicated it may be dispensed separately and ordered to be taken well diluted. (All the scale pepsin solutions were freshly made at the time of the tests.)

Undoubtedly pepsin, like other remedies, has suffered from being improperly dispensed and injudiciously used. Pepsin will not lift a fallen stomach; it will not cure the reflex gastric symptoms due to gall-bladder disease, chronic appendicitis, etc. The crux of the whole subject depends upon that fascinating subject of diagnosis. My personal impressions are that pepsin's rôle in therapeutics will be established and enhanced by its exhibition on exact indications dependent on accurate diagnosis.

ON SO-CALLED BINASAL HEMIANOPSIA IN BRAIN TUMOR.

BY WALTER B. LANCASTER, M.D., BOSTON.

THE third paper by Cushing and Walker[1] in their series on distortions of the visual fields in cases of brain tumor is devoted to binasal hemianopsia. The authors detail the histories of a dozen cases with many charts of the fields of vision and reach several conclusions which are of sufficient importance to warrant discussion, the more so as any hypothesis backed by such authoritative writers, the one unsurpassed in the field of cerebral surgery, the other unsurpassed in the field of perimetry, cannot fail to carry great weight.

Quoting from their paper (p. 597):—

"A constriction of the field of vision due to a destruction of fibres more complete from the temporal than from the nasal half of the retina and justifying the designation of nasal hemianopsia has been observed in from 5 to 6% of a series of 500 cases of brain tumor.". . . "It is difficult or impossible to attribute the ultimate binasal blindness to a lesion confined alone to the nerve and retina. Another factor must come into play, which elsewhere in the course of the nerve affects the uncrossed fasciculus from the temporal retina more markedly than the crossed fibres from the nasal retina. We wish to suggest that this may be due to pressure of the dilated [third] ventricle, which forces the exposed nerves or tracts adjoining the chiasm downward and outward against the resistant carotid vessels, which transversely indent the outer aspect of the nerves. In this way the uncrossed fasciculi to the temporal retinae, and the laterally placed macular bundle as well, suffer from a mechanical pressure 'block' in addition to the diffuse anatomical destruction of fibres throughout the nerve in consequence of the contraction of the new tissue formation in the long-standing choked disk."

The two points to be discussed are these: the occurrence of binasal hemianopsia and its explanation.

The question of the occurrence of binasal hemianopsia is a question of definition. It is not easy to give a satisfactory brief definition. The three things to be emphasized are: first, the loss should be limited to corresponding *half fields;* second, the loss should be symmetrically distributed in the two eyes; third, the cause should be a lesion to the visual centres or paths at or posterior to the chiasm, for the fundamental anatomical fact at the foundation of the idea of hemianopsia is the semidecussation of the optic nerves. Cases are not uncommon where we get fields not unlike in extent and distribution those classified as true hemianopsia, but of wholly different origin, for example, in chronic glaucoma and in retinal or choroidal lesions symmetrically disposed in the two eyes. These should not be classed as cases of true hemianopsia. They might be called *pseudo-hemianopsia.* That the authors had some such conception of true hemianopsia as above outlined would appear from a statement which I quote from the first paper in this series[2]:—

"Thus in considering the prevalence of true hemianopsia in a given series of intracranial tumors, one should exclude from the list the subtentorial lesions which are barred from the possibility of *direct implication of the optic tract and radiations.*"

To be sure, most of the cases described in the present paper are subtentorial tumors, but this inconsistency is explained when we recall that the purpose of the paper is to show how such tu-

mors can affect the optic pathway *indirectly* by pressure of the third ventricle.

In the cases under discussion the matter is complicated by the fact that admittedly the chief factor in the loss of vision is the secondary atrophy consecutive to choked disc. The binasal hemianopsia is not claimed to be the only factor. Thus the question is not, are these fields typical of binasal hemianopsia, for of course they are not. The question is, are they typical of secondary atrophy complicated by binasal hemianopsia? The presence of the atrophy will account for the fields not conforming to the first and second requirements of the definition, for a very superficial examination is sufficient to show that the losses are not confined to the nasal fields and that they are not even symmetrically distributed in the two nasal fields. At this point it should be observed that the authors disarm criticism by remarking:—

"It may appear somewhat imaginative to designate the field defects which accompany these case reports as examples of hemianopsia, for they admittedly fail to show the clean-cut vertical meridians dividing the blind from the seeing retina, which often (though not invariably) characterize certain stages of the homonymous and bitemporal field defects, as will be indicated in the later papers in this series."

To answer the question whether the fields are characteristic of binasal hemianopsia complicating secondary atrophy we must first consider what is the character of *uncomplicated* typical secondary atrophy. Authorities hitherto are fairly well agreed.* We may quote Wilbrand and Saenger as having produced the most monumental work on the subject. After pointing out the frequent absence of visual disturbances for a surprisingly long time after marked changes are visible with the ophthalmoscope and mentioning the slight enlargement of the blind spot, due to swelling of the papilla encroaching on the adjacent retina, they state that the typical disturbance of the visual fields is a concentric contraction from the periphery toward the centre with some impairment of the visual acuity, both of these progressing as secondary atrophy advances, until, if the process is not arrested, total blindness ensues. What sort of fields may we expect to find as the process advances? The temporal half of the visual field is larger than the nasal to begin with (temporal 90°, nasal 60°), so that if the contraction is fairly uniform the time will come when all the nasal field will be lost (60°), while the loss of an equal amount from the temporal side will still leave 30.° We then shall have a small field extending 15° each way from the blind spot while the visual acuity will probably have fallen to less than 10-200.

The visual centre of the field of vision is the macula, but the geometrical centre is the optic disk. The field extends nasally 75° from the disk and temporally 75° from the disk. If now a concentric contraction progresses with such uniformity that exactly 60° is lost from both nasal and temporal sides, 15° will be left on each side of the disk. This will leave "a small field centering around the blind spot"—precisely what the authors state[3] is the typical finding in their cases. Are we not justified in saying that these fields are quite satisfactorily explained as due to concentric contraction, the result of changes occurring in the papilla? Were there an intercurrent binasal hemianopsia grafted onto the fields, as claimed, we should expect to find that before the temporal fields had contracted 30° or 40° the process in the nasal fields would have advanced with decidedly greater rapidity and would show a decidedly greater loss than the temporal. Assuredly, if we are dealing with binasal hemianopsia there must be a loss of symmetrically disposed patches in the nasal fields, over and above what we should expect to find if the loss were merely due to concentric contraction, and so merely kept pace with the loss found on the temporal side.

In discussing visual fields it is important to bear in mind the margin of error due to the nature of the phenomena we are measuring. There is in most cases no sharp line of demarcation where we can say "on one side vision is present, on the other side vision is absent and whoever makes the test will, if competent, find it so." One has only to try it on himself to appreciate this. Also the character of the results obtained by using different sized test objects and different intensities of illumination, showing as they do a very considerable increase in the seeing area with larger and better lighted objects, points unmistakably to the fact that what we are measuring is a relative, not an absolute quantity. The personal equation of the examiner multiplied by the personal equation of the patient equals the result. Perhaps Case 10 is as good an example of this as any could be. In Fig. 21, O.S. shows, with a 1 cm. test object, a field limited to 15° from the disc each way. With a 2 c.m. object, same eye shows a binasal hemianopsia more typical than any other in the whole series. The line of damarcation falls exactly on the vertical meridian except near the macula where it takes in 5° to 10° of the nasal field, somewhat as in typical homonymous hemianopsia. With a 3 c.m. object the nasal field extends in the horizontal meridian to the extreme normal limit of 60°—no suggestion of nasal hemianopsia. Fig. 20 shows the same case at an earlier stage.

"Fields show binasal hemianopsia. V. O. S. fingers; V. O. D. *nil.*" (Authors' italics.)

The chart shows in each eye a large seeing area comprising about ¼ the normal temporal field. This with a vision of nil shows that the personal equation must be reckoned with!

* There has been some question as to the importance of interlacing of the color fields but it will doubtless be found as stated by Cushing and Walker, that this symptom is not characteristic of the disease but is a matter of the personal equation of the examiner.

The true guiding principle was pointed out by Cushing in the discussion of his second paper at the St. Louis meeting. Alluding to the fact that fields, especially color fields, vary as taken by different examiners he says[4]:—

"The condition varies at different times. . . The field assumes a somewhat different configuration . . . but it shows this tendency and it shows that one must generalize rather than particularize about these conditions. Possibly, endeavoring to make the matter register, we may have gone a little further than we were justified in doing."

Adopting this valuable suggestion, we must not be influenced so much by the findings shown on a single chart, but must weigh the evidence presented by a series. That is, we must generalize, try to detect the *tendency* shown by these fields. Is it a tendency toward binasal hemianopsia? Or is it simply a tendency toward concentric contraction? How shall we answer this without being influenced by our personal leanings toward one side or the other? Would not a composite field made up by combining all those charts shown in the paper be likely to show the type? I have done this for the horizontal meridian. The result was to show an average loss in the whole 44 charts of 50.29° nasally and 50.23° temporally. This is a sufficiently striking confirmation of the suggestion that the real tendency here shown is toward a concentric contraction affecting both sides about equally.

In addition to constructing the composite field I have gone over each case separately and fail to find any distortion of the fields which cannot be explained readily as due to, secondary atrophy. It is not to be supposed that each case will show symmetrical *uniform* contraction. By no means. That is the "tendency," but individual cases will vary somewhat irregularly from this type. One of the charts of the left eye of Case 1 (Fig. 2) shows 20° more loss from the nasal than from the temporal side. This does not at first look like concentric contraction. When we investigate it we find that V. equals fingers at 4 *inches*. In an eye so nearly blind we cannot attach great weight to the exact limitations of the fields. The same criticism applies to Case 8, "acuity practically nil"; and to Case 9, "acuity not measurable." I have already mentioned some weak points about Case 10. The last case reported (not under the head of brain tumor) appears to have been a fairly typical case of retrobulbar neuritis. It is described by the authors as, "Blindness with primary involvement of nasal vision in each eye, presumably from pressure of sclerotic vessels." Examination of their records show that the loss of vision was with little doubt primarily a central scotoma with dyschromatopsia. No fields were taken at this stage, therefore we have to rely on the patient's impressions and on the course of recovery, which tends to reverse the course of onset and is an indication of great value. This points very definitely and unmistakably to central scotoma and dyschromatopsia, as the primary defects and the patient's impressions do not definitely conflict with this view. The other characteristic features which make up the picture are: The abrupt onset, the soreness and pain and sense of pressure in the eye (and orbit?), the moderate ophthalmoscopic changes insufficient to account for total blindness but indicative of some inflammatory process, the termination in total amaurosis in one eye (not rare in retrobulbar neuritis, but extraordinary if due, as surmised by the authors, to pressure of sclerosed carotids, but of abrupt onset and with the other eye unaffected for two years) and lastly the rapid recovery of some vision, but with permanent central scotoma, in the other eye, also typical of retrobulbar neuritis. The authors admit that "Without post-mortem examination one cannot definitely ascribe such a condition as was encountered in this patient to the lateral pressure of sclerosed vessels." They think it the most likely presumption. They do not discuss the possibility of retrobulbar neuritis. Their explanation of the "unexpectedly happy result" of the operation is ingenious but not convincing. At all events the fields, especially the final field, are more typical of retrobulbar neuritis than of bi-nasal hemianopsia.

We pass now from the question of the occurrence of binasal hemianopsia to the second question raised by the paper we are discussing—the explanation. Two explanations are suggested. Of these two the authors say they "are at present inclined to lay chief stress on the influence of the bilateral arterial constriction," meaning the pressure of the carotids on the optic nerves. We have already discussed this above. Were there such a factor operative it would, as we have said, inevitably produce greater loss in the nasal fields than we should expect to find were concentric contraction alone operative and judging progress by the stage reached in the temporal fields. It appears that this does not occur. There is no apparent tendency for contraction of the nasal periphery to advance faster or farther than the temporal.*

But, even if the objections which I have raised were not valid, the authors evidently do not feel that the theory is entirely satisfactory on other grounds. There is little anatomical and microscopic support for it. It is apparent that it was put forward by the authors as the best hitherto suggested (it was first suggested by H. Knapp) ,and so they "are for the present inclined to adopt it." Although the chiasm tolerates considerable slow pressure, it is hard to believe that there can be sufficient pressure upon it from the third ventricle to force the nerves against the carotids (not always sclerosed, one patient was under 10 yrs.) strongly enough to destroy the nerve fibres without the direct pressure

* A lesion affecting the outer aspect of the chiasm (as distinguished from the optic nerve near the chiasm) cannot cause nasal hemianopsia because at this point the uncrossed fibres to the temporal retina (nasal field) are inextricably interwoven with the crossed fibres to the other half field.

of the ventricle damaging the part of the chiasm on which it impinges, the more so as not all of the pressure exerted by the ventricle is transmitted to the two arteries; most of it must be taken up by the other structures which resist the displacement, especially by the chiasm itself, before any can reach the arteries. Indeed, it has been suggested frequently (Oppenheim, Wilbrand and Saenger and others) that the pressure of the third ventricle might cause bitemporal hemianopsia or total amaurosis, but never before that it might cause binasal hemianopsia.

The second explanation suggested, but not favored by Cushing and Walker, is that the cause is located in the papilla. Can it be shown that the processes in the papilla are adequate to explain the facts? Evidently the authors would be glad to accept this explanation did they not think the objections insuperable.

"Unquestionably some anatomical condition accounts for the fact that with an advancing choked disk which has reached the stage at which recession of the swelling occurs, owing to cicatrical contraction, the fibres which are last destroyed are those originating from the nasal retina in the vicinity of the optic papilla."[5]

The changes in the appearance of the optic papilla are so striking and the changes found elsewhere so slight, that one naturally looks there for the explanation of the loss of function. It is to be noted that the simple edema, which is the first stage of a process which ends, if not arrested, in total atrophy, can reach a very high degree, and last a considerable time without causing noticeable loss of vision. When the swelling begins to subside and evidences of atrophy appear, vision is markedly affected. Whether the swelling diminishes because atrophy has set in (Behr) or whether atrophy sets in because shrinking of the papilla has begun, is disputed. The facts are that as atrophy appears the fields show more contraction and acuity falls. This means that the fibres which come from the periphery in particular and the fibres from other parts of the field in less degree are damaged. The results shown by taking fields with small and with large test objects indicate that the damage even to the peripheral fibres is not at first total. Some fibres are preserved at least sufficiently to conduct such sensations as large test objects excite. Gradually more fibres are affected and to a greater degree. The result is a progressive contraction of the field and a fall in acuity. The cause at work then would appear to be one which affects the nerve fibres to some extent throughout the retina, but chiefly those coming from the periphery.

Is not this just what might be expected of the processes known to be taking place in the papilla? The swelling starts as a damming back of the natural outflow of lymph through the centre of the optic disk (physiological pit) along the blood vessels.[6] The centre and the nasal half are the most vascular and contain the most nerve fibres. Here the edema first appears, reaches its greatest intensity, lingers longest. The central, nasal and most superficial fibres are the ones most exposed to the swelling, the round-cell infiltration, the formation of connective tissue, the cicatrical contraction, and the secondary atrophy. The deeper lying fibres all around and the fibres on the temporal side of the disk would seem to be the least exposed, especially the deep-lying fibres at the periphery of the disk.

The authors raise the question whether the fibres which come from the area of the retina adjacent to the disk, which are the last to suffer, "enter the nerve head in some specially protected—possibly central—position." Also they give a diagram showing the central fibres which they surmise are the ones preserved. Is it not evident that the central and superficial fibres are the ones that are least protected and first to be damaged. Possibly the authors were led astray by some confusion as to the distribution in the papilla of the fibres from the retina. They say:[7] "Moreover, did the new-tissue formation at the papilla shut down in centripetal fashion on the nerve head and implicate the fibres from the periphery inward, we would expect an early involvement of the macular bundle with a central scotoma as a common instead of a rare early feature." That is, by what was perhaps a slip of the pen, they make the fibres from the area adjacent to the disk occupy the center and superficial part of the papilla and the fibres from the periphery of the retina occupy the marginal region of the papilla. It is the deepest, the marginal fibres of the papilla, which come from the retina close to the disk, the more superficial and central ones passing over these as they come from the periphery of the retina.

An additional factor in causing peripheral contraction of the fields, especially in the stages before atrophy has set in, is to be found in the retinal ischaemia due to pressure on the arteries by the choked disk. Naturally the periphery of the retina is most affected and especially the temporal retina (nasal field) because most remote from the source of blood supply.

Lastly, Behr, who took this as the starting point in constructing his theory of the pathogenesis of choked disc, explains the peripheral contraction of the fields by attributing it to pressure on the nerves in their intracranicular portion. Perhaps it will be found that this is an important factor.

SUMMARY.

1. It is better to adhere to the classical conception of hemianopsia and require for admission to that category that the cases must show symmetrical losses limited (unless a complication is present) to a *half* field of each eye and due to a single lesion affecting the visual centres or pathways at or posterior to the semi-decussation of the optic nerves. Fields which simulate these,

but are of totally different origin (glaucoma, atrophy, retinitis) may be called *pseudo-hemianoptic*.

2. The cases reported by Cushing and Walker, as examples of binasal hemianopsia, when all the charts are combined into one composite chart to determine the type, show that the true type of loss of the visual fields is a concentric contraction affecting both half fields equally and therefore not to be called hemianoptic according to the accepted use of the term by ophthalmologists.

3. The characteristic form of the visual fields in secondary atrophy is probably due to the distribution of the fibres in the nerve head. This distribution is such that the superficially located fibres are most exposed to the pathological processes and are the first to succumb while the deepest and most peripheral fibres of the papilla are the last to suffer. These come from the area of the retina adjacent to the optic disk, thus accounting for the tendency noted by Cushing and Walker "for the fields to become limited to a small bitemporal field surrounding each blind spot."

4. Were this process complicated in some cases, as suggested by Cushing and Walker, by a pair of symmetrical lesions affecting the outer aspects of the optic nerves near the chiasm where the uncrossed fibres which come from the temporal retina are superficially situated, the damage to these fibres should show itself in a modification of the form of the visual fields. The loss from the nasal fields should exceed what we should expect to find, judging by the progress of the loss in the temporal fields. This does not seem to occur.

5. The last case in their series is probably an example of retro-bulbar neuritis.

REFERENCES.

[1] Arch. Oph., vol. xli, No. 6, 1912
[2] Bull. Johns Hopkins, 1911, p. 194.
[3] Pp. 572, 597 et al.
[4] Jour. Am. Med. Asso., 1911, vol. lvii, p. 220.
[5] P. 595.
[6] Behr, Wilbrand and Salnyn
[7] P. 597.

THE DIAGNOSTIC EVIDENCE OBTAINED BY X-RAYS FROM THE LATERAL ASPECT OF THE SKULL, WITH ESPECIAL REFERENCE TO THE BASE AND ITS ADNEXA.

BY PERCY BROWN, M.D., BOSTON.

AFTER the classical contribution of Caldwell[5] upon the skiagraphy of the accessory nasal sinuses, in which he emphasizes the absolute necessity of the occipitofrontal projection of the cranium as the key to Roentgenologic problems in this region, the lateral projection, with its simpler technic, sank into desuetude, or at least into secondary importance, as a *sine qua non* to diagnostic results. In such lateral projections, when made veritably so, the structures placed bilaterally to the right and the left of the median line become, as to "shadow," superimposed. It has been rightly asserted that such superimposition of projection is fatal to differential diagnosis as between right and left; especially is this true of the maxillary sinus and of the frontal sinus, not to speak of their immediate neighbors, the anterior ethmoidal colonies of cells. Further, it has been asserted that a projection, by x-rays, of the lateral aspect of the skull is of little value save to determine the depth of the frontal sinus. Thus in the lateral aspect of the skull, in so far as Roentgen examinations are concerned, the familiarity nurtured in an easy technic has come to breed a contempt for the character of the information this projection has to offer. It is the writer's feeling that nearly all—and among them many Roentgenologists—who habitually see Roentgen projections of the lateral skull, fail to appreciate how much is afforded for inspection, especially in the vicinity of Reid's base-line.

So complex is the collective Roentgen portrayal of the structures in the immediate vicinity of the cranial-base that simple inspection, at first glance, usually does not mean observation in its fullest sense. Study alone can ensure a productive interpretation.

For limitary purposes in a consideration so brief, we must assume that the adnexa of the skull-base are bounded anteriorly by the infra-orbital ridge and posteriorly by the median occiput. Thus limited, a lateral Roentgen projection of these adnexa presents for consideration five principal entitative regions: (1) the *orbital*, (2) the *frontal*, (3) the *posterior ethmoidal*, (4) the *sphenoidal*, and (5) *the hypophyseal*. Strictly speaking, the mastoid region falls without the above arbitrary limitation, although the lateral aspect of the skull, by x-rays applied *with technical* accuracy, furnishes here a prodigious amount of information (Lange[15], [16]).

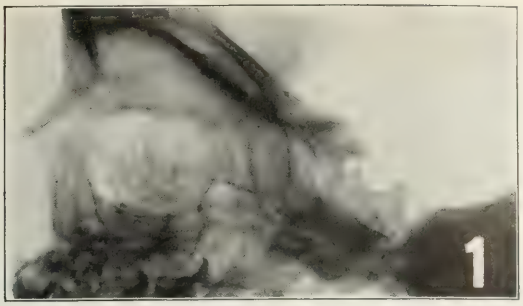
The orbital region, when projected laterally, suffers by superimposition of its right and left aspects, as do all structures bilaterally placed. The orbit becomes a source of radiographic information chiefly when its territory is invaded from without, either by foreign substances (*e.g.* flying metallic fragments), or by neoplastic masses from behind and above (*e.g.* endotheliomata). In the first instance, the normal contour of the orbital cavern is disturbed not at all, save where the projected foreign body has shattered it or is impacted within it. Invasion from above or behind, however, by adjacent morbid processes, may produce a partial or complete obliteration of its usual Roentgen appearance or an effacement of the usual recognizable periorbital partitions and barriers.

Changes in the mural dimensions and in the intramural hiatus normally presented by the *frontal region* (frontal sinuses) are to be observed in lateral projections of the skull and may

FIVE PLATES

CRANIAL BASE

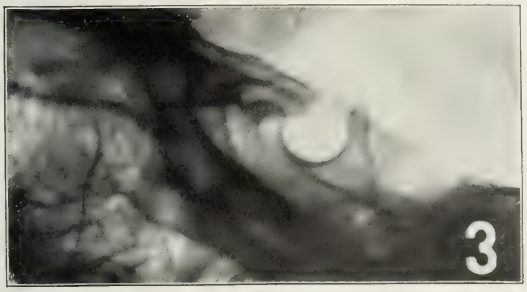
PERCY BROWN, M.D.



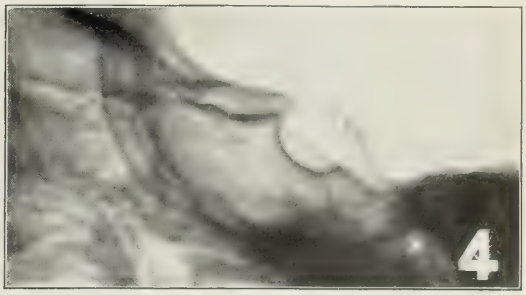
Sellar development at term.



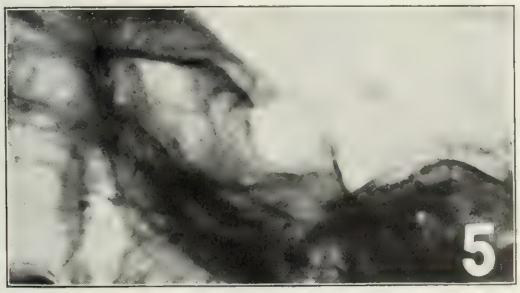
At eighteen months.



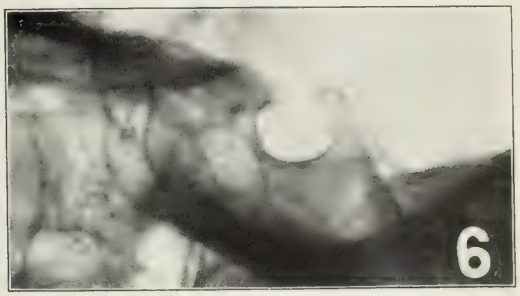
At three and a half years.



At ten years.



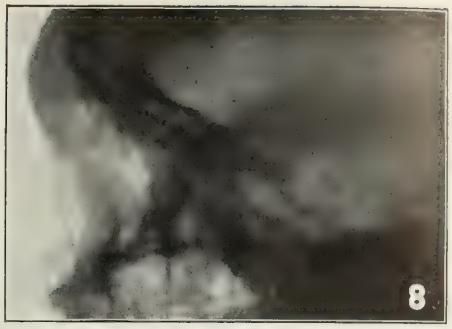
At fourteen years.



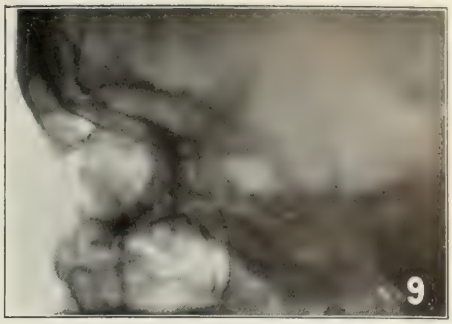
At seventeen years.



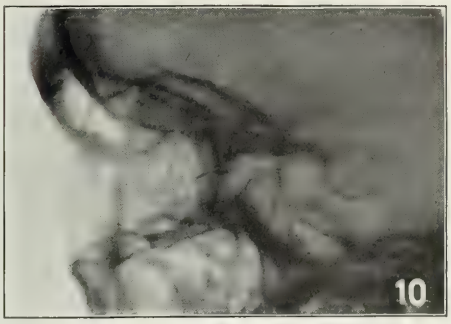




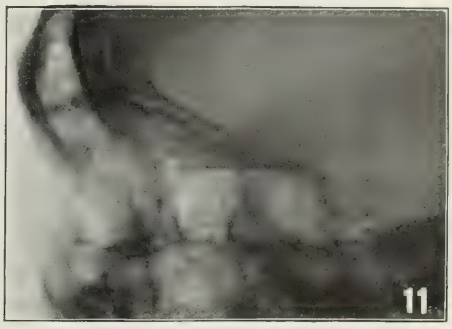
Partial frontal occlusion.



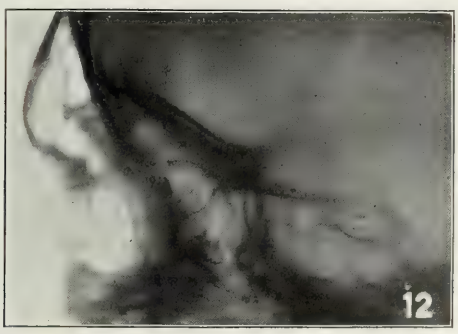
Small frontal hiatus partly occluded.



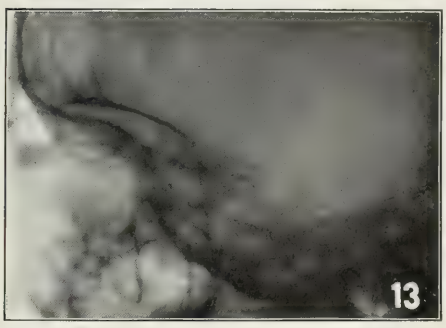
Frontal mucosal organization.



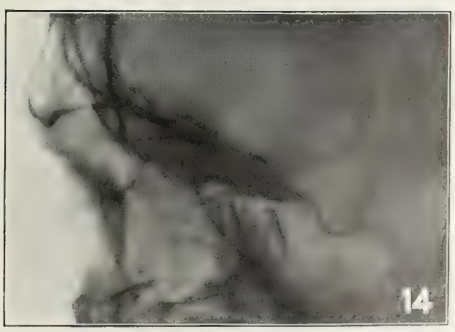
Mucosal changes in large frontal with subsepta.



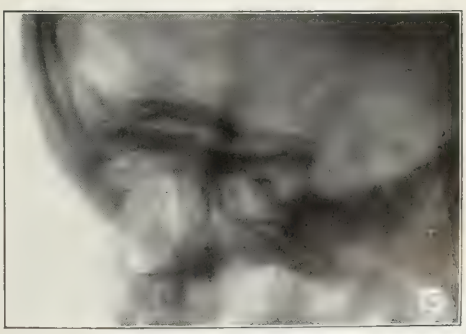
Frontals and anterior ethmoids of great capacity.



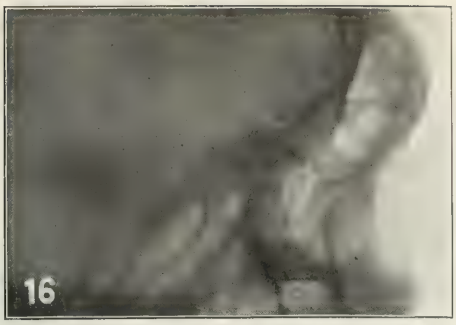
Small frontals with mucosal changes.



Partial posterior ethmoidal occlusion.



Deep frontal occlusion.



Luetic frontal mural organization.



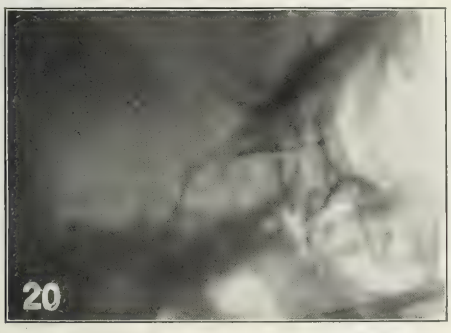
Mural organization of great chronicity.



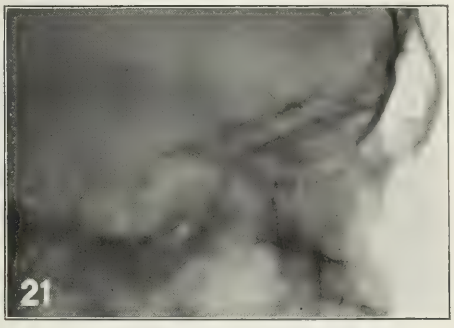
Influenza infection of posterior ethmoids.



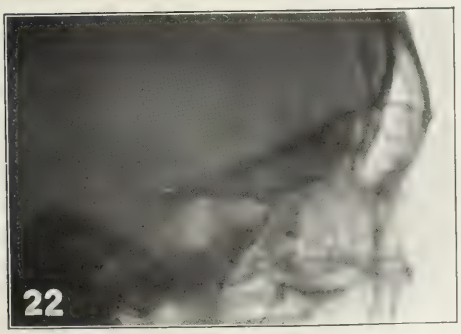
General frontal organization; large posterior ethmoids.



Deep subseptal frontal organization.



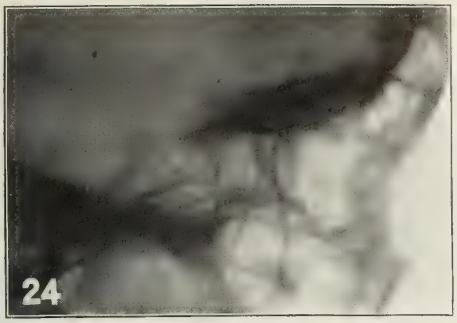
General ethmoidal infiltration with slight involvement of large frontal.



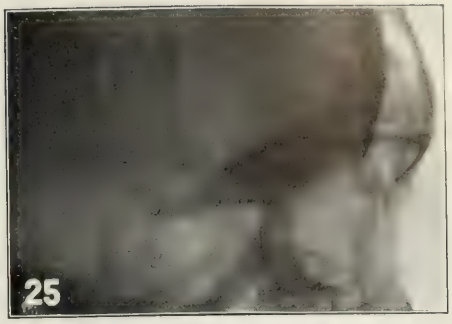
Deep frontal with slight mural change.



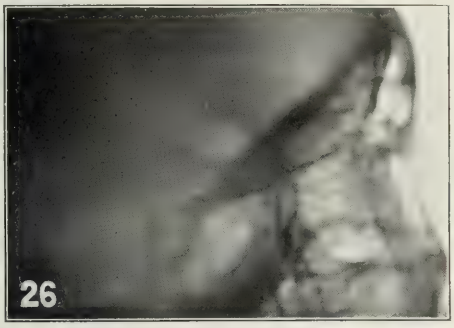
Pronounced infiltration of all peribasal cavities.



General sphenoidal infiltration.



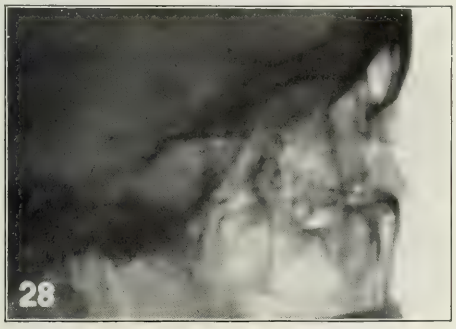
Posterior sphenoidal infiltration.



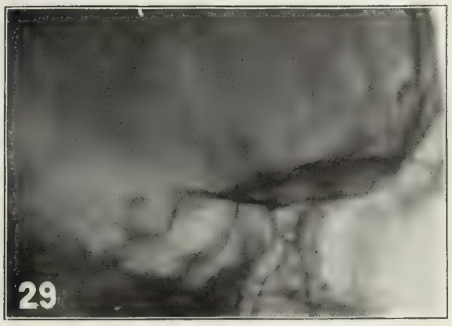
Supraorbital frontal prolongation.



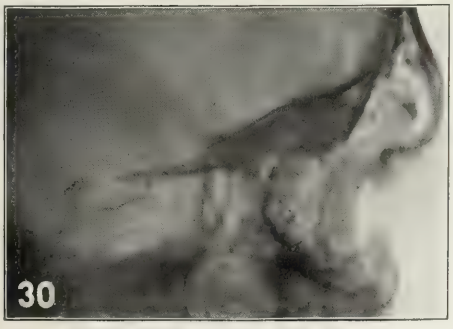
Prefrontal osseous thickening (periosteal?).



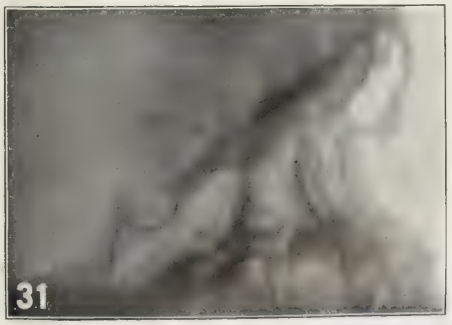
Intrasphenoidal organization.



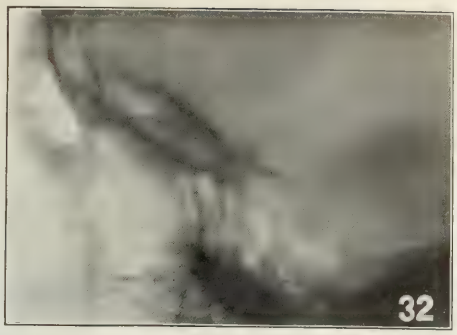
Slight sphenoidal mucosal organization.



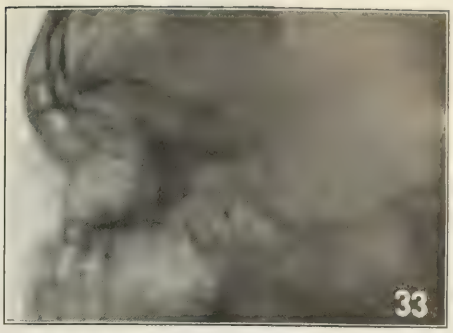
Luetic perifrontal periosteal changes.



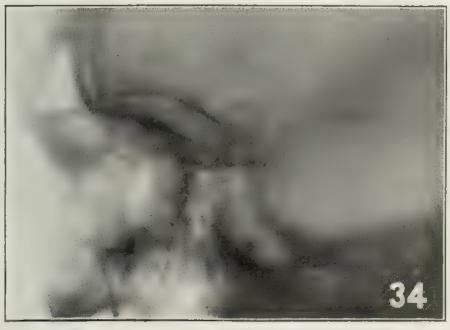
Normal base with unilateral post-nasal symptoms.



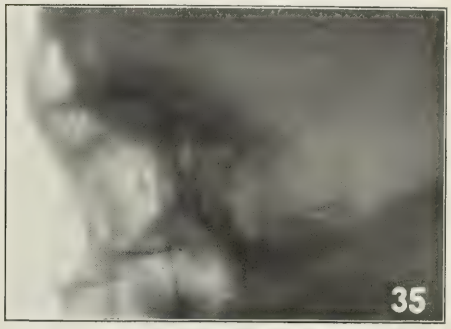
Sella deformation.
(Cushing's sellar type II.)



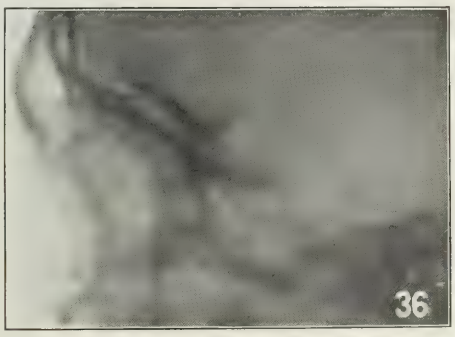
Sella deformation.
(Cushing's sellar type II.)



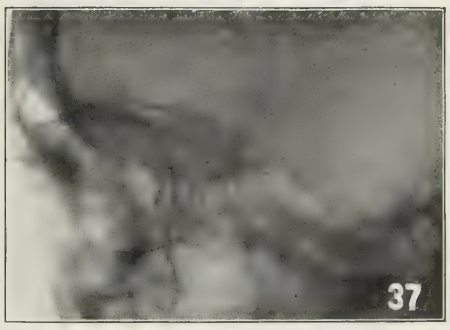
Sella deformation.
(Cushing's sellar type III.)



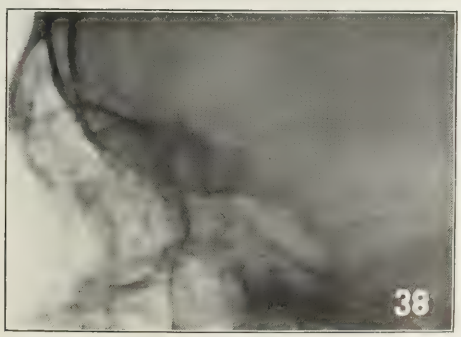
Sella deformation.
(Cushing's sellar type II.)



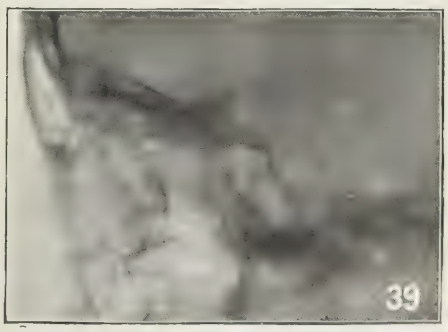
Sella deformation.
(Type I.)



Sella deformation.
(Type III.)



Sella deformation.
(Type I.)



Sella deformation.
(Type I.)

be produced and maintained by three classes of disorder: (1) infiltrations, of whatever nature, tending to obliterate the normal intramural hiatus; (2) conditions producing changes in the thickness of the mural shadow only as a result of chronic mucosal organization; and (3) structural (usually osseous) changes of a nature metabolic, dyscrasic or infective, which may equally affect other intracranial regions.

The first classification has to do chiefly with the acute and chronic inflammations of the anterior accessory sinuses of the nose, which are most easily recognized by x-rays in the occipitofrontal projection of the skull. Lateral projections of the skull-base, in these ailments, are usually but confirmatory of the occipitofrontal findings (Figs. 8, 9, 15, 19, 23, 24, 25). It is, however, often desirable that the depth of the frontal intramural hiatus shall be known.

In the second classification, where the frontal sinus-walls present mucosal structural change, from causes above mentioned (Figs. 10, 13, 17, 28), the lateral aspect of the skull-base is an essential, as in determining the depth of the frontal walls it is not necessary to differentiate right from left. This essential applies equally to the third classification. Aside from normal variation in mural depth and in the depth of the intramural hiatus, frontal changes of infective origin (*e.g.* syphilis, Figs. 16, 30) or changes of a glandular origin (*e.g.* hypophyseal, Figs. 34, 38) often present themselves as distinct syndromal factors. There is, therefore, presented a series of Roentgenographic portrayals of these aspects of the frontal sinuses showing their wide normal variations in size and depth and also the appearances therein in certain abnormal states. It is a source of satisfaction to note that the appearances in the lateral projection of an abnormal frontal sinus often suggest those which may be more accurately diagnosticated in the occipitofrontal projection. Marked normal variations also, such as supraorbital prolongations of these sinuses can, without difficulty, be recognized laterally (Figs. 26, 13).

In the *posterior ethmoidal region* certain morbid states, such as empyema, can be recognized only from the lateral projection of the skull (Figs. 8, 14, 23, 25). It is here to be emphasized, however, that such findings should be employed chiefly as an adjuvant to the interlateral differentiation of anterior ethmoidal conditions in the occipitofrontal skull projection, and vice-versa. In certain variations of osseous thickness and density (syphilis, hyperpituitarism) it is often hard to recognize the boundaries of individual posterior ethmoidal cells or groups of cells, much less to differentiate, as between left and right, the presence of a pathologic exudate. The recognition, which is generally easy, of the evidence of an anterior ethmoiditis by the occipitofrontal projection, should always stimulate our efforts to investigate the lateral portrayal of the posterior ethmoidal cells. Lack of Roentgenologic acumen in this regard has often deprived the rhinologist of dependable information.

As has been mentioned by Pfahler,[20] the general impression has been that Roentgen rays are of little value as demonstrating disease of the *sphenoidal region*. In his paper he shows that such an impression is erroneous. He believes, and with justification, that the proper Roentgen examination of this, or any other especial region, can be made complete only by projections from all angles. In dealing with the lateral projection of the skull-base, the writer asks consideration thereof, as regards the sphenoid, because he feels that in this aspect only, with proper technic (see below), can the sphenoid be interpreted in its most valuable clinical relation to the pituitary region. This relation is of great importance (Gibson,[10] Cushing[7]). As in any other region bilaterally placed, differential bilateral investigation is essential and the value of Pfahler's demonstration of the occipitofrontal sphenoidal projection is by no means to be under-estimated.

The position of the sphenoidal space, with relation to the skull-base, is a familiar one. In common with the rest of the nasal accessory family, it has great normal variation, but its contour can be varied as well by the presence of pathologic change. The relation between the floor of the sella turcica and the adjacent wall of the sphenoid is equally interesting. The interpretation of differential opacity alone is at times difficult, however, in the lateral projection of the skull. The definite outline of the sinus renders the presence of general sphenoidal infiltration often more recognizable than the same process involving the posterior ethmoids alone (Figs. 25, 28). When sphenoidal disease coexists with similar abnormality in other nasal sinuses, however, it is seldom to be overlooked (Fig. 23). The invasion of the sphenoid by the sellar changes to be observed in some instances of hypopituitarism, is to be seen in Figs. 33, 35, 37.

Studies by the help of x-rays of the *pituitary region,* with especial reference to the conformation of the pituitary fossa and the variation therefrom, have been made by several observers, first of whom was Oppenheim.[17] As a comparative study dealing with the relation between classified syndromes of pituitary aberration and their Roentgen appearances, the work of Cushing[7] stands alone. The Roentgenologic art, struggling in a new field, owes the strength of its present firm foundation in this field to the profundity of the support given it by this observer. It is to be noted that nearly all reports of Roentgen investigations using the sella turcica as their specific objective point, have been of European origin. Little has been contributed by American Roentgenologists save those stimulated by Cushing's enthusiasm. The conformation of the pituitary region (Roentgenologically, the pituitary fossa) varies normally nearly to the degree that the accessory sinuses present such variation. The element of age in the normal individual does not make for such contrast, how-

ever. Whereas in early life the sphenoidal sinus may be Roentgenographically uninterpretable, a recognizable contour of the pituitary fossa appears at term (Fig. 1). In addition to this, the sella, apparently, approaches its mature conformation in early adolescence (Figs. 2, 3, 4, 5, 6), which cannot be said of many of its neighbors in the cranial anatomic complex.

As Roentgen evidence of pituitary disorder, Cushing classifies the deformed pituitary fossa into three types. He does not consider, however, that the presence of a normal-appearing sella, or rather a sella well within the classification of normal variation, necessarily indicates that hypophyseal changes are absent, whether or not other manifestations of the syndrome in question are present. This classification with succinctness obviates a prolonged discussion of the Roentgenologic aspects of the situation:—

(1). A type in which the clinoid apophyses and the dorsum sellae are generally thickened (allowing for the slight magnification of the Roentgen projection (Figs. 36, 38, 39).

(2). A type in which the same structures have undergone a diminution in shadow or thinning, from the effect of pressure absorption (Figs. 32, 33, 35) and

(3). A type in which there is evidence of general destruction of the whole Roentgen-delineation of the pituitary fossa (Figs. 34, 37).

Cushing[7] has also called attention to certain changes demonstrable by x-rays in the vicinity of the sella, as well as somewhat remote from it. But two of these, perhaps, may come within the scope of a consideration of the cranial base. One is the often enormously increased depth of the frontal sinus, seen in the hyperpituitary group, previously mentioned above in the consideration of the frontal sinus. Another is the invasive effect of strumous degeneration of the hypophysis upon the intimate morphology of the sphenoidal sinuses. To the writer this possibility is of the greatest importance since by it an entirely new phase is added to the Roentgen pathology of the sphenoid. (See figures thus referred to under "sphenoid.")

That the sella turcica varies widely in its normal Roentgen-portrayal may be inferred from its outlines shown here in cases by no means of hypophyseal origin (Figs. 8-31). Interesting measurements have been made by certain observers and herewith is given a mere suggestion of their exhaustive results:—

MENSURAL LIMITATIONS OF THE PITUITARY FOSSA (IN MILLIMETERS)

	Length.	Breadth.	Depth.	Measurements.
Fitzgerald[9] 1910	10-14.5	14-17.5	6.5-7.5	Cast measurements
Gibson[10] 1910	12 (av)	13 (av)	6 (av)	In situ
Keith[11] 1911	10-12	14-15	8	In situ
*Cushing 1911	15 (nor. max.)		10 (nor. max.)	Radiographic.

* Cushing's increase, of course, allows for radiographic magnification.

Writers who have demonstrated pictorially changes in the sella as a part of the objective symptom-complex of hyperpituitarism have called attention to the undue shadow-thickness of the clinoid apophyses and the dorsum, as evidenced Roentgenographically by the existence of a *double contour* of their peripheral outlines. This appearance, of course, results from the distortion of the shadow of that aspect of the fossa which is *farther away* from the Roentgen plate and, consequently, it is disproportionately superimposed upon the smaller shadow of the *nearer* sellar structures. While this appearance may well suggest an increase in breadth of the sella and, by the same token, a hyperplasia of both the floor and the dorsum sellae, nevertheless, a similar double-line projection can be produced from a normal sella by faulty technic if the element of distortion is not borne in mind. In other words, hyperplastic clinoid apophyses and *dorsum sellae* will usually produce a double line projection of the sellar limitations in the lateral plane, but the presence of such double lines upon the Roentgen plate does not, necessarily, mean the presence of hyperplasia. Possible confusion in this detail of interpretation can be obviated by careful technic.

The question of Roentgenologic technic, as applied to the cranial-base is, of course, most important. Not only is the physical temperament, so to speak, of the Roentgen rays to be adjusted to the unusual demands imposed by the cranial structures, but also there are here problems to be met with reference to interpretation, requiring for solution, a true appreciation of the principles of radiographic distortion. The writer feels that the key to interpretative success, at least concerning the sphenoidal sinus and the pituitary fossa, lies in the employment of the now well-known principle of stereoscopy as applied to Roentgenography. All cases of suspected peribasal mischief should be, without exception, examined by stereo-Roentgenographic methods. Moreover, the stereoscopic projection should be employed not only with reference to the occipitofrontal plane of the skull, but in the suboccipito-bregmatic and in the cervico-bregmatic planes as well. In Fig. 7 there is shown a portrayal of the hypophyseal region stereoscopically projected, which, in order fully to be appreciated, must be observed by means of the Brewster prisms.

SUMMARY.

The writer feels that this meagre exposition may have some excuse for existence if the following points have been made emphatic:—

(1.) That the value of the proper Roentgen-interpretation of the lateral skull, with reference to the accessory nasal sinuses, need not necessarily be dimmed by the more brilliant diagnostic offerings of the occipitofrontal position.

(2.) That the greatest importance be laid upon the already established fact that this cranial plane is absolutely essential to the only im-

portant Roentgen diagnostic step in the pituitary region.

(3.) That neither of these applications, however, can be made properly without an exhibition of the highest type of technical skill and diagnostic judgment.

In conclusion, the writer begs to express his appreciation of the help given him in this work by Professor William F. Whitney of Harvard University. He desires also to acknowledge with gratitude the opportunity afforded him by Professor Harvey Cushing, of Harvard University, of seeing many cases illustrative of a new and fascinating field of endeavor.

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SOCIAL PEDIATRICS.*

BY IRA S. WILE, M.S., M.D., NEW YORK.

In a recent article Dr. E. P. Lyon has formulated some of the aims of a department of general medicine. He states that it is necessary "to give a broad and comprehensive presentation of the essential, fundamental facts pertaining to the causes, effects, recognition, prevention and cure of diseases and to correlate these facts with the fundamental sciences." It is deemed advisable "to give the student as much knowledge as possible of human beings into whose life he must enter in a much broader, more sympathetic relation than that of engineer to machine." Finally he suggests that it is important "to inculcate the ethical and professional ideals of honor, self-respect, altruism and social consciousness, without which medicine degenerates into a business or a trade." Assuming that these aims of general medicine are correct, it appears desirable to consider their application to pediatrics.

In a few medical schools there are given didactic lectures in pediatrics with or without clinics, while in other types of schools there is a variable number of clinics without any lectures. While pediatrics is an offshoot of general medicine, it presents many problems that are not generally included in internal medicine. As long as the subject is relegated to a subordinate position in medical teaching, proper instruction for the reduction of infant mortality will be retarded. When the question of preventing infant mortality is considered, the conclusion is inevitable that the medical colleges have hardly begun to give due attention to this problem.

Medical schools exist for the purpose of supplying the community with men who are trained in caring for the public health. If the schools fail to teach their students the methods of preservation of life, they fall short of their ideal purpose. At the present time there is one physician to every one hundred and thirteen families in the United States. The number of medical practitioners is slightly decreasing. The standards of medical education are increasing. The position of the physician is altering in that the community no longer regards him merely as an individual, capable of curing individual diseases, but as a specially gifted man, capable of guiding the public in and to health.

As Dr. Dana has said, "Any improvement in the social and economic condition of the doctor of the future can be secured only by continuing to lead and guide the struggle for hygiene progress. By this he will be made a more important man in the community. He will be called into public as well as private affairs. And as one who can manage the health of a nation, or of a community, he has a greater function than as that of prescribing for an individual."

The problems of infancy and childhood should not be given subordinate positions in the medical curricula when they occupy a most prominent place in the category of medical problems. In 1910, out of a population of ninety-one millions, 18,867,772 represented children under fourteen years of age. There were 10,631,364 children under five years of age, of which number 2,217,342 had not passed their first birthday. To interpret this in another way, one out of every five in the population, according to the census, was a child whose welfare might be considered as belonging to the department of pediatrics.

In considering the deaths from 1900 to 1909 inclusive, out of an average of 595,734, there were 115,373 under one year of age and 188,131 under fourteen years of age in the registration area. This mortality rate indicates that approximately one out of every three deaths within

* Read before the Pediatric Section of the New York State Medical Society, Rochester, N. Y., April 30, 1913.

the registration area falls upon a child under fourteen years of age. Practically one-fourth of the total mortality in the registration area occurs under the age of 2.68 years. These figures will serve to indicate the immense importance of the field to be covered by pediatrics. Such facts should accentuate the responsibility of medical colleges for paying attention to instruction in pediatrics.

George Bernard Shaw has suggested that "what the great mass of patients really needed, at the present time, was not medicine or operations, but money, better food and better clothes —and more frequent changes of the latter—and well-ventilated and well-drained houses." Herein lies a suggestion of a field of medical instruction which has been too greatly neglected by our medical colleges.

Medical efficiency may be viewed from the standpoint of cure and to this extent the grade of efficiency reached depends largely upon the intelligence and capabilities of individual physicians. The second phase of efficiency views the subject from the point of preventive medicine and constitutes a social problem. There is a mixed type wherein cure and prevention are closely bound together, as will be evidenced in the use of antitoxin for both the cure and prevention of diphtheria. The widespread prevention of disease depends upon the profession as a whole.

A moment's thought will convince anyone that pedriatic efficiency, either for the individual physician or for the profession, depends upon many extraneous factors. General education and widespread traditions have their influence upon medical standards. Natural climatic conditions or unnatural conditions of housing or grouping of people may have a pronounced effect upon the efficiency of the profession in limiting disease. The mere legal standards of a community, in so far as they permit child labor and night work for women, distinctly limit the efficiency of pediatrists in eliminating industrial accidents or in safeguarding the health of individuals. Unrestricted marriage laws permit the continuation of the sad grist of defectives and weaklings.

Recognizing the social and economic forces which interfere with medical progress, it is important to train our medical students so that they may appreciate the difficulties with which they will have to contend. I realize that it is impossible to give a complete course in sociology to medical students with the present distribution of the time, but I do believe that a physician with a knowledge of sociology is far better prepared to cope with the social problems in a manner that the future generation will demand.

We lay great stress upon the infant mortality rate. By virtue of its relative importance in community welfare, the study of its prevention demands commensurate consideration at the hands of medical schools. The crime of omission becomes more regrettable when one contemplates that fully 40% of the infantile death-rate is due to preventable causes. The backbone of preventive work lies in widespread education. Physicians are urging more careful instruction in practical hygiene in our elementary schools, and yet the practical social aspects of hygiene, particularly as related to child welfare, are neglected in the great majority of medical colleges in the United States. Even in the matter of infant feeding or general infant hygiene, the physicians are not fully prepared through collegiate instruction to enter upon their duties with credit to the institutions from which they have graduated.

The teaching of pediatrics must be strengthened. Medical colleges should have specially trained teachers for this subject because of its immense value to humanity. With the decreasing birth-rate, it becomes of the utmost moment that we study methods of conserving children from birth to puberty. The pediatrist must give more attention to social hygiene in his teaching.

Philanthropic societies and organizations interested in social welfare frequently complain of the poor medical advice that is offered to patients requiring social support. As far as such criticisms relate to infants and children, the teachers of pediatrics in the medical schools should hearken to the cry. The medical schools must recognize their responsibility for organizing their pediatric departments so as to give instruction and training in the hygiene of infancy as related to community life.

When one considers an enumeration of the methods employed by the city of Charlottenburg for reducing infant mortality, one may appreciate the full meaning of social pediatrics. To enumerate all that this little German city does for the purpose of bringing its children safely into the world and safeguarding them through infancy, is to suggest types of pediatric information which at present scarcely creep into any pediatric department in this country. These social plans consist of:—

1. Free meals for needy pregnant women.
2. Free board and lodging for needy pregnant women.
3. Free confinement for needy pregnant women.
4. Free housekeeper at home for needy women.
5. Free set of clothes for infant at home.
6. Immediate report of births.
7. Prophylactic babies' dispensaries.
8. Supervision of all boarding houses.
9. Temporary homes for mothers and infants.
10. Observation stations for doubtful social cases at temporary homes.
11. Stopping-over stations between changes of boarding houses.
12. Medical dispensaries.
13. Beds for ill infants at four institutions.
14. Beds for convalescent children.
15. Family House.
16. Professional city guardianship of all.

It would be impossible to cover the whole gamut of social institutions in a pediatric course, but there is no reason why two or three hours at least could not be devoted to acquainting the pediatric students with the various types of institutions which are of value in conserving the child's life. Such information might be given in a didactic way or in connection with clinical material or through lantern slide lectures dealing with social resources. There might be a marked advantage in instituting a study of the various types of institutions which are related to the care of infants and children. In this connection it must be remembered that too few institutions treating children are under the control or even under the supervision and advice of the pediatrists of medical schools. There is every reason for urging that pediatric hygiene be taught in connection with the problems of communal health.

The value of midwives, the importance of health registration, the value of milk depots and infant consultations are certainly pediatric themes. The relation of day nurseries, boarding-out systems, convalescent homes and babies' hospitals are intimately bound up in the mortality rate. The value of school nurses, medical inspectors, school clinics, child labor laws and district nursing are not foreign material in a broad visioned course on pediatrics. The necessity of open-air schools, the problems of the prevention of blindness, the detection and care of defectives, form topics in social pediatrics which are at present holding the attention of welfare workers, while the physicians are not fully acquainted with their relation to pediatric medicine. Child labor, model tenements, preventoria, and school hygiene are among the topics upon which every pediatrist should be able to give an intelligent opinion to his community in so far as they relate to child welfare.

Of the twenty million pupils in the public schools of this country, five per cent. have pulmonary tuberculosis, twenty-five per cent. have defective hearing, twenty-five per cent. suffer from malnutrition, and over thirty per cent. have enlarged tonsils and adenoids or enlarged cervical glands. Fully fifteen million children require attention to their physical health. The responsibility for securing a healthful environment for these children rests upon the community, it is true, but the pediatrist should be the leader in demanding proper conditions for our public school children.

According to Dr. Holt, 25.9% of infantile deaths are due to tuberculosis, acute respiratory disease, and contagious diseases. These different causes of deaths are "capable of considerable reduction, chiefly through proper housing, isolation and medical treatment." Regarding treatment, the medical student may secure some information, but regarding housing or the relation of income to housing and room congestion, he is woefully ignorant. The relation of nationality to infant mortality is not within his ken. There may be some knowledge as to the value of certified milk for infant feeding, but there is not always the judgment which directs the best method of teaching a poor woman how to bring up her child successfully when a certified milk is beyond possibilities. In fact, students are not always made to appreciate the full social or hygienic value of breast milk, nor are they given the necessary information as to the conditions, physical or social, which make it necessary to remove the child from the breast.

Pediatrists must be social teachers and all the stress should not be placed on municipal nurses and health officers. At the present time, however, our medical schools are not giving the first steps in social pediatrics.

Practically fifty-two and a half per cent. of infantile deaths are caused by acute gastro-intestinal diseases, marasmus and inanition and prematurity after the seventh month. This general type of mortality may be reduced through proper care and feeding. The principles of infant feeding are now being taught, though sufficient emphasis is not placed upon instruction in the methods and relative values of artificial feedings. Proprietary foods merit attention so that their indications may be fully understood. It is proper that students should receive unbiased information as to the constituents of proprietary foods, instead of being at the mercy of the semi-scientific statements of detail men. It is equally important that instruction be given regarding wet nurses, infant consultations, and baby farms.

Inasmuch as forty per cent. of the infant mortality is preventable and pediatrics may claim for its field one-fifth of the total population, the necessity for instruction in social hygiene falls especially upon the teachers of diseases of children. The responsibility for general ignorance as to the sociological phases of medicine may in part at least be left at the gates of medical colleges. Proper pediatric education should include at least an outline of the numerous powerful social factors which are involved in the prevention of child morbidity and mortality.

The fundamental causes of infant mortality are poverty and ignorance. The physician may not be able to relieve poverty, but he should be able to correct ignorance and discipline its stepchild, neglect. The medical problems are thoroughly bound up in the social aspects of infant mortality. The pediatrist, teaching methods of prevention, must take into consideration the underlying social conditions or his teaching must be inadequate. Pediatric medicine should be taught in its relation to community life. This is the only way in which the preventive phases can be presented to students in their true relative importance.

The relation of the infant death-rate to the occupation of mothers during pregnancy and after labor is rarely mentioned in a pediatric lecture room. The value of home nursing and district nursing as opposed to public hospitals.

deserves careful consideration. In fact the entire problem of institutions for children from the foundling asylum to the boarding schools affords much valuable information for the pediatrist. How many pediatrists ever consider what type of cases really should be sent to a babies' hospital and what type of cases will have better chance of living if kept within their own homes?

Eighty-five per cent. of infant mortality occurs among children receiving artificial foods. The problem of municipal milk supplies and milk sanitation involve some fundamental social concepts that might well be applied to pediatrics.

The relation of poor ventilation, room congestion, baby farming, over-dressing, vital statistics, housing, playgrounds, recreation facilities, sex hygiene, special classes for the tuberculous, the cripples, the blind, and the countless other aspects of pediatric hygiene, merit consideration in a course that is designed to train men in the prevention of infant mortality and in the conservation of childhood. Eugenics, illegitimacy, alcoholism, pre-natal care, milk stations, educational classes, and social service in connection with dispensaries and hospitals are special problems that are bound up in decreasing the death-rate in infancy and childhood. Social pediatrics should place stress upon them. To adequately teach the conservation and protection of infancy and childhood, medical schools must be socialized in spirit. The pediatric departments, particularly, must participate in this new awakening because the problem of lessening one-third of the total mortality comes within the scope of pediatric work.

A full consideration of the social origin of many of the deaths that occur during childhood marks a new epoch in rational etiology. Physicians of the future will be unable to escape their responsibility for not possessing knowledge upon this subject. The medical schools must readjust their teaching of pediatrics so as to supply the type of information which is most necessary for protecting the community from the plague of preventable diseases. The students are entitled to receive lectures upon social questions as related to the causes of infantile diseases and they should be given some training in the value of the various types of institutions that exist for the prevention, control, or relief of diseases. Social pediatrics simply means teaching pediatrics in the light of the social bases of disease.

If pediatrists are to be leaders in the preventive medical work that is now the present ideal in medicine, the pediatric teachers must be aroused to their responsibility. The teachers in the medical schools must become conscious of their duty in the matter of affording adequate training to the students who go to them for the purpose of being trained along the lines that will develop them into the finest type of efficient, conscientious social pediatrists. In short, social pediatrics must be taught. When this time comes, the graduates of our medical schools will receive from the pediatric departments the training which indicates an understanding of the problems of humanity. The graduates will go out into the world in possession of knowledge, confidence, and ambition, born of a consciousness that "none of us liveth to himself and no man dieth to himself."

Reports of Societies.

THE PHILADELPHIA COUNTY MEDICAL SOCIETY.

MEETING OF WEDNESDAY, APRIL 23, 1913, AT 8.30 P.M.

The President, DR. CHARLES A. E. CODMAN, in the chair.

MARKED ARTHRITIS DEFORMANS GREATLY IMPROVED BY PHYSICAL MEANS.

DR. A. B. HIRSH: The patient shown has been through the usual course of treatment and has gone the round of the different spas without benefit. She was very much bent and was obliged to use a cane in walking. The treatment has been by electrical methods alone, the static and high frequency coil currents. Bacterial infection was excluded by the laboratory examinations and the condition resolved itself into one of long continued absorption of toxins from roots of teeth. The case shows the value of long continued physical treatment in those cases otherwise almost impossible of relief.

A MODERN EXTRAPERITONEAL CESAREAN SECTION AND THE BEST TECHNIC FOR ITS PERFORMANCE.

DR. BARTON COOKE HIRST: The operation is illustrated by a series of drawings. An incision is made below the umbilicus, and large enough to extract the child's head. After making the incisions in the two layers of the peritoneum they are sewed together, which immediately closes the peritoneal cavity, making the operation extraperitoneal. Then follows the incision in the uterine wall made in the ordinary way, and the extraction of the child's head with forceps. The lower uterine segment is sewed with double catgut and the abdominal wall closed in the usual way. It has been found to increase hemorrhage if the placenta is delivered from the uterine wound. It is rather better to clip the cord off, drop it into the uterus, sew up the uterus and deliver as usual. If the woman is not in labor it is necessary to extract the placenta through the uterine wound.

DISCUSSION.

DR. JOHN B. DEAVER: The fact that Dr. Hirst is one of the two who have done this operation in this country and that he has done nine of the ten operations done speaks for itself from the standpoint of experience. It always appeals to me as good surgery to deal with the condition extra-peritoneally. By Dr. Hirst's technic there may, it seems to me, be perhaps a little greater danger to the life of the child.

DR. GEORGE M. BOYD: The lowered mortality in Cesarean section has led some of our American surgeons to resort to the extra-peritoneal operation. I

believe that the Cesarean section is a child-saving operation.

Dr. William R. Nicholson: I have witnessed two-thirds of the operations which Dr. Hirst has performed by this technic. Within five years I believe there will be a larger percentage of men doing his operation in selected cases. Statistics do not prove that the true extraperitoneal technic is any better than the trans-peritoneal method. Dr. Hirst has used a continuous stitch, which seems to be absolutely tight and leaves a space of 8 or 10 cm. and 3 or 5 transversely. The true extraperitoneal method has not a point of any advantage. If the case is septic the patient will die just as readily no matter which technic is employed. The general obstetric operator who has not the facilities for becoming especially expert in technic I believe will do better to adhere to the intraperitoneal route.

Dr. E. E. Montgomery: One of the diagrams seems to show that Dr. Hirst opened the peritoneum and made his operation extraperitoneal by closing up the peritoneum on either side. Without question this is an operation which is preferable to the method known as the pure extraperitoneal. Every operation must be judged by its mortality, morbidity and the conditions in the event of subsequent pregnancy. Statistics indicate that there is not great demand for an extraperitoneal operation in the ordinary case where there is no reason to suspect infection. The section of the peritoneum in Dr. Hirst's method lays bare the uterus and I should like to ask what influence this has upon the action of the bladder.

Dr. Edward P. Davis: Dr. Hirst's description of this technic is an interesting contribution, but the operation is not the extraperitoneal section that I have seen. I welcome, however, most heartily this method of delivery through a peritoneal fistula. I should like to know what Dr. Hirst would do in cases of sepsis. Personally I should not like to employ this method in the presence of hemorrhage or in cases in which I had doubts as to the condition of the uterine muscle.

Dr. Jonathan Larkin Forwood, Chester: I have done Cesarean section 42 times in the Chester Hospital in a period of ten years. My operations have been intraperitoneal. A vertical incision is made through the abdominal walls in the usual way. I formerly made the incision large enough to lift the uterus out and then opened the uterine walls and delivered. Now I operate by cutting through the anterior surface of the uterus an opening large enough only to deliver the child. Hemorrhage has been controlled by the uterine arteries being held by an assistant placing a hand on either side. I do not cut low down in the lower segment for I believe much of the hemorrhage comes from the fundus of the uterus. When the uterus has been sewed up ergot is given hypodermically. In three of the 42 cases instruments had been appiled and there was infection. I operated on one woman four times, upon three other women, twice.

Dr. H. S. Wieder: I should like to ask Dr. Hirst what effect this technic has upon the involution of the uterus following labor, and whether there have been any sypmtoms referable to the bladder from interference with this band of adhesion reaching from the anterior abdominal wall to the lower segment of the uterus?

The paper was further discussed by Dr. Foulkrod and Dr. Bland and closed by Dr. Hirst.

Book Reviews.

Surgical Operations with Local Anesthesia. By Arthur E. Hertzler, M.D., Surgeon to the Halstead Hospital, Halstead, Kan.; Surgeon to the Swedish Hospital, Kansas City, Mo. New York: Surgery Publishing Company. 1912.

In the preface the author states "the object in presenting this book to the profession is to furnish in a convenient form the technic of some of the commoner operations that can be done in a satisfactory manner under local anesthesia. I have had in mind the needs of the general practitioner, and the surgeon who works without the advantages which accessibility to a Hospital affords."

In other words, this is not only a primer of local anesthesia, but to some extent an operative text-book: this explains certain notes printed in red ink, on the margins of the pages, which otherwise might seem superfluous.

The book is a small volume, well printed and illustrated, and is a very satisfactory introduction to local anesthesia. The author wisely advises his readers, not to try to develope local anesthesia unless they are prepared to study and to practice its minute details, to operate slowly, and with an unusual knowledge of minute anatomy; time is necessary to perfect technic. The consideration of the advantages and disadvantages of local anesthesia as a whole, and of the various drugs in particular, is fair and satisfactory. Altogether, the little volume may be recommended both to students and to practitioners.

The International Medical Annual. A Year Book of Treatment and Practitioners' Index. New York: E. B. Treat and Company. 1913.

This thirty-first annual issue of a standard year-book aims to represent accurately the progress of the past twelve-month in all branches of medical science. It is the work of 31 distinguished contributors, and is fully illustrated by 42 full page plates and 110 cuts in the text. The first part is a dictionary of materia medica and therapeutics, including particularly a general review of salvarsan and a chapter on radioactivity and electro-therapeutics. The second part is a dictionary of treatment, with special articles on anesthesia, blood examination, brain surgery, cancer, lung surgery, syphilis, thyroid surgery, and tuberculosis. The third part is devoted to topics of public health, including medico-legal, forensic, and state medicine. This year there has been prefixed to the volume for the first time a glossary of 31 new and unfamiliar terms. The work maintains well its value and interest for general practitioners desirous to keep themselves informed of progress in their profession.

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A STATE HEALTH LAW.

AN important bill, providing new machinery for the prevention of disease, was recommended by a Public Health Commission, of which Dr. Hermann M. Biggs was the head, appointed by Governor Sulzer of New York. This bill, having passed both houses of the legislature of that State has, by its governor's signature, become law. It is provided that there shall be a public health council, consisting of the State Commissioner of Health, whose term is to be six years, the salary to be $8,000 the year, and six members appointed by the governor, of whom at least three shall be physicians and one a sanitary expert. This council is to enact, and from time to time amend, a sanitary code, applicable everywhere within the State except the metropolis; but each city and town may enact additional regulations not inconsistent with the State code. The council has no executive, administrative or appointive power or duties. Heretofore there have been six divisions of the State Department of Health—administration, sanitary engineering, laboratory and research, communicable diseases, vital statistics, publicity and education. These divisions are now written into the statute and to them are added three new ones, each to be in charge of a director—child hygiene, public health nursing and tuberculosis. The Commissioner of Health is charged with the enforcement of the public health law and the sanitary code and shall exercise general supervision over local health officers. He must divide the State periodically into twenty or more sanitary districts, appointing for each a sanitary supervisor, who must be a physician, and whose duties shall be: An annual sanitary survey of his district; organization of district conferences of health officers; adjustment of questions of jurisdiction arising between local health officers; the study of causes of excessive mortality from any disease; the promotion of the registration of births and deaths; inspection of labor camps and enforcement in them of the sanitary code, inspection of Indian reservations; securing the coöperation of physicians in the improvement of public health; the promotion of educational campaigns on public health.

The Commissioner of Health may employ public health nurses, assigning them from time to time to assist sanitary supervisors and local health officers in the control of infection. He must recommend to city authorities the establishment of hospitals for infectious diseases, and shall inspect all such institutions. The powers and duties of town and village health boards are by this act transferred to the respective boards of trustees. Should any of the latter fail to appoint a health officer the Commissioner of Health may exercise the powers of such an officer in that locality, the Commissioner's expenses being a charge upon the locality. The Commissioner is empowered to investigate the enforcement of the tenement house laws in all cities. Every health officer shall receive a respectable compensation for his services, not as formerly when, in one instance, the village dog catcher got a larger salary than the health officer. In communities of 8,000 or less at least ten cents per annum per inhabitant shall be paid; health officials in populations of 8,000 or over shall have an annual salary of not less than $800; and health officials shall have an additional compensation which shall be equal to the charge for consultation services in the locality'' in times of epidemic. Health officers may employ any number of public health nurses they may deem necessary ''within the limits of appropriation made therefor by the city, town or village.''

The tuberculosis registration law of the State is amended to permit the reporting of cases of tuberculosis by physicians over the telephone or in person as well as in writing. Health officers are authorized to cause every reported case of this disease within their jurisdiction to be visited by a public health nurse, unless the physician making the report will carry into effect the procedures and precautions required by the

public health law and the sanitary code, when the nurse shall act under his direction and supervision. Each registrar of vital statistics must report promptly to the health officer the name and address of every tuberculosis patient that has died, and the health officer must ascertain if such patient had previously been reported by the doctor signing the death certificate. If any doctor has been found to have failed repeatedly in reporting cases of this disease, the health officer shall state his violations to the local health board, which body shall enforce the penalty for the violation (a misdemeanor) of the tuberculosis law. Health authorities are given control over persistently dangerous and careless patients afflicted with an infectious, contagious, or communicable disease; on complaint to a magistrate, with proof that such patient is a menace to the community, the patient may be committed to a hospital for the protection of his family and of the public.

THREE MEDICAL MEETINGS.

Three important meetings of medical societies are to be held in Minneapolis, Minn., during the coming week. On June 13, 14 and 15 is to occur the thirty-eighth annual meeting of the American Academy of Medicine. On June 16 and 17 is the fifteenth annual meeting of the American Proctologic Society. And from June 17 to 20 is to be the annual meeting of the American Medical Association.

The program of this last meeting has been fully detailed in the *Journal* of the Association. Attention should be called, however, to one of the matters of business which is to come before the House of Delegates on this occasion. In 1908, the American Institute of Homeopathy appointed a committee, consisting of Dr. Herbert D. Schenck, of Brooklyn, N. Y., Dr. J. B. G. Custis and Dr. William R. King, of Washington, D. C., Dr. Royal S. Copeland, of New York City; Dr. Frank Richardson, of Boston; Dr. Alonzo C. Tenney and Dr. Fred W. Wood, of Chicago; and Dr. Benjamin F. Bailey, of Lincoln, Neb., "to present to the American Medical Association on behalf of the homeopathic physicians of the United States a proposition for a joint investigation of the scientific merits of the method of drug slection expressed by the formula "*Similia Similibus Curentur.*" On May 17, 1913, this committee presented to the president and secretary of the American Medical Association a letter reading in part as follows:—

"This rule has governed the selection of drugs in the treatment of disease by a considerable number of medical practitioners for over a century. We feel that the time has come when this formula should be brought before the whole medical profession, carefully investigated by modern scientific methods and a determination made of the exact value of this method in the practice of medicine. We seek this,

"First, Because the voluntary testimony of a large number of physicians who do not understand the correct application of this method indicates their desire to make use of it.

"Second, Because a large number of men who attempt its use ought to be able to get a better understanding of its true significance.

"Third, Because we believe a large majority of the medical profession would have their usefulness and their power to benefit the sick largely enhanced by a thorough knowledge of this method.

"Fourth, Because we believe that suffering is lessened and sickness more speedily and comfortably terminated through drugs administered according to the rule of similars.

"Fifth, Because we feel that a careful investigation of this subject belongs to the whole medical profession and not to any single branch of it.

"Sixth, We feel that such research regarding the formula of similars is desirable. Because the exactness of modern science with the present means of investigation, together with the accurate observation of the subjective as well as the objective symptoms, make it expedient to investigate the action of many drugs coming into use at the present time, as well as to re-examine those long proven.

"For the above reasons we pray that your organization appoint a Committee of Five to meet a like committee from the American Institute of Homeopathy to discuss this subject with a view of attempting a demonstration of the accuracy of the theory of similars, or of proving its falsity.

"It seems to us that its joint investigation should be made under the auspices of some research laboratory like the Rockefeller Institute of New York or the McCormick Institute of Chicago. These institutions have the experts necessary for such a test; with trained eyes they could follow its course from start to finish. Whether the result of the particular investigation should prove satisfactory or not, the effort would not be wasted because a list of drugs in common use among the members of your Association as well as ours, can be selected for this study of their physiological action. These accurate observations would be of permanent value to both schools.

"After careful investigation of the effects of these drugs in different strengths upon the hu-

man body, as well as observing their poisonous effects in animals, an extensive trial of their therapeutic efficacy should be made in some of the large public hospitals to test the action of these remedies in exemplifying this theory of drug administration.

"In recent years every effort has been made to unite the medical profession. A large number of legal practitioners is kept from affiliation because of its belief in a method of drug selection, the truth of which is questioned by the majority. Let us make a thorough test of this hypothesis. If it is proven true, humanity will be benefited by the enlarged and improved armamentarium of all physicians; if it be disproven, the last obstacle to medical union will have been removed.

"To the end, therefore, that the truth be established, let us put this theory to the test proposed. Naturally we feel confident that the principle will be established, but in the interest of mankind we request that you join us in a scientific demonstration of the truth or falsity of the theory of cure promulgated by Samuel Hahnemann."

The action of the House of Delegates of the American Medical Association on this letter, and its proposition, will be observed with interest by physicians throughout the country.

THE DEFEAT OF TWO UNDESIRABLE MEASURES.

It is a matter of congratulation to the community and to the medical profession of this State that the General Court last week defeated two very unwise measures brought before it under the guise of legislation for the benefit of public health. The first was a bill providing for the reorganization of the State Board of Health by substituting for the present simple, inexpensive, efficient body, serving largely out of public spirit and professional zeal, a paid commission of five members, one of whom should be a sanitary engineer, one a pharmacist, and three "learned in the science of medicine and hygiene." Massachusetts has reason to be grateful for the disinterested and competent work of its present State Board of Health. Such offices should be the last to be made political rewards and prizes of pecuniary ambition.

The second measure, happily also defeated, was a bill (House No. 2535) "to provide a definite policy for the treatment of tuberculosis," and carrying an appropriation of $500,000 to be expended for the construction of tuberculosis hospitals. Tuberculosis, unlike insanity, is primarily a local problem, and the ultimate responsibility for dealing with it, should rest with local authority. Massachusetts is again fortunate in the disinterested and efficient service of the members of its board of trustees of existing State hospitals for consumptives, who have exercised such general supervision as was needed over the tuberculosis work of the State and have demonstrated and developed the methods by which local communities may most properly and economically deal with their respective problems and conditions. A change in method, such as that suggested by the defeated bill, would be not only an undeserved reflection on the admirable work of the trustees of State hospitals for consumptives, but an undesirable change of policy and shifting of local responsibility.

The community is to be congratulated that both these undesirable bills have failed to pass.

THE END OF THE FRIEDMANN FALLACY.

The activities of Dr. Friedmann in this country received a sudden check by the action of the New York Board of Health. On May 26, the day when the first Friedmann Institute was opened in New York, Dr. Joseph J. O'Connell, health officer of the port, in a letter to the health commissioner, Dr. Lederle, requested that the administration of the Friedmann treatment for tuberculosis be prohibited "until such time as those affirmatively interested in its administration shall satisfy the health department of its innocuous character." The letter continues:—

"The reports of the investigator of your department are all to the effect that the dangers which might be apprehended in such a form of treatment are actually present therein. He finds that the patients subjected to this treatment have not improved, but have lost ground to an extent greater than might be expected from the natural ravages of the disease.

"He finds that where the tuberculous condition had affected one side prior to inoculation with the serum, there was after such inoculation an unnaturally rapid devolopment of the tubercular process on the hitherto healthy side, which indicates that the operation of the alleged cure had a tendency to accelerate rather than retard the progress of the disease.

"It seems to me that it would be culpable for us to hesitate longer and that our duty now is to insist upon such a regulation and supervision of this enterprise as shall prevent the perpetration upon the public of a dangerous and cruel fraud. We cannot overlook the fact that this treatment has been exploited much after the manner of the

exploitation of certain so-called mining securities, and other financial schemes from which the credulous public has suffered.

"The wide advertisement of the serum has had an effect of awakening a final and pitiful hope in the breasts of the desperately ill, which shrewd and conscienceless men might turn into an immense financial profit. There has been time and opportunity in plentiful measure extended to Dr. Friedmann and those who propose similar remedies for tuberculosis to demonstrate the therapeutic value of their treatments, but there has been no such demonstration of value. On the other hand, we have before us reports of the gravest character."

This letter was followed by almost immediate action. On May 29 the New York Board of Health, by unanimous action, added a section to the Sanitary Code which puts an end to the use of the Friedmann treatment, for the time being at least, in the City of New York. This reads as follows: "The use of living bacterial organisms in the inoculation of human beings for the prevention or treatment of disease is hereby prohibited until after full and complete data regarding the method of use, including a specimen of the culture and other agents employed therewith, and a full account of the details of preparation, dosage and administration, shall have been submitted to the Board of Health of the City of New York, and until permission shall have been granted in writing by the said board for the use of the same." Infringement of the section is a misdemeanor, subjecting the offender to a year's imprisonment and a fine of $500. The resolution which resulted in the passing of this ordinance was accompanied by a preamble stating that in the judgment of the board the use of such living bacterial cultures might be fraught with danger to the individual and to the public health; that the necessity and harmlessness of the procedure could be safely determined only by carefully planned and uncontrolled, and unbiased, scientific measures and observations; that certain tests in the city of an alleged cure for tuberculosis were being rendered unsatisfactory, unscientific, and practically futile through the insistence of the originator of the alleged remedy on conditions involving inadequate observation, inaccurate methods of administration, and continued secrecy regarding the substance employed in some phases of the treatment; and that evidence was already at hand to show that the so-called remedy did not fulfil the promises of efficiency and safety under which it had been permitted in the city, but on the contrary, during its administration many patients had suffered serious and unduly rapid progress of their disease. Within an hour after the board of health adjourned the recently established "Friedmann Institute" on West End Avenue, the directorship of which Dr. Rambaud, head of the New York Pasteur Institute, had accepted, closed its doors. Shortly afterwards the news was received that Dr. Friedmann, then in Providence, R. I., treating patients, had abandoned a projected visit to Woonsocket for the same purpose, and had announced his intention of returning immediately to Germany.

His departure presumably terminates the attempt to introduce his method of treatment in this country, and happily will probably also result in the dissolution of the so-called Friedmann Institutes, actual and projected. There can be nothing but congratulation for the prompt collapse of so unworthy a financial enterprise. The only source of regret is that a member of our profession, once in good standing, should have allied himself with it for purposes of gain. Honest fanatic error can be readily forgiven, but not the motives which seem to have prompted what for a time promised to be one of the notable popular medical delusions of the century.

IMMUNIZATION AGAINST DIPHTHERIA.

The general attention of the profession should be called to a method of more permanent immunization against diphtheria brought forward at a recent meeting of the German Medical Association by Professor von Behring and described at length by him in an article in the issue of the *Deutsche medizinische Wochenschrift* for May 8, reviewed in last week's issue of the Journal (p. 860). Already a favorable report of the use of this method has been published by Dr. Schreiber in the issue of the same *Wochenschrift* for May 15, reveiewed on p. 897 of this issue of the *Journal*.

Of course considerable time must elapse before experience can determine the actual efficacy of this method; but the source from which it proceeds leads to the entertainment of high hope for its value. The development of a method which should confer an immunity against diphtheria even for a few years, would not only be of immense advantage in diminishing the incidence of the disease, but would make possible its complete eradication, as that of smallpox and typhoid fever are now possible.

MEDICAL NOTES.

USE OF HORSEFLESH AS FOOD IN FRANCE.—The extent to which horseflesh is used for human food in continental Europe is hardly realized in America. Report from Paris on May 31 states that there are in France 700 establishments where horses are slaughtered for this purpose. In Paris alone 60,000 horses were thus consumed in the year 1911. The usual retail butcher's price for horse-flesh is three and one-half cents a pound.

SALE OF A MEDIEVAL CRUSADER'S HOSPICE.—Report from Paris states that on June 9 there was sold by auction at Rouen the ancient medieval hospital of Aulney, which was given by Richard Coeur de Lion to be an asylum for victims of pestilence, and which served this purpose from about 1200 to 1616 A.D. Since that time the estate has been farmed out to private persons.

BEQUEST FOR CANCER RESEARCH.—Report from London on June 2 states that Mr. Arthur James, of that city, has given to the Middlesex Hospital, the sum of £20,000 to be used for cancer research as a memorial to his brother, William James, who died in March, 1912.

DECLINING GERMAN BIRTH-RATE.—In a recent issue of the JOURNAL we noted and commented upon the declining birth-rate in Germany. Further figures, recently published, indicate that this decline affects the families of mechanics as well as those of the wealthy. During the past ten years the birth-rate has fallen in München from 35 to 22 per thousand; in Dresden from 31 to 20; in Nürnberg from 39 to 26; and in Schöneberg from 26.5 to 13.7.

INTERNATIONAL OPIUM CONFERENCE.—Report from Washington, D. C., states that the International Opium Conference will reassemble at The Hague, Holland, as soon as responses have been received from the governments of Greece, Peru, Switzerland, and Turkey.

"Working in conjunction with the Government of The Netherlands, the State Department here has now managed to secure assent to the conference, not only from the twelve signatory Powers, participants in the original conference, but from a majority of the other thirty-four nations of the world, regarded as essential to a successful covenant to abolish finally the opium traffic in all but medicinal preparations. This result has been brought about only by constant and prolonged pressure, and one of the successful features of the undertaking has been the final agreement of the British Government to suspend permanently all other exportations of Indian opium into China. The moving spirits of the movement in this country anticipate the repurchase by the Government of the $60,000,000 worth of opium now held in Shanghai and its return for consumption to India, in view of the final determination of the Chinese Government not to allow this drug to be sold to its own people."

THE PORTO RICAN PLAGUE EPIDEMIC OF JUNE, 1912.—The weekly report of the United States Public Health Service for May 30, 1913, contains a detailed account, by Dr. Richard H. Creel, of the outbreak and suppression of the epidemic of bubonic plague which prevailed in Porto Rico during June, 1912, and of which full description was given in contemporary issues of the JOURNAL. This report may be regarded as a model of measures to be adopted for the control of similar possible epidemics of this disease in other localities.

ANTI-VIVISECTION IN PHILADELPHIA.—Report from Philadelphia on June 3 states that the Pennsylvania Society for the Prevention of Cruelty to Animals is about to institute proceedings of prosecution against five members of the teaching staff of the University of Pennsylvania Medical School, charging them with inhumanity in their treatment of laboratory animals. This procedure is evidently another attempt of anti-vivisectionists to hamper the progress of medical science and research by interference with legitimate animal experimentation.

GIFT TO VANDERBILT UNIVERSITY MEDICAL SCHOOL.—Report from Nashville, Tenn., on May 31 announces a gift of $1,000,000 by Mr. Andrew Carnegie to the medical department of Vanderbilt University:—

"Of this sum $200,000 would be given to the university immediately for the erection and equipment of laboratories. The income from the remaining $800,000 would be paid annually for the support of the department through the Carnegie corporation. A condition of the donation provides that the direction of the educational and scientific work of the department be committed by the board of trustees to a small board of seven members, three of whom shall be eminent in medical and scientific work."

BOSTON AND NEW ENGLAND.

The Meaney Milk Bill Vetoed.—In the issue of the Journal for May 29, we commented editorially (Vol. clxviii, p. 811) on the Meaney milk bill, then pending before the legislature, and on the undesirability of its enactment into law. This bill has since been passed by both House and Senate. In the hope of securing the Governor's veto, a protest was filed by the medical committee of the Boston Milk and Baby Hygiene Association, stating the following reasons why the Meaney bill should not become law:—

"First—The bill calls for simply labelling milk as pasteurized milk. This does not call for any control of the kind of pasteurization, which we feel is a very serious omission, as the type of pasturization which the milk receives is very important. The different processes used in pasteurization vary widely and the effect on the quality of the milk depends absolutely on the method used. Unless the type of pasteurization is definitely specified, the fact that milk is labelled pasteurized milk would mean nothing as to its purity.

"Second—The State Board of Health is given no authority over the inspection of milk entering the state or produced within the state. This, we believe, is a grave error, and we feel sure that you must be of the same opinion when you consider the high quality of our State Board of Health and the importance which such inspection would have as a public health measure. We feel that, unless inspecting control is given to a proper public authority, any measure passed would not only fall short of being a public health measure, but might well be a menace to public health.

"Third—We believe that there is nothing to be gained by passing such a bill as the Meaney bill, and that it would rather hinder than benefit further legislation in behalf of a better milk supply, and we sincerely hope that Your Excellency will not approve the Meaney bill by your signature."

The protest is signed by William P. Lucas, M.D., chairman; Arthur S. Howard, M.D.; Maynard Ladd, M.D.; Richard Smith, M.D.; Charles W. Townsend, M.D., and J. Herbert Young, M.D.

As we go to press we learn that the Governor has returned the bill without his approval and that the House has passed it over his veto.

New Building of Melrose Hospital.—The new concrete building of the Melrose (Mass.) Hospital was formally dedicated last week with appropriate ceremony. The principal address was made by Dr. Julius S. Clark, the senior member of the hospital staff. The patients will be transferred next week from the old building.

Smallpox in Maine.—Report from Saco, Me., on June 2, states that a case of smallpox was discovered last week in that city, and another in Portland, Me. The patients were removed to isolation hospitals, and all contacts were vaccinated.

Segregation of the Feeble-Minded.—In a bulletin recently issued by the Massachusetts Society for the Prevention of Cruelty to Children, a committee of that organization presents the results of its investigations into the problem of the feeble-minded in this state, and urges strongly the complete segregation of such persons as the most humane, effective, and economic method of dealing with this class.

"The society's committee estimates that there are now about 10,000 feeble-minded persons in Massachusetts, and this number does not include any of the 1900 feeble-minded who are this year receiving care in the two state schools, at Waverly and Wrentham, or any of the 600 who are now in the various almshouses. After showing the inadequacy of present provision for the feeble-minded, the committee goes on to say: 'Wherever a careful study has been made, feeble-mindedness is found to constitute a serious drain upon the resources of all public and private agencies for relief. Resources which should be used for the relief of normal persons are diverted to the need of defectives, with the result that conditions which should be made impossible are perpetuatd. All who have studied or had to do with the feeble-minded are convinced that they inevitably become the dependent, delinquent or diseased members of their communities, and producing offspring, these are equally ignorant, immoral and prolific.'

"The probable cost to the state of 20 children in three defective families has recently been calculated to be $64,775, or an average of $3240 for each child. In a report on the 'Hill Folk,' a community of hereditary defectives living in a town of Massachusetts, it is shown that the cost to the state and county of crimes committed by 16 members of the community in the last 30 years has been $10,763.43. Thirty-five members of the Hill families have been state charges and have cost $45,888.57. The prison commission asks this year for an appropriation of $100,000 to build a new department for women and girls at Sherborn, and an additional $100,000 to build a similar department at the state farm for men over 21. The trustees of the Institution for the Feeble-Minded at Waverly are asking for an additional appropriation of about $290,000 to

provide for 345 more of these unfortunates. Feeble-mindedness is 80 per cent. hereditary. By segregation only can sufficient relief be obtained so that these unfortunates will not propagate their kind. Both these appropriations should, therefore, be passed, for they may be looked upon as a sound financial investment for the future well being of our state."

BOSTON MORTALITY STATISTICS.—Cases of infectious diseases reported to the Boston Board of Health for the week ending June 3, 1913: Diphtheria, 2, non-residents, 2; scarlatina, 30; typhoid fever, 1; measles, 142, non-resident, 1; tuberculosis, 57. The death-rate of the reported deaths for the week was 16.10.

NEW YORK.

COMPULSORY ANTI-TYPHOID INOCULATION.—At a joint meeting of the directors of the Mount Sinai Hospital and of the Mount Sinai Training School for Nurses held on May 26, it was decided to enforce compulsory anti-typhoid inoculation for all members of the house staff and all nurses, orderlies, attendants and laundresses.

BETH DAVID HOSPITAL.—An addition to the Beth David Hospital, on upper Lexington Avenue, was formally opened on June 2, with addresses by Dr. A. Jacobi and others. The new building, which cost $125,000, is four stories in height, and will accommodate 80 patients. In addition to free wards and rooms for private patients, it contains the main hospital offices, the laboratory, and x-ray and operating rooms.

AN ANTIQUE TEAM.—An interesting feature of the seventh annual work-horse parade, on Memorial Day, was a vehicle drawn by a mare 21 years old, entered in the "old horse" class, which was driven by a man of 61 who was accompanied by his father and mother, aged respectively 101 and 103 years. It was stated that the venerable couple had recently celebrated their 75th wedding anniversary.

INCIDENCE OF POLIOMYELITIS.—The *Weekly Bulletin* of the Health Department states that during 1912 there were reported in New York City 504 cases of poliomyelitis, with 57 deaths: a case fatality of 11.1% and a case incidence of 9.8 per 100,000 of the population. In 1911 there were reported 358 cases and 9 deaths, a case fatality of 2.5% and an incidence of 7.2. The increase occurred chiefly in the borough of Manhattan, but of the 361 cases reported there for 1912, over 100 properly belonged to the previous year, owing to the delay of physicians in reporting.

ROCKEFELLER INSTITUTE PENSIONS.—Pensions for its members and associate members have been provided by the governing boards of The Rockefeller Institute for Medical Research, and have been financially secured by the generosity of Mr. John D. Rockefeller, who has, with this purpose in view, increased the endowment of the institute by a gift to it of securities amounting to about $500,000 in value. The pension rules which have been adopted provide three-quarters-pay pensions for members of the institute retiring at the age of 65 after 15 or more years of service, and pensions of from one-half to three-quarters of full pay, according to the length of service, for members and associate members who retire at 60 years of age. There is also a provision for total disability after ten years of service, and for widows and orphaned children, at one-half the scale upon which members of the staff are pensioned.

THE CONTROL OF CANCER.—A press report from New York on May 23 describes as follows the preliminary organization of the national society established to combat the spread of cancer.

"A committee of laymen appointed in April to consider the organization of a society to fight cancer in this country met yesterday afternoon with committees of physicians and formed an association to conduct a nation-wide campaign. The following officers were elected yesterday afternoon; President, George C. Clark, New York City; vice-presidents, Dr. Clement Cleveland, New York City; Dr. Lewis M. McMurtry, Louisville, Ky.; Dr. Edward Reynolds, Boston; Dr. Edward Martin, Philadelphia; Dr. Llewellys F. Barker, Baltimore; secretary, Thomas M. Debevoise.

"The executive committee is composed of Dr. George Brewer, New York City; Dr. F. F. Simpson, Pittsburg; Dr. Livingston Farrand, New York City; Dr. Joseph Bloodgood, Baltimore; Dr. A. D. Bevan, Chicago; Dr. Le Roy Broun and Dr. Howard Lilienthal of New York City; Dr. Jeff Miller, New Orleans; Dr. James Ewing, New York City; Dr. Charles Powers, Denver; Dr. Reuben Peterson, Ann Arbor, Mich.; Dr. William M. Studdiford, New York City; Dr. Frederick J. Taussig, St. Louis; Dr. Howard C. Taylor, New York City; John E. Parsons and V. Everit Macy.

"The committee of laymen includes James Speyer, V. Everit Macy, Thomas W. Lamont, George C. Clark, Frederick L. Hoffman, statistician of the Prudential Life Insurance Company; John E. Parsons, Thomas M. Debevoise.

"The medical associations represented yesterday afternoon were the American Dermatological Association, American Surgical Association, American Laryngological Association, American Otological Association, American Genito-Urinary Association, American Gynecological Society, American Association of Pathologists and Bacteriologists, American Orthopedic Association, American Ophthalmological Society, American Neurological Association.

"Other societies interested in cancer problems will be asked to take part in the campaign. The plan is to enlighten American women on cancer, because 50 per cent. more women suffer from the disease than men. One way of doing this will be by articles in women's magazines and journals of nursing, and pamphlets distributed by visiting nurses, social workers, physicians and through the agency of women's clubs. Another way will be by special instruction in nurses' training schools and by lectures before mothers' clubs."

Current Literature.

Medical Record.

May 31, 1913.

1 *Stern, H. *The Clinical Evidence of Lymphuria.*
2. Ayres, W. *Colon Bacillus Infection of the Kidney.*
3. McMurtrie, D. C. *Prostitution in New York City. A Study in Social Hygiene.*
4. Milne, L. S. *A Case of Addison's Disease with Severe Abdominal Symptoms.*
5. Loblenz, J. M. *Angioneurotic Edema.*
6. Manning, J. V. *A Study of the Flaccid Spinal Paralysis Which Attacked Louis Pasteur in Early Maturity and Its Similarity to an Attack of Acute Epidemic Poliomyelitis, Together with a Study of the Silkworm as a Possible Mediary Host of the Same Disease.*
7. Geldman, A. *A Plea for Early Laparotomy in Abdominal Diseases.*
8. Rush, J. O. *Venereal Diseases in the Negro, with Special Reference to Gonorrhea.*
9. Carter, W. W. *A Simple and Satisfactory Method of Removing Adenoids and Tonsils.*

1. Stern presents a preliminary paper on lymphuria. This condition may exist without any evidence of renal damage. An intermittent juvenile albuminuria without demonstrable inflammatory products but some lymphocytes points to the presence of lymph in the urine. When in addition intestinal disturbances or habitual constipation are present and there is much adenoid tissue, palpable lymph nodes, enlarged tonsils, anemia and exhaustion, a diagnosis of lymphuria is justified. [L. D. C.]

New York Medical Journal.

May 31, 1913.

1. Taylor, R. T. *Restoring Mobility After Bony Ankylosis of the Joints.*
2. Doty, A. H. *The Care of the Tuberculous Employees by the Corporations as Employers.*
3. Reed, A. C. *The Philosophy of Preventive Medicine.*
4. Meyers, V. C. *Hospital Urinalysis.*
5. Miningham, W. D. *Enchondroma of the Scapula.*
6. Pitfield, R. L. *Pylorospasm with Gastric Tetany.*
7. Schulman, M. *Mitral Stenosis.*
8. Parounagian, M. B. *The Old Method of Treatment of Syphilis versus the New.*
9. Gordon, M. B. *Report of Three Cases of Epidemic Septic Sore Throat in One Family.*
10. Horowicz, B. S. *The Care and After-care of the Consumptive, with Special Reference to New York City.*
11. *Barr, R. A. *Acute Intestinal Obstruction.*
12. Jacobs, L. *The Successful Treatment of Atrophic Rhinitis and Ozena; A New Remedy.*

11. Barr gives his views on the diagnosis and treatment of acute intestinal obstruction and its causes. He believes that digestive disturbances with colic following abdominal operations should be treated with opiates, not with purgatives. Attempts to move the bowels should be made with enemata only. Suspected mechanical obstruction should never be treated or tested by mouth purgatives. Patients with obstruction that does not yield promptly to opiates, gastric lavage, enemata and hypodermoclysis should be treated by section. [L. D. C.]

The Indian Medical Gazette.

May, 1913.

1. Sutherland, W. D. *The Sero-Diagnosis of Syphilis.*
2. *Caddy, A. *Life Assurance in India.*
3. Mulvany, J. *A Note on Judicial Hanging.*
4. *Delany, T. H. *Can Cholelithiasis Be Successfully Treated Without Operation?*
5. *Barry, C. *Notes on One Hundred Consecutive Laparotomies Performed for Pyosalpinx in the Civil General Hospital, Rangoon.*

2. From a statistic study of the data of 11,455 candidates for life assurance in India, Caddy concludes that the native of India is usually shorter than the European, but weighs proportionately the same; that he is very subject to glycosuria and hydrocele; and that opium and hemp drugs are not commonly consumed by the insuring classes.

4. Delany advocates the therapeutic use of ipecacuanha in the conservative treatment of gall-stones.

5. Barry reports and summarizes collectively 100 cases operated for pyosalpinx, with a mortality of 6%. [R. M. G.]

Deutsche Medizinische Wochenschrift.

No. 20. May 15, 1913.

1. Hübner, A. H. *Pathology and Treatment of Degeneration.*
2. *Gudzent, F., and Winkler. *The Treatment of Psoriasis with Thorium-X.*
3. Rosenberg, M. *The Question of the Serologic Diagnosis of Carcinoma. II. The Meiostagmin Reaction.*
4. *Schreiber, E. *The Prophylaxis and Treatment of Diphtheria.*

5. RÜBSAMEN, W. *Further Contribution to the Pregnancy Serum Treatment of the Pregnancy Toxicoses.*
6. *SOWADE, H. *Clinical Experiences with Embarin.*
7. KUHN, F. *The Extended Operation for Malignant Tumors of the Upper Jaw.*
8. SASSE, A. *Incarcerated Hernia of an Appendix Loop, a Contribution to the Etiology of Appendicitis.*
9. FRÖSE. *Nose Operations for the Overcoming of Headache.*
10. GRAUL, G. *Asthenic Constitutional Disease and Diabetes Mellitus.*
11. TOBIAS, E. *The Physical Treatment of Sexual Impotence.*
12. WOLF, W. *The Efficacy of Collargol Injections in Septic Processes.*
13. HOFFMANN, A. *Iron Sajodin in Arteriosclerosis.*
14. BIEDL, A., AND KRAUS, R. *Anaphylaxis as an Intoxication by Albumin Bye-Products.*
15. NERKING, J. *The Question of the Toxic Action of Rhodan Salts.*
16. SCHNÉE, A. *New Uses of the Electric Four Cell Bath.*
17. FRIEDEL, E. *The Sterilization of Insane Persons for Social Indication.*
18. KOPSCH, F. *Two Hundred Years of Berlin Anatomy. (To be concluded.)*

2. The authors conclude that though thorium-X has not proved itself the agent of choice in the treatment of psoriasis, yet its use is justified in all cases in which other methods fail.

4. Schreiber states that in his experience the active immunization suggested by von Behring has proved entirely harmless and efficient, and should be of great value for prophylaxis. For treatment only intramuscular is as suitable as intravenous injection.

6. Embarin is a new preparation, a solution of sodio-mercuric sulpho-salicylate, containing 3% of mercury with an addition of ½% of alsoin. Sowade reports that from his experience it has proved a well-acting antisyphilitic agent. With proper technic, the injections are painless. A great advantage is that with embarin an energetic mercurial treatment can be carried out in three or four weeks. In the event of untoward symptoms, such as high fever, convulsions, unconsciousness, vomiting, or collapse, its use should be discontinued in that individual case.

[R. M. G.]

MÜNCHENER MEDIZINISCHE WOCHENSCHRIFT.

No. 19. MAY 13, 1913.

1. STAÜBLI, C. *Simultaneous Temperature Measurements and Their Clinical Significance.*
2. *HEIDENHAIN, L. *Indications for Operation from Statistical and Technical Observations in Acute Occlusion of the Gall Duct by Stones.*
3. FREIDMANN, M. *Continuous Intravenous Infusions.*
4. KLUNKER. *The Use of Conradi-Trochs Tellurium Media for the Recognition of Diphtheria Bacilli.*
5. MANGOLD, E. *Further Observations on Voluntary Contraction of the Tensor Tympani.*
6. TRUMPP. *The Spread of Acute Anterior Poliomyelitis in Families.*
7. *LENK, R., AND EISLER, F. *Experimental Radiological Studies on the Physiology and Pathology of the Intestinal Tract.*
8. JESSEN, F. *Freund's Operation for Emphysema.*
9. JAUCKE. *The Diagnosis of Tumors of the Spinal Cord.*
10. WOLZE, AND PAGENSTECHER, A. *The Results of Treatment by Copper and Roentgen Rays in an Inoperable Sarcoma of the Parotid Gland.*
11. HIRSCH. *The Treatment of the Pains and Paraesthesiae of Tabes.*
12. ORTH. *Traumatic Rupture of a Cerebral Aneurysm.*
13. SCHÜTZ. *A Measure for the Angles of Joints.*
14. EHRWALD, E. *The Transmission of Malaria.*
15. MEHLER, H., AND ASCHER, L. *The Chemotherapy of Tuberculosis. Observations with Barcholin.*
16. SAUERBRUCH, F. *The Influence on Lung Diseases by Artificial Paralysis of the Diaphragm.*
17. ZIELER. *Orthostatic Albuminuria in Tuberculosis.*
18. COHEN, M. *The Condition of the Appendix As Shown by the Roentgen Ray.*
19. SUDHOFF, K. *Johann Christoph Huber.*

2. Heidenhain believes that all cases of acute occlusion of the bile duct by stones should be operated on unless within a week the jaundice has disappeared. the patient has recovered and there is no evidence of other stones remaining in the bile ducts. Heidenhain has found that acute jaundice is no contraindication to operation. He believes that the earlier the case is operated on, the less sick is the patient. By early exploration, secondary manifestations, such as chronic cholecystitis, chronic dyspepsia and pyloric or duodenal obstruction by scar formation, are avoided. Finally, the number and position of gall stones is difficult to determine without operation. Heidenham reports 328 cases. He describes his operative technic.

7. Lenk and Eisler have studied experimentally the effect of hypochlorhydria and hyperchlohydria on gastric motility as determined by the x-ray. Cats were given a test meal of gruel and barium sulphate. Hypoacidity was produced by magnesium oxide. Hyperacidity by dilute hydrochloric acid given before the test meal, directly after and at later intervals. The passage of the barium through the intestines was studied by the x-ray. By such observations it was found in cats that neither experimental hypo- nor hyperacidity produced any motor disturbance in the stomach. [R. F.]

BERLINER KLINISCHE WOCHENSCHRIFT.

No. 8. FEBRUARY 24, 1913.

1. OPPENHEIM, H., AND KRAUSE, F. *Partial Removal of the Vermiform Process by a Large Opening in the Fourth Ventricle.*
2. ROTHMANN, M. *Cerebellar Localization.*
3. WOHLGEMUTH, J. *The Pancreas, Liver and Carbohydrate Metabolism.*
4. MORGENROTH, J., AND GINSBERG, S. *Corneal Anesthesia with an Alkaloid of Quinine.*
5. SIESKIND, WOLFFENSTEIN, R., AND ZELTNER, J. *The Use of Salicylate Preparations Externally.*
6. BICHEL, A. *Further Contributions to Thorium-X Therapy in Anemia, Leukemia, and Rheumatic Diseases.*
7. *THEILABER, A. *The Non-surgical Treatment of Carcinoma.*
8. MUNZER, A. *Internal Secretions and the Nervous System.*
9. KUMM, B. *Congenital Dislocation of the Hip-joint.*

7. The author reviews the attempts that have been made to find a method for the non-surgical treatment of cancer. He points out that these are all following along the lines which nature is using in trying to throw off the disease, namely, the production of hyperemia, hyperleucocytosis, and an intense proliferation of connective tissue cells. [J. B. S., JR.]

WIENER KLINISCHE WOCHENSCHRIFT.

No. 19. MAY 8, 1913.

1. VON KUTSCHA, E. *Operative or Conservative Treatment of Punctured Wounds of the Lung.*
2. SCHÜTZ, J. *(Knowledge of) Magnesium Narcosis.*
3. POINDECKER, H. *A Collection of Cases Illustrating Changes in the Hypophysis in Acromegaly.*

4. Arnstein, A. *The So-Called "Schneeberger Lung-Cancer."*
5. von Budisavljevie, Y. *War-Surgery Experiences in Servia.*
6. *Solaghi. *The Effect of Light Gymnastics on the Circulation in the Light of Clinical Experience.*

6. The mechanical effect of the above mentioned gymnastics and exercises on the circulation varies in degree with its extent, with the vascularity of the part exercised, and with the method of execution. It is most marked in the distal circulation, especially in the abdominal cavity, in which the long-continued alteration of compression and relaxation of its contents and the intensity with which this action may be carried out produces marked results. This action represents par excellence a vaso-gymnastic influenced by external agencies. Clinical observations in favorable cases when comparison was possible have shown that the promptitude of the curative effect increases proportionally with the intensity of the mechanical effect on the vessels from the periphery. The results bring to the foreground those agencies which affect the circulatory pressure by reaching the peripheral circulation. [F. S. K.]

Miscellany.

ACTION OF RADIUM ON PLANTS.

In a recent issue of the *Scientific American* is presented an abstract from the *Naturwissenschaftliche Rundschau* of experiments by Professor Hans Molisch in the action of radium on plants.

"Herr Molisch made use both of the radium emanation and of radium salts enclosed in glass tubes or spread on metal plates. The tubes held radium-bariumchloride. The metal plate gave off strong x-rays, which were almost entirely absent from the glass tube because of the absorption. In the experiments with radium emanation, the rays from a flask filled with an aqueous solution of radium chloride passed into a cylindrical glass vessel which was the culture chamber. The twigs placed in this were exposed to a radium emanation ranging from 1.8 to 3.45 millicurie. Only the twigs of Syringa vulgaris were used in the former case, but various plants were exposed to the emanation. The terminal buds of the syringa, which were subjected to the influence of the radium preparations for one or two days in December or at the end of November, and then placed in ordinary light in a greenhouse, budded in a short time, while those not thus treated budded much later or not at all. When the radiation was not continued long enough no effect was visible. When too long continued the effect was inhibiting, injurious, or even fatal. The time chosen for the experiment is also important. In September and October, when the state of rest is firmly established, the radiation had no effect. In January, or later, when the rest-period is already past, there is either no difference observed or else the twigs subjected to the rays seem slightly retarded. This is similar to the effect of the ether and warm bath treatments. The emanation had a more marked effect than the radium salts. This is because it influenced the plants more uniformly and from all sides. Other plants favorably influenced by the emanation were Leriodendron tulipifera, Æsculus Hippocastanum, Staphylea pinnata, and in some degree Acer platanoides.

"The process is too costly for commercial use but is of scientific importance in connection with recent investigations of the effect of narcotics on the chemical composition of resting parts of plants. On the growing parts radium preparations of like strength have an entirely different effect, as Molisch hopes later to demonstrate."

A ROYAL DENTIST.

The memory of Duke Karl Theodor of Bavaria is not yet so cold that the medical profession can forget the noble zeal with which, though born to the ease of a royal prince, he devoted his life to the charitable practice of ophthalmology among the poor. Of an entirely different character were the medical avocations of King James IV of Scotland, who was an amateur dentist. Apparently he used to practise on the members of his court, and enjoyed the procedure so much more than they that he even went to far as to pay them for their sufferings. In Miss Green's "Lives of the Princesses of England," recently quoted by the *British Medical Journal,* is preserved the following extract from the royal cash accounts, relating to the King's dental pursuits:

	£	s.	d.
"Paid for a psalter, three compasses, hammer, a turcase, to take out teeth, and two pair of beads, to the King	0	7	8
Item, to ane fellow because the King pullit furht his tooth	0	14	0
Item, to Kynnard, the barber, for twa tith drawin furht of his hed be the King	0	14	0"

A turcase was evidently an instrument for pulling teeth, though its exact nature, and the etymology of the word, remain uncertain. One might wonder what was the proportionate value, out of 7s. 6d., attached to each of the articles nominated in this item. Apparently the price of a tooth varied, since the poor barber was paid only as much for two as "ane fellow" for one. Perhaps the barber's teeth came out more readily, or perhaps 14s. was considered a lump compensation for the infliction of so many minutes of pain, without regard to the number of teeth lost. If the King indulged in this pastime extensively he could better afford to pay at an even higher rate than in kind; indeed it seems fortunate for him if he were never compelled by a resentful patient to pay by the *lex talionis.*

CHANGES IN MEDICAL CORPS, U. S. NAVY, FOR WEEK ENDING MAY 31, 1913.

FURLONG, F. M., surgeon. Detached from Navy Yard, Washington, D. C., and ordered to U.S.S. *New Jersey*.

HOYT, R. E., surgeon. Ordered to Atlantic Reserve Fleet.

CATHER, D. C., passed assistant surgeon. Ordered to Naval Hospital, Philadelphia, Pa.

ALLEN, D. G., passed assistant surgeon. Commissioned as such from Oct. 3, 1911.

ROSENAU, M. J., M.R.C., assistant surgeon. Commissioned as such from Mar. 28, 1913.

NOLAND, LLOYD, M.R.C., assistant surgeon. Commissioned as such from Apr. 16, 1913.

NEILSON, J. L., surgeon. Detached from Bur. Med. and Surg., Navy Dept., Washington, D. C., June 3, 1913, and ordered to U.S.S. *Illinois*.

ARMY MEDICAL CORPS EXAMINATION.

The Surgeon General of the Army announces that preliminary examinations for appointment of First Lieutenants in the Army Medical Corps will be held on July 14, 1913, at points to be hereafter designated.

Full information concerning these examinations can be procured upon application to the "Surgeon General, U. S. Army, Washington, D. C." The essential requirements to secure an invitation are that the applicant shall be a citizen of the United States, shall be between 22 and 30 years of age, a graduate of a medical school legally authorized to confer the degree of Doctor of Medicine, shall be of good moral character and habits, and shall have had at least one year's hospital training as an interne, after graduation. The examinations will be held simultaneously throughout the country at points where boards can be convened. Due consideration will be given to localities from which applications are received, in order to lessen the travelling expenses of applicants as much as possible.

In order to perfect all necessary arrangements for the examination, applications must be completed and in possession of The Adjutant General at least three weeks before the date of examination. Early attention is therefore enjoined upon all intending applicants. There are at present forty vacancies in the Medical Corps of the Army.

UNITED STATES CIVIL-SERVICE EXAMINATION.

DENTAL INTERNE (MALE).

June 18, 1913.

The United States Civil Service Commission announces the postponement from June 4, 1913, to June 18, 1913, of the open competitive examination for dental interne, for men only. From the register of eligibles resulting from this examination certification will be made to fill a vacancy in this position at $600 per annum, with maintenance, in the Government Hospital for the Insane, Washington, D. C., and vacancies as they may occur in positions requiring similar qualifications, unless it is found to be in the interest of the service to fill any vacancy by reinstatement, transfer, or promotion.

As the postponement of this examination is due to the fact that only one application has been filed for it, qualified persons are urged to enter it.

SOCIETY NOTICE.

AMERICAN MEDICAL EDITORS' ASSOCIATION. The annual meeting of this Society will be held June 16, at the Hotel Radisson, Minneapolis, Minn.

APPOINTMENTS.

DR. EDWARD WYMAN, of Boston, has been appointed physician-in-charge of the new Dorchester milk station of the Boston Milk and Baby Hygiene Association.

DR. HARRISON J. HUNT, of Bangor, Me., has been appointed surgeon of the Crocker Land Expedition of the American Museum of Natural History, which will start in July for three years' work in the far North.

BOSTON UNIVERSITY SCHOOL OF MEDICINE.—*Dr. John H. Payne* has been appointed emeritus professor of ophthalmology, and *Dr. Nathaniel W. Emerson* emeritus professor of gynecology. *Dr. David W. Wells* has been appointed professor of ophthalmology, and *Dr. George R. Southwick* professor of gynecology.

RECENT DEATHS.

DR. EUGENE F. HOYT, who died last week at Newark, N. J., was born in Niagara County, N. Y., in 1846. He graduated in 1870 from the Hahnemann Medical College in New York City, where, after four years spent in the West, he continued active in the practise of his profession until his death.

DR. ALLEN MOTT RING, who died last week at Arlington Heights, Mass., was born in St. John, N. B., on Oct. 27, 1844. After studying for a time at the University of Edinburgh, Scotland, he obtained the degree of M.D. in 1867 from New York University, and subsequently served as house physician at the Five Points Hospital. He first settled at St. John, where he continued in the practise of his profession until 1881, when he removed to Arlington, Mass. He was a member of the American Medical Association, a Fellow of The Massachusetts Medical Society, and a member of the New England Alumni Association of New York Medical Colleges. He is survived by his widow, by a daughter, and by two sons, one of the latter being also a physician.

DR. WALTER C. GILDAY, adjunct professor of surgery at the New York Polyclinic Medical School, died on May 31 from acute gastritis, attributed to ptomaine poisoning. He was graduated from the Albany Medical College in 1894 and was surgeon to St. Elizabeth's Hospital.

DR. FREDERICH W. MEYER, of New York, who died on May 28, was graduated from Bellevue Hospital Medical College in 1884.

BOOKS AND PAMPHLETS RECEIVED.

Acute Poliomyelitis by Dr. Ivan Wickman, Stockholm. Nervous and Mental Disease Monograph Series No. 16. New York. 1913.

Geschichte der Ohrenheilkunde von Dr. Adam Politzer, Stuttgart, 1913.

The Shattuck Lecture.

CONCERNING DIABETES INSIPIDUS AND THE POLYURIAS OF HYPOPHYSIAL ORIGIN.*

BY HARVEY CUSHING, M.D., BOSTON,

Surgeon to the Peter Bent Brigham Hospital.

INTRODUCTION.

Pituitary Glycosuria.

It has long been recognized that polyuria, with the appearance of dextrose in the urine—the typical symptomatic expression of diabetes mellitus, in other words—is a not infrequent accompaniment of acromegaly. The view is shared with my co-workers that this glycosuric manifestation of pituitary disease is indicative of the active stage of so-called hyperpituitarism, for in the advanced stages of acromegaly we have observed that the actual glycosuria or low assimilation limit for carbohydrates characterizing its early or recrudescent stages, usually becomes replaced by a high degree of sugar tolerance in which alimentary glycosuria can be provoked only by the ingestion of massive doses of sugar.

Certain experimental investigations with Goetsch and Jacobson[1] have shown (1) that experimental manipulations of the infundibular lobe cause a transient post-operative glycosuria, (2) that the injection of extracts of this lobe will cause glycosuria in well-fed animals, and (3) that after its surgical removal the animals acquire an increased tolerance for carbohydrates, accompanied by adiposity—an experimental condition comparable to the increased sugar tolerance shown by the clinical states of adiposo-genital dystrophy, which we therefore have come to recognize as expressions of pituitary insufficiency.

These findings offer experimental support to the view which we have advanced, that in the early glycosuric stages of acromegaly, in addition to the anterior lobe changes, an hyperplasia or functional activation of the posterior lobe occurs, which in the further progress of the disorder is often replaced by a relative functional insufficiency of this part of the gland.

Aware of the close chemical interrelation of the glands of internal secretion, we fully realize that the mellituria of hypophysial disease may indicate some secondary change in the pancreatic islets, though as yet histological evidence of this is lacking. We feel, however, that in the diabetic conditions under discussion the pituitary lesion is the primary factor, and this is supported, in negative fashion, by a series of observations with Jacobson, in which we have found that animals who have acquired a high sugar tolerance after extirpation of the posterior lobe may subsequently be deprived of the pancreas without the classical glycosuric consequences of the procedure described by Meyring and Minkowski.

Pituitary Polyuria.

It is, however, to the non-glycosuric form of pituitary diabetes that I wish on this occasion to call your particular attention, for this symptomatic expression of hypophysial disease has almost entirely escaped general recognition.

In a monograph written two years ago,[2] dealing with the clinical aspects of hypophysial derangements, comment was made on the fact that in certain cases polyuria and polydipsia may so dominate the clinical picture as to justify the designation of diabetes insipidus—a diagnosis which had actually been made, at one stage or another during the progress of the malady, in a number of the examples of dyspituitarism which were cited.

It was my intention, in conjunction with one of my assistants, Dr. Howard C. Naffziger, to make a detailed report of our personal experiences in this direction during the past few years at the Johns Hopkins Hospital and to assemble the past clinical observations which had a bearing on the subject. This intent has been anticipated in large part by the publication, from Minkowski's clinic in Breslau, of an excellent article by E. Frank,[3] in the Berliner klinische Wochenschrift. This author, on the basis of a single personal observation—a case of bullet wound of the pituitary fossa—in conjunction with the available data from the literature, has taken an even stronger position in favor of the hypophyseal relationship to diabetes insipidus than we might have ventured to assume. However, the matter is of sufficient general interest to justify, I trust, the bringing before you in this Shattuck Lecture of such facts as may be added to the data which others have accumulated.

EXPERIMENTAL OBSERVATIONS.

The discovery was made by Schäfer and Magnus in 1901 that extracts of the posterior lobe of the pituitary body possess diuretic properties of high degree, the reaction following their injection being a long-continued one, associated with an increase in volume of the kidney. Subsequently Schäfer and Herring pointed out (1906) that the renal arteries are exempt from the general constricting effect exercised by posterior lobe extracts upon other vascular channels and upon unstripped muscle in general. They expressed the belief, however, that the diu-

[1] Carbohydrate Tolerance and the Posterior Lobe of the Hypophysis Cerebri. Bull. Johns Hopkins Hospital, 1911, vol. xxii, pp. 165-190.

[2] The Pituitary Body and Its Disorders. J. B. Lippincott Co., Philadelphia, 1912.

[3] Über Beziehungen der Hypophyse zum Diabetes Insipidus. Berl. klin. Wchnschr., 1912, vol. xlix, pp. 393-397.

* Delivered at the annual meeting of the Massachusetts Medical Society on June 10, 1913.

resis which they observed was the result of a direct action upon the renal epithelium and that it was independent of the hemodynamic response to the extract, for it persists long after the secondary fall in blood pressure and recession of the kidney to its original size.

In the course of our Baltimore studies in the Hunterian Laboratory (1908-1912) it was noted that after certain experimental manipulations of the canine hypophysis a post-operative polyuria, often of some days' duration and at times reaching a tenfold increase over the normal output, was of frequent occurrence. In 1909 mention was made of these post-operative polyurias in an article by Crowe, Cushing and Homans,[4] dealing specifically with the effects of hypophysial transplantation, and in a subsequent paper by the same co-workers* the protocols of fifty examples of experimental hypophysectomy (Series of 1908-9) were given in tabular form.

It may be gathered from these tables that oliguria rather than diuresis followed a total extirpation in the adults, though in the younger animals which survived the loss of the gland for a longer time there was often a transient increase in the amount of urine for a day or two. On the other hand, in the series of partial extirpations in which the posterior and a portion of the anterior lobe were excised, post-operative polyuria was almost always observed, and this was also true of the animals deprived of the posterior lobe alone.

Control observations showed that no polyuria ensued if the operation was carried merely to the point of a free exposure of the gland, stopping short of the final step of actual tissue extirpation. This was construed as an argument against the assumption that the procedure served to excite some predicated diuretic and glycosuric center in the adjacent floor of the third ventricle, rather than that the manipulation of the gland itself provoked the diuresis.

In the series of operations carried out in the succeeding year (1909-10)[5] with Goetsch and Jacobson, although the experiments were reported from the standpoint of the glycosuric rather than the diuretic response, nevertheless the protocols show, in similar fashion, the usual non-appearance of polyuria after total extirpation (Fig. 1), whereas after a posterior lobe removal it was customary to observe a prompt post-operative increase in the urine, which occasionally reached an extraordinary figure for a dog, far in excess of the ingested fluids.

In the operative performances which served to induce hyperglycemia it was observed that the coincident diuretic effect of the procedure was more prolonged than the glycosuric response;

[4] Hypophysial Transplantation following Total Hypophysectomy. Quart. Jour. Exper. Physiol., 1909, vol. ii, pp. 389-400.

[5] Carbohydrate Tolerance and the Posterior Lobe of the Hypophysis Cerebri. Bull. Johns Hopkins Hospital, 1911, vol. xxii, pp. 165-190.

* Experimental Hypophysectomy. Bull. Johns Hopkins Hosp., 1910, vol. xxi, pp. 127-169. A tentative opinion was expressed that we were dealing solely with an anterior lobe effect—an opinion shown to be erroneous by the observations of the following year.

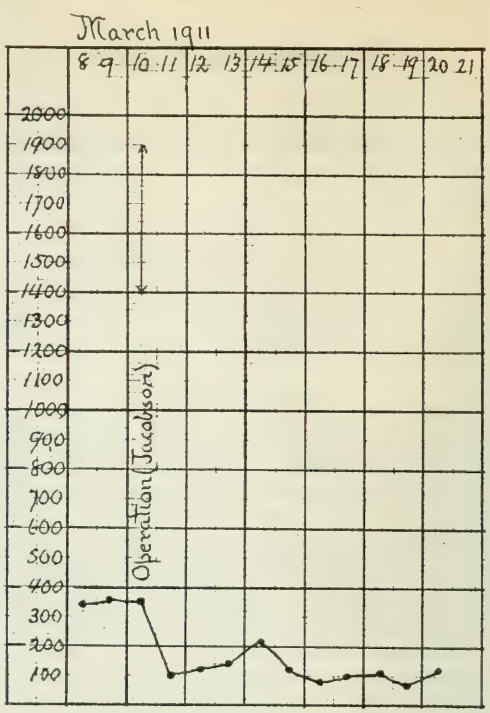


FIG. 1.

Chart showing post-operative oliguria after removal of practically the entire gland.

PROTOCOL. No. 16. Series 1910-11. 7.4 kilo. puppy. March 10: "Near total" hypophysectomy, including posterior lobe. Animal sacrificed for kymographic observations March 21.

and it was doubtless this extreme post-operative polyuria which in our earlier experiments led us to overlook the transient outpouring of sugar, so commonly noted in the second series, in which care was taken to examine the first voided specimen for the presence of a reducing substance.

We do not mean to imply that a diuretic response is invariable, but merely that it is commonly observed, and our further experiences, based on the more recent hypophysectomies conducted by Goetsch, Crowe or Jacobson during the past two years (1910-12), support the view that the clean-cut posterior lobe removals elicit polyuria with the greatest regularity. The accompanying three charts show this post-operative diuresis in its varying degrees: Figure 2, in its extreme form with an immediate polyuria of high degree—almost four liters in the twenty-four hours, succeeded by a quick fall to the normal during the next day or two; Figure 3, in less extreme form, the wave of polyuria being of somewhat longer duration; and Figure 4, in what may be regarded as an average reaction for our posterior lobe removals.

These comparatively transient experimental reactions are chiefly of interest in showing the relation of the glandular manipulations and consequent secretory discharges to diuresis. More enduring polyurias, however, occurred in four of our experiments, all of them being instances in which the hypophysial stalk was purposefully

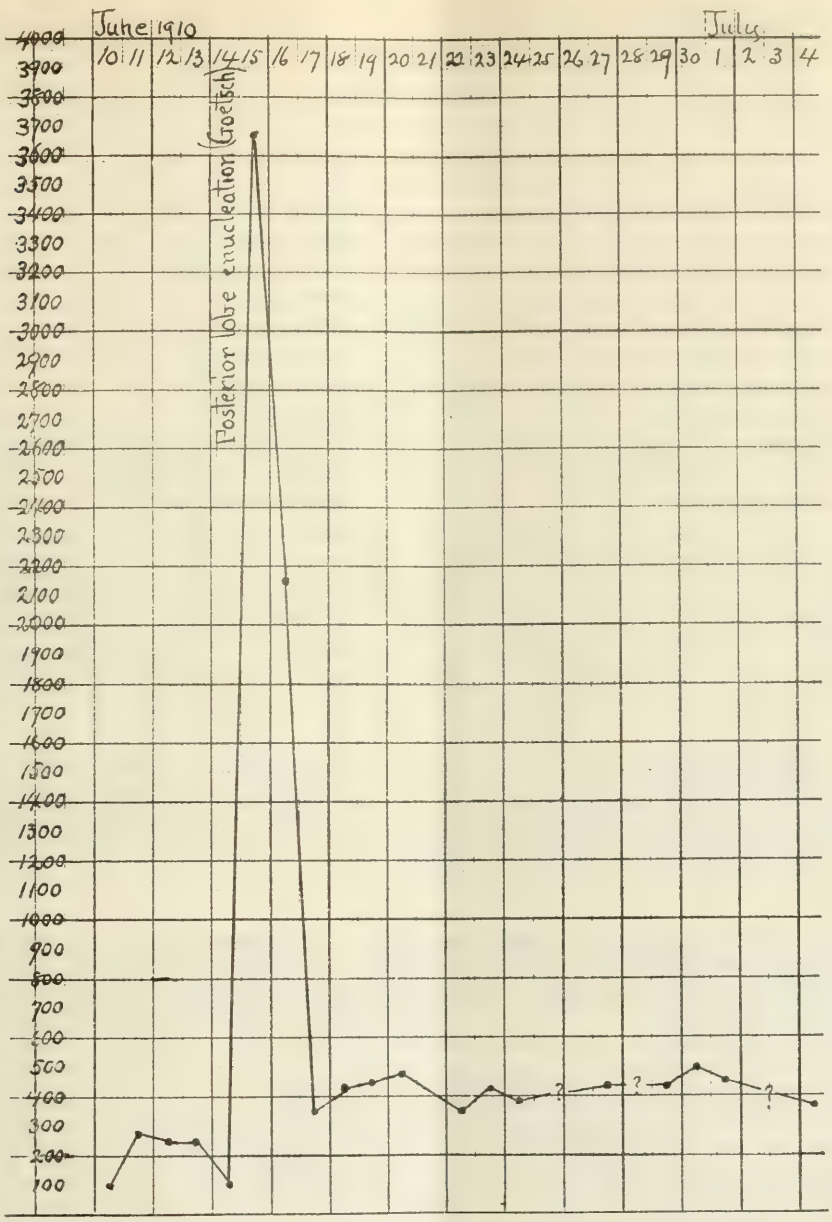


Fig. 2.

Chart showing extreme post-operative polyuria with excretion of 3700 c.c. in the first 24 hours; 2150 c.c. on the second day, with an abrupt fall to nearly the normal level.
Protocol. No. 67. Series 1909-10. Seven kilo., 10 months' puppy. Posterior lobe extirpation.

divided or obstructed, leaving the otherwise intact gland, or a large part of it, in situ. In one of these animals (a 7 kilo. fox terrier which ultimately developed characteristic symptoms of hypopituitarism after a stalk separation combined with a partial lateral removal of the anterior lobe) a polyuria varying from 675 to 1640 c.c. per diem, persisted for six months—a veritable diabetes insipidus of experimental origin (Fig. 5).

Somewhat prolonged reactions were also observed in certain experiments in Crowe's series (1908-9) already referred to, in which we made an immediate subcortical transplant of the excised posterior lobe fragment—a measure having a certain experimental analogy to simple stalk separation, in view of the fact that the chief blood supply of the gland passes into it by way of the infundibular attachment. In two of these animals (*e.g.* Fig. 6) the transplant was removed on the fifteenth and twelfth days respectively, with prompt subsidence of the polyuria. In the third animal, on the other hand, the transplant was not removed and the polyuria

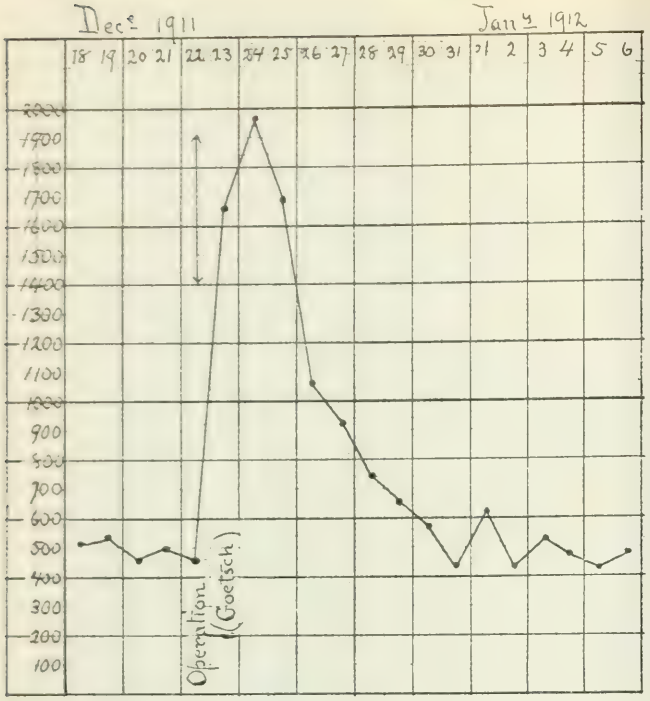


FIG. 3.

Chart showing moderately extreme transient polyuria.

PROTOCOL. 15.5 kilo. adult dog. Eck fistula performed Nov. 10, 1911. Animal kept in good condition on calcium dietary. On Dec. 22 a posterior lobe hyphophysectomy was performed, with the usual polyuria. No sugar present in the first voided specimen, which showed a lowered specific gravity of 1015, the previous and subsequent average being 1030. A pancreatectomy was subsequently performed on this animal, without glycosuria. Neither the Eck fistula nor the pancreatic operation was followed by polyuria.

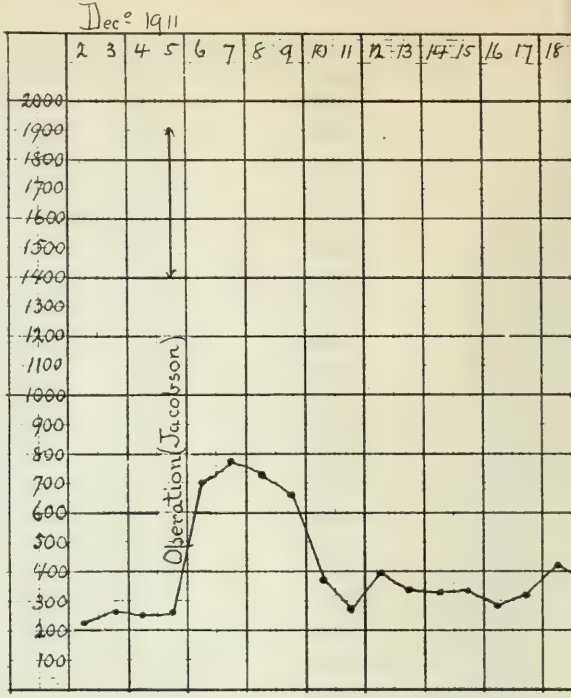


FIG. 4.

Chart showing the average moderate diuretic response after lobe extirpation.

PROTOCOL. 6.5 kilo. puppy. Operation Dec. 5, with sugar cent. D.R.) showing on first specimen, despite the lowered specific of 1012 from the preoperative specific gravity of 1028, due to the Animal sacrificed for kymographic Studies Dec. 20.

continued (Fig. 7) until the dog was sacrificed on the twenty-fourth day in order to observe the histological condition of the implanted tissue, which was thought to be viable.

Schäfer,[6] in the course of some experiments on the effect of glandular transplants in non-hypophysectomized animals, observed that the subcutaneous implantation of the posterior lobe from one animal to another causes a transient polyuria, which subsides in a few days, coincident presumably with the absorption of the secretory products contained in the implanted tissue. It would appear, moreover, from certain observations made by Stiles, under Schäfer's direction, that the posterior lobe substance given by mouth increases the urinary output, and thus promises to be of clinical value as a diuretic. This observation also conforms with our own experiences with the oral administration of extracts.

The experimental polyurias heretofore cited have been brought about either by a direct hypophysial insult, by the injection of extracts, or by glandular implantations. An hypophysial diuresis, however, may be elicited in still another way, namely, by nerve stimulation. In some recently recorded observations in collaboration with Weed and Jacobson[7] on the autonomic control of the gland, the chief argument for the passage of nervous impulses from the medulla through the cord to the three upper thoracic nerves and thence to the pituitary gland by way of the cervical sympathetic relays, lay in the elicitation of glycosuria from stimuli applied to this pathway. During the course of these studies, however, we commonly observed, coincident with the glycosuric response, an abundant outpouring of urine of low specific gravity; a rabbit, for example, would often excrete 15 or 20 c.c. in a very few minutes, and at times as much as 150 c.c. in the course of a few hours after stimulation of the superior cervical ganglion. A similar prompt and often excessive diuresis, provoked by the intravenous injection of concentrated cerebrospinal fluid in small amounts, was one of the facts advanced by Goetsch and myself[8] in favor of our contention that the posterior lobe secretion finds its way into the cerebrospinal fluid. These matters are of interest in connection with the subject of emotional or neurogenic polyurias, the further discussion of which at this time would lead us too far afield.

[6] E. A. Schäfer: Die Functionen des Gehirnanhanges. Berner Universitätsschriften, 1911, Heft B.

[7] Further Studies on the Rôle of the Hypophysis in the Metabolism of Carbohydrates. The Autonomic Control of the Pituitary Gland. Bull. Johns Hopkins Hospital, 1913, vol. xxiv, pp. 40-52

[8] Concerning the Secretion of the Infundibular Lobe of the Pituitary Body and Its Presence in the Cerebrospinal Fluid. Amer. Jour. Physiol., 1910, vol. xxvii, pp. 60-96.

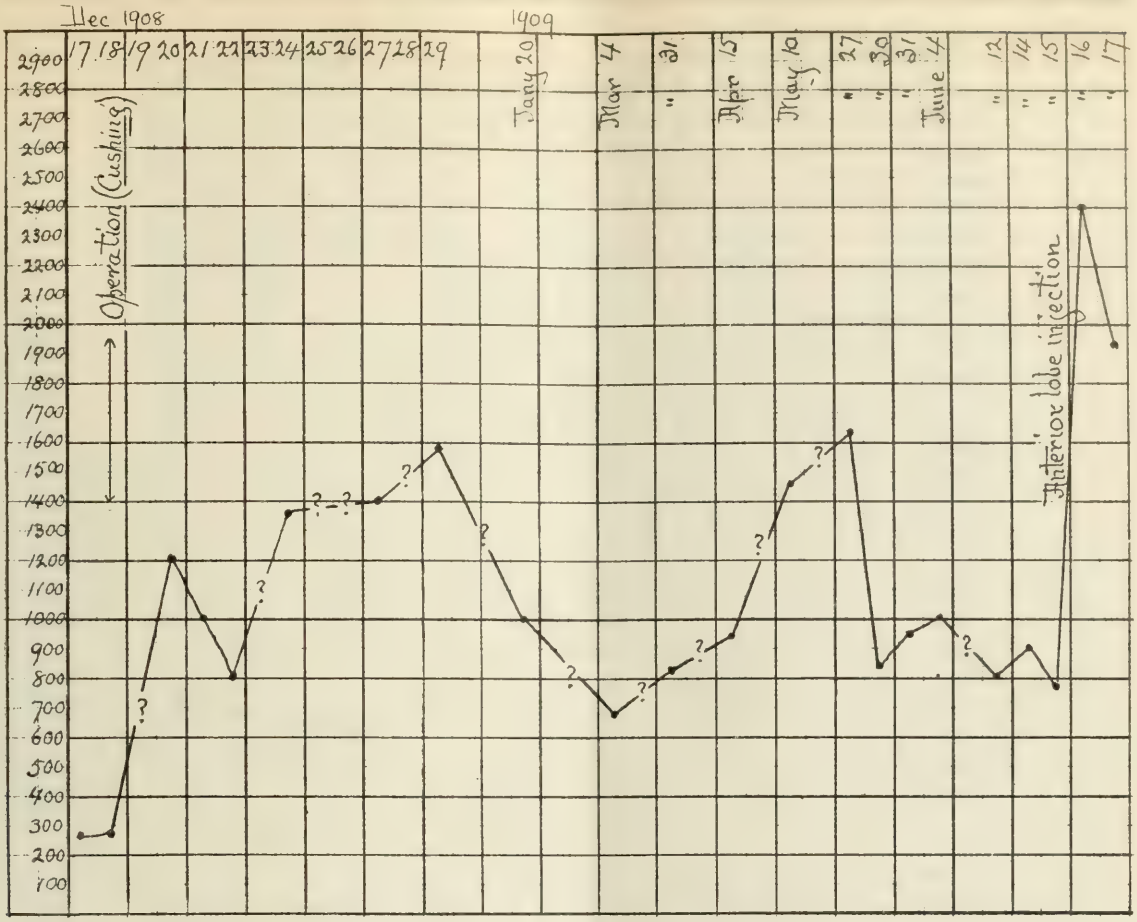


Fig. 5.

Chart showing polyuria prolonged over a period of six months after hypophysial stalk separation.

Protocol. Seven kil. fox-terrier. Dec. 18: Stalk separation with fragmentary anterior lobe removal. Polyuria observed on the six observations during the succeeding ten days and on all occasions when the amount was measured during the succeeding six months, the animal meanwhile acquiring the characteristic adiposity with drowsiness, subnormal temperature and so on, of hypophysial insufficiency. A marked increase of polyuria followed the injection, on June 14, of 10 c.c. of a one per cent. solution of anterior lobe emulsion of bovine gland. Animal sacrificed on June 17.

Despite the suggestiveness of many of these laboratory observations it must, nevertheless be acknowledged that a long-continued polyuria of high degree, comparable to the clinical conditions of diabetes insipidus, has hardly ever been observed, though in a number of cases, after posterior lobe extirpation, animals whose preoperative average output was *circa* 300 c.c., continued to excrete an amount two or three times as great (*circa* 700 c.c.) for the succeeding month or two.

In summarizing the experimental data it may be said that:—

1. The infundibular lobe contains, in addition to the substance capable of glycogenolysis, a chemical body or hormon capable of eliciting diuresis.

2. Under certain operative conditions which entail posterior lobe manipulations there often occurs a diuretic response, and occasionally an extreme polyuria, whereas a temporary diminution in the excreted urine is apt to follow other operative procedures, requiring an equally long anesthetization.

3. Posterior lobe implants may cause a temporary polyuria, which subsides on the removal of the implanted tissue.

4. Stimulation of the autonomic system of nerves to the gland elicits diuresis.

5. Certain operative procedures, such as separation of the infundibular stalk, and occasionally a simple posterior lobe excision, may call forth a somewhat prolonged polyuria.*

* It will be apparent to all that there exists a discrepancy in these diuretic reactions which does not apply to those accompanied by glycosuria. For in the case of the pituitary glycosurias the administration of extracts, direct glandular stimulation, or stimulation of the autonomic nerve supply to the gland, all produce glycosuria, which is recognized as an expression of glandular hyperplasia in clinical cases; whereas experimental extirpation of the gland leads to the reverse condition, namely an increased tolerance for carbohydrates, just as in clinical states an increased sugar tolerence coincides with the glandular insufficiency brought about by injury or compression by a tumor.

In regard to the diuretic response, on the other hand, though the administration of extracts, direct glandular stimulation or stimulation of the autonomic nerve supply are likewise capable of eliciting polyuria, nevertheless the experimental extirpation does not lead to the reverse of polyuria, nor in the clinical states with evident posterior lobe insufficiency do we find a diminished urinary output. On the contrary, active polyuria is not infrequently seen in clinical cases of hypopituitarism associated with a high sugar tolerance.

Thus hypophysial glycosuria and polyuria do not go hand in hand. Explanations for this apparent discrepancy will doubtless be afforded by future studies.

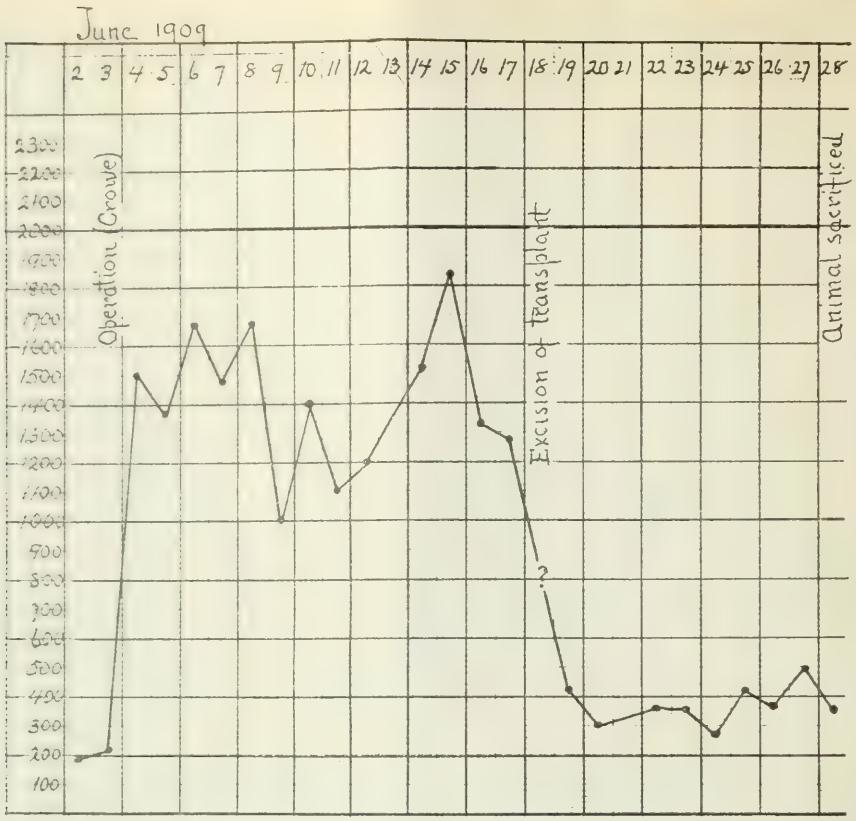


FIG. 6.

Chart showing persistent polyuria following posterior lobe reimplantation in the cerebral subcortex after excision. Polyuria promptly interrupted after excision of the transplant on the fifteenth day.

CLINICAL OBSERVATIONS.

Diabetes insipidus, according to our best known texts, is symptomatically defined as a long-continued disorder characterized by polyuria and polydipsia, with a sugar-free urine of low specific gravity. Two varieties of the malady are commonly recognized: the so-called *idiopathic* form, supposedly originating in the kidneys, is sharply distinguished from a *symptomatic form*, which includes not only the polyurias shown by supposedly psychopathic or hysterical individuals, but also those provoked by some emotional insult, as well as those for which there may be an actual organic neurological basis, such as cerebral trauma, syphilis or tumor.

Meyer, in 1905, considered the idiopathic form to be a primary renal polyuria due to a functional disability of the kidneys which rendered them incapable of secreting urine above a certain low specific gravity, on which basis the ingestion of salt should fail to concentrate the urine and thus should serve to distinguish true diabetes insipidus from the condition brought about by a primary polydipsia. It is held, moreover, that in cases of true diabetes insipidus deprivation of water does not check the polyuria, and some have claimed that the excretion of ingested fluids is more rapid than normal (tachyuria); and this is advanced in support of the view that the disorder is a primary polyuria rather than a primary polydipsia. Others contend that the opposite condition, namely bradyuria, exists, and indeed on etiological grounds the subject is in a state of great confusion.

As will be recalled, Claude Bernard observed, fifty years ago (1854-55), that a transient glycosuria could be provoked by a piqûre at a point in the floor of the fourth ventricle between the origin of the pneumogastric and auditory pairs of nerves, and also that stimulation of a point just anterior to this so-called sugar center would occasionally produce a transient polyuria without the coincident appearance of sugar in the urine. It is natural that many have assumed the existence of some relationship between these experimental glycosuric and diuretic piqûres and certain clinical glycosurias and polyurias, particularly those of a supposedly emotional or neurogenic origin. I do not believe, however, that these conditions, so often precipitated by cerebral trauma, whether psychic or mechanical, were capable of interpretation until it was shown, in collaboration with Weed and Jacobson,[9] that impulses which pass from Bernard's centers by way of the cervical sympathetic are

[9] The Autonomic Control of the Pituitary Gland. Bull. Johns Hopkins Hospital, 1913, vol. xxiv, pp. 40-52.

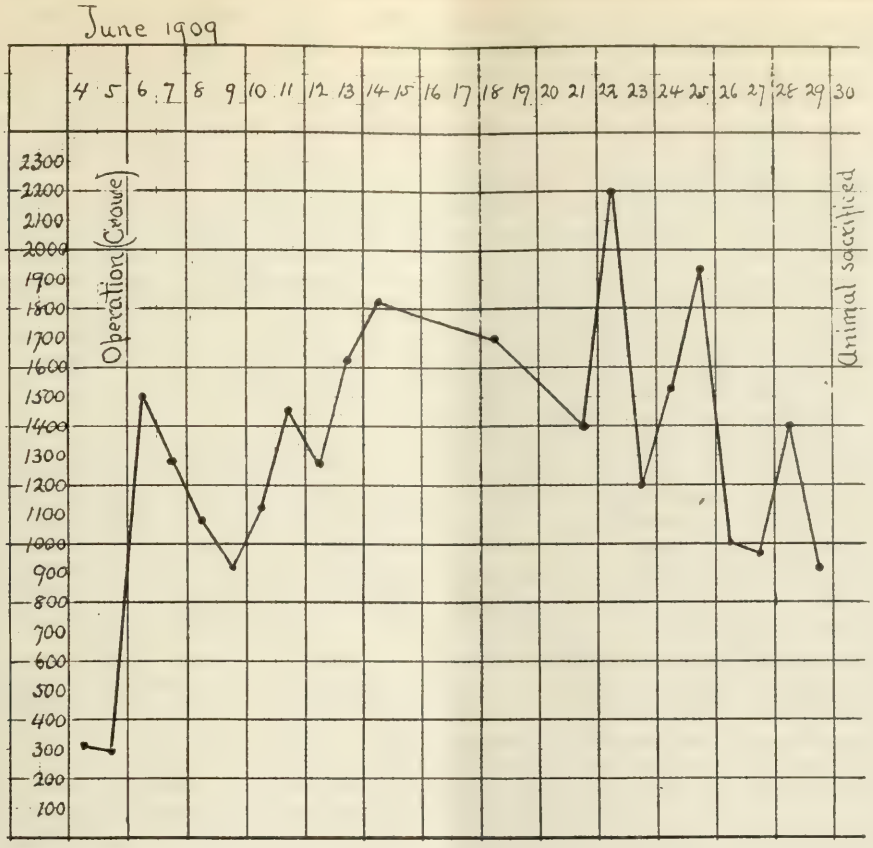


Fig. 7.

Chart showing persistent polyuria after posterior lobe reimplantation in the cerebral subcortex after excision. On all occasions during the twenty-five days following the operation, when the 24-hour amounts were measured they varied between 800 and 2200 c.c.

capable of discharging from the gland a glycogenolytic as well as a diuretic substance.

In our somewhat extensive experience with patients who have received traumatic injuries involving the cranial base, a pronounced and enduring polyuria with polydipsia has been observed in a number of instances; and similar conditions have been reported by others. I have pointed out elsewhere that in basal fractures, even though the fissures may not actually run through the sella turcica, the pituitary body is often the seat of extravasation, which may readily account for the diuretic and glycosuric response occasionally exhibited by the recipients of severe cranial injuries. In one such individual under my care a year ago, there was intense polydipsia, with an average daily output of about 8 liters of sugar-free urine with a low specific gravity, the condition persisting for the six weeks the patient was under observation in the hospital. As was true of the experimental conditions heretofore described, so also in these cases of basilar fracture, when a glycosuric response occurs it is apt to be transient and the presence of sugar may be overlooked unless the first voided specimen is secured, whereas the polyuria is commonly of much longer duration.

Though as eminent an authority as Von Noorden is skeptical of the possibility that a true diabetes may be thus inaugurated by trauma, a number of striking cases have been recorded by Abt and Strauss, by Wieland, by Nothnagel and by Naunyn and Lepine. In view of these authentic clinical examples and in the light of our laboratory experiences, which bring a new element into the discussion, namely the hypophysial secretion, it seems safe to conclude that a suitable injury, affecting the infundibular lobe without obvious lesion of any nerve center, may set up a prolonged polyuria, justifying the designation of diabetes insipidus.

Let us turn from this brief consideration of the traumatic polyurias to those associated with some obvious process of disease.

A review of the clinical histories included in many of the past articles upon diabetes insipidus makes it clear that a large percentage of the patients have shown symptomatic evidence of a lesion involving the base of the brain, a gummatous meningitis affecting the structures in the middle cerebral fossa being a particularly common accompaniment of the disorder. This was true of several of Futcher's cases gathered from the Johns Hopkins Hospital records,[10] and one

[10] T. B. Futcher: Diabetes Insipidus, with the Report of Five Cases. Johns Hopkins Hospital Reports, 1912, vol. x, pp. 197-247.

of his patients, subsequently under my own observation, showed characteristic neighborhood manifestations of an hypophysial lesion coupled with signs of glandular insufficiency.

The fact that tumors or other lesions in the neighborhood of Bernard's center are far less likely to be accompanied by polyuria and glycosuria than are similar lesions situated farther forward in the interpenduncular region, has long been a source of confusion, and some have even gone so far as to predicate so-called diuretic and sugar centers in the floor of the third ventricle. An observation of particular significance in this connection was commented on by Futcher and has been recently emphasized again by E. Frank, namely the surprising frequency with which primary optic atrophy, often with bitemporal hemianopsia, accompanies the encephalitic polyurias often classified as diabetes insipidus*; indeed, the diabetes has even been looked upon by some as a cause of the optic atrophy.

As stated in my introductory paragraphs, in our considerable experience with hypophysial disorders a surprising number of the patients had either been regarded as the victims of the malady under discussion at one time or another, according to their own clinical story, or else the condition was apparent during their hospital residence. In most of these individuals the existence of a pituitary involvement was sufficiently clear, in view of the coincident local manifestations of tumor, though we are becoming familiar enough with these clinical states to recognize the evidences of dispituitarism in the absence of these telltale neighborhood signs.

However, from a critical standpoint unequivocal proof comes only through post-mortem examinations, and of these there have been a sufficient number recorded in the literature, supplemented by the evidence of our own series of cases to make a strong brief.

A number of these cases have been brought together by E. Frank; for example, a tubercle of the infundibulum reported by Hagenbach in 1882, a sarcoma of the hypophysis by Rosenhaupt in 1903, a cystic tumor below the third ventricle by Finkelnburg in 1910, and two examples of gummatous involvement of the infundibular region, both with bitemporal hemianopsia and diabetes insipidus, have been put on record by Oppenheim. Though not certified by autopsy, the situation of the lesion in many other reported cases has been reasonably definite, as was true of Frank's case—a patient who had received a bullet wound involving the pituitary fossa, with subsequent development of diabetes insipidus accompanied by adiposity and other symptoms indicative of a state of hypopituitarism.

* According to E. Frank, Kruse in 1894 reported 35 cases of bitemporal hemianopsia, 7 of them showing diabetes insipidus. Spanbock and Steinhaus in 1898 reported 50 cases of hemianopsia, 11 of them showing diabetes insipidus. Oppenheim has recorded one or two cases in which the post-mortem findings showed a gummatous meningitis, the medulla and pons being unaffected by the process.

Since the appearance of Frank's paper another example, certified by autopsy, has been recorded by Prof. Simmonds of Hamburg.[11] The patient was a woman of 37, in whom an intense polyuria developed some months after an operation for cancer of the breast, the amount of urine fluctuating between 10 and 19 liters per diem. The autopsy disclosed a small metastatic nodule of the growth which involved the dorsum sellae, the posterior lobe and hypophysial stalk, the pars intermedia and pars anterior remaining free. A somewhat comparable condition occurred in the case of a patient who was under my care a year ago in Prof. Halsted's service in Baltimore.

A young man, 22 years of age, entered the hospital January 24, 1912, in extremis, with a recurrent lymphosarcoma of the neck and metastases in the cranial bones. Aside from the local disturbances caused by the inoperable tumor his chief symptoms were an insatiable thirst and polyuria. Until shortly before his death, which occurred a month after his entrance, the daily amount of urine varied between 10 and 12 liters.

At autopsy a discrete nodule of the widely infiltrating growth was found by Dr. Whipple occupying the thickened stalk of the pituitary body. The kidneys were histologically normal.

In our series of something over 100 examples of primary hypophysial disease which have been carefully investigated, though many of them, particularly of the group showing hypophysial insufficiency, have shown polyuria, in six a condition existed which justified the clinical designation of diabetes insipidus, and in five of these individuals this had been one of the various clinical diagnoses advanced before admission. The following curtailed history will serve in illustration:—

On November 23, 1911, J. B., aged 48, entered the Johns Hopkins Hospital, nearly blind, in a stuporous condition and utterly disoriented.

According to the history, he had received, six years before, a frontal injury which had fractured his nose. He subsequently suffered from headaches, occasionally accompanied by nausea and vomiting. He became forgetful, had periods of somnolence and lost his potentio sexualis. He acquired an enormous appetite, and polydipsia with extreme polyuria developed. His vision began to fail, and nine months before his admission a bitemporal hemianopsia was observed. Periods of diplopia followed. Owing to the polyuria several of his many attendants had agreed upon a diagnosis of diabetes insipidus.

On examination the case proved to be a typical one of hypopituitarism with outspoken and characteristic neighborhood symptoms, though the x-ray of the sella showed normal outlines.

The body temperature was usually subnormal, often registering as low as 96; the pulse was slow, often 60; and the respiration also was greatly slowed, with occasional rhythmicities of Cheyne-Stokes type.

[11] M. Simmonds: Hypophysis und Diabetes Insipidus. Münch. med. Wchnschr., 1913, vol. lx, pp. 127-128.

Somnolence was one of the most striking features, and as there were frequent periods of incontinence it was not always possible during his drowsy periods to collect the full 24-hours urinary excretion. At other times, when he was wakeful and responsive and the urine could be measured, the amount was always over 5 liters, not infrequently exceeding the ingested fluids.

Though the urine from time to time contained a trace of albumen and an occasional hyaline cast was present, there was no clinical evidence of arteriosclerosis, the blood pressure almost invariably registered below 100, and functional tests of the kidneys gave normal reactions.

He was under observation for five months, and during this time efforts were made to compensate for his glandular deficiency by the administration of extracts and by pituitary implantations, with but variable success. He ultimately died from an inhalation pneumonia on April 29, 1912.

The autopsy disclosed an interpeduncular cystic tumor—the usual squamous epithelial lesion derived from an anlage of Rathke's pouch. The hypophysis was greatly flattened and contained but a few normal cellular elements. The kidneys were histologically normal. There was no arteriosclerosis.

This is a fair example of the five other cases in which the polyuria was sufficiently pronounced to justify particular study. It is, moreover, the only one of the six in which occasional traces of albumen and renal elements appeared in the urine, and I may add in this connection that none of the patients showed evidences of arteriosclerotic changes, that a persistently low blood pressure was commonly observed, and that standard functional tests of the kidneys gave normal reactions in the three patients in whom these tests were made.

Suggestive as the foregoing examples of spontaneous polyuria prove to be, there is still another case in the clinical series which is even more illuminating. In this patient an enduring polyuria was inaugurated by a transphenoidal hypophysial operation—an experience which is somewhat comparable, as will be observed, to the experimental consequences of hypophysial manipulations discussed in the first section of this paper. The story deserves a somewhat detailed recital.

Pituitary tumor with blindness from primary optic atrophy. Symptoms of hypopituitarism. Sellar decompression, provoking a post-operative diabetes insipidus.

Mrs. F. L., 40 years of age, entered the J. H. H., Oct. 23, 1911, with the complaint of blindness and headaches.

There was nothing noteworthy in her family or past personal history, though from childhood she had suffered more or less from cephalalgia. Her adolescence was somewhat tardy, for her catamenia, though subsequently regular, did not begin until she was 16. She married at 20, and raised a family of six healthy children, the eldest 18 years, the youngest three months of age. Four other pregnancies miscarried.

Present Illness. After her fifth confinement, four years before admission, she began to suffer from throbbing headaches, and a few months later failure of vision was first observed. This condition progressed, and in the course of the next two years she became almost completely blind.

Subsequently her sense of taste and smell became affected, and there were occasional uncinate seizures preceded by a dreamy state with an olfactory aura (as of something scorched, as bread, rubber or meat), and followed, in the more severe attacks, by a convulsion with loss of consciousness. Of late there had been some failure of memory with depression; also marked drowsiness.

Physical Examination. A well-nourished woman, 5 feet 6 inches in height, and weighing 150 pounds. Visceral (abdominal, thoracic, etc.) examination negative. Urine normal. Blood examination (including Wassermann test) negative except for an eosinophilia of 4 per cent.; blood pressure averaged 110 mm. of Hg. No positive neurological signs aside from those of the pituitary neighborhood.

Analysis of Hypophysial Symptoms. (1) *Neighborhood:* The cranial x-ray disclosed completely obliterated sellar outlines. *Eyes:* Pupils dilated (7 mm.); sluggish reaction to bright light. Bilateral primary optic atrophy. Blindness so nearly complete that accurate perimetry was precluded though shadows of large moving objects were at times indistinctly made out in the nasal fields. Pupillary reactions also appeared to be better from a ray of light cast on the temporal than on the nasal retina—presumably the last stage of a bitemporal hemianopsia. Complete anosmia. Uncinate gyrus seizures as recorded.

(2) *General Pressure Symptoms.* Headaches, extreme and paroxysmal and occasionally accompanied by nausea and vomiting. Some evidence of new tissue formation in the atrophic nerve heads, with obscuration of the margins and of the lamina cribosa.

(3) *Glandular.* No skeletal change: no especial adiposity; no cutaneous change. Moderate hypotrichosis. Sugar assimilation limit 200 grams of levulose. Constipation marked. No polyuria or polydipsia. Pulse, temperature and blood pressure tended to be subnormal. Marked drowsiness. Other ductless glands negative.

November 1. Sellar decompression by transphenoidal route. The thin, bulging floor of the sella was easily removed in one large scale. The dura was incised, but instead of the expected soft struma a dense tissue mass was encountered. This was taken to be the flattened gland interposed between the operative field and the tumor. (A minute fragment of the tissue, removed for examination, subsequently showed flattened anterior lobe cells with a great increase of interstitial tissue.)

There were no surgical complications: no subsequent nasal discharge.

On recovering from the operation the patient exhibited a degree of thirst, which proved to be insatiable by the usual ward delivery of water. Not, however, until several days later did the associated polyuria become so marked as to attract especial attention (Fig. 8). Unfortunately there had been no test for sugar on the first specimen voided after the operation, though, according to the ward routine for all suspected hypophysial cases, the 24-hour amounts were recorded, except on three days (November 13 to 15 inclusive) when some specimens were lost. After November 16 the fluid intake and output were both measured.

As the poor woman's pressure headaches continued unabated, recourse was had, a month later, to a palliative subtemporal decompression.

December 4. Right subtemporal decompression. A tense temporal lobe was disclosed. Uncomplicated healing. There was prompt and permanent relief from headaches but the polyuria, anosmia and subjective olfactory seizures continued as before and, as was anticipated, no improvement occurred in vision.

Observation on the Polyuria. (Fig. 8.) As stated, the sellar decompression of November 1 served to inaugurate an active polydipsia with polyuria. The primary wave of polyuria shown in the accompanying chart persisted for three months, the 24-hour amount of urine reaching nearly 12 liters at the crest of the wave. The polydipsia was proportionate, and though from the plotted curve it would appear that the average fluid intake was less than the renal output, the ingested water only was measured. There were, however, many days when the excretion unquestionably exceeded the ingested fluids. However, her weight during these three months varied but slightly, at the lowest being 147.5 pounds, and on February 1, at the end of the primary period of extreme polyuria shown in the chart it was again at 150, her weight on admission.

Her thirst was unquenchable and was most distressing to observe. A two-liter jar of water which siphoned to her mouth, was kept at the head of the bed, and the poor blind creature almost continuously sucked at the tube, except during her sleeping hours. It was often necessary to refill the jar every few hours.

The chart shows that only on the day of the second operation (December 4) was there a marked break in the polyuria, owing doubtless to a diminished intake and possibly, too, to the fact that some specimens may have been lost in the operating room.

At no time were there any renal elements, sugar or albumin, acetone or diacetic acid in the urine.

Functional tests of the kidneys at the height of the polyuria showed no alteration from the normal. The phenolsulphonephthalein test for tubular function showed a positive reaction in 4½ minutes, and 47 per cent. was returned in the first hour. Tests with potassium iodide, with carbol-fuchsin and with lactose all gave normal results, and the glycosuric reaction to phloridzen was likewise normal.

The specific gravity of the urine throughout the three months averaged 1005 to 1006. Practically the lowest registration, namely 1002.5, occurred on the first two days following the inauguration of a period of salt-free diet, though at this time the polyuria was not at its extreme height. Attempts to increase the urinary concentration by administering NaCl were obscured, owing to the impossibility of keeping the ingested fluids low enough for the urine to be appreciably affected by any reasonable amount of salt.

On February 1, sugar and salt were withdrawn from the dietary and the liquids were limited to 2200 c.c., with resultant rise in the specific gravity; on the first two days the excretion exceeded the ingested fluids. The restriction of liquids, however, caused so much distress that prolonged observations were unjustifiable, and at this time, moreover, there was an evident spontaneous lowering of the degree of polyuria which had preceded.

She remained in the hospital through the month of February, during which time the polydipsia moderated considerably. On some occasions the 24-hour amount of urine fell almost to normal limits. She was discharged on February 24, 1912, four months after her admission. Since her discharge frequent reports of her condition have been received through her physician. There has been an occasional slight wave of thirst with polyuria amounting to three or four liters in the 24 hours, but for the most part the amount ranges around the normal.

She continues (April, 1913) to be free from her former pressure headaches, though her uncinate seizures still recur and her blindness and drowsiness remain about as before.

'Tis an ill wind, indeed, that blows no benefits, and the experience with this unfortunate patient, who presented a therapeutic problem for which we have as yet no satisfactory surgical or other solution—the presence of an interpeduncular growth, which flattens and functionally obstructs the underlying pituitary gland—at least has added something to our knowledge of an obscure malady.

Though it may not be clear in just what way the manipulation of the compressed gland served to inaugurate the polyuria, the experience offers a strong argument in favor of the view that an actual disturbance of the pituitary body itself, rather than the stimulation of some predicated diuretic center in the remote third ventricle surmounting the growth, was the inciting cause of a condition worthy of the designation of diabetes insipidus.

. .

It may be said in conclusion that certain clinical observations, coupled with the experimental data which have been assembled, suggest not only that,

The emotional polyurias are in all likelihood the expression of a neurogenic discharge of hypophysial secretion, but also that,

The clinical polyurias of longer duration are in many instances merely the symptomatic expression of an internal secretory disturbance brought about by injury or disease involving the hypophysial neighborhood.

Hence, whether or not there actually proves to be a form of polyuria of primary renal origin, our present conceptions of so-called diabetes insipidus need to be recast, with especial reference to the factor of the secretory activity of the pituitary body and particularly of its posterior lobe.

Note.—Since the preparation of this paper an interesting communication under the title "Diabète insipide avec infantilisme," made by Peirre Marie and Boutier before the Société de Neurologie de Paris, has been published in the Revue Neurologique, 1913, vol. xxi, pp. 555-560. The case in all likelihood was one of infantilism associated with an hypophysial lesion, though no radiographic observations were made.

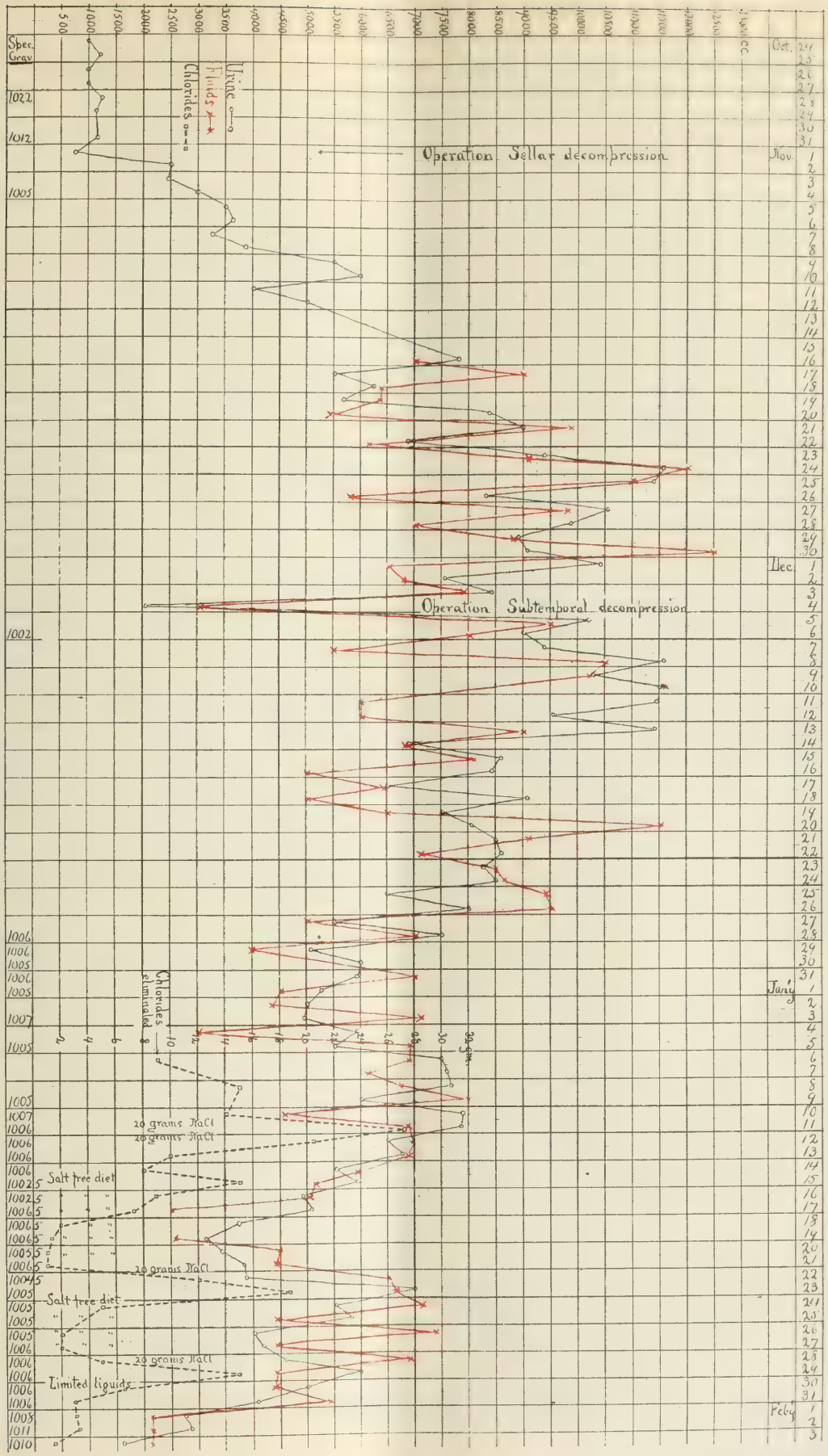

Spec. Grav.
Chlorides
Fluids
Urine
Operation Sellar decompression
Operation Subtemporal decompression
Chlorides eliminated
20 grams NaCl
20 grams NaCl
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Salt free diet
20 grams NaCl
Limited liquids
Oct.
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Dec.
Jany
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Fig. 8.

Original Articles.

DIAGNOSIS AND TREATMENT OF DIPHTHERIA.*

BY JOSEPH B. GREENE, M.A., M.D., ASHEVILLE, N. C.

The fact that diphtheria has received such scant consideration from the laryngologists of the country is my reason for bringing this subject to the attention of this society. One cause of this apparent neglect is the fact that in many of our large cities patients with this disease are promptly transferred to contagious hospitals. This procedure develops a certain number of physicians in the hospital highly skilled in diagnosticating and treating diphtheria, and who are especially skilled in performing intubation and tracheotomy, which measures are at times so necessary for the saving of life. In consequence of this prompt transfer of patients, laryngologists of the cities see fewer cases, and are, as a result, called upon less frequently than formerly, to perform intubation or tracheotomy. The early use of antitoxin has likewise materially reduced the number of cases requiring operation.

In our smaller communities the general practitioner still, to a large extent, attends his diphtheria cases alone, though I know of no disease where the internist and laryngologist can, to a better advantage to the patient, work hand in hand. The throat man can often be of service in determining the extent of the lesion, particularly as to the nose and larynx, and likewise diagnosticating early complications as a beginning otitis media. The laryngologist, on account of his being accustomed to examine and treat the larynx, is better prepared to perform intubation when needed.

The diphtheria organism may attack any mucous membrane, and likewise the abraded skin, as in eczema and wounds. Diphtheria of the pharynx is the most common form, and the one to which I shall first direct your attention. Unfortunately there is no method of diagnosticating, with positiveness, diphtheria from "ordinary sore throat," so called, except by finding the characteristic organism, Klebs-Loeffler bacillus. Even when a culture is taken, one negative finding does not exclude diphtheria, if the clinical symptoms are suggestive, and in the absence of a positive finding the patient should not be denied the benefit of antitoxin. The case which is reported later illustrates this point. The cause of a negative finding in cases of true diphtheria is not always the fault of the laboratory. It may be due to a failure to touch accurately the edge of the membrane, perhaps due to an imperfect view of the throat. One has often to contend against a struggling child, and frequently, too, in a poorly lighted room. It is also necessary to bring the inoculated part of the swab in contact with the surface of the blood serum. The use of antiseptics within an hour or so of the time of taking the culture lessens the chances of a growth on the serum tube.

The diagnosis of diphtheria has been relatively easy since Klebs, in 1883, discovered the organism in the diphtheritic membrane, and Loeffler, in 1884, one year later, isolated the organism—hence Klebs-Loeffler bacillus. It is a small rod of irregular size and shape. It stains unevenly with Loeffler's alkaline methylene blue, giving at times a beaded appearance. This staining peculiarity is of great diagnostic importance, and is more marked in a culture twelve or more hours old than in a young culture, or from a swab of the throat. There is a tendency for the organism to assume a parallel arrangement, which has served me well in doubtful cases. This is more noticeable from a culture than from a swab. The organism is stained by Gram's method. As a differential stain, there is probably none better than Neisser's. Here the peculiar granules are stained dark blue, while the body of the organism assumes a light brown color. The most suitable culture medium is blood serum. On this it grows rapidly at body temperature, distancing the common pus organism, so, at the end of six or eight hours a diagnosis can usually be made with the microscope. In some cases a staining of the swab will give valuable aid in the diagnosis, though a culture will be found more reliable.

Although the bacteriological findings are of first importance in making a correct diagnosis, but as before stated, when in doubt give antitoxin, if the case is at all severe. In primary laryngeal cases a negative finding is of little value if the swab is only taken from the pharynx. A laryngeal applicator could in these cases be used to advantage.

Cultures should be taken of all sore throats, particularly in infants and children. It is impossible to state otherwise with accuracy, whether the case be one of "simple tonsillitis" or diphtheria. A correct diagnosis is important, not only for the safety of the child, but also from a public health standpoint. The following case will serve to illustrate two points: in the first place, the importance of not waiting for a positive finding before giving antitoxin; and secondly, the necessity of administering large doses of antitoxin:—

Patient—L. C. Age 7. First seen by me at Asheville, N. C., in consultation with Dr. Powell on Sunday night, July 2, the fifth day of her illness. The attack began with all the clinical appearances of simple tonsillitis. The culture negative. On Saturday, the day prior to my visit, the temperature was normal till 6.30 p. m., when it registered 99.5. When I first saw her on Sunday night, the picture had changed, for the membrane had spread from the right tonsil to the anterior pillar,

* Presented as candidate's thesis at the nineteenth annual meeting of the American Laryngological, Rhinological and Otological Society, held at Washington, D. C., May 8-10, 1913.

of the same side. A patch was also seen on the left tonsil. Temperature 103.5. Neck very much swollen, and head extended to facilitate breathing. Patient showed signs of severe toxemia. Administered at once 10,000 units of antitoxin. The following morning patient no better; given 20,000 units of antitoxin. That afternoon patient still dangerously ill. Culture positive for the first time. Seen with Dr. Dunn, and 40,000 units given. The next morning seen with Dr. Briggs, patient slightly better, but still dangerously ill. Repeated 40,000 units. That afternoon patient much better, and only 20,000 units. Small doses of antitoxin were continued for a few days, till all signs of membrane had disappeared. She was given, during her illness, 170,000 units of antitoxin. Her recovery was complete and uneventful, except for some paralysis of her palate, and eye-muscles. These had all disappeared at the end of nine weeks. Her pulse continued rapid for some time, which required absolute quiet. Stimulants were given as indicated.

Hoffman's bacillus closely resembles the diphtheria bacillus, though it is somewhat shorter and thicker. It does not show the polar bodies by Neisser, nor is it pathogenic to guinea-pigs.

Bacillus Xerosis,[1] as recently described, cannot be distinguished with certainty from Klebs-Loeffler bacillus. It is said that B. Xerosis forms acid from saccharose, not from dextrin; while B. diphtheria forms acid from dextrin, and not from saccharose. However, the final test in differentiating B. diphtheria from all so-called "pseudo diphtheria" bacilli is by animal inoculation. This slow method of differentiation can only be of use from a public health standpoint.

The clinical diagnosis of diphtheria is often difficult. It is particularly so in mild cases affecting the tonsils, and also where the larynx is primarily affected. Temperature is of little value in making a diagnosis of diphtheria. It is frequently not high, ranging from 99° to 102° F. Strange as it may seem, the temperature may be normal in cases of severe toxemia. A sudden rise in temperature suggests a beginning otitis media, or pneumonia. The pulse, like the temperature, is a poor guide in the diagnosis, for it may vary from a slow pulse to a very rapid one. The extremes, as a rule, are of serious prognostic significance. The volume of the pulse soon becomes small owing to a myocarditis. The depression is great in cases of severe toxemia, though in mild cases this need not be the case. It is too often said by the attending physician, "The patient is not sick enough for diphtheria." Follicular tonsillitis usually makes one seem sicker than true diphtheria. The temperature is usually higher. Before the appearance of the membrane, there may be observed a peculiar plum color of the mucous membrane of the pharynx, particularly evident on the soft palate. There may be considerable edema present. Valuable time in the treatment may be saved by this early diagnosis. The membrane is at first of a grayish white color, though not unlike the membrane due to the pus organism. The cases of septic sore throat which occurred in Boston[2] from the milk epidemic of 1911 had some clinical resemblances to diphtheria. The bacteriology was different. The situation of the membrane is of great diagnostic importance. If found on the pillars, or any part of the pharynx other than the faucial tonsils, our suspicions should at once be aroused that we are not dealing with a case of simple sore throat. The odor in septic diphtheria may be foul. There is usually seen a peculiar red margin at the edge of the membrane, which has served me well for diagnosis in certain cases. The use of violence in removing the membrane to see if bleeding takes place is of little value, and is unjustifiable. Mucus in the throat may be gently swabbed away without harm to the patient. Albumen in the urine is suggestive of diphtheria. Early glandular involvement is a suspicious symptom of diphtheria, though the Boston milk epidemic of 1911 showed this symptom very frequently. There may be edema of the neck, which may extend down over the chest. This is strong evidence of diphtheria, and indicates a severe type of the disease. These are cases requiring large dosage of antitoxin.

Nasal diphtheria is the most contagious form, and from a public health standpoint, is of the first importance. The membrane may be in the nose proper, or the naso-pharnyx. In the latter situation, that is, in the naso-pharynx, the symptoms are more severe, owing to a rapid absorption through a bountiful lymph drainage. On account of the difficulty of inspecting the naso-pharynx of very young children, the diagnosis of this type of diphtheria must usually be made from the symptoms, and finding the characteristic organism. There is noted a serous or sero-sanguinous discharge from the nose, which may excoriate the upper lip. When the membrane is in the nose one can usually see the membrane on rhinoscopic examination. Frequently the membrane may be confined to one side of the nose, and then you get a one-sided discharge, which simulates a foreign body in the nose. There may be nasal hemorrhage of some severity. The patient, if old enough, complains of a stopped-up feeling of the nose. The symptoms may persist for a long time, and may be so mild as not to be suspected as being diphtheria. As before stated, these cases are very contagious and become a menace to public health.

From autopsies performed by Councilman and Mallory at the South Department, Boston, it is probable that the sinuses of the nose, particularly the antrum and sphenoid, harbor the diphtheria organism for a long time. There may be an extension of the membrane from the nose to the ear, pharynx, larynx, or eye.

Diphtheria of the eye is a serious condition, particularly as to sight, and frequently results from an extension through the tear duct, though it may be due to accidental inoculation from other regions.

When the larynx is primarily involved, it is difficult of diagnosis, especially in very young

children. On account of the difficulty of inspecting the larynx in children by means of the indirect method, the laryngeal specula as devised by Mosher and Jackson, are useful for direct laryngoscopy. The symptoms of laryngeal obstruction from a diphtheritic process, come on slowly, and in this respect differ from a foreign body, and also spasmodic croup. At first there is hoarseness, followed by aphonia, evidenced in infants on attempting to cry. In a few hours this obstruction becomes greater, and we get signs of the patient breathing through a stenosed larynx, such as stridor, both inspiratory and expiratory in character, rigidity of the sterno-cleidomastoid muscles and retraction of the abdominal muscles, and supraclavicular spaces. There may be pallor instead of cyanosis, a fact which is easily overlooked when the question of giving relief by operative interference is considered. When the obstruction is lower down, as a foreign body in the bronchus, or bronchial glands, there is more expiratory stridor. The auscultory signs of the chest in cases of foreign body, are the absence of normal respiratory sounds over the area where the entrance of air is obstructed. When the obstruction is high up, as in retro-pharyngeal abscess, the stridor is more inspiratory in character. The diagnosis of retro-pharyngeal abscess can best be made by palpation with the index finger.

Catarrhal spasm of the larynx, or spasmodic croup, as it is sometimes called, may be mistaken for laryngeal diphtheria, but the former usually comes on suddenly at night, and there may be a history of previous attacks. The temperature is usually lower in spasmodic croup, though too much reliance must not be placed on this point in the diagnosis. Improvement usually follows in a few hours after appropriate treatment; not the case in laryngeal diphtheria unless relieved by operation.

Acute laryngitis in infants simulates diphtheria very closely. The constitutional symptoms are usually milder, except the temperature, which may be higher than in laryngeal diphtheria. Aphonia is not so marked. If there be a patch on the pharynx, glandular enlargement of the neck, or albumen in the urine, think of diphtheria. Direct laryngoscopy should be practised in all doubtful cases.

Pneumonia resembles laryngeal diphtheria in the marked dyspnea, but there is usually no stridor. There can be elicited the physical signs of pneumonia, and probably a leucocytosis.

Jackson[3] has described a laryngo-tracheitis due to the influenza bacillus, which can only be differentiated from diphtheria by direct inspection. There is no membrane nor Klebs-Loeffler bacilli present.

In distinguishing the laryngeal symptoms of measles, we should look for Koplik's spots, which appear before the skin rash. The eye and nose symptoms appear early in measles. A culture from the throat should, of course, be taken.

Diphtheria may be a complication of measles. In fact, it complicates this disease more frequently than any other.[4] Early laryngeal symptoms point to measles alone, while a later stenosis of the larynx in measles suggests diphtheria as a complication.

The diagnosis of diphtheria from scarlet fever, when a membrane is present, can only be made by the microscope. The general redness of the fauces, the appearance of the tongue, and perhaps the skin rash in scarlet fever may assist in the clinical diagnosis. One should be on the lookout for a complication of scarlet fever with diphtheria.

Vincent's angina has been very clearly and fully described by Place.[5] It may be mistaken for diphtheria. It is more chronic in nature, and usually shows a dirty patch on the tonsil, or elsewhere in the mouth. Place says, "It differs from diphtheria in being always an ulcero-membranous process, which diphtheria never is primarily." The finding of the B. Fusiformis and the Spirrilum gracillis confirms the clinical diagnosis. Syphilis of the nose and pharynx may simulate diphtheria, but with the finding of the specific spirochete and the Wassermann reaction, the diagnostic difficulties should be less.

Inherited syphilis of the nose in a young child may be mistaken for diphtheria, but there are usually other evidences of syphilis. It is usually less acute in character, and there is the absence of Klebs-Loeffler bacilli.

Secondary syphilis of the throat is characterized by a thin layer of necrotic epithelia with a well defined border. There is usually less constitutional involvement, though there may be fever with syphilis.

Later forms of syphilis of the throat are characterized by a deep ulcer, with a very much inflamed border. The appearance is out of all proportion to the symptoms, for there is usually little pain on swallowing. With the Wassermann reaction in syphilis and the finding of Klebs-Loeffler bacilli in diphtheria, there should not long exist doubt in the diagnosis of syphilis and diphtheria.

Traumatic exudates from operative procedures, as tonsillectomy, simulate diphtheria. A close inspection and a history of the case should remove all doubt. It should be remembered, however, that Klebs-Loeffler bacilli may be a complication of an operative procedure, so if there exist constitutional symptoms out of proportion to the appearance of the wound, a culture should be taken.

Leptothrix-mycosis may be distinguished from diphtheria by its chronic course, often without symptoms.

The projections on the tonsil are conical and show a growth of the leptothrix fungus.

In all lesions simulating diphtheria, the microscope should be promptly used in clearing the diagnosis.

Preventive Treatment. Patients should, if possible, be sent to an infectious hospital. In lieu of this, isolation and quarantine should be

rigidly enforced at home. Immunizing doses of antitoxin, 500 to 2,000 units, depending somewhat on the age, should be administered to all exposed children. Adults should be carefully watched as to their noses and throats.

There is hardly a question but that epidemics of diphtheria are kept up by "carriers," so, as a preventive measure, these cases should be sought for and isolated. Seligmann[6] lays stress on this point, and also speaks of nasal diphtheria being liable to convey the infection for a long period of time.

Diseased tonsils and adenoids are especially liable to harbor the organism. The writer,[7] in 1908, was the first to remove diseased tonsils and adenoids for the purpose of getting rid of the diphtheria organism in a "carrier," and soon the patient was rid of the infection. Since that time this method has been frequently practised in certain localities with marked success. It would not be advisable to practice this method as a routine procedure, but is suitable for certain selected cases. An immunizing dose of antitoxin should be given at the time of the tonsil operation, to prevent infection of the wound with Klebs-Loeffler bacilli. Schectz, a Danish physician, some years ago, recommended spraying the throat with a living culture of staphylococcus pyogenes aureus, to rid the throat of diphtheria infection. Page,[8] Lorenz and Ravenell[9] have practised the overriding of diphtheria throats with staphylococcus pyogenes aureus, and report good results. As the two organisms are found growing side by side in throats, and can likewise be grown together in culture tubes, it is not easy to understand the reason for the disappearance of diphtheria organism by this method of treatment. It would seem as if there is an element of danger in a spray of living staphylococci. Inasmuch as "carriers" have, as a rule, abnormal throats or noses, it would seem more rational to treat these abnormalities with a hope of ridding the patient of diphtheria bacilli. Place tells me of a "carrier" who got rid of his infection when a foreign body was removed from the nose. At least two negative cultures, and probably three, should be required before release from isolation. The writer saw last year, while working at the South Department, Boston, a child who had been in the institution more than a year awaiting the required negative cultures. Diphtheria vaccines[10] have been used with some success in ridding "carriers" of diphtheria bacilli.

Serum Therapy. Under treatment, I shall consider first, antitoxin, for it is by far the most important. It is an absolute specific when given in time and in sufficient dosage. Of the 241 doctors, nurses and attendants contracting diphtheria at the South Department, Boston, not one succumbed. It is not necessary to consume your time in offering proof of the efficiency of antitoxin in this formerly much dreaded disease. I assume that every member of this society is a believer in the life-saving value of antitoxin. It should be given early, and in sufficient dosage to produce the desired effect. The size of the initial dose should vary from 5,000 to 50,000 antitoxin units, and more in the malignant cases which have existed for some time. As McCollom rightly says, the age, over two years, has nothing to do with the size of the dosage. It is a chemical reaction, and not a physiological one, so there is no reason to doubt but that a young child may have as many toxin units as a fully grown man. They certainly have a lessened resistance on account of their tender years. The antitoxin is, in no sense, an antiseptic, but in neutralizing the toxin, it gives the leucocytes and other protective forces a chance to get in their work.

Text-books have been very inadequate in the size of the dosage recommended. Tyson, in his "Practice of Medicine," recommends 1,000 to 2,000 units, depending upon the severity of the attack! Ballenger recommends 2,000 to 3,000 units in what he terms ordinary diphtheria; 3,000 to 5,000 units in laryngeal cases. McCollom, in his classical paper on "Diphtheria" in Osler's Modern Medicine, says: "If there is a very extensive membrane when the patient is seen for the first time, 8,000 to 10,000 units should be given, repeated every four or six hours, until the characteristic effect of the serum is produced, namely, the shriveling of the membrane, diminution of the nasal discharge, a correction of the fetid odor, and general improvement."

Since the above was written, the dosage at the South Department, Boston, has been increased, and the mortality likewise reduced. It may be of interest to state that the mortality at this large infectious hospital, from 1888 to 1894, the year of the introduction of antitoxin, was 43.2%. From 1895 to 1904, inclusive, it was 11.48%. For the year 1912 it was 7.6%, including laryngeal and moribund cases. The greatest reduction was in the very severe cases where massive doses of antitoxin were administered.

Both nasal and laryngeal diphtheria require large doses of antitoxin. Abraham Levinson[11] says that the curative dose in nasal and laryngeal cases should not be less than 25,000 units. Diphtheria of the eye, on account of the danger to sight, requires large doses of antitoxin. It is far safer to give larger doses than is required to neutralize the toxin, which is so destructive to the vital cells, than to leave a portion free to exert its deadly effect on the tissues of the body. There is no way of estimating, with accuracy, the amount of toxin requiring neutralization, but the amount depends somewhat upon the duration of the illness, the extent of the surface involved, and lastly, the virulence of the organism. A mild case of pharyngeal diphtheria should receive, as a single dose, from 5,000 to 10,000 antitoxin units; a moderately severe case of several days' standing should receive 20,000 to 25,000 units, and a severe case, 50,000, and more if the case seems desperate. The dose should be repeated at intervals of six or eight hours till

marked improvement takes place. The size of the dose can soon be reduced, and smaller doses continued until the membrane has completely disappeared. Place strongly advises getting all the required antitoxin in during the first three days of the treatment, even if 500,000 units are required. This dosage, of course, only refers to the desperately ill cases.

Ehrlich says two poisons are produced by the growth and multiplication of the diphtheria bacillus. To one he gives the name of toxin, and to the other toxon. To the former he attributes the early acute symptoms, and to the latter, the toxon element, he attributes the late paralyses. The affinity is stronger between the toxin and antitoxin than between the toxon and the antitoxin, hence the importance of having a surplus of antitoxin to neutralize the toxon element after the toxin has been chemically disposed of.

There is what is termed a precocious form of palatal palsy occurring about the fifth day of the disease. This is not so serious as the late forms, occurring usually within the first three weeks of the illness, but the early form is somewhat of an index to the severity of the illness.

Rosenau[12] and Anderson have shown by animal experimentation the uselessness of giving antitoxin with a hope of influencing the paralyses occurring late in the disease.

My favorite situation for injection of the antitoxin is in the loose areolar tissue of the back, near the angle of the scapula. This region is relatively free from the sensory nerves, is protected from vital parts, and lastly, the operation is not witnessed by the patient. This last point is quite important from a psychic standpoint. The site selected should be sterilized, and the situation should be changed from time to time, as there is usually a local reaction.

Fritz Meyer[13] strongly recommends intravenous injection of antitoxin in serious cases—says much time is saved in the absorption. Eckert,[14] Hoesch[15] and others advise intramuscular injection as being more rapid of absorption than the subcutaneous method.

DANGER OF ANTITOXIN.

The danger of antitoxin has been grossly exaggerated. That a few deaths have taken place following its administration cannot be denied, but they are too infrequent to be seriously considered in view of the dangers of diphtheria when left untreated by antitoxin.

Park[16] says that, "In over 100,000 patients immunized (New York) since the introduction of antitoxin, there has been but one known fatality due to the serum injected. This child suffered from status lymphaticus and died shortly after an injection of 1000 units." Place says that more than 100,000 doses of antitoxin have been administered to over 40,000 patients at the South Department, without a dangerous symptom attributable to antitoxin.

The work of Theobald Smith, followed by the work of Otto, Rosenau and Anderson[17] proved that horse serum administered to guinea-pigs sensitized them, after an elapse of about ten days, to the same kind of serum. A small second dose was often sufficient to cause death, with symptoms of distressed respiration, cyanosis, convulsion and finally death. This phenomenon has been termed anaphylaxis. While this reaction is common in laboratory experiments with guinea-pigs, it is *very* rare clinically. It would be a great pity if these interesting laboratory experiments should curtail the use of antitoxin in diphtheria. It has been thought that the rare appearance of severe symptoms following the use of the first antitoxin dose is due to a natural "sensitization," or anaphylactic condition. The symptoms are marked respiratory distress, and may be due to the contraction of the smaller bronchi. Asthmatics, hay fever patients, and those sensitive to the emanations from the horse are more liable to have symptoms of anaphylaxis on administration of antitoxin. Adults seem to be more subject to this condition than young children. It would seem, if such patients require antitoxin, that they should be given a preliminary dose of atropine, followed by a tentative dose of antitoxin. The writer resorted to this procedure on one occasion where the patient had experienced severe respiratory disturbance following a dose of antitoxin in a previous attack of diphtheria. The patient was given a full dose of atropine, hypodermatically, just fifteen minutes prior to the antitoxin. Concentrated antitoxin was then administered in small doses every fifteen minutes until the required amount was given. In patients in whom there is a suggestion of a sensitized state, this method is worthy of a trial. It may be of interest to analyze the sixteen deaths reported in the literature following the use of antitoxin. The size of the dose in each case was small, varying from 500 to 4000 units. Only six of the sixteen cases were suffering from diphtheria, and six others, owing to exposure to diphtheria, were given small immunizing doses. The remaining four did not have diphtheria at all, but were given antitoxin for asthma. Nine of the sixteen gave a history of asthma in some form.

There is another condition known as "serum sickness" following at a variable interval the administration of antitoxin characterized by rashes of various kinds, with intense itching, joint pains and fever. There may be some edema. The pulse is quickened, but of good strength. This condition may at times be mistaken for measles or scarlatina, though there are not the usual symptoms of these diseases. Park says that about 20% develop the rash. The reaction is certainly less in the concentrated serum where the irritating proteids have been removed by the Gibson process than in the mere bulky product. Calcium chloride[18] has been strongly recommended in gram doses, beginning on the day of the injection of antitoxin.

The treatment of serum sickness is largely symptomatic. Sponge with cold water for the fever, menthol solution for the itching, and heat to the swollen joints.

The general treatment of a patient with diphtheria should be the same as other acute infectious diseases. The room should have abundance of fresh air. The food should be light and nourishing. The urine should be examined occasionally. On account of the heart bearing the brunt of the attack, it should be guarded as much as possible.

The patient must be kept quiet in bed, not only during the attack, but for a considerable period of time after the illness, depending somewhat upon the severity of the attack. The time should also be longer in cases where antitoxin was given late.

Cardiac stimulants should be given as the heart shows signs of weakness. This can best be determined by listening to the heart sounds, particularly the second pulmonic. Jacobi[19] has always been a great advocate of alcohol in some form. At the South Department, Boston, reliance is placed on camphor, caffein, atropine and strychnia.

Cracked ice held in the mouth is grateful, and ice packs to the neck are useful, particularly where edema is present.

The use of local antiseptics is of secondary importance, and if strong may be actually harmful. In my judgment, anything stronger in the nose than normal salt-solution or liquid vaseline is not to be recommended.

To the pharynx in young children antiseptics are of doubtful value, as the physical resistance offered may be more harmful than the local treatment is useful. In older children and adults, my favorite application is a solution 1 part of peroxide of hydrogen to 3 or 4 of water. Some advise Loeffler's solution, while others prefer irrigation with a hot normal saline solution. The ear should be watched for a beginning otitis media.

Paracentesis should be performed early. Borden[20] lays stress on the number of mastoid involvements discovered at autopsy in patients dying with diphtheria whose drum membranes were apparently negative.

Pneumonia is a serious complication, and is especially frequent in laryngeal cases. Stimulants should be given as the case requires.

Gallop rhythm is a serious complication or sequela, and is best treated by absolute rest, rectal feeding, and appropriate stimulation.

Diphtheritic paralysis is a frequent sequela of diphtheria. It may attack any nerve, but particularly those of the palate and larynx. It is more serious when the pneumogastric is involved.

In laryngeal diphtheria, particularly in intubation and tracheotomy cases, it is advisable to use steam inhalations under an improvised tent. Ipecac may be used in slight stenosis pending the action of antitoxin. This should be relied upon but for a *brief* period of time, for we must remember that the laryngeal stenosis not only taxes the respiratory system, but gives an added burden to a heart already weakened by the diphtheritic toxin. As before mentioned, there are cases requiring large doses of antitoxin.

In intubation cases the question of feeding comes up. As a rule semi-solid food is best, and should, if possible, be given in the upright position. Rarely is it necessary to use a stomach tube, or the Castleberry position.

Whether intubation or tracheotomy is preferable in laryngeal stenosis of diphtheria has long been a mooted question. Since the introduction of the intubation tubes by O'Dwyer of New York, which marks one of the brightest spots in American medicine, physicians on this side of the waters have shown a decided preference for intubation. France has for a long time been an advocate of intubation, while Germany is using more and more the O'Dwyer tubes. England, in her conservatism, clings to tracheotomy. It is not to be understood that intubation is to entirely supplant tracheotomy, for there are certain conditions where tracheotomy is preferable.

The advantages of intubation are:—

1. Relief of the stenosis without the shock of a cutting operation, and without an anesthetic.
2. Consent of the family for operative relief is more readily obtained. This is a great advantage, as early relief of the stenosis is a great factor in reducing the mortality.
3. There is no danger of local infection, and less danger of pneumonia in intubation than in tracheotomy.
4. There is no resulting scar.

Tracheotomy instruments should always be at hand where intubation is performed, in case of stoppage of respiration from pushing the membrane in front of the tube. This is not a frequent occurrence. Rarely the patient persists in coughing up the tube, which if continued, requires tracheotomy. There are also cases where there is marked pharyngeal swelling, together with edema of the ary-epiglottic folds, where tracheotomy is indicated. Lastly, if the surgeon cannot remain within easy reach of the patient, in case of stoppage of the intubation tube, or its coughing up, it might be safer to perform tracheotomy. It does not seem necessary to give the technic of intubation or tracheotomy, for excellent descriptions of these operations are given in our text-books. However, the ingenious method of Mosher's[21] intubation deserves mention, and in the hands of some should prove simpler than the indirect method. The same O'Dwyer tubes are used, only it is performed with a straight introducer, through a laryngeal speculum. If the direct method is used for diagnosis, it might be best to continue the operation and insert the tube with Mosher's introducer.

The writer wishes to emphasize the following points:—

1. The diagnosis of diphtheria depends primarily on finding the organism. Cultures

should be taken of every sore throat in children, and likewise suspicious nasal discharges. But in the absence of a positive finding, if the symptoms point to diphtheria, antitoxin should be given. This is particularly important if the symptoms are severe.

2. Much larger doses of antitoxin should be given in diphtheria. Text-books have been misleading in this respect.

3. Laryngeal cases are serious partly from mechanical obstruction, requiring prompt relief of the stenosis, and large doses of antitoxin. Intubation in the main is preferable to tracheotomy. Laryngologists should perfect their technic in this operation until it becomes a fairly simple one.

4. Epidemics of diphtheria are kept up largely by "carriers." They should be sought out, isolated, and the abnormality treated. Diseased tonsils and adenoids may require removal.

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A REPORT OF SEVENTEEN CASES OF PULMONARY TUBERCULOSIS TREATED BY ARTIFICIAL PNEUMOTHORAX.*

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AND

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The seventeen cases included in this report were treated in the Rhode Island State Sanatorium since January, 1912. The primary injections in the first two cases were made by Dr. Cleaveland Floyd, to whose kindness in assisting us at the outset we wish to make acknowledgment. Only nitrogen gas was used, the first few amounts being obtained from a chemist and the remainder being made in the Sanatorium by removing oxygen from air by means of pyrogallic acid and lye. An improvised apparatus and monometer was used until a Robinson-Floyd apparatus was obtained. The Forlanini method of injection was followed in all cases. Anesthesia was at first obtained by 1-10 per cent. solution of cocaine, but as one alarming syncope was believed to have been caused by it, ⅛ per cent. solution of novocaine was substituted to our satisfaction. Ten men and seven women were treated and only far advanced, progressive, or unimproved cases were selected. No x-ray being available, we were forced to rely on physical examination. In 14, or 82 per cent. of the cases, gas was readily introduced. The literature has been so well reviewed by Robinson and Floyd, Hamman and Sloane, Balboni and others, that no such review will be made by us.

* Read at a meeting of the American Climatological Association, Washington, D. C., May 8, 1913.

Case 1466, Female, 25, duration of disease, 11 months, fever continuous for eight months in sanatorium, except occasional intervals for a few days. Dullness and medium moist râles heard over left upper lobe front and behind, and apex of lower lobe posteriorly; subcrepitant râles from right apex down to first rib and a few over apex posteriorly. Cough and expectoration increasing and signs slowly progressing in left lung. Gas injections into the left pleural cavity.

Jan.	2, 1912	500 c.c.
Jan.	12, "	1000 "
Jan.	31, "	1200 "
Feb.	12, "	1400 "
Mar.	4, "	1700 "
Apr.	10, "	1300 "
May	21, "	325 "
July	6, "	75 "
Oct.	15, "	150 "
Dec.	20, "	210 "
Jan.	29, 1913	240 "
Feb.	14, "	200 "
Mar.	19, "	350 "

On May 21 the pressure became positive and has been so ever since, the manometer showing 2 to 7 c.m. of water pressure.

Result. Following all injections the same phenomena were noted. The cough and expectoration were markedly increased for from 12 to 24 hours, followed by almost complete cessation of cough. The sputum was reduced from 65 to 30 c.c. by the first injection. Tubercle bacilli which had never been absent during the eight months left the sputum after three months' treatment and have not returned for the year that has elapsed. There is only about 10 c.c. of sputum per day. There is still a slight return of the cough about a month after a gas injection which persists until another injection is given. Patient works four and one-half hours in addition to walking exercise.

Case 1570. Male, 25, duration eight months, of which five had been spent continuously in bed in the sanatorium with afternoon temperature usually between 100 and 101. The left lung infiltrated from apex to base. Signs of a cavity appeared in the lower lobe of the left lung posteriorly about six weeks after admission and a slight amount of fluid at the left base was absorbed during the following months. On the right side slight dullness and harsh breathing extending from the apex down to the second rib with a few râles. Evidently a hopeless case. Gas injections into the left pleural cavity:

Jan. 2,	1912	500 c.c.
Jan. 12,	"	1000 "
Jan. 31,	"	1200 "
Feb. 12,	"	1500 "
Mar. 4,	"	1600 "
Mar. 23,	"	1800 "
Apr. 10,	"	1800 "
Apr. 26,	"	350 "
June 7,	"	525 "

The first seven injections were uneventful, but after 350 c.c. of gas was introduced on the eighth injection he collapsed and was unconscious for over forty minutes, the pulse not being perceptible at first. The patient made a good recovery from the collapse, no permanent harm resulted, and he had one treatment afterward. Cases of collapse occur occasionally after the use of cocaine, even though the solution is dilute and the dose small. One-tenth of one per cent. cocaine was used in this case, the dose being about one-eighteenth grain, and we have felt that the collapse was due to this drug, possibly because of the needle entering a small vein. The pressure was always negative in this case.

Result. After the first injection the afternoon fever which had ranged from 100 to 101 fell to an average of about 99.5 being frequently normal. The patient gained 2¾ pounds and the sputum which had amounted to from 70 to 180 c.c. dropped to 25 c.c., the cough showing corresponding improvement. June 8, 1912, the patient began a series of eight hemorrhages in 16 days totalling 27 ounces of blood which clearly came from the right lung, and as it was not considered feasible to compress the right lung, the treatment was abandoned. The patient died 14 months after pneumothorax was established.

CASE 1579. Male, 24, duration of disease five months, previous to admission. After seven months in the sanatorium during which he had slight fever 99 to 100 F. about a third of the time with four attacks of blood spitting, he had another hemoptysis during which he lost seven ounces, the fever being 101 to 103. Dullness and broncho-vesicular breathing over upper lobe and large moist râles over the whole right lung. The upper lobe of left lung also infiltrated. The first gas injection of 650 c.c. into right pleural cavity, was given during the hemorrhage on April 10. The hemorrhage stopped and did not recur during the remainder of his stay of three months. Subsequent injections were :

May 1,	1912	925 c.c.
May 21,	"	1200 "
June 19,	"	1450 "

Result. Temperature came to normal five days after first injection, remained normal a week and then recurred. After fifth and last injection temperature remained normal until patient left institution to return to Portugal. Sputum reduced from 50 to 25 c.c., but no improvement in general condition, his weight gradually dropping until he had lost six pounds.

CASE 1577. Male, 18, duration 13 months, of which eight had been spent in the institution and during which he had had two small hemorrhages and streaked sputum on two other occasions, the last being one month before the first gas injection. He had gained well on first entering but for three months previous to gas treatment he had been slowly losing weight and feeling badly. Temperature usually normal. Over upper lobe of right lung was slight dullness, broncho-vesicular breathing and moderate number of moist râles. Middle lobe also shows signs of commencing disease. Two small patches of infiltration in the left upper lobe. Gas injections in right pleural cavity given without difficulty or discomfort, the pressure being strongly negative.

May 1,	1912	650 c.c.
May 21,	"	1000 "

On June 15 and 17, the patient had slight hemorrhage of three and two ounces respectively. On June 16 patient had slight chill and vomiting, temperature rising to 102. On the 18th the temperature fell to 99 and patient's stomach symptoms disappeared. On the morning of June 19, 1225 c.c. was injected without difficulty or discomfort. On June 20, marked cyanosis and dyspnea. An unsuccessful effort was made to remove the gas, the negative pressure being too strong. June 22, cyanosis better, but dyspnea continued. Scattered areas of broncho-vesicular breathing and râles in previously healthy areas of both lungs; amount of sputum doubled. The signs of broncho-pneumonia soon became typical, thus accounting for cyanosis and dyspnea. Patient emaciated, steadily lost strength and died July 11, three weeks and two days after last injection.

CASE 1648. Male, 21, duration 22 months, of which nine months had been spent in the sanatorium. Patient had gained 24 pounds in weight but had had six hemorrhages and many slight temperature attacks: Right lung, slight infiltration with few râles above the third rib anteriorly and only at apex posteriorly. Left upper lobe moderate dullness, broncho-vesicular breathing and large moist râles. Upper part of lower lobe also involved and lesion apparently extending. Gas injections into the left pleural cavity:

May 21,	1912	650 c.c.
June 7,	"	1200 "

Patient did not improve as fast as he thought he should, refused further treatment, was discharged August 26 and has been working ever since.

Result. The gas given was insufficient in amount to expect much result and there was no striking change in his condition. Patient has had no more hemorhages but whether this can be credited to the pneumothorax is most uncertain.

CASE 1716. Male, 27, duration 32 months, of which three months were spent in the sanatorium. The first three months in the institution he had neither gained nor lost weight, his temperature occasionally going to 100. Left lung completely involved with consolidation in the upper part and cavity signs below the clavicle. Many large moist râles all over the lung. Harsh breathing and few subcrepitant râles above the second rib on the right side. April 22, 1912, patient had chills. His temperature went to 102 and kept high almost continuously with an occasional morning drop to normal. Patient had refused pneumothorax. May 9 signs of another cavity appeared in the upper part of the left lower lobe posteriorly. Gas injec-

tions into the left pleural cavity June 7, 1912, 450 c.c. Patient's temperature continued to go up occasionally but had a two-day normal interval. June 25, 450 c.c. produced positive pressure. Temperature made a decided drop to an afternoon average of about 99.4 with marked relief to the patient. Sputum continued about the same amount.

Subsequent injections were:

July	6, 1912	450 c.c.
July	14, "	400 "
July	27, "	200 "

All producing positive pressure and slight dyspnea. Patient's sputum continued the same in amount. She steadily lost weight and refused more injections, but the temperature continued nearly normal until August 28, when evening temperature again ran from 100 to 102 and patient was discharged.

Result. Striking reduction of temperature followed pneumothorax and continued as long as positive pressure was kept up. Patient was obviously too far advanced to be saved.

Case 1785. Male, 27, duration 30 months, the last month in the sanatorium. Had previously had over a year of treatment in two different sanatoria besides treatment in several health resorts. Temperature nearly normal. Hemorrhage of one ounce about a month before injection. Has lost slightly in weight every week since admission. Slight dullness, broncho-vesicular breathing all over right lung with many large moist râles. Slight broncho-vesicular breathing, occasional subcrepitant râles in upper lobe and upper part of lower lobe of left lung. Patient was discouraged by his continued failure in different health resorts and sanatoria. Injection of gas June 7, 700 c.c. into the right pleural cavity. June 8, two hemorrhages of three ounces each. June 10, several hemorrhages in last two days totaling 20 ounces of blood. June 13, 1225 c.c. of gas injected during a hemorrhage. Temperature 101.8. June 18, three hemorrhages, giving a total of five ounces. June 19, 525 c.c. of gas injected. Hemorrhages ceased but temperature continued 99 to 100 with occasional rises to 101. All injections had been stopped on negative pressure and were uneventful. July 16, 100 c.c. gas injected. Injection discontinued because of pain. June 23, patient developed diarrhea accompanied by abdominal tenderness which was believed to be due to tuberculous enteritis. Patient left the institution and died five months after the first injection.

Case 1645. Male, 30, duration 16 months, of which 10 had been spent in the sanatorium. Had gained seven pounds in weight in the first four months and then began to have spells of temperature. Both lungs were markedly involved, the left being decidedly the worse with signs of cavity formation below the clavicle. The right lung, however, having slight broncho-vesicular breathing and râles through the upper lobe and a few râles in the upper part of the lower lobe posteriorly. Gas injections into the left pleural cavity.

June	7, 1912	700 c.c.
June	25, "	200 "
July	6, "	100 "

Except the first time, only small amounts could be injected as the manometer registered positive and the sense of pressure was uncomfortable. Four different places were tried. Sufficient gas could not be introduced to expect any result and there was none. The patient lived eight months after the treatment was instituted.

Case 1783. Male, 36, duration seven months, including one in the sanatorium. Fever continuous from 100 to 105 with prostration. Left lung moderate dullness very marked bronchial breathing, increased voice conduction and moist râles from top to base. Upper lobe of right lung infiltrated. Gas injections into the left pleural cavity. June 7, 125 c.c. caused positive pressure and pain. June 25, 200 c.c. caused positive pressure and pain. Four points of injection were tried.

Result. Failure to inject sufficient gas. Patient died about two months after the first injection.

Case 1431. Female, 35, duration 17 months, of which 14 were passed in the sanatorium. Patient was in bed with fever for nearly 30 weeks after admission, the fever running between 103 and 105 for nine weeks with much pleuritic pain in the left side. Patient had been in bed with many spells of temperature since. She had had six small hemorrhages and streaked sputum on many occasions. Had been in bed two weeks with temperature between 99 and 100 at the time of first injection. Left lung has a few subcrepitant râles in the lower lobe, and patient has had almost constant pleuritic pain in this area. Right lung also has subcrepitant râles over upper lobe and apex of lower lobe posteriorly. Gas injections into the left pleural cavity.

June	25, 1912	650 c.c.
July	6, "	900 "
July	16, "	750 "
July	27, "	800 "
Aug.	27, "	450 "
Sept.	11, "	450 "
Sept.	27, "	500 "
Oct.	15, "	350 "
Dec.	20, "	725 "
Jan.	29, 1913	785 c.c.
Feb.	6, "	750 "
Mar.	19, "	550 "

The first injection caused enough dyspnea to be uncomfortable, and this symptom was noted to a less degree on two other injections. Positive pressure varying from a slight amount up to three c.m. of water was produced at the end of the last four injections.

Result. Patient is much improved but is still far from being well. Her sputum is about the same in amount and usually contains bacilli. She had a hemorrhage on the 15th and also on the 17th of October, and streaked sputum on two other occasions, but she had had almost complete relief from the pleurisy in the left side and although she quite occasionally has a temperature of 99.4 to 99.6 in the afternoon, she has not been in bed with a temperature regarded as due to tuberculosis since the second injection. Is still in the sanatorium.

Case 1597. Female, 15, duration 15 months, of which nine months had been spent in the sanatorium. Nearly all of the first eight weeks after admission were spent in bed. The fever constantly tended to recur and patient had been in bed or on her bed over half the time. She had, however, gained 14 pounds between October, 1911, and March, 1912.

From May 14 to June 25, her cough increased, she began to have slight temperature up to 100 more frequently and slowly lost weight, five pounds in all. There was considerable consolidation with moist râles in the upper lobe of the right lung with cavity signs near the apex. The upper part of the lower lobe was involved posteriorly. Signs in the left lung covered about as much area but there were no signs of excavation. Gas injections into the right pleural cavity:

June	25, 1912	500 c.c.
July	6, "	750 "
July	16, "	700 "
July	27, "	500 "
Aug.	27, "	500 "
Sept.	11, "	500 "
Sept.	27, "	500 "
Oct.	15, "	500 "
Nov.	7, "	500 "
Dec.	20, "	825 "

The last injection was the only one in which a positive pressure was recorded. After the third injection the temperature fell to normal and remained there for several months except for an occasional 99.4 once in two or three weeks. She regained the five pounds which she had lost and coughed less but the amount of sputum kept the same, T. B. being still present. The improvement only lasted about five months as temperature and cough began to increase after the last injection which was about a month before discharge.

CASE 1788. Male, 26, duration of disease 13 months, one of which had been spent in the sanatorium constantly in bed with fever from 99.5 to 101 almost never normal. Marked weakness. Upper lobe of left lung had consolidation and excavation with many moist râles. Upper part of lower lobe also had moist râles. Upper lobe of right lung badly infiltrated. Hemorrhage or streaked sputum on twelve days of the first month. Gas injections into the left pleural cavity.

June	25, 1912	700 c.c.
July	16, "	1000 "

Resulting in positive pressure.

Result. The patient continued to fail steadily and died July 30, 1912, apparently uninfluenced by the treatment.

CASE 1800. Female, 29, duration eight months, of which three had been spent in the sanatorium. Was a third of the time in bed with recurring temperature attacks. Had gained but five pounds during this time. Upper lobe of the left lung much infiltrated, also apex of lower lobe. Upper half of right upper lobe infiltrated. Gas injections into the left pleural cavity.

Aug.	27, 1913	500 c.c.
Sept.	11, "	800 "
Sept.	27, "	850 "
Oct.	15, "	800 "
Nov.	7, "	800 "

Result. Pleuritic pain and temperature followed the first injection for four days, upon which the temperature fell to normal and remained there for five months during which time the patient gained 8¼ pounds. Patient declined to take further treatment and temperature is commencing to return. The sputum was not reduced in amount, but since the gas has been absorbed the amount had doubled.

CASE 1752. Female, age 14, duration 17 months, of which five had been spent in the sanatorium. In bed continuously since admission with temperature of from 99.5 and 102, was growing weaker but held her own in weight. Left lung, upper lobe consolidated with signs of large cavity at the second interspace and much moisture. Upper part of the lower lobe infiltrated with signs of moisture. Signs in right lung cover much the same area but signs of consolidation and excavation are absent. Only the bases of the lungs were free from signs. A desperately sick case in which the advisability of giving the treatment was very doubtful. Gas injections into the left pleural cavity.

Aug.	27, 1913	100 c.c.
Sept.	11, "	200 "
Sept.	27, "	350 "
Oct.	15, "	350 "
Dec.	20, "	400 "

Patient was subject to attacks of syncope and had a slight attack during first injection which completely passed away in five minutes.

Result. Following the second injection the temperature fell to normal remaining there for over four months or during the remainder of the treatment. The patient gained strength, was up and about, and the sputum fell to about one-half its former amount. Declined to continue treatment.

CASE 1846. Female, 21, duration of disease 31 months, of which one had been spent in the sanatorium. Fever had run between 100 and 103 for a month previous to the first treatment during which cavity signs had commenced to appear at the right apex. Right upper lobe partially consolidated with pronounced moisture. Middle lobe and apex of lower lobe infiltrated. Râles from left apex down to second rib anteriorly. Gas injections into the right pleural cavity.

Aug.	27, 1912	350 c.c.
Sept.	11, "	750 "
Sept.	27, "	750 "
Oct.	15, "	800 "
Nov.	7, "	600 "
Dec.	20, "	50 "
Jan.	29, 1913	190 "
Feb.	14, "	300 "

Manometer showed positive pressure at the close of all injections. After the first two only slightly positive pressure could be tolerated.

Result. Temperature reduced to below 100 after the second injection and almost to normal after the fourth injection. Marked general improvement. Patient is up and about and has gained 13 pounds. since the first reatment. Is still in the sanatorium.

CASE 1995. Male, 20, duration 42 months, a chronic relapsing patient who had been in other institutions and who wished to try pneumothorax. Temperature normal The right lung is infiltrated from apex to base. Subcrepitant râles heard all over. Subcrepitant râles also heard at left apex. Gas injections into right pleural cavity.

Jan.	29, 1913	100 c.c.
Feb.	6, "	500 "
Feb.	14, "	25 "

Gas introduced the first time after one failure and the last time after two failures. They were accompanied by considerable pain at the site of injection and the patient left the institution to obtain a new treatment of another kind. No result.

SUMMARY OF SEVENTEEN CASES.

Of the Condition of Patients:—

All had bilateral disease.

All had tubercle bacili in the sputum.

Nine were far advanced and progressing.

Four were moderately advanced and progressing.

Twelve were chronic fever cases.

Six had cavities.

Sixteen had failed to gain in the Sanatorium after an average duration of six months.

Of the Results:

Three could not be given gas enough for a fair test.

Seven had their temperatures reduced to normal.

Five had their P. M. fever reduced to an average of 99.5.

Nine gained weight.

Eight abandoned treatment after marked improvement.

Two developed hemoptysis in the opposite lung.

One developed bilateral tuberculous bronchopneumonia.

Seven died with an average duration of life of 5.2 months after treatment was instituted.

One most discouraging fever case has had arrest of the disease with absence of bacilli for over a year.

While seventeen cases are obviously too few to form definite conclusions, it is our impression that pneumothorax prolonged the life of 12 or 70%, of these far advanced and progressive cases. We would expect much better results in unilateral cases and in those less far advanced. Most moderately advanced progressive cases in which high or moderate fever is not controlled within a month or two by rest in bed and in which it is clear in which lung the disease is active are entitled to a prompt trial of this method, especially as the chance of recovery in these cases is slight when treated by ordinary methods.

A METHOD OF SUPERVISION IN MEDICINE.

BY WILLIAM T. CAROLIN, M.D., LOWELL, MASS.

In the practise of medicine today one meets a peculiar paradox. It is this. That while at no time in history was medical science and art a truer part of each practitioner's honest attributes than the present, nevertheless, at no epoch was his reputation for leadership in science less potent in guaranteeing to him success in practise than it is today. That this is no new observation is evidenced by the fact that Dr. Henry J. Bigelow made it the theme of his valedictory to the Harvard Medical students of 1846. Since that date science has gone forward in leaps and bounds, and medicine has shared in the growth. This tends to heighten the absurdity of the paradox. It makes the breech wider between the actual situation and the public estimation of the physician. Many reasons have been given for this state of affairs. They range from quackery and charlatanism to over-divided specialism. Each cause undoubtedly affects, to some extent, local conditions of states or countries. If, however, we go deeper and analyze critically and impartially the medical practise of today and compare it with that of the age when the physician was the honored and revered friend, the confidant and adviser of the family, often for two or more generations, we will find two important elements missing. First, a knowledge of health, and second, an absence of the recognition for authority in medicine. There are others, no doubt, but these two are fundamentals, and little genuine reconstruction can be accomplished until both are restored to their rightful places.

Medicine is a composite science. Its advance is as much dependent on physiology, anatomy and chemistry as it is on any knowledge of disease, its symptoms, and its pathologic manifestations. Nevertheless, we too frequently look upon the practise of medicine as being something apart from that state called health, *i.e.* the physiologic condition of each human being. This often robs disease of its identity, because we have disregarded that by which disease is measured,—namely, health. It has given to therapeutics an uncertainty and an absence of fixed standards for treatment. All this has affected the standing of the physician among the learned professions. The practise of law will illustrate this. Here there is a fixed standard. No one ever thinks of one person presuming to act as examining counsel, judge and jury, yet that is what the physician does in practise. Furthermore, he argues and adjudicates in private. His various decrees, *i.e.* his treatment, have been so varied that the people have come to interpose their private opinions as to the value of these therapeutic decisions. The successful practitioner, by this process of reasoning, soon came to be the

man who was best able to meet this popular estimate. If the practitioner went one step further and threw overboard honesty, abandoned truth, and catered to popularity, his pecuniary success was assured,—"One of the few modes of getting money by unblushing, false pretence," wrote Bigelow, "of which the law does not in the United States take cognizance." I am not speaking of a scientific, nor of a desirable reputation, nor of the respected practitioner, but rather of him who, in so many centres, is looked upon by the public as the leader in medical practise,—a clever pretender.

This insecurity of the qualified practitioner's position today, in medicine, can be traced directly to the overthrow of authority in medical science brought about by the unwarranted invasion of the inductive method of research. Let me not be misunderstood. No one questions the invaluable contributions to the physical sciences resulting from the methods of investigation inaugurated by Bacon. It may be stated further, that if the deductive method of Aristotle had remained dominant, the marvelous developments in the physical sciences, the products of physical research and of discovery, as we see them today, would not be possible. When, however, the inductive method was carried beyond the legitimate bounds of its field of application, namely physical science, it destroyed existing authority without being able to establish any new authority. A little reflection shows this. The inductive method is built upon hypothesis. It gives us a physical certainty, but not an absolute certainty. Many of the brilliant results claimed for the inductive method were fortunate guesses,—nothing more. So long as the experimental method founded upon induction based its conclusions on the results obtained in medical science which have a physical basis, all was well. When, however, it carried its methods of research into the field of the immaterial in medicine; when it attempted to bridge the chasm between the material and the immaterial, to deal with the invisible as well as with the visible; when finally it went further and dealt not with brute matter, but with mind, thought, conscience, God,—then it entered a field where its methods were not even logical, and where its conclusions had no certainty whatever. The establishment of fixed principles in mental science by means of the inductive method is not possible. The chaos which has resulted in the science of psychology by attempting this is well recognized. The present day divergencies of opinions on moral and religious questions also add corroboration to the same testimony. Each has suffered, as has medicine, namely, all respect for authority has been destroyed.

The inductive method has substituted laws based upon experiment and upon human experience. The authority thus created, so far as it is an authority, soon becomes the subject of scientific inquiry and investigation. Each physician knows that in his practise of medicine he is constantly meeting problems and mysteries upon which science can throw little or no light. Bacon, Locke, Mill, and other leaders in the inductive school of research recognized this, and ever warned their followers of the dangers that threatened authority, if the speculative action of the mind is given a free rein in science. The spirit of the inductive school has now reached beyond the confines of the scientist.

The lay public wants to know the *why* and not the *what* in medical science. It feels that it is possessed with sufficient scientific acumen to follow the most learned among the profession in their conclusions. The physician who cannot explain the *how* of each step in the process of diagnosis and treatment can hope for little by way of reputation with the present generation. In other words, the authority demanded in medical practise today is that of *facts,* not the authority of medicine, nor of the physician. The best method to reëstablish authority is thorough judgment. Judgment is the art of common reason, and a gift which transcends the acquisition of certain knowledge. Judgment is either positive, *i.e.* a firm *conviction,* or uncertain, *i.e.* merely an *opinion.* The chief source of human error is the tendency of mankind to exalt opinions into convictions, to regard as certain that which is uncertain, to jump at conclusions where there is no warranty for doing so. In other words, there has been too much emphasis placed upon what is often simply an hypothesis, and a too ready disposition to raise the stage of hypothesis to that of an established law. All this has lowered the dignity of the physician. To regain its lost prestige, both as a science and in the confidence of the people, medicine and the physician must be reëstablished in authority along lines in harmony with modern science and modern thought,—lay as well as professional.

This result can be attained best, I believe, by a method of medical practise which I have personally carried out for more than ten years. It is based upon the principle of recognizing authority in medicine. I have called it—*Supervision in Medicine.*

This method was first outlined in the description of my specialty in practise as given in the Alumni roll of Harrington's History of the Harvard Medical School, Vol. III, p. 1551, viz.—"Specialty,—A Supervisor in Medicine, a method which involves diagnosis in the first instance, with further treatment in ordinary cases, and in extraordinary cases placing the patient under the personal supervision of the family physician, in direct relation with specialists of recognized authority in medicine or surgery." So far as I know this method of practicing medicine had never been outlined before. It differs from the family physician idea and from the medical or surgical consultor practise in several important essentials. In the first place it is principally advisory. It involves little or no prescribing of drugs. In other words it means scientific medical advice in those cases where no pathology

exists, and secondly, it places those patients with pathological lesions or disease under the care of competent recognized authority in the various specialties. The consultation is between the medical supervisor and the patient. The supervisor, after the examination of organs, senses, fluids, blood, excreta, etc., is the judge of the future course in treatment. His advice is authority, whether as to diet, clothing, work, rest, or other preventive or curative measures, as well as with whom the patient with a *pathological lesion* should treat. This course insures two things. First, it gives to each person consulting the supervisor, the benefit of that thought and action which any physician would expect to receive from a brother practitioner, if he himself were the patient. Secondly, it does away with the present day method of each patient deciding for himself what specialist he should select, a choice not always wisely made. The supervisor makes the choice of specialist on one basis only,—namely, is the specialist the highest authority in his line in that immediate locality? The position of recognized authority in any special line of medicine in any locality can be readily ascertained and with great accuracy. To attain such a high rating would be the ambition of each specialist. This would aid medicine greatly. A physician who secured this high endorsement would be assured of continued recognition because his position in medical ratings is built upon the confidence of a reputation secured legitimately, rather than upon the whimsical fancy of the lay public. The benefit to the patient would be very great. He would be guaranteed a high authority in the care of his disease. The protection to the public against quackery, pseudo-science, unnecessary drugging and knavery would be guaranteed so far as such protection can be guaranteed. This method of supervision would do away with those systems of therapy now employed in the treatment of patients with no other lesion than brain or nerve fag.

The whole plan of medical supervision is based upon scientific medicine of the highest order. It recognizes drug giving, surgery, mechanical and organ therapy, x-ray, etc., when a genuine pathological condition is present; it substitutes advice, supervision and guidance, when there is no pathological lesion demonstrable. It reëstablishes an authority in medicine by recreating the type of medical practise which was once the prize of him who was so loved and trusted as the family medical adviser.

It is needless to state that he who undertakes the office of medical supervisor must first establish a high standing in the confidence of the public. He must combine keen perception and critical analysis. He must be a close student of the psychology of human nature. He must keep abreast of the latest in medicine. He must know the real professional rating of the physicians, surgeons and specialists whom he selects as authorities. This rating must be honest and unbiased. It must not savor in the least degree of a medical trust, but should be wholly for the benefit of the patient.

TUBERCULOSIS OF THE EPIDIDYMIS: ITS EFFECT UPON TESTICLE AND PROSTATE.*

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In two recent articles on tuberculosis of the epididymis (Boston Med. and Surg. Jour., Dec. 14, 1911; Mar. 14, 1912) the writer maintained first, that genital tuberculosis was generally primary in the prostate and vesicles; second, that "healthy testicles are daily being removed under the impression that cure is more likely to follow."

The elapse of time, and with it, the opportunity to study additional cases, as well as to review the older material, has made the foundation upon which our former hypothesis rested crumble away under the weight of accumulated facts; the second is being strengthened daily with material contributed by the surgeon. My first contention was already that of Berard and Robin, Vidal, Pitka, and Thompson (all cited by Hallé and Motz), and more recently, Socin, Krzywicki, Burckhardt, Orth (cited by Walker), and Marwedel have declared the prostate to be the primary focus.

That it is rarely so is proved by overwhelming evidence, pathological and clinical. In 183 cases of genito-urinary tuberculosis Guisy found but 10 involving prostate and vesicles alone, in 5 the prostate only was affected, while in 1 the vesicles alone were attacked. Saxtorph, in a series of 205 cases of genito-urinary tuberculosis, found but 9 primary in the prostate, with 2 originating in the seminal vesicles. Combining these figures it is seen that primary prostatic lesions, with or without vesicular involvement, occur in only about 6% of all cases of genito-urinary tuberculosis, while the seminal vesicle can practically be disregarded as the primary focus. We do not recall a single proved case in our clinic at the Massachusetts General Hospital, nor are we aware that the autopsy records of the hospital contain one.

All are agreed, however, that the prostate becomes secondarily infected with exceeding frequency in tuberculosis of the genito-urinary tract. Its anatomical position places it between two fires, one from the kidney above, the other from the epididymis below. According to the combined statistics of Burckhardt, the prostate is invaded sooner or later in 73% of all cases. Jullien and Desnos (cited by Hallé and Motz) give an even higher figure. Hallé and Motz, in

* Read at a meeting of the Genito-Urinary Section of the New York Academy of Medicine, March 19, 1913.

67 specimens of genito-urinary tuberculosis at the Necker Hospital, found prostatic lesions in 88%.

Our own figures substantiate these. In 101 rectal examinations of patients with tuberculosis of the epididymis, the prostate is recorded as tubercular in 76 or 75%; in the others it was regarded as negative. As the only clinical method of detecting foci in the prostate is by digital examination we must acknowledge that it offers a certain percentage of error, an observation which we find agrees with that of Hallé and Motz. But that this error lies generally in the detection of small, early, and centrally located lesions we think is obvious. Our figure of 75% is, therefore, a conservative estimate.

In 25 cases, where prostate and vesicles alone were examined, they were found to be tubercular in 20, negative in 5. Examined in combination with the testicles, we have records of the condition of 76 prostates and vesicles. All three were diseased in 29 and healthy in 12; in 27, prostate and vesicles were said to be involved in the presence of a healthy testicle, while in 8 prostate and vesicles were negative and testicle positive.

Looked at from another standpoint, where prostate and vesicles were regarded as tubercular, epididymitis was unilateral in 38, bilateral in 38; while in the negative cases one epididymis was tuberculous in 16, and both were involved in 9. From which it follows that prostate and vesicles become readily involved in the presence of one tuberculous epididymis, and before infection of the opposite side has had time to take place. In substantiation of this point we have data as to the condition of the prostate and vesicles and the known duration of the epididymal infection in 99 cases. In the first six months of the disease prostate and vesicles were found to be infected in 40, healthy in 15; in the period from six months to one year 14 were positive and 3 negative. After the first year, and, in some cases, after a period of six or seven years, prostate and vesicles were tuberculous in 20, negative in 7. Thus in the first six months of the disease 30% are infected, and in the first year 54%. On the other hand we must not lose sight of the 7 prostates which are said to have held the enemy at bay for periods ranging all the way from one to six or seven years.

With so frequent and early an infection of prostate and vesicles the bladder neck becomes irritable and at an early date. In 45 patients (35%) urinary symptoms such as frequency, dysuria and urgency were recorded, while 43% of 104 urines contained pus, blood and albumen. Also out of 10 urines with which the guinea-pig was inoculated 8 showed the presence of the tubercle bacillus. As in the absence of symptoms pointing to the kidney, cystoscopy and ureteral catheterization have seemed to us to be unwise, it is barely possible that some of these tuberculous urines were of renal origin. In our series there were recognized and operated upon four cases of renal tuberculosis, occurring at some time or other in the course of the epididymitis. These are not included in the 10 cases in which the urine was tuberculous. It is probable, therefore, that the pathological urine and the bladder symptoms took origin from the prostate in all. With these findings prostate and vesicles are recorded as tubercular in 28, negative in 4. Furthermore, the relation of bladder irritability to the known existence of the epididymitis has been looked into in 43 cases. In 21, or 49%, urinary symptoms were present in the first six months of the disease, whereas in the first year the figure jumps to 27, or 62%.

It is generally acknowledged that after epididymectomy as well as orchidectomy, or, in other words, after removal of the primary focus, the condition of prostate and vesicles improves in most cases. Marinesco, Israel, Duplay, and Baudet (all cited by Lapeyre), are strongly of this opinion. Lapeyre also agrees to this, and incidentally remarks that while mild infections of the prostate and vesicles heal after removal of the epididymis, the severe infections are not benefited by prostatectomy. The end results of a series of 71 of our cases bear out these opinions. Before operation the prostate was infected in 63%, while after operation this infection was noted in but 57%.

Furthermore, we are seeing post-operative cases almost daily in our clinic whose urinary troubles and prostatic lesions are being markedly soothed by a combination of time, tuberculin and hygiene.

Various pathological pictures may be presented by the tuberculous prostate. According to Reclus and Simmonds (cited by Hallé and Motz) the early lesions are often unilateral in the lobe corresponding to the diseased epididymis. Hallé and Motz think that this is hard to prove pathologically, and often impossible clinically. The latter divide the lesions of the prostate into five groups:

1. Small primary tubercles.
2. Large tubercles, which can present macroscopically a stage of softening, a stage of encystment, and a stage of fibrous induration.
3. Encysted tuberculous abscesses.
4. Tuberculous cavities partly or wholly open.
5. A special form of massive infiltration, caseous or necrotic, this being the most common.

Careful pathological study shows that the tubercles especially abundant in the middle lobe, are generally bilateral; in more than half the two lobes are attacked; unilateral lesions are distributed without marked predilection for one or the other side. These observations of Hallé and Motz are based on the material at the Necker Hospital. That it is all too scanty to determine the exact extent and order of lesions is obvious. To quote their own words:

"An integral mass of statistics, patiently followed up, on pulmonary tuberculosis on the one hand, and on genito-urinary tuberculosis on the

other, from the earliest clinical side of the patient, to the ultimate issue will furnish sufficient and certain conclusions. We do not yet possess such a mass of statistics."

Our own postmortem material is scanty. Four cases died in the hospital within a month of operation giving an operative mortality of 2.72%. Miliary tuberculosis was responsible for the death of three; the cause of death in the fourth is not clear, and no autopsy was performed.

In one, a boy of six years, with a unilateral process of two months' duration, practically every organ outside the genito-urinary tract was studded with miliary tubercles. The excised specimen showed tuberculosis of the epididymis (there was no note on the testicle), but strangely enough bladder, prostate, seminal vesicles, and the remaining testis and epididymis showed no evidences of infection. There was a history in this case of an early tuberculosis of lung and meninges, and its remains were found at autopsy.

The second case, aged 35 years, had a more or less active process in the spine, of six years' duration. The epididymitis was right-sided, and of unknown age. Autopsy showed old tuberculosis of right kidney and ureter, bladder, pleura, peritoneum, bronchial lymph glands, spine, seminal vesicles, and prostate, with abscesses in the latter. Both testicles, and the remaining epididymis were healthy. A cover-glass preparation of the seminal fluid showed no tubercle bacilli (a point which will be discussed later).

Our third case occurred in a man of 20 years, the process was again right-sided, its duration was said to be only a few days, and the pathologist reported an infection of testicle as well as of epididymis. Autopsy showed a general miliary tuberculosis, including the meninges. The bladder was uninfected, as well as the left seminal vesicle, and the left testicle and epididymis. But the prostate and right seminal vesical contained abscesses and caseous foci.

In connection with the pathological aspects of the situation it is important to record the extraordinary frequency with which other organs than those of the genito-urinary tract are, or have been, infected. In the present series of 125 cases, the lungs were involved 30 times, bones 8 times, points 4 times, larynx 3 times, glands, twice, middle ear, meninges, peritoneum, and ischio-rectal fossa each once, a total of 33%. In 4 others, the localization of the tubercle bacillus was not mentioned. In a previous analysis of 112 of our cases in which these points were mentioned, a history of previous, and apparently cured tuberculosis, was obtained in 6%, while in 29% active lesions were found occurring in the same organs as in the present series and with about the same frequency. The statistics of others, notably Keyes, Jr., Guisy, Marinesco, and Haas are closely in accord with ours.

Let us now see what is the effect upon the testicle of tuberculosis of the epididymis. Its proximity to, and practical union with so dangerous a neighbor would make its chances appear slim. Yet its remarkable defence is equalled only by its ability to "come back" after receiving what appears too serious punishment. We have remarked elsewhere that "healthy testicles are daily being removed under the impression that cure is more likely to follow." The facts are these. Definite statements have been made as to the condition of 112 testicles in this series. Epididymitis was unilateral in 73, bilateral in 52. Clinically, the testicles were positive in 51 (44%), negative in 61 (54%). The tables are turned, however, by the pathologist, who, in an examination of 75 testicles reported 50 (66%) as tuberculous, and 25 (33%) as healthy. Haas gives the figures of 134 testes, examined pathologically, in which 72 were normal and 62 tubercular.

It is striking that of the 50 infected testicles, 37 occurred in unilateral cases, and only 13 where the process was bilateral. In other words, testicular infection is generally found in the early months of the epididymitis. Thus in the cases of under six months standing the testis was infected 39 times, healthy 20 times; in the next six months tuberculous testes were found 3 times, no healthy ones occurring in this period. So that out of a possible 73 with pathological examination, and with the duration of the disease stated 39, or over 53%, were found tuberculous in the first six months. That the testicle may preserve its virtue over a long period of time in spite of the overtures of a persistent bedfellow is illustrated by four which were unaffected after six years, five years, four years and one year of constant insult. These observations differ from those of Haas and Lapeyre, who found the percentage of infected testicles to be progressively greater with the age of the epididymitis.

It would appear at first sight that these figures struck our argument a mortal blow. On the other hand the surgeon has helped the cause by his habit of promiscuous castration. For, if, as has been shown, the testicle is so often and so early affected, it follows that in the cases where it has been judiciously left behind the same percentage of disease is to be expected as in those removed. But what has been the result? In a total of 147 patients the testicle was removed 97 times, the epididymis 67 times. Yet of these latter, not one has returned for orchidectomy. Many have been followed personally or by letter, and many have made weekly visits to our clinic for tuberculin and general supervision over a long period of time. What better proof could we offer of the efficacy of epididymectomy, even though we know that in certain of them a more or less infected testicle has been allowed to remain? In cases where the presence of tuberculosis is perfectly obvious the free use of the curette is advocated; in suspicious cases we agree with Lapeyre that an exploratory orchidotomy, partial or complete, is not only justifiable, but harmless. On the other hand, we do not wish to give the impression that certain testicles are better in than out, these being the ones which are studded with tubercles and manifestly

beyond hope. It comes down, then, to a question of judgment, tempered by experience, and with a strong leaning toward conservatism.

We find that our experience and belief on this point is also that of others, notably Lapeyre, Keyes, Jr., and Marinesco, although the latter has had six of his unilateral epididymectomies return within two months of operation for a secondary castration. Our combined experience is that the testicle which has been saved has a not unhappy future, even though the use of the curette has been necessary. Its size, shape, consistency, and, in most cases, its sensation are unaffected. The benefit to the patient, morally and physically, are well worth the very slight chance of the necessity of a secondary orchidectomy.

As to the pathology of the tuberculous testicle we have but little to say. Macroscopically, the organ may be studded with miliary tubercles, or it may present a caseous or necrotic focus along the course of its junction with the epididymis. That such a focus is usually situated at or near the rete testis seems to be generally agreed upon by others, and is substantiated by a few observations in our own material. In one specimen the pathologist reported a caseous focus lying in the center of the organ.

The mode of infection of epididymis, prostate, vesicle, and testicle, especially in the bilateral cases offers a wide range of theory. Most are agreed that tuberculosis of the genital tract is primary in the epididymis, although it has been shown that the prostate occasionally, and the seminal vesicle rarely, may be the starting point. Barling (cited by Walker) has reported two cases in which the primary focus lay in the testicle. Admitting that the epididymis is the primary focus, is the prostatic infection of hematogenous, lymphatic or deferential origin? It has been shown clinically by almost all, and experimentally by Walker and others, that the lower end of the vas deferens is frequently effectually blocked by the disease at an early date, yet we have seen that prostatic involvement is also early. Also it has been demonstrated experimentally (Walker) that even if the vas is ligated, prostatic infection may still occur. It would, therefore, appear that, in many cases at least, the tubercle bacillus reaches prostate and vesicles by the lymphatics or by the blood stream. Yet, on the other hand, it has been amply demonstrated by Sirena and Pernice (cited by Walker), Nakarai, Gaertner, Simmonds, Solles and others that virulent tubercle bacilli may be found in the semen of tuberculous animals and human beings. So if the vas remains patent for any length of time it is quite possible for infection of prostate and vesicles to take place in this manner. When infection by way of the vas does occur experimental and clinical observations favor strongly an ascending, rather than descending process. But that a descending process is not only possible but probable in certain cases, has many advocates. It must explain at least some of the bilateral cases of tuberculosis of the epididymis which are so common. In our series there were 52 such cases, as compared with 73 affecting only one side. In 34 the onset of the disease in the second side, after involvement of the first, has been recorded. In the first six months the process became bilateral in 30%, in the next six months in 20%; the remaining 50% relapsed after the first year. Here again the first six months is the most active period. How are we to explain the infection of the second side? In the first place the descent of the disease along the vas has been shown to be infrequent; in the second place, it has been demonstrated by Keyes, Jr., and the writer that even in unilateral disease aspermia is very frequent, indicating obstruction, not only of the first vas deferens, but also of the second at some point in its course. We must, therefore, regard the infection of the second epididymis as either hematogenous or lymphatic in most cases.

The conclusions to be drawn from this investigation are as follows:

1. In genital tuberculosis the epididymis is the primary focus in the vast majority.

2. Tuberculosis of the epididymis becomes bilateral in 41.6% (Chart I) of all cases and becomes so within six months of the time of involvement of the first side in 30% (Chart II).

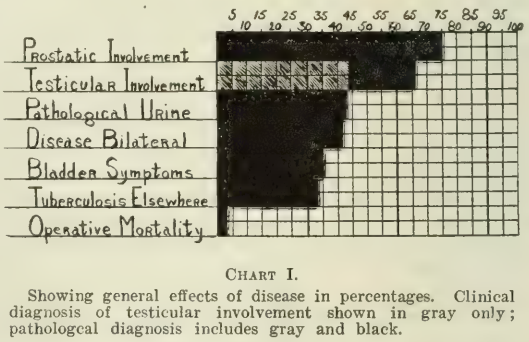


CHART I.

Showing general effects of disease in percentages. Clinical diagnosis of testicular involvement shown in gray only; pathologcal diagnosis includes gray and black.

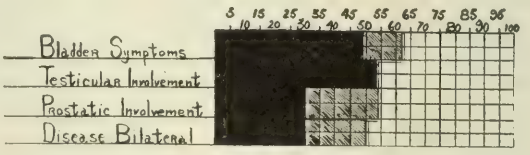


CHART II.

Showing extent of disease in percentages in first six months (in black), and in first year (in gray).

3. The prostate and vesicles are found to be infected in 75% (Chart I), this infection occurring in the first six months in 30% and in the first year in 54% (Chart II). It is also shown that this infection takes place quite as often in the presence of unilateral, as of bilateral epididymitis.

4. The urine is pathological in 43% (Chart I) of all cases; bladder irritability is found in 35% (Chart I) and in about half of these it occurs in the first six months.

5. In 33% (Chart I) tuberculosis, past or present, of organs other than those of the genito-urinary tract, is to be expected. The lungs are most often attacked.

6. Clinical observation shows tuberculosis of the testicle in 44% (Chart I), but the pathologist finds the disease in 66% (Chart I), and of these 53% (Chart II) are found infected within six months of the onset of the epididymitis.

7. The records of 67 epididymectomies, show that no case has yet returned for orchidectomy. The radical operation is, therefore, rarely necessary.

8. Infection of the first and second epididymis, as well as of prostate and vesicles, seems to be by the blood or lymphatic streams, but it cannot be denied that in some, infection takes place through the vas by an ascending or descending process.

9. The operative mortality of 147 cases is 2.72% (Chart I), a general miliary tuberculosis being the most common cause of death.

10. As it has been shown that the infection may become widespread in the first six months of the disease operation at the earliest possible date is strongly indicated.

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A CASE OF "SYPHILITIC PERIOSTITIS" CURED BY SALICYLATES.

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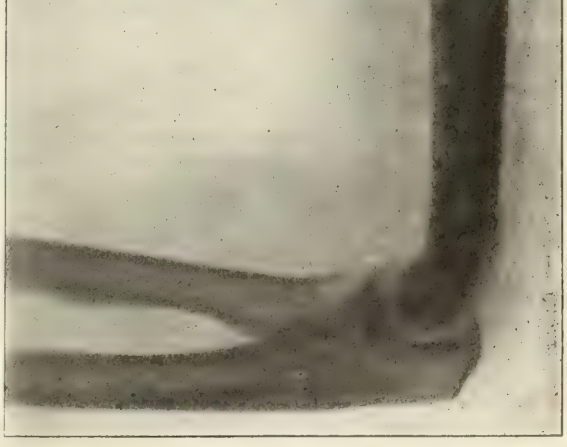
The following case presents such interesting and instructive features that it seems worthy of publication:—

The patient, William J., a colored man, 31 years old, was admitted to the service of Dr. H. B. Allyn in the Philadelphia General Hospital, complaining of constant pain in the right elbow. Until three months before admission patient was perfectly well as far as his arm was concerned. At this time after having chopped a great deal of wood, he began to have pain in the right elbow. This discomfort gradually increased until he was unable to use the arm, which disability persisted and was present at the time of admission to the hospital. Nothing else was complained of when he was first seen on November 5, 1912.

Previous Medical History. Patient has had all the diseases of childhood, and claims to have had typhoid fever in early life. A year ago he was sick all winter but nothing definite as to the nature of the illness could be obtained apart from the fact that he was confined to bed with palpitation of the heart. Patient admits gonorrheal infection about a year ago, and also confesses that he had a sore on his penis. From his description the impression was gained that the latter infection was perhaps chancroidal. The use of tobacco is denied, but patient indulges himself liberally in brandy, frequently to the point of intoxication.

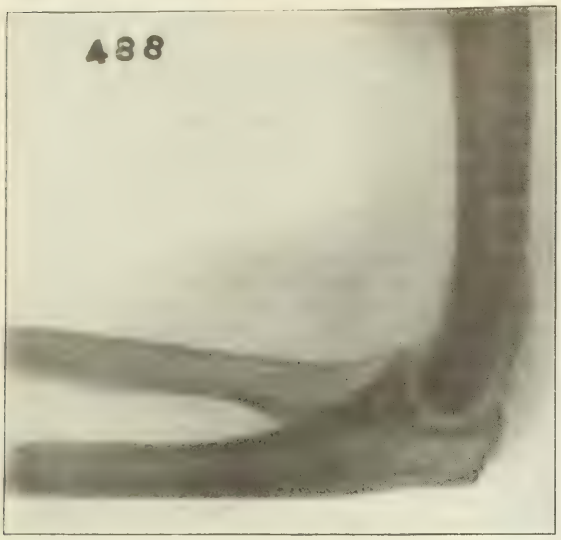
Family History. Father living, 53 years old (?), and is a sufferer from rheumatism. Mother is 50 years of age (?) and patient believes she has "tumors" of the stomach. One brother, 39 years old (?), is living and well. The ages of the parents and of the brother are given as stated by the patient, but as is usual with individuals of this class, family ages are not recorded very accurately, which accounts for the improbable "thirty-nine" years of the brother as contrasted with the "fifty years" of the mother.

Examination. Only the more important features will be noted. The patient is a fairly well nourished colored man, apparently of the age stated. There are no significant cutaneous lesions but some scars of a pre-existing eruption are seen on the skin of the thorax. The cervical, axillary, epitrochlear and inguinal glands seem enlarged. There is very little expansion of the thorax, and the left side above and below the clavicle is more flat than the right side in the corresponding regions. On percussion, there is impaired resonance over the left apex anteriorly and posteriorly, and below the angle of the scapula the note is dull. Over this latter area, palpation elicits decreased fremitus. Auscultation reveals sonorous râles over the entire chest.



The right elbow joint is very much enlarged and tenderness is exquisite. The part is held in semi-extension, at an angle of about ninety degrees and all attempt to extend the arm or to examine it with any degree of precision is resisted most vehemently by the patient. The examination in the ward was, therefore, worthless as far as giving any information regarding the pathologic process was con-

cerned, but an x-ray examination revealed what was diagnosed as a syphilitic periostitis.



We had already suspected this, for with a history of presumable infection, coupled with a positive Wassermann reaction, we were scarcely for a moment in doubt. The temperature which was 98 4-5 on admission ranged between 98 2-5 and 99 3-5. The sputum was always negative for tubercle bacilli although pneumococci were present in large numbers.

As soon as the report on the Wassermann reaction was received, the patient was placed on 4 grams of mercurial ointment a day. No benefit followed its use and later in addition Hg Cl_2 0.003 gram and potassium iodid 1 gram were ordered. Instead of improving the patient said he was considerably worse and soon complained of loose teeth and much "slobbering." For some time we had become suspicious of the "syphilitic" nature of the bone or joint lesion though never doubting for a moment that the patient was a syphilitic. When no improvement followed the active use of the anti-syphilitic measures the latter were finally cut on the 20th of December, 1912, and 1.2 grams of strontium salicylate every third hour were prescribed. Scarcely a day had passed before the patient offered the information that he felt much better and persisting with the salicylates in these large doses, we were finally rewarded, at the end of a week by the patient's subjective recovery. Examination of the arm showed that the swelling had almost entirely disappeared, there was no pain on pressure, and function was so nearly normal that the patient refused to remain in the hospital, and left January 6, 1913, cured.

This case seems to me to carry with it a strikingly important and valuable lesson, namely, that not every symptom or change of structure in a subject with syphilis (history of infection and positive Wassermann reaction) is caused by or is a syphilitic process. We are too prone in the event of a positive Wassermann test to lose all sense of perspective and with our eyes and attention fixed on the one diagnosis, overlook a very common easily recognizable condition. Such is the reproach with which we have castigated ourself in this case. I believe that the patient under consideration had nothing more or less than an attack of acute articular rheumatism, despite the report of the skiagrapher that the x-ray examination revealed a syphilitic periostitis. It is not unlikely that the condition was a rheumatic periostitis. It was not until after the patient left the hospital that it occurred to us that a second x-ray after subjective and objective cure, might be of value. Despite letters to the patient's address in the South, and despite inquiries at his address in Philadelphia, the man was lost sight of and it was impossible to make any further examinations.

Book Reviews.

Malaria. Cause and Control. By WILLIAM B. HERMS, M.A. Illustrated. New York: The Macmillan Company. 1913.

This book is based on four years' practical study of malaria in California. It is essentially a brief account of the mode of transmission of malaria and a detailed exposition of the various methods of mosquito extermination. It is a valuable supplement to the more purely academic text-books on the disease, and in its application of scientific knowledge about malaria constitutes a genuine contribution to practical preventive medicine.

Mendel's Principles of Heredity. By W. BATESON, M.A., F.R.S., V. M.H. New York: G. P. Putnam's Sons. 1913.

The original edition of this valuable work was reviewed in the issue of the JOURNAL for July 28, 1910 (Vol. clxiii, p. 138). Its object was "to give a succinct account of discoveries in regard to heredity made by the application of Mendel's method of research." With this, the first three-fourths of the volume is concerned. The remainder consists of an excellent brief biographical notice of Mendel, a translation of his two important papers on hybridization and on *hieracium*, and an admirable alphabetic bibliography of 316 titles. In this third impression there has been added to the first part a series of appendices aiming to acquaint the reader with the nature of the principal advances made in Mendelian analysis during the past three years, especially in regard to coupling, repulsion, and the heredity of sex. A complete rewriting of the book is promised by the author, and will be awaited with interest by all who have appreciated the scholarly merit of the present production.

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MEETING OF THE MASSACHUSETTS MEDICAL SOCIETY.

The one hundred and thirty-second meeting of the Massachusetts Medical Society, held at the Copley-Plaza Hotel in Boston, last week, was largely attended by members of the society from every part of the state. The meetings were rendered more enjoyable through fortunate weather conditions, and more profitable by a program which concentrated attention upon certain important fields of medicine.

The clinics at the various hospitals were largely attended; this custom should become permanent and be extended so far as the time permits. It offers practical demonstration of progress in medicine which the formal reading of papers can hardly succeed in doing; and this, no doubt, should prove an increasing attraction to those members of the society whose activities or location prevent intimate acquaintance with these matters. The various section meetings, adopting the plan of the past few years, were given over largely to the discussion of certain restricted, but important topics from various viewpoints. This again, is a custom which should be encouraged. Dr. Harvey Cushing's Shattuck Lecture on Diabetes Insipidus and the Polyurias of Hypophyseal Origin was a further elaboration of his well known work on the hypophysis. It was unfortunate that lack of space prevented many from hearing this lecture. Dr. Homer Gage, of Worcester, in the annual discourse, made some admirably practical remarks which should be of service to the profession generally on Some Abuses in Surgical Practice. Dr. Charles G. Stockton of Buffalo, N. Y., and Dr. John H. Gibbon, of Philadelphia, as guests of the society, were the chief speakers in a symposium on diseases of the gall bladder, this meeting being held at the Boston City Hospital.

An innovation this year was the annual dinner held at the Copley-Plaza Hotel, instead of, as has hitherto been the custom, at Mechanics Building. It will be generally agreed that the change was desirable, not only from the point of view of food, but also and more important because the character of the room was such that the after dinner speaking could be well heard. It is clearly a matter of difficulty to secure an auditorium sufficiently large to permit of comfortable speech-making. This apparently was attained by the arrangement this year. The president of the Society, Dr. Bowers, in introducing the speaking, gave certain statistics of the Society regarding membership, which were on the whole, gratifying. It appears that the total membership is now 3,432, but, as Dr. Bowers pointed out, many are still eligible who have not yet applied. He discussed at some length the matter of legal services for physicians, the workman's compensation act, instruction of the laity in medical matters, and paid a just tribute to the quiet but effective work which has been done by women physicians in this direction. Dr. Bowers very feelingly closed his remarks by allusion to Dr. M. H. Richardson and Dr. A. T. Cabot.

President Eliot, whose warm interest in all matters pertaining to medicine and medical education is generally known, was then introduced. In a reminiscent vein, he discussed the extraordinary changes which have taken place in the teaching of medicine during the past half century, dating from the time when he himself was a lecturer on chemistry to the medical class in 1855 and '56. President Eliot finds in the inductive method, with the natural training of the senses, the most important element in the education of the future; and this he maintained, has been most completely attained in medicine. He spoke of the great development of the laboratory sciences, and found in that a demonstration of his thesis, all in sharp contrast, for example, to the situation in China, where an intellectual people has as yet not adopted the inductive method, and has, therefore, gained no special skills.

Mr. Robert L. O'Brien, editor of the Boston *Herald,* pointed out in humorous vein the funda-

mental differences between medicine as a profession and all others, and particularly the difference between the attitude of the daily press and that of medical publication. Recognizing these differences and the impossibility of reconciliation of method, he was still altogether hopeful that the daily papers may have an increasingly important function to fulfil in the diffusion of medical knowledge, and through a completer cooperation with physicians, may bring about a better understanding between the laity and the profession in matters of common interest. In this, Mr. O'Brien no doubt struck a very modern note. There can be no question that if the daily press and the medical profession can work together without distrust, a definite advance in preventive medicine may be made.

Dr. Charles E. Stockton and Dr. John H. Gibbon, guests of the society, both spoke in appreciation of their reception in Boston. Dr. Stockton felt, and we think with justice, that President Eliot's devotion to the inductive method should not be carried too far and implied that the human relationships existing between individuals should not be lost sight of in our endeavor to arrive at results through induction alone. There is still a place for the deductive method.

OBSERVATIONS ON MOSQUITOES.

FOR the past three years there has been noticeable at this season in parts of Boston near the Charles River Basin an unusual number of very large, attenuated, and relatively inert mosquitoes, who cluster on window-screens and lead a passive, apparently non-predatory existence. These creatures are for the greater part male *Culices*, coming presumably from breeding-grounds along the new esplanade and waterfront. This year their number has been much larger than hitherto, and the observation of some of their habits has been matter of considerable interest.

They began to appear about the first of June, clustering on window-screens as above described in the early morning, and in the evening occasionally invading the house through open windows to fall ready victims to the fascinating phototactic peril of the lamp. Their flight is silent, they have no sting and no visible means of sustenance. They are inoffensive as Quakers, and, if they escape the moth's fate, die of inanition after a few days.

These creatures rapidly increased in number, and on Sunday evening, June 8, occurred their principal marriage flight. Throughout the Back Bay the air became suddenly thick, at about the level of fourth story windows, with countless swarms of mosquitoes, in pulsating but non-progressive flight, associated with a fine delicate, high-pitched musical hum, presumably due to the females now observed for the first time to be associated with the males. Looking through this animated cloud towards the sunset sky, one could see from moment to moment couples meeting and falling obliquely through the swarm, like souls in the Inferno plunging to Tartarus.

Destruction was indeed the fate of most of the males on this occasion. Apparently the flight continued for several days, after which, alongshore, the water of the river might be observed strewn with their dead bodies. Those who survive the nuptials, presumably from finding no mate, continue to haunt our houses in an innocuous ghost-like existence, finally leaving their emaciated corpses like wraiths on study-tables and window-ledges.

The observation of these phenomena is not only interesting from a general biologic point of view, but affords another appropriate testimony to the truth of Mr. Kipling's now famous apophthegm.

A REMARKABLE GROUP OF NONOGENARIANS.

HARVARD COMMENCEMENT this season brings into notice a remarkable group of four nonogenarians, survivors of the class of 1838, who celebrate today the seventy-fifth anniversary of their graduation from college.

The oldest of these venerable men is the Reverend James Ivers Trecothick Coolidge, S.T.D., of Cambridge, the senior alumnus of Harvard, who was born in Boston on Nov. 1, 1817. He has been rector of several New England parishes and was for nine years headmaster of St. Mark's School, Southboro, Mass. Mr. Coolidge has recently passed through a serious illness; but has recovered from a bilateral pneumonia sufficiently to be about again, though not yet restored to his wonted vigor.

The second in age of this group is a physician, Dr. James Lloyd Wellington, of Swansea, Mass., who was born at Templeton, Mass., on

Jan. 27, 1818, the son of a clergyman. He received the degree of M.D. in 1842 from the Harvard Medical School, of which he is now the oldest living graduate. He settled immediately in Swansea, where he practised his profession continuously for 62 years, until his retirement in 1904, since when he has remained in active, alert, vigorous health. He is the senior Fellow of The Massachusetts Medical Society and the oldest physician in the United States.

The third of this group of nonogenarians is the Reverend Edward Augustus Renouf, S.T.D., of Keene, N. H., who was born in Boston on Nov. 15, 1818. He graduated from Andover Theological Seminary in 1842, and from 1843 to 1886 was rector of various new England parishes.

The fourth of the group is Mr. Jacob Weld Seaver, of Boston, born in 1820. He is a merchant and banker, and still attends directors' meetings as he has done for over fifty years.

These four venerable men are unusual examples of the durable possibilities of healthy, rational, active human life.

They have "lived to be

The last leaves upon the tree
In the spring."

Their example is full of shining significance, and to them is due the cordial regard and veneration of all on this Harvard anniversary.

MEDICAL NOTES.

London Death-Rates in April.—Statistics recently published show that the total death-rate of London for April, 1913, was 16.1 per 1000 inhabitants living. Among the several districts and boroughs the highest rate was 20.2 in Bermondsey, a southern slum, and the lowest was 11.5 in Wandsworth, a much more populous but more hygienically situated southern suburb.

Birthday Honors for British Physicians.—The recent annual announcement of the King's Birthday Honors in England includes the names of several members of the British medical profession. Mr. William Arbuthnot Lane, surgeon to Guy's Hospital, is made a baronet, and knighthood is conferred on Dr. Thomas Evans Flitcroft, Dr. Andrew John Horne, Professor Edward Albert Schäfer, Dr. Herbert Smalley, Mr. Robert Henry Woods, and Major Edward Scott Worthington.

Smallpox in Stockholm.—It is reported that smallpox has recently been epidemic in Stockholm, and that in consequence so many persons have been vaccinated that the national supply of virus has been temporarily exhausted.

An Epidemic of Typhoid in Paris.—A recent outbreak of typhoid fever in the Latin Quarter of Paris has been traced to the error of a plumber, who connected a pipe leading from the Seine *eau non potable* with a drinking faucet in the exhibition hall of the Faculty of Medicine, where an international physical training conference had lately been held. The Temple of Hygieia should be the last place from which typhoid infection might be disseminated.

A French Ministry of Health.—Report from Paris on June 7 states that an urgent agitation for the establishment of a national French ministry of public hygiene has been initiated by M. Léon Mirman, the present director of public relief and hygiene of the ministry of the interior. The functions of a public health department are now distributed under five different ministers, with a considerable resultant waste of energy and duplication of labor and expense.

Tablet to the Memory of Dr. Musser.—A bronze tablet, designed by Dr. R. Tait McKenzie, has recently been presented to the University of Pennsylvania Hospital, in memory of the late Dr. John Herr Musser.

Canadian Medical Association.—The forty-sixth annual meeting of the Canadian Medical Association will be held next week in London, Ont., from Tuesday, June 24, to Friday, June 27, inclusive. At the general meeting on June 24 the address in gynecology will be delivered by Dr. T. S. Cullen, of Baltimore; and on June 25, the address in medicine by Dr. Llewellys F. Barker, of Baltimore. On June 26, Dr. A. J. Ochsner, of Chicago, will introduce a symposium on "Medical and Surgical Aspects of Diseases of the Thyroid"; and on June 27, Dr. Frank Billings, of Chicago, will conduct a medical clinic before the Association, and Dr. John B. Murphy, of Chicago, will give a lantern lecture on "Surgery of the Bones and Joints."

Chicago Medical Society.—The Chicago Medical Society announces a meeting of alienists and neurologists to be held in that city from

Monday, June 23, to Thursday, June 26, inclusive, for the discussion of mental diseases in their various phases. At the meeting held in April, 1912, a resolution was offered dealing with the prevention of insanity, and the various forms of delinquency. It is hoped that at this meeting after a full discussion a definite plan can be formulated and recommended to the several state legislatures.

ANTI-VIVISECTION IN PENNSYLVANIA.—In the issue of the JOURNAL for June 12 (page 894), we noted that the Pennsylvania Society for the Prevention of Cruelty to Animals was about to prosecute five members of the teaching staff of the University of Pennsylvania Medical School for alleged inhumanity in their treatment of laboratory animals. Report from Philadelphia now states that on June 14 warrants were issued for their arrest.

BOSTON AND NEW ENGLAND.

FINAL DEFEAT OF THE MEANEY MILK BILL.—In last week's issue of the JOURNAL (p. 895) we noted that Governor Foss had returned the Meaney Milk Bill to the General Court without his approval, but that the House had passed the measure over his veto. In his message on the bill, the Governor wrote in part as follows:—

"I have given to this bill the most careful consideration; but I find arrayed against it a consensus of sentiment, not only on the part of the public and the milk producers themselves, but of health officials and others who have given protracted study to the subject of milk supply and regulation.

"Moreover, my own judgment is that the bill is bad. Not only is it grossly unfair for Massachusetts to discriminate against the producers in other New England States, but if she takes this step, then she must expect the immediate establishment of severe reprisals. Massachusetts products which are exported into other states will be discriminated against in retaliation for this measure, and in the long run this policy, which in itself is reprehensible, will prove injurious to the state and to the agricultural producers within this Commonwealth.

"I find that all the arguments urged in favor of the bill can be met by proper regulations, either state or local. If the milk supply of any community is not satisfactory, that community is at liberty to make, and should make, regulations to meet the situation. This is done with notable success in Boston, and similar measures should be taken by other large communities in Massachusetts. The Boston Board of Health sends its inspectors to all points from which milk is shipped into Boston, whether out of the state or within; and milk cannot be sold unless produced under conditions acceptable to the Boston Board of Health, transported in a manner to maintain its purity and freshness, and sold in establishments which are made to conform to all necessary hygienic requirements.

"New England is, geographically, historically and in all human interests, a unit. Our legislation should be so drafted as to conserve this essential unity. Measures such as the present bill, which tend to break up this unity, are essentially vicious. Even if the bill would not result in the establishment of reprisals by the other states, Massachusetts should not be the first to set up measures hostile to her neighboring states. The obligation of maintaining this New England unity rests most of all upon Massachusetts, for in Boston we have the common metropolitan centre of the entire New England region. If we now erect barriers against the freedom of interstate commerce, we must expect to see Boston lose her metropolitan character in respect to New England, and to see Massachusetts also lose her position of leadership—a position which all the New England communities now accord her, by reason of her capital, her industrial strength, her location and the fact that she possesses the greatest city and the principal seaport in New England.

"I take this occasion to say also that in any legislation, no matter how advantageous its ends may seem, no benefit is to be expected unless it is made to conform to our highest standards of equity and justice. In this respect the present bill fails, and for that reason, if for no other, it should not become a law."

Despite the action of the House, the Senate on June 10, by a vote of 19 to 17, sustained the Governor's veto; so that the Meaney Milk Bill is finally defeated and the milk situation of Massachusetts remains *in statu quo* until next year's session of the legislature.

EVENING TUBERCULOSIS CLINICS.—On Monday of this week, June 16, was held at the out-patient department of the Boston Consumptives' Hospital, 13 Burroughs Place, the first of a projected series of night clinics for the diagnosis and treatment of phthisis among the poor.

"These clinics will be limited to residents of Boston, who, because of employment, are unable to attend in the daytime. They will be open at 7 p. m. each Monday."

A CENTENARIAN.—Mrs. Erastus Winslow, who died recently at Charlton, Mass., is said to have been born in that town in May, 1813, the youngest of a family of five daughters. Her only surviving descendant is a grandson.

Two Living Centenarians.—A year ago we noted in the Journal the celebration on June 12 of the supposed centennial anniversary of the birth of Mrs. Sarah Cox, of Malden, Mass., and Mrs. Benjamin de St. François, of Medford, Mass. It gives us great satisfaction to learn that both these venerable women have survived the vicissitudes and perils of another year, and observed last week their one hundred and first anniversary in excellent health.

Foxborough State Hosptial.—The recently published annual report of the trustees of the Foxborough State Hospital, administering the Norfolk State Hospital, records the combined work of these institutions for the year ended Nov. 30, 1912. During this period preparations have been made for the transfer from Foxborough to Norfolk of all patients except the insane, a transfer which will be completed in the fall of 1913. The patients to be transferred are the inebriates, to whom the new institution at Norfolk is to be devoted. Of these 1135 were under treatment during the year covered by the report, 596 being voluntary commitments or recommitments.

Worcester Board of Health.—The recently published annual report of the trustees of the Worcester Board of Health records the activities of that body for the calendar year 1912. The total death-rate for this period was 15.45, or 13.22 exclusive of non-residents. There were 300 cases of pulmonary tuberculosis, with 150 deaths; 411 cases of diphtheria, with 26 deaths; 329 cases of scarlet-fever, with 11 deaths; and 70 cases of typhoid fever, with 5 deaths. The birth-rate was 26.9 per 1000, the number of deaths under one year 12.92% of the births.

Boston Mortality Statistics.—Cases of infectious diseases reported to the Boston Board of Health for the week ending June 10, 1913: Diphtheria, 42, non-resident 4; scarlatina, 46, non-resident 8; typhoid fever, 4; measles, 163, non-resident, 1; tuberculosis, 76, non-resident 2. The death-rate of the reported deaths for the week was 14.36.

Carney Hospital Jubilee.—On Monday of last week, June 9, was celebrated with appropriate observance the fiftieth anniversary of the opening of the Carney Hospital in its building on Dorchester Heights, South Boston.

"Andrew Carney was the founder of the hospital and the foundation amounted to $75,000. With this money, the Howe estate was purchased and presented to the Sisters of Charity of St. Vincent de Paul, and under the direction of Sister Ann Alexis, the building was equipped as a hospital. The first patient was received on June 9, 1863.

"In 1865 the hospital was incorporated under the laws of Massachusetts and its property placed in the hands of the Carney Hospital Corporation. At this time plans for the present building were projected and one wing and a part of the chapel building were erected. Sister Ann Alexis continued superior till 1868, when the care of the institution devolved upon Sister Ann Aloysia, and a few months later the duties of superior became incumbent upon Sister Simplicia.

"Under the supervision of Sister Gonzaga the addition was completed and opened April 1. 1891, at a cost of $148,082. In 1901 the new out-patient building on the corner of Old Harbor and Dorchester streets was completed, at a cost of $91,000. Of this amount the Commonwealth of Massachusetts contributed $10,000. A dental clinic for school children was equipped and opened in June, 1912, and already the patronage of this clinic has become so numerous that the appointment of additional assistants is imperative.

"In 1910, the superiors of the Sisters of Charity called Sister Gonzaga to take charge of the St. Agnes Hospital, Baltimore, Md., and shortly after, Sister Raphael was located as superior of the Carney Hospital.

"Fifty years' statistics of the hospital are as follows: Patients admitted to the hospital, 70,069; patients gratuitously treated, 29,083; patients paying in part, 15,231; patients paying in full, 25,755; total number of treatments of patients in out-patient department, 1,593,000. Thus the hospital has grown in these fifty years from having treated fifty-three patients in 1863 to the treatment of 3727 in 1912."

NEW YORK.

Columbia University Commencement.—At the 159th annual commencement of Columbia University, held on June 4, 2,141 students were graduated, a larger number than in any previous year; 101 received the degree of Doctor of Medicine, 7 that of Doctor of Pharmacy, and 23 that of Pharmaceutical Chemist. Among the distinguished men upon whom the degree of Doctor of Science was conferred were Dr. W. C. Gorgas, "described as illustrating more completely than has perhaps fallen to the lot of any other man the power of modern science to combat and to prevent disease," and Dr. Alexis Carrel, "leading the way with amazing skill, rich imagination, and exceptional scientific equipment into new fields of surgical research."

At the commencement of New York University, on June 4, there were 75 graduates in the medical school, and 6 in that of veterinary surgery.

DEMONSTRATION FOR SCHOOL CHILDREN.—In Central Park, on June 6, there was given the largest demonstration for school children ever held, ten thousand small boys from the public schools of all the boroughs of the city taking part. It was arranged under the auspices of the Public Schools Athletic League, with the cooperation of the education and park departments and the board of aldermen, to show the results of physical and hygienic training in the public schools. There were present as spectators many prominent persons, including representatives of the Playground Association of America, the Parks and Playgrounds Association, and the Russell Sage Foundation, and the exercises were in charge of Dr. C. Ward Crampton, director of physical training in the schools. In addition to engaging in various athletic sports, the boys went through deep breathing and other body exercises in a manner reflecting great credit on themselves and their teachers. Gen. George Wingate, president of the Athletic League, states that when the League was first started everyone said that it would be impossible to make athletes out of the boys of the East Side tenements, as they were extremely poor and took no interest in anything of the kind; yet for three years in succession the championship of all the public schools of the Greater City of New York, covering every branch of athletics on track and field, has been won by School No. 62, which is located in the heart of the crowded East Side, Manhattan, and 90% of the pupils of which are of Russian-Jewish parentage.

APPOINTMENT OF DR. KIEB.—Dr. R. F. C. Kieb, for the past three years first assistant physician at the Dannemora State Hospital, has been appointed superintendent of the State Hospital for the Criminal Insane at Matteawan, in place of Dr. John Russell, resigned. Dr. Kieb, who was graduated from Cornell University Medical College in 1904, stood first on the civil service list one year ago, from which Dr. Russell, who stood third, was appointed superintendent.

NEW MILK STATIONS.—Nathan Straus, who now maintains seven milk stations which are kept open throughout the year, on June 1 opened nine additional stations for the summer season.

Current Literature.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

MAY 31, 1913.

1. *MORSE, J. L. *Whooping-Cough. A Plea for More Efficient Public Regulations Relative to the Control of This Most Serious and Fatal Disease.*
2. *MAY, E. S., AND HEIDINGSFELD, M. L. *Basic Fuchsin in Chronic Leg Ulcer.*
3. *FISCHER, M. H. *The Treatment of Nephritis and Allied Conditions.*
4. LITCHFIELD, L. *Acute Posterior Ganglionitis Simulating Surgical Conditions in the Abdomen.*
5. MONTGOMERY, D. W., AND CULVER, G. D. *A Comparison Between Zoster of the Face and That of the Leg, as Shown in Two Cases Recently Observed.*
6. *WILLIAMS, F. H., AND ELLSWORTH, S. W. *Treatment of Superficial New Growths by Pure Radium Bromid.*
7. BLACK, C. E. *Method of Bone-Plating.*
8. NEUHOF, H. *An Operation for Ventrosuspension by the Round Ligaments.*

1. Morse shows up facts about the fatality of whooping-cough not generally appreciated. In the United States for 1911 this was 11.4 per cent., ranking next to scarlet fever, measles and diphtheria. This mortality occurs in children under five years of age. Morse strongly urges drastic measures for it, making it everywhere a reportable disease, with severe penalty for failure to report, and for more rigid quarantine and isolation of those affected.

2. May and Heidingsfeld are enthusiastic over the use of basic fuchsin as a therapeutic remedy of great value in chronic leg ulcers.

3. Fischer's article on nephritis is valuable as a latest word on the treatment of this condition. The article will bear study.

6. Williams and Ellsworth believe that pure radium bromid is a harmless, painless and efficient method of treating early superficial new growths. The cosmetic results are excellent. For keloids, unless extensive, radium is by far the best treatment known.

[E. H. R.]

JUNE 7, 1913.

1. *KOPLIK, H. *Meningitis of the Epidemic Type in Children Below Two Years of Age.*
2. *HARRINGTON, T. F. *Prevention of Disease vs. Cost of Living.*
3. *WOODS, H. *Wood-Alcohol Blindness.*
4. MOON, V. H. *Experimental Immunity in Relation to the Agglutination Reaction in Typhoid.*
5. *LEWIS, B. *Where Is the Fundus of the Bladder?*
6. NELSON, R. M. *Rarity of Sarcoma of Sclera. Report of a Case with Removal and No Recurrence.*
7. MCDONALD, E., AND KRIEGER, W. A. *Bilateral and Multiple Ectopic Pregnancy.*
8. CORBUS, B. C. *Erosive and Gangrenous Balanitis. The Fourth Venereal Disease. A Further Report.*
9. SUTTON, R. L. *The Diagnosis and Treatment of Seborrheic Keratoses of the Lip.*

10. Hoskins, R. G., and McPeek, C. *The Effects of Adrenal Massage on Blood-Pressure.*
11. Collins, J. *The Possible Relationship of Organic Diseases of the Nervous System to Riggs' Disease.*
12. Tunnicliff, R. *The Spirochete Associated with Infections of the Accessory Sinuses.*
13. Cary, G. F. S. *New and Simple Apparatus for Salvarsan Administration.*
14. Buchbinder, J. R. *Retroperitoneal Rupture of the Appendix with Extravasation of Pus into and Gangrene of the Entire Thigh.*
15. Kleiner, I. *Torsion of the Spermatic Cord.*
16. Zeuch, L. H. *Incontinence of Feces (Non-Organic.)*
17. Jones, E. M. *Modified Sheep-Shears Useful in Surgery.*
18. Adams, G. S. *Another Case of Spirotrichial Infection in Man.*

1. Koplik emphasizes the great importance of early diagnosis in meningitis in children under two years, and especially of not mistaking a mild otitis media for the more serious condition.

2. Harrington's article is of great practical importance and worth study from this viewpoint.

3. Woods warns against the great danger of blindness resulting from the use of Jamaica ginger and many flavoring extracts and patent medicines which contain wood alcohol.

5. Lewis very rightly corrects the much misused term, the fundus of the bladder, which is its base and not its summit or top, as the term is commonly used.

[E. H. R.]

THE LANCET.

MAY 10, 1913.

1. *Hill, L. *A Lecture on the Physiology of the Open-air Treatment.*
2. *Hill, L., and Muecke, F. F. *Colds in the Head and the Influence of Warm Confined Atmosphere on the Mucous Membrane of the Nose and Throat.*
3. Jardine, R., and Kennedy, A. M. *Three Cases of Symmetrical Necrosis of the Cortex of the Kidneys Associated with Puerperal Eclampsia and Suppression of Urine.*
4. *Dixon, W. E. *Alimentary Toxemia.*
5. *Fagge, C. H. *Chronic Intestinal Stasis.*
6. Gray, H. M. W., and Anderson, W. *Remarks on Abnormal Intraabdominal Developmental Adhesions.*
7. *Weber, F. P. *On the Prognostic Significance of Secondary Polycythemia in Cardio-pulmonary Cases.*
8. Luker, S. G. *Difficult Labors Caused by Fetal Ascites.*
9. Campbell, H. *Man's Mental Evolution, Past and Future.*

1. Hill in an interesting article discusses the chemical state of the air, the effect on the body of excess of carbonic acid, diminution of oxygen and the supposed existence of organic poisons in expired air. This has never been confirmed by experiments. He describes the influence on the imagination of bad smells. He considers the influence of warm confined air on the nasal mucous membrane and the influence of open and confined air on metabolism. He discusses the increase of tuberculosis in confined spaces and the special importance of moving air. He believes the whole effect of open-air treatment is due to the movement, temperature and moisture of the air and has nothing to do with its chemical properties.

2. Hill and Muecke show how the mucous membrane of the nose becomes tinged and red when in a warm, moist atmosphere, and later shrinks and becomes pale in a cool atmosphere. They describe the relation of such changes to infections causing "colds in the head."

4. Dixon discusses alimentary toxemia from a chemical point of view, describing the complex substances formed by putrefaction in the alimentary canal.

5. Fagge believes that intestinal stasis is generally due to a pathological condition of the lower ileum, evolutionary in origin, and that in marked cases surgical treatment is required.

7. Weber discusses the prognostic significance of polycythemia in cardio-pulmonary cases, *i.e.* cases of chronic bronchitis and emphysema with myocardial weakness. He believes that the outlook is exceedingly grave at the stage of the disease when cyanosis and a great degree of polycythemia become striking clinical features. [J. B. H.]

MAY 17, 1913.

1. *Williamson, K. *Some Points in Determining the Signification of Albuminuria in Pregnancy.*
2. Goodhart, J. F. *Alimentary Toxemia.*
3. Lang, W. *The Influence of Chronic Sepsis upon Eye Disease.*
4. *Langmead, F. *Relationship of the Thyroid Gland to Alimentary Toxemia.*
5. Todd, T. H. *Indications of Nerve Lesion in Certain Pathological Conditions of Blood Vessels.*
6. *Gray, H. M. W., and Anderson, W. *Remarks on Abnormal Intra-abdominal Developmental Adhesions.*
7. Wynter, W. E. *Chloretone Overdosage.*
8. Turner, J. A. *The Bacteriology of Cholera and Its Relation to the Spread of the Disease from the Point of View of the Health Officer.*
9. Crowe, H. W. *A Contribution to the Etiology of Rheumatoid Arthritis.*
10. Pottan, A. B. *A Note on the Use of Vaccines in the Treatment of Rheumatoid Arthritis.*
11. Swietochowski, G. de. *A Case of Volkmann's Ischaemic Contracture of the Hand.*
12. Armstrong, W. E. M. *A Case of Gonorrheal Warts on the Face Successfully Treated by a Vaccine.*
13. Brend, W. A. *The Futility of the Coroner's Inquest.*
14. Campbell, H. *Man's Mental Evolution, Past and Future.*

1. Williamson discusses the toxemia of pregnancy, source of the toxins, demonstrations of anti-bodies, etc. He then takes up albuminuria associated with chronic nephritis in pregnancy, the difficulties of diagnosis and the question of acidosis in pregnancy toxemia with relation to the alkalinity of the blood. He warns against using chloroform in these cases and likewise against calomel as a purge and the use of mercurial antiseptics. Infusions of sodium bicarbonate and glucose by mouth or rectum are advisable in cases of acidosis.

4. Langmead believes the thyroid gland exercises a share in counteracting internal (and other) intoxications. He believes that such an effort on the part of the gland is one cause of its enlargement.

6. Gray and Anderson discuss what they call developmental adhesions. These, Lane believes to be the result of intestinal stasis, while the writers believe them to be evolutionary in nature and the cause of intestinal stasis. They discuss this subject at length in an article profusely, though poorly, illustrated.

[J. B. H]

BRITISH MEDICAL JOURNAL.

MAY 10, 1913.

1. *SONITAR, H. S. *A Lecture on Intussusception.*
2. *MCGAVIN, L. *On Transverse Colostomy as the Operation of Election.*
3. MITCHELL, J. E. *Urachal Fistula.*
4. RICHARDSON, W. G. *Enchondroma of the Manubrium Sterni Successfully Removed by Operation.*
5. *COLLINS, J. S., AND BRAINE-HARTWELL, C. *A Case of Abdominal Aneurysm with Unusual Features, Operated on by Means of Colt's Apparatus.*
6. WHEELER, W. I. DEC. *Cheilotomy for Crippling Traumatic Arthritis of the Hip Joint.*
7. SHAW, B. H. *The Interneuronic Synapse in Disease.*

1. In this lecture Sonitar describes the anatomy, causation, varieties, methods of growth and pathological changes in intussusception. He discusses this condition in infants, its symptoms and treatment and then considers it in adults and children.

2. McGavin gives the details of 26 cases in which transverse colostomy was performed. He claims for this operation the following points of advantage, which he discusses: (1) Good sphincter control. (2) Firm support for belt and plugs. (3) Freedom from prolapse. (4) Accessibility. (5) Good spur formation. (6) Removal to a distance from site of growth.

5. This is a description of an interesting but unsuccessful attempt to wire an abdominal aneurysm. [J. B. H.]

MAY 17, 1913.

1. *MORRIS, M. *The Internal Secretions in Relation to Dermatology.*
2. HORDER, T. J. *A Lecture on Some Points in the Early Diagnosis of Cancer of the Stomach.*
3. WHEBBY, G. *An Instance of Large Ureteral Calculus and Some Other Cases of Calculi.*
4. BANKART, A. S. B. *Treatment of Congenital Dislocation of the Hip.*
5. STREET, A. *A Series of Cases of Parotid Tumors.*
6. *JONES, D. W. C. *Chronic Arthritis. Therapeutic Evidence of the Incidence of Streptococcal Infection.*
7. SIMON, R. *Sequel of a Case of Cardiolysis.*
8. JOHNSTON-LANIS, H. J. *An Analysis of a Series of Cases of Hypertension and Hypotension Treated at Vittel.*
9. DAVIS, H. *X-rays in the Treatment of Diseases of the Palm.*

1. Morris discusses the effect of thyroid secretion and thyroid extract upon certain skin diseases, such as psoriasis, ichthyosis, cheloid, warts, acne and rhinophyma. He then describes the cutaneous manifestations of myxedema and thyrotoxicosis.

6. Jones describes 20 cases of arthritis. In 8 of these he believes that he has sufficient evidence that the arthritis resulted from a streptococcal infection originating in the intestinal tract. [J. B. H.]

MÜNCHENER MEDIZINISCHE WOCHENSCHRIFT.

NO. 20. MAY 20, 1913.

1. CONRADI. *A New Principle for Selective Media, and Its Application in Diphtheria.*
2. GIEMSA, G. *The Chemo-therapy of Infections Caused by Spirochete.*
3. CAAN, A. *Experiments with the Use of Thorium Chloride Given Locally in Mouse Carcinoma and Rat Sarcoma.*
4. VULPIUS, O. *Surgical Tuberculosis Treated by Sunlight.*
5. ZIEGLER. *A New Method for the Quantitative Determination of Urates in Blood Serum.*
6. STANGE, B. *The Biological Diagnosis of Pregnancy.*
7. *JÖDICKE, P. *The Differential Diagnosis of Convulsions by the Blood Picture.*
8. *ZIMMERN, Y. *Salvarsan by Injection or Infusion.*
9. DUHOT, R. *A New Syringe for the Injection of Concentrated Neosalvarsan Without Air.*
10. *MOKRZECKI. *A Case of Anthrax Treated by Salvarsan.*
11. JACOB, L. *Myositis.*
12. GROEDEL, M. *Experiments with Hard Roentgen Rays.*
13. STAÜBLI, C. *Simultaneous Temperature Measurements and Their Clinical Significance.*
14. SCHLOSSMANN, A. *Adolf Baginsky.*
15. ALLEMANN, A. *John Shaw Billings.*

7. Jödicke has made white counts on the blood of 52 epileptic patients and of 4 hysterical patients after convulsions. All of the epileptic cases showed a marked leucocytosis. The highest figures were obtainable immediately after the convulsion, returning to normal within ten or twenty minutes. The leucocytes of the hysterical cases were always within normal figures. These observations agree with other authors. Jödicke believes that this may be an important point in differentiating true epilepsy from epileptiform convulsions of an hysterical or other nature. The cause of the leucocytosis has been assigned to contractions of the spleen or to the effect of the violent muscular effort brought on by the seizure. Jödicke considers that in addition, the leucocytosis may be a protective reaction of the organism against toxins from internal metabolism set free by the epileptic attack.

8. Zimmern has injected 78 patients with salvarsan or neosalvarsan in a concentrated solution, of which eight or ten c.c. contained 0.4 or 1.5 of the drug. The injections were made slowly; 147 single injections were given. Fever followed in 27 cases, 18 of which were of latent syphilis. Vomiting and diarrhea followed in 39 cases, of which 26 were of latent syphilis. The local reaction was so intense that injury to the wall of the vein by the concentrated solution was suggested. The material used did not afford positive information as to the clinical results of such treatment. However, Zimmern received the impression that the curative effect of the concentrated solution was superior to that of the drug as usually given. This was borne out by the fact that in the few cases studied, the total excretion in urine of arsenic, following its injection in concentrated solution, was considerably less than in the urine of control patients who had received the drug in higher dilution. Zimmern concludes that the administration of salvarsan by this method is not without objection. Ravant, Strauss and Stern have obtained different results.

10. Mokrzecki reports a case of anthrax pustule treated by salvarsan. In addition the pustule was cauterized. Blood culture made at the time of the salvarsan injection, was negative. The recovery was more rapid and easy than in similar cases treated by cauterization alone. Mokrzecki feels that the salvarsan had some effect. [R. F.]

DEUTSCHE MEDIZINISCHE WOCHENSCHRIFT.

MAY 22, 1913.

1. ZANGEMEISTER, W., VIERECK, AND VON BEHRING, E. *Third Communication on von Behring's New Diphtheria Prophylactic.*
2. GILDEMEISTER, E., AND BAERTHLEIN, K. *Bacteriologic Investigations in Infants with Bladder Trouble.*
3. STEINER, G. *Histopathologic Findings in the Central Nervous System of Syphilitic Rabbits.*

4. Tsuzuki, M. *Antiluetin, a New Means of Combined Therapy.*
5. Tsuzuki, M., Ichibagase, K., Hagashi, H., and Htono. *The Therapeutic Action of Antiluetin.*
6. Rosenheim, T. *Severe Chronic Colitis.*
7. McNee, J. W. *The Question of the Cholesterin Content of the Bile During Pregnancy.*
8. Aschoff, L. *Comment on the Above Work.*
9. Baum, H. L. *Traumatic Venous Thrombosis in the Upper Extremity.*
10. Lissmann. *A Case of Rare Disturbance of Potency.*
11. Nochte. *The Treatment of Tabes, Especially Its Rudimentary Form, and Its Relations to Psychopathic Disturbances.*
12. Engelen. *Striking Phenomena in a Case of Uremia.*
13. Bierer. *Crédé's Grasp and Uterine Inversion.*
14. Kopsch, F. *Two Hundred Years of Berlin Anatomy. (Conclusion.)*

The Sei-I-Kwai Medical Journal.

May, 1913.

1. *Sewaki, H. *Third Report on the Method of Increasing the Body Weight.*
2. Sewaki, H. *On the Action of "Masuisin B."*
3. Sewaki, H. *Sixth Report on the Method of Increasing the Body Weight.*
4. Morita, M. *On the Pupillar Changes in Paralytic Dementia.*
5. Yabe, T. *Infantile Beri-beri.*
6. Tazawa, N. *On the Nutritive Defect Caused by Rice Flour.*

1. Continuing his report on methods of increasing the body weight, Sewaki enumerates a number of substances which he has found to have this effect, with others which he has found to reduce weight.

[R. M. G.]

Miscellany.

MASSACHUSETTS MEDICAL SOCIETY.

Meeting of the Council.

The annual meeting of the council was held at the Copley-Plaza Hotel, Boston, June 10, 1913, at 12 o'clock noon, the president, Dr. W. P. Bowers, being in the chair and one hundred and twelve councilors present.

The records of the last meeting were read and accepted.

The names of the nominating committee were read by the secretary and the committee retired.

The treasurer read his annual report, and the secretary read the report of the auditing committee as follows:

The undersigned, a duly appointed committee, having examined the books of the treasurer, find them correctly cast and properly vouched, and also that he has in his possession the securities called for.

Charles J. White,
David N. Blakely.

Voted, To accept the treasurer's report.

The committee on membership and finance reported through Dr. Goss as follows:

The committee on membership and finance respectfully recommends, that the petitions of the following for change in their district membership be granted.

Thomas E. Chandler, from Norfolk to Suffolk.

George J. Ott, from Norfolk to Suffolk.

Francis H. Slack, from Norfolk to Suffolk.

Chares P. Sylvester, from Norfolk South to Norfolk.

That the resignations of ten Fellows be accepted, that eleven Fellows be placed on the retired list, and that four thousand dollars ($4000) of the balance in the treasury be distributed among the district societies.

Voted, To accept the report and adopt its recommendations.

Petitions from six former Fellows to be reinstated were read by the secretary, and committees were appointed to consider them.

Dr. Ernst, for the committee on medical education, submitted an extended report.

Voted, To accept the report and place it on file.

Dr. Withington, for the committee on state and national legislation, submitted a report.

Voted, To accept the report and place it on file.

On motion by Dr. F. C. Shattuck, a vote of thanks to Dr. Withington for his admirable report was passed unanimously.

Dr. M. W. Richardson submitted a report for the committee on public health.

Voted, To accept the report and place it on file.

The committee on the workmen's compensation act reported progress, through Dr. Meigs. It was recommended by the committee that this report be considered a report of progress and that the committee be continued and report in full in the fall, at the next meeting of the council; and it was so voted.

Dr. Homer Gage, chairman of the committee to revise the by-laws, submitted an amended draft of the by-laws, and explained that the draft submitted on May 10, 1913, to every Fellow of the society had been amended in several places, giving the substance of the amendments. On motion of Dr. Goss, it was

Voted, That the council endorses these by-laws and directs that they be submitted to the society at its next meeting for adoption.

On nomination by the president, the following committees were appointed for the ensuing year:

Of Arrangements, John Homans, Beth Vincent, W. W. Howell, J. D. Barney, E. L. Young, Jr., R. I. Lee.

On Publications and Scientific Papers, G. B. Shattuck, E. W. Taylor, R. B. Osgood, J. S. Stone, F. T. Lord.

On Membership and Finance, F. W. Goss, C. M. Green, A. Coolidge, Samuel Crowell, F. W. Taylor.

On Ethics and Discipline, J. A. Gage, J. W. Bartol, Henry Jackson, G. deN. Hough, S. B. Woodward.

On Medical Education and Medical Diplomas, H. C. Ernst, H. D. Arnold, C. F. Painter, H. W. Newhall, J. F. Burnham.

On State and National Legislation, C. F. Withington, F. G. Wheatley, G. W. Gay, A. K. Stone.

On Public Health, M. W. Richardson, M. J. Rosenau, W. I. Clark, A. L. Hamilton, E. H. Bigelow.

Drs. E. H. Stevens, of Cambridge, and F. Jouett, of Cambridge, were appointed delegates to the International Congress at London, England, August, 1913; and Dr. O. E. Johnson, of Winthrop was appointed delegate to the annual meeting of the British Medical Association at Brighton, England, July, 1913; and Dr. S. F. Haskins, of Cotuit, was appointed to fill the vacancy in the board of censors of the Barnstable District.

The nominating committee, consisting of J. H. Higgins, H. G. Wilbur, E. H. Noyes, H. E. Sears, C. P. Hooker, M. W. Pearson, D. C. Dennett, E. H. Stevens, S. Crowell, E. N. Mayberry, A. E. Paine, F. C. Shattuck, D. Harrower, and E. A. Sawyer, brought in the following list of officers, and they were elected by ballot:

President, Walter P. Bowers, Clinton.

Vice-President, Lyman A. Jones, North Adams.

Secretary, Walter L. Burrage, Boston.

Treasurer, Edward M. Buckingham, Boston.

Librarian, Edwin H. Brigham, Brookline.

Upon nomination by the nominating committee, Horace D. Arnold of Boston was appointed orator for 1914.

A letter from the New England Hospital Medical Society, calling the attention of the president of the Massachusetts Medical Society to the work of the women physicians of the state, Fellows of the society, acting under the committee for public health education among women of the American Medical Association, was read by the secretary; and it was

Voted, To place it on file.

Dr. Meigs, of Lowell, read letters from Dr. Emma E. Young-Slaughter and Dr. Blanche A. Denig with reference to the work of the committee for public health education among women, and Dr. I. J. Clark read a letter on the same subject from Dr. Denig to Dr. Symonds.

Voted, To place the letters on file.

A petition signed by forty-nine Fellows for a change in the boundary line between the Suffolk and Norfolk Districts was read by the secretary. On nomination by the president, the petition was referred to the following committee:

Homer Gage, President of the Worcester District.

J. S. Leard, President of the Norfolk District.

H. D. Arnold, President of the Suffolk District.

Dr. Hugh Cabot read a letter from Mr. Matthew Hale of the Boston *Journal,* stating that the *Journal* in line with its policy of furnishing clean, unbiased news to the public, refers all advertisements of patent medicines and questionable physicians to a medical board, of which Dr. Hugh Cabot is the head, for approval, the decision of this board being final. Dr. Cabot introduced the following resolution:

Having been advised of the policy recently inaugurated by the Boston *Journal* in regard to a censorship of medical advertisements, Be it

Resolved, That the council of the Massachusetts Medical Society heartily approves of and endorses the policy of the Boston *Journal* in the censorship of medical advertisements and believes this to be an important step forward toward the coöperation between the medical profession and the press in matters pertaining to the public health.

The resolution being put to a vote was passed unanimously.

Adjourned at 1.50 P. M.

WALTER L. BURRAGE, *Secretary.*

ANNUAL MEETING.

First Day's Proceedings. Meetings of sections were held in the Copley-Plaza Hotel, Boston, on Tuesday, June 10, 1013. The sections were officered and papers presented according to the following program.

MEETING OF THE SECTION OF MEDICINE.

Salon, Copley-Plaza, Hotel. 2.30 o'clock.

Officers of the Section of Medicine. Dr. Horace D. Arnold, Boston, Chairman. Dr. Theodore J. Eastman, Boston, Secretary.

Symposium on Nephritis.

1. The Classification of Nephritis from the Pathological Point of View (with lantern slide demonstration).—Dr. Frank B. Mallory, Brookline.

2. Clinical Functional Tests and Methods:
   a. Determination of Urinary Acidity.—Dr. Walter W. Palmer, Boston.
   b. The Phenolsulphonephthalein Test.—Dr. Edward L. Young, Jr., Boston.
   c. Selective Excretory Activities as Functional Tests.—Dr. Reginald Fitz, Boston.

3. Nitrogenous Waste Products in the Blood in Nephritis:
   a. Their Significance, and the Methods for Their Determination.—Dr. Otto Folin and Dr. William Denis, Boston.
   b. Their Clinical Application to Selected Cases.—Dr. Malcolm Seymour, Boston.

4. General Summary and Significance of Methods for Testing Renal Function.—Dr. Henry A. Christian, Boston.

There were 150 in attendance.

MEETING OF THE SECTION OF SURGERY.

Ballroom, Copley-Plaza Hotel. 2.30 o'clock.

Officers of the Section of Surgery. Dr. John T. Bottomley, Boston, Chairman. Dr. Robert B. Osgood, Boston, Secretary.

1. An Anatomical and Surgical Study of Peri-Cecal Membranes.—Dr. Michael F. Fallon, Worcester.

Discussion by Dr. J. C. Hubbard, Boston, and Dr. S. A. Mahoney, Holyoke.

2. The Relation between Gynecological and Nervous Diseases.—Dr. William P. Graves, Boston.

Discussion by Dr. W. L. Burrage, Boston, and Dr. Stephen Rushmore, Boston.

3. Observations on One Hundred Consecutive Operations for Chronic Appendicitis.—Dr. Ernest A. Codman, Boston.

Discussion by Dr. P. P. Johnson, Beverly, and Dr. J. B. Blake, Boston.

4. Certain Conclusions from One Hundred and Twenty-three Operations for Ulcer and Cancer of the Stomach.—Dr. Charles L. Scudder, Boston.

Discussion by Dr. F. B. Lund, Boston, and Dr. D. F. Jones, Boston.

5. The Value of the Roentgen Method in the Study of Chronic Appendicitis, and Inflammatory Conditions, both Congenital and Acquired, about the Cecum and Terminal Ileum.—Dr. Arial W. George, Cambridge, and Dr. Isaac Gerber, Boston.

There were 180 in attendance.

MEETING OF THE SECTION OF TUBERCULOSIS.

State Dining Room, Copley-Plaza Hotel. 2.30 o'clock.

Officers of the Section of Tuberculosis. Dr. J. F. A. Adams, Pittsfield, Chairman. Dr. John B. Hawes, 2nd, Boston, Secretary.

1. A General View of the Tuberculosis Problem in Massachusetts.—Dr. Lyman Asa Jones of North Adams.

2. The Tuberculosis Problem in Cities and Towns from the Point of View of Local Boards of Health.—Dr. Bradford Peirce, Cambridge.

3. The Need of Coöperation between Local and State Forces in Tuberculosis Work.—Dr. John B. Hawes, 2nd, Boston.

There was an attendance of 100.

The officers of the sections for the ensuing year were elected by the sections as follows:

Section of Surgery.—Chairman, R. H. Seelye, Springfield. Secretary, E. P. Richardson, Boston.

Section of Medicine.—Chairman, L. A. Jones, North Adams. Secretary, Gerald Blake, Brookline.

Section of Tuberculosis.—Chairman, A. C. Getchell, Worcester. Secretary, J. B. Hawes, 2nd, Boston.

The Shattuck Lecture was delivered in the Copley-Plaza Hotel, in the evening, by Dr. Harvey Cushing, subject, Diabetes Insipidus and the Polyurias of Hypophyseal Origin.

At the close of the lecture, there was a reception to the president and a popular concert, at which the attendance was about nine hundred.

Second Day's Proceedings. The exercises of the one hundred and thirty-second anniversary of the Massachusetts Medical Society were held at the Copley-Plaza Hotel, Boston, on Wednesday, June 11, 1913. The president, Dr. W. P. Bowers, was in the chair, and forty-four Fellows were present at the opening of the meeting.

The records of the last meeting were read and accepted.

The secretary announced that during the past year the society had lost 46 Fellows by death, 12 by resignation, and 44 by deprivation of the privileges of fellowship, making a total loss of 102. The society had gained 152 members (by restoration to fellowship, 6; new members, 146); making the total membership on that day, 3432.

Dr. Homer Gage presented an amended draft of the by-laws, and explained that they had been arranged in chapters and sections according to the custom in vogue previous to the year 1832; that the by-laws included all the "special rules" and "standing votes and resolves"; that they fixed the beginning of the fiscal year as January 1; that the duties of all officers and standing committees were defined; that four of the standing committees had been consolidated into two standing committees; that the by-laws embodied the suggestions of the officers of the society; that a copy had been sent to every Fellow of the society on May 10, 1913, a month before the meeting, and that since then numerous amendments had been incorporated in the revised draft, a copy of which was in the hands of every member present.

On motion by Dr. Goss, 54 members being present, the by-laws were adopted by a unanimous vote:

Voted, That all previous by-laws and standing votes and resolves be repealed;

Voted, That the digest of the laws relating to the Massachusetts Medical Society, the by-laws, the code of ethics, and the malpractice act, be printed in a pamphlet, and that the secretary be directed to have five thousand copies made.

On motion by Dr. R. B. Osgood, it was

Voted, That the thanks of the society be extended to the committee of arrangements for their efficient and successful plans for the meeting.

Papers were read as follows:

1. The Mode of Transmission of Infantile Paralysis.—Dr. Milton J. Rosenau, Brookline.

2. The Treatment of Diabetes Mellitus.—Dr. Elliott P. Joslin, Boston.

3. The Complement Fixation Test in Diagnosis.—Dr. James Homer Wright, Boston.

4. Diagnostic Significance of the Reaction—local and general—Produced by Intradermic In-

jections of Dead Gonococci in Gonorrheal Infections.—Drs. W. S. Whittemore, Cambridge, and G. C. Shattuck, Boston.

5. The Pathological Lesion of Whooping Cough, illustrated by lantern slides.—Dr. Frank B. Mallory, Brookline.

Discussion of Dr. Mallory's paper by Dr. L. J. Rhea, Boston.

At the close of the papers, a short recess was taken.

At 12 o'clock noon, the oration was delivered by Dr. Homer Gage, of Worcester, on the title, Some Abuses in Surgical Practice. The attendance at this time was about 200.

On motion by Dr. Lund, the thanks of the society were tendered to Dr. Gage for his interesting and excellent address.

In the afternoon, the combined Medical and Surgical Sections held a largely attended meeting at the Boston City Hospital,—there being from 260 to 300 present,—where the following papers were read on the topic,

Symposium on Diseases of the Gall-Bladder.

Medical Paper.—Condition of the Upper Region of the Abdomen in Relation to Disease of the Gall-Bladder.—Dr. Charles G. Stockton, Buffalo, N. Y.

Surgical Paper.—The Diagnosis of Gall-Stones from a Surgical Point of view.—Dr. John H. Gibbon, Philadelphia, Pa.

Discussion by Dr. G. G. Sears, Boston; Dr. J. T. Bottomley, Boston, Dr. Wilder Tileston, New Haven.

The annual dinner was served in the ballroom of the Copley-Plaza Hotel, in the evening, to 1198 Fellows and guests. The president sketched the work of the society during the year, and introduced the following speakers:

Ex-President Charles W. Eliot, of Harvard University; Robert L. O'Brien, Editor of the Boston *Herald;* Charles G. Stockton, an eminent physician of Buffalo; and John H. Gibbon, a noted surgeon of Philadelphia.

WALTER L. BURRAGE, *Secretary.*

CHANGES IN THE MEDICAL CORPS, U. S. NAVY, FOR THE WEEK ENDING JUNE 7, 1913.

RIDER, C. E., passed assistant surgeon. Detached from *Pompey*, and ordered to Nav. Hosp., Olongapo, P. I.

LEDBETTER, P. B., assistant surgeon. Detached from Nav. Hosp., Olongapo, P. I., and ordered to *Pompey*.

THOMPSON, F. W., U.S.N., assistant surgeon. Died at Newport, R. I., May 30, 1913.

KERR, W. M., passed assistant surgeon. Detached from Nav. Hosp., New York, and ordered to Naval Sta., Honolulu, H. I.

FRENCH, G. R. W., assistant surgeon. Ordered to Nav. Hosp., New York.

BAKER, M. C., passed assistant surgeon. Detached from *Colorado*, and ordered to *Pittsburg*.

HALSEY, W. H., assistant surgeon. Ordered to *Montgomery*.

SMITH, G. T., surgeon. Detached from Nav. Sta., Honolulu, and ordered home, wait orders.

UNITED STATES CIVIL-SERVICE EXAMINATION

The United States Civil Service Commission announces an open competitive examination for medical interne, for both men and women, on July 2, 1913. From the register of eligibles resulting from this examination certification will be made to fill a vacancy in this position in the Government Hospital for the Insane, Washington, D. C., at $900 per annum, with maintenance, and vacancies as they may occur in positions requiring similar qualifications, unless it is found to be in the interest of the service to fill any vacancy by reinstatement, transfer, or promotion.

The positions are tenable for one year, and pay $75 a month and maintenance. At the end of six months, however, during which time a post-graduate course in mental and neurological diagnostic methods, etc., is given, an examination is held, and promotions to the next grade, junior assistant physician, are made. Beyond this there is regular advancement for men whose services are satisfactory. The Government Hospital for the Insane has over 2900 patients and about 750 employees to care for. In addition to the general medical practice offered, the scientific opportunities are excellent and the clinical opportunities in neurology and psychiatry are unsurpassed.

As considerable difficulty has been experienced in filling vacancies in the position of medical interne in the Hospital Service during the past several years owing to the limited number of eligibles available, qualified persons are urged to enter this examination.

Graduation from a reputable medical college is a prerequisite for consideration for this position.

Applicants must not have been graduated previous to the year 1908 unless they have been continuously engaged in hospital, laboratory, or research work along the lines of neurology or psychiatry since graduation, which fact must be specifically shown in the application.

Both men and women will be admitted to this examination. Applicants must be unmarried.

Age, 20 years or over on the date of the examination.

This examination is open to all persons who are citizens of or owe allegiance to the United States and who meet the requirements.

Persons who meet the requirements and desire this examination should at once apply to the United States Civil Service Commission, Washington, D. C. No application will be accepted unless properly executed and filed with the Commission at Washington in time to arrange for the examination at the place selected by the applicant.

RECENT DEATHS.

DR. JOHN NEFF, of Baltimore, who died in that city last week, was born in 1832.

DR. STEPHEN O. STORCK, who died on June 5 in New York City, was born in Virginia in 1878. He is survived by his widow and by two children.

DR. JOHN AUGUSTINE MAGEE, who died on May 23, at Lawrence, Mass., was born in 1848. He received the degree of M.D. in 1872 from the University of Vermont, and was a member of the American Medical Association and a Fellow of The Massachusetts Medical Society.

BOOKS AND PAMPHLETS RECEIVED.

Preventive Medicine and Hygiene by Milton J. Rosenau, M.D. D. Appleton and Company. 1913.

Monthly Bulletin of the Statistics Department. City of Boston. Vol. xiv, Nos. 10, 11 and 12.

Department of Commerce, Bureau of the Census. Bulletin 112, Mortality Statistics. 1911.

Address.

POPULAR MEDICAL EDUCATION.*

BY MAURICE W. PEARSON, M.D., WARE, MASS.

In a paper which I read some ten years ago before a literary club, I find the following statement, "Education is the very beginning and foundation of preventive medicine," and it may serve as a kind of text for my short sermon today.

Ten years have brought the subject of popular medical education much more prominently before the public—lay and medical—and convinced many of the essential truth of the statement above quoted; but opinions differ widely as to the methods to be pursued, and the majority still have no just appreciation of the importance of the movement, if indeed they have ever given it a thought. Among trained medical men few, if any, would be found opposed to popular medical education in these days, but many I believe are still not fully alive to their duty and privilege in this regard. I am not unmindful of the good work already done by individuals here and there, but the signs plainly indicate that unless the medical profession as a whole bestirs itself and takes its rightful place well up in the front it will not be in the fight at all, for the ranks are forming and are surely going to move.

Educators, social organizations, and churches are everywhere beginning to study this subject in certain of its phases, and are asking advice and counsel from the medical man, which he must be prepared to give. And what are some of the things upon which the public needs particularly to be enlightened? First of all is it not evident to every honest practitioner of medicine that the public is for the most part woefully ignorant of what scientific medicine really is? It is true there have ever been various cults and so-called systems of medicine based, not upon science, but upon mere speculative philosophy without tangible foundation of any sort; but one would think, beholding the splendid structure reared by scientific medicine in the last century, that, while it is by no means perfected, men would begin to have at least some conception of the difference between such a structure and those flimsy, top-heavy creations of the fanatic and money shark springing up on every hand. Not so; they grasp as eagerly as ever at these gewgaws, and fail to see the reason why they may not stand upon an equal footing with scientific medicine. And yet the reason for this condition of things is really not far to seek. Human nature is, in brief, the answer. Humanity—sick humanity—is ever seeking for some shorter and easier road to health, and he of the ready-made diagnosis and the sure cure will always have a following. I believe, however, making all due allowance for human nature, that by a proper system of education people—many people—may be brought to a better understanding of these things, and so fortified in a measure against all forms of quackery, whether in the profession or outside of it; for that quackery exists within the ranks of the profession is all too true, and we can hardly blame the people if they sometimes fail to discriminate, and judge the whole profession by such poor representatives. I plead for absolute frankness and open dealing with patients, tempered of course with tact and kindness; making no unwarranted claims nor false diagnoses; withholding what is for the patient's interest to be withheld and no more. The time-worn expedient of speaking slightingly to patients of other physicians who have treated them, still the chief asset of many quacks, should have no place in our armamentarium. As Medicine gradually frees herself from empiricism and superstition, it is the more incumbent upon us as individuals to measure up to the ethical and scientific standard.

Notwithstanding that the so-called germ theory of infection and disease has been established on a working basis for more than a quarter of a century, how few there are who have aught but the crudest conception of its meaning. To the majority it is a name and nothing more. If this ignorance were confined to the illiterate it would be less remarkable. An acquaintance of mine—college professor—listening to an explanation of the process of sterilization by heat, wished to know what we did with the germs after they were killed; and this, as you are well aware, is only a fair sample of what we are up against in trying to explain some of our medical problems. How it would clear the atmosphere of the fog through which most people look upon the phenomena of disease, and how much easier would be the physician's task, if the rudiments of this one subject were but clearly understood by the people. I believe that such a desirable state of knowledge may be brought about by a proper system of education.

A somewhat more difficult subject, from an educational standpoint, is psychotherapy—using this term in its broadest sense—and yet I believe it would be possible to so present this subject that its general principles could be grasped by the majority of educated people at least; and once grasped what a flood of light it would shed upon much which is evidently obscure to them at the present time. The broad fact that a varying proportion of the successful work of the regular practitioner, and—with due allowance for kind nature—nine-tenths of what passes for success in all forms of quackery and the various cults, systems and schools of medicine, so-called, is due to psychotherapy—the impression made upon the mind; this fact I say

* President's address before Hampshire District Medical Society Northampton, Mass., May 8, 1913.

should somehow be brought to the comprehension of the people. To state this as an abstract truth is one thing, but it is quite another to so bring it home to the individual that he will apply it practically in any specific instance; nor would I say that it is always necessary or desirable so to do, except in so far as it may help to fortify him against the unwarranted claims of those who would lead him to ignore his real disease, or whose skill is measured chiefly by their ability to relieve him of his dollars. With honest, rational psychotherapy I have no quarrel; indeed, I believe there is a distinct field for it. The search for a physical basis in pathology for purely psychical disorders is well-nigh futile, it seems to me. It will doubtless continue, but it will reach a point—if it has not already done so—beyond which it cannot go. The basis of purely psychical disease is as elusive and intangible almost as the soul itself; hence treatment must be essentially psychical whether avowedly so or not. Build up the body by all means in every possible way, but to stop here is to fail in the great majority of cases as heretofore, simply because faulty cerebration and not physical debility is the basic condition. Often the more hopeless and intractable the psychical disorder the sounder the physical health.

Another subject of which most people have very little knowledge or appreciation is what we term predisposition. We know that inherent constitutional tendency is responsible for a great amount of suffering and disease. It is the predominant factor in three-fourths of all mental and functional nervous disorders, and enters largely into many other common ailments: obesity, asthma, migraine, gout and eczema are some of these. It is true that these tendencies may be modified in some cases, but removed never. "But," says one, "this is a too pessimistic view and had better be kept in the background." Pessimistic or not, these are facts which the physician has constantly to reckon with, and it were well, I believe, if people in general had a clearer appreciation of them, especially as in order to control them at all we need the intelligent coöperation of the patient; he must be made to understand that in these things it is not a question of pills and powders, but often of careful regulation of his whole habit of life.

Education for the people in sexual physiology and hygiene is perhaps a more important subject than any I have yet touched upon. It is certainly so regarded by many—physicians, educators and sociologists. Indeed it is a problem which is gradually forcing itself upon the attention of all who are interested in the welfare of humanity, and will not down. The barriers of prudery and false shame, which have so long shrouded this whole subject in darkest ignorance, fostering all sorts of crime and disease, are beginning to give way. It is agreed by all who have given the subject most study that the young should receive instruction in such matters. Whether this instruction should be public or private, just how and by whom it should be given, at what age it should be begun, are questions by no means so easily agreed upon. Ideally, the parent is, of course, the best instructor for the child in matters of so intimate personal significance; but this ideal is far from being realized, as you are well aware. The great majority of parents do not possess the requisite knowledge, and when they do they lack the moral courage and tact to properly instruct the child. Indeed, an important part of the campaign is the education of parents. If all parents were competent and ready to fulfill their duty in this regard the problem would thereby be solved, in so far as it is possible to solve it, and no further agitation of the subject would be called for. Upon the whole, the best system for adoption in schools would seem to be the biological one, beginning in the 5th and 6th grades with children from nine to twelve years of age; teaching the process of germination and fertilization in plants, and gradually working up through the lower forms of animal life to fishes, birds, and later to mammals, including man; employing laboratory methods wherever possible. To this end it is recommended that all normal schools require a course of training along these lines. Of course the success of this method, as of any other, will depend very much upon the personality of the teacher, her skill and adaptability for such teaching. It is said, and with some reason, that school teachers are already overburdened with too many subjects, and can take on no more. It would appear, however, that this course might be carried along with, and perhaps replace in part, the nature study already inaugurated without adding greatly to the burden. The object of this method—aside from its intrinsic value, which is not small—is to instruct the child in sexual physiology; or rather to satisfy his natural curiosity in an impersonal way, and that at an age before his sexual emotions have become very active, so that with this knowledge as a background, he may, as his sexual instincts develop, the more easily be led to right thinking and clean living. The argument—a favorite one with parents—that to attempt to instruct the child in such matters is to draw his attention toward them unnecessarily, has very little weight. It ignores the natural curiosity of the child, and overlooks the fact that the great majority of children, at the age of twelve, in all classes of society, have already learned more than they ought to know of sexual matters, and that from the wrong persons in the wrong way. All parents are prone to believe that their own children are an exception to this rule. It is not, therefore, a question of keeping such knowledge from the child—a thing practically impossible—but of teaching and guiding him aright.

You are doubtless familiar with the work of the Society of Sanitary and Moral Prophylaxis. The January, 1913 number of the journal, *Social Diseases*, published by this society, contains the

report of the special committee of the American Federation of Sex Hygiene. This committee, consisting of the late Dr. Prince A. Morrow, Prof. Thomas M. Balliet, the well known educator, and Professor Maurice E. Bigelow, have presented a report worthy of the most careful consideration. It is true not all will agree with this report in every detail, but it represents the best thought of those best qualified to deal with this question at the present time. I have here a copy of the journal containing this report. It may be obtained from the secretary of the society, 105 West 40th Street, New York.

In Chicago a course of lectures on this subject to pupils, and also one to parents, is given in connection with the school department under the censorship of Mrs. Ella Flagg Young, superintendent of schools. This work was begun three years ago by Mr. Ralph E. Blount of the Waller High School and has been carried on successfully by him and his assistants. The course to pupils consists of five lessons, given with the aid of stereopticon, introducing the subject by a lesson on reproduction in plants and lower forms of animal life, and finally including sexual hygiene and venereal diseases in man. Mr. Blount lectures to the boys, and Dr. Anna Blount to the girls. Mr. Blount very kindly sent me a typewritten copy of his report to the superintendent of schools, which I have here. It contains a complete outline of the course of lectures and some interesting details concerning the work; its objects and methods. The report is too long to read, but I will read Mr. Blount's letter to me. He says:—

"The enclosed copy of my report to the superintendent will show the sort of work we are doing. We have been giving the lessons to every class at the end of the half year's work in physiology. This is the fourth year. About 1500 pupils have had the lessons. We spend a week on the subject now. We expected to meet considerable opposition and were prepared to endure some hard criticism. Nothing but commendation has been made public. I have heard that one man has in private spoken disparagingly of the work, but he was actuated by a prejudice, not from any bad effects observed. Every result we can get at is good. One woman said the lessons had revolutionized the tone of the school. I am convinced they have put the boys on better terms with me. Please return the report when you are through with it."

Dr. Philip Zenner, professor of neurology in the University of Cincinnati Medical School, by request of the teachers in one of the Cincinnati schools, commenced giving talks to the boys of the school on sex hygiene. In the same school Dr. Nora Crotty lectures to the girls. Dr. Zenner also lectures to the college students in the University on the subject, and has recently published a book—which I have here—entitled "Education in Sexual Physiology and Hygiene," embodying all of these lectures. It is worthy of perusal by all who are interested in this movement. In some other colleges one or two lectures are given to students upon venereal diseases. I have here a letter from Dr. Eugene A. Darling who gives these lectures at Harvard, which I will read:—

"In my course in physiology I give usually four lectures on the reproductive organs, one on anatomy, one on physiology, one on hygiene and one on the venereal diseases. These lectures are only intended for the men electing my course (about 230 this year), but usually there are a number of visitors. I think the lectures are appreciated by the students as I try to stick to proved facts and avoid sensationalism. It is difficult to estimate their effect. A knowledge of the danger will not always prevent a man from taking risks, especially when his judgment is dulled by alcohol, but on the whole I think that the best way to deal with this difficult matter is by frank and candid instruction of young men. It can certainly do no harm if properly done and may do a great deal of good. I am not familiar with the practice at other colleges than Harvard."

Considerable activity along these lines is beginning to be manifest in churches and various social organizations. The Laiety League for Social Service (Mr. Orrin G. Cox, Secretary, 200 Fifth Avenue, New York) publishes a number of very good pamphlets on the subject. "Sexual Education and Amusements," "The Social Evil and Methods of Treatment," "Developing Into Manhood," are some of these. "How Shall I Tell My Child?", "When a Boy Becomes a Man," "Instead of Wild Oats," are the titles of three excellent little booklets, known as the Bok Series, published by the Fleming H. Revell Company. The New York State Department of Health at Albany has lately published three tracts, entitled respectively, "Sexual Hygiene for Young Men," "Sexual Hygiene for Young Women," "Suggestions to Persons Having Venereal Diseases," setting forth in plain language facts which the common people ought to know.

In studying the various publications on this subject, whether by professional teachers, physicians or laymen, one is impressed with the evident spirit of responsibility, almost timidity, in which most of them undertake the task, realizing that thus far their efforts are, as it were, tentative; and the reader who is disposed to be critical should take this into consideration. The problem is an exceedingly difficult and complicated one. It is agreed that it must be solved, but how? I am not of those who would have you believe that education, or ethics, or religion, or fear of consequences, or anything else will do away with illicit sexual relations and solitary vices in the present stage of man's evolution. A number, a considerable number, will not be restrained by any or all of these; but I believe that a thorough knowledge of the fundamental principles of sex physiology and venereal disease would restrain many—I will say one-half of

the intelligent young men who now go wrong in such matters. I have seen the argument advanced that it is of no use to teach boys these things because grown men, who know better, are not restrained, but that is just the point, the grown men as a rule do not know better; they are as ignorant as the boy of the risks and the possible consequences of venereal disease, even though they may be highly educated along other lines. And whose fault is it that they are thus ignorant but that of our educational system? The medical profession must also take its share of the blame.

In some of these publications I notice a tendency to exaggerate the evil consequences of sexual indulgence *per se*. This is a very difficult point to determine in the nature of things. It is largely a question of individual make-up, of inherent defect in the central nervous system; but the fact remains that if you teach a boy that any sexual indulgence before full maturity whether solitary or otherwise, will ruin him, soul and body, he, if he is normally constituted, is likely to find out that such is not the case, and conclude that you have lied to him, when all your instruction will go for naught. He may reach this conclusion by observation of others if in no other way. On the other hand, there is always the grave danger that boys of a certain temperament will become unduly alarmed by such teaching, and brood in secret over their indiscretions until they become confirmed neurasthenics.

The phase of the question which appeals most strongly to the physician is the prevention of venereal disease—syphilis and gonorrhea. Latent gonorrhea in the respectable male population is surely the most intolerable scourge of our civilization; intolerable because of the thousands of innocent wives and children of this same male population who are the victims of it.

Education is the foundation of preventive medicine because dogmatic assertion alone does not carry conviction to the average person; he must know something of the basis of such assertion before it can make any lasting impression upon him. This is one reason why it is so difficult to carry out the laws and regulations of health boards. If we ever get a National Bureau of Public Health it should be, and doubtless will be, very largely an educational bureau, in order to accomplish its purpose. A general campaign of medical education by lectures, publications and practical demonstrations should be inaugurated. The anti-tuberculosis campaign is an example of what may be accomplished by well organized effort. There are those who believe that the family physician is the one to educate the people, especially in sexual matters, by personal instruction, and 'tis well. In some instances much may be accomplished in this way, but the difficulties of such private instruction by the physician are many. I need not enumerate them. The average patient wants prompt relief from suffering and speedy cure; the physician's time and strength are largely expended in such efforts; for preaching he will generally get but little thanks and no pay. I believe more may be accomplished by organization and concerted effort. In this state we need no new organization for this work, but to utilize that which we already have, viz., The Massachusetts Medical Society. The appointment of the Committee on Public Health in 1912 was a step in the right direction, and I suggest that this section of the society hold at least one open meeting every year devoted to the medical education of the public; that as many laymen as possible be invited to attend, and that free discussion and criticism be encouraged upon topics of mutual interest. The free Sunday afternoon lectures at the Harvard Medical School, and the work done by the Council on Health and Public Instruction of the A. M. A. are signs of the awakening of the medical conscience to its public duties on this regard.

But when all is said our chief hope is in the rising generation, hence a large share of responsibility rests upon our educational institutions; and here let me say that I have the greatest consideration for the educators. Their problems are difficult and complicated—none more so—and they are beset on all sides by cranks, faddists and would-be reformers with schemes more or less impracticable. For the work already done in schools and colleges in physical culture, hygiene and physiology, much credit is due. I believe, however, that the time is not far distant when more will be required, even to the exclusion, if necessary, of subjects of less vital importance. An epitome of the history of scientific medicine, especially in the last one hundred years, a course in bacteriology as applied to the more common infections, not omitting venereal diseases, as well as some instruction in the other topics touched upon in this paper, should, I believe, be included in the curriculum of every college for either sex, if not in that of every preparatory school. Just how this instruction should be given, whether by lectures, or by textbook, or by both, I would not undertake to say; but however given, the main object to be attained is the inculcation of fundamental principles and right methods of thought in such matters, rather than the memorizing of many technical details; and all this for no other reason than that these things have an important and intimate connection with the daily life of every man, woman and child of the community.

The Daily Express, which recently opened a subscription list for the purpose of providing the London hospitals with radium, received £10,375. It is calculated that for £250 about 15 mg. are procurable, and that this is an amount with which a good deal of useful work may be done.—*British Medical Journal.*

Original Articles.

CEREBRAL COMPLICATIONS IN PNEUMONIA.

BY CHARLES F. WITHINGTON, M.D., BOSTON.

There are to be excluded from the present discussion: First, cases of so-called cerebral pneumonia, in which the pulmonary lesion, possibly slow in developing physical signs, is accompanied by intense cerebral excitement and delirium, the cause of which is later cleared up by the diagnosis of pneumonia. Such cases are sufficiently familiar to everyone. Second, cases in which pneumonia develops as a terminal infection in persons suffering from cerebral lesions producing paralysis.

The scope of the paper will be cases of a distinctly cerebral character, developing during or immediately following pneumonia and related to the specific infection of the latter disease. These may be divided into two classes: First. those with organic lesion; second, those without. In the former category by far the most common condition is meningitis. Other lesions are:

Embolism, thrombosis, hemorrhage and softening, edema, encephalitis (*a*) with abscess, (*b*) acute hemorrhagic.

Certain of the latter cases shade off into the second group where there are paralyses without demonstrable lesion. The latter are to be considered toxic in origin and may affect, (*a*) the brain, (*b*) the peripheral nerves.

MENINGITIS.

Meningitis, while uncommon in pneumonia, is found more frequently than any other organic lesion. Pye-Smith, in Allbutt's system, says that meningitis is a complication in 1 to 1,000 cases of pneumonia of patients above ten years and in from 1 per cent. to 2 per cent. in cases below ten years of age. It may come in the first week if very grave cases or about the tenth day in less rapidly fatal pneumonias. He says it is usually purulent and universally fatal. The latter statement is apparently incorrect. (See Holt's case, below). If it is upon the vortex it is often undiagnosticated during life, the delirium being considered toxemic. If basal, it is more readily diagnosticated.

Gossage suggests that the exudate may be serous and not purulent and may disappear spontaneously like corresponding pleurisy. He gives a case where head retraction, twitching, and optic neuritis were present, and which recovered.

Laignel, Lavastine and Roger Voisin[1] find in a series of autopsies of patients dying with broncho-pneumonia lesions on the one hand representing simple edema; on the other, an inflammation. They could not tell whether one was the precursor of the other. The lesions ranged from a simple congestion to a purulent meningitis. They appeared alike in patients who had and who had not manifested meningeal symptoms during their broncho-pneumonia.

Holt[2] records a case of pneumonia in a child of two, sick ten days with consolidation of left lower lobe. On the eleventh day, convulsion of all extremities, retracted head and rigidity. Lumbar puncture produced one and one-half ounces of clear fluid, high tension, no cells, no deposit, but culture after twenty-four hours showed abundant growth of pneumococci. The next two days, stupor and rigidity; no eye symptoms except photophobia; no Kernig. A second lumbar puncture two days later showed pneumococci in culture. The child recovered.

Netter[3] speaks of meningitis as sometimes due to pneumococci, with or without pneumonia, and says that the proportion of meningitis found in autopsies in cases of pneumonia varies from 43 per cent. to 1.39 per cent.; clinically, from 8 per cent to .08 per cent.

Levi[4] speaks of serous meningitis due to pneumococci which are characterized by a simple serous exudate between meninges, with strong vascular congestion. These lesions of infectious origin may be due sometimes to microbic toxines, but often are the result of microbes themselves, which may be pneumococci, typhoid, or grippe bacilli, streptococci and probably, also, bacillus coli. They show generally an attenuated infection which phagocytosis can conquer. While purulent exudates show the victory of the microbes over the phagocytes degenerated into pus globules, some curable cases like pneumonic meningitis are due to lesions of this nature. Sterility of the cerebrospinal fluid must not be asserted on failure with ordinary cultures. In these a pneumococcus of feeble vitality may not survive, while an inoculation in a mouse may prove positive. Even in cases where such inoculations were apparently negative, that they have some validity may be shown by their conferring an immunity against virulent injections.

Fraenkel[5] criticises Aufrecht and regards the hemiplegia, which the latter describes in pneumonia as a purely symptomatic disturbance of the nervous system, rejecting the hypothesis of meningitis because of the lack of characteristic symptoms of the latter and also from the fact that some of them are cured.

THROMBOSIS.

Whipham[6] cites a characteristic case of this condition. A child of one year, eleven days previously suddenly ill with convulsions, cough; no history of otorrhea, patchy consolidation of the left lower lobe. Four days later, right side suddenly spastic, head retracted; spasm passed off in two hours; head stayed retracted; vomiting.

repeated convulsions, starting on the left side and spreading over the whole body. Head retraction increasing. Death four days after the cerebral symptoms. Autopsy showed a septic thrombosis in the superior longitudinal sinus and the connecting veins were thrombosed. The right lateral sinus, recent thrombosis, the straight sinus, white, slightly adherent clot. Small abscesses in the left occipital lobe, large abscesses in the right, with thick pus communicating with the right lateral sinus. Both middle ears contained pus. Lungs: Acute purulent bronchitis, left lower lobe, solid broncho-pneumonia.

Suckling[7] reports a case of right hemiplegia from cerebral thrombosis complicating pneumonia, remarking that this is the first case of hemiplegia met with in one thousand cases of pneumonia in the Birmingham Workhouse Infirmary. A girl of eighteen, admitted on the tenth day of illness with pneumonia of the left base. On the fourteenth day, earache without discharge; fifteenth day, temperature rising; in the evening patient comatose. After one day of incomplete unconsciousness, coma became complete, followed by paralysis of right arm and right leg. Patient died on the seventeenth day. Post mortem: Thrombosis of the basilar artery, left half of circle of Willis, also of deep and superficial arteries of the left hemisphere. No emboli.

Thrombosis of the sinuses, it may be said in passing, is not rare in other infections; for example, typhoid[8], and even in pernicious anemia. (*Ibid,* Vol. xiii, p. 25, Osler.)

CEREBRAL ABSCESS.

Landrieux[9] reports a case of pneumonic hemiplegia with a cerebral abscess, with pneumococci. A man of forty, with good health and habits, four days before admission, had been thrown into the water and rescued after ten minutes. Had chills for next two days. Following day, cough, pneumonia of left upper lobe. On fourth day of illness, slight stiffness in the neck; no Kernig sign. Lumbar puncture gave fluid of normal color flowing under slight pressure. No abnormal contents. Same evening, left hemiplegia, total, flaccid. Slight conjugate deviation of the eyes and head. No coma, no aphasia. Extreme abundance of polynuclear leucocytes. Death on the sixth day of the disease. Autopsy showed usual lesions of pneumonia; nothing found in the meninges. No increased volume of either hemisphere. Abscess cavity right hemisphere, partly in the lenticular nucleus, partly in the anterior segment of the posterior arm of the internal capsule. Pure culture of pneumococci in the fluid; inoculation of mice, positive. The writer speaks of the impossibility of distinguishing between this case and the pneumonic hemiplegias which we are to consider later under the head of paralyses without lesion. The foregoing condition is sometimes referred to as encephalitis with pus, but we come next to a much more frequent condition.

ACUTE HEMORRHAGIC ENCEPHALITIS.

Strümpell,[10] in 1890, gives the first clear description of acute primary encephalitis. He points out a close relation between some cases of encephalitis in children, and poliomyelitis, two conditions resembling each other in their infectious origin, differing chiefly in the character of the resulting paralysis. Quite distinct from these cases in children is the acute encephalitis of adults of which Strümpell gives two cases with careful post-mortem studies, one in a healthy man of twenty-seven, another in an old man. In both, the clinical picture was sudden unconsciousness, paralysis, in one with crossed patellar reflex, in the other with rhythmical movements of the unparalyzed side, with exceedingly high fever, 107.9. The essential and significant pathological finding in both cases was a true, acute interstitial inflammation proceeding from the vessels into the white matter of the brain, with hyperemia and a development of leucocytes about the enlarged vessels and abundant punctiform hemorrhages. Both patients showed a pneumonia and one of them a splenic tumor. Strümpell says that acute hemorrhagic encephalitis may also be the sequel of other diseases, especially influenza. Very severe cerebral symptoms (headache, loss of consciousness, hemiplegia) come on suddenly and lead to speedy death with high fever. Autopsy showed several hemorrhagic, encephalitic foci, usually confined to one hemisphere. Brain yellow and softened, very edematous and studded with numberless little capillary hemorrhages. He adds, "It is of practical importance that, according to more recent observation (the author, Oppenheim and others) a *curable* form of encephalitis also occurs in adults. Acute onset with fever and grave general cerebral symptoms (headache, stupor, delirium, occasionally deep sopor); also marked focal cerebral symptoms (hemiplegic disturbances, aphasia, hemianopsia, symptoms of cortical irritation) and after some time (a few days or several weeks) an entire disappearance of all symptoms with the exception, perhaps, of certain residual ones which, however, do not progress. An ophthalmoscopic examination is of great diagnostic importance in all these cases. It frequently, though not invariably, shows a marked optic neuritis with more or less marked venous congestion."

Mollard and Dufourt,[11] upon acute encephalitis in pneumonia, quote from Chartière, with an example, who says that many cases of pneumonic hemiplegia are to be classed as encephalitis.

Also from Chappet (thesis), who finds only one case with autopsy where there is actual encephalitis. This was in a woman of seventy-

three who, in the course of pneumonia, was taken with paralysis of the face and left arm. Autopsy showed congestion of meninges, right hemisphere, of rosy color. In several other cases the brain is the seat of hemorrhages which seem to depend on another cause (softening and thrombosis). On the other hand, he cites numerous cases of hemiplegia followed by recovery in which a large part must have been played by encephalitis. Mollard cites the case of a man of forty-four, alcoholic, seen the fourth day after a chill; pneumonia of the right base, enteriorly. Seventh day of sickness, violent delirium, rigidity, retraction of neck and head. Lumbar puncture, clear, limpid fluid-like spring water, rare cellular elements, three polynuclear, one lymphocyte, no pneumococci. Death on the eighth day. Autopsy showed pneumonia. Dura not adherent. Congestion of the vessels of the meninges, vessels dilated, one small meningeal hemorrhage. Along sulci a sort of jelly, scanty, no pus. The brain showed a delicate rose color, not disappearing with washing, diffused over both hemispheres. Section of white matter showed no hemorrhage, but bloody points. Inoculation of subarachnoid fluid showed culture negative.

Mollard gives two causes for the encephalitis of pneumonia: first, toxines; second, pneumococci carried through the blood. Perhaps both act. Pfuhl has found in the brain bacillus of Pfeiffer, Curschmann the bacillus of Eberth and Leichtenstein a meningococcus.

As to the occurrence of pneumococcus, two groups are described: (1), of pure pneumococci infection; (2), with associated infection. In the first group of five cases, pneumococcus was abundant in the blood. In two of these the brain was sterile, notwithstanding the gravity of the infection, but in the other three cultures from the brain substance gave many pneumococcic colonies. In the second group of five cases the diplococcus lanccolatus was associated with streptococcus and staphyococcus. In all the brain was poor in bacteria and showed only one of the kinds found circulating in the blood.

Leichtenstein[12] described cases of acute hemorrhagic encephalitis occurring, first, in epidemics of cerebro-spinal meningitis; second, in ulcerative endocarditis; and third, in influenza. The etiology in all cases is infectious.

Comby[13] finds that the etiology corresponds with what has already been described. The symptoms are, sudden onset, convulsions general or localized, often epileptiform, coma, contractions. Sometimes convulsions are wanting, being replaced by flaccid hemiplegia which might suggest cerebral softening. He says that many cases recover. Meningitis is excluded in these cases by negative spinal fluid. In the latter polynuclears are found to predominate in bacterial meningitides; lymphocytes in granular meningitides. In encephalitis there are no leucocytes.

Turning now to the second group, previously indicated, of paralyses without lesion, we may premise by saying that possibly in this group are some of the cases last referred to, of recovered encephalitis. Most of the inorganic cases, however, are toxic in origin, the poison may spend itself (*a*) upon the brain, producing hemiplegias somewhat analogous to those seen in uremia, without lesion, and (*b*) upon the peripheral nerves, being analogous to the neuritides following diphtheria.

Lesieur[14] and others restricted the term pneumonic hemiplegia to cases in which there is no gross alteration of the brain, it being admitted, of course, that the gross alterations of hemorrhage, softening, etc., already considered, are liable to occur in pneumonia.

Of this type of cases considerable has of late years been written by a few French and German authors.[15] Space will not admit of a detailed discussion of the views of these writers nor of a description of their illustrative cases. These "true pneumonic hemiplegias" occur mostly in young people and are generally recovered from. Hence the relative scarcity of autopsies. Some of these writers hold that the cases may have been due to a larval pneumococcic meningitis, and Comby refers some of them to a secondary encephalitis.

But the majority hold to the view of a toxic influence either directly upon the brain cells or through vaso-motor nerves. The flushed cheek in pneumonia suggests to several of them a similar vaso-motor disturbance inside the cranium, as does also the fact that vaso-motor paralysis sometimes first affects the limbs which are later to show a true paralysis. Boulloche is inclined to think some of them hysterical.

These paralyses are often of short duration and usually of benign character, which indicates that they are not associated with any permanent material alteration in the nerve centers. It is usually at the end of the second or third day in the onset of pneumonia, rarely later, that the aphasia begins. It may be preceded for some hours by headache, bewilderment, vertigo, or paresthesia in the right side of the face or right arm. Sometimes the symptoms become frankly hemiplegic. Aphasia may begin without any impairment of consciousness or may follow a true apoplectic attack. The type is usually ataxic as in lesions of the third left frontal convolution. The patient may pronounce only a few monosyllables more or less appropriate to what he wishes to say. At first the intellect is blunted and he cannot understand what is said, but after a few hours indicates by a gesture that he wishes to talk.

One writer believes that such paralyses are usually on the right side, which accounts for their frequent association with aphasia. The aphasia is usually short, disappearing after three or four days. Illustrative cases are cited, in one of which aphasia appeared early on the third day of pneumonia with slight syncope, followed by prickling of the right arm; at noon further syncope and aphasia which lasted only

one day, with recovery. In a case cited from Balzer, a patient with aphasia died of pneumonia five days later. The brain was found perfectly normal and microscopic examination of the third convolution showed nothing.

Doernberger reports a case so characteristic that it deserves quoting. It is that of aphasia in a boy of three and a half, who had a wandering pneumonia, involving both lungs. On the sixteenth day there was loss of consciousness and speech; pupils dilated, fixed, equal; eyes wide open as if looking at a distance; occasional scream, otherwise stupid; no response to call. Stiffness of neck the following day; clonic spasms of the left extremities; face drawn to left. In two or three days the convulsions and meningeal symptoms disappeared. On the tenth day after the onset of the cerebral symptoms, patient free of fever, notices playthings, laughs and puts out his hand, makes fruitless efforts to speak, distorting his face in the attempt. On the following day he speaks the first words, "Yes" and "No." His speech from that time gradually returned and he resumed complete health.

I have examined the records of pneumonias, so far as they are catalogued in the Boston City Hospital files, for a number of years, and find among about 7,600 patients, that there appear to have been the following types of cerebral disturbances: 21 cases of meningitis, 4 of embolism, 2 of thrombosis, 1 of softening, 3 of abscess, 2 of edema, 2 of hemiplegia, 1 of transient aphasia. I find no diagnosis to have been made of encephalitis, though it is probable that that condition may have been responsible for several of the cases otherwise classified. In addition, there was one case of facial paralysis occurring apparently as a consequence of pneumonia. A few typical instances of each of the foregoing groups may be cited.

MENINGITIS.

Of the 21 cases, 5 were confirmed by autopsy and 2 others by lumbar puncture.

J. M., 63, service of Doctor Bowditch, April 20, 1898. Severe headache in the morning, fainted in the afternoon, unconscious for a short time. Following day, cough, temperature 102, consolidation of the right lower lobe, posterior. Process increased through the right lung. On the 28th, violent muscular twitching, eyes turned up and to the left, jaws stiff, rigid; death on the eighth day of the disease. Autopsy showed pneumonia with pneumococci in the smears, throughout the whole right lung. The dura was adherent to the skull. Pia thickened. Considerable amount of thick yellow fluid extending along the vessels from the left occipital to the front part of the parietal lobes. Same on the right hemisphere to a less extent. Also on the superior part of the cerebellum. Brain section normal, middle ears normal, cord normal. Smears from the exudate showed pneumococci in considerable numbers.

The other cases of meningitis showed similar symptoms; one other illustration will suffice:

R. A., 35, service of Doctor Mason, entered April 15, six days after a chill, with pneumonia. Crisis on the twelfth day of pneumonia; two days later temperature began to rise again. Three days later much worse, sudden violent delirium; seemed to be in pain. Neck rigid, head not retracted. After two and a half hours, patient quieted. Following day, Cheyne-Stokes respiration, dilatation of pupils, knee jerks present but slight. Death. Autopsy showed organizing lobar pneumonia. Brain: Dura not adherent. Pia opaque. Between it and the brain, green yellow material, thick, viscid, veins much congested. Cerebellum covered with exudate. Ventricles contained slightly opaque fluid in excess in quantity. Middle ears normal.

EMBOLUS.

N. D., Italian, 30, single, service of Doctor Morse. Sick June 1, chill, consolidation of middle lobe. Crisis on the tenth day. Temperature normal three days, but began to complain of pain in legs, especially the right, which is cold from right knee downward. On the anterior and outer aspects of the leg, a diffuse purple area. Left leg cold from just below the knee. No pulse in the posterior tibial or dorsalis pedis in either leg, nor in the right popliteal artery. Strong pulse in both femorals. No phlebitis. Slow gain in both legs followed until June 17, when the patient fell out of bed at 3 a. m. Unconscious, Cheyne-Stokes respiration, general muscular rigidity, jaws closely set, arms straight, and rotated inwards with frequent twitching. When the legs were raised patient breathed more noisily as if in more pain. Well defined ankle clonus. Pneumonia wholly resolved. Patient died fourteen hours after the cerebral attack, which, in view of the preceding peripheral emboli, was evidently itself of embolic origin.

THROMBOSIS.

L. D., about 50, male, service of Doctor Folsom. This patient had an attack of pneumonia November 5, which was still unresolved on December 20 when a brief attack of erysipelas supervened and he left the hospital at his own request February 2. Was readmitted with pneumonia of left side. On March 9 there was delirium; on March 13 he died. The autopsy showed unresolved consolidation, without tuberculosis, both lungs. In the brain the veins of the pia and arachnoid over the posterior half of the left cerebrum were deeply injected and between them abundant profuse hemorrhages into the tissues of the pia. Same injection with hemorrhage was present over the median aspect of the posterior halves of the cerebrum and to a less extent over the posterior third of the right half of the brain. On the left side, a firm grayish yellow thrombus was present in the vein of the fissure Rolando. In some of the other veins posterior to this in the median fissure and to a less extent over the posterior portion of the right half of the cerebrum, similar thrombi.

SOFTENING.

K. W., female, 24, married, service of Doctor Sears. June 1, slight pain for a few days. Yester-

day unconscious, white count 27,000. Five days later neck rigid, dull, stupid, incontinent. Consolidation of lower right back, stupid, and twitching of the hands. June 15, died. Autopsy showed consolidation. Brain: Nothing exteriorly; slight increased cerebrospinal fluid; many areas of softening in the anterior part of the cerebrum confined to the white matter. These areas frequently connected with one another and contained gray yellowish puriform material. Smears show collection of large mononuclear cells, no polynuclears.

Abscess.

M. Y., female, 39, married, service of Dr. Mason. August 24 to September 5, pneumonia followed by empyema, which was opened in December and continued to discharge. February 18, vomiting, lost consciousness, collapse, followed three days later by violent delirium and death. Autopsy showed empyema of the right side, on the left side consolidation with cavity. Brain: Turbid fluid with many leucocytes among the meshes of the pia, at the base, and in the left ventricle. Abscess cavity in the posterior horn at the right ventricle; rough walls, green, foul-smelling material. Abscess cavity continuous with ascending horn which to its end is filled with similar material. Around the abscess and along the course of the ascending horn brain substance for distance of one cm., presents numerous punctate hemorrhages.

Edema.

M. B., aged 11 months, service of Dr. Williams. Two months ago convulsions and bronchitis. Convulsions recurred on day of admission, February 13, and the patient died suddenly, eight days later. Autopsy showed lungs last stages gray hepatization of the left lower lobe. Edema of the brain. Beneath the pia a well marked collection of fluid, the pia being raised above the brain ⅜ of an inch. No tubercle bacilli found anywhere.

In the collection of cases no diagnosis of encephalitis was made, clinically or anatomically, but it is probable that some of the cases of hemiplegia may have been of that nature, as can be conjectured from cases quoted in the earlier part of this paper, and the following one is possibly one of that character.

J. P., Italian, 27, male, service of Dr. Shattuck, December 19, symptoms for four days, pneumonia left lower lobe. White count 26,000. Three days later marked delirium, convulsive attacks. Once jumps up and runs about the ward. Defervescence on the ninth day of the illness. Following day return of fever. Temperature 101 to 101½. Next two days temperature rising. Constant delirium requiring restraint. Fever continues on the fifteenth day, temperature to 104, white count 20,900. January 1, great deal of resistance; difficult to examine reflexes; slight retraction of the neck; spasticity of arms and legs; Kernig apparently present; no Babinski. Lumbar puncture gave one ounce of clear fluid without pneumococci. Patient died without change in his condition and there was no autopsy. The evidence in this case, from the negative content of the spinal fluid, rather favors encephalitis as against meningitis, though the symptoms might suggest the latter. Other cases of hemiplegia also suggest encephalitis, viz.:

E. C., female, service of Dr. Sears. Entrance March 1, without history. Pneumonia of the right back, herpes of lips, no brain symptoms. Following day temperature dropped and was normal for nine days. Then complained of severe right-sided headache somewhat relieved by ice cap. Lungs nearly clear. Following day, headache worse, weakness of left arm. Following day, complete paralysis of left arm, partial of left leg. Stupor, gradually deepening to coma. Occasional convulsion of left side of body with exception of left arm. Rising temperature. Died March 13, no autopsy.

Under the second group of brain symptoms without lesion is a brief case of aphasia:

E. E., Married, 32, female. April 8, temperature 104, consolidation of right lower back, white count 22,500. Articulates rather poorly. April 19, marked aphasia, tongue slightly protruded to the right. Movements of both sides of the face equal. Pupils equal and react. Ocular motions normal. Field of vision normal to rough test. Knee jerks normal. No paralysis. Some words are unintelligible and others are better pronounced on repetition than at first. She can write and read aloud better than she can talk. Next four days power of speech much improved and she was discharged later, well.

A case of facial paralysis of transient character during the convalescence of pneumonia, was apparently of the toxic type and may have been of central origin or due to peripheral neuritis.

The most remarkable case which has come under the observation of the writer, of grave cerebral symptoms occurring consecutively to pneumonia and apparently presaging a fatal result, is the following, which was seen in consultation at the Boston State Insane Hospital:—

The patient, W. M., was an attendant in that institution and a strong and healthy young man of admirable habits. On February 5, 1912, the patient complained to his friends of headache and general pains. On February 7 he went off duty, and went to bed, complaining of headache and general pains in the shoulders, back and legs. Constipated. Temperature 100. On February 10 his temperature was 104 and he complained of a slight pain in his chest. No signs of pneumonia found. He also had a little cough without expectoration. For the next six days his temperature was irregular, between normal and 101. On February 16 he had a perfectly normal temperature and said that he was feeling very much better, so that the physician did not see him at all on the 17th. On the morning of February 18 he complained of headache and appeared rather dull, answering questions mostly with yes or no; still no signs of pneumonia were found. When seen at 3 p. m. he showed partial aphasia and partial paralysis of the muscles of the right side of the face, but he was then able to walk and assisted himself while being moved to another room. At 8 p. m. he had complete aphasia and diminished grip in the right hand, but he could move both the right arm and leg and turn over in bed when asked to do so. He understood all that was said to him and cooperated readily, with

the exception of talking. His temperature at 6 p. m. was 102.4. At 10.30 p. m. he had a severe attack of propulsive vomiting. I was asked to see the patient on February 19, when, after getting the foregoing history, the following condition was observed: The patient was dull, saying nothing. He protrudes tongue when requested. Pupils are equal and responsive. No oculo-motor paralysis. Right side of face does not move; right arm is fully paralyzed except for very slight movement of the fingers; paralysis of the right leg nearly complete. Sensation absent on paralyzed side. Complete aphasia. Knee jerks equal and normal. Is incontinent. Babinski reaction and ankle clonus on right side. Oppenheim and Mendel reaction on right. The heart sounds were clear and there was slight dullness outside the heart apex. No abnormal auscultatory sounds were heard. Respiration was shallow and the patient could not be made to cough or to take a long breath. In view of the septic temperature and the sudden, nearly complete paralysis with the reflex anomalis noted, in a young and previously healthy man, the opinion was expressed that he probably had a septic thrombosis, the infection probably originating in the chest. The blood count which yesterday showed 19,600, was to-day 13,200, with 93 per cent. of polymorphonuclears. Lumbar puncture brought a clear fluid which was later reported sterile. Widal negative. Blood culture was also later reported as negative.

February 20: temperature at 6 a. m. was 102.2 and at 6 p. m. the same. He voided urine and feces in bed, and while he followed the nurses and physician with his eyes, he quite evidently did not know what was going on. However, if asked if his head ached and where it ached, he rubbed his hand over the right side of his head.

Two days later (February 21) I saw him again. The morning temperature was then 104.6. Pulse 92. Respiration 46. The paralysis of the right side was complete; pain sense absent. No paralysis on the left side. He swallows, but with difficulty, and the attempt causes coughing and choking. Says nothing and apparently does not recognize his sister who has arrived from a distance. In the left back where the dulness was found two days ago there are fine râles over limited areas warranting the diagnosis of bronchopneumonia. The prognosis, in view of the worse cerebral condition, was considered highly unfavorable. The event, however, contradicted this prognosis, for, after five days of desperate illness, the temperature fell and improvement began. For the remaining, as well as for the earlier, history I am indebted to the careful record of Dr. E. C. Noble who was in charge of the case.

For the next three or four days the temperature remained elevated but in two days he swallowed a little better. On the morning of February 26 the temperature dropped to 99. He still was incontinent and very restless; aphasia and paralysis complete. Two days later he appeared to recognize the physician and his friends and very slightly moved the fingers of the right hand. No other movement of the paralyzed side. Babinski and clonus present on right side. Knee jerks equal.

March 1, a. m., he slightly moved the right arm but not the foot; in p. m. he could flex the arm and move the foot a little.

March 3, he spoke for the first time, at seven o'clock. This was only a muffled sound in reply to someone saying good morning. He said nothing more until 10 p. m., when he distinctly asked "What time is it?" Temperature normal; incontinent of urine still.

March 4, no longer incontinent. Speech thick, no attempt made to make him talk, but he says a few words with effort and seems pleased at doing so.

March 10, speech has returned, also motions of right side. A slight Babinski and very slight ankle clonus remain.

March 20, steady improvement during the last ten days. Temperature normal; eating well; moves unaided from bed to chair. Is dressed for first time.

April 1, walking outdoors for last seven days and starts for Vermont. No paralysis, aphasia, Babinski nor clonus. Patellar reflexes equal and normal.

In marked contrast with the outcome of this case is one which the writer saw many years ago in a man of about thirty-five years of age, strong, of good habits, who had a grippe followed by pneumonia, in the course of which occurred a hemiplegia less severe in clinical character than the one last recorded and which resulted fatally.

It is important to recognize, clinically, then, that in a few cases cerebral symptoms may complicate pneumonia which may be, on the one hand, either those of grave organic lesion, of which the commonest is meningitis, or, on the other hand, of apparently toxic origin with little or no destruction of brain tissue. The enormous importance from the point of prognosis of this distinction is evident, but difficulty in diagnosis is sometimes insuperable. Lumbar puncture is of importance in excluding meningitis, though it is not an unfailing criterion. Examination of the fundus may be useful. Cases of encephalitis are not always to be distinguished from the functional cases, and it is possible that many cases of hemorrhagic encephalitis may recover. The prognosis, if one be assured of the inorganic toxic character of the disease, would be on the whole favorable, though it is not as roseate as is indicated by some of the authorities which I have quoted. The occurrence of the symptoms in a young healthy person is more suggestive of a toxic functional character than would be the case in aged people. The toxemia is productive of diverse symptoms according as its incidence is upon the central or the peripheral nervous system.

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DO RESULTS JUSTIFY THE USE OF PHYLACOGENS? A REPORT OF FORTY CASES.*

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Phylacogens, of which we have heard much lately, owe their existence to Dr. A. F. Schafer, a California physician, who based this new therapy on three assumptions:—

1. That many diseases are caused by the metabolic products of bacteria.
2. That the human body is the host of varying organisms, which, while normally dormant, are capable of sudden activity. And,
3. That the growth of these organisms and their pathological effects may be neutralized by products derived from their growth on artificial culture media.

Schafer believed, further, that no infection was due to a single variety of bacteria, but rather to several varieties acting concertedly. To this fact he attributed failures in the use of vaccines, for the vaccine ordinarily consists of a suspension of a single organism. To prepare his Phylacogen, Schafer planted, on artificial media, a large variety of pathogenic bacteria. These were incubated for about seventy-two hours, killed by phenol, suspended and filtered through porcelain. This filtrate formed his "Mixed Infection Phylacogen," and was essentially the filtrate of a mixed vaccine. Schafer made this the basic material,—the vehicle,—for all his other preparations for specific diseases. To it, for example, he added the gonococcus filtrate for gonorrheal infections, the pneumococcus filtrate for pneumonia and so on.

It seems desirable to throw light on the Phylacogen question at the present time because of the dispute that has arisen between the sponsors for these preparations and the officers of the American Medical Association. On one side are allegations of remarkable cures in a large percentage of varying infections; on the other, statements that the products are ill-conceived and worthless and that a physician who uses them is very reprehensible.

Let me quote from an editorial in the journal of the Association[1]: "The physician is asked practically to disregard the little knowledge he already has of the mechanism of infection and inject into his patients a mixture of toxic bacterial derivatives, called Phylacogens, and see what will happen. Something usually does happen, and the patient has good reason to remember the experience of the chill and violent constitutional symptoms that follow the injection. It hardly seems possible that physicians of experience ever would countenance the injection of such toxic substances into patients already overwhelmed with the poisons of infection, such as that by the streptococcus in erysipelas or the pneumococcus in pneumonia."

And again,[2] "Rheumatism Phylacogen is one of the series of proprietaries now being put on the market, based on a theory of the originator that it is possible and necessary in every infection, not only to combat the action of the principal causative agent, but also to counteract the influence of other organisms, supposed to be always present, which produce a mixed infection. For meeting this supposed mixed infection a mixture of the metabolic products of a large number of organisms is made the base of the remedy to be administered. . . We have no definite information as to the particular organism whose metabolic products enter into this 'shotgun' base, so that the remedy is essentially a secret one. . . The honest physician,—one who is honest with himself and with his patients,—will not lend himself to such experimentation."

Broadly speaking, this condemnation is two-headed: first, it avers that the filtrate is toxic and second, that its formula is secret and that Phylacogen users are therefore reverting to empirical methods. The first charge is true, just as it would be true of tuberculin, or of the vaccines or bacterins. I cannot but feel that most of the invective is due to the fact that a secret preparation is being widely exploited for the money to be derived from its sale.

If this be true, some may think it fair, before declaring the Phylacogens guilty, to let them prove, if they can, their innocence; to inquire whether benefits may be derived from their use which may not otherwise be obtained; to ascertain whether these benefits, if there be such, outweigh the toxic effects; to determine whether we should overlook, even, the secret formula. If the Phylacogens fulfil the claims of the manufacturers, one may question the statement that no honest physician will use them.

To this end I have collected forty Phylacogen cases. These are not selected cases but, in order to avoid a tendency to report only favorable results, they comprise all available cases. I have tried especially to guard against the over-enthusiasm that nourishes many new methods of treatment when first they attract medical attention. I admit, furthermore, that the number of cases is too small to establish conclusively the efficacy or inadequacy of the Phylacogens. They are straws, rather, to show which way the wind blows.

The compilation has been made possible only through the courtesy of several members* of this society, each of whom has contributed one or more cases to add to my own. It seems logical to divide the forty cases into six groups, as follows:

Group 1. Infectious arthritis, including "rheumatic fever" and chronic types of inflammatory joint disease. The chronic cases probably vary in etiology and in pathology, because of the

* Read at the annual meeting of the New Hampshire Medical Society, Concord, N. H., May 14, 1913.

* Drs. Bastian, Beauclerk, Bugbee, Bullock-Mahan, Butterworth, Grafton, Graves and Sanders.

lack of agreement among physicians in classifying these lesions. There are thirteen cases in this group.

Group 2. Gonorrheal arthritis. Seven cases.

Group 3. Asthma and bronchitis. Eleven cases.

Group 4. Pleurisy. Two cases.

Group 5. Pneumonia. Five cases.

Group 6. Miscellaneous. Two cases.

A summary of the series is of interest:—

GROUP ONE. INFECTIOUS ARTHRITIS.

CASE 1. An acute case in a man of 73, following tonsillitis. Both wrists and both knees had been involved for two weeks and the patient had also a hypertrophied, dilated heart which was acting badly. He received eight doses of Mixed Infection Phylacogen during nine days. He had not been benefited by the usual anti-rheumatic drugs but after the administration of the Phylacogens showed rapid improvement in his joints and in his general condition and is now well. The man was also given digipuratum hypodermically.

CASE 2. A child of 8, afflicted for two years, and having an acute exacerbation in both hips and one knee, received eight doses of thirty minims each during ten days. His pain was relieved after two doses, although it now recurs slightly in stormy weather. The boy, treated over three months ago, says that he can now run for the first time in two years.

CASE 3. A girl of 22, who had had several attacks of acute infectious arthritis in the past ten years, and had a greatly dilated heart. An acute exacerbation in both wrists began January 1. On salts of salicylic acid for four weeks with only slight improvement. Six doses of Rheumatism Phylacogen were given during the first eight days of February. The joints cleared up quickly but the heart did not improve nor did the temperature fall. She died in April without recurrence of joint symptoms. The doses of Phylacogen were large and noticeably disturbed the heart action and prostrated the patient despite the fact that digitalis was given coincidently.

CASE 4. A woman of 46, who has had two previous attacks of infectious arthritis. The present attack, generalized and acute, has lasted 11 days. She received nine doses of Rheumatism Phylacogen in 17 days, without any improvement. It is fair to say, however, that the average dose was less than 25 minims. The dosage was not increased because the patient was weak and anemic and reacted smartly to even this small dose.

CASE 5. A boy of 20 had, one year ago, acute infectious polyarthritis, which kept him in bed one month. Four months ago he began to have pain in his shoulders and wrists and when first seen he had an acute infection of one metacarpo-phalangeal joint. He received ten injections of Rheumatic Phylacogen, of from 3 to 5 c.c. each, on ten successive days. After three injections all his symptoms disappeared; they have not reappeared in the four weeks that have since elapsed.

CASE 6. A woman of 40 had had for 15 months pain and tenderness in her right foot, aggravated by walking. She had been treated for flat-foot without much benefit; at the time of my first examination there was definite heat and tenderness over the mid-tarsal joint of the right foot. She was given, on fourteen successive days, eight small doses of Rheumatism Phylacogen followed by six large doses of 10 c.c. each. The small doses seemed ineffective but after the second of the large doses the pain began to subside and now, four weeks after treatment, the patient has no discomfort for the first time in a year. She remained in bed for the last week of treatment because, in this particular case, the toxic reaction was very exhausting.

CASE 7. A man of 34 who for one week had had acute polyarticular arthritis and dry pleurisy, following tonsillitis, was given 3 c.c. Rheumatic Phylacogen. Immediately pain and swelling decreased. Two days later 5 c.c. caused a very marked local and constitutional reaction. There was marked edema of the scalp, edematous areas on various parts of the trunk and extremities, adenitis of the parotid and submaxillary glands. His condition became temporarily grave, but improved in a few days. Seven and ten days later, respectively, two further injections of Phylacogen were made without untoward incident. Joint symptoms disappeared after the second injection, reappeared a week later and left again after the fourth injection. The heart and kidneys were not especially disturbed by the toxemia.

CASE 8. A woman of 35, with generalized arthritis that had persisted four months in spite of the use of salicylates, local applications, etc. She was given twelve doses of Rheumatic Phylacogen, of 10 c.c. each, during 21 days. Her doctor reports that there was little or no relief for eight or nine days but that thereafter "the Phylacogen accomplished what nothing else had done." Save for slight stiffness she has now been well for eight weeks.

CASE 9. A woman of 42 had suffered for 20 years from chronic, generalized arthritis. She was treated with 20 c.c. of Gonorrheal Phylacogen and 75 c.c. Rheumatic Phylacogen. The first injection was 5 c.c., subsequent daily injections 10 c.c. To each she reacted markedly. Before treatment the patient had been confined to the house for a year. She can now walk a mile with little pain although her joints are quite stiff. Ten days after beginning treatment she removed a ring which, because of an enlarged phalangeal joint, she had been unable to take off during the previous year.

CASE 10. A woman of 57, with generalized chronic arthritis for ten years, complicated by chronic asthma, received five doses of Mixed Infection Phylacogen, followed by 16 doses of Rheumatic Phylacogen during thirty days. The former was not followed by improvement. During the administration of the latter the swelling nearly disappeared and the pain decreased. The patient can now flex her wrists for the first time in six years. Her physi-

cian states: "When we consider the aggravated character of the case, the results already obtained are no less than wonderful."

Case 11. A woman of 30 who had had one previous attack of arthritis. The present attack was generalized, chronic and of four years' duration. Suffering was at times severe. When first seen, the patient's jaws could be opened only about one-fourth inch. Wrists, fingers and knees were badly swollen. She could not get her hand to the back of her head nor get down on hands and knees. She had lost much weight and was nearly helpless. Salicylates, colchicum and potassium iodide seemed to relieve but did not stop the progress of the disease. The woman was given 10 c.c. of Rheumatic Phylacogen daily for eleven days. After four doses she could comb her hair; after seven she could get down on her hands and knees; after eleven she could open her mouth one inch. She was prostrated after each injection but two weeks after the final one she was able to do her own work. She is now gaining in strength and weight, and motion in the affected joints is increasing.

Case 12. A man of 45, with chronic generalized arthritis of two years' duration, was given eleven doses of Rheumatic Phylacogen during twelve days. After seven doses the pain and swelling began to disappear. The man is now practically well, and has had no recurrence, although seven months have elapsed.

Case 13. A women of 45, with stiffness and soreness in back and shoulders. Limitation of motion in lumbar spine. At her own request she was given five doses of Rheumatic Phylacogen during nine days. There was no improvement. The doses were 2 c.c. each and to these she did not react. The diagnosis was toxemic arthritis following intestinal stasis.

We may say, roughly, that six patients recovered completely from joint symptoms, four were much relieved, one was relieved and two were not relieved.

The two that were not relieved, please note, received small doses, 25 minims in one instance, 2 c.c. in the other. The manufacturers advocate a dosage of from 5 to 10 c.c. If we include these two cases, we find that, after the administration of Phylacogen, there has been benefit in 84% of our patients; if we exclude them we have: Cured, 55%; much relieved, 35%; relieved, 10%.

Note further that at least four cases failed to respond to salicylates and other drugs often given in arthritis; that there has been quite as much improvement in long-standing cases as in those of recent inception; that at least seven months may elapse without recurrence (Case 12); that Rheumatic Phylacogen sometimes acts more favorably than Mixed Infection Phylacogen (Case 10); that the Rheumatic Phylacogen may not relieve an accompanying endocarditis (Case 3), but that once (Case 1) not only an endocarditis but also the involved joints were relieved subsequent to the use of Mixed Infection Phylacogen. Case 6 illustrates the fact that small doses are often ineffectual at the beginning of treatment. Case 7 illustrates an extreme reaction.

Group Two. Gonorrheal Arthritis.

Case 1. A man of 40 with an acute infection of the knee, existing for ten days, received five doses of Gonorrhea Phylacogen, 3 c.c. each, during eighteen days. Additional treatment consisted of immobilization and hot applications. The patient had a marked general reaction after each dose as well as local reactions at the site of injection and in the knee-joint. Three weeks after the initial dose the knee was nearly normal in size and practically free from pain and swelling. It was several weeks longer, however, before the patient could walk without the aid of a cane, because of stiffness. Aspiration of the knee-joint procured sterile pus. There was no urethritis while the patient was under observation.

Case 2. A man of 28 for ten days had had an acute arthritis of the right knee, following gonorrhea. He was given 15 c.c. of Gonorrhea Phylacogen in three equal doses, at three day intervals. Rest and antipyretics were employed. Nine days after the initial injection the knee was free from pain, tenderness and fluid. An urethral discharge appeared after the first injection but quickly subsided.

Case 3. A man of 24, with subacute, polyarticular arthritis, probably gonorrheal, which had persisted for two months. During these two months he had been given aspirin, potassium iodide, urotropin and other drugs by mouth; five subcutaneous injections of gonococcus vaccine had been made. There had been no response. He was then given thirteen doses of Gonorrhea Phylacogen in sixteen days. Pain was relieved and the joints became less swollen. His physician feels that the Phylacogen helped him but did not cure him. The first two doses were 5 c.c. each, the remainder 10 c.c.

Case 4. A man of 33, with gonorrheal arthritis of eight months' duration, his fourth attack in four years. Gonorrhea Phylacogen was administered as follows: 3 c.c. daily for three doses, 5 c.c. every second day for six doses, and 10 c.c. every third day for two doses,—nearly 60 c.c. in all. Before treatment he hobbled with the aid of two canes and could attend to business only three hours a day. His joints are now smaller, he walks without a cane and works ten hours a day. He still has some pain in his toes but little or none elsewhere. He had failed to be helped with salicylates and other anti-rheumatic expedients.

Case 5. A man of 44 had had for four years a chronic generalized arthritis, probably gonorrheal. He received 30 c.c. Gonorrheal Phylacogen and 20 c.c. Rheumatic Phylacogen in doses of from 5 to 10 c.c. each, during a period of three weeks. There followed definite improvement in joint motion and alleviation of pain but the patient reacted so severely to the treatment that he refused to continue it. He is now relieved but his former symptoms have returned in part. Previous to the use of Phylacogens,

resort had been made without material benefit to gonorrheal vaccine, fibrolysin, a polyvalent vaccine and to hydrotherapy.

CASE 6. A man of 25 with polyarticular, subacute arthritis. He had had gonorrhea two years before and at the beginning of treatment had a double seminal vesiculitis. The patient received twenty injections of Gonorrhea Phylacogen, of 10 c.c. each, during forty days. He improved slowly and now, five months after treatment, is practically well. The benefit was not striking, however, and the patient thinks his greatest relief followed stripping the vesicles, to which procedure resort was made at the conclusion of the Phylacogen injections.

CASE 7. A woman of 65, with polyarticular, chronic arthritis of seventeen years' duration. Many joints were ankylosed. She was given fifteen doses of Gonorrhea Phylacogen, but while her general health improved, there was no change in the joints.

In this group we have: Two patients much relieved, three relieved; and two not relieved.

One of the unrelieved suffered from ankylosis rather than arthralgia. The results in Group 2 are not so striking, however, as those in Group 1 and I am not sure that the Gonorrheal Phylacogen is more specific than a gonorrheal vaccine or than an antigonococcus serum. If the Gonorrheal Phylacogen has virtue it manifested this quality most obviously in Cases 2 and 4.

GROUP THREE. ASTHMA AND BRONCHITIS.

CASE 1. Bronchial asthma in a man of seventy, which had made him a chronic invalid for five years. He was given twelve maximum doses of Mixed Infection Phylacogen during thirteen days, with great relief after two doses. This was two months ago and recently the asthma has returned, although it incapacitates him less than it did before his treatment.

CASE 2. A man of 62, who had had a more or less persistent bronchial asthma for forty years, has been under treatment three months. He has had nine bottles of Mixed Infection Phylacogen,—at first in large doses daily or every second day, more recently 2 c.c. each week. The patient was much relieved after a few doses, but still has moderate symptoms, which are aggravated periodically by alcoholic excess.

CASE 3. A woman of 69, who has had chronic bronchitis and asthma for nearly forty years and now has, also, a worn-out heart. She was given 80 c.c. of Mixed Infection Phylacogen during three weeks, in doses of from 5 to 10 c.c., along with digitalis and nitroglycerin. Five months have elapsed since the administration and today she can walk better and farther than she has been able to for thirty years past. She still has a slight cough and wheezes in damp weather.

CASE 4. A woman of 36, who for the past ten years has had an acute asthmatic attack about once a month, has been given 110 c.c. of Mixed Infection Phylacogen during three months. The injections were made daily for a week, then every second day for a week, then every third day for two weeks. At present her physician is administering 3 c.c. once in three weeks. The patient can now walk to and from her work. She wheezes and coughs at times but has had no acute attack in three months.

CASE 5. A woman of 27 for the past four years has had, annually, four or five attacks of acute bronchitis with asthma. During the latest attack she was given 70 c.c. of Mixed Infection Phylacogen,—at first in doses of from 5 to 10 c.c. daily, later in doses of 3 c.c. weekly. After two weeks the symptoms disappeared and there has since been no cough, wheezing or dyspnea.

CASE 6. A woman of 46 for the past ten years has been obliged to give up her work for a few days every five or six weeks on account of severe attacks of bronchial asthma. In February 50 c.c. of Mixed Infection Phylacogen were given in doses varying from 2 to 8 c.c. She now has no cough, has had no acute attack in three months and has been able to work steadily.

CASE 7. A man of 41 has had chronic bronchial asthma for the past three years. He received maximum doses of Mixed Infection Phylacogen daily for one week, then smaller doses every second day until he had taken 70 c.c. in all. For two weeks after the first injection the patient had complete relief, only to relapse after a debauch. At present he is rather better than formerly, although he still has some asthma. He lost fifteen pounds in weight during the administration of the Phylacogen.

CASE 8. A man of 60, with bronchial asthma of many years' standing, received eight doses Mixed Infection Phylacogen, of 10 c.c. each, on eight successive days. There was apparently no change whatsoever in his asthma. He reacted at the site of injection but had no systemic reaction.

CASE 9. A woman of 26 had had for three months a persistent bronchitis and dry pleurisy, following influenza. She was given two doses of Mixed Infection Phylacogen, 2 c.c. each, two days apart. In two weeks she was attending to her regular duties, free from symptoms. She took no drugs except cough sedatives.

CASE 10. A woman of 42, with acute bronchitis of four days' duration, received on successive days three doses, 3 c.c. each, of Mixed Infection Phylacogen. The woman was well in two weeks and her physician states that this attack cleared up more quickly by two or three weeks than had previous attacks. Heroin was administered coincidently.

CASE 11. A man of 41, who in the past four months has had three attacks of bronchitis. The third attack, had persisted for five weeks when the injection of Mixed Infection Phylacogen was begun. The patient received 5 c.c. every third day for two weeks, then 3 c.c. every fifth day for three weeks. After five weeks the cough and wheezing were no longer in evidence. This man had a chronic conjunctivitis which became acute after the third injection.

So far as bronchial asthma is concerned, Mixed Infection Phylacogen would seem to have some effect whether the disease be acute or chronic. Of the eight patients we may say conservatively, that three were much relieved and four relieved. Considering the obstinacy of asthma in this climate, this showing is very fair. Alcoholic excess seems definitely to militate against continued improvement, and there is certain evidence in favor of following treatment over a considerable time with gradually decreasing dosage.

Group Four. Pleurisy.

Case 1. A woman of 67, who for four months had suffered with dry pleurisy. She had been treated by five different physicians without great benefit. After the initial injection of 3 c.c., Mixed Infection Phylacogen, there was cessation of cough and pain. These symptoms returned on the third day but were relieved by a second dose. The patient has now been well for three months. No drug was given except heroin.

Case 2. A little girl of three had severe dry pleurisy following measles. When it had persisted for three weeks, she was given 1 c.c. Mixed Infection Phylacogen, followed by three doses of 2 c.c. each on every third day thereafter. Both the systemic and local reactions were marked. All symptoms disappeared after the third dose and have not returned. No drug except strychnia was given.

Group Five. Pneumonia.

Case 1. A man of 35 with pneumonia of the lower left lobe existing for four days. He received one injection of Pneumonia Phylacogen, 1 c.c. in amount. His crisis followed in about six hours and he made an uneventful recovery.

Case 2. A man of 60 for two days had had involvement of the right lowest lobe. He was given Pneumonia Phylacogen every eight hours until six doses had been given. The initial dose was 1 c.c. Each dose thereafter exceeded the preceding dose by 1 c.c. After the first dose his temperature jumped from 101° to 105°, but thereafter the constitutional reaction was slight. The patient was a long sufferer from cardiac asthma and according to his physician had every reason to die. Nevertheless, he made a good recovery.

Case 3. A man of 25 with a pneumonic focus in each lung of two days' duration. He was given seven doses of Pneumonia Phylacogen, averaging 2 c.c. each, during ninety-six hours. Administration was discontinued for five days and he then received 1 c.c. every eight hours for six days. There followed a gradual drop in temperature but no crisis. The pneumonia began, however, during an attack of acute glomerular nephritis and this kidney lesion doubtless modified his chart. The nephritis abated steadily during the administration of the Phylacogen and the patient is now well.

Case 4. A woman of 24, with right lobar pneumonia of three days' duration, was given 3 c.c., and on the following day 5 c.c., Pneumonia Phylacogen. On the fourth day of the disease the patient's temperature was 104.5°; on the morning of the fifth day 100° on the afternoon of the fifth day 99.8°, and on the sixth day normal. Antipyretics and heroin were administered coincidently.

Case 5. A woman of 49, with lobar pneumonia of two days' duration. On the second day she received 2 c.c. Pneumonia Phylacogen and on each of the two succeeding days 5 c.c. Her temperature dropped two hours after the first injection and on the sixth day was normal. Convalescence was uneventful.

Personally, I think Pneumonia Phylacogen deserves further trial in pneumonia. Whether, in the long run, it will prove more or less effective than a pneumococcus vaccine remains to be seen. Possibly it derives all its virtue from the inclusion of the pneumococcus in the mixture. It is important to note (Case 3) that the Phylacogen had no untoward effect on a complicating nephritis.

Group Six. Miscellaneous.

Case 1. Streptococcus septicemia, accompanying an infection of the hand, in a man of 60. The infection had existed six days. He was given six doses of Mixed Infection Phylacogen during the succeeding five days. The hand was incised and drained. His physician reports that there was a "definite improvement in the patient's condition" and that he is now well.

Case 2. Gonorrheal vaginitis in a child of 5. She received eleven doses of Gonorrheal Phylacogen during ten weeks. Douches and argyrol injections were also employed. After two or three consecutive injections the leucorrhea invariably stopped, only to recur in two or three weeks. The pus was negative for the gonococcus after the last dose of Phylacogen but a mixed infection persisted.

These two cases speak for themselves. The first proves nothing. For the second one, please observe that the result was no more favorable than may be obtained with an autogenous gonococcus vaccine.

Scrutiny of these forty cases leads to certain conclusions, which are, I think, just and well grounded:—

1. The manufacturers of Phylacogens may be blamed for maintaining absolute secrecy concerning the ingredients of the mixtures. The manufacturers have in my experience tended to publish only their successful results. The price of Phylacogens prohibit their use extensively among poor people.

2. In certain diseases we may obtain through these preparations more relief than has hitherto been obtainable by other means. These benefits more than make up for the unpleasant reactions

that follow administration, although these reactions may be severe.

3. With adequate doses we can relieve or cure a large percentage of cases of infectious arthritis, both in its acute and its chronic phases. While it is true that a vaccine made from the causative organism might work equally well, it is also true that our present knowledge rarely permits the isolation of this organism; indeed, the original focus of infection is often doubtful.

4. Gonorrheal Phylacogen is not so effective as Rheumatic Phylacogen,—perhaps no better than its humble but honest brother, the vaccine.

5. Mixed Infection Phylacogen may be employed in any case of bronchial asthma that is not readily relieved by other and simpler methods.

6. In bronchitis and pleurisy the value of this basic Phylacogen is possible, but not certain.

7. In pneumonia the use of Pneumonia Phylacogen will probably lower the death-rate. It may be given with relative safety even to patients moderately deep in the toxemia of the disease, but it should be given in small doses, averaging, at the start, 1 or 2 c.c. subcutaneously.

8. In cases where the patient has had several successive attacks of a given infection, the outlook, with this treatment, is quite as good as in cases where the attack is the initial one.

9. Further involvement after beginning treatment is rare. It occurred in only two cases out of forty: one a gonorrheal arthritis, one an infectious arthritis.

10. For two or three days the local reaction at the site of injection may be very annoying and painful. Frequent applications of white wash relieve to a certain extent.

11. Each injection must be made in a new spot, preferably in the abdominal wall or beneath the scapula. Ordinarily injections are made subcutaneously; intravenous injections, while sometimes more effective, require greater skill. The site of injection may be frozen with ethyl chloride or anesthetized with cocaine, but this is not necessary if a fine needle is used.

12. Injections may usually be given in a physician's office, if the patient is instructed to go home directly and to keep quiet. In only a small percentage of cases is rest in bed necessary.

13. Uniform results can be obtained only after considerable experience. In a limited proportion of cases the proper administration of Phylacogens requires that one have special knowledge derived from fairly extensive work in this field. It is a question whether the promiscuous use of Phylacogens may not have undesirable results.

14. The age of a patient may apparently be disregarded; but a bad heart demands that one use extreme caution. Nephritis, in all probability, does not contraindicate this treatment.

15. In about three-fourths of the cases there will be a more or less marked constitutional reaction. It is not uncommon for an individual to react smartly to the first dose or two, but only slightly or not at all thereafter. A marked reaction may be very severe; at such a time a patient of mine looked not unlike one who has renal colic. He described his symptoms thus: "Injection at 3.30 p. m. Soreness in region of injection appeared at 6 p. m. At 6.40 dizziness commenced. About ten minutes later felt chills through the body, which caused shivering and increased pulse. Was very hot and faint. This continued until 8.10. Had to be helped upstairs to bed on account of intense local soreness. Could not undress alone. Slight nausea and headache continued through most of the night. Arose at 9 a. m. with headache gone and temperature apparently normal. General improvement in joints, arms and back plainly noticeable."

16. A physician who wishes his patient to have a peaceful night should administer Phylacogens in the forenoon.

17. Small doses at the beginning of treatment are not always effective; but once a disease is under control, it may be advisable to continue treatment for a time with an occasional small dose. The amount and frequency of the injections must depend on the amount of reaction, the change in symptoms and the degree of prostration. A dose which causes no reaction may not be effective.

18. Many of the cited cases are so recent that no worthy predictions can be made concerning possible or probable recurrence.

In a recent paper Stone[3] remarked: "I am aware that many physicians may be able to testify from their experiences that good results have been obtained from the use of these preparations (Phylacogens). So are we familiar with many vaunted but now forgotten cures. The fact remains that such improvement as seemed to follow in certain instances has probably resulted in spite of the treatment, not because of it."

This may be true and the observation of clinical results is notoriously inaccurate. Yet from our findings in a small series of cases I am tempted to ask critics to suspend judgment for a time,—to use the same discretion in condemning a new therapy that they would unquestionably use in accepting it.

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Clinical Department.

BULBAR PARALYSIS IN TYPHOID FEVER.

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On Sept. 22, 1910, a patient was admitted to the wards of the East Medical Service in the Massachusetts General Hospital, with the following history:—

Case 172,090.[1] 40, male, white, married. Born in Italy. Fifteen years in Massachusetts. Stationary engineer.

Family History. Negative for tuberculosis or cancer. Patient has been twice married. He has two healthy children. His wife has had no miscarriages.

Previous History. The patient does not remember having been sick in bed. Three months ago he began to feel weak and to have occasional headaches. Since then he has lost considerable weight. Two months ago he noticed a temporary difficulty in swallowing, and a thickness in speech which passed away quickly. There is no history of venereal disease. The patient has had no fits nor paralysis.

Habits. His appetite and digestion are usually good. His bowels move regularly. There is no history of nocturia, dyspnea nor cough. He drinks and smokes moderately.

Present Illness. Five days ago the patient was suddenly seized with a severe right frontal headache. There was no vomiting nor chill. Two days later he noticed a sudden difficulty in swallowing, accompanied by marked thickness of speech, and weakness of both arms and legs. These symptoms have increased steadily. This morning his neck feels stiff.

Physical Examination. The patient is well developed and powerfully built. The skin is clean, moist, and warm. The mucous membranes are of good color. There is no tenderness over the ears, the mastoid processes nor the frontal sinuses. The tongue has a heavy white coat. The teeth are good, but poorly cared for. The throat is uniformly reddened. The tonsils are not hypertrophied and do not show an exudate. There is no general superficial glandular enlargement.

The cardiac impulse is diffuse. The left border of relative dullness on percussion is 9.5 cm. from the mid-sternal line in the fifth interspace. No right-sided enlargement is made out. The upper border of relative dulness is in the third interspace. The action is regular and rather rapid. The heart sounds are of good quality. A faint systolic murmur is heard over the precordia, not transmitted to the axilla or back. At the base, the aortic second sound is slightly louder then the pulmonic.

The pulses are equal, regular, of good volume, and synchronous at the wrist. All beats are transmitted. The systolic blood pressure is 150 mm. The peripheral vessels are not thickened nor tortuous.

The chest wall expands well and equally. The percussion note over both lungs is resonant. The breath and voice sounds are normal. No râles are heard.

The abdomen is level, soft, tympanitic throughout. No masses or areas of tenderness are made out. The liver dullness extends from the fifth rib to the costal margin, the edge is not felt. The spleen is not enlarged to percussion, the edge is not felt. The kidneys are not felt. There is no costo-vertebral tenderness.

Examination of the nervous system shows no loss of sensation. The patient is conscious and not in acute pain. There is no stiffness of the neck. Fundus examination is negative. The movements of both legs are weak. The superficial reflexes are present. There is no Kernig's sign nor ankle clonus. On the left Babinski's phenomenon is suggested. There is evidence of partial or complete paralysis of the muscles supplied by the third, sixth, seventh and twelfth cranial nerves, more marked on the right side.

The blood examination shows 95% of hemoglobin; 9000 white cells, of which 58% are neutrophilic, and 42% basophilic. The red cells are normal.

The urine passed during the twenty-four hours following admission has a specific gravity of 1015. There is a slight trace of albumin, no sugar. The sediment contains hyaline and granular casts.

The temperature is 101° F., the pulse-rate 100, and respiration 25 to the minute.

Subsequent Notes. On the day following admission, the patient developed marked dyspnea with breathing of the intercostal type, suggesting partial paralysis of the diaphragm.

Two days after entry the patient was unable to swallow and bilateral deltoid paralysis was noted. The legs were nearly immovable. No leg reflexes were obtained.

The patient died early the next morning, respiration stopping before the heart beat. He was conscious until death.

While under observation the temperature varied between 101-103-5° F. The pulse between 100-110, and respiration between 25-40.

The urine was small in amount but was passed without difficulty. The bowels moved only as the result of an enema. No blood cultures or agglutination tests were made.

SUMMARY.

A well developed man, previously in good health, was seized suddenly with fever accompanied by difficulty in swallowing and weakness of the legs. He died eight days after the onset of his illness with symptoms suggesting bulbar paralysis and an increasing paralysis of areas supplied by spinal, as well as cranial nerves. The course of the paralysis was not typically ascending or descending, but diffuse, suggesting a rapid involvement of one nerve area after another.

An autopsy[2] was made 56¾ hours after death. The following noteworthy features are recorded.

The meninges, vessels of the circle of Willis, the sinuses and middle ears on section are not remarkable. The brain weighs 1385 gms. Section of tissue from the hemispheres and brain stem shows nothing to record. The upper end of the cervical portion of the cord is not remarkable.

The small intestines to the region of the ileum are negative. The mucosa in this area shows scattered smaller and larger grayish elevated plaque-like masses of roughly round to oval shape and rather firm. Some of these have a flat button-like appearance. There is hyperplasia of the mesenteric lymph glands and of the spleen. Cultures from the spleen show many colonies of Gram decolorizing non-gas producing motile bacilli morphologically like typhoid, and giving a positive agglutination reaction against an anti-typhoid serum diluted 1-100.

The anatomical diagnosis of typhoid fever, therefore, was made, the clinical picture being that of an acute bulbar paralysis.

Various standard text-books[3], [4], [5], [6], [7] of medicine, pathology and neurology mention that bulbar paralysis is among the rare complications of typhoid fever. The following cases have been reported.

Fritz[8] writes that on the tenth or twelfth day of a typhoid fever, a female patient was suddenly seized with an incomplete paraplegia. The paralysis extended upwards, first affecting the arms and then respiration, "so that a grave danger threatened the patient's life." After bleeding, however, gradual recovery took place although complete motility was never regained.

Curschmann[9] describes in detail the following case:—

A male patient 31 years old with unimportant family and previous histories was admitted to the hospital. Six days before entry he had a violent chill followed by weakness and pain in the legs.

General physical examination was negative except for an enlarged spleen. The patient could not move legs, forearms, hands nor fingers, but could move slightly both shoulders. The skin reflexes were diminished. The knee and ankle jerks were absent. On the following morning he was unable to extend his tongue. The left facial nerve area was partially paralyzed. In the evening he died.

The autopsy findings showed an enlarged spleen and a small intestine characteristic of typhoid. The gross appearances of the brain were not especially abnormal. Cultures from the spleen, the cervical cord and medulla showed colonies of typhoid bacilli. Microscopic examination of the brain and cord showed many typhoid organisms either isolated or in groups with but slight tissue changes. Curschmann considered that the symptoms were due to a disturbance in brain function caused by the bacillary invasion.

Eisenlohr[10] reports three interesting cases of typhoid with symptoms of bulbar paralysis. All the patients were young and severe cases. Two lived, one died on the seventeenth day of the disease. All showed involvement of the bulbar nerves, and marked motor weakness of the entire body musculature. Other nerves were affected variously. Two cases recovered entirely. In the fatal case, autopsy showed typical typhoidal changes in the intestine and mesenteric lymph glands. Cultures from the medulla produced no typhoid organisms, but a few colonies of a yellow coccus, not identical with either staphylococcus aureus or citreus. Microscopical examination of the brain was not remarkable except for the presence of organisms. Eisenlohr's conclusions were similar to Curschmann's.

Henneberg's[11] case is that of a man 26 years old, of unimportant previous history. Eight days before admission to the hospital he was taken sick with headache and general lassitude. At entry he was slightly delirious. His spleen was palpable, otherwise his general physical examination was not remarkable. He was, however, unable to move his tongue or lips and could not swallow. The Widal reaction was negative. The cerebro-spinal fluid was normal. A week later there developed slight ataxia of the arms and legs. On the tenth day after entry evidence of bulbar involvement became suddenly augmented. The patient collapsed and died. The autopsy showed a typical typhoidal intestine and spleen, from which cultures of the typhoid bacillus were grown. The brain, cord, medulla and vagus nerve showed nothing abnormal either by culture, by gross examination or by careful histological study. A toxic origin for the symptom complex was assumed.

Mori[12] saw a patient 25 years old who entered the hospital with typhoid fever, as proven by a positive Widal reaction and typhoid bacilli found in the feces. His family and previous histories were negative, except for beriberi ten years previously. Three weeks after the onset of fever, paralysis of both legs occurred, later involving the abdomen, diaphragm, arms and intercostal muscles. The paralysis progressed for three weeks, and then terminated fatally. No autopsy was made. Mori considered the clinical manifestations to be of toxic origin.

Symptoms of bulbar paralysis in typhoid fever have been described as a late complication developing after defervescence has begun.

Leudet[13] mentions a case in which, toward the end of the third week, when convalescence seemed beginning, a woman who had been through a typical typhoid fever, suddenly was seized with paralysis in both legs. This extended progressively upwards, ending with paralysis of respiration and asphyxia. There was integrity of intelligence to the moment of death, which occurred seven days after the onset. At autopsy the brain and cord were not abnormal. In the intestine there were typhoidal ulcers, some of which were partially scarred.

Kümmell[14] cites the following. A patient 25 years old had been ill for six weeks with lassitude, fever, loss of appetite and weakness of the legs. Two days before admission to the hospital, loss of strength was noticed in the back, followed by weakness of the arms. An acute ascending motor paralysis followed, producing death in four days from vagus involvement.

Autopsy showed typhoid scars in the intestine. Small microscopic hemorrhages were found

scattered through the medulla and brain at various levels. They appeared to be of varying age. Kümmell believed that these changes might be due to bacillary emboli. However, there is no record of any cultures, nor were any organisms seen.

Another case is reported by Pitres[15] and Vaillard. Three days after defervescence in typhoid the patient developed broncho-pneumonia. Nine days after the temperature had become normal, paralysis of the legs occurred. An ascending paralysis rapidly followed, involving the abdomen, arms, face, and finally the region of distribution of the bulbar nerves. The patient died with evidence of respiratory insufficiency.

The autopsy notes are especially interesting. The intestine and spleen showed typhoidal lesions. The gross and microscopical appearances of the medulla oblongata and cord were not remarkable. Various of the peripheral nerves, however, showed atrophied fibres with the myelin sheaths in various stages of fragmentation. The authors believe that the changes were produced by the typhoid toxin. In this case, for some reason, the nerves generally had been affected, causing a clinical picture of acute ascending paralysis.

Geniez[16] describes a case in a man, beginning with difficulty of movements of the feet four days after defervescence from typhoid. By the following day paralysis of the legs was complete; on the third day the arm and trunk were affected. On the fifth day the patient could not speak; there was paralysis of respiration and the patient died asphyxiated. No autopsy was made.

Thus in the literature there are twelve cases of typhoid fever in adults complicated by symptoms of bulbar paralysis. In eight the manifestations occurred at the height of the disease, in four after convalescence apparently had begun. In two the disease started suddenly with a chill and various nervous manifestations. In the others there was nothing to suggest an atypical typhoid fever. Eight of the patients died.

Symptoms of paralysis began acutely or gradually, and lasted from a few days to several weeks. In none of the cases did the time of the onset of the paralytic symptoms after the beginning of the disease bear any relation to its eventual outcome. In the fatal cases, the progress of the paralysis was more rapid than in those recovering.

In one case the paralysis was descending and in one diffuse. All the others were cases of ascending paralysis.

Seven cases were examined pathologically. In all, typical typhoidal changes were found in the intestines, spleen and mesenteric lymph nodes. In all the gross appearances of the brain and cord were normal.

Of the five cases which were submitted to thorough histological and bacteriological study, two showed nothing abnormal in the brain or cord. One, however, showed atrophic changes in various of the peripheral nerves. One case had vascular lesions consisting of scattered microscopic hemorrhages at different levels of the medulla and brain. Two cases showed positive bacteriological findings. From the brain and cord of one, typhoid bacilli were recovered, from the other, an unidentified coccus not identical with either the staphylococcus aureus or citreus. The organisms were seen histologically in scattered foci through the brain and cord without any marked tissue reaction.

The clinical picture encountered in several of the cases, suggests strongly an acute poliomyelitis. This cannot be definitely excluded. From the facts that in all cases examined, typical typhoidal lesions were found in the intestines and spleen, and that in no cases were pathological changes observed which suggested anterior poliomyelitis, it seems justifiable to believe that the symptom complex was due to the original infection.

On the whole, acute bulbar paralysis must be recognized as being a rare complication of typhoid fever. The symptoms usually suggest at the onset an acute ascending paralysis, developing either at the height of the disease or after convalescence has begun, and ending with evidence of bulbar involvement. Recovery may take place after a prolonged illness, or death may occur within a few hours.

The varying pathological findings described show that such a clinical picture may exist without evident tissue change in the nervous system or be due to peripheral nerve lesions, or to a hemorrhagic encephalitis analogous to that found in other forms of infection, or finally to the presence of organisms in the brain, whether typhoid bacilli or secondary invaders, in sufficient numbers to cause the symptoms encountered.

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THE MORTALITY OF FEMALE COTTON-MILL OPERATIVES.

THERE has been recently issued as a Senate document (No. 645) the fourteenth of a series of nineteen volumes embodying an exhaustive report on the condition of woman and child wage-earners in the United States. This volume, prepared by Dr. Arthur R. Perry, deals with the causes of death among woman and child cotton-mill operatives, and presents the results of a study "undertaken to secure the most accurate information obtainable respecting the death hazard to males and females incident to work in cotton mills, as compared with the corresponding hazard among individuals of like age" engaged in other occupations. This study was carried out in Fall River, Mass., Manchester, N. H., and Pawtucket, R. I., the three largest cotton manufacturing cities in New England. The age period, 15 to 44 years, was selected for special intensive investigation.

Within this age-period it was found that tuberculosis was the most prevalent ultimate or immediate cause of death. It was also found "that the Irish, in each age, sex, and occupation group, almost without exception, presented a higher death rate than any other race or people." The numerical results of his statistic studies are summarized by the author in part as follows:—

1. "The effect of cotton operative work upon health, as reflected in the death rate, differs widely between the sexes. For the 30-year period from 15 to 44, in which the great majority of the operatives are found, the death rate of the males and females in the general population are almost identical the male rate being 6.19 and the female rate 6.18. A comparison of the death rates of male and female non-operatives shows the rate for males to be 22 per cent. in excess of that for females (male rate, 6.48; female rate, 5.31).

"When, however, the comparison is confined to the death rates of operatives, the female rate shows an excess of 33 per cent. over the male (male rate, 5.74; female rate, 7.63) despite the younger ages of the female operatives.

2. "In the age groups within which operatives and non-operatives are fairly comparable, female operatives have a decidedly higher death-rate than non-operatives. This is most marked in respect to tuberculosis, the death-rate of female operatives from this cause being in general more than twice that of non-operatives, and in some of the race and age groups running up to many times as high. Thus in the age groups 15 to 24 years, 25 to 34 years, and 35 to 44 years, the death rates from tuberculosis per 1000 were respectively 2¼, 2½ and five times those among women in the same groups outside the cotton industry.

3. "An examination of the different factors which might affect the death rate, especially from tuberculosis, such as native or foreign birth, tuberculous kindred or intimates, overcrowding, sanitary condition of homes, etc., fails to show any such massing of unfortunate conditions among female operatives as would explain their unvarying higher death rate.

"Whether the harmful effects of operative work are greater than those of other industrial employments, and whether they inhere in cotton textile work as a whole or are due to certain occupations carried on within the mills, are questions for further investigations to answer. This has established the fact of the high mortality among female cotton operatives and of their special susceptibility to tuberculosis."

In his special consideration of tuberculosis, Dr. Perry says:—

"The fact that operatives almost without exception in each locality and in the various age, sex and race groups show such an undue proportion of deaths from tuberculosis is almost conclusive proof of a casual connection between operative work and the disease. The coincidence between work in the cotton mills and a death rate from tuberculosis higher than that of a corresponding class of non-operatives would not be found in so many and such diverse groups were it a mere coincidence. It seems hardly open to question that operative work predisposes to tuberculosis and that its effect in this direction is greater among females than among males."

The second most important cause of death among female operatives was found to be cancer, and the third parturition.

The report presents an immense amount of painfully gathered statistics. The results are essentially such as one would *à priori* have expected them to be. The conclusion of the whole matter seems to be that work in cotton mills is from a hygienic standpoint an undesirable occupation for women, especially for the Irish, whose racial predisposition to tuberculosis makes them particularly unfit to meet the environmental conditions of such employment.

SPIDERS IN MEDICINE.

For the past three summers there has been, along the new Charles River Basin water-front, an increasing plague of spiders, whose webs disfigure the iron railings of the esplanade, and who even make their way into the basement of neighboring houses, to the dismay of tidy housekeepers. These spiders, who presumably frequent the water-side in order to prey on mosquitoes and other insects which breed there, are abominable creatures.

"Most foul, as in the best they are,
But these most foul, strange, and unnatural."

They are not even plump, bloated, and comfortably vicious, like most spiders, but misshapen starvelings, scrawny, loathesome and altogether detestable.

By all tokens the spider should be a creature deserving great respect. Biologically she is supposed to represent the link by which the line of human evolution diverged from the insects. Morphologically, indeed, the spider and her congeners exemplify important structural advances over precedent forms of life. Ethically, as an example of industry, the spider in popular apologue has been coupled with the scriptural ant; and in the history of Robert Bruce, at least, has by her patient cunning not only conveyed an important moral lesson but thereby changed the fate of nations. Mythologically, however, in her origin is revealed the spider's essentially detestable nature, for it was into a spider, the most odious of conceivable forms, that Athena transmuted the Lydian maid whose pride in her weaving had provoked the resentment and hatred of the goddess of wisdom.

"Fitque caput minimum, toto quoque corpore parva est;
In latere exiles digiti pro cruribus haerent,
Cetera venter habet: de quo tamen illa remittit
Stamen, et antiquas exercet aranea telas."

In point of fact, the spider is one of the most cunning artizans of all the "long-legged spinners," and the fineness of her web makes it still of use in certain optical instruments, where it proves more delicate than any that can be woven by human skill. Collectively cobwebs have been used in medicine to check hemorrhage, and the spider herself, in medieval therapeutics, was supposed to possess great medicinal virtue. Spiders were prescribed to be eaten and as local applications, and were used as ingredients of many of the unutterable decoctions of necromantic polypharmacy. In anatomy, too, the spider has given her name to that elusive middle layer of the meninges, which dissectors always earnestly seek, but never observe. Yet exquisite though it be in point of workmanship, or when spread as gossamer on the grass of a dewy morning, the spider's web about human habitations speaks always of decay, negligence, untidiness and unthrift.

Many famous persons have been spider lovers and have collected, studied, protected and observed them. Kant and Mozart have been among these; yet, great as they were, it seems that there must have been something abnormal in their temperament which could find pleasant companionship in such creatures. Still more might be said of the perversion of spider-eaters, of whom several are recorded in ancient medical history who persisted for months in an exclusive diet of spiders. From our essentially arachnophobic editorial point of view such a course could be indicative only of hopeless mental alienation of advanced grade.

The spider is one of nature's scavengers and serves a necessary and desirable purpose among the checks and balances of animate existence. But in herself she is utterly loathesome and hideous, infinitely more so indeed than the lithe, beautiful, and elegant serpent, whom mankind is supposed to detest with perfect hatred. Shakespeare, like all artists, hated spiders, and it is significant that his most frequent mention of them is in *Richard III,* who is repeatedly compared in his malignity to a "bottled spider." And in *Cymbeline* Guiderins says to Cloten:—

"Cloten, thou double villain, be thy name,
I cannot tremble at it; were it Spider
'Twould move me sooner."

The spider is the archetype of malevolent, venomous evil. The only plague which was not sent upon the land of Pharaoh was a plague of

spiders: that would have been too much for even the Egyptians to tolerate with equanimity.

A RUSSIAN APPRECIATION OF CHARLES DICKENS' KNOWLEDGE OF CRIMINOLOGY.

KULISHEV, in the *Rousskaïa Mysl* for September, 1912 (quoted in *La Chronique Médical* for January, 1913), gives an interesting account of Dickens' insight into criminology. He says that in Barnaby Rudge, there is displayed a profound and perfect knowledge of the psychology of the criminal classes, and the progressive spread of crime to the masses from them. He quotes from Barnaby Rudge, the incidents of which were actually founded on the Gordon Riots: "Sober workmen, going home from their day's labor, were seen to cast down their baskets of tools and become rioters in an instant. More boys on errand did the like. In a word, a moral plague ran through the city. The noise and hurry and excitement had for hundreds and hundreds an attraction that they had no firmness to resist. The contagion spread like a dread fever. An infectious madness, as yet not near its height, seized on new victims every hour."

In the description of the murder of Nancy in Oliver Twist, Dickens brings up an interesting point in criminology, the murder being committed in a moment of extreme passion when the murderer, Sykes, was not, perhaps, in his right mind.

Kurella, the anthropologist, says that Dickens' descriptions show us the malefactor in a new light and with a psychology all his own. Long before Lombroso, Dickens had called attention to certain anthropological characteristics of the criminal classes. The young pickpocket, Dawkins, otherwise known as the "Artful Dodger," is shown as an individual too small for his age, "au nez camus," with "sourcils sans relief." Dickens knew well the law of heredity. He wrote that the mother of the murderer, Hugh, had ended her career at the galleys and that her children were, from the cradle, destined to be criminals and assassins. He admirably defined the economic factor of crime, writing of poverty and misery in all their horrible aspects and picturing them in a way heretofore unknown. In closing, Kulishev says, that to Dickens the misguided and unfortunate children, filling the sordid streets, were but irresponsible victims of the criminal atmosphere surrounding them.

SOME FALLACIES IN MEDICAL EDUCATION.

IN the issue of the Cincinnati *Lancet-Clinic* for May 31 (Vol. clx, p.581), is printed an address delivered by Dr. Paul G. Woolley before the Alumni Association of the Ohio Medical College, on "Medical Education." At this commencement season, when this subject is naturally under review, there is peculiar pertinence in such a comment as Dr. Woolley's on the aims, methods and material of medical training in America.

"The average standard of American medicine is low. There are several causes for this. The first cause is the absence of a demand from the public for a high average standard. Another is the fallacy of the poor boy. It is said that the weaker medical schools are necessary to prepare the weaker students for the country places. That fallacy is being worked to the limit, and it has been played upon for many years, so that there has been and will be, danger in many states for some time to come of preparing *poor boys* for the country, when, as Pritchett says, 'Of all men who deal with human illness, the country physician needs to be best trained. He is far away from the specialist, he is without the facilities of hospitals, and hence he must deal alone with situations in which, in the city, he would have the coöperation of two or three men trained in different fields. It is, therefore, particularly essential that the country physician should have a broad and thorough training.' Robert Koch was a country doctor!"

The second fallacy in medical education Dr. Woolley considers that of the danger of numerical underproduction. He believes the much greater danger to be overproduction.

"In an address, President Jordan said, 'the function of the privately endowed university is to set standards in education and to uphold these standards. It must set standards in service to society as well as within its own class rooms. No institution can be better than its best. If it falls short of that it has no reason for being.' The 'profession of medicine is overcrowded, not so much because its members are numerous as because they are undertrained.'

"The duty of a medical faculty is not, primarily, to train men to make a living from the practice of medicine, but to make them agents of social improvement."

MEDICAL NOTES.

Honorary Degrees at Columbia.—At the annual commencement exercises of Columbia University recently the honorary doctorate in science was conferred on Colonel William C. Gorgas, Assistant Surgeon-General, U. S. A., and on Dr. Alexis Carrel, of the Rockefeller Institute for Medical Research.

A Centenarian.—Mrs. Elizabeth Mangherman, who died on June 13 at Bryan, Ohio, is said to have been born on June 1, 1805, in Pennsylvania. She is survived by four of her seventeen children and by many descendants, to the fifth generation. She is said to have been an inveterate smoker.

A Society of Centenarians.—Report from Tokio, Japan, states that a Society of Centenarians has recently been organized in that city. To it are eligible all centenarians and all persons over 80 who desire to live to be 100. At its initial meeting there was enrolled a membership of 500, of whom the oldest was a woman alleged to be 113.

Philippine Islands Health Report.—The recently published annual report of the Bureau of Health for the Philippine Islands records the activities of that body for the fiscal year ended June 30, 1912. During this period, though the islands have been seriously threatened with invasions of cholera, plague, and smallpox, and the outbreak of endemic diseases, yet their health has been better than at any time since the American occupation. The report recommends the construction of additional provincial hospitals in the Cagayan valley and the east coast of Luzon: an adequate appropriation to continue the construction work at the Culion leper colony; and a tax on polished rice in order to discourage its consumption and thereby prevent probably 5000 deaths from beriberi annually.

Newark Housing Report.—A recently published housing report to the city plan commission of Newark, N. J., presents a valuable study of housing conditions, problems, laws, and the methods of municipal control and private cooperation by which some of the evils of improper housing may be combatted or minimized.

BOSTON AND NEW ENGLAND.

Newton Hospital Training School.—The annual graduation exercises of the Newton (Mass.) Hospital Training School were held in that city last week. The principal address was delivered by Dr. F. B. Lund, of Boston, on "The Duties and Privileges of the Nursing Profession." Graduation badges were presented by Miss Riddle to a class of 17 pupil candidates to whom diplomas had been awarded.

Eye Injuries from Exploding Golf-Balls.—The recently issued monthly bulletin of the Massachusetts State Board of Health for April, 1913, contains an item relative to exploding golf-balls as a cause of accidental injuries to eyesight.

"Two cases of injury to eyesight have come to the notice of the State Board of Health recently through the explosion of certain varieties of golf balls. It seems that in the manufacture of these balls a small rubber bag about 1 inch in diameter is filled with solutions of differing type. The bag is then wound with rubber thread until it has become nearly as large as is desired in the finished product. It is then placed in the gutta-percha cover. The rubber windings cause great pressure upon the bag, and if this pressure is relieved at one point by cutting, the bag bursts and in the bursting the contained solution is scattered into the face of the person holding it."

In view of these accidents, the chief analyst of the Board examined a number of golf-balls, and found several with liquid centres, the fluid being respectively water, zinc chloride solution, soft soap and talc, and soft soap and red lead.

The Nantucket Hospital.—The following letter of appeal, reprinted in part from a recent issue of the daily press, presents emphatically the urgent needs of a new and deserving medical charity.

"For nearly 250 years the island community of Nantucket has been an exemplar of human brotherhood in the best definition of that term. Every year the sea takes its toll on these coasts, and the dead and dying are cared for by the community. But there has been no house of refuge. Only two years ago last March the bodies of men, frozen and freezing, were brought over from Great Point, distant fifteen miles by land and nine by water, to the town, and there was no hospital to receive them.

"Within the last six months we have been enabled, through generous help and united effort, to buy a cottage which shall serve this purpose. In order to begin and maintain this work on an island in the Atlantic, thirty miles distant from the mainland, there is urgent need for an

endowment fund of one hundred thousand dollars. Many of the three thousand permanent population are fishermen, and the little community, as a whole, is not able to bear the extra burden of hospital maintenance.

"I have faith to believe that the thousands of Nantucket's descendants, who have an ancestral interest in this island outpost of our United States, will be glad to give to this endowment fund, if only they know of the need for it.

"I have faith to believe that so soon as this urgent need shall be generally known the thousands of strangers who come to this island for the summer months will give, in glad recognition of rest accorded them here, of relief from physical pain obtained here, to this fund which is to maintain a cottage hospital in a sea-enclosed community.

"It may be, also, that the tens of thousands who pass annually the South Shoals' Lightship, of Nantucket, on their passage to and from Europe, may give, in appreciation of what that first and last signal means to them—home and native land—a thought to the little island just beyond the shoals, and with the thought—a gift.

"It is in this faith that, through the courtesy of the press, I make the appeal for our island hospital.

"All contributions may be sent to the treasurer of the Nantucket Cottage Hospital Corporation, or to me, and will receive personal acknowledgment.

"MARY E. WALLER,
Trustee of the Nantucket Hospital Cottage Corporation, Nantucket Island, Mass."

FAULKNER HOSPITAL NURSES' HOME.—On Thursday of last week, June 12, were celebrated with appropriate ceremonies the opening of the new Nurses' Home at the Faulkner Hospital, Jamaica Plain, and the graduation exercises of the training school. Addresses were made by Dr. George W. Gay, Professor W. T. Sedgwick, Dr. Henry Jackson, and Miss Sara E. Parsons.

"The new building, which is a three-story structure of brick, stands about a hundred feet to the west of the hospital group proper, with which it is connected by a concrete covered way.

"The two special features of the building are the large living-room in the middle of the south front and the very large, screened sleeping-porch above the living-room. The latter opens by a broad doorway from the corridor which runs the length of the building, through the middle. Of ample size, about thirty-three by seventeen feet, it has a roomy fireplace at each end. A large part of the south side is window space, so that in clear weather the room is flooded with sunshine.

"Aside from the living-room and the classroom, which is across the corridor from the living room the whole of the three floors are devoted to sleeping quarters, though exception should be made of a small reception room for the nurses on the right hand of the first floor entrance. The individual bedrooms, while necessarily small, are airy and exceptionally well lighted. The great sleeping porch on the second floor will accommodate at least six beds, and is so well sheltered that it can be used comfortably, even in stormy weather.

"The comfort of the night nurses has been considered by giving them a tier of rooms at the west end of the building, farthest from the sources of noise; these night quarters are shut off as a group from the rest of the building and have their own bath and toilet rooms. The building is steam-heated from the plant in the administration building, the pipes being carried through the covered way connecting the two buildings.

"Considerable enlargement of the actual accommodations of the hospital proper results from the building of the nurses' home. Five rooms on the second floor of the main building hitherto occupied by the nurses now become available for patients, and one of these will be made into a two-bed ward. In addition, the laundry, which occupied part of the third story of the main building, has been transferred to the basement of the new building, and here will be done all the hand laundry work of the institution. Even this transfer leaves a considerable amount of space in the new basement not fully utilized at present, though sufficient room has been taken for a model instruction kitchen for the nurses, and for two small rooms where they can do washing and ironing for themselves.

"By this release of room in the main building, the normal accommodation for patients is increased from about thirty beds to thirty-eight, and it is the wish of all those interested in the hospital that the measure and quality of its resources for caring for the sick should be made so much better known than now that the added space may be put into active service."

NEW YORK.

VITAL STATISTICS.—The death-rate in the city remains practically the same as last year, in which all records were broken. In the month of May the rate was 14.49, as against 15.09 in April and 14.29 in May, 1912. Among the diseases in which there was a diminished fatality were the following: The weekly average of deaths from typhoid fever declined from 3.25 in April to 2.5 in May; the weekly average from scarlet fever, from 18.5 to 15.75; from diphtheria and croup, from 41 to 32.25; from influenza, from 11 to 4.75; from epidemic cerebrospinal meningitis, from 6 to 3.5; from pulmonary tuberculosis, from 201.75 to 188.5; from pneumonia, from 115 to 107; from broncho-pneumonia, from 124 to 109; from diarrheal diseases under five years, from 42.5 to 38.75; from tuber-

culous meningitis, from 20.75 to 18.5; from cancer, from 85.5 to 81.75; from apoplexy and softening of the brain, from 20.25 to 19.75; from organic heart diseases, from 203.25 to 191.75; from cirrhosis of the liver, from 24 to 20.75; and from Bright's disease and acute nephritis, from 119.25 to 109.25. Among the few diseases in which there was an augmented mortality were the following: The weekly average of deaths from measles increased from 22 to 27.5; from whooping cough, from 8 to 9.25; from acute bronchitis, from 14.75 to 18; and from appendicitis and typhilitis from 11.75 to 15.5.

Commencement at Cornell Medical College.—The fourteenth annual commencement of Cornell University Medical College was held on June 12, when a class of 19 was graduated.

Opening of Seaside Hospital.—The reconstructed main building of the Seaside Hospital of St. John's Guild was formally opened on June 12, when addresses were made by Dr. A. Jacobi, Dr. J. H. Finley, president of the College of the City of New York, and others. The improvements, including a new wing, have been made at a cost of $150,000, and 400 patients can now be accommodated. It is purposed in future to keep the hospital open all the year round, and in the course of his remarks, Mr. Duff G. Maynard, one of the officials of the Guild, said: "If the different hospitals will send their mothers and babies to us, we can take care of them and build them up, and make the mothers ready to go back to their life in the tenements with a knowledge of how to care for their babies."

American Society for Control of Cancer.—The executive committee of the organization recently formed to combat the increase of cancer in this country met on June 9 and fixed upon "The American Society for the Control of Cancer" as the official title of the body. A committee was appointed to go to Minneapolis and secure the coöperation of the American Medical Association in the society's campaign against cancer.

Infant Pulmotor.—A case of successful use of the infant pulmotor in asphyxia neonatorum is reported at the Lebanon Hospital, where one of the machines had been received only a few days before. The first Drager pulmotor brought to this country was imported by Dr. J. Clifton Edgar, professor of obstetrics in Cornell Medical College more than a year ago, and since then he has employed the apparatus successfully some six or seven times at the Manhattan Maternity and elsewhere. The use of the pulmotor appears to be much superior to the ordinary methods of resuscitation.

Honorary Degrees at Princeton.—At the commencement of Princeton University, on June 10, the degree of Doctor of Science was conferred upon Dr. Simon Flexner, director of the Rockefeller Institute, and Professor David Linn Edsall of the Harvard Medical School.

Ophthalmia Neonatorum.—At a recent meeting of the city Board of Health the rules and regulations governing the practice of midwifery were amended by the insertion of the following: "When a child delivered has or develops sore eyes, or any redness, inflammation or discharge from the eyes, the midwife in attendance must at once report to the Department of Health the name and address of the mother, and state the time when such condition of the eyes was first noticed." It was in 1904 that the department made its first attempt to control ophthalmia neonatorum by making the affection reportable by institutions, physicians and midwives. At the same time the midwives were notified of the serious nature of the disease and advised to employ Credé's method of prophylaxis. In 1908 the more rigid supervision of the registration of midwives and their more rigid control on the part of the department added still further to the efficiency of the latter's efforts. At present when a case of ophthalmia neonatorum is reported by a midwife, it is visited as soon as possible by an oculist from the department, who takes a smear and records his opinion as to the clinical diagnosis. Should the examination of the smear show the presence of the gonococcus, the case is again visited by a department nurse, who sees that it is placed under proper treatment. Up to the present time this plan has worked well but, in order to avoid the possibility of error in diagnosis arising on account of the very mild nature of some of these cases at their onset, the department has deemed it advisable to enact the new regulation given above.

Serologic Laboratory.—During the year 1912 the serologic laboratory of the health department tested 4,585 specimens of blood for syphilis and 545 for gonorrhea, and from Jan. 1, 1913, to June 1, 1913, 5,639 blood specimens

were tested for syphilis, and 846 for gonorrhea. The department has now established two diagnostic clinics for venereal diseases, where patients may be sent for the performance of the Wassermann reaction and for examinations of fresh specimens for the presence of treponema. No patients are received, however, unless referred by physicians, and under no circumstances are the results of examinations reported to patients.

AMERICAN MEDICO-PSYCHOLOGICAL ASSOCIATION.—At the annual meeting of the American Medico-Psychological Association, held at Niagara Falls June 11-13, Dr. Carlos F. MacDonald of New York was elected president, Dr. S. E. Smith of Indiana, vice-president, and Dr. Charles G. Wagner of Binghamton, N. Y., secretary. The next annual meeting is to be held in Baltimore.

Current Literature.

MEDICAL RECORD.

JUNE 7, 1913.

1. BRANNAN, J. W. *The Prophylactic and Therapeutictic Value of Fresh Air in Schools and Hospitals, Including Heliotherapy.*
2. STEIN, J. B. *The Rob.*
3. AULDE, J. *The Acid Test in Therapeutics.*
4. *MAUNHEIMER, G. *A Preliminary Report of Personal Experiences with the Friedmann Treatment.*
5. CADWALADER, W. B., AND CORSON-WHITE, E. P. *The Relation of Syphilis to Progressive Muscular Dystrophy.*
6. HIRSHBERG, L. K. *A New Contagious Gangrene in White Rats.*

4. Maunheimer reports eighteen cases injected under his supervision by Dr. Friedmann. Thirteen of the cases had pulmonary tuberculosis, two were genito-urinary, and three had joint tuberculosis. All were injected intramuscularly, and three were injected intravenously as well. In the two months following injection the writer has seen definite improvement attributable to the vaccine in none of the cases. One case developed a large abscess at the site of injection, but this was the only instance in which harm came certainly from the treatment. Several patients were worse after treatment but the vaccine may not have been responsible. The writer believes that the underlying idea of this treatment is sound, but that results do not justify Dr. Friedmann's claims. He concludes regretfully that Dr. Friedmann is superficial in interpreting results and commercial in his methods. [L. D. C.]

NEW YORK MEDICAL JOURNAL.

JUNE 7, 1913.

1. BRILL, A. A. *The Unconscious Factors in the Neuroses.*
2. BABCOCK, W. W. *Gall-stones Producing Pyloric and Jejunal Obstruction.*
3. GOTTHEIL, W. S. *Changes in the Treatment of Syphilis.*
4. KAPLAN, D. M. *A Quantitative Chemical Reaction for the Control of Positive Wassermann Results.*
5. STROBELL, C. W. *The Problem in Local Recurrent Breast Cancer.*
6. MYERS, F. M. *Some Unusual Obsterical Complications.*
7. *WARD, G. G., JR. *The Treatment of Endometritis.*
8. BROWN, H. A. *Measles: Periodic Cycles of Virulence.*
9. KAHN, A. *Notes on the Deleterious Effects of Salvarsan from an Otological Standpoint.*
10. WILLIAMS, P. F. *The Use of the Metranoikter in the Treatment of Dysmenorrhea and Sterility.*

7. Ward writes a valuable paper on endometritis. This condition may be divided into two great classes, cases of bacterial origin and those of non-bacterial origin. In the acute infective cases the discharge is pus, containing active organisms. In these cases the best treatment is to let the patient alone. In chronic hyperplastic endometritis there is no infection and the discharge is an excessive secretion from the cervical and utricular glands, the result of venous congestion. The most important principle in treating these cases is to determine the cause of the venous stasis and to treat it. The curette is the most valuable means of removing the greatly thickened and diseased endometrium, but the cause must be corrected too, or relief will be only temporary. [L. D. C.]

THE AMERICAN JOURNAL OF THE MEDICAL SCIENCES.

MAY, 1913.

1. *JANEWAY, T. C. *Nephritic Hypertension: Clinical and Experimental Studies.*
2. *HEWLETT, A. A. *The Circulation in the Arm of Man.*
3. LEWIS, T., AND ALLEN, H. W. *An Instance of Premature Beats Arising in the Auriculoventricular Bundle of a Young Child.*
4. DAWES, S. L. *The Problem of the Alien Insane.*
5. LYLE, H. H. M. *Combined Tuberculosis and Carcinoma of the Stomach, with a Report of a Case upon Which a Partial Gastrectomy Was Performed.*
6. ALBERT, H. *The Control of Rabies.*
7. *MYERS, V. C., AND FINE, M. S. *Metabolism in Pellagra.*
8. MITCHELL, O. W. H. *Acute Suppurative Lymphadenitis, Abdominal, Due to a Diplostreptococcus; Autopsy.*
9. *HAYHURST, E. R. *Occupational Brass Poisoning.*

1. Janeway's article is an exhaustive discussion of the various possible causes of hypertension. Theoretically hypertension may be due to a quantitative reduction of kidney substance, to intoxication affecting the central nervous system, or to an irritability of the vasoconstricting mechanism leading to sclerosis of arterioles. Original experimental evidence is reported to show the possibility of the first of these methods, which may well be the cause of the hypertension in the contracted kidney. That hypertension may result from toxic influences is certain in lead poisoning, and probable in nephritis, particularly the acute; that epinephrin plays a part in its production is not supported by evidence. The development of hypertension through a general sclerosis of the small vessels causing increased peripheral resistance is possible.

2. Hewlett discusses the influences which modify the circulation of the arm in man with special refer-

ence to factors other than the force of the heart. The most efficient means of increasing the circulation of the part he found to be general and local warmth, in comparison to which the action of drugs was insignificant.

7. Myers and Fine continue the report of their studies of pellagra. Metabolism experiments in fifteen cases failed to show deficiency in power of utilization of the various foodstuffs. The chief positive finding was the presence of anacidity in the gastric contents in eight of fourteen cases, and in most of these a great diminution or complete absence of pepsin.

9. Hayhurst calls to attention the occurrence in workers in brass foundries of a malaria-like syndrome of chill, fever and sweat appearing a few hours after the inhalation of fumes from molten brass or zinc. These attacks are without immediate serious effects, and a temporary immunity is developed, but from the high morbidity and mortality of persons so exposed it is probable that there results a condition of nonresistance to other disease. The importance of ventilation and of other industrial hygienic methods is urged. [F. W. P.]

THE JOURNAL OF EXPERIMENTAL MEDICINE.

JUNE, 1913.

1. *WHIPPLE, G. H., AND HOOPER, C. W. *Hematogenous and Obstructive Icterus. Experimental Studies by Means of the Eck Fistula.*
2. *WHIPPLE, G. H., AND HOOPER, C. W. *Icterus. A Rapid Change of Hemoglobin to Bile Pigment in the Circulation Outside the Liver.*
3. TATUM, A. L. *Morphological Studies in Experimental Cretinism.*
4. KLIGLER, I. J. *A Note on the Behavior of the Saphrophytic Cocci with Regard to Gram's Stain.*
5. WINTERNITZ, M. C., AND HIRSCHFELDER, A. D. *Studies upon Experimental Pneumonia in Rabbits.*
6. HIRSCHFELDER, A. D., AND WINTERNITZ, M. C. *Studies upon Experimental Pneumonia in Rabbits. IV. Is There a Parallelism Between the Trypanocidal and Pneumococcicidal Action of Drugs?*
7. LELENE, P. A. *On the Components of Sphingomyelin.*

1 and 2. Whipple and Hooper studied hematogenous and obstructive icterus in animals with an Eck fistula. Their work suggests that bile pigment may be formed under certain conditions from other substances than hemoglobin, and also that bile pigment formation may depend upon the functional activity of the liver cells rather than upon the amount of the hemoglobin supplied to it. They were also able to demonstrate that in dogs hemoglobin can be rapidly changed in the circulating blood into bile without participation of the liver. [R. I. L.]

BULLETIN OF THE JOHNS HOPKINS HOSPITAL.

MAY, 1913.

1. *MARINE, D. *The Evolution of the Thyroid Gland.*
2. *AUSTRIAN, C. R. *Hypersensitiveness to Tuberculo-Protein and to Tuberculin.*
3. MACHT, D. I. *The Ancient Office of Coroner.*
4. SCHACHMER, A. *Dr. Ephraim McDowell, "Father of Ovariotomy"; His Life and His Work.*

1. This is a somewhat complex and detailed biological study of value to those interested in this subject.

2. Austrian seems to have conclusively settled the much discussed question as to whether the tuberculin reaction was or was not an anaphylactic phenomenon. The results of his experiments on animals and humans justifies the interpretation of this reaction as a true manifestation of hypersensitivenesss. This article is of great interest and value to workers along this line. [J. B. H.]

JUNE, 1913.

1. *OSLER, W. *Specialism in the General Hospital.*
2. *KNOOP, F. *Some Modern Problems in Nutrition.*
3. *MAJOR, R. H. *The Wassermann Reaction in The Johns Hopkins Hospital.*
4. DAVIS, J. S. *Excessive Thickening of Thiersch Grafts Caused by a Component of Scarlet Red (Amiloazotohcol).*
5. *GELIEN, J., AND HAMMAN, L. *The Subsequent History of One Thousand Patients Who Received Tuberculin Tests.*
6. *WHITE, W. C., GAMMON, A. M., AND HOLLANDER, L. *The Influence of the Contents of the Pulmonary Artery on Experimental Pulmonary Tuberculosis.*
7. *HAWES, J. B., 2D. *The Physician's Opportunity in Preventive Medicine.*

1. This paper, the title of which hardly does justice to the charm of the subject matter, does not admit of review but is well worth reading.

2. To those interested in physiological chemistry and the problems of digestion and metabolism, this article of Knoop's will be of interest. It is too complex for the general practitioner as a rule.

3. Major describes the technic employed in doing the Wassermann reaction at the Johns Hopkins Hospital and gives the results obtained in aortic disease, aneurysm, tabes and paresis, brain tumor, diabetes mellitus, pellagra and jaundice. He finds that no mistake in diagnosis has been made based on the result of this reaction in 239 cases showing a positive reaction.

5. Gelien and Hamman describe the subsequent history of 1,000 patients who received tuberculin tests. The results are of great interest and value. Their attitude toward the early diagnosis of tuberculosis has been a very conservative one, and in this investigation they have included in the "tuberculous group" only those frankly so. Out of 110 cases originally classified as non-tuberculous only four have come so. They call attention to the classical error of calling a chronic pulmonary tuberculosis in the aged a chronic bronchitis. They emphasize the fact that it is careful observation of symptoms and the use of common sense which is important in the diagnosis of tuberculosis, rather than any special skill in eliciting "signs." His figures also show the futility(?) of treating poor patients who are beyond the incipient stage. The tables and other material in this paper do not admit of review but are well worthy of careful study.

6. The writers conclude from their experiments that there is a close relation between the fats and split fat substances in the pulmonary stream and the severity of experimental pulmonary tuberculous lesions.

7. Hawes gives a review of the various positions, paid and unpaid, open to physicians in state or municipal departments dealing with various health problems. [J. B. H.]

JOURNAL OF MEDICAL RESEARCH.

MAY, 1913.

1. EWING. *Endothelioma of Lymph Nodes.*
2. ORDWAY, KELLERT AND HUESTED. *A Typhoid-like Disease in Rabbits Caused by Bacillus Suipesticus, with Particular Reference to the Clinical Course and Prophylactic Vaccination.*
3. FABYAN. *The Persistence of B. Abortus, Bang, in the Tissues of Inoculated Animals.*
4. FABYAN. *A Note on the Presence of B. Abortus in Cow's Milk.*

5. *SMITH. *Notes on the Biology of the Tubercle Bacillus.*
6. *AVERY AND LYALL. *Concerning Secondary Infection in Pulmonary Tuberculosis.*
7. OTTENBURG, KALISKI AND FRIEDMAN. *Experimental Agglutinatin and Hemolytic Transfusions.*
8. DUVAL AND HARRIS. *Further Studies upon the Leprosy Bacillus. I. Its Cultivation and Differentiation from Other Acid-fast Species.*
9. *ADLER. *The Experimental Production of Pernicious Anemia in Rabbits.*
10. CHRISTIAN AND O'HARE. *Study XIX, Glomerular Lesions in Acute Experimental (Uranium) Nephritis in the Rabbit.*

5. The tubercle bacillus, human as well as bovine, retains its power to multiply when kept at 40-50° F. for many months. The number of surviving bacilli is reduced, however, so that in many cases multiplication does not take place so well in artificial media as in the guinea-pig. The bovine form is more resistant. This may be due to greater inherent resistance on the part of the bovine form, or the excessive acid production of the human variety in 5% glycerine bouillon.

6. The authors consider secondary infection in pulmonary tuberculosis of no great importance. The organisms, isolated by them, do not differ from those similarly isolated from non-tuberculous cases. In no cases did blood culture show the presence of secondary infection.

9. Adler has been able to produce in rabbits a severe anemia, claimed by him to resemble pernicious anemia, by the administration of oils—cotton seed or olive. This is due to the direct destruction of red cells, by hemolysis. Quinine exerts a protective influence in preventing this toxic action. [L. H. S.]

THE LANCET.

APRIL 26, 1913.

1. *TROTTER, W. *Hunterian Lectures on the Principles and Technic of the Operative Treatment of Malignant Disease of the Mouth and Pharynx. Lecture II.*
2. LEDINGHAM, J. C. G. *Bacteriological Evidence in Support of Intestinal Intoxication.*
3. BROUGHTON-ALCOCK, W. *Vaccination for Various Infections with Living Micro-organisms.*
4. HURTLEY, W. H. *The Tests for Acetoacetic Acid, Including a Simple New Test.*
5. BROWN, W. *Freud's Theory of Dreams. III.*

1. In the second Hunterian Lecture, Trotter discusses post-operative risks, such as lung complications, wound infections and the methods of preventing them by immunization (doubtful) by pulmonary disinfection and by complete protection of the wound from all infective material. He then takes up and discusses in detail the technic of the various operations for the removal of new growths of this region. [J. B. H.]

MAY 3, 1913.

1. *FAIRBANK, H. A. T. *A Lecture on Birth Palsy; Subluxation of the Shoulder-joint in Infants and Young Children.*
2. SAUNDBY, R. *A Case of Ankylostomiasis in Birmingham.*
3. *ENGELMANN, W. *Radium Emanation Therapy.*
4. DALLY, J. F. H. *The Use of Tuberculin in Diagnosis and Treatment.*
5. *MANTLE, A. *The Treatment of Confirmed Cases of High Blood Pressure; the Undesirability of Actively Applying Therapeutic Means to Reduce It.*
6. COLES, A. C. *Protozoal-like Structures in the Blood in a Case of Blackwater Fever.*
7. CAMPBELL, H. *Man's Mental Evolution, Past and Future.*

1. In a paper with numerous illustrations Fairbank discusses the nature of the lesions, physical signs and treatment of birth palsy, and then in more detail describes those cases in which there is an associated subluxation of the shoulder-joint. He describes how this is brought about in a typical case and the operative treatment.

3. Engelmann in a general article describes the uses and action of radium emanations, the forms of application, such as by baths, drinking and inhalations and the various diseases and conditions benefited by such emanations.

5. Mantle in a short article emphasizes the dangers of trying to reduce a high blood pressure in every case by nitrates and other vaso dilators, and urges the elimination from the system by purgation and a strict régime of life of those bodies which act as vaso constrictors. [J. B. H.]

MAY 24, 1913.

1. WALLER, A. D. *The Oliver-Sharpey Lectures on the Electrical Action of the Human Heart.*
2. WHITE, W. H. *Alimentary Toxemia, a Summary and Reply.*
3. PHILLIPS, S. *Growths in the Gall-bladder and Growths in the Bile-ducts.*
4. *BAYLEY, H. W. *The Dangers and Complications of Salvarsan Treatment.*
5. JONES, D. W. C., AND WORROLL, E. S. *A Case of Phthisis with Complete Cantation of the Left Lung.*
6. DONALD, R., AND FILDES, P. *A Method of Counting Bacteria in Water.*
7. BEVAS, E. C. *A Case of Hypoglossal Anastomosis.*
8. CAMPBELL, H. *Man's Mental Evolution, Past and Future.*

4. Bayley believes that with due care in preparing the patient and no errors in preparation of the drug, technic of administration, intervals between treatments, the fear of death cannot be justifiably advanced as a reason for witholding salvarsan treatment and that the slight risk of serious complications or sequelae is more than counterbalanced by the therapeutic results obtained. He is firm in the opinion that all cases of early parasyphilis should be given salvarsan as a matter of routine. [J. B. H.]

BRITISH MEDICAL JOURNAL.

MAY 3, 1913

1. *SHAW, H. B. *An Address on the Present Evidence For and Against the Use of Tuberculin as a Specific Cure.*
2. *THOMSON, H. H. *Plea for Uniform Method of Treatment with Tuberculin.*
3. HOLROYD, J. B. H. *Prognosis in Pulmonary Tuberculosis; the Results Obtained by Arneth's Method.*
4. HORSFORD, C. *The Epiglottic Suture: Its Value in Indirect Laryngoscopy.*
5. *HANDLEY, W. S., AND BALL, C. P. *Cheilotomy: a Function-restoring Operation in Crippling Traumatic Arthritis of the Hip-joint.*
6. ANDERSON, J. *A Case of Enteroliths.*
7. CLARKE, J. M., AND MORTON, C. A. *Removal of Intratracheal Tumors from Lumbar Region of Spinal Cord.*
8. v. BONIN, G. *Classification of Tumors of the Pituitary Body.*

1. Shaw, after describing Koch's original work on tuberculin discusses the evidence going to show that tuberculin can cure tuberculosis and is forced to come to the conclusion that as yet there is very little evidence that tuberculin is a specific cure for tubercu-

losis, whether large or small doses are used. He calls attention to the excellent results obtained in genito-urinary tuberculosis with tuberculin, but is rather skeptical as to how much of the improvement is due solely to the use of this agent. He reviews the comparative figures in series of cases treated with and without tuberculin and finds little in favor of the former. He then discusses the nature of the action of tuberculin and compares this with anti-typhoid inoculation. This paper, though dealing with a complex subject, is of distinct value.

2. Thomson urges the adoption of a uniform scheme for treating patients with tuberculin both at home, in dispensaries and in sanatoria, so that the patient in going from one to the other may have his treatment continued without interruption or the introduction of new methods. He gives the details of the scheme he considers best for this purpose.

4. Handley and Ball describe an operation for traumatic arthritis of the hip joint with which they have had marked success in two cases. There are several excellent plates. [J. B. H.]

Obituary.

L. FORBES WINSLOW, M.D.

Dr. L. Forbes Winslow, who died on June 8 at London, was born in that city in 1844, the son of a physician. He was noted as an expert in lunacy, and was concerned as an alienist in several celebrated criminal cases in Great Britain and the United States. He was physician to the West End Hospital, London, the North London Hospital for Consumptives, founder of the British Hospital for Mental Disorders, lecturer on insanity at the Charing Cross Hospital and other London hospitals, and vice-president of the Medico-Legal Congress of New York and chairman of its psychological department. Among the works of which he was author may be mentioned his "Manual of Lunacy," "Mad Humanity," "Eccentricity of Youth Leading to Crime," "The Suggestive Power of Hypnotism," and "The Insanity of Passion and Crime." His codified "Lunacy Law in England" was translated into French. He was a voluminous contributor to medical periodicals.

Miscellany.

FOUR HUMAN EMBRYOS.

The Anatomical Department of the Harvard Medical School is forming a collection of human embryos, which was begun in 1896 and is intended for purposes of research. Accordingly, the effort has been especially to obtain satisfactory specimens of the first two or three months, sufficiently well preserved to be cut up into serial sections. The number of series thus far prepared is 67. To these series of microscopical sections four valuable human embryos have recently been added. They bear the catalogue numbers 1913, 1917, 1918, and 1919. The largest (1917) of these four measured 40 mm., and was presented by Dr. E. E. Everett. It was received on Dec. 27, 1911, from a case of hysterectomy, two hours after the operation, and was preserved in Carnoy's fluid. Except for a marked edema of the skin in the region of the occiput and neck, the specimen was found to be normal and in a fine state of preservation. The second specimen (which measured 18.2 mm.) also came from a case of hysterectomy, performed by Dr. Edward Reynolds in May, 1912. Through Dr. Reynolds' kindness, this very valuable embryo was sent at once to the Medical School, and was very carefully preserved, and has since been drawn and sectioned, yielding a very fine series, 1913. The third specimen was sent to Professor Minot in the summer of 1912. The chorionic vesicle was intact, and had been placed with the contained embryo in alcohol. There were no data as to the age of the specimen, which measured 10.0 mm. The preservation of the external form was excellent. The embryo seemed perfectly normal. An examination of the sections of the series 1919 shows a not very satisfactory histological preservation. The fourth specimen was received through Dr. Howard T. Swain in April, 1913. The ovum had been discharged, and six hours after it was obtained had been placed in 10% formalin. Afterwards the chorionic sac was opened, and the specimen further treated. Although treated with the greatest care after it was received at the laboratory, the specimen exhibits a very considerable histological deterioration, so that although it shows satisfactorily the anatomical structure, it cannot be used for any exact histological observations.

To the gentlemen who have thus contributed very valuable and welcome material to the Harvard Collection our thanks are due, and we wish to make herewith public acknowledgment of their kindness. Such gifts are of great value to all the workers in the laboratory, and our collection has now become so extensive and so well known, that it attracts embryological investigators from other universities. Our human embryos have already served as the foundation for a considerable number of important researches. In order, however, that it may have its fullest usefulness, it is very desirable that the number of good specimens, especially of the first three months of gestation, be considerably increased, and I therefore request all readers of the Journal who may secure hereafter young human embryos to send them to the Harvard Anatomical Laboratory in Boston, where they will be not only highly prized, but carefully preserved and made of the greatest possible value for scientific research.

The brief account of the four embryos recently cut up may serve to emphasize the great importance from the scientific point of view of very prompt and suitable preservation. The

first and second specimens were preserved quite promptly and by one of the very best methods known to us. The other two specimens were preserved less promptly and by less good methods. The comparison of the quality of the specimens shows conspicuously the results of the different treatments.

For the convenience of those who may be willing to assist our embryological work, the following hints as to preservation are given:—

There are two general rules for all kinds of preservation: *first*, that the embryo should be handled as little as possible; *second*, that after lying a few minutes in the preserving fluid, it should be transferred to a fresh portion of the fluid, which must be pure and clean in order that it can act properly as a preservative. Only two methods of preservation need to be mentioned. The first, and simpler, is to place the specimen in a mixture made by adding one part of commercial formalin to nine parts of water. If the fluid is renewed at once, as before suggested, the specimen may remain permanently in it. The second, and better method, is to use Carnoy's fluid. This is one of the quickest and most penetrating fixatives hitherto known. It preserves all tissues in excellent condition, and is suitable for almost any subsequent stain which may be desired. Carnoy's fluid is prepared by mixing one part of glacial acetic acid with six parts of absolute alcohol, and three parts of chloroform. It may be made up in quantity and kept in stock. The specimen, according to its size, may remain in this mixture for from one to two, or even three, hours. It *must* then be transferred to absolute alcohol, in which it is then kept permanently.

It is probable that many specimens which would be of the greatest value in the Harvard Collection are not preserved. It is only through the kind coöperation of practitioners that the student of human embryology is able to obtain the necessary material for his researches, and it is hoped that this appeal may not remain without results.

It is planned to present later a report upon the scientific researches carried out in connection with the Harvard Embryological Collection, in order to make known to the readers of the JOURNAL the considerable extent and real importance of the researches that have been completed by utilizing the human embryos in our collection. CHARLES S. MINOT.

PRACTICAL ASPECTS OF EUGENICS.

THE following recent letter by Dr. George W. Gay, of Boston to the daily press seems to deserve reprinting on account of the clearness with which it states for popular understanding, some of the practical problems and purposes of positive eugenics.

"Eugenics, the improvement of the race through judicious mating, is engaging the attention of thoughtful people everywhere. The quality of human being born in civilized communities is finally receiving some consideration akin to that which for a long time has been intelligently given to the lower animals with such satisfactory results. Hitherto most of our attention has been devoted to results rather than to causes and prevention. That it is high time, however, for the taxpayers of Massachusetts to pay especial attention to the causes and prevention of certain defects in her people is shown by the fact that it costs them about $7,000,000 annually to care for her defective, delinquent and criminal classes. These include the insane, feeble-minded, epileptic, inebriate, paupers and criminals. Thousands of these unfortunate people become public charges. Many are of no use or comfort to themselves or to anyone; they but add to the burdens of an overtaxed commonwealth.

"Among the chief causes of this deplorable state of affairs are alcohol, the social diseases and heredity. 'The abuse of alcohol, directly and indirectly, does more to fill our prisons, insane hospitals, institutions for the feeble-minded and almshouses than all other causes combined.' Such was the opinion of the able commission appointed by the Legislature in 1910 to consider and report upon this subject. Upon the best of authority it can be stated that a large proportion of chronic alcoholics are also the victims of one or both of the social diseases. Only the medical profession can realize their pernicious effects in the community.

"That much mental and physical suffering is due to our double standard of morality cannot be doubted for a moment. The woman is expected to enter matrimony virtuous and free from any contagious disease, but the man is under no such restrictions. Very likely he has lived under the false impression that continence is incompatible with health. He may also consider himself free from a former infection, while in fact it may still be in a dormant state ready to become active at any time. Many wives are thus infected and become sterile; many become invalids and not a few lose their lives. Furthermore, the transgressions of the fathers may be visited upon their offspring indefinitely. Verily, 'The gods are just and of our pleasant vices make instruments to scourge us!'

"As the result of prolonged observation and study, it is the unanimous opinion of the best authorities that the defects and delinquencies of the above mentioned classes are to a marked degree inherited. To a certain extent, therefore, they are preventable. If the child has any natural rights, the first and principal one is that of being well born. Handicapped with a congenital or inherited defect, he cannot have a fair chance in life. It can but be a hindrance, if not a curse, to his whole existence. So far as possible it is the duty of parents, as well as of the public through proper regulations, to give each child

a fair chance in the struggle, that he may become a useful, self-supporting citizen.

"The question naturally arises as to what, if anything, can be done to correct to an appreciable extent this deplorable condition. Thus far little has been accomplished through marriage laws, or legislation of any sort. It is more than doubtful if much reform need be expected at present along these lines. Procreation is independent of marriage and of state lines. National legislation on these matters is not in sight. A physician's certificate as to the health of the parties contemplating matrimony has a limited field of usefulness. For obvious reasons its general adoption would fail to accomplish the desired result. For instance, it would be a bold physician who would certify to the existence of a contagious disease under these circumstances, as he would render himself liable to a suit for defamation of character. A case of this sort occurred in this vicinity some years ago in which it cost a reputable physician upwards of a thousand dollars to defend his diagnosis.

"Surgical sterilization is safe and efficient in preventing procreation, but it does not diminish immorality or the spread of social disease. Nine states have enacted so-called eugenic laws legalizing sterilization under certain conditions, but for various reasons only one, Indiana, has thus far resorted to the practice to any extent. The measure is in its trial stage and probably has a limited field of usefulness, but it is not so effective as segregation. Segregation of defectives and delinquents, however, is practicable for only a limited number and must necessarily be confined to certain classes. It is the only method thus far suggested that affords absolute control of irresponsible persons.

"A judicious, persistent campaign of education would seem to be a practical method of attacking this important problem. Impress upon the people the fact that, as a rule, like begets like; that healthy parents are necessary for healthy offspring; that the so-called social diseases are not only very common, but very serious in their effects; that many victims never recover from them; that many innocent persons suffer from them; that their influence may persist indefinitely; that no one who has ever been infected should consider matrimony until assured by a competent physician that the disease has entirely disappeared; that a continent life is natural and healthful; that a large proportion of immoral women are infected, although many may not know it; that neither party should expect more than he can give; in other words, that there should be but one standard of virtue. Let the people know these facts and knowing them take the consequences of their transgression. They could no longer take refuge behind the cloak of ignorance.

"The only effective method of preventing procreation among the insane, feeble-minded, epileptics, drunkards and criminals is by the separation of the sexes. No better means of accomplishing this object has yet been devised than our asylums, special schools, prisons, colonies and homes.

"A very considerable proportion of the victims of social disease are innocent of any moral offence. They are unfortunate, but not guilty. For their sake, as well as for that of the community, the victims of these diseases should be treated, not upon moral grounds, but as other contagious diseases are treated. They should be isolated so far as may be during the most dangerous period of their malady. The public hospitals should have proper facilities for their care. Only by some such method will the diseases be curtailed to any great extent and the public receive that protection so desirable for its welfare."

Correspondence.

THE PROTEAN ASPECTS OF SYPHILIS.

Boston, June 5, 1913.

Mr. Editor: Those physicians who are interested in the subject of syphilis and its many vagaries are occasionally accused by their professional brethren of viewing all patients through roseola-tinted glasses.

The following case, reported by Browning and McKenzie, (The Diagnosis and Treatment of Syphilis, 1912), serves to show the importance of an open mind on this subject. "The patient, a young man of 23 was seen in June, 1910, with enlarged glands on the right side of the neck, the enlargement having been present intermittently since childhood. One of the glands was removed. The histological appearances excluded any malignant tumor, but were not characteristic of tuberculosis. By October, 1910, the glandular enlargement had increased greatly and extended down to the clavicle. There was no ulceration of the mass, although the overlying skin was reddened: the patient had an elevated temperature 102-103 F. and suffered from dyspnea. In November, tracheotomy had to be performed to relieve the dyspnea; tissue was at the same removed from the neck; it was mainly caseous, with a small area of granulation tissue. The appearances did not suggest tuberculosis and no tubercle bacilli were found. The patient's condition became worse, especially the dyspnea; a fluctuating swelling had by this time developed in the region of the left sterno-clavicular joint. The prognosis of an early fatal issue was made. On December 10 a positive Wassermann reaction was obtained. Potassium iodide was then prescribed up to 4 grams daily. Very rapid improvement in the general condition, dyspnea, etc., occurred. By Jan. 14, 1911, the glandular enlargement and the sterno-clavicular swelling had almost disappeared."

Very truly yours,

Wm. Pearce Coues, M.D.

EXAMINATION OF CANDIDATES FOR ASSISTANT SURGEON.

United States Public Health Service.

Boards of commissioned medical officers will be convened to meet at the Bureau of Public Health Service, 3 B Street, SE., Washington, D. C., and at the Marine

Hospitals at Boston, Mass.; Chicago, Ill.; New Orleans, La.; and San Francisco, Cal., on Monday, July 7, 1913, and Monday, August 4, 1913, at 10 o'clock a. m., for the purpose of examining candidates for admission to the grade of assistant surgeon in the Public Health Service, when applications for examination at these stations are received in the Bureau.

Candidates must be between 23 and 32 years of age, graduates of a reputable medical college, and must furnish testimonials from two responsible persons as to their professional and moral character. Service as internes in hospital for the insane or experience in the detection of mental diseases will be considered and credit given in the examination. Candidates must have had one year's hospital experience or two years' professional work.

Candidates must be not less than 5 feet, 4 inches, nor more than 6 feet, 2 inches, in height.

The following is the usual order of the examinations: 1. Physical; 2. Oral; 3. Written; 4. Clinical.

In addition to the physical examination, candidates are required to certify that they believe themselves free from any ailment which would disqualify them for service in any climate and will serve wherever assigned to duty.

The examiniations are chiefly in writing, and begin with a short autobiography of the candidate. The remainder of the written exercises consits of examination in the various branches of medicine, surgery, and hygiene.

The oral examination includes subjects of preliminary education, history, literature, and natural sciences.

The clinical examination is conducted at a hospital.

Successful candidates will be numbered according to their attainments on examination, and will be commissioned in the same order. They will receive early appointments.

After four years' service, assistant surgeons are entitled to examination for promotion to the grade of passed assistant surgeon.

Assistant surgeons receive $2000, passed assistant surgeons $2400, surgeons $3000, senior surgeons $3500, and assistant surgeon generals $4000 a year. When quarters are not provided, commutation at the rate of $30, $40, and $50 a month, according to the grade, is allowed.

All grades receive longevity pay, 10 per cent. in addition to the regular salary for every five years' service up to 40 per cent. after twenty years' service.

The tenure of office is permanent. Officers traveling under orders are allowed actual expenses.

The examination usually covers a period of about 10 days.

For further information, or for invitation to appear before the board of examiners, address "Surgeon General, Public Health Service, Washington, D. C."

Conference on Work of Psychopathic Hospital.

On Tuesday, June 24th, a conference on the work of the first year of the Psychopathic Department of the Boston State Hospital was held in the assembly room of the Hospital. Remarks were made by Dr. Walter Channing, Chairman of the Board of Trustees; Judge Harvey H. Baker of the Juvenile Court; Dr. John C. Blake, Trustee of the Gardner State Colony, and the members of the staff. Many subjects of much practical interest were discussed by the twelve speakers demonstrating the admirable activity of the Hospital during its first year of service to the community. Dr. E. E. Southard, Director, outlined future work to be undertaken. It is not to be questioned that this institution has entered upon a career of definite and far reaching usefulness.

RECENT DEATHS.

Dr. H. E. Snow, of Belmar, Monmouth County, N. J., who was graduated from Rush Medical College, Chicago, in 1887, died on June 12. He formerly practised in San Francisco.

Dr. James P. McEvoy, a retired physician of New York, where he was in the health department service for ten years, died at his home in Stamford, Conn., on June 8. He was a graduate of the University of Toronto, and afterwards studied laryngology in Vienna.

Dr. John Nutting Farrar, who died last week in New York City, was born at Pepperell, Mass., in 1839. He studied medicine and dentistry, and practised the latter profession in New York for many years. He was the author of several papers on "Irregularities of the Teeth."

Dr. Homan G. Howe, who died on June 13 at Stamford, Conn., was born in Jericho, Vt., on Sept. 3, 1850. He received the degree of M.D. in 1875 from the University of Vermont. He settled at Hartford, Conn., where he later became president of the Hartford Hospital and chairman of its executive board. He was a member of the American Medical Association, the Connecticut Medical Society, and the Hartford Medical Society. He is survived by Mrs. Howe and by two sons.

Dr. Richard Fletcher Van Heusen of New York died on June 15, at the age of 46 years. He was a native of Albany, N. Y., and was graduated from the Albany Medical College in 1895. He spent several years in the West, on account of ill health, and during this time practised in California, Washington and Montana.

Dr. Daniel J. Scully, formerly of Brooklyn, N. Y., died suddenly from pneumonia at his home in Colorado Springs on June 15. He was a native of Brooklyn, 38 years old, and a graduate of the College of Physicians and Surgeons, New York.

APPOINTMENT.

Dr. William Palmer Lucas, of Boston, has been appointed professor of pediatrics at the University of California Medical School, and chief physician of the pediatric department in the new University Hospital at San Francisco.

RESIGNATION.

Dr. William N. Bullard has resigned as Neurologist of the Children's Hospital, Boston.

THE BOSTON MEDICAL AND SURGICAL JOURNAL

E. W. TAYLOR, M.D., Editor
ROBERT M. GREEN, M.D., Assistant Editor

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Address.

SOME ABUSES IN SURGICAL PRACTICE.*

BY HOMER GAGE, M.D., WORCESTER, MASS.

The custom of having a formal oration at the annual meeting of the Massachusetts Medical Society was instituted in 1804, and on only six occasions since then, has its orator failed to deliver his message of hope and reminiscence.

The list of subjects embraces almost all the questions which have perplexed and agitated the medical world during these 100 years and in the list of orators are to be found, the names of those who upheld and advanced the professional standards of this Society during the 19th century,—the Warrens, Bigelows, Jacksons, Shattucks, Holmes, Homans, and many other equally eminent exponents of medical education and practice. For the privilege of being enrolled in such distinguished company, I am deeply grateful, and desire to express my appreciation of the honor you have conferred upon me.

In the earlier orations, it was customary to refer at the beginning to those Fellows who had fallen from the ranks during the year, whose memories were thus affectionately recalled, and whose services in the cause of humanity appropriately recorded. So long as the membership of the Society was small, and intimate mutual acquaintance and friendships existed, such a custom possessed a sincerity and a value that the growth in numbers made obviously impossible.

I think, however, that we should do well even now, to pause occasionally in the midst of the increasingly absorbing activities of our daily life, to testify to our grateful appreciation of the memories of those of our Fellows who have ceased to labor, but whose good works and faithful service are a constant inspiration and stimulus for us who have the burden still to carry.

I think you will pardon me, if I refer but for a moment, to two particularly distinguished and beloved Fellows of this Society who were with us a year ago, but whose faces we miss today. Seldom are we called upon to mourn two such men as Maurice Howe Richardson and Arthur Tracy Cabot, in a single year. Two years ago, Dr. Richardson delivered the annual oration before this Society, and for more than thirty years he had been a frequent and valued contributor to our Society proceedings.

His inspiring presence, and the simple, sincere, and absolutely frank manner in which he gave the results of his observations and his extraordinary experience, gave to all that he said, an authority and a charm, that made him a most welcome guest at medical gatherings all over the country. It would be hard to say whether we loved him most as teacher, hospital chief, operator, consultant or friend; association with him in any capacity was a pleasure and an inspiration which those who were favored with it can never forget.

Dr. Cabot, too, was long a faithful and effective worker in behalf of this Society, and of the ideals for which it stands, serving as its President during 1904 and 1905. A distinguished surgeon, a man of broad culture, interested in art, letters and education, to all of which he rendered substantial service, he touched life on many sides, to the advantage and honor of them all.

In the midst of an active professional life, devoted chiefly to surgery, he found time to give us an example of devotion to great questions of public health and the prevention of disease, which is worthy of the best traditions of the scholar in medicine.

One feature of these two lives, as they touched each other, should not be overlooked. Starting in practice at the same time, and in the same community, attached to the same hospital, and devoted to the same line of practice, they continued through life, an intimate friendship and mutual confidence and esteem, which was never marred by any of the jealousies and quarrels that have so often impressed the history of medicine. They have given us an example of that kind of professional comradeship which we all admire, but so often fail to live up to, and have taught us that in medicine, at least among the really great, envy and jealousy have no place.

Among the earlier orations delivered before this Society, there was one that has always been of especial interest to me, which I have read and re-read many times, and which is I think, worthy a place among the classics of our medical literature. The orator was Dr. Jacob Bigelow,[1] and the subject was "Self Limited Diseases." It was delivered at the annual meeting in 1835, and was a calm, logical, and very powerful arraignment of the prevailing practice of over-medication, and of the unreasonable faith which the profession of that day seemed to have, in the efficacy of drugs as a means of altering the natural course of many of the diseases that then were, and still are, common in New England.

He defined a self-limited disease as "one which receives limits from its own nature, and not from foreign influences; one which, after it has obtained a foothold in the system, cannot, in the present state of our knowledge, be eradicated or abridged by art; but to which there is due a certain succession of processes to be completed in a certain time—which time and processes may vary with the constitution and condition of the patient, and may tend to death or recovery, and are not known to be shortened or greatly changed by medical treatment."

Then he proceeded to show that these self-limited diseases fell under three heads:—"the simple, in which the disease observes a continuous time, and mostly a definite seat, such as the

* The Annual Discourse delivered at the meeting of The Massachusetts Medical Society, June 11, 1913.

eruptive fevers for example; the paroxysmal, in which the disease, having apparently disappeared, returns at its own periods, like epilepsy, angina pectoris and asthma; and the metastatic, in which the disease undergoes metastasis or spontaneous change of place, like mumps, gonorrhea and acute articular rheumatism.

The prevailing practice then was to treat all of these with the so-called shot gun prescriptions, which were popular in those days; to claim the cures to be the result of the treatment, and the deaths, to be the hand of God. "A charm," he says, "is popularly attached to what is called an active, bold, or heroic practice, and a corresponding reproach awaits the opposite course, which is cautious, palliative and expectant."

And he concludes his masterly argument against over-zealous interference by saying, "that the longer and the more philosophically we contemplate this subject, the more obvious it will appear, that the physician is but the minister and servant of nature; that in cases like those which have been engaging our consideration, we can do little more than follow in the train of disease, and endeavor to aid nature in her salutary intentions, and to remove obstacles from her path."

All this sounds very natural, almost commonplace today, but it was revolutionary then. The days of our confidence in the efficacy of drugs and of over-medication, are happily long since passed. But I have often felt in considerable doubt as to whether there were not other directions in which we, at the present time, have not failed to put enough confidence in the healing powers of nature, and were not still putting too much faith in the power of our own hands; that it was pertinent for us to inquire, even if there is no over-medication in medicine, is there no over-interference in the practice of surgery?

In no department of our profession have we witnessed such wonderful and such beneficent progress, since the days of Jacob Bigelow, as in the department of surgery. The discovery of anesthesia, with the more recent introduction of new anesthetic agents, and new methods of administration, which have rendered anesthesia safer and more effective, banished pain, and made careful, deliberate and accurate dissection of the living body possible,—the discovery of asepsis, which robbed the period of convalescence of its greatest terrors, laid bare the secrets of visceral pathology in the living, and made the cavities of the body as accessible to surgery as the surface,—and animal experimentation, which by making it possible for us to test the effect of many surgical procedures before applying them to man, has been of incalculable benefit in helping us to develop a safe and efficient surgical technic, and has been the means of discovering the value of serum therapy, one of the most important discoveries ever made for the prevention of disease, as well as for its relief,—all of these, anesthesia, asepsis, and animal experimentation, have been the important determining factors in the extraordinary development and growth of modern surgery, the history of which has been a source of the greatest pride and satisfaction to every friend of our profession, as its progress has been of incalculable benefit to humanity. It is much pleasanter to record the triumphs of modern surgery than to criticize its abuses; and the temptation to dwell upon its achievements, and especially the achievements of American surgery, is particularly strong.

But although we may very properly treat with contempt, such criticisms as are contained in Bernard Shaw's "Doctor's Dilemma," which reflects the depths of pessimism, and is simply ill-natured, unfounded abuse, is it not worth while occasionally to pause in so uninterrupted a triumphal march to see that the camp followers and retainers, who always follow in the train of a victorious army, are kept in their proper places, and that the fruits of the victory are not lost through the excesses of the victors?

The glamor of surgery, its directness of attack, and its tangible results make it particularly attractive to all medical students, and inspire the majority of them with an ambition to practice it. Surgery, too, occupies by far the larger part of our hospital equipment, and has led to the establishment of numerous small community hospitals, which are chiefly surgical, one of the most obvious results of which has been that the local practitioner feels obliged to undertake surgery, just as he feels obliged to undertake obstetrics in order to protect and develop his general practice.

Sir Patrick Cullen's observation, "that chloroform has done a lot of harm, it has enabled every fool to become a surgeon," has become still less an exaggeration of the truth since the discovery of asepsis.

Now, while the evolution of medical practice has been in the direction of greater simplicity, less dependence upon drugs, and less meddlesome interference with nature, the resort to surgery has appealed more strongly than ever, to the progressive, reforming spirit of our generation, and active interference has been invoked for the relief of all sorts of disorders, both functional and organic, in many cases with but little justification, and it has been freely practised by men whose training and opportunities for the observation and interpretation of living pathology have been far from adequate.

Until within a few years surgical interference was employed chiefly for the relief of the accidents and emergencies of life, and operations were but a small part of the surgeon's duty, strictly limited to cases of absolute necessity.

It is perhaps entirely natural, therefore, that with the removal of the restraints imposed by pain and septic inflammation, and the demonstration of the safety and practicability of operation, we should find ourselves carried to the opposite extreme, operating often when our interference is ill-timed and unnecessary.

Having demonstrated our ability to open and explore all the cavities of the body, to remove

much that they contain, and to rearrange more, without imperilling life, it seems to me that our efforts should be directed now, with still greater energy, to determining the limits within which our interference is necessary and desirable.

In connection with such great gatherings as the Surgical Congress, held in New York last autumn, I think we should be particularly careful not to permit ourselves to be so carried away by the number and variety of operations, and the wonderful exhibition of surgical prowess, as to lose sight of what is after all, the only justification for surgical interference at all, viz., the relief of suffering, with as little danger, distress and mutilation as possible.

Then, too, we must never overlook the effect of such clinics on the ambitions of untrained men,—men who are dazzled by the brilliancy of the achievements and are tempted to imitate them, but who have not had the training or experience to qualify them to discriminate between the time when such operations are useful and proper, from the time when they are unnecessary and improper.

The most significant and important results of that Congress, as it seems to me, were the recognition of the fact that major surgical operations are being advised and undertaken by men with little or no surgical experience, and the call for some action on the part of the profession to safeguard the science of surgery and the public from the practice of untrained and incompetent men.

The ability to do major surgical operations, and to get by with them, to use a slang expression, because the wounds heal perfectly, is, I think, a serious menace, not only to the public, but to surgery itself; and we look forward with great interest and hope, to the efforts of the new College of Surgery, conceived in New York last October, and born in Washington last month, so to standardize the requirements for the practice of surgery as to discredit, and as far as possible eliminate, the incompetent.

But it is not altogether to the abuses that are incident to incompetency, important and glaring as these are, that I wish particularly to direct your attention. In an article on "Conservatism in Surgery," by Dr. James E. Moore,[2] one of the most distinguished surgeons of the Northwest, "surgeons are divided into three classes, the conservative, the radical, and the progressive."

"The conservative is the man who treats empyema medically or with the aspirator, who temporizes with tumors of the breast until their malignancy is established beyond a doubt, and the chances for a thorough excision are lost; who waits for the development of a tumor in acute inflammation of the appendix; who waits in cases of intestinal obstruction until operation is almost hopeless, and by a general policy of delay and attempted palliation fails to grasp the opportunity for safe and successful interference."

The type is now chiefly of historical interest, so completely has it disappeared in the rise of the radical surgeon, who is described by Dr. Moore as one "who frequently performs unnecessary, and even unwarrantable operations," does gastro-enterostomy, "when stenosis did not exist, or when the operation could not rationally be expected to do any good," anchors a floating kidney, "when, because of a general ptosis of the abdominal organs, there is no possibility of relief"; "removes the appendix for insufficient reasons, because it is such a common offender that people are very ready to accept a diagnosis of appendicitis on a very small array of symptoms," and so on through the list.

This type is, it seems to me, unfortunately too common, and judging from my own observation, is still increasing. Moore very properly adds, "that some operations should be radical, but no surgeon should be so." The safe, sane, well-balanced surgeon, who holds his course between these two extremes, he calls the progressive,—a title that is well enough if you can forget the ordinary modern use of the term in politics and religion.

It is the increasing influence of the radical that prompted Dr. Richardson[3] to say, "that there is a tendency quite prevalent among surgeons to make light of surgical operations. I cannot but regard this as an evil, for all surgical operations, no matter how apparently trivial, are attended by possible difficulties and dangers which should always be taken justly into account in discussing their pros and cons."

This tendency to make light of operations is still further illustrated by the closing sentence of a most interesting and valuable paper by Bloodgood,[4] on "Medical Aspects of Surgical Diseases, or Preventative Surgery," in which he asks the question, "Why should not surgery interfere in the least dangerous period, even if it interferes now and then unnecessarily?"

A question which is, I think, sufficiently answered in an earlier sentence of the same address, in which he says, "Appendectomy in doubtful acute attacks, and in the free interval after such attacks, has been too often performed when the real trouble was gastric or duodenal ulcer, gall stones, renal colic, ptosis of the colon, pericolitis, or pelvic lesions, or in some cases, the abdominal symptoms of tuberculosis or pernicious anemia," and he might well have added, in some cases when there was no demonstrable lesion at all. When he concludes that "this over-zealousness in appendectomy has practically done little harm," I cannot follow him.

Of course it has done, and can do, little harm in his hands, because he would make such mistakes only when the most careful history taking and physical examination made them unavoidable, but to preach such doctrine to the average operating surgeon throughout the country, seems to me hardly fair to those who put their health and their lives in our hands.

If we look back over the history of modern surgery, we shall find many procedures which we once believed to be sound and beneficial,

which have since been entirely abandoned or greatly limited and modified in later practice, and more that are still in vogue, whose limitations we are just beginning to appreciate.

When the danger of peritonitis was removed, and the safety of opening the abdominal cavity demonstrated, one of the first popular procedures was Battey's operation, or the removal of the normal ovaries for the relief of pelvic pain, and although this has long since been given up, every hospital pathologist can testify to the number of practically normal uterine appendages that are sent to his laboratory as examples of chronic ovaritis, and every surgeon has felt the disappointment that has followed when their removal has failed to give the hoped-for relief, and the family physician has found himself after the operation up against the same old problems.

Then our attention was diverted to the Fallopian tubes, and the presence of a few adhesions and a little dilatation has led to their removal with as little satisfaction to patient and physician. Please remember that I am not speaking of those cases in which marked anatomical changes are found, and where unspeakable relief has followed the removal of seriously diseased appendages, but of those in which no gross lesions could be detected upon examination, yet operation was undertaken because there seemed to be nothing else to do, and no adequate cause was disclosed by the pathologist's report.

Then think how few years it is since the repair of the cervix uteri was regarded as a most important step in the cure of a great variety of disorders of supposed reflex origin, without much regard to the extent of the tear or to the presence of eversion or erosion. It was an almost unlimited field, and for years it was thoroughly exploited, but we have learned now that it has very definite and obvious limitations within which it is still a most useful and necessary procedure. Much the same can be said about the operation for the correction of backward displacements of the uterus.

Its value in cases where definite symptoms exist directly traceable to the displacement is, and probably always will be unquestioned, but that it should be undertaken whenever in the course of a thorough physical examination the uterus is found retroverted or retroflexed, seems absurd, not because any of the procedures for correcting the displacement are dangerous, but because in default of positive indications, confirmed if possible, and it generally is possible by a preliminary mechanical replacement, they seem to be a needless meddlesome sort of interference.

Yet because it is safe, simple, and gratifies the passion for doing something, or having something done, it is frequently employed when the symptoms and the displacement can have no possible relation.

Leaving the pelvis, we come to the question of appendicitis,—perhaps the most popular operation of modern times, with the laity as well as with the profession. In the first place, let me state as emphatically as possible, that I stand squarely with those who believe that in acute appendicitis operation should be done as soon as the diagnosis is clear—preferably within the first 24 or 48 hours; that with a history of one or more well defined attacks the removal of the appendix is desirable on account of the probability of recurrence, and that in many cases of chronic abdominal distress, if there is local pain or tenderness, with or without muscular spasm, its removal is justifiable on suspicion.

But although trying to be as careful as possible in diagnosis, I have many times operated when the subsequent history, or the condition of the removed appendix demonstrated the error of having operated at all; sometimes when I have yielded to the importunities of the family physician, or of the patient himself, and sometimes when my own judgment was at fault; and I think that if the pathologist of any of our large hospitals would compile the results of the examinations of the appendices sent to his laboratory during a year he would be the only one not surprised at the large percentage of practically normal specimens.

In how great a number of the cases of chronic abdominal distress which present themselves at our large surgical clinics do we find that the appendix has already been removed, but without relief; and how often do we find that adhesions, hernia or infection have made the patient even worse off than before?

My own feeling is that we need to exercise far greater care than we do, in making the differential diagnosis in cases of appendicitis,—that no one should operate for a simple appendicitis who is not sufficiently trained by experience, and by his observation of living pathology, to be able to detect the rarer and more complicated conditions, for which appendicitis may be mistaken. Hasty snap-shot diagnoses have certainly led to much ill-advised and unnecessary opening.

In the surgery of the gall bladder, operations are still far too common, in which the expected gall stones cannot be found or an ulcer of the duodenum is overlooked and in which the drainage of the gall bladder is, therefore quite superfluous.

The complexity of the anatomical relations in this region make accurate diagnosis, even after exposure of the field, much more difficult than in the region of the appendix, but this is of small comfort to the victim of an unnecessary operation, or of an unrecognized but troublesome duodenal ulcer.

In considering these surgical abuses and the limitations they ought to impose on surgical practice, the history of the operation of gastro-enterostomy is, I think, particularly significant. As a means of curing all sorts of intractable dyspepsias, as was for a time confidently expected,

and as it is still far too commonly practiced, it has proved to be most disappointing, but as a means of relieving pyloric obstruction, or as an adjunct to pyloric resection, its results are exceedingly gratifying. Its limitations are, however, not even yet as generally recognized and accepted as they ought to be, and when disregarded they lead to some of the most deplorable illustrations of unnecessary and misdirected surgical interference.

Movable kidney has been another easy mark for the over-zealous surgeon. It may give rise to severe and serious local discomfort, as in the occurrence of Dietl's crises, and its fixation in correct position may then be accomplished with great relief, but it is far more commonly a part of a general visceral ptosis, the discomfort from which is not at all removed by a simple nephopexy.

All of these are useful and necessary operations but they illustrate, it seems to me, certain abuses which have gradually, and perhaps naturally, crept into the practice of surgery, abuses which are not the result of incompetency, but are due sometimes to a faulty interpretation of a case history, more often to over-confidence in the benefits to be derived from mechanical interference and an unrestrained enthusiasm for doing something tangible and heroic.

It is not a sufficient answer to say that these operations are devoid of danger, and of post-operative complications—they are reasonably so, it is true, in the hands of trained experts, but they are not absolutely so, by any means, in the hands of the average operator throughout the country, and even when performed by experts there are "Certain Unavoidable Calamities Following Surgical Operations," as was pointed out by Dr. Richardson[5] in a paper before the American Surgical Association in 1904, such as hemorrhage, thrombosis, embolism, and suppression of urine. I have never had a death from suppression of urine except when its possibility was anticipated, but I have had unexpectedly fatal results from hemorrhage and embolism.

If I should permit my son to be operated on for a mere suspicion of some chronic inflammatory trouble about the appendix, and one of these accidents should occur, I hope I should have the grace to forgive, but I never should be able to forget, the tragedy of his death, and if the event of the operation should prove my mere suspicions unfounded, I am sure that I should never forgive myself for the sacrifice of his life.

I do not conceive that a surgeon's duty to his own son is any different from his duty to somebody else's son. I realize fully the responsibility which he is obliged to accept whenever he recommends operation, and I would not by any means have him shirk it; but I do insist that he should not undertake such operations as I have been discussing, lightly or without having carefully balanced the patient's present disability and suffering, its probable course if not operated on, and the accuracy of his diagnosis, against the dangers which are inherent in every surgical procedure.

But it is not at all necessary to have a fatal result to be brought in contact with the limitations and abuse of surgery. Consider for a moment the cases, and they are numerous enough in the experience of every one of us. I know they are in mine, and I do not believe my experience in this respect differs much from that of others similarly situated,—the cases in which, after operation, the relief is not permanent, is not even transient,—where the only result is the substitution of one form of complaint or disability for another, that large class of cases in which we find no very definite physical signs, no clearly defined pathology, but many and distressing subjective symptoms. And after the failure to relieve by operation we explain it by saying that the patient is a neurotic or a neurasthenic and that she belongs in the category of those who were so well described by Cheever, "as satisfied only when their pocketbook and their pelvis were both empty." But the point which I want to make is, shouldn't we have known that the patient belonged to that class, and if belonging to that class explains and excuses the failure of the operation, are there not some very obvious limitations to be applied to the practice of surgery in that class of patients, and ought they not to be recognized and applied before, not after, the operation?

Now let us look for a moment at the surgery of malignant disease, which presents a different problem. It must always be an open question how far operations are worth while which involve a serious deformity, like extirpation of the tongue and larynx, or resection of the esophagus, or permanent colostomy.

If we could reasonably expect as a result of these procedures a considerable prolongation of enjoyable life, or less suffering from the recurrence than from the original disease, there could be no question of their desirability or of our duty to urge their performance.

But in my own experience and observation such unfortunates usually eke out a short and very uncomfortable career, and the progress of the recurrent disease is quite as distressing as that of the original. Much the same can be said of the late operations for malignant disease wherever situated. It is perfectly true that thorough extirpation offers the only means of relief in malignant disease, but it is equally true, that to be effective at all, it must be applied early.

Bloodgood[5] has pointed out with especial force, the possibility of recognizing the precancerous stage of malignant disease in the stomach and elsewhere, and the false conservatism that permits a recognized ulcer or tumor to pass from the benign into the malignant stage, cannot be too strongly condemned. At the same time, I believe that we should be brave enough

to refrain from the mutilation and suffering caused by too late and hopeless operations.

Graves' disease is another illustration of the excesses into which our surgical enthusiasms are apt to lead us. We should all agree that in the early stages many of these cases recover a reasonable degree of health under appropriate medical and hygienic treatment, and that in the late stages of the disease, operative treatment is often unsatisfactory and even dangerous.

But that early operation would result in greater assurance of permanent benefit to a greater number than if it were confined to those who failed to respond to a reasonable trial of palliative treatment is by no means proven. Of course it would be safer, and the period of convalescence much shorter, than when the operation is delayed too long, but is it necessary—is it indicated?

Knowing that so many cases when taken early yield to less severe measures, it seems to me that such measures should have a reasonable trial, ever keeping in mind that failure to respond promptly should lead to their abandonment in favor of operation without any unnecessary delay.

I will simply mention the exploratory incision for diagnostic purposes, because the possibility of its abuse is too obvious, and illustrations too common to require further comment.

Now although all of the operations which I have referred to have their proper place, and are often imperatively demanded, the diseases for the relief of which they are undertaken are by no means always fatal or even permanently disabling under less heroic treatment. Just how large a proportion would recover under medical care has never been accurately determined, and until we have some definite statistics bearing on this point, our discussion must be based very largely upon the unsatisfactory and unscientific data supplied by personal experience and impressions.

It is equally difficult to get at the proportion of operative failures, failures not because of mortality but because the symptoms for which the operation was undertaken were not relieved.

Some quite significant figures were quoted in a paper which was read by Dr. Dwight,[7] before this Society two years ago, on "The Prevalence of Circulatory Diseases in New England," and they are of special value because compiled without any reference to the subject which we are discussing.

They were taken from the census reports, and show the changes that had taken place between 1900 and 1908, in the relative frequency of the more common diseases, tabulated as causes of death per 100,000 of the population.

They showed that in the preventable and infectious diseases, except scarlet fever, there was a very marked diminution, as illustrated by this death-rate; that in the circulatory diseases, except pericarditis, there was an almost equally marked increase.

In the group of "All Other Diseases" there was, of course, no such uniformity, but the significance lies in the fact that appendicitis, biliary calculi, ulcer of the stomach, intestinal obstruction and hernia, diseases in which surgical interference has been particularly active, all present a slightly increased mortality per 100,000 of the population. The increase in the number of operations during this period, must have been very large, and yet the statistical results fail to indicate the degree of improvement which the more radical operators would have us believe should follow more radical and more frequent interference.

Although all of the illustrations thus far referred to have been taken from the domain of general surgery, the different specialties are by no means exempt from the same tendency to operative excesses. Witness the muscle cutting operations of the oculists, the removal of tonsils and adenoids by the laryngologist, of nasal spurs by the rhinologist, and the extraordinary increase in the number of mastoid operations by the otologist,—all of these, like the others, are eminently useful and necessary procedures, but the indications for their performance are easily exaggerated by the enthusiasm and zeal of an impatient attendant.

I shall not weary you with any further illustrations, but shall be quite content if I have been able to convey to you the lesson which Jacob Bigelow's talk on "Self Limited Diseases" suggests to me, viz., that we should be careful not to put too much confidence in the work of our own hands. In thus recalling the faith of the fathers in Nature, I must disclaim again any desire to pose as a reactionist, or even as an ultra conservative. It is the glory of surgery that it is able to

> Rally the scattered
> Causes and that line
> Which nature twists
> Be able to untwine.

And no one can measure the benefit to humanity of the growth and expansion of surgical practice. Nor would anyone for a moment wish to do anything but encourage and applaud the pioneer work in surgery which is being carried on in our great laboratories and hospitals.

But as applied to the every day practice of the average operator, it must be acknowledged that surgical interference should be undertaken only after a most careful and thorough study of the conditions for which relief is sought, of the methods which may be employed to secure it, and by men whose training and experience qualify them to meet intelligently the dangers and complications that may be encountered.

We should not fail to recognize the fact that all of these surgical operations are definitely limited in usefulness and applicability, and that

disregard of these natural limitations constitutes a serious abuse of what is a perfectly legitimate means of relief when properly indicated.

It seems to me that the purely mechanical side of surgery has been receiving far too large a share of our attention, for we are not merely mechanics or carpenters. We must not forget that "any operation which does not better the condition of the patient must be regarded as a therapeutic error,"[8] and that to possess a sound judgment as to the indications and counter-indications for operations, based upon a careful and thorough knowledge of the natural history of disease and of surgical pathology, is far more important and valuable than the acquirement of mere mechanical skill.

In no department of human life are new methods more eagerly grasped at and tried out than in medicine and surgery, and the discovery that the cavities of the human body can be safely explored and their contents removed or re-arranged has very much overshadowed our interest in surgery as a science, and very much over-stimulated our enthusiasm for its practice as an art.

But all this will be changed. The only question is how, and by whom, the change shall be brought about. Shall it be slowly and gradually, by the natural processes of evolution; shall it be forced upon us by a popular demand for the safeguarding of surgical practice; or shall it be accomplished by the efforts of the profession itself to secure a more thorough preliminary training and adequate hospital apprenticeship for all students who are intending to engage in the practice of surgery?

I believe that it can be done best, and that it will be done, by the profession coöperating with the professional school, and I am equally convinced that when the change is made, and the science and art of surgery are brought into proper perspective, much of our over-interference will seem as absurd to our successors, as the over-medication of our fathers in the earlier part of the 19th century seems to us.

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Original Articles.

THE STUDY OF THE CAUSES OF JUVENILE DELINQUENCY.*

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Since the establishment of juvenile courts, a little over ten years ago, there has come an awakened interest in the causes of juvenile delinquency. In connection with the juvenile court of Chicago, four years ago, a Psychopathic Institute was established under the direction of Dr. William Healy, in which over a thousand of the repeated offenders have been studied. The purpose of this paper is to state briefly the methods used at the Psychopathic Institute, and to show some of the results of the study.

As statistics show that a large percentage of criminals commit their first offence long before their majority, it was thought advisable to begin the study of causative factors before the end of adolescence, both for the advantage of studying them in their beginnings, and that the prognosis might be the more favorable. For this reason study was begun in the juvenile instead of in the municipal court.

The routine study of each patient includes a physical and mental examination, and the ascertainment of many facts about developmental, family and social history from relatives, officers and others. In the physical examination such factors as eyesight, hearing, and nose and throat conditions are given prominence. If there is a question of hysteria, the physical stigmata are carefully looked for. Every physical factor is considered which could possibly effect the present situation of the individual. In the mental examination, Dr. Healy uses his own set of tests, supplemented by Binet in those cases where the mental age appears to be below twelve, or in any other case where it is indicated. Besides these, there are additional tests which are used as required.

In the study of the mentality, the factors which have been sought are: (1) results of formal education, always taking into consideration their advantages; (2), the estimate of native ability aside from formal education; and (3), the natural tendencies and interests of the individual, which may help in the solution as well as the understanding of the problem. The following is a tentative classification[1] of different mental conditions found, which has been adopted for the sake of convenience:—

"(*a*) Considerably above ordinary in ability and information—the latter estimated with reference to age and social advantages.

"(*b*) Ordinary in ability and information—the latter estimated with reference to age and social advantages.

* Read before the New England Hospital Medical Society, March 19, 1913.

"(*c*) Native ability fair and formal educational advantages fair or good, but very poorly informed.

"(*d*) Native ability fair and formal educational advantages fair or good.

"(*e*) Native ability distinctly good, but formal educational advantages poor.

"(*f*) Native ability fair and formal educational advantages poor.

"(*g*) Native ability poor and formal educational advantages poor.

"(*h*) Native ability poor and formal educational advantages good or fair.

"(*i*) Dull from known physical causes, including epilepsy.

"(*j*) Subnormal mentality — considerably more educability than the feeble-minded.

"(*k*) Feeble-minded (Moron).

"(*l*) Imbecile.

"(*m*) Psychoses."

The social aspect of the case includes the child's own story, written down as nearly as possible in his own words, and on separate sheets, the stories of anyone who can throw light on the case, including parents, friends and other members of family, school-teachers, ministers, employers, etc. The probation officer is able to add to this history an account of the home and the child's environment. Every source of information is made use of, and the informant evaluated as far as possible. Information is obtained in this way about heredity, ante-natal and natal, developmental and environmental conditions. Many times there is a wretched heredity with alcoholism, insanity, feeble-mindedness or epilepsy. Often the mother has worked up to the last week of pregnancy under severe physical and mental strain, and the child is a weakling—while other children born under more favorable conditions are strong. Sometimes the mother has made frequent attempts to bring on a miscarriage, and the blood supply has been sufficiently interfered with to affect the mentality of one child, while all other children are normal. Many unstable cases with extreme irritability give a history of meningeal disease. Some have had head injuries of a more or less serious nature, leaving sequelae of varying degrees of seriousness. One case following an automobile accident showed development wholly arrested from that time, while many still bear the marks of a fractured skull.

After a case has been worked out in detail, a summary is made along the following lines:—

1. The physical condition,—general condition and any special defects which could in any degree account for the present situation.

2. Results of the psychological examination, in as few words as the nature of the case will permit—with reference to detailed psychological impressions.

3. Delinquency (briefly).

4. Causative factors in chronological order, beginning with heredity, then ante-natal, natal, developmental, environmental history, and physical and mental conditions.

5. Prognosis.

6. Treatment.

The following history,[2] which is merely a synopsis of a case, may serve to explain the methods of examination more clearly and to show some of the unexpected results.

Girl of 16, Irish. Gives name which we come later to know is incorrect. Had been to a protective agency in a state of exhaustion. Said she had just come from hospital where she had been nursing her brother till he died and now had no home. Previously had been working as nurse. "Sunday I went out to this position. This woman has paralysis and Sunday night I could not go to bed, but stayed up and took care of her. I nursed my father for a year and a half, and so I know something about nursing. Sunday night did not think it was so bad because I wanted to help her. On Monday morning I was not so active and she began scolding, but I thought she was sick and I must take a lot off of her. Her daughter, she's about six months younger than I am, and Monday night she suggested I stay up half the night and she the other half. The woman said I could do it because that was what I was paid for. I stayed up all Monday night. When it got to staying up all day and all night that was slow torture. Monday night I broke my glasses and took them to the jeweler Tuesday morning. She said if he could do it in half an hour to wait for them. He said, yes, he could and while I was talking to the jeweler's wife a retired soldier came in. I spoke to him and he told me my twin brother was in the D. hospital. My brother told him to look for me and to tell me to come up there. I went up there and the Supt. said it was not so. I worked all day Tuesday and I told her daughter about it. I called up and asked if E. Y., my brother was there. A man answered the phone and said yes, he was there. He said, "Who are you?" I told him it was my brother and he said, if this is his sister you had better come to see him tonight. Said he was too sick to have operation. When I got there my brother was unconscious. He died last night at a quarter to three. I stayed there until this morning—it was light—I don't know whether it was 6 o'clock or 9 o'clock. They said he would be buried at 10 o'clock this morning. They said the Government would take care of him."

At another interview said: "Father died last October. Mother died twelve years ago. Have six brothers, two are railroading, four in the army. Have six sisters. I went through grammar and high school. In Cheyenne, Leavenworth, Des Moines—in the high school there. Was living with father till he died, took care of him for year and a half. Since he died have been living from October till latter part of January with twin brother in flat where father died. In January brother had to go to barracks so we stored the furniture and I boarded. Was doing office work then. Have one sister in Des Moines, one in Cincinnati, two in California. Have one brother in Kenosha, switchman for the L. S. & M. S.—one in Denver, he is firing for the Wabash."

Another interview: "I went through high school. When 17 graduated from the high school. Graduated from the Des Moines high school. Studied for a nurse one year in Cincinnati and one year in Chicago."

Another interview: "I hope there is nothing against me that I should be arrested or anything like that. I had a home till my father died. I was supposed to be married on the first of February. I don't know where he is now—Texas or some place. His name was K. S. Well, if I'm not crazy, I'm near crazy, believe me. We had a misunderstanding before he left. He threatened me so much. He told me if I ever married another man he would kill me and all that. He has an awful fiery disposition and I don't know what he would do. (Questioned again). Well, I don't know where I was. I don't know where I stayed. It is impossible to be doped because I never drink. I never touched a drop of liquor in my life. Well, I hope I ain't crazy."

She gave a description of the high school at Des Moines. Said it was part grammar and part high school, which often is the case in smaller towns. Described the seals on the rocks at San Francisco. Told of an obstetrical case, which was the only case of nursing she had had since in Chicago. Said she had had one year of training in a hospital in Cincinnati and one year in Cheyenne—and so on.

The story given to the protective agency was quite convincing until they had gone over to the hospital to have the alleged brother buried. Then it was found there never was such a fellow there. Much medical detail was elaborated by the girl, and she wept on a lady's shoulder as she told the story and went willingly with them to the hospital.

Psychological: Girl is pleasant and apparently frank. Emotions show most normal relationship to what she asserts. Good and remarkably vivid language.

Tests: (1) 1′ 10″—no repetition of error on triangles; (2) 1′ 8″—5 errors; (3) 18″—11 moves, 2 errors; (4) 40″—16 moves; (5) 35″—1 error before learned combination; (6) full functional account, no suggestions accepted; (7) *a* OK. first trial, *b* OK. second trial; (8) no errors; (9) OK. first trial; (10) OK. first trial; (12) 17 items. Approximate verbal accuracy; (13) 12 items. Approximate verbal accuracy; (14) OK. third trial; (15) average time, 6″—1 error; (16) 92 taps in 30″—1 error first trial; 94 taps in 30″—no errors, second trial; (17) normal; (18) OK., sixth grade, interest; (22) reads much—loves stories, Alger. Contemporary history and geography items accurate. Scientific items nil.

After a number of days the girl's family was found by expert detective work. Up to the moment her mother entered the room, the girl denied her existence. She was asked, "what would you say if I told you your mother was just outside the door?" Answer: "I should say she would have to rise out of her grave to do it."

From her family and several different sources the following information was obtained. She has good home, was never outside of Chicago, never studied nursing, no army connections. Developmental history quite negative except that at two years of age she was seriously sick, "spinal meningitis," etc., few convulsions then. She was born with instruments, but so were all the others, and no trouble with them. She is one of four children. During pregnancy the mother was witness to a tragedy on boat, but evidently not greatly upset. This girl developed well mentally and physically. Operation on eye at 8 years—strabismus—blind in the one eye even then. Menstruation at 13 or 14, normal. Heredity quite negative. School 8th grade, but for long complaint by teachers of lack of attention to her work. "Queer and hysterical" and avoided in consequence by other girls. Not nervous in any ordinary way, is indeed calmer than others of her family. Once wandered for hours after school and told fantastic stories of her experiences—also another time about being chased by a horse, etc. Went to a church quite outside faith of family and was suddenly converted. Soon lost interest, however. Peculiar for a year or two in several ways. Used to be very tidy and neat, but now opposite. Once took money and denied it although it was found among her things. Always addicted to lying. Mother would have to check her up often about it. Some months ago had little quarrel at home with sister and ran away to friend's house for a month. Few months ago, before and after father's death, he had been long ill, she was hysterical and queer, claimed to see his face after he was buried, etc. But no great emotion.

Just lately has been lost to family for about a month, but had written remarkably "housewifely" letters home saying she was married. This was all fiction. For part of the time she was away was staying with different men one, at least, of whom she picked up on the street and with whom she went at once to live. There was not the slightest reason to believe she was ever immoral before.

After truth came out about her family she still lied and lied to them and others and about immaterial details, although told about her own misdemeanors. In explanation of her knowledge about out-of-town places, she says she is a great reader and learned things in that way. Used to enjoy writing compositions about going to places and thought she would like to become a story writer.

Physical: 117 pounds; 5 feet 2 inches; attitude slouchy, untidy; strabismus, one eye practically blind, vision of her other eye imperfectly corrected by her glasses; development about normal; strength good; color good; distinct analgesia over arms and face; palatal reflex diminished; teeth fair condition; expression normal, but not specially prepossessing.

This case might be summarized as follows:

Summary.

Physical Condition. Very well developed. Untidy. Stigmata of hysteria. Loss of pharynx reflex. Strabismus marked. Vision partially corrected. Gonorrhea.

Mental Condition. Native ability good; well informed. Pathological liar. Hysteria.

Delinquency. Extreme sex delinquency, plus excessive lying.

Causative Factors. (1) Developmental condition. (Spinal meningitis at two years. ?)

(2) Mental condition—hysteria (psychosis. ?)

(3) Recent illicit sex experiences.

Outlook. Impossible at home—questionable in institution.

Although each case may be the result of several important causative factors, still the cases very naturally fall into definite groups. The

following are some of the more important ones:

Subnormal. One of the most interesting types that one finds, and one which is very difficult to deal with, in the so-called *subnormal* type. The mentality of these cases in an adult may be roughly estimated as showing no more development than that of a twelve-year old child. There are many varieties of subnormal individuals perhaps not yet classified. We may find a girl of fifteen, who talks very convincingly, who is able to read rapidly and understandingly, but who has been unable to learn arithmetic even after several years of teaching. One rather typical case which I have in mind is a girl who showed marked immoral tendencies, which could not be controlled in any degree by her foster-parents. She had been in an orphan asylum for several years, where she had attended school only part of the time. However, when the results of her formal education were tested it was found that while she could read with ease, and talk well, she could do nothing with arithmetic. It is surprising how common this particular class is; they show the ability of a twelve year old child in most of the tests which are given them, and yet they are unable to cope with arithmetic, sometimes being unable to tell how much 3 plus 4 are, or 4 times 5, or even 2 plus 2. The inability to learn arithmetic is seldom an isolated factor or special defect, but rather an indicator of other deficiencies not so easily computable. Erotic tendencies in this type are common, and the child who is spoken of as "a little dull" or "not very bright," and is consequently thought by the majority of people to be the dupe of evil-minded individuals, is more often an active offender and a menace to the community. There seem to be very few tests which are adequate for the determination of this class. One of the best which we have found is the code test, which may be found among Dr. Healy's tests and among Dr. Goddard's revision of the Binet-Simon tests.[3] It seems to us that their inability to learn arithmetic may well explain the foresight which they lack in understanding moral situations, and their lack of comprehension as to where their situations are going to bring them. Every individual who is supposed to come in the realm of normality is like a pair of scales in which emotions and impulses on the one side are balanced by inhibitions on the other, some inhibitions being mental and others physical. Many inhibitions come from an intellectual source, that is, we appreciate the results of certain things which we may be tempted to do, through the realization of the harm they will do others, or by knowing the results to ourselves. If the reasoning power is lacking and the emotions are ordinarily strong, the balance is destroyed, and the emotions run riot, or the individual has not the power to resist, being carried the way of least resistance. Many times it seems as though the emotions are stronger in these individuals than in the normal person, making the lack of balance the more marked.

There is another class of subnormal individual, in which the mind works very slowly, in which all mental processes seem equally retarded; still another where there is special defect in one direction only, corresponding to a lack of ear in music, or to color-blindness. How much the behavior of the individual is influenced by this defect depends largely upon its location.

Another type which may be called subnormal is that which is below twelve years mentally, but nevertheless is able to support himself in the community and does not come under the cases needing institutional care. For this reason, such a case, although a moron, strictly speaking, might not be considered feeble-minded, on account of his mechanical ability, or whatever it was that enabled him to earn his own living; and instead might be classified as subnormal.

The difficult question is what to do with such an individual. Many are capable of supporting themselves, but the majority are unable to keep out of trouble unless closely supervised. They are often unable to concentrate their minds for any length of time, and give a history of from four to a dozen positions in a year. The girls are particularly susceptible to the temptations offered them, and besides not having the power to protect themselves, are often a moral menace to their environment by the active form their tendencies take.

This class presents a long and varied list of delinquencies. The following are a few examples of concrete cases: much unreliability, truancy, staying away at night, sleeping in basements and under stairways, inability to hold positions, general incorrigibility, including such things as breaking windows in a school, lack of cleanliness, irresponsible behavior, such as cutting off children's hair and holding baby out of window by its heels, being many times suspended from school, repeated burglarizing, exhibitionism, and very erotic behavior.

Moron. The second type, known as the *moron,* or high grade feeble-minded individual, corresponds roughly to a mental age between seven and twelve years. This type represents a more pronounced type than the *subnormal,* and there is usually greater difference in the balance of the emotions and inhibitions. The majority of these cases require very close supervision, even though they are frequently able to be very useful. One girl of fifteen, who was able to keep house for her father and four brothers, doing washing and ironing, cleaning and cooking, suddenly tired of it and left. After staying at first with a married sister, and then with a friend, she later proved wholly unable to protect herself, and came to the notice of the court, where she was found to be guilty of several offences, which the fact of her being a high-grade feeble-minded girl readily accounted for.

Imbecile. The imbecile or low-grade feeble-minded individual corresponds to a mental age of between three and seven. Among them we find all sorts of delinquencies. It is a surprise to find

how many of this type are not receiving institutional care, but are at large in the community.

Among the delinquencies of the last two classes may be found the same which are found among the *subnormals*, with possibly greater irresponsibility and more frequent acts of violence.

The different classes of mental deficiency have the usual variety of causes. Heredity is a very important factor, the parents often representing the lowest types of society both mentally and physically; the mother possibly a prostitute and the victim of opium and cocaine; or the father deficient, and continually under the influence of alcohol. Then again we find very unfavorable ante-natal conditions, birth injuries, and illnesses during their development, such as meningitis and encephalitis, leaving a great variety of defective conditions behind.

Epileptic. The epileptics represent perhaps the most varied type of individual there is, and the delinquencies vary as much as the types. In some cases, with difficulty, a history of convulsions in childhood, unaccompanied by fever or intestinal disturbance, is obtained. In other cases, all that can be obtained is that the girl sometimes drops dishes while wiping them, and seems not to hear when reprimanded, standing with eyes fixed. The mentality of these cases is often very characteristic and may be recognized in the way they perform the tests. There is often great irregularity, some tests being done surprisingly well, while others are done very poorly. The difficulty with the epileptic is that much of the time he is able to do good work. He presents one of the most serious problems in criminology, because it is by this class that some of the worst crimes are committed. Yet in many of our states there is no provision made for their care or their treatment.

The following is a classical case[4] in the Chicago court:—

"A strapping lad who is a terrific problem on account of his frequent commission of offences. At times the poor fellow is full of ambition and shows, indeed, normal ability. He particularly desires to be a professional man, a lawyer. In addition to his school work he has started law studies. And yet, the first time I saw him, he was in such a dazed condition for hours that he hardly knew his own name. He had been involved in a miserable affair which sent a degenerate man to prison for a long sentence. Sometimes he has been found full of vindictive spirit toward even his own relatives. At other times he has displayed much contrition at the offences he has, in his uncontrolled moments, committed.

A terrible train wreck of a west-bound flyer was almost perpetrated, being narrowly averted through the discovery of the obstruction five minutes before the train was due at that point. The wreck was deliberately planned by our would-be lawyer under the spell of one of his whim-controlled states. He knowingly placed some angle irons in the best way to do the work, and then went about in the unfamiliar neighborhood, met some boys and invited them to come down soon and see a train tumble over. I repeatedly asked him why he did it, and all he could answer, while expressing deep regret, was that somehow he remembered he had just wanted to see what a wreck would look like. A few of his deeds have aged his mother a score of years, and have kept not a few policemen busy. But if met only in his better moments one would scout the possibility of his being the source of so much trouble."

Among the *epileptics* we have, perhaps, the widest range of delinquencies, and the most serious offences. They are often vicious and wholly incorrigible at home and in school, cruel to children and to animals. They may attempt to commit suicide, make grave sex assaults or be perverts. One of this class was the evasive type of jail-bird; another was a vagrant; another an unmitigated fighter; while another had been forging checks, and was exceedingly destructive.

Hysterical. There is the *hysterical* type. It is sometimes difficult to differentiate these cases from the *epileptics*, especially as many individuals have symptoms of both diseases, and the two may be associated. These individuals may make very serious accusations, on account of which innocent people are arrested and kept in custody for months pending their trial. The testimony which they can give is appalling. The first case cited is a good example.

Among the aberrational cases, there are at least four or five prominent types. Besides the cases of definite psychoses, there are several rather distinct types found.

Neuropathic Personality. First, there is a type of nervous instability or neuropathic personality, which in our opinion is a very important factor in delinquency. There is nothing tangible except rather erratic behavior with lack of normal inhibitions and general nervousness. The condition often follows supposedly cured cases of meningitis, or head injuries. There seems to be in these cases just enough lack of inhibition and balance to make possible and easy many different forms of delinquency. This type, in which we find a large number of individuals with fair educational advantages and good native ability, still has associated with it a long list of serious delinquencies. Besides the usual list of lying, stealing and running away, there are more serious ones, including vicious conduct and rather desperate deeds, such as violent fights while intoxicated and assault with a knife; insulting and aggressive behavior. One boy attempted to hang himself on account of a superstition of his race. They also do not hold positions, and may show general trickiness and untrustworthiness. They may chafe at home discipline, and in consequence run away from home or stay away nights, which rapidly places them in the way of the greatest temptations imaginable, to which only the unusual boy would not succumb.

Psychopathic Constitution. More pronounced than this is the psychopathic constitution,[5] which

constitutes an important class, and which is extremely difficult to deal with or help. There is always a question of an incipient stage of mental disease, or there may come to light in a suspected case of this kind, an early epilepsy, which at present is showing no other symptom except mental traits, such as cruelty to animals or playmates, and no amenability to authority of any kind.

Constitutional Inferior. There is the constitutional inferior, in whom there is a marked lack of power of endurance. These individuals, while they may have good minds, cannot hold out long in any position, and there are usually found to be physical defects and stigmata, and an inferior general physical condition, which point to the foundation of their difficulties.

There is a very interesting class which presents symptoms of a beginning psychosis. They are frequently associated with the stress of adolescence, and often get their bearings before a definite or permanent psychosis develops. The lack of reasoning power which these cases exhibit is very interesting. This is demonstrated to a certain extent by the so-called 'completion test'. The test consists of a picture with ten holes, in which different objects are inserted as in a picture puzzle. There are also given the child many more pieces to choose from, and he is told to pick out the one making the most sense.

The wild results obtained in this test from aberrational types are amazing. A baby will be put upside down in place of a window, a dog will be suspended in mid air, head downwards, and there may be innumerable impossibilities and incongruities, the reason for which they seem wholly at a loss to give. There is a definite lack of reasoning ability in these cases.

Usually there are many factors in each case which contribute to the whole. One of the commonest of the individual factors is the difference in physical and mental age, or in other words, the premature physical development in an individual in whom there is normal mental development. In a perfectly normal individual puberty may appear before the normal physiological age, and before the mental inhibitions have been developed. This results in a great amount of emotional activity, which is far more than the individual is able to cope with. Many cases of adolescent instability, which subsequently regain their equilibrium, are found to have such an inequality of development as a contributing factor.

No one who has not followed a case of this kind in an individual who perhaps may have more than the usual mental development for her age, but still far from enough to cope with an excessive physical development, can possibly realize the importance of this factor in adolescent delinquencies. These cases are usually able to right themselves if they can be sufficiently guarded until they regain their equilibrium. Thorough understanding of the case, however, and an unlimited amount of patience are necessary to bring them through.

Besides the factor just mentioned, there is a definite type which should be considered at the same time. In this type there is not a temporary incompatibility between the physical and the mental sides, but a permanent one. This may be an inherited characteristic, and represents what is commonly known as a sensual type, with the characteristic stigmata of thick lips and heavy features. In one case of this kind the father was in prison for attacks on young girls. While giving the boy's history, the mother told of evidences of physical stimuli even in infancy. Even while in the Detention Home, he tried to get some of the younger boys into his power. The whole physical development, but particularly sexual development, is marked and the earliest memories of the individual may be of a passionate nature.

Among the "A. type," which is almost a genius class, are found individuals whose mentality is far above their environment. They have an unlimited supply of imagination, energy and courage, with no possibility of expression. They go to moving-picture shows, become imbued with the "Wild West" spirit, and try it out in the heart of the city. A boy of this class may enter open windows for the fun of seeing if he can get in and out again with the family in the next room. Being successful in this, he tries something more daring, which may be stealing an automobile, or leading his gang into the systematized robbery of a fruit stand or candy store. Unless the cause is discovered, and his energy directed into the right channel, it may direct itself into another channel. Thus, a too bright boy, with no healthy interests, is likely to be as unstable and as much a problem as a dull one. The great difference, however, lies in the difference of the prognosis, provided the diagnosis is made and proper treatment instituted. Often in these cases the home training has been only repressive, and there has been no understanding of the individual's needs. Again there may be instances of horror or of mortification in their lives, which have been repressed and which no one has understood or has been able to weed out. In one case, a child of four set the house on fire, causing the death of his mother. His father confessed that his feelings toward the boy could never be the same after this tragedy. The boy grew up with this horror constantly before him. Again, a boy who had been brought up by his grandparents, suddenly discovered that the girl whom he supposed to be his sister was his mother. This, of course, gave rise to all kinds of imaginings and distrust. A similar condition may be caused by the discovery of illegitimacy.

Perhaps one of the commonest causes of delinquency is bad environment, which includes two large factors,—home environment and companions. Such factors, joined with poor innate qualities, present a very unfavorable prognosis. Many boys live in a community where every boy takes pride in robbing fruit-stands or indulging in immorality. The gang is an important factor, and

often, with a single evil-minded boy as a leader, is a great menace. Sometimes the home seems wholly to blame; there may be alcoholic parents, or the boy may have been taught to lie and steal from early childhood. Often his mother supports herself and her family by taking lodgers of no good sort, and the boy has never known anything but immorality. In cases such as these, the ingenuity of the probation officer and judge and examiner is taxed to the utmost, because even if they can be removed from their environment temporarily, it is difficult to remove them permanently.

The following cases represent some of the worst environmental and developmental conditions:—

Case 1. A girl of nine years who was an illegitimate child was brought in for running away and being found terrifically intoxicated, and for being a sex delinquent. She bore evidences of congenital syphilis. Her mother was a colored woman who had been insane, and who was the lowest kind of a prostitute. Her father, probably syphilitic, was an Irishman, and alcoholic. She had associated with men who made her intoxicated, and one of whom had assaulted her. Even with "E mentality" (native ability distinctly good but formal educational advantages poor, according to classification), what could possibly be expected of a girl with this history?

Case 2. A boy of 15 was brought in for stealing watches and diamond rings, for being abusive at school, and for throwing a knife at his mother. He was the typical sneak-thief type. The father was alcoholic and had been arrested many times for drinking and fighting. The mother who did washing was scatter-brained and careless. The boy was an irresponsible type, but showed a wonderful deftness with his hands. He easily fell into the clutches of a woman who induced him to steal, and who then acted as fence and disposed of what he had stolen. He was graded as "C" mentality, (native ability fair and formal educational advantages fair or good—but very poorly informed), but had this frightful environment to contend with.

Case 3. One boy was rescued from a dive where he had been fed with beer and whiskey, his father a bad character, his mother a sporting woman. His delinquencies were truancy, lying and stealing. Among other mental peculiarities he was found to have poor moral comprehension. Could one have expected anything else?

Sometimes the delinquency and even the deficient mentality may be the result of poor physical condition. In such cases it is unfair to make a mental diagnosis until the child has been given good medical care, and his physical condition has been improved.

There is an interesting group of cases presenting a field for further study, which is still well worth mentioning. In this group is found a definite repression of certain impulses in one direction which results in their expression in another. Thus in many cases of stealing where the temptation comes in a wholly inexplicable manner, there is found to be a marked repression of some kind, often of a sexual nature. As one studies the mechanism of the individual's mental processes, it may be found that the mental images which prompt the stealing belong to the repressed complex, and it is not until that complex is brought to light and explained that the secondary manifestations can be righted. This group of cases furnishes material for psychoanalysis and is a study in itself.

These are a few of the distinct types and the more common causative factors. There are many others, of course, and almost as many combinations as there are individuals. Delving into children's confidences bring many things to light which would have been undreamed of in the hurried trial in the court room. Many times children are willing to confess things to one whom they feel to be sympathetic, which their own parents never dreamed of, and many times just the discovery of this key-note is enough to put them on their feet again permanently.

This is simply an outline of the work which has been done in one of our juvenile courts, and which is being started in several other cities.

The study of the cases individually and their classification, is of the greatest importance possible, and such study is recommended for delinquents and criminals of all ages. Still, that such study and diagnosis may bear fruit, it is essential for the community or state to have resources at hand with which to provide proper treatment. Under such resources may be included feeble-minded institutions, sufficiently large to receive all applicants, epileptic colonies, institutions for the treatment of inebriety and drug habits, reform schools, where individuals who are educable may receive training, and penal institutions adequately equipped for the correction of all physical defects.

In providing for the individual study of the delinquent and his appropriate treatment, the community is protecting itself against present delinquents and future criminals. The community is responsible for a large percentage of the crimes now committed, rather than the individuals themselves.

The greatest need at present is the education of the public, and bringing them to a realization of the community's needs and their own responsibility. In order that this may be accomplished, the enthusiastic support and co-operation of the medical profession is needed.

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INTESTINAL STASIS.*

BY F. G. SCHLESINGER, M.B., B.S., B.SC., LONDON, ENG.

I APPRECIATE very greatly the honor you have done me in asking me to talk to you this evening, and my sole reason for occupying your time is my desire to present to you the views of Mr. Arbuthnot Lane and his school, upon what we consider to be one of the most fundamental problems with which modern medicine and surgery have to deal.

Before considering the general question of intestinal stasis, I would make a few remarks, not directly connected with the subject, but which serve to explain some of the factors at work in producing this widespread condition. Mr. Lane's observations on the skeleton of the coal-heaver and the shoemaker, as well as our everyday experiences in anatomy and surgery, have taught us that the bony and ligamentous skeleton is nothing more nor less than a crystallization of lines of force. Wherever there is a repeated stress or strain, nature deposits along such lines of stress or strain, bony or ligamentous tissue, and such deposits as are of general utility and advantage to the species become inherited as permanent additions to the skeleton. Nature's adaptability to her surroundings, however, is such that a deposit along lines of strain can, and does, occur in the life-time of the individual, as exemplified by the bony bosses on the axis vertebra of the shoemaker and by the evolutionary bands in the abdomen of the constipated individual.

The greatest evolutionary characteristic which distinguishes man from the other animals, is the assumption by him of the erect position. The assumption of this position, while allowing him to evolve at a rapid rate, owing to the free use which it enables him to make of his hands, has not been so happy in its effects on his abdomen, and, further, from the increased mental development which has accompanied the evolution of the arm and hand, there has grown up a series of unnatural and in some senses, degenerative habits, which we know as "civilization." Improper feeding in early life, the continual assumption of an erect attitude and the use of the toilet in defecation contribute to make constipation one of the curses of the race, and one which is even now tending to become a racial inheritance, as well as an individual menace.

What then are the results of constipation, plus the assumption of the erect position, upon the contents of the abdominal cavity? The first portion of the bowel to be affected is the sigmoid. A band develops attaching the sigmoid loop to the side wall of the abdomen, endeavoring both to straighten it out and to prevent the accumulation of material up along the descending colon. This band, if properly developed, is of service, but if over-developed, by hindering the passage of matter past it, it increases the condition and a vicious circle is established. The contents of the large gut being damned back, a heavy transverse colon results, the pull of which is felt largely at the flexures. Bands are in consequence deposited, tending to fix these points. Now it is a simple mechanical proposition that, in a hollow tube, if there is a fixed point with a tendency to drop on either side of it, this fixed point forms a potential obstruction, which becomes actual when the dropping forces are in operation. Consequently, in the erect position in the constipated individual, a further obstruction develops at the hepatic and splenic flexures.

Let us now consider the cecum. This organ, when loaded, has a tendency to drop in a downward and inward direction along the wall of the false pelvis. This dropping force produces a strain along lines at right angles to each other, in a direction upwards and inwards, and upwards and outwards respectively. The outer limb of this parallelogram of forces crystallizes as Jackson's membrane, while the inner limb is deposited as a band, which may be attached either to the cecum, to the appendix, or to the ileum, forming, in the latter situation, Lane's kink. If this inner limb fixes itself to the cecum, all is well; if, on the other hand, the appendix or the ileum is the seat of attachment, we have again the fixation of a point in a hollow tube with a tendency to drop on either side, and a potential obstruction at the fixed point. Again, nature may use the appendix as a handy ligament for holding up the cecum and may fix it by its tip to the mesentery of the ileum, a condition which if discovered by the operator is looked upon as evidence of a former appendicitis. The lumen of the terminal ileum is frequently kinked over such a fixed appendix. If the on-flow of the contents of the ileum is delayed, either by a band, or by being held up over a fixed appendix, its contents puddle in its lower coils, which in these cases will be found to occupy the true pelvis.

The beginning of the jejunum passes, as we know, upwards and then downward and to the left from the duodeno-jejunal junction. In an individual, the end of whose ileum is obstructed, the heavy coils of the ileum pull upon this junction, causing it to become an acute angle. Nature, in endeavoring to correct this, forms a band at this point which, while primarily beneficial, unfortunately often increases the angulation. The duodenum, obstructed at its outlet, distends and becomes painful, while its first part, where it is uncovered by peritoneum, frequently shows actual ulceration; in the production of which an ascending infection, of which I shall speak later, is also a factor. Nature discovered the principles of gastro-jejunostomy some time before the surgeon, and endeavored to undo the kink at the duodeno-jejunal junction by forming bands fixing the first part of the jejunum to the under surface of the transverse meso-colon.

The obstructed and distended duodenum in-

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duces a spasm of the pylorus, and a consequent stasis of the stomach contents. The heavy stomach, as well as the loaded transverse colon, suspended from the greater curvature, exerts a strain upon the stomach at its line of suspension. This strain is usually felt most on the lesser curvature near the pylorus, and congestion, inflammation, and finally ulceration results.

Now the band which controls the end of the ileum will be found to be attached to the gut at a point opposite to the mesentery, and in contracting, it produces a torsion at the point of attachment, which, super-imposed on the vertical kinking, causes a very real obstruction, often amounting to a 24 hours delay in the passage of a bismuth meal past this point. This delay favors the invasion of the ileal contents by the colonic flora, as well as an excessive growth of the normal flora of the ileum, and this infection may proceed right up the intestines, often ending in an infection of the ducts which open into the gut, with a subsequent production of cholecystitis, gall stones, pancreatitis, etc.

Such then, are the purely mechanical effects of intestinal stasis, but even more striking are the effects of the auto-intoxication which results from the infected ileal contents. A large group of symptoms, which we are in the habit of calling toxic, develops, and which I shall mention in describing the symptomatology of this condition.

Clinically, cases of intestinal stasis fall more or less naturally into four groups, which we may term "the obstructive," the "toxic or suprarenal," the "mixed," and the "end-result" groups. The "obstructive" type is usually regarded as having a duodenal ulcer, a gastric growth, or what is known as "nervous dyspepsia." The patient, more usually a man, complains of pain after food, sometimes at once, sometimes after an interval, with vomiting, which usually relieves the pain. The vomit consists of the food which has lately been eaten, and is quite different from the vomiting which occurs in the second class of cases. "Toxic" symptoms may be present but are often not very marked, and it is not for these that the patient seeks advice. These patients are usually the possessors of apparently thick arteries and have a raised blood-pressure. They usually have quite well-developed abdominal muscles. On examination they are very tender over the duodenum and point to this as the site of their pain. They may or may not complain of pain in the iliac fossa, but are invariably extremely tender on pressure in this region, and the end of their ileum is readily palpated as a thick tender cord. A discriminating x-ray examination shows a firmly fixed point in the ileum, and a dilated and hypertrophied duodenum. The effects of ileo-colostomy on this type of case are most striking. The patient can eat and enjoy solid food, when he has often taken nothing but fluids for months; his blood-pressure falls in a few days to near normal, and he can do the hardest and most sustained work with impunity.

It is in this group of cases that paraffin and other non-operative measures are worthless; whilst the operative results are the best, because the ileal and duodenal obstruction is the main feature and brings the patient to the surgeon while the condition of toxemia is yet in its early stages. At the operations on these cases the ileum is found to be hypertrophied proximal to Lane's kink up to five or six times its normal thickness, and the duodenum, which may or may not be ulcerated, is also hypertrophied and distended. Bleeding often takes place from this distended duodenum even without any actual ulceration.

In the obstructive group may be placed many of the cases of so-called Hirchsprung's disease occurring in adults, and some cases of chronic volvulus of the sigmoid.

The second group of cases, the "toxic" or "suprarenal type," occurs more generally in women, and is the group most commonly recognized. In these people constipation is generally present, and, unless it has led to that condition of irritative diarrhea and paralytic secretion commonly called mucous colitis, is often extreme. The direct abdominal symptoms, apart from the constipation, are, however, overshadowed by the group of symptoms called toxic, which are usually regarded as being due to the excessive absorption of bacterial toxins, but for some of which I shall offer another and simpler explanation. These symptoms are both subjective and objective, and are often of such intensity as to make the patient welcome death, since life has become unbearable. Chief among these symptoms is a condition of mental depression and general misery, which is only increased as measure after measure that promises relief is tried, and the condition grows steadily worse. This type of case shows as a rule marked pigmentation, a low blood-pressure, cold and clammy hands and feet and marked general asthenia. Vomiting is practically constant, but differs from the obstructive type in not being related to food and in consisting usually of a watery fluid. Perspiration is often profuse and foul-smelling, moaning headache is present, the skin is harsh and inelastic, and cystic degeneration of the breast is almost invariably present. Pyorrhea alveolaris is often extensive and adds not a little to the wretched condition of the patient.

Cases of this group may have little abdominal pain, but they are tender over the end of the ileum and over the sigmoid, which is straight and readily palpated. X-ray examination in these cases may fail to detect an ileal kink, which indeed may be absent on operation, the patient's natural re-active tendency being in abeyance. This is the extreme picture of this group, but all stages, from an occasional "bilious attack" through the various types of so-called indigestion, neurosis, etc., can be recognized.

The "mixed" group of cases includes those patients who present a mixture of the obstructive and the toxic symptoms. The more marked

the obstructive, as opposed to the toxic, symptoms are, the better the operative results. The reason of this appears to be simply that the severe abdominal pain of the obstructive type leads them to seek surgical aid much earlier than the patient who, complaining mainly of the misery of "toxemia," has passed through many years of treatments which, while no doubt well meant, and well carried out, unfortunately often have little else to recommend them.

The group to which the term "end result" is applied is a large and varied one, consisting of cases in which the end result has reached such proportions as to over-shadow the underlying cause. This group includes cases of such diverse nature as trigeminal neuralgia, many cases of dementia, of gall-stones, pancreatitis, many cases of cancer of the breast, etc. It also includes a large group of patients in whom the general resistance has been so lowered as the result of intestinal stasis that the body is a ready prey to various infective processes. Under this head come many cases of tuberculosis, rheumatoid arthritis, etc. In this last group it is often a nice question whether the end result has not become too advanced for it to be worth while to deal with the underlying stasis, and of course, in the case of malignant disease, this is out of the question. The boundary of this group of cases is being daily extended, and I feel sure that as our knowledge accumulates, many conditions at present looked on as primary, will be found to depend, in the first instance upon abnormalities in the mechanics, physiology, or bacteriology of the alimentary canal.

The question of how stasis, and the consequent infection of the intestinal contents, produces the symptoms which I have endeavored to describe, is a difficult one to answer, but it appears that four separate factors are at work. In the first place, there are the purely mechanical effects. Secondly, there is an excessive absorption of toxines, whose composition we do not yet know exactly, from the infected alimentary tract. Thirdly, the abnormal organisms in the ileum may invade the blood stream, inducing various auto-infective conditions; and, fourthly, there is, I believe, a chemical factor at work which involves the secretions of many, if not all, of the ductless glands. It appears plain that an internal secretion may be affected in one of two ways: either by disease of the glands producing it or by a deficiency of the precursor from which the secretion is built up.

Animal experiments have shown that the body prefers to metabolize its complex constituents from amino-acids rather than from their ultimate breakdown products. These amino-acids are absorbed from the small intestine, and I believe that the infection with the B. coli, which results from stasis, is capable of altering materially the amount and nature of the amino-acids absorbed. Tyrosin, for example, is usually regarded as the precursor of adrenalin. Now if the infection of stasis produces a deficient absorption of tyrosin, and we know that the B. coli breaks down tyrosin into phenol and cresol, we can easily understand that a deficient secretion of adrenalin may result. The pigmentation, low blood-pressure, vomiting, and general asthenia of the toxic group of cases is so strikingly suggestive of Addison's disease as to make this theory, at any rate, a suggestive one. I believe that when attention is given to the precursors of the internal secretions, as well as to the glands which build them up, much light will be thrown upon what is, at present, a very dark corner in pathology.

Time will not allow me to discuss the treatment of these conditions fully. Early recognition and proper treatment by an intestinal lubricant, such as liquid paraffin, together with an abdominal support will do much to render operative interference unnecessary. In the presence of a marked Lane's kink and any of the end results of stasis, operative interference is called for and may take the form either of division of the obstructing bands or (and in the majority of cases this will give more satisfactory results) the divided end of the ileum may be implanted into the colon below the last kink.

It is impossible, in a few remarks, to deal with such a subject at all adequately, but I hope that I have, at any rate, said enough to indicate to you the lines along which Mr. Lane and those who agree with him are working, and to give you some idea of the many questions connected with the subject of intestinal stasis.

FIVE GENERATIONS OF BLUE SCLEROTICS AND ASSOCIATED OSTEOPOROSIS.

BY F. A. CONLON, M.D., LAWRENCE, MASS.

THE first mention of a blue sclera that I have been able to find reference to was by Ammon in 1841.

In describing a picture[1] of "Hydrophlmus," which, by the way, is a very good picture of the hereditary form of blue sclerotics of which I am writing, he says[2] that this blue colored sclera is also seen in "cyanosis congenita."

Eddowes,[3] in 1900, mentions a blue sclera as being present in a boy and in the boy's father.

Peters,[4] of Rostock, in 1907, was the first to point out its hereditary character, having observed it in four generations of a family.

Since then Stephenson,[5] Rolleston,[6] Burrows[7] and Adair-Dighton[8] have observed families presenting the same characteristics.

Now this hereditary form of blue sclerotics is not to be confounded with the slight blue tint of the sclera noticed in young children and in certain cases of pronounced anemia. Most writers describe it as a "porcelain blue." Stephenson, however, describes the sclera as having a "leaden appearance."

In the six members of a family which I have under observation, the color varies somewhat in intensity, but in most it is a decided dark blue and very striking. The history of this family is as follows:—

Mr. B., aged 48, head of the present generation, has marked blue sclerotics and slight hypermetropia. He has broken a wrist and three ribs but this occurred from considerable violence. His one sister had blue sclerotics and broke her hip from a trifling cause. Both this sister's children also have blue sclerotics, but no history of fractures. This patient's mother had the same blue sclerotics as did a sister whose only two children showed the same anomaly. Another sister had normal sclerotics as did all of her five children. This man is married and his wife has normal colored sclera. They have five children and all five show this same peculiar porcelain blue appearing sclerotics. Of these children three show signs of bone fragility. Ethel, aged twelve, fractured her left arm five years ago from a slight fall. In August, 1911, she broke and dislocated her left hip from a fall of ten or twelve inches. In May, 1912, a dog jumping on her knocked her down, breaking her right leg. Her right eye is amblyopic, while she has 2 D hypermetropia in her left eye. She has a well marked embryontoxon on the upper and lower margin of each cornea. Sclera are a deep blue.

Beatrice, aged 25, has pale blue sclerotics. Embryontoxon on upper and lower margin of each cornea. Brown colored irides. Mrs. B., aged 22, deep blue sclerotics. Slight degree of hypermetropia. Blue colored irides. Has had one fracture. As I have not personally examined this woman, I do not know whether she presents embryontoxon or not. Her child which was the only member of the fifth generation was born a month ago, but died one week later. Dr. Wentworth of Sanford, Maine, who delivered this child writes me that the child had deep blue sclera and that it died from congenital heart disease.

Eva, aged 18, pale blue sclerotics. Embroyontoxon on upper and lower margin of each cornea. One fracture of wrist four years ago. Moderate degree of hypermetropia astigmatism in each eye. Brown colored irides.

Rose, aged 14, pale blue sclerotics. Embryontoxon upper and lower corneal margin. No fracture. Brown colored irides. Emmetropic.

This family is of rather small physique. This was also charcteristic of the family reported by Bishop Harmon.[9] In no member did I find the Fuchs colobomata or oval disk which were found in the Stephenson-Harmon family.

Color. As I have said, this blue varies in intensity from a light azure blue to a very deep blue, and is present in the entire visible sclera from the corneal margin to as far back as can be seen.

In these cases I examined, the color was uniform and I found in no case any accentuation in the ciliary zone, as noted by Peters and seen in one case by Bishop Harmon. That this appearance of the sclera is due to pigment inside the eye showing through a thin sclera is the opinion held by all writers.

The apparent reason for this opinion is that in buphthalmia it is generally supposed that the color is due to an abnormally thin sclera, and so cases presenting a blue sclera are supposedly due to thin walls.

There has never been a histological examination made of a case with hereditary blue sclerotics, although Buchanan[10] erroneously considered his case to belong to this group. If we consider the color due to a thin sclera, we must admit that the more pronounced it is, the thinner must be the sclera. If this be true, all members of this family have thinner sclera than any case of buphthalmia I have ever seen.

One would then expect to find an occasional case of buphthalmia in such families; if not buphthalmia, at least some evidence of axial myopia.

Among the eighty members in this collection having the characteristic sclera there is not one reported as having even myopia. On the contrary, in these cases where the refraction is known, they have either astigmatism or hypermetropia.

The illumination test with a Sachs lamp seems to favor the thin sclera. As shown by Peters and demonstrated by me on all these patients, the red reflex shows clearly through the sclera and the ciliary body stands out quite distinctly. I have never seen this so clearly in any other case.

This test would disprove the possibility of pigment being in a sclera of normal thickness. Although Peters inclines to the belief that these cases have a thin sclera, he admits the possibility of a more or less transparent sclera of normal thickness.

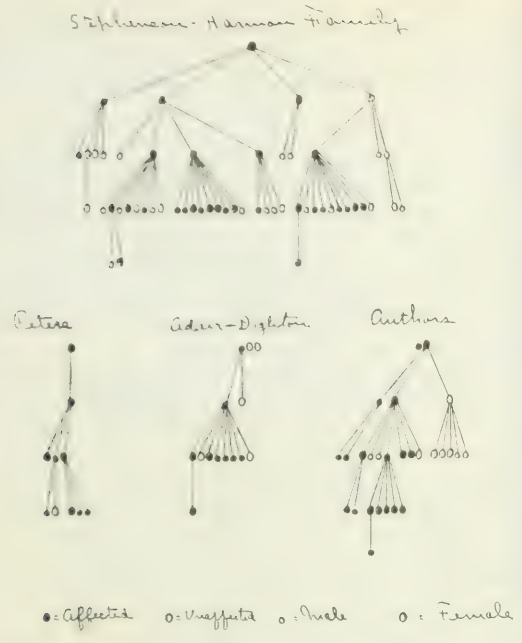
In view of the facts presented, I believe this last to be the more probable explanation of the "Porcelain Blue Sclera."

Embryontoxon. Embryontoxon was noted in all of the present generation of the Peters family. Stephenson found it in the family which he and Harmon reported. Adair-Dighton was unable to find evidence of it in any of his cases.

Each of the patients examined by me presents a well marked embryontoxon above and below. This condition has been demonstrated[11] to be an extension of the upper layers of the sclera into the cornea and pressure of the lids is said to cause the accentuation at the upper and lower corneal scleral margins.

Heredity. After examining the charts of these families it will be seen that the blue sclerotic is a result of direct transmission. What Bateson[12] calls the "knight's move" in heredity; transmission to males through unaffected females never occurs. There is no skipping of generations. In other words, no member with a white sclera ever transmits the blue sclera to its offspring, but breed true. This is in accordance with the laws of heredity as promulgated by Mendel in 1865.

In my family, to use Mendel's terms, the blue sclera seems to be a dominant character, as



eighty-four per cent. of the children born to a parent with blue sclerotics show the same anomaly.

In the family reported by Bishop Harmon, of which Stephenson's is a part, this percentage is but forty-eight. The head of the family I am reporting was born in England, and as all the others, with the exception of Peters, come from England, it is very likely that they spring from a common ancestor.

I was unable to find any connection between the families reported in England and this family. None of the family names published were known as relations by the head of this generation.

Osteoporosis. Eddowes was the first to notice any connection between blue sclerotics and osteoporosis. His patient had broken bones a number of times. Once from falling into bed. Patient's father had also had frequent fractures, breaking an arm at one time while putting on his coat. Eddowes said that twenty years before, he had a case that in two years had nine independent fractures. This case also presented the blue sclera.

Wondering whether this sclera had been noted in other cases of osteoporosis, I read over the sixty-seven cases of idiopathic osteopsothyrosis collected by Griffith[13] and found no reference to such a condition. Neither could I find any mention of this anomaly in the reports of Greenisch,[14] Pauli[15] and Gram.[16]

In Burrows' collection he found that in thirteen cases having blue sclerotics not less than nine of these had suffered from brittle bones.

Rolleston's case is rather doubtful, the child, its mother and aunt and grandmother had blue sclera, and the child had a spontaneous fracture of the humerus. There was no history of fracture in any other member of the family. This child, however, suffered from congenital syphilis.

Adair-Dighton reported nine patients with blue sclerotics and five of them gave a history of one or more fractures.

Peters mentioned no fractures as occurring in the family reported by him in 1907. I wrote him a short time ago and he very kindly sent me a proof of his article, "Blaue Sklera und Knochenbruchigheit," which is to be published shortly in the *Klinische Manatsblatter für Augenheilkunde*. In this report he says that following my letter he inquired and found that three members of the family showed evidence of brittle bones. He suggests that members of these families be exempt from military service and gymnastic exercise.

I wrote Sidney Stephenson asking if this condition was known to exist in his family. He informs me that having lost all track of his patients he can tell me nothing further concerning them.

As in all other families reported as having hereditary blue sclerotics the tendency to fracture from trifling causes is more or less marked and in this one family nothing is known to the contrary, I think we are safe in saying that hereditary blue sclerotics are always associated with osteoporosis.

X-rays taken by Dr. Charles J. Burgess of the fibula and tibia show both bones with a much enlarged medullary canal and a thin cortex which is very clearly defined. The fibula is bowed laterally, the shaft is enlarged irregularly and the cortex is almost wanting at these enlarged portions.

The x-rays of the left wrist and hand show the same enlarged medullary canals in the long bones, with the sharply penciled thin cortex and the lack of cortical shadow in the enlarged portion of the shafts. In addition the epiphysical ends are much broadened and are almost devoid of a cortical outline. The carpal bones show nothing characteristic other than being of slight density.

In the x-rays of the left elbow and forearm the same conditions exist as in those of the left wrist and hand, with an additional crack in the periosteum of the ulna, which looks as though it had been pierced diagonally with a very thin knife blade. All the bones show a marked atrophy and a lack of density.

One notices particularly the thinness of the shafts of all long bones as compared with the size of the epiphysical ends. These points agree with the findings of Hammond[17] in his work on "Brittle Bones."

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A CASE ILLUSTRATING THE EFFICIENCY OF THE HIGH FREQUENCY CURRENT IN THE TREATMENT OF TUMORS OF THE BLADDER.*

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THE Oudin current as a therapeutic measure for tumors of the urinary bladder has now been used by many surgeons and in a sufficiently large number of cases to assure us of its value. In a recent article, Beer, of New York, (*Journal American Medical Association*, Nov. 16, 1912), has collected over 200 cases so treated. His correspondence with a large number of surgeons who are using the high frequency current showed a unanimity of opinion that in suitable cases, this is simpler than, and superior to, previous methods. Many of the 200 cases collected by Beer, and many of those reported by Keyes (*Interstate Medical Journal*, October, 1911) have been observed cystoscopically over a sufficient period of time to eliminate the probability of recurrence. But so far as I know, no case of bladder tumor treated and presumably cured by the high frequency current has yet been actually inspected at a subsequent time either at operation or post mortem.

It is because of this inspection, under the conditions named, that I wish to report the following case:—

Mr. J. C., 70 years old, broker. Came to the genito-urinary clinic at the Massachusetts General Hospital in April, 1912.

He had had gonorrhea several times many years ago. No complications. One year ago began to have moderate nocturia and a little difficulty of urination. No dysuria or urgency. No pain. Two months ago passed bloody urine without apparent cause, and since this the urine has been "chocolate-colored" on several occasions. Says he has lost some weight. General condition good.

* Read at the twelfth annual meeting of the American Urological Association, held at Boston, April 15, 16 and 17, 1912.

Physical examination showed a fairly well preserved old man. The urine at time of entrance was slightly hazy, with a few shreds. There was no albumen. The sediment contained much pus, and many round and squamous cells. No blood or casts were seen.

Cystoscopy showed a general chronic cystitis, and a moderate enlargement of the prostate. The ureters were normal. On the posterior wall, below the fundus, there was a pedunculated tumor about the size of a marble, not ulcerated or necrotic. Owing to the position of the growth and to its size, neither its pedicle nor the bladder wall immediately surrounding it could be seen. The unusual tolerance of the bladder made prolonged cystoscopy easy.

The tumor was burned with the high frequency current, using a small cheap machine, on four successive weeks, and again five times at intervals of two weeks, as the bladder had become somewhat irritable. Fulguration at each sitting was continued for from thirty to sixty seconds, and was applied to several points in the tumor. There was little or no discomfort to the patient. On one occasion a little bleeding occurred from the growth, but this was easily controlled by a fresh application of the current.

After two burnings the tumor showed a large slough and every time thereafter the size of the growth decreased and the extent of slough increased. At the seventh sitting the tumor was puckered down to a small nodule, edematous and necrotic, and very close to the bladder wall. At the last sitting the tumor consisted of a few small nodules, but for the first time there were seen a number of little papules on the bladder wall clustered around the parent growth. Owing to this, and to the general appearance of the bladder wall, the condition was regarded as an infiltration by a malignant growth. Operation was advised.

This was done on July 22, 1912, by Dr. Hugh Cabot. The bladder was opened through a suprapubic incision. On the right lateral wall, above and behind the ureteric orifice, there was found an indurated area about one and a half inches in diameter, with an ulcer half an inch in diameter near its center. A ureter catheter was passed up the right ureter. The entire thickness of the bladder wall was then removed for a distance of half an inch outside the limits of the site of the tumor. The peritoneal surface of the bladder was normal. Incidentally a small median lobe of the prostate was removed, and the bladder closed tight around a suprapubic tube. Convalescence was uneventful.

Since operation the patient has returned several times for observation. The urine is slightly hazy, but there are no bladder symptoms at all. The patient's general condition is excellent.

One week ago I cystoscoped the patient. The site of the tumor is represented by a somewhat puckered scar. Elsewhere, except for a moderate cystitis, the bladder is normal.

The important part of this case is the microscopic examination of the excised portion of the bladder wall. The pathologist (Dr. H. F. Hartwell) reported as follws:

"The specimen consists of a small piece of tissue having a grayish-white, firm section.

Microscopic examination shows the inner bladder surface having small patches of epithelium, between which there is a highly vascular granulation tissue. This tissue is abundantly infiltrated with round cells which penetrate the submucosa as far as the

muscularis, and frequently can be seen arranged in the form of lymph follicles. The inflammation does not extend into the muscular coat. The small areas of epithelium remaining do not show any tendency to penetrate the deeper tissue."

The diagnosis was "Chronic Inflammation." A more recent and careful study of the specimen by Dr. W. F. Whitney shows no indication whatever of the presence of tumor cells.

In other words, we have a case of bladder tumor, presumably cured by the high frequency current, but with an appearance of the bladder wall sufficiently suspicious to warrant excision. The excised specimen shows no evidence whatever of tumor cells, and an inspection of the bladder nine months after operation confirms this statement. While it is barely possible that further observation of the case at a later time may contradict our belief that an actual cure was produced by the Oudin current, it seems unlikely.

The appearance of the bladder wall after destruction of the growth which misled us has also been noted by Keyes (*loc. cit.*), Beer and McCarthy (cited by Keyes). According to the former:—

"It is a curious reaction of the bladder wall to the irritation of the current. The mucosa swells up in such a way as to simulate an infiltrating carcinoma. Several weeks' intermission in the burning will suffice for the subsidence of this."

COMPULSORY DENTISTRY.*

BY FREDERICK A. KEYES, D.M.D., BOSTON.

OWING to the recent controversy arising from an article of mine appearing in the November issue of the BOSTON MEDICAL AND SURGICAL JOURNAL entitled "School Dentistry," in which I urged compulsory dentistry in the Boston public schools, I have deemed it necessary to resort to the history of education to prove certain contentions therein expressed. The opponents to compulsory dentistry take the standpoint "that parental love and affection are sufficient in all cases where parents' attention has been brought to the physical defects of their children, to obtain results." But this is contrary to the history of education, which has proven that compulsion in all matters pertaining to the mental or physical welfare of the people is the one and only method of obtaining results. From the days of compulsory education of the Spartan youth to the present time, education has been evolving in one direction, and that is toward compulsory education of the people, either physical, mental, or both.

The Greeks, Egyptians, Spartans, Persians, all had compulsory education in one form or another, although this training was limited mostly to the upper classes. The Romans followed the Greeks in the matter of education, and although not so stringent in enforcing education, schools were established 260 B. C. and all the youths of the upper classes studied therein. The Jews, as early as 80 B.C., had compulsory education of the Bible in the Synagogue Bible Schools. In the modern European countries, we find education was voluntary until compulsory methods were introduced in the following years: Spain 1857, England 1891, Prussia 1807. In the United States, although education was compulsory in the earliest settlement days, we do not find permanently established State free schools until—Pennsylvania 1834, Michigan 1836, Ohio 1837, Massachusetts 1836, Connecticut and Missouri 1839. Free public instruction is now universal and compulsory in all the States of the Union.

This brief summary proves that the progress in education of the people has been greatest where governmental force has been in vogue. Compulsory education is the panacea for retrogression. Compulsory education signifies progress. It is the line of demarcation between civilized and semi-civilized countries. Compulsory education is not complete unless physical as well as mental. In the leading countries of modern times, compulsory education exists of both body and mind. America has been in the foremost ranks in compulsory methods of mental training of its public school children, but it is only within the last few years that compulsory physical education has attracted the attention which its importance warranted. If compulsion is a requisite for the mental development of the people, it logically follows and it has been proven in Germany and other countries where present, that compulsory physical education is essential for the perfect development of the people.

The wonderful results obtained by the science of medicine in obliterating epidemics of infectious diseases are due to compulsory methods of prevention, as vaccination, isolation, sanitation. Such diseases as yellow fever, plague, smallpox, etc., would never have been controlled without governmental interference and compulsion of the people in matters pertaining to their individual health.

Typhoid fever has been erased from the army medical records owing to the compulsory vaccine treatment of the soldiers.

If the government ruling bodies have deemed it imperative to use compulsion in certain matters of public health, it is because the people of all ages and countries have been incapable of voluntarily protecting their own health. Volition in matters pertaining to public health will not and cannot accomplish results. The public must be forcibly educated in matters of individual health and the health of their dependents. Parents are negligent not only of their own health, but also of the health of their children. This negligence can be overcome and ob-

* Read at the monthly meeting of the Guild of St. Apollonia, May 12, 1913.

literated only by compulsory methods and governmental interference.

All medical authorities admit the importance of mouth hygiene. Palliative education of the public in matters of oral cleanliness, such as lectures and picture films, have proven unsuccessful. If the diseased condition existing in the mouths of the public school children is to be eradicated, all experiences in medical progress point to one solution of the question, and that is compulsory dentistry.

In an article by the head of the Board of Health of the City of Boston, the writer, in referring to the present and to my mind inefficient methods of dentistry in the schools, decries methods of school and compulsory dentistry, inasmuch as "We find this result obtained is a tribute to parents who have demonstrated that they are able and willing to care for their children, once their attention is called to conditions which require treatment." Further on, the writer makes the assertion, in the same article, that "These statistics do not indicate any lack of parental instinct." These sentiments of volition in the education of the public in dental hygiene are contrary to all previous examples of educational and medical progress of the last fifty years, which have been based solely upon compulsory methods.

More complete statistics bearing on the Boston school dental question have been furnished by the director of school hygiene, which although intended to show satisfactory results of the present method of dentistry in the schools, completely refute his own contentions and that of the health authorities of Boston. These statistics were obtained a year after cards were distributed to 100,000 public school children in the City of Boston, urging upon the parents the importance of the care of the children's teeth, requesting their signature to said cards. The results obtained were as follows:—

Examination by dentists and no defects found	8,039
Agreed to take children to family dentist	15,258
Agreed to pay minimum fee to dentist or dispensary	7,881
Too poor to pay for treatment	9,638
Do not wish treatment given	1,339
Decisions referred to masters or school physicians	6,758
	49,913

From the above statistics, it can be seen that 49,913, or less than one-half of the parents of public school children in the City of Boston, have affixed their signatures to these cards, indicating their interest, one way or another in the oral hygiene campaign. Of these, 1339 refused treatment, 6,758 admitted their inability to form an opinion as to whether or not the work should be done, 9,638 parents, owing to pecuniary circumstances, admitted their inability to have work done. Approximately, 30,000 signified their intentions of having work done. Therefore these statistics show that approximately 70,000, or seven-tenths of the parents, show absolutely no interest in the oral condition of their children. Consequently, the palliative methods thus far used have been a failure in instilling the importance of oral prophylaxis in the minds of the parents of Boston. Should the present method continue? Should further attempts along the same line be tried, or should drastic steps be taken? Mild methods of admonition and attempts at education have failed. Is the future treatment to be merely expectant treatment? Vaccination is the antidote for one disease. It is compulsory. The germs of 27 different diseases have been isolated from the mouth. The majority of infectious diseases find their way into the system through the mouth. Statistics from all over the country, where systematic dentistry has been done, prove the part played by the teeth and mouth in the elimination of infectious diseases of childhood. The mouths of our public school children need immediate treatment. This should be begun at once. Legislation should be enacted whereby all public school children should be compelled to have their mouth conditions changed from the present harbingers of disease into a healthy, sweet condition. To accomplish any noticeable results, compulsory dentistry is essential.

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Clinical Department.

SEPARATION OF THE EPIPHYSIS OF THE FIRST METACARPAL BONE. REPORT OF TWO ADDITIONAL CASES.

BY WILLIAM PEARCE COUES, M.D., BOSTON.

Our knowledge of traumatic separation of the epiphyses of the metacarpal bones is almost entirely due to Poland's[1] classic work. This knowledge has been largely dependent on the science of radiography. The literature on the subject is very meagre, owing to the rarity both of the lesions and their recognition. Surgical works of a general character hardly mention this subject, and modern fracture writers, except Poland, have given little, if any, space to it.

The first metacarpal bone is peculiar in that its epiphysis is situated proximally instead of distally and is undoubtedly more exposed to traumatism than the other epiphyses of the hand. Injuries that would produce a Bennett or "stave" fracture of the thumb in the adult, may produce a separation of this epiphysis in the

child or adolescent. Such injuries as are received in boxing, or traction on the lower part of the thumb while it is in a fixed position, or a heavy direct blow on the dorsum near the epiphyseal line, seem to be the most frequent causes.

In the *Annals of Surgery*[2] for September, 1912, I reported a case of this lesion, and was only able to find two others,—one reported by R. Clement[3] and one by Sturrock.[4] The following two additional cases are of interest:—

CASE 1. P. F., 10 years of age, school boy, was seen at the surgical clinic of the Boston Dispensary, May 23, 1912. There was no previous history of injury to the thumb. May 20 he fell down an iron fire escape, two steps, to the next landing. His right thumb was caught between the gratings of the fire escape. The thumb was in extension. He had put his hand out to save himself from falling, and



CASE 1.
Separation of the Epiphysis of the First Metacarpal Bone.
May, 1912.

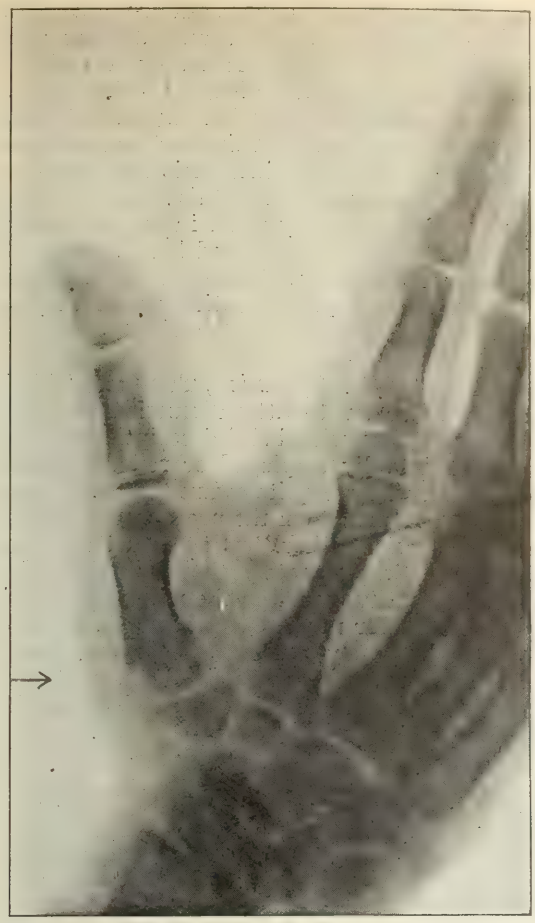
struck with great force between the gratings of the fire escape. There was immediate pain and disability of the whole hand. Examination showed the dorsum of the hand considerably swollen. Crepitus was plainly made out at the base of the first metacarpal bone. The X-ray showed a separation of the epiphysis of the first metacarpal. The child came to the clinic alone, and at no time was consent for ether obtained. The thumb was immobilized on a carefully padded thumb splint. June 11, 1912, union was practically solid. An adhesive spica was applied. June 18, the x-ray showed poor position of the epiphysis but function was practically normal and union solid. Case was not traced further. May 15, 1913, the case was traced. Examination showed no deformity. There was some thickening at the base of the right metacarpal. The movements of the thumb were not in the least restricted. The boy could play ball and do everything necessary with his right hand without feeling any pain or disability. An x-ray taken May 16, showed the epiphysis in perfect position.



CASE 1.
Radiograph taken May 16, 1913. Epiphysis in perfect position.



CASE 2.
Separation of the Epiphysis of the First Metacarpal Bone.
November, 1912. Note fragment torn off diaphysis.



Case 2.
Separation of the Epiphysis of the First Metacarpal Bone.
November, 1912.

Case 2. E. R., 11 years of age, school boy, was seen at the surgical clinic of the Boston Dispensary, November 6, 1912. *History:* While giving an "upper cut" boxing, he injured the right thumb one week ago. There has been disability and pain in the thumb since. Examination showed the right thumb and neighboring region swollen. Ecchymosis was present. There was no crepitus found on careful examination of the thumb. The thenar eminence was swollen, the swelling extending upwards on to the dorsum of the hand. There was no pain over the radius or ulna. Flexion and extension of the fingers was perfect. Flexion and extension of the phalanges of the thumb was possible. Flexion and extension of the metacarpal was possible but painful. Palpation of the thumb was not painful until the metacarpal bone was reached; here the pain was gradually increased until over the base of the metacarpal where pressure caused intense pain. After several visits to the clinic the case was unfortunately lost sight of. The radiograph showed well the separation of the epiphysis of the first metarcarpal, one view showing a slight fragment torn off the diaphysis. May 15, 1913, the case was traced. Examination showed considerable thickening at the base of the metacarpal. There was slight outward bowing of the free border of the bone. Union was solid. There was some pain on pressure over the epiphysis. The boy has free use of thumb without pain.

CONCLUSIONS.

Increased care and thoroughness in the examination of the injuries about the carpus, in children, with good x-ray pictures, will probably show an increasing number of separations of the epiphysis of the first metacarpal bone.

This injury may in children take the place of the Bennett fracture in the adult.

Union with some displacement of the epiphysis does not seem to affect the usefulness of the hand to any marked degree.

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Book Reviews.

A Student's Manual of Surgical Diagnosis. By George Emerson Brewer, M.D., Professor of Clinical Surgery, College of Physicians and Surgeons, Columbia University; Attending Surgeon to the Roosevelt Hospital. New York: D. Appleton and Company. 1912.

Dr. Brewer's book is a thin, flat volume, containing only 40 pages of printed matter; it attacks the essentials of surgical diagnosis without either introduction or preface. In an early paragraph he says: "Success in treatment depends largely upon accurate diagnosis. Every student of medicine, therefore, at an early period should acquire a diagnostic method which in the end will enable him to recognize with a reasonable degree of accuracy the various surgical lesions and pathological processes." Then follows the diagnostic method which Dr. Brewer has found valuable, which is the "diagnosis by exclusion" or "differential diagnosis," which forms the true basis of treatment in medicine and surgery alike.

Dr. Brewer has developed a series of charts, four of which are concerned with general surgical lesions as such—Injury, Deformity, Inflammation and New Growth—followed by a series of eleven regional charts containing the names of all the processes, acute or chronic, which may affect particular portions of the body. Thus there are regional charts of bone infections, hand infections, diseases of the lower abdomen, of the upper abdomen, of the kidney, etc. In this way every part of the body is covered, and actual cases, or case histories, are considered from the standpoint of the appropriate chart and a complete differential diagnosis is made

easily possible. The idea is good, and its printed form effective. Dr. Brewer has offered to the student a distinct and valuable aid, and has simplified a process which is always cumbersome, and often incomplete. The charts fit admirably either the bedside study of patients, or the case-teaching method, and like the latter, they presuppose a knowledge of symptomatology, of treatment, and the ability to make a complete physical examination. The book is strongly recommended to students.

Minor Surgery. By LEONARD A. BIDWELL, F.R.C.S., Senior Surgeon to West London Hospital, Dean of the Post-Graduate College, Consulting Surgeon to the Black Heath and Charlton Hospital and to the City Dispensary, and Author of "Handbook of Intestinal Surgery." Second edition, revised and enlarged, with 129 illustrations.

Treatment After Operation. By WILLIAM TURNER, M.S., F.R.C.S., Senior Surgeon to the "Dreadnought" Seamen's Hospital, Lecturer on Clinical Surgery, London School of Clinical Medicine; Surgeon in Charge of Out-Patients and the Orthopedic Department, Westminster Hospital; Consulting Surgeon, Royal Hospital for Diseases of the Chest; and E. ROCK CARLING, B.S., F.R.C.S., Surgeon to the "Dreadnought" Seamen's Hospital, Greenwich; Senior Teacher of Operative Surgery, London School of Clinical Medicine; Surgeon in Charge of Out-Patients, Westminster Hospital; late Dean of Westminster Hospital Medical School, etc. With "A Chapter on the Eye," by L. V. CARTHGILL, F.R.C.S., Ophthalmic Surgeon, "Dreadnought" Seamen's Hospital, etc.

These two handbooks are part of a series of nine volumes, published for the University of London Press, Ltd., by Hodder and Stoughton, and Henry Frowde. The books are similar in size and shape, paper, printing and illustrations; the latter are all wood cuts in the "Minor Surgery," part wood cuts and part half-tone plates in the "Treatment After Operation."

Minor Surgery, BIDWELL. This volume is an amplification of a course of lectures given at the West London Post-Graduate College. In the preface of the first edition the author writes that his purpose is to give "simple directions for the management of every-day surgical work." An examination of the book convinces one that he has been distinctly successful, an opinion apparently shared by English readers, since a second edition was demanded within eleven months. Mr. Bidwell writes largely from his own experience for practitioners, who desire "a work handy for ready reference, and dealing with practical points." There is little or no discussion of choice of methods; instead definite directions and descriptions of what should or should not be done, and brief outlines of methods and details. It is the direct instruction of master to pupil, and is valuable for this reason. As a handbook for every-day work in minor surgery the book may be recommended both to students and to practitioners, with the feeling that it is entirely trustworthy, and entirely without padding.

Treatment After Operation, TURNER. This is also a handbook, with little discussion of different methods, but with brief descriptions of the means "habitually employed or relied upon by the authors, who are quite aware that some cases require departures from the precepts herein laid down for concise utility." In this little volume half tone plates alternate with wood cuts among the 55 illustrations, and, on the whole, the wood-cuts do not suffer in the comparison. This book also may be safely recommended to students, nurses and practitioners, if the above-mentioned limitations are clearly remembered by the prospective purchaser.

Studies from the Rockefeller Institute for Medical Research. Reprints. Volume XVI. New York: The Rockefeller Institute for Medical Research. 1913.

This latest volume of research from the Rockefeller Institute consists of 22 papers in English and 7 in German by workers of the Institute. Most noteworthy are the studies by Loeb on *Fundulus,* by Meltzer on insufflation, by Rous and others on fowl tumors, by Carrel on tissue transplantation, and by Peabody and others on poliomyelitis. Particularly interesting are the beautiful plates with which Peabody's monograph is illustrated. The volume marks another half-year of progress in several important fields of scientific medical investigation.

The Surgical Clinics of John B. Murphy, M.D., at Mercy Hospital, Chicago. Philadelphia: W. B. Saunders Company. December, 1912, and February, 1913.

These publications, in paper and about the size of the familiar *Annals of Surgery,* are always interesting. They reproduce, literally, Dr. Murphy's remarks, and are obviously intended to emphasize personality in so far as an exact record of a series of lectures can do so. The result is at times surprising, for instance, describing an appendectomy: "I bring out the appendix without adhesions. Isn't that a beauty? It is acutely infiltrated, distended,

edematous, and fiery red. See the length of it! That is the time to pick them—pick them while they are green and don't wait until they are ripe." This is the direct appeal with a vengeance. Those who have heard Dr. Murphy talk realize his extraordinary power as a clinical teacher. Whether the printed word is a good medium for this variety of teaching is an open question.

There can be no doubt, however, that these bimonthly publications bristle with pointed accounts of interesting and widely differing surgical lesions. In December there are thirteen, and in February seventeen chapters. In almost every instance a definite case is considered and operated and interspersed in the description of the case are comments upon the condition in general, and general statistics and opinions based upon Dr. Murphy's experience, and his knowledge of the personal work of other surgeons.

In December there are seven lesions of bones, one of the breast, one of the pelvis, one of tendons, one of cartilage and one on radio-active substances (the last by Dr. Albert Caan).

In February we find, among other subjects, stomach lesions, laminectomy, fractures (including a chapter by Mr. Lane), abscess, appendicitis, Paget's disease, floating cartilage, cerebral adhesions and medico-legal relations of patient and physician (by W. C. Woodward).

Dr. Murphy's power to suggest and to sketch possible lines of surgical attack is very great. He is a mental stimulant to the surgical public, and the Clinics are entirely characteristic of the man. It is unnecessary to add that they richly repay examination.

The Course of Operative Surgery. A Handbook for Practitioners and Students. By Prof. Dr. Victor Schwieden, private docent of surgery, University of Berlin, assistant in the Royal Surgical University Chair. Second edition, with a foreword by Prof. Dr. A. Bier. Translated and edited by Arthur Turnbull, M.B. (Glasg.), M.A., B.Sc. New York: William Wood and Company. 1912.

This is one of the very best handbooks of surgery that the reviewer has ever seen. It is small (350 pages), admirably printed, profusely and excellently illustrated (435 original pictures), concise, complete and convincing. The problem of condensing a large subject into small space is always difficult. It has been in this instance exceptionally well accomplished. The work of the translator is unusually free from faults. German forms of sentences are suggested, for the translation is evidently literal, but attention has also been successfully given to a sound English style. The book is enthusiastically recommended to students and practitioners.

Primary Studies for Nurses. A Text-Book for First-Year Pupil Nurses. By Charlotte A. Aikens. Second edition. Thoroughly revised. Illustrated. Philadelphia and London: W. B. Saunders Company. 1912.

This book is intended for beginners in the study of nursing. Its first edition was reviewed in the issue of the Journal for June 17, 1909 (Vol. clx, p. 788). This second edition follows the general plan of its predecessor, considering in successive sections anatomy and physiology, hygiene, bacteriology, therapeutics and materia medica, dietetics, and invalid cookery. Several of the chapters in the first section have been elaborated, and some additions and changes have been made in the section on bacteriology. The concluding section consists of a series of excellent questions for self-examination and review, and the appendix contains useful tables of the metric system, household antidotes, bones, temperature, and cooking. This book has made for itself and should continue to hold, a valuable place in American training-schools.

Principles of Economic Zoölogy. Part I. Field and Laboratory Guide. By L. S. Daugherty, M.S., Ph.D.; and M. C. Daugherty. Philadelphia and London: W. B. Saunders Company. 1912.

This field and laboratory manual is designed to accompany the "Principles of Economic Zoology" by the same authors, which was reviewed in the issue of the Journal for Nov. 21, 1912 (Vol. clxvii, p. 738). It consists of series of carefully arranged questions, intended to direct and stimulate the student's observation of typic animals selected to represent the various zoologic branches and classes. The alternate pages are left blank for notes. The book is an invaluable working adjunct to the text-book in which the results of observation are summarized and recorded, and should prove an important guide for students and teachers in the great field of animal biology.

Diseases of the Skin. By Willmott Evans, M.D., B.S., B.Sc., F.R.C.S. London: University of London Press. Published for the University of London Press, Ltd. by Hodder and Stoughton, and Henry Frowde. 1913.

The preface states that this book is meant to provide an introduction to the study of skin diseases and that the simple style is intentional. It needs no especial comment as it simply adds one more to the many compilations of the same nature that have been published by English and American writers during the last dozen years. The photographic illustrations are commendable.

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TYPHOID FEVER AT ALBANY.

THE latest *Monthly Bulletin* of the State Department of Health contains a report, by Theodore Horton, chief engineer of the department, of an outbreak of typhoid fever at Albany, in April last, which is of extraordinary interest. This, he says, constitutes a most striking example of an explosive epidemic due to a sudden and, in some respects, accidental infection of a water supply, resulting from the flooding of a slow sand filtration plant. From April 1 to May 5, inclusive, there were reported some 180 cases, certain detailed information concerning 175 of which it was possible to secure. From this it appears that of these 175 cases, approximately 75% were among children and 25% among adults.

The report is accompanied by a diagram, showing at a glance the history of this outbreak, which Mr. Horton regards as, beyond a doubt, traceable to spring floods in the Hudson River, that inundated and put out of service the filtration works located near the river, just above the city. The diagram strikingly pictures what occurred. It is noticeable that the maximum number of cases had their onset on April 16, and that the period of maximum prevalence covered a period of about one week. Allowing two weeks for incubation, and dating back this period of time from April 16, we are brought directly to the period when infection of the water supply took place, showing, therefore, the close synchronous relation between the infection of the supply and the outbreak of cases.

There are many points of unusual interest, from an epidemiological standpoint, in the history. Thus, the inundation of the filtration plant came with but little warning, and there was little time to notify the inhabitants to take the precaution of boiling the water. The city, at the time, was substantially free from typhoid fever, and the public mind was not, and could hardly be expected to be, aroused to the point of appreciating the absolute necessity of observing precautions, as it would have been had an epidemic of typhoid been in progress. It is not surprising, therefore, that the warnings which appeared immediately in all the papers were not heeded to the extent they should have been. A feature worthy of note is the large proportion of cases among children, and this is probably to be explained by the aversion of children to boiled water, owing to its insipidity when not properly prepared and aerated.

Another interesting feature, and one of much importance, is the sterilizing of the large Prospect reservoir, for correcting the contamination and the institution of a series of laboratory analyses by the State Health Department for the purpose of establishing a means by which it would be possible to determine when the water supply was again safe. The situation in Albany had been referred to this department by the Governor, but a close coöperation between it and the municipal authorities was at once inaugurated. The filter plant was put in service as soon as the water had receded sufficiently, the public having been already warned to boil all drinking water, and within twenty-four hours following, a temporary hypochlorite disinfecting plant was installed, and flushing of water mains was immediately instituted. Sterilization was first resorted to on April 3, and two days later was followed by a second treatment. It is believed that this is the first case on record of the sterilization of a large open reservoir by the hyperchlorite method, and the results show that the two treatments, of about one part per million, accomplished a complete elimination of colon bacillus type and acid colonies from the water in the reservoir. The analyses made showed that, while practically all traces of contamination had disappeared from the central portion of the distributing system by April 4, there yet remained traces in the periphery of the system. The city was then requested to flush again the pipes in the outlying sections, and by April 7 practically no trace of contamination

was found in the reservoirs or in any portion of the system.

It was not until five days later, however, that it was announced that the water was safe to drink without boiling. This additional time was given as a factor of safety and with the idea that by waiting the full period of two weeks some indication might be obtained as to whether infection had occurred to any appreciable extent. It is especially worthy of note that, although there were perhaps fifteen cases of typhoid fever actually in progress at the time the citizens were notified that the water was safe, no cases were reported by the physicians until about April 21, when there existed over 150 cases, and the crest of the epidemic had already passed. In other words, the outbreak, so far as the available evidence indicates, had largely disappeared before the cases had begun to be reported. In consequence of the epidemic in Albany the State Commissioner of Health addressed letters, urging all possible precautionary measures to prevent a spread of the disease through secondary infection, to every practising physician and to all milkmen supplying milk in the city. In his letter to the physicians he suggested the advisability of administering typhoid vaccine to the members of the households in which they were treating cases of typhoid fever, and offered to furnish the vaccine upon request.

The important lessons which Mr. Horton believes to be taught by this outbreak are the following: (1) In designing purification works situated under conditions such as those at Albany it is better to arrange them with a greater factor of safety against inundation than was the case there. (2) Sufficient available storage for a few days' supply might well be provided where there is any question as to inundation of purification works or other necessity for using impure raw water. (3) All reservoirs should be so arranged that they may be entirely shut off from the distribution system in case of such emergency. (4) A mere warning to "boil water" when an epidemic is not in progress does not seem to deter a great many people from using contaminated water, and makes all the more emphatic the necessity of maintaining at all times the integrity of purification works. (5) It is possible to sterilize effectively a large reservoir of water by hypochlorite treatment with fair success, and such emergency means should always be kept in mind by those responsible for its use in such cases. (6) Physicians should be more prompt in reporting cases of typhoid fever, especially at a time when there is reason to fear that a water supply has been infected. Time is, of course, necessary for diagnosis, but even suspects should be reported in such an emergency. (7) Local boards of health should be so provided with funds and facilities as to furnish at once the necessary information to follow closely from day to day the progress of an epidemic, in order that they may take the necessary means for its suppression. (8) The state, after passing laws controlling the reporting of cases of communicable diseases, should not by a series of exemptions make those laws applicable to only a part of the state. (This refers to the fact that Albany, with three other cities, is exempt from the operation of the Public Health Law requiring that communicable diseases be reported to the State Department of Health.) (9) Persons who drink water unboiled in an emergency like this, in utter disregard of warnings from municipal and state authorities, merit severe criticism.

THE DEATH OF EDWARD THE SIXTH.

Almost as pathetic a figure in English history as the familiar one of the young prince, Edward V, who was murdered in the Tower of London by the order of his uncle, Richard III, Duke of Gloucester, is that of the boy king, Edward VI, son of Henry VIII by the latter's third wife, Jane Seymour. Our knowledge of his life has a peculiar authenticity, because it is based largely on his own journal, edited with his other writings by John Gough Nichols, and published by the Roxburgh Club (London, 1857).

Edward was born at Hampton Court, on Oct. 12, 1537. "Until I came to six years old," he writes in his journal, "I was brought up among the women." During the next three years he was instructed by tutors in Latin, Greek, French, philosophy, and divinity. At the age of nine he was created Prince of Wales and Duke of Cornwall; and before he was ten years old succeeded his father as king, at the latter's death on Jan. 28, 1547.

It is not surprising, from the nature of his early environment and bringing up, that the precocious young monarch, who was delicate

from birth and probably an hereditary luetic, should early have developed pulmonary tuberculosis. Indeed during the lifetime of Henry VIII, Edward was sent for a while to Hampstead, in Hertfordshire, which then had considerable reputation as a health resort for sickly children. Edward seems also not to have escaped the common ailments of childhood, for he writes in his journal, under date of April 2, 1552: "This day I fell sike of the mesles and small pokkes."

Edward's final illness began in January, 1553, when he supposedly caught cold playing tennis, and afterwards developed a severe cough. Despite the constant ministrations of Dr. George Owen and Dr. Thomas Wendy, the court physicians, and of four other doctors whom they summoned as consultants, the king's malady progressed steadily, with much fever and emaciation. In May he was removed to Greenwich, in the hope of benefit from the change of air; but he grew rapidly worse, and there he died on July 6, 1553, less than 16 years of age. Before he died, it is recorded that "eruptions on his skin came out, his hair fell off, and then his nails, and afterwards the joints of his toes and fingers." There were of course the usual rumors of poisoning; but from his clinical history there seems no adequate reason to suspect that his death was due to any other toxins than those of syphilis and tuberculosis. There was no autopsy.

Like Napoleon's son, the Duc de Reichstadt, King of Rome, Edward VI seemed in his life and death to be making expiation for his father's sins. Doubtless, however, modern medical knowledge might have done much to deliver him from their curse. As it was, he died untimely, without seeing the glories of the age that was waiting before, to which his name might have been given instead of that of the virgin queen, his elder half-sister, Elizabeth.

A CO-OPERATIVE COURSE ON PUBLIC HEALTH.

As briefly stated in our issue of last week, plans have been consummated by which the Massachusetts Institute of Technology and the Harvard Medical School are to co-operate in providing a course of instruction on public health. It had long been evident that there was a certain waste of opportunity in multiplying courses in two institutions in such close geographical relation and with such friendly feeling as exists between the Institute of Technology and Harvard University. It is, therefore, a matter of congratulation that a plan has now been arranged which will give students in public health, biology and sanitary matters, the benefits and the resources of both institutions. For more than twenty years the Institute of Technology has provided a course in biology combined with sanitary engineering, and during that period has graduated upwards of one hundred and twenty-five students with the degree of B. S. who are occupying places of responsibility in health work, bacteriology, teaching, and sanitary engineering in various parts of the country. As a consequence of the achievements of these men renewed attention has been called to the place of the engineer in problems of health. Under the new arrangement with Harvard it should not be understood that there is any disposition or intention of disturbing this admirable course, demanding as it does, four years of study in engineering under the high standard which the Institute of Technology imposes.

Under the leadership of Prof. M. J. Rosenau, courses chiefly given at the Harvard Medical School leading to the degree of Doctor of Public Health have been instituted during the past few years. This degree demands a preliminary degree of Doctor of Medicine and may be attained only after two years of special study in the problems relating to public health. Young as it is, this course has already amply justified its foundation and likewise is to be continued essentially as at present. The problems of sanitation have, however, assumed such proportions in late years that a new and even more comprehensive course has become imperative. There are, for example, certain men fitted for health work in the broad sense, who may desire to become neither engineers nor physicians. Such men should certainly have opportunity, and it is particularly to this presumably growing class that the proposed new combined course will particularly appeal. To accomplish this end the wide resources both of the Institute of Technology and of Harvard University, particularly as represented by its Medical School, are to be combined in such a way that the necessary instruction may be given at both institutions. The present plan is that properly equipped students may, by this means, be prepared for health work

by a course of study continuing over two years. There will, naturally, be certain preliminary requirements as to general education and fitness for the work, together with an adequate foundation in biology, chemistry and physics. A schedule is to be arranged, and equivalents established so that the two institutions will be prepared to furnish studies individually. Each will offer work in the prescribed combination of studies and each is at liberty at present, to duplicate what it wishes of the other's facilities in order that the autonomy of the two institutions may in no way be affected. Naturally the Harvard Medical School can offer hospital experience and work on the more medical sides of the problems at issue which the Institute of Technology is not equipped to provide. Dr. M. J. Rosenau has been appointed Director of the School, with Professor W. T. Sedgwick of the Institute of Technology Chairman of the Executive Committee, which is to be composed of Dr. Sedgwick, Prof. G. C. Whipple and Dr. Rosenau.

Coöperation is certainly the watchword of the time. With the growth and extension of educational institutions the tendency to overlap and duplicate courses of instruction is clearly evident. If, therefore, it is possible for two institutions of high standard to combine resources in such a way that the independence of each is preserved, a step of great economic and practical importance has been taken. This the Institute of Technology and Harvard University, long friendly rivals in certain phases of education, have apparently accomplished in the establishment of this important course on public health. It is to be hoped that it may be but the beginning of similar coöperation in other departments of instruction and research among the various institutions which Boston harbors.

HEALTH RULES.

The Boston Association for the Relief and Control of Tuberculosis has sent a circular bearing the title "Health Rules" to 70,000 public school children and to 20,000 children in the parochial schools. In addition to this means of publicity the Association is sending the circular to the laity through the medium of settlements, dispensaries, day nurseries, children's societies and relief agencies. The rules which are laid down must appeal to the simplest understanding and should, therefore, meet the object for which they are designed. Under the general headings of good air, house dust, pure water, cleanliness, food, sleep, posture, exercise, tobacco and liquor, colds and sunshine, are grouped brief directions which, obvious as many of them are, no doubt will find a place of usefulness in the classes of the community to which they go. The statements are made with dogmatism and are, therefore, more likely to be heeded. In general, this method of disseminating rules of hygiene, although certain of the statements made may be regarded as somewhat extreme, must be efficacious in bringing about a wider knowledge of matters concerning public health. The circular to which we allude has been carefully prepared by a committee of the Association for the Relief and Control of Tuberculosis in coöperation with Dr. Thomas F. Harrington, Director of the School of Hygiene of the Boston School Committee.

MEDICAL NOTES.

An Anti-Cancer Campaign.—At the recent meeting of the American Medical Association, plans for a complete organization throughout the country to combat cancer were formulated. It is desirable that the excellent individual work being done in various institutions throughout the world should be reduced to a comprehensive scheme and definite plans made to meet the menace of cancer, as has with marked success been done in tuberculosis.

Death of Sir Jonathan Hutchinson.—Sir Jonathan Hutchinson, F. R. C. S., Professor of Surgery, Emeritus, in London Hospital College, died June 23rd in London at the age of 85. For two years Sir Jonathan was president of the Royal College of Surgeons and during his life occupied many positions of great trust and responsibility. He was chiefly interested in leprosy and for many years was one of the leading authorities on that subject. His contention that the disease was contracted by eating tainted fish has not been borne out by further experience, but he did much to stimulate interest in the subject and to excite investigation.

Two Living British Centenarians.—Mrs. Charles Cooper, of Weston-super-Mare, Eng-

land, celebrated recently the supposed centennial anniversary of her birth. Mrs. Skelton, of Stroud, is said to have been born on May 29, 1812. Both are still in excellent health.

RESOLUTIONS: AMERICAN ASSOCIATION FOR CANCER RESEARCH.—At the annual meeting of the American Association for Cancer Research, May 5, 1913, the following resolution (the report of the Committee on Statistics and Public Education) was unanimously adopted:—

It is the sentiment of this Association that:

(1) The present instruction of medical students in the symptoms and early diagnosis of cancer is seriously deficient.

(2) The medical curriculum should include special lectures in the clinical departments dealing specifically with this subject.

(3) The universities should provide competent lecturers in this subject to address the local medical societies.

(4) The Associate Members of the Association should be urged to take up the question of the proper methods of approaching the public on the subject of cancer.

(5) The activities of this Association should at present be chiefly confined to the education of the medical profession.

(6) This resolution shall be sent to the Deans of the medical schools and the Secretaries of the state medical societies in the United States and published in the medical press.

BOSTON AND NEW ENGLAND.

DR. WALTER E. FERNALD HONORED.—Dr. Walter E. Fernald, Superintendent of the Massachusetts School for the Feeble-Minded has been awarded the honorary degree of Master of Arts by Harvard University.

OPEN AIR SCHOOLS.—A lecture on open air schools is to be given in the motion picture theatres of Boston during the next three months. The Boston Association for the Relief and Control of Tuberculosis has collected photographs from all over the United States and has had colored slides made from them. A professional lecturer has been engaged who will devote his entire time to this method of informing the public in regard to open air schools and their good effects on healthy school children as well as on those who are in poor physical condition. The Association is also distributing an illustrated circular at the exit of these theatres. The object of this lecture is to increase the interest of the general public in these schools, to point out how greatly children are benefited by studying in the open air school rooms, of which the city has as yet only 14, and to show the need of better ventilation, not only in the schools but in the homes, workshops and stores of the citizens of Boston.

DR. F. C. SHATTUCK, OVERSEER.—At the annual election held on Commencement Day, Dr. F. C. Shattuck, Jackson Professor of Clinical Medicine at the Harvard Medical School, Emeritus, was elected an overseer of Harvard University.

OPENING OF FRESH AIR CAMP AT CANTON, MASS.—A fresh air camp for poor mothers and children was officially opened last week under the auspices of the Salvation Army at Canton. Commander Evangeline Booth of the Army presided at the formal opening.

NEEDS OF CONSUMPTIVES' HOSPITAL DEPARTMENT.—It is reported that Mayor Fitzgerald of Boston has recommended the appropriation of $125,000 for new buildings in connection with the Consumptives' Hospital Department. The growth of the institution at Mattapan makes this appropriation necessary if the needs are to be met and overcrowding avoided.

ANNUAL REPORT, CHELSEA BOARD OF HEALTH.—The annual report of the Chelsea, Mass., Board of Health, recently published, shows most commendable effort to maintain the health of that community. Statistics of the various diseases are given and a considerable discussion on the medical inspection of schools. The mosquito pest, to which Chelsea is peculiarly exposed on account of surrounding marshes, has been met and for the most part overcome by oiling stagnant pools and ponds and renewing ditches in the salt marsh lands.

EXTERMINATION OF MOSQUITOES.—Under direction of the Metropolitan Park Commission the meadows and low land of the Neponset River are to be drained and proper ditches dug to carry off tide and rain water. This region in

the immediate neighborhood of Boston comprises about 180 acres and has long been a prolific breeding place for mosquitoes. There is no reason why this work should not prove entirely effective.

Free Typhoid Vaccine.—The Boston Board of Health, recognizing the danger of sporadic typhoid, particularly during the summer months, has arranged to supply free vaccine. Suitable quarters will be opened for inoculation of the vaccine, and it is hoped that especially those who are leaving the city for vacations may avail themselves of the opportunity for protection against the disease. It is well recognized that typhoid fever outbreaks are caused by persons conveying the disease from other places. It is to minimize this danger that the health authorities have taken this commendable step. The city's death rate from typhoid fever during the past year was 7 in 100,000, a somewhat better showing than that for the entire state. It is hoped by active coöperation between health authorities and the laity that an even better record may be made.

Boston Mortality Statistics.—Cases of infectious diseases reported to the Boston Board of Health for the week ending June 24, 1913: Diphtheria, 46, of which 3 were non-residents; scarlatina, 32, of which 6 were non-residents; typhoid fever, 6; measles, 170; tuberculosis, 108, of which 7 were non-residents.

NEW YORK.

Bequests.—Among the charitable bequests in the will of the late Ellen Collins of New York are $1,000 to the Lincoln Hospital, Borough of the Bronx, and $5,000 to the Lebanon Hospital, Beyruit, Syria, for its department for the insane.

A Centenarian Doctor of Laws.—At the 147th annual commencement of Rutgers College, New Brunswick, N. J., on June 17, the degree of Doctor of Laws was conferred upon the Rev. Dr. John Fryer Mesick of York, Pa., who is believed to be the oldest living college graduate in the United States. The day of the commencement was the one hundredth anniversary of the birth of Dr. Mesick, at Guilderland, Albany County, N. Y.

Current Literature.

Medical Record.

June 14, 1913.

1. *Julian, C. A. *Observations of Results from Vaccination Against Tuberculosis.*
2. Austin, C. K. *Arabard's "Uremic Constant" or the Estimation by Mathematics of the Functional Value of the Kidneys.*
3. Dunham, J. D. *Roentgenoscopic Examinations versus Clinical Methods in the Diagnosis of Gastric Disease.*
4. Nydegger, J. A. *The Importance of Adopting a More Accurate Method of Examination for Color-Blindness.*
5. Blodgett, S. H. *Glycosuria and the Bulgarian Bacillus.*
6. *Willims, B. G. R. *Observations on Some Clinical Features of Painful Oxaluria.*
7. Slade, C. B. *The Present Status of the Tuberculin Tests.*

1. Julian is convinced by personal observation and clinical experiment that the value of vaccination against tuberculosis is established beyond question. He is enthusiastic over his results and points out that they are in entire accord with the results of von Ruck's animal experimentation.

6. Williams describes the varied clinical features of oxaluria dolorosa, as he calls the symptom-complex associated with persistent and painful excretion of calcium oxalate crystals in the urine. This condition is a distinct pathologic entity and deserves a name of its own. [L. D. C.]

New York Medical Journal.

June 14, 1913.

1. Wyeth, G. A. *Gonorrhea from a Pathological Standpoint.*
2. Wilson, H. A., and Rosenberger, R. C. *The Relation of Trauma to Bone Tuberculosis.*
3. Knox, H. A. *A Diagnostic Study of the Face.*
4. Karpas, M. J. *The Principles of Freud's Psychology.*
5. *Linhart, G. A. *On the Instantaneous Transformation of Mercuric Compounds of Calomel, and the Application of the Process in Cases of Mercuric Poisoning.*
6. Rhein, J. H. W. *Hallucinations of Hearing and Diseases of the Ear.*
7. Fossier, A. E. *Erythromelalgia.*
8. Kramer, J. *The Prognostic Value of the Arnette Blood Count in Pulmonary Tuberculosis.*
9. Hilkowich, A. M. *Report of Three Cases of Cesarean Section.*
10. Armitage, H. M. *Chronic Mediastinitis Following Osteomyelitis of the Sternum; Report of a Case and Operation.*

5. Linhart presents a preliminary paper suggesting phosphorous acid as an antidote for mercuric poisoning. Hydrochloric acid hinders the reduction of mercuric salts by phosphorous acid, but if hydrochloric acid is neutralized as fast as it is formed the reduction is instantaenous. This neutralization can be effected by sodium salts of weak acids (*e.g.* acetic), but the setting free of acetic acid hinders the process somewhat. This difficulty is overcome if the phosphorous acid is first neutralized with sodium bicarbonate in excess. The reduction is now instantaneous and complete and the neutralization of the phospho-

rous acid and its subsequent action on the mercuric chloride are represented by these equations:—

$$H_3PO_3 + 2NaHCO_3 = Na_2HPO_3 + 2CO_2 + 2H_2O.$$

$$HgCl_2 + Na_2HPO_3 + NaHCO_3 = HgCl + Na_2PO_3 + NaCl + H_2O + CO_2.$$

The bichloride is now transformed into calomel and as such can be readily removed from the body.

[L. D. C.]

THE ARCHIVES OF INTERNAL MEDICINE.

MAY, 1913.

1. *OPHÜLS, W. *The Relation of Gastric and Duodenal Ulcer to Vascular Lesions.*
2. *BARACH, J. H., AND MARKS, W. L. *Effect of Change of Posture—Without Active Muscular Exertion—on the Arterial and Venous Pressures.*
3. DARLING, S. T. *Budding and Other Forms in Trophozoites of Entameba Tetragena.*
4. *HEWLETT, A. W. *Active Hyperemia Following Local Exposure to Cold.*
5. THOMPSON, L. O. *A Modified Wassermann.*
6. *CHRISTIAN, H. A., AND O'HARE J. P. *A Study of the Therapeutic Value of a Diuretic (Theobromin Sodium Salicylate or Diuretin) in Acute Experimental Nephritis.*
7. MULLALLY, E. J. *A Case of Infantilism Associated with Pituitary Neoplasm.*
8. BRUSH, E. M., AND CORNELL, W. B. *A Case of Myxedema, with Recovery, and Seven Years' After-Care Notes.*
9. *KARSNER, H. T., AND MEYERS, A. E. *"Giant-Cell Pneumonia."*
10. *TAUSSIG, A. E., AND COOK, J. E. *The Determination of the Diastolic Pressure in Aortic Regurgitation.*
11. GREY, E. G., AND HIRSCHFELDER, A. D. *A Clinical Investigation of the Carbonic Acid in the Alveolar Air.*

1. Ophüls presents a paper on the pathology of peptic ulcer, reviewing the literature of the subject and giving personal observations made at autopsy. He finds that the most common type of gastric or duodenal ulcer seen at autopsy is the arteriosclerotic ulcer in persons over thirty years of age. There is a second class of ulcer in the young which is probably due to local endarteritis. In addition to these one occasionally observes acute embolic (or thrombotic) ulcers.

2. Barach and Marks report further experiments on the effect of change of posture on the arterial and venous pressures. They find that when the element of muscular effort has been eliminated, change of posture from the erect to the horizontal causes an increase in the maximum pressure, a decrease in the minimum pressure and an increase in the pulse pressure. After five minutes in the horizontal posture, if the subject is retilted to the erect posture, the maximum pressure diminishes, the minimum pressure increases, and the pulse pressure diminishes. The pulse pressure follows the same trend as the maximum pressure. Change of posture from erect to horizontal causes a fall in venous pressure and vice versa. The venous pressure follows the same trend as the minimum pressure.

4. Hewlett studied the effect on the blood flow of immersing the arm in varying degrees of cold water. He found that in most individuals a diminished blood-flow accompanied and followed the prolonged action of moderately cold water on the arm. The reaction was probably due to the direct effect of cold on the cutaneous or subcutaneous vascular mechanism. An active hyperemia, following exposures to moderate cold was observed in a patient showing other signs of cutaneous vasomotor instability. The condition corresponded to the milder stages of ordinary frost-bite but occurred more readily than normal and in unusual locations.

6. Christian and O'Hare studied the effect of theobromin sodium salicylate (diuretin) in acute experimental nephritis in rabbits, seeking to determine whether there was any evidence that diuretics are harmful in acute renal inflammation. Their results indicate that diuretics, such as diuretin, may be harmful in acute nephritis, but that their cautious use is justifiable in cases of moderate severity.

9. Karsner and Meyers report a fatal case of bronchopneumonia in an infant. The clinical features were not unusual, but at autopsy the lungs showed irregular patches of consolidation, and histological examination of these revealed granulation tissue around the bronchioles and giant-cell formation in the alveoli. The writers hold that there is no good reason for regarding this so-called "giant-cell pneumonia" as a distinct pathologic entity. The giant-cell formation may occur in a wide variety of cases. The cells are almost entirely the product of fusion of alveolar epithelium and vary greatly in morphologic characters. There is no positive evidence that these cells functionate as phagocytes.

10. Taussig and Cook consider the auscultatory method the best means of determining diastolic blood pressure. With this method they have recently studied the diastolic pressure in regurgitation. They are convinced that it is the beginning of the fourth phase (dulling of the arterial sound) and not the beginning of the fifth phase (cessation of all arterial sound) that marks the diastolic pressure. This point can be readily made out in aortic regurgitation. The persistent arterial sound it not pathognomonic of aortic regurgitation, being often absent in this disease and occasionally present in other conditions. In cases with very low pulse pressure, in those with marked dyspnea and in Cheyne-Stokes' breathing the auscultatory method is especially valuable. [L. D. C.]

THE LANCET.

MAY 31, 1913.

1. WHITLA, W. *The Trend of Thought in Recent Pharmacological Research.*
2. WALLER, A. D. *The Electrical Action of the Human Heart. Lecture II.*
3. BATTLE, W. H., AND MAYBURY, B. C. *Primary Epithelioma of the Nipple in a Girl Aged Eleven.*
4. ABRAHAMS, A. *The Analysis of Nystagmus.*
5. HENDERSON, J. *A Case of "Idiopathic" Cerebral Abscess.*
6. HICKS, J. A. B. *A Bacillus of an Unusual Kind Isolated from a Case of Septicemia.*
7. ROE, R. B. *A Case of Colocynth Poisoning.*
8. SMITH, S. *Some Surgical Experiences During the Balkan War.*

JUNE 7, 1913.

1. *OLIVER, T. *Some Industrial Accidents and Diseases.*
2. KIDD, F. *A Small Muscle-Splitting Incision for the Exposure of the Pelvic Portion of the Ureter.*
3. *BARDSWELL, N. D. *Observations on Diagnostic Tuberculin.*
4. *THORNTON, G. L. *The Significance of Renal Tube Casts in the Urinary Sediment.*
5. DIMOND, L. *The Colloids of Iron.*
6. PRITCHARD, E. *Notes on Two Unusual Cases of Infantile Scurvy.*
7. WALKER, E. A. *Note on a Case of Urethral Calculus of Unusually Large Size.*
8. MORRIS, H. *The General Medical Council and the Proposed Alteration in the Standard of Preliminary Examinations.*

1. In the presidential address, Oliver discusses various accidents and diseases which may result from the industrial employment of electricity, from dust, the dangers of white lead and the relation of various industries to cancer.

3. Bardswell urges conservatism in the use of tuberculin as a diagnostic agent, calls attention to the positive reaction in many healthy men, and is of the opinion that a positive reaction even with certain other signs and symptoms of the disease does not always justify a positive diagnosis. He discusses the technic of the subcutaneous test and describes the focal and general reaction.

4. Thornton believes that casts, but no particular variety of casts, are of great significance when present in the urine even if other symptoms elsewhere in the body are absent. He advocates a more general use of the centrifuge and an examination of the sediment in every case. [J. B. H.]

British Medical Journal.

May 24, 1913.

1. *Bramwell, B. *A Clinical Lecture on the Treatment of Pernicious Anemia.*
2. *Braithwaite, L. R. *Acute Perforation of the Gall Bladder, with an Account of Six Cases.*
3. Harman, N. B. *The Incidence of Ophthalmia Neonatorum in London.*
4. *Newton, A. *A Preliminary Note upon an Experimental Investigation of Concussion of the Spinal Cord and Allied Conditions.*
5. Rhys, O. L. *Pseudo-Fractures of Transverse Processes.*
6. Tedy, H. L. *A Case of Tetanus Treated with Intraspinal Injections of Magnesium Sulphate.*
7. Maxwell, W. H. *Cesarean Section, with Especial Reference to the Rarer Indications for the Operation.*

1. Bramwell gives reports of 11 cases of pernicious anemia, or what he believes to be pernicious anemia, four of which have been apparently cured, and two others greatly improved by administration of salvarsan. He believes this to be far superior to the ordinary arsenic treatment. He discusses the other drugs used in the treatment of this disease. His remarks are of great interest and if his results are permanent, will be of great value.

2. Braithwaite discusses in an interesting way six cases of acute perforation of the bladder, considering the causes, signs and symptoms and treatment.

4. Newton discusses his experiments on concussion of the spinal cord and other conditions, and concludes that the cord is extremely sensitive to slight degrees of concussion and compression and that considerable disturbance of function is apt to result from slight degrees of injury. Arrest of the cord circulation by aortic compression abolishes spinal cord function in from 15 to 30 seconds. His experiments show that there is an organic basis for the signs and symptoms of railway spine and allied conditions of traumatic neurasthenia. [J. B. H.]

May 31, 1913.

1. Whitla, W. *The Annual Oration of the Medical Society of London on the Trend of Thought in Recent Pharmacological Research.*
2. *Gordon, W. *Further Experience of the Cardiac Sign in Cancer.*
3. Weber, F. P. *Lipodystrophis Progressiva.*
4. *Sutherland, P. L., and Jubb, A. A. *Chronic Pneumococcal Infection of the Lungs in Children.*
5. *Stewart, W. *The Treatment of Adenoids and Enlarged Tonsils without Operation.*
6. Ashby, H. T. *The Cause of Enlarged Tonsils and Adenoids in Children and Their Treatment with Lymphatic Gland Extract.*
7. Ridgway, J. C. *Iodine as an Antiseptic in Tropical Countries.*
8. Strickland, C. *The Bionomics of the Rat-flea.*

2. The cardiac sign in cancer consists of a remarkable diminution of the cardiac dullness in the recumbent posture as determined by digital percussion. Very often the cardiac dullness is perfectly normal in the erect position so that mere small size of the heart does not explain it. Loss of elasticity in the lungs along with loss of elasticity in other tissues might cause what the writer calls a form of "spurious emphysema" and thus diminish the dullness. The explanation most obvious to Gordon is that the heart walls are weak and flabby and thus in the recumbent posture the heart falls away from the chest wall. In 93 cancerous cases 87% showed this sign, and in 117 non-cancerous cases only 14% showed the sign. He concludes that the sign is of practical value although of course only a minor point in diagnosis of especial importance if *present*, little stress should be laid on its absence. This needs further investigation.

4. Sutherland and Jubb, in a short paper, conclude that phthisis is not so common in children as certain recent reports would appear to imply, and that many cases of phthisis or suspected phthisis in children are really chronic pneumococcal infections of the lungs inducing bronchial and peribronchial lesions. These form a large proportion of the cases cured or improved in open-air schools. Many such cases are being treated at dispensaries as phthisis. They are chronic and non-fatal infections, although there is always the liability to tuberculous invasion. (No mention is made of bronchial gland tuberculosis in children, compared to which the comparatively small group of cases referred to here as mistaken diagnoses is of little significance.—J. B. H.)

5. Stewart urges the use of the x-ray in the treatment of enlarged tonsils and adenoids, explains the technic and gives results. [J. B. H.]

The Practitioner.

June, 1913.

1. *Latham, A. *Some Points in the Treatment of Bronchial Asthma.*
2. *Grant, D. *Nasal Disease in Relation to Asthma.*
3. *Smith, E. B. *Asthma in Children.*
4. *Box, C. R. *Pellagra.*
5. *Whitehouse, B. *Pathology and Treatment of Uterine Hemorrhage.*
6. Donald, A., and Shaw, W. F. *Retroflexion of the Uterus.*
7. *Holmes, G. *Headaches of Organic Origin and Their Treatment.*
8. *DeSwietochowski, G. *Headache and Its Treatment.*
9. Campbell, H. *Treatment of Neuralgia and Facial Spasm by Nerve-Injections.*
10. *Morley, J. *Perforating Ulcers of the Stomach and Duodenum.*
11. Cotton, W. *Direct Combined Examination of Single Radiograph and Patient. The Episcope.*

1. In this short article Latham calls particular attention to those forms of asthma in which dust, animal or vegetable, seems to be an important etiological factor. He urges a careful investigation along these lines and cites many illustrative cases.

2. Grant presents a large series of cases from all parts of the world, showing the marked relation be-

tween nasal abnormalities of some kind and asthma. He discusses the various forms of nasal deformities which seem to be connected with this disease and their treatment. He advises careful investigation of the nasal passages in every case of asthma.

3. Smith describes two types of asthma which occurs in children, one a moist type, a prominent feature of which is the accompanying bronchitis, and occurring in children up to 5 years, and the second a dry type, more like the adult type in which dyspnea is a prominent feature. He describes a typical asthmatic attack of such type, discusses prognosis and treatment of the disease itself and of the paroxysms. He believes drugs to be of use, but urges against their taking the place of properly regulating the child's habits, clothing, diet, bowels and nervous system.

4. This is a practical and clear description of pellagra which, although presenting nothing new, is of distinct value.

5. Whitehouse presents a general paper on the pathology and treatment of uterine hemorrhage. He believes it is essential to look for a general cause before the local pelvic condition is investigated.

7 and 8. These are general articles of purely clinical interest discussing headaches and their treatment. There are many practical hints but nothing especially new in the subject.

10. Morley discusses the relative frequency of gastric and duodenal perforation, age incidence, occupation, site of perforation, relation to appendicitis, history of previous indigestion, mortality and results of his series of 112 cases. The mortality was 42.9%. There were 11 cases of subacute perforations and 101 of acute perforation. He does not advise the additional operation of gastro-enterostomy in these cases unless the stenosis is extreme. [J. B. H.]

EDINBURGH MEDICAL JOURNAL.

MAY, 1913.

1. *CAMPBELL, B. P. *Causation and Treatment of Deformities Following Anterior Poliomyelitis. I.*
2. *RITCHIE, W. T. *The Absence of Certain Mitral Murmurs in Mitral Disease.*
3. SHERMAN, T. *Multiple Myeloma. II.*
4. ROBERTSON, G. M. *General Paralysis of the Insane. II.*
5. THOMSON, A. *Ligation of Common Iliac Artery in High Amputation of Thigh for Recurrent Sarcoma.*

1. In this long and useful article Campbell, after briefly considering the pathology, symptoms and prognosis in anterior poliomyelitis, discusses the causes of deformity, which he divides into two classes, trophic and preventable. These latter are not directly due to the paralysis, but to outside causes acting on weakened parts. He describes the methods of examination which he has used, electrical and otherwise, and the methods of treatment, among which he discusses preventive measures, medical measures such as rest, warmth, strychnia, electricity, massage, active and passive movements, etc. The major part of the article is devoted to a study of the various mechanical measures. There are numerous illustrations.

2. Ritchie describes certain conditions in the course of mitral disease in which both the systolic and presystolic murmurs may be absent. If, either from impaired conductivity or cardiac acceleration, the auricles contract while the ventricles are still in systole, the former will be unable to drive their contained blood onwards into the ventricles; and if there be mitral stenosis, there can be no genuine auriculo-systolic murmur during the last phase of ventricular diastole. In such instances the only obstructive murmur of mitral origin will be an early diastolic murmur. [J. B. H.]

Obituary.

FRANK HARTLEY, M.D., LL.D.

DR. FRANK HARTLEY, of New York, died on June 19. He was born in Washington, D. C., June 10, 1857, and was graduated from Princeton in 1877. He received the degree of M.D. from the College of Physicians and Surgeons, New York, in 1880, and afterwards served as interne at Bellevue Hospital. In 1909 he was honored with the degree of LL.D. by Princeton University. Dr. Hartley had been for some years professor of clinical surgery in the medical department of Columbia University (the College of Physicians and Surgeons), and at the time of his death was surgeon to the New York Hospital and the Babies' Hospital, and consulting surgeon to the French and Italian Hospitals, New York, the White Plains Hospital, and St. Joseph's Hospital, Paterson, N. J.

Dr. Hartley for many years has been one of the most distinguished surgeons of New York. Combined with wide knowledge of surgical matters and an investigating type of mind was an exceptionally developed degree of technical skill which placed him in the forefront of operative surgeons. His death at the comparatively early age of fifty-six will come as a surprise to those who knew him merely by reputation. He will be deeply missed by a large circle of patients as well as by his colleagues in the medical profession.

Correspondence.

MEMBERSHIP IN THE COLLEGE OF SURGEONS OF AMERICA.

Mr. Editor: Since the organization meeting of the College of Surgeons of America, many inquiries have been received as to the method of procedure required to attain fellowship in this organization.

To the fifteen surgeons comprising the Board of Regents, representing territorially all sections of the North American continent, has been intrusted the delicate task of formulating a membership plan, to include the reception of applications for membership and the final election to fellowship in the College of those fulfilling the standard of requirements. The founders of the College conferred upon the Board of Regents almost unlimited freedom of action in carrying out this preliminary work.

While it is true that three classes of surgeons were declared eligible to election to fellowship in the College immediately, the resolutions dealing with each of these classes provided that each individual thus named shall be confirmed by the Regents before he can be formally declared a Fellow of the College.

These three groups include the surgeons and men practicing surgical specialties who have been in the practice of their specialty for a considerable length of time and who are recognized as surgeons of estab-

lished reputation. They are divided for convenience into three classes: Class A, men who were chosen to organize the College by the Committee on Foundation; Class B, surgeons who are members of one of the fifteen national organizations of surgeons and surgical specialties which are designated as constituent societies; Class C, surgeons of prominence not included in Class A and not affiliated with any of the societies represented in Class B.

For Class D, which will include all other candidates, namely, young men recently graduated in medicine who wish to practice surgery as a specialty, and men who have been in the practice of medicine for a longer period and are desirous of developing a surgical specialty, a special committee of the Board of Regents is carefully preparing a standard of requirements for admission, and this plan will be presented for the approval of the Governors at the November meeting.

Of the A, B, C, and D classes of members, the first three classes will be subject to consideration during the next six months, and while the men in these classes have been declared eligible to immediate membership, the Board of Regents has taken measures to subject these names to the same careful scrutiny that will be employed in the selection of members from Class D.

No man will come before the Board of Regents for final election to fellowship until the applicant has made a formal statement in writing that he is desirous of becoming a member, such application to be accompanied by the membership fee.

Surgeons representing Classes A, B, and C will receive notice that they are eligible under the by-laws, and on request will be sent blanks upon which they can make their applications.

Surgeons who come under Class D, and in this class is included all legalized practitioners who are desirous of becoming members, will be furnished blanks by the Secretary upon which they may make their applications, which in due time will be carefully considered by the Board of Regents.

It is the desire of the present Board of Regents to establish the precedent that any applicant for fellowship in the College will receive the fullest consideration.

Finally, when a surgeon's original application has been passed upon favorably by the Committee on Credentials, he will be sent a fellowship blank upon which he may make his declaration of acceptance of the principles of the College, together with such other data and information as the Regents may require as a matter of record. The applicant will then be duly elected by the Board of Regents a Fellow of the College of Surgeons of America.

FRANKLIN H. MARTIN, M.D.,
General Secretary.

Chicago, June 3, 1913.

RECURRENT VARIOLA.

VANCOUVER, B. C., June 6, 1913.

Mr Editor: Perusal of an article in your JOURNAL of May 15, by Dr. Cody, reporting a case of recurrent variola, and commenting on the rarity of such, suggested to me that perhaps the report of a similar case occurring recently in my own practice might of interest:

W. G. F., aet 35, commercial traveller. Had discrete smallpox in June, 1908, of which a few typical scars, particularly upon the forehead and face are still evident.

The diagnosis of his physician at that time was confirmed by the local W. H. O. and by a representative of the Ontario Provincial Board of Health, and he was quarantined for six weeks.

Previous, or subsequent to his attack he was never vaccinated.

His present attack occurred in April, 1913, and lasted five weeks. It was typical throughout, both as to prodromes and subsequent course, and was well-marked though not severe.

Yours truly,
E. D. CARDER, M.D.

MORE LIKELY TO CAUSE THAN CURE FITS.

MARSEILLES, FRANCE, June 4, 1913.

Mr. Editor: In 1904 a number of Boston men interested in mining had occasion to stop at a ranch near San Fernando in the province of Durango in Mexico. They noticed a family of Mexicans, from the grandfather down, standing around a cow that had just been killed for food.

One of the family made an incision in the cow's abdomen, but did not remove any of the abdominal contents. Then a half-witted child, five years of age, was plunged into the abdomen, leaving only the head exposed. The edges of the incision were drawn tightly around the child's neck, and he was left there for about fifteen minutes. The child cried moderately and the family looked on with seriousness and sympathy.

On inquiry, it was learned that the boy was subject to fits, and this treatment was supposed to bring about a cure.

JOHN W. FARLOW, M.D.

THE NEGLECT OF HYDROTHERAPY.

NEW YORK, June 14, 1913.

Mr. Editor: Under the above caption the last issue contains an able article by Dr. Joseph H. Pratt which bears the impress of the true clinical spirit and will doubtless bring home to some of your readers the criminal neglect of water as a remedial agent. This neglect is unwarranted when it is remembered that water was coeval with bloodletting in therapeutics and that as I have repeatedly pointed out has survived the latter despite the fact that it has never enjoyed its dominance. Hippocrates whose clinical acumen was evidenced by the fact that he devised the maxim Vis Medicatrix Naturae which has come to its own again after desuetude of twenty centuries also wrote "Cold Water Warms (is stimulant), Warm Water Cools (is sedative)," betraying a knowledge of hydrotherapy far above that of the average doctor of this enlightened era.

Dr. Pratt's serious arraignment of his colleagues strikes a responsive chord in one who like myself has passed half a century at the bedside in peace and war, rural, village and city practice, during the earlier period of which he was ignorant of hydrotherapy and during the latter applying it assiduously. My observations at the bedside during all these years really were in the nature of a control experiment. I am able to compare my results in typhoid and other infections, fevers, pneumonia, phthisis, sunstroke, rheumatism, and gout, the neuroses, sciatica and neurastheia, with the drug and the water treatment and with a combined management. These results have been published in numerous articles and addresses, some of which I delivered in Boston. Here allow me to acknowledge that in my earlier propaganda Professor J. J. Putnam and Dr. Pratt cheered and sustained me by their intelligent coöperation and that I demonstrated the technic in their institute and in that of Dr. Channing many years ago. I bear in grateful remembrance, the first opportunity of presenting the claims of hydrotherapy before a class of bright medical students. Accom-

panying Dr. Putnam to that, to me hallowed, ground where anesthesia had its birth, he proposed that I take his hour before the senior class of Harvard. The intelligent questions these students fired at me by Dr. Putnam's direction after the lecture was an inspiration to continue an unpromising propaganda for this most flexible and effective remedial agent.

The cases cited by Dr. Pratt may be confirmed a hundred times by my own experience which demonstrates clinically that there are few diseases in which water may not be advantageously added to the conventional treatment especially as a tonic and that Dr. Pratt is absolutely correct regarding this action where exercise is unobtainable. If we compare the effect of the latter on bloodcells, the cardiac action, the respiration, the muscular tone, the appetite and nutrition with that obtained from judicious applications of cold water with good friction, it is found they resemble each other in physiological action closely.

Dr. Pratt very properly emphasises the wisdom of beginning with mild procedures which in my lectures is inculcated as neurovascular training, that is accessible to the merest tyro in hydrotherapy, the only precaution necessary being to avoid any procedure which chills, by making it very brief. The technic and therapeutic indications for each procedure is so clearly described in "The Principles and Practice of Hydrotherapy" that the simple reference to the index will develop them.

It is a serious and discouraging error to assume that complicated apparatus is required. On the contrary one who understands the principles of hydrotherapy, the physiologic action of water at various temperatures, may obtain with a thermometer and a washcloth or mitten or sheet, as good results as does the surgeon without the hospital paraphernalia, if he understands asepsis and uses soap, the fleshbrush and irritator. I have seen capital operation done successfully in private dwellings. I have a case of gallstone operation in mind done on a feeble woman of 60 in a small house; it was successful, while the same type of case and operation done upon a robust man by the same surgeon in a private room of a modern hospital resulted fatally from erysipelas.

To demonstrate that the most ordinary medical intelligence may carry out all hydriatric procedures let me mention a dispensary at 259 East 69th Street in New York, where over 2000 cases are referred by out-door departments or hospitals and by private physicians to whom a pad of prescription blanks is sent, bearing upon its back the following inscription:

For Working People.
Please fill out kind of "Treatment" desired, whether T. A. R. or C.
Tonic—to improve nutrition and hematosis; useful in neurasthenia and other neuroses, dyspepsias, phthisis, bronchitis, asthma, intestinal troubles, anemia.
Alterative, in diseases of faulty tissue change; *e.g.* rheumatism, gout, neuralgias, diabetes, syphilis, etc.
Reducing in obesity, etc.
Cleansing—to improve hygienic condition and personal habits of the poor.

And upon the removable prescription blank the following:

Riverside Association.
259 West 69th St., bet. Amsterdam and West End Avs.
Hydriatic Department.
Hours: 1.30 to 4.30 P.M.
Men, Tuesday, Thursday and Saturday
Women, Monday, Wednesday and Friday.
Date.....
Name .....
Diagnosis .....
Treatment .....
..... M.D.
..... Dispensary
(See back of card.)

The patient receives the usual dispensary card on the reverse side of which each treatment is recorded:

Hydriatic Department.
Riverside Association
259 West 69th Street, New York.
Monday, Wednesday and Friday, 1.30 to 3.30 P.M.
Dr. Simon Baruch, Medical Director.
Number.....
Name .....
Always bring this card with you.

While this is an empirical method it does awaken interest in the therapeutic value of water. This is testified by the large clientele, perhaps the largest in the world; varying from 50 to 150 per diem. The clinic is self-sustaining, the water being furnished by the city. If these ordinary attendants are able to carry on the water treatment without supervision from a doctor, why may not the latter do so? I should be glad to assist in organizing such dispensaries in any city. Owing to the large number of cases the douche is used instead of the usual affusions, dripsheets, etc. The patients continue under the care of their physicians.

The neglect of this remedy not only injures the patient but physicians have no conception of the number of cases that are driven to the cults and other empirics, when early application of water and other physiological remedies would have nipped the disease in the bud.

May I hope that these truths may impress some of your readers with the value of all that Dr. Pratt has written, and thereby benefit themselves as well as the patient.

Truly yours,
SIMON BARUCH, M.D.

APPOINTMENTS.

The following appointments have been made at the Rockefeller Institute for Medical Research.

The following Assistants have been made Associates: *Frederick Burr LaForge, Ph.D.* (Chemistry); *James B. Murphy, M.D.*, (Pathology and Bacteriology); *Gustave Morris Meyer, Sc.D.* (Chemistry); and *Martha Wollstein, M.D.* (Pathology and Bacteriology).

Michael Heidelberger, Ph.D., has been promoted from Fellow to Assistant in Chemistry.

The following new appointments are announced: *Wade Hampton Brown, M.D.*, Associate in Pathology and Bacteriology; *Carroll G. Bull, M.D.*, Assistant in Pathology and Bacteriology; *Frederick Lamont Gates, M.D.*, Fellow in Physiology and Pharmacology.

Dr. G. Canby Robinson, formerly Associate in Medicine, has been appointed Associate Professor of Medicine at Washington University, St. Louis.

Dr. Jacques J. Bronfenbrenner, formerly Assistant in Pathology and Bacteriology, has been appointed Director of the Pathological Laboratory of the Western Pennsylvania Hospital, Pittsburg.

Dr. Richard Vanderhorst Lamar, formerly Associate in Pathology and Bacteriology, has been appointed Professor of Pathology at the University of Georgia.

The following appointments have been made at the Harvard Medical School:

Dr. Reid Hunt, Professor of Pharmacology. *Dr. Edward H. Nichols*, Associate Professor of Surgery. *Dr. Charles A. Porter*, Associate Professor of Surgery. *Dr. Herman M. Adler*, Assistant Professor of Psychiatry. *Dr. Hugh Cabot*, Assistant Professor of Genitourinary Surgery. *Dr. David Cheever*, Assistant Professor of Surgical Anatomy. *Dr. Eugene A. Crockett*, Assistant Professor of Ootolgy. *Dr. Channing Frothingham, Jr.*, Instructor in Medicine. *Dr. Thomas Ordway*, Instructor in Medicine. *Dr. Percy G. Stiles*, Instructor in Physiology.

Original Articles.

THE TYPHOID CARRIER PROBLEM.

BY C. L. OVERLANDER, M.D., BOSTON.

Typhoid fever, so universally wide spread, though now considered as entirely preventable, seems theoretically at least to be easily stamped out. Its prevalence has long been recognized as due to unsanitary conditions, especially in relation to the disposal of sewage, and it was thought if our sanitary precautions could be perfected, freedom from the disease would result. Even in the most carefully protected communities, however, typhoid fever persists though in a lessened degree and this "residual typhoid," so called, we now believe to be due largely to the presence of "typhoid carriers." Ledingham and Frosch[1] believe that if we can eliminate the carrier we can get rid of typhoid, and Eccles[2] says, "Without carriers the continuance of the disease is impossible." By infecting water and milk in regions previously free they cause sporadic cases and their victims, epidemics.

Any person who has had typhoid fever may become a chronic distributor of the organisms, a living culture.

Now, typhoid fever is a disease of extremely variable symptomatology, depending on the virulence of the attacking organism and the resistance of the individual. In a community, for instance, where 100 people drink an infected milk, only a certain percentage of such persons develops a severe type of the disease, another percentage develops a mild type, which may be unrecognized as typhoid fever, and others have no symptoms whatever.

Although it is probable that those persons who develop the disease will ultimately endanger the public with a larger percentage of carriers, there is a rather definite possibility that any person who takes these organisms into his system may be thereafter a menace to the community whether he develops the disease or not.

Typhoid fever in children is often mild and the symptoms so obscure as not to be recognized. It may thus run its whole course in these individuals, recovery follow and they become carriers. Children are especially dangerous distributors because they are so dependent upon others for their care, mingle so intimately with each other and are often the recipients of the caresses not only of their immediate family but from those of other families as well.

We have, therefore, as possible carriers three classes of people:—

1. Those who have had a definite recognized attack of typhoid fever.

2. Those who have had illness, caused by typhoid bacilli, which has not been recognized as typhoid fever.

3. Those who have become infected with typhoid bacilli and have not developed any illness as a result of such infection.

Medical journals for some years, and more recently the newspapers, have contained many articles in which the writers have described many plans and methods of procedure intended to stamp out this dreaded disease. The very fact of this enormous literature on the prevention and stamping out of typhoid fever has impressed the writer with the extreme difficulty in accomplishing the desired end.

I do not wish to say anything that will in the least discourage any honest effort that is being made to stamp out typhoid fever, but a very careful review of the literature since 1906, together with a considerable amount of work done in the study of typhoid carriers, prompts me to point out some of the difficulties in typhoid prevention as it is influenced by the typhoid carrier, now recognized as one of the most potent factors in the spread of typhoid fever.

During the summer of 1908 the writer assisted in the study of the typhoid carrier problem, as applied to patients at the time of their discharge from the Boston City Hospital.[3] In the series of 65 cases studied during the last ten days of their stay in the hospital, 23% were shown to have typhoid or para-typhoid bacilli in the stools or urine, or both. The average time that patients remain in the hospital after convalescence is established may be taken as from two to three weeks.

Consider for a moment what this finding means. Nearly one-fourth of the patients well of typhoid, immune themselves from further attack, able to go to their homes and ready soon to take up their occupations, are possible distributors of typhoid bacilli!

It is true that this percentage is much higher than that given for chronic carriers, that is, those who still discharge bacilli three months or more after convalescence is established, but we have at present no accurate means of knowing which of these 23%, or for that matter, of the 67% found free at first, may become chronic carriers.

As a result of this work certain conclusions were arrived at and certain recommendations made. In the light of subsequent work done on these same cases, which is to be reported in detail later, it is evident that, while these recommendations were good, they fall short in that they do not provide for the detection of those not shown to be carriers during convalescence but who, when studied over a longer period, showed typhoid bacilli in the excreta.

The exact number who become carriers, as found by various investigators, varies between 1.5%, found by Brion and Kayser[4] in a study of 200 cases (these same authors found 7% to be carriers after fifteen days normal temperature). Lentz[5] found 4% of carriers, Klinger[6] 1.7% of 48 cases after six weeks, Park[7] 6% in 68 cases, Kayser[8] of Strassburg 3% of all cases one year after discharge from the hospital, and Frosche[9]

in 6,708 cases found 4.6% positive longer than ten weeks, and of these 2.4% became chronic carriers.

Any attempt to eradicate this disease brings us face to face with this carrier problem, and the question is.—How are such persons to be dealt with to lessen their danger to the community?

First. Is there any definite method by which we may determine that a person is a typhoid carrier? To this the answer is "yes." If examination of either the stools or urine show the presence of typhoid bacilli we have definitely established the fact that that person was at the time these excretions were obtained a typhoid carrier. Such persons have often shown a chronicity in this respect and it is probable the one we have found may continue to be a "carrier" for some time. Only by repeated examinations, however, can this be definitely determined. He may not cease to be a carrier for ten years or fifty years, or he may be free from the organisms on the day following the collection of the positive specimen.

Second. Is there any definite method by which we may determine that a person is *not* a typhoid carrier? To this the answer must be "*no.*" Repeated examinations with negative results would indicate freedom from infection, but the bacilli have a way of hiding in the gall bladder or some other secret resort for months at a time and then, perhaps owing to some change in mode of life of the host, some change in diet, some change in the reaction of the intestinal contents providing a favorable media for their development, some excess, exhaustion or exposure, they may appear in large numbers. The exact explanation of this periodicity is not at hand, though some authors have attempted to demonstrate a definite seasonal prevalence.

In India,[10] where much work has been done on typhoid carriers, as many as seventy-five successive daily negative examinations have been followed by a positive one, and cases of recovery from typhoid fever have been observed by the writer where the organisms were not demonstrable in the excretions until about six months after dismissal of the patient from the hospital, but were then found to be present.

It would seem then that we are following a "will-o'the-wisp" in attempting to locate and follow the "carrier" cases and that for the cases recovered from typhoid fever some scheme of instruction concerning the precautions which they should observe (and which are naturally observed by any cleanly person) would be more effective in diminishing the disease. The most sweeping recommendation with reference to stamping out the disease is to destroy the bacilli at the time they leave the body. This is very simple in theory but apparently difficult in its application.

Once free from the body there are many agencies, aside from human carriers, by which they may be spread. Most familiar are uncooked vegetables, water, ice, milk, dust, insects, of which the fly is probably the greatest offender, especially in the country or in camps. Other insects less frequently associated with its spread as pointed out by Dutton,[11] are the cockroach, the bed bug, well known as a carrier of tubercle bacilli and the Spirillum of relapsing fever, possibly fleas (human fleas and those of the dog and cat), house ants, ticks, wood ticks, and possibly lice, shown to have distributed typhus fever. The mosquito as a possible carrier must not be overlooked.

Among domestic animals, it has been shown by experiment[12] that the dog may harbor the bacilli in the intestine for a considerable period of time.

The common rat[13] by feeding upon typhoid excreta may harbor the bacilli in the intestines for as long as a month and infect articles of food or drinking water.

Shell fish, especially oysters,[14] are accused frequently and the lobster,[15] formerly regarded as the source of many ills, has more recently been suspected of transmitting typhoid.

The use of urotropin during convalescence, which usually frees the urine from infection, as has been amply demonstrated by Dr. M. A. Richardson,[16] has now become routine treatment in the hospitals and very largely in private practice.

Up to the present time no drug has been found that is efficient in destroying or removing the bacilli from the gall bladder or intestinal tract. A few cases have been successfully treated by operation[17] and removal of the gall bladder, and while the risk of such an operation is, under modern surgical technic, reduced to a minimum, it can scarcely be expected that such a procedure will become universal in its adoption in the treatment of the typhoid carrier.

Anti-typhoid vaccine[18] has proven a most valuable preventive, and it may reasonably be hoped that a combination of vaccination of exposed persons, treatment of the sick, and instruction of convalescents may reduce the disease to a much lower point than has yet been reached.

As judged by the literature, from the time of the discovery of the fact that a certain percentage of all persons recovering from typhoid fever were carriers and disseminators of the organism, it has been the desire of health officials to discover some means of oversight and control of such persons which, if not perfect, might at least prevent their taking part in the handling of milk or other food supplies in which the organism might be carried.

Some of our hospitals, following the lead of similar institutions in Germany, have kept convalescents until one or more negative findings were obtained from the stools and urine, and it has been advocated that after recovery from typhoid at least two consecutive negative examinations of the stools and urine should be obtained, or more if the patient's occupation brings him in contact with food products.[19]

This work could be done while the patient is

convalescing, but if positive results are obtained it must be continued after the patient is well and we are confronted with many difficulties.

Let us consider for a few moments the practicability of this question from the standpoint of the health officer. The first question he is confronted with is the collection of specimens. If accurate work is to be done, feces should be submitted to the laboratory and there rubbed up with sterile water or sterile salt solution and one or more loopfuls of the emulsion taken for examination. In actual practice, however, the problem would probably be more easily but less accurately handled by making cultures into bile medium at the home of the patient and submitting the bile cultures to the laboratory.

These cultures, of course, should be made by the physician, and as nature is not always ready with her offerings at a moment's notice it would result in samples being kept to await the physician's arrival. It has been shown that typhoid bacilli, whatever their vitality in frozen feces, or in water, die out very rapidly in specimens of excreta collected and kept for laboratory examination.[20] A negative result from any specimen of feces where, in the limits of the test, but a minute portion is taken, is open to serious criticism and a negative result from a test of feces which has been kept longer than twelve hours before inoculation of media, is practically worthless.

The majority of typhoid fever patients are young persons. On recovery from the disease they are most anxious to resume their occupations and to again mingle with the society of which they have been so long deprived. They are as a rule impatient of restraint and intractable. If detained in quarantine on account of positive findings the temptation to substitute normal excreta from other persons in the household would to many of these persons be irresistible and it is difficult to see how this could be avoided or detected.

The bacteriological examination, if carefully made is a difficult one; if not carefully made it is, of course, valueless. Isolation of colonies must be obtained by spreading the diluted material over successive plates of differentiating media. After these colonies have developed, the most likely looking ones must be transplanted and pure cultures obtained. These cultures must then be grown on various media and finally tested against positive blood serum, and since newly isolated organisms may not agglutinate readily the whole procedure may require from four days to a week or longer and when negative is highly unsatisfactory.

As the procedure takes several days, the patient, even if the findings are positive, may be free from the organisms by the time the test is finished for all that is known to the contrary. If negative, he may still be a carrier and such result obtained either because the particular specimen contained no typhoid bacilli, the particular portion taken for examination had none, or the particular colonies selected did not prove to be typhoid bacilli.

The effect of these tests upon the mind of the average lay member of society must be considered. Forced to remain in quarantine until negative returns are obtained on the excreta it is of course impressed upon his mind that he is still a source of possible danger to others with whom he may come in contact.

As soon as released, however, after such exacting procedure it is inevitable that he will be obsessed with the opposite opinion. Now, after rigid examination, freed by the action of the Board of Health, he reasons that there is no further danger to be apprehended. But the health official knows that these two or more negative tests are not conclusive and that the released patient is still a possible carrier, but to tell the patient this would indicate to him that he had been unjustly detained, and one can easily understand how it would make all sorts of trouble.

It would seem that a well person long confined until negative results were obtained might well invoke legal aid with confidence since the testimony of experts could but affirm the apparent unreasonableness of his detention.

Another practical question must inevitably arise. What is to be done with the chronic carrier so proven by repeated tests? Can the health official allow this known carrier to go free while as a routine procedure he detains in quarantine for negative tests persons not known to be carriers?

Some apologists for the cultural procedure give diphtheria as a parallel case where the patient is kept in quarantine until negative cultures are obtained. There are, however, great differences.

Cultures for examination for diphtheria bacilli may be taken at any time by the physician or health officer and but slight chance for deception exists. The test is quickly made and is very accurate. While it is recognized that because of carelessness or difficulty in obtaining the specimens or because of overgrowth of other organisms negative results may be obtained when the organisms are still present in the throat or nasal passages; the tabulations of many years prove that such inaccurate results are few and that when two successive negative findings on cultures taken at twenty-four hour intervals are obtained we may be reasonably sure the patient is free from the bacilli.

In conclusion it seems to the writer that until some more easy, rapid and accurate method has been devised for determining the presence of the typhoid bacillus in the excreta, and for the subsequent treatment of the patient to rid him of them, detention of such persons in quarantine until successive negative findings, of exceedingly doubtful value, have been obtained is a proceeding unwarranted viewed from either the standpoint of the patient himself, the health officer or the community. Such a procedure, in-

volving a false confidence in their freedom from infected material, in those released would, in his opinion, be productive of more harm than good. It would be more practical, less arduous and better conserve the public health to regard each person recovering from typhoid fever as a potential carrier, to carefully instruct such persons concerning this subject and the precautions they should take and if possible to forbid them to personally handle public food supplies. The application of any approved method for its eradication, however good it may be, must not be limited to any community, city state or nation. It is a problem world-wide in its scope, and success will only be attained by the hearty co-operation of every individual in every civilized country.

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THE TREATMENT OF CARDIAC EDEMA WITH ALKALI AND SALT.

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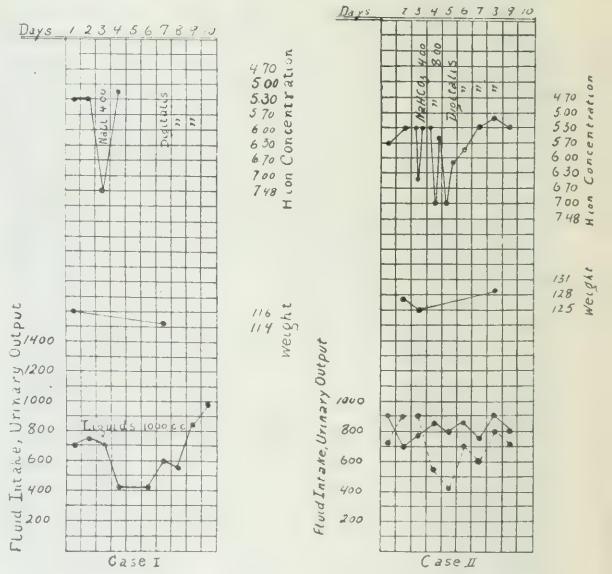
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THE recent publications of Martin H. Fischer,[1] concerned with the nature of edema, deserve the serious consideration of clinicians, for if Fischer's theory is found to be correct, common sense will require that we make certain radical changes in the treatment of those conditions in which edema is a factor. Fischer's argument in his own words is this: "A state of edema is induced whenever, in the presence of an adequate supply of water, the affinity of the colloids of the tissues for water is increased above that which we are pleased to call normal. The accumulation of acids within the tissues brought about either through their abnormal production, or through the inadequate removal of such as some consider normally produced in the tissues, is chiefly responsible for this increase in the affinity of the colloids for water, though the possibility of explaining at least some of the increased affinity for water, through the production or accumulation of substances which affect the colloids in a way similar to acids, or through the conversion of colloids having but little affinity for water into such as have a greater affinity, must be borne in mind." On page 21 of the same book he says, "Any condition which makes for the production of acid in the tissues leads to the development of an edema if a source of water is available."

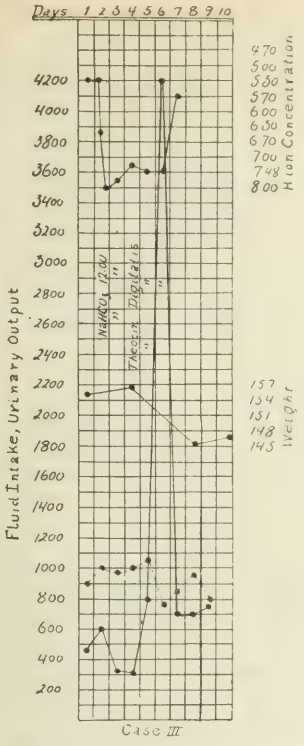
The measures recommended by Fischer for the relief of edema are: (1) neutralization of the acid responsible for the edema by giving alkali, (2) ingestion or injection of neutral salts because colloids swell less in salt solutions than in distilled water and further because the swelling produced by acids is reduced by the addition of salts, (3) giving large quantities of water in order to wash out the excess of acid.

In this communication no attempt will be made to discuss the soundness of Fischer's theory,—that side of the problem has been taken up in detail in other papers by the authors, as yet unpublished. The object of this paper is to set forth the results obtained in seven cases of cardiac failure with edema in which Fischer's recommendations were tried.

It was deemed advisable first to try the alkali alone to see what effect this single factor might have. Three cases (1, 2, 3) were used for this purpose. Sodium bicarbonate was given by mouth in four gram (one drachm) doses until the urine became neutral or alkaline. It was assumed that the excretion of a neutral urine indicated that any excessive acid (granting that it had existed) had been neutralized.



The exact degree of urinary acidity was determined according to the method devised by Henderson and Palmer.[2] This is, of course, much more satisfactory than merely knowing whether a given specimen turns litmus blue or



red. Reference to the accompanying table will make clear the degree of urinary acidity represented on the charts by the topmost solid black line:—

Pathological Acidity	4.70	Greatest acidity ever observed by Palmer and Henderson
	5.00	
	5.30	
Normal Range	5.70	
	6.00	Average of 150 normal cases
	6.30	
	6.70	
	7.00	True neutrality
	7.48	Reaction of blood (alkaline)
Only after ingestion of alkali	8.00	More alkaline—deep blue with litmus.

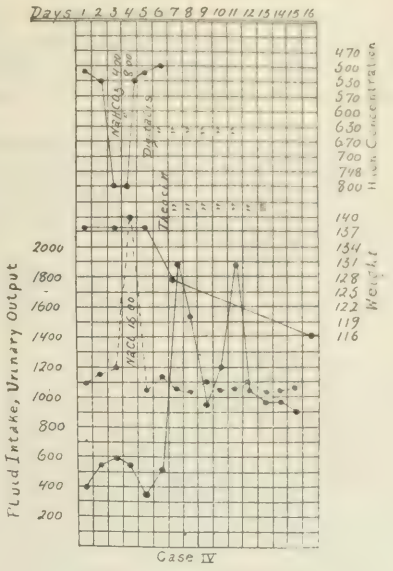
It will be noted that it took respectively four, eight and sixteen grams of the bicarbonate of soda to change the reaction of the urine in the first three cases from that of pathological acidity to that of alkalinity. In no case did a diuresis occur as the result of this change in reaction. In Case 3 the enormous urinary output following digitalis and theocin is strongly contrasted with the total absence of a diuresis dependent upon making the urine alkaline.

When it was seen that alkali alone did not cause the disappearance of the edema, the effect of salts plus alkali was studied in four cases. Reasoning *à priori*, Fischer insists that the salts (NaCl) must be given in hypertonic solution to have the proper effect.

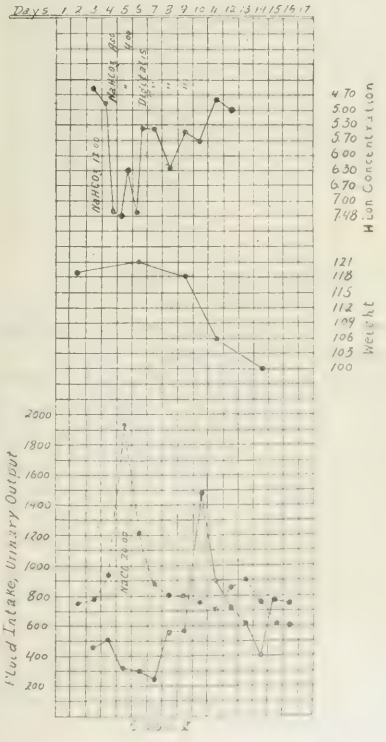
Physiological salt solution = 0.8% solution of NaCl = 0.14 normal solution.

Ten grams NaCl to a glass of water (200 c.cm.) = 0.8 normal solution.

Four grams $NaHCO_3$ to one glass of water = 0.25 normal solution.



In Case 4 the urine became alkaline after four grams $NaHCO_3$. The next day the patient was given 15 grams NaCl dissolved in a glass of water, 8 grams $NaHCO_3$ dissolved in two glasses of water and enough additional fluid to bring the twenty-four hour fluid intake up to 2200 c.cm. He accordingly took the NaCl as a 1.2 normal solution, which is approximately nine times as concentrated as a physiological solution; the bicarbonate of soda has a salt effect as well as an

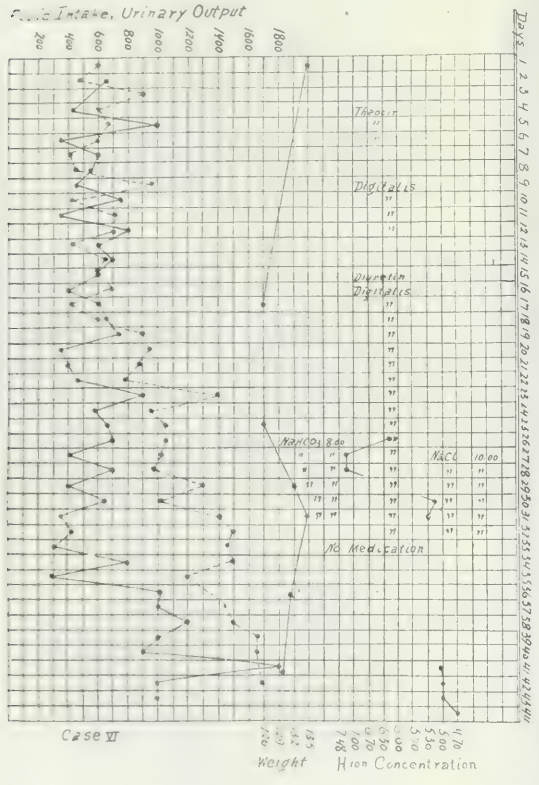


alkali effect. Being given at the rate of four grams to 200 c.cm. of water, it entered the stomach as a 0.25 normal solution.

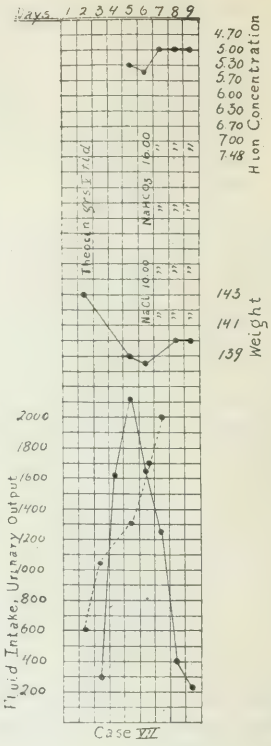
Calculating the salt concentration in relation to the twenty-four hour fluid intake is of doubtful value because too little is known about the rate of absorption and elimination of the salts in these cases.

In Case 5 the same procedures were tried. In neither cases did the salt-alkali administration cause any diuresis. Both cases were subsequently promptly relieved of their edema by the routine methods.

The next two cases are of special interest. Case 6 had been in the ward some days and had



improved somewhat before the salt-alkali régime was started. Following this procedure, which was continued six days, the patient passed a progressively decreasing amount of urine and suffered an increase of edema amounting to eight pounds. Merely discontinuing the salts and alkali, without giving digitalis or diuretics, was followed by a progressive increase in diuresis and loss of weight. The greatest twenty-four hour urinary output occurred while the urine was pathologically acid. In Case 7, after the edema had disappeared following the administration of theocine, he was given the sodium chloride and sodium bicarbonate. The result was a progressive falling off of the urinary output and the ocurrence of serious symptoms—Cheyne-Stokes respiration and persistent vomiting. These two cases show that the salt-alkali régime not only does not relieve the edema but that it may actually cause it.



CONCLUSIONS.

1. The administration of alkali to cases of cardiac edema does not cause diuresis.
2. The administration of alkali plus salt to cases of cardiac edema does not cause diuresis.
3. The administration of alkali plus salt to persons with heart disease may cause edema, and appears to be positively harmful.

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EXPLANATION OF CHARTS.

The topmost solid black line represents the urinary acidity (hydrogen ion concentration) measured for each twenty-four hours.
The middle solid black line represents the weight in pounds.
The lowest solid black line represents the twenty-four hour output of urine measured in c.cm.
The broken line represents the twenty-four hour intake of fluid measured in c.cm.

CASES.

CASE 1. Female, age 43. Has had heart disease for 13 years following pneumonia. Palpitation for 13 years. Dyspnea on exertion for five years. Six months ago legs and abdomen began to swell. During this period she has been very quiet and in bed a great part of the time.

Examination. Marked cyanosis. No hydrothorax, ascites or edema of the legs. Heart: double aortic and mitral disease; great transverse enlargement of the area of cardiac dullness. Pulse tracings show auricular fibrillation. Liver dullness extends from fifth rib above to 9 c.m. below the costal mar-

gin in the right mid-caivicular line. The edge is smooth and tender.

The patient was ordered a light diet with fluid intake restricted to 1000 c.cm. in the twenty-four hours, and one-half ounce magnesium sulphate every morning.

The accompanying chart shows that the urine for the first two days was more acid than normal. It took four grams of sodium bicarbonate to bring the reaction down to that of the blood. The patient passed no more urine when it was alkaline than when it was acid. Furthermore, she showed what Palmer has described as a normal reaction to sodium bicarbonate. From this we infer that the patient's lack of diuresis could not be attributed to an acidosis.

Case 2. Male, age 48 years. Rheumatic fever nine years ago. For one and a half years has had dyspnea on exertion. For four weeks has been unable to work on account of increasing dyspnea and epigastric distress. He has noted no swelling of the abdomen or legs.

Examination. Patient lies flat in bed with no dyspnea or cyanosis. Heart shows: mitral disease. It is moderately enlarged. Pulse is slow and irregular; no hydrothorax or ascites. Liver dullness extends from sixth rib to 3 c.m. below the costal margin in the mid-clavicular line. There is very slight edema of the ankles.

The treatment for the first two days consisted of house diet, one-half oz. magnesium sulphate each morning and liquids limited as shown on the chart. The urine during this period showed an abnormally high acidity. On the third day, 4 grams of sodium bicarbonate caused the acidity to fall below the average normal, and the next day 8 grams brought the urine down to the reaction of the blood. The significance of this reaction to small doses of alkali is mentioned in the account of previous case. The patient voided no more urine when it was alkaline than when it was acid. Following the administration of digitalis his compensation was quickly restored.

Case 3. Male, age 47. For 15 years has been a heavy drinker; denies syphilis. Wassermann Reaction moderately positive. For a year has had increasing dyspnea. During the past month has had many attacks of nocturnal dyspnea. For a week his legs have been swelling and he has had a cough with sputum.

Examination shows a man propped up in bed, breathing rapidly, with cold extremities and cyanotic mucous membranes. Pulse is rapid, feeble and continuously irregular. Area of heart dullness is greatly increased laterally. No normal heart sounds are heard. At the apex there is a systolic and a diastolic murmur; at the aortic area a diastolic murmur. No hydrothorax or ascites. Liver dullness extends from fifth rib to 5 c.m. below costal margin in mid-clavicular line. The non-tender edge is felt. There is massive edema of the legs. Blood-pressure, systolic 150, diastolic 100.

Treatment consisted of light diet, liquids limited as shown on the chart, compound Jalap powder, half a dram each morning, morphia, gr. 1/8, subcutaneously at night for relief of dyspnea. On the third day he was given sodium bicarbonate, 4 grams each four hours. After the fifth dose the urine became alkaline and remained so, but there was no diuresis. He was then given digitalis and theocin. This was followed by an enormous diuresis. The contrast between the failure of the alkali and the effectiveness of the other drugs is striking.

Case 4. A female, age 27. Rheumatic fever nine years ago. For two years has had dyspnea on exertion. Six months ago legs began to swell and at about the same time she began to have precordial distress.

Examination shows a young woman breathing quietly with cyanotic mucous membranes. Heart moderately enlarged. The mitral valve is stenosed. The pulse is regular, not strikingly rapid, good volume. Blood pressure, systolic 120, diastolic 65. Right hydrothorax, small ascites. Liver dullness extends from fifth space to the level of the umbilicus in the mid-clavicular line. There is moderate edema of the legs.

Treatment consisted of light diet, liquids limited as shown on the chart; potassium bitartrate and compound Jalap powder of each, one-half a dram each morning. On the third day she was given 4 grams of sodium bicarbonate. Her urine promptly became more alkaline than the blood and remained so. There was no resulting diuresis. The total absence of an acidosis (Palmer) in the presence of a large edema is noteworthy. The next day she was given 15 grams of sodium chloride, 8 grams of sodium bicarbonate and the fluid intake was put up to 2200 c.cm. The urine remained more alkaline than the blood. Neither the fact that she was taking a hypertonic salt solution by mouth nor that her urine was alkaline caused diuresis. The satisfactory diuresis following heart tonics and thoracentesis is clearly indicated on the chart.

Case 5. Male, age 62. Twenty-one years ago had rheumatic fever. During the last four years has suffered from increasing dyspnea. Three months ago began to have sharp pain in the right upper quadrant of abdomen. Two months ago legs began to swell.

Examination. Patient lies flat in bed without dyspnea. Mucous membranes are slightly cyanotic; heart's apex in the fifth space. There is a moderate transverse enlargement of the area of cardiac dullness. At the apex their is heard a loud blowing systolic murmur, transmitted to the axilla and replacing the first sound; at the base, a low pitched aortic second sound is sharp. The pulse is slow and regular, not Corrigan. The vessel walls are thick and tortuous. Blood-pressure: systolic 135, diastolic 90. No hydrothorax; moderate ascites. Liver dullness extends from fifth rib to 7 cm. below costal margin in mid-clavicular line. The tender edge is felt. There is marked soft edema of the legs and back. Wassermann reaction negative.

Treatment consisted of a light diet, liquids limited as shown on the chart, magnesium sulphate, one-half ounce each morning.

It is noteworthy that this patient had a urine as acid as any ever observed by Palmer and Henderson. Nevertheless it took comparatively little sodium bicarbonate to change its reaction to that of the blood. Although the urine was alkaline on the fourth and fifth day, no diuresis resulted. On the fifth day, 20 grams of sodium chloride, four grams of sodium bicarbonate were given by mouth and the fluid intake pushed up to 2000 c.cm. Neither the hypertonic salt solution by mouth nor the alkalinity of the urine resulted in diuresis. Following digitalis administration a satisfactory diuresis oc-

curred at the same time as the urine was becoming more acid and had reached the zone of pathological acidity before digitalis diuresis set in.

CASE 6. A male of 53. For seven years has had increasing dyspnea. Three years ago began to notice swelling of the feet. For several years has had a good deal of anginoid pain. During the past three or four weeks swelling has greatly increased and now reaches the level of the lower abdomen.

Examination. Orthopneic, emaciated, skin pasty and pale. Heart, apex felt in fifth and sixth spaces, moderate enlargement. Sounds absolutely irregular, rapid, distant; second sounds sharp. At the apex there is a soft, blowing systolic murmur transmitted to the axilla. Many beats do not reach the wrist. Double hydrothorax and ascites. Wassermann negative. Blood-pressure systolic 145, diastolic 90.

Treatment consisted of soft solids and liquids limited as shown on the chart; magnesium sulphate, one dram each morning; theocin and digitalis. The patient made a very slow but distinct improvement in the course of a month in the ward. At the end of this time he was started on sodium bicarbonate, 8 grams daily; and sodium chloride 10 grams daily; and the fluid intake was kept at approximately 1000 c.cm. in the twenty-four hours. All other drugs were discontinued. This régime was continued six days. His urine, which on the day the experiment was begun, showed a normal acidity, became alkaline after 8 grams of sodium bicarbonate. The patient during these six days was taking a hypertonic salt solution by mouth and he was also receiving an amount of alkali which for the first two days was sufficient to keep the urine alkaline. The latter then became acid again. The reason for this is explained in the description of the next case. It will be noted that the patient's urinary output fell off day by day during the salt-alkali medication and what is still more significant that his edema increased to the extent of eight pounds in the six days. It is no less significant that the simple discontinuance of the salt-alkali régime without the addition of other medication was followed by a progressively increasing diuresis with loss of weight. It is further worthy of note that the largest twenty-four hour amount of urine passed by the patient during the 46 days in the hospital occurred on a day when the urinary acidity was very great, in fact, only very slightly less than the highest acidity ever observed by Palmer and Henderson.

CASE 7. A male, age 59. For 20 days has had increasing cough and dyspnea. For 10 days edema of the legs, no headache, nausea or vomiting.

Examination. Orthopneic; slightly cyanotic. Heart's apex in fifth space; moderate lateral enlargement of the area of cardiac dullness. Sounds rapid, poor quality, regular. At the apex is heard a short systolic murmur, not transmitted. Both basal sounds are faint. Over the aortic area there is a low pitched systolic murmur. Blood-pressure systolic 155, diastolic 110. Radial artery is not thickened. No hydrothorax or ascites. Liver dullness fifth rib to 3 cm. below the costal margin in midclavicular line. Edge indistinctly felt. Marked soft edema of legs. Urine: albumen, slightest possible trace, rare hyaline cast.

Treatment consisted of soft solids, magnesium sulphate, one dram each morning, liquids limited as shown on the chart; Theocin, 5 grains, three times a day for four days.

Following the theocin the patient had a marked diuresis with disappearance of edema. He was then given sodium chloride, 10 grams daily, sodium bicarbonate 16 grams daily. An attempt was made to restrict the fluid intake to 1000 c.cm. in the twenty-four hours. This, however, failed for the following reasons: the patient was made very uncomfortable by the change in treatment. On the second day after he had been taking the alkali and sodium chloride he began to vomit and became very restless and the next day began to have periods of Cheyne-Stokes respiration in addition to the vomiting. On the fourth day the Cheyne-Stokes breathing was constant, the vomiting occurring about every two hours and the patient was so uncomfortable and manifestly so much worse than at entrance that the salt-alkali treatment had to be discontinued. During these four days the combination of the salts and the vomiting created so great a thirst that the fluid could not be restricted as was planned. The patient, however, actually absorbed much less water than the chart indicates because he often vomited immediately after drinking a glass of water. This case also lacks conviction for another reason, namely because the urine did not become alkaline. Nevertheless, the patient was receiving large amounts of alkali. The failure of the urine to become alkaline under these conditions is due to the fact that he was becoming sicker every day. As Palmer (*loc. cit.*) has shown, the degree of acidosis or in other words the amount of sodium bicarbonate required to make the urine alkaline, runs parallel in a general way with the clinical condition. Persons who are seriously sick for any reason whether they are or are not edematous show marked degrees of acidosis. Newburgh, Palmer, and Henderson have discussed the relation of edema to urinary acidity in another place. It is noteworthy that the theocin diuresis occurred at a time when the urinary acidity was distinctly above the average normal.

CANCER OF THE STOMACH.*

BY PHILEMON E. TRUESDALE, M.D., FALL RIVER, MASS.

THE problem of dealing with cancer is huge and growing. The census reports for Great-Britain show that while population in that country doubled between 1850 and 1905 cancer mortality increased six times. In Germany there are 15,000 deaths annually from cancer. In the United States the mortality rate from the disease has risen steadily from 9 per one hundred thousand of living in 1850 to 77 in 1909. There were 75,000 registered deaths from cancer in the United States in 1909 and a conservative estimate placed the number of those with the disease and still surviving at 225,000.

Nearly one-half of all cancers in the human have their origin in the stomach, and it is only rarely cured in this location. Up to the present day surgical treatment presents the only hope to the patient with cancer of the stomach. The fact that cancer is primarily a local disease

* Read at a meeting of the Bristol South District Medical Society held at New Bedford, May 8, 1913.

and permanently curable if widely excised in its incipiency should be made common knowledge. It should also be more generally recognized that cancer of the stomach is always primary in this organ as well as the fact that it often becomes engrafted upon ulcer. The frequency of this occurrence varies according to different observers, from 20% to 70%. Dr. Graham, who is an internist at Rochester, Minn., from a recent study states that 50% of cancer cases have ulcer history. There are many who are inclined to deride the theory of the growth of cancer on ulcer, or at least to minimize its frequency. There can be no disputing the fact, however, that 80% of stomach ulcers originate in the antrum and approximately the same percentage of cancers begins in this region. This evidence may not be conclusive, but it is sufficiently suggestive to stimulate the surgeon to excise ulcer and to feel that when he has done this he has done something to prevent cancer.

From a casual investigation it is clear that in many hospitals today patients with early cancer of the stomach are handled in two camps, medical and surgical. The results of the procrastinations of the internists are delivered at the door of the operating room and the bad results of the surgeon return to the internist. The feeling of disappointment is reciprocal and reaches a degree which places an opprobrium upon surgery and absolutely inhibits progress. Such is the tendency of an afflicted relationship. The interests and efforts of the internist and surgeon should be more closely allied. It is safe to predict that the future will see them cooperate, while they now too often compete.

Ten years ago cancer of the stomach was generally considered a medical disease. Today it is surgical until it has reached the inoperable stage. The factor of paramount importance then is its early recognition.

While the symptomatology does not come strictly within the scope of this paper, it is a part of the treatment picture and cannot be ignored. Unfortunately, and not infrequently, we find patients with cancer of the stomach who have had no early distinctive symptoms of the disease. This is especially true when the growth has involved the fundus or the middle portion of the lesser curvature. The real surgical problem in these cases if they are inoperable is to prove it without an exploratory laparotomy and without the loss of valuable time. The stage of the disease and the general condition of the patient should be given careful study before an operation is undertaken. The size and position of a tumor is important, but not in the same proportion as its rapidity of growth and its tendency to early metastasis. A cancer of the stomach may be scarcely large enough to be felt, and yet there may be metastasis involving the adjacent or remote lymph zones. Operation with a hope of cure is not feasible in the presence of secondaries in the liver, mediastinum, the long bones and usually, but not always, in the transverse colon. Resection of the stomach and part of the transverse colon has been successfully done. A supra clavicular glandular enlargement usually means metastasis, as does also an indurated nodule in one or both ovaries or occupying the pelvic shelf, a fold of peritoneum upon which gravitating cancer cells become implanted. These are sign posts contraindicating radical operation, a disregard for which, on the part of surgeons has invited the prejudice of fair minded medical men.

Patients that have drifted or that have been nursed and allowed to drift into the inoperable stage should not be exposed to the risks of major surgery. The results are liable to be disappointing to the patient and his friends, and the status of a rational treatment will inevitably fall into disrepute.

Surgery of the stomach for cancer may be considered for convenience in three divisions: first, the exploratory; second, the palliative procedures; third, the radical operation.

The exploratory operation may be done with two purposes in view: first, to establish the diagnosis; second, in the presence of a palpable tumor to determine its operability. What must be the rôle of exploratory laparotomy in the search for cancer of the stomach? That it is too infrequently done is obvious from the large number of inoperable cases that come to surgeons. There is too often more reluctance on the part of the surgeon to do this operation, and vastly more on the part of the patient and his physician to have it done for suspected cancer than to prove a palpable cancer inoperable. This is natural but it is not good judgment. We are now in a stronger position than ever to size up the inoperable cases without opening the abdomen, but we have advanced very little in our ability to discover the early cases. If an individual is fortunate enough to have his carcinoma begin right at the pylorus he will demand operation for partial obstruction at an early stage, and I take pride in stating that our internists in this section are alive to their responsibilities in these cases.

In connection with pyloric obstruction it is important to remember that the first stage of obstruction is not due to the cancer *per se*, but to the pericancerous inflammation and engorged vessels aggravated by the increasing impact of stomach contents. Under these circumstances conservative treatment yields results immediately good but ultimately disastrous. And the more expert the treatment the sooner will the acute inflammatory process at the pylorus subside; the longer the respite and the more hopelessly advanced will the tumor be found when it is large enough to be defined by palpation. I have learned that patients often prefer medical treatment when they need surgery most and cry out for surgery when medical treatment only is indicated. This is especially true of cancer pa-

tients. Cancer of the stomach too often begins away from the pylorus and becomes extensive before encroaching upon its lumen.

Chemistry and the microscope applied in an examination of the gastric contents may or may not be of value. We have learned not to expect too much from gastric chemistry, and we probably have not always made good use of the microscope. I recall one case in which the diagnosis was established by a microscopic examination of the residue from the stomach contents. The diagnosis had been in doubt for several months. Dr. Macrae made vigorous massage in the region of the epigastrium; then searched for tumor cells and found them, yet the condition was then inoperable. Blood, leucocytes, sarcini and tumor cells are not always to be found in early cases, and like free HCl, their presence or absence may be common to malignant or benign stenosis. A bismuth picture or the fluoroscope may or may not demonstrate an early neoplasm. The x-ray will occasionally indicate the presence of a tumor which cannot be felt, but very rarely will it reveal the presence of a very small growth or one which has not produced fairly typical sypmtoms. At present the x-ray is of value but its function is mainly confirmatory. Meanwhile, the personal history, more important in cancer of the stomach than in any other region, must furnish the evidence for or against exploratory laparotomy.

The cancer age, progressive loss of weight with loss of appetite and impaired digestion, pallor with an expression of impending trouble, especially following upon a history of ulcer, even in the absence of a palpable tumor, chemistry or x-ray proof, should be sufficient evidence upon which to expose the stomach for direct examination.

In private practice I have made it a rule to charge little more than an examination fee for opening the abdomen only, and I believe that this consideration is expected, and if always exercised would remove one objection to this procedure.

Exploratory laparotomy, however, has other inconveniences and will probably never be submitted to with any more equanimity than it has already. The strongest arguments in its favor are: first, that exploratory laparotomy is the only known method for the early diagnosis of most cases of gastric cancer while in the curable stage; and secondly, that this disease if not removed, always terminates fatally.

Until recently the operation usually employed as a palliative measure was gastro-enterostomy, and rarely gastrostomy. Neither of these operations has ever been found to afford much relief and now, with the risk of a much higher mortality, surgeons generally are advocating removal of the tumor mass plus the anastamosis. The presence of a large bleeding and sloughing surface in the stomach makes a sad picture, even with a gastro-enterostomy. Palliative surgery for cancer of the stomach has a place, but it is not large. The decision in favor of extreme measures, as they usually should be, involves not only a keen sense of discrimination but exceptional operative ability as well.

The radical operation for cancer of the stomach consists of partial gastrectomy and gastro-enterostomy. The same principles of technic should apply here as for an operation for cancer in other regions. Wide margins of healthy tissue should be included. A complete excision of the lymphatic zones draining the infected area should be made. The presence of enlarged glands in the immediate vicinity of the tumor does not always indicate metastasis, and should not influence the surgeon to abandon the situation as inoperable. Not infrequently these glands are found to be merely inflammatory and free from cancer cells. Visceral metastasis or involvement of the peritoneum with ascites are contraindications to any operation.

The mortality from excision and anastamosis, according to the Mayos' statistics, is about 10%. A patient has 36% chances of living three years and 25% chances of living five years. These figures are the result of an analysis of their cases, which could be traced, and undoubtedly include many bad risks. They are convincing, stimulating and indicate even greater possibilities.

SOME RELATIONSHIPS BETWEEN ORTHOPEDIC SURGERY AND INTERNAL MEDICINE.

BY H. W. MARSHALL, M.D., BOSTON.

IN treatment of joint conditions orthopedists must study causes that act to produce pathological changes as well as correct existing articular defects by surgical operations and mechanical appliances.

And it is the task of orthopedists even more than of medical internists to pick out from the large mass of data pertaining to internal medicine such bits of knowledge as have bearing upon health and disease of joints.

The fact that the former accept responsibilities of directing treatments of patients as well as acting as consultants, makes their attitude an important one toward medical procedures which often are necessarily involved. And such questions as the following arise,—Shall patients be subjected to operations and to wearing corrective or supportive apparatus with only casual attention being paid to the vascular conditions among which are found the primary causes so frequently for articular disturbances?

It is perfectly true that patients can recover completely, although very little attention is paid in some instances to anything except surgical

and mechanical features; but does this justify some orthopedists in ignoring other etiological factors, or should they discover and treat the latter as carefully as they do gross anatomic defects, and in all possible ways increase the number of persons who are relieved?

The writer takes the position that all special branches of medicine, orthopedic surgery included, must preserve their proper relations with internal medicine; and that patients must not be treated as collections of unrelated special organs, but as groups which are combined always into single physiological entities. Each special organ is subjected to many influences in common with all others, and these common features, which belong to internal medicine, must be given equal notice with the particular peculiarities of the different parts.

Orthopedists who simply are good anatomists, surgeons and mechanicians, and who do not attempt to understand thoroughly the very important principles of internal medicine relating to orthopedic subjects, should not expect to relieve as many patients as those who combine all points of view.

Causes for abnormal joint functions may be grouped roughly into classes of: (1) congenital abnormalities; (2) nervous disturbances, paralytic and spastic deformities, which result in loss of the use of joints; (3) traumata and external physical agencies acting upon joints; (4) harmful mechanical strains and pressures due to body weight and body movements; (5) neoplasms; and (6) vascular conditions producing arthritis.

In mentioning lesions the term arthritic will be used for convenience rather loosely in what follows to designate various hypertrophic, atrophic, degenerative, inflammatory changes, etc., while the last named class, arthritis of vascular origin, is discussed.

Internal medicine and orthopedic surgery meet on common grounds when certain constituents of the blood are considered. These are circulating waste products from tissue metabolism and from intestinal bacterial activities, all pathogenic bacteria and their toxins in the blood stream which produce arthritis, and other occasional constituents which at times provoke harmful joint changes.

Orthopedists need to keep in mind clearly various facts and theories, many of which belong as much to internal medicine as orthopedic surgery, that are concerned with conceptions of causes of joint diseases in general, and of individual cases in particular, because therapeutic measures vary within such wide limits as the result of variations in conceptions. Causes are either direct or contributing ones.

Direct exciting causes for local pathological changes in joints are comparatively few. Foremost among them are mechanical strains and irritations from body weight and from motions of different members of the body, and also from mechanical origins resulting from traumata.

In the blood the only substances that can be reasonably suspected of producing harmful local articular effects are urates, calcium salts, waste products of harmless intestinal bacteria, various pathogenic bacteria or their toxins, and lead. To this number should be added the cause of atrophic arthritis which the writer has suggested probably is another normal waste product, creatinin. Articular changes are caused directly by deficiencies presumably of specific substances in rhachitis and scorbutus.

These various direct effects may be grouped in another way under (1) mechanical ones; (2) those due to foreign substances introduced occasionally into the circulation,—pathogenic organisms, their toxins and metallic poisons; and (3) those caused by normal constituents of the blood which produce harmful changes from being retained in circulation in abnormal concentrations. In this third division are placed gout associated with urates, hypertrophic arthritis showing the direct effects of calcium salts, intestinal toxemic arthritis due perhaps to circulating indoxylsulphuric acid, and atrophic arthritis which may be caused by creatinin retention.

In contradistinction to direct origins must be mentioned many predisposing conditions and contributing causes. These are very numerous and varied,—for example, large amounts of fat deposited beneath synovial structures tend to make such joints more susceptible to harmful developments after traumata or infections by subsequent swellings and pinchings in normal joint motions.

Long continued exposures to great extremes of temperature may lower vital resistances of articulations and permit vascular causes to act which otherwise would be successfully resisted. Initially low congenital joint resistances must be thought of as contributing to some pathological developments.

Among the group of pathological articular changes, which are produced by abnormal quantities of normal vascular constituents, there may be many contributing factors which help to vary vascular proportions of the specific vascular irritants. These include kidney defects, abnormalities in liver function, irregularities of tissue metabolism, unusual bacterial fermentations in the digestive canal, lack of normal nervous control of various organs which lead to their improper functioning, abnormalities in blood pressures,—in fact defects among any of the physiological absorptions, eliminations, conversions in the tissues, enzyme activities, etc., concerned with maintenance of normal vascular proportions of the substances which act directly upon the joints.

Finally, among contributing causes must be mentioned influences upon joint tissue cells themselves of previous bacterial infections, and of other abnormal quantitative vascular irregularities, whereby articular resistances are lowered so that specific latent causes, which are always present, exert their characteristic harmful

effects. The healthy balance between the two is upset in this last instance by changes in articular tissues instead of changes in external causes acting upon them.

From the great number and kinds of contributing causes it is extremely probable that the prevailing confusion arises which exists regarding the nature and origin of joint diseases. And metabolic, infectious and neuropathic theories that have been urged for various types of articular lesions, it seems all may have at times more or less truth in their conceptions.

The writer believes, however, that it is very important to differentiate distinctly between direct and remote origins for joint lesions, and to restrict clinical classifications to specific harmful chemical and mechanical influences, which produce effects directly upon protoplasms of joint tissue cells with development of pathological changes in them. Let it be repeated that direct irritations of articulations are produced through external physical agencies, mechanical irritations, products from pathogenic bacteria, lead, urates, calcium, products from harmless intestinal bacteria, and another waste product of tissue metabolism that is eliminated by the kidneys, which perhaps is creatinin.

If this conception of arthritis is accepted then there will be no objection to the various other theories that have been proposed, and that are based upon occasional marked defects in other organs which contribute to developments in ways that have been indicated.

How far orthopedists shall go personally into matters of regulating diets, excretory functions, blood pressures and other physiological processes concerned in maintenance of normal vascular conditions is open to wide discussion. It seems at least, that they should appreciate thoroughly that these various factors enter very frequently into orthopedic situations, and that medical features often determine ultimate successes and failures when orthopedic treatments are surgically and mechanically perfect.

The writer is impressed more and more with the importance of intestinal putrefactions as primary causes of joint lesions; also it is his belief that many typical gouty, hypertrophic and atrophic types in their exacerbations and recurrences have important intestinal toxemic elements in each frequently, which are entirely overlooked and attributed to the other obvious specific causes that are producing characteristic pathological changes.

It seems of the utmost importance to realize that the gastro-enteric tract is contributing ordinarily harmless bacterial products constantly to the blood, and that these are capable of setting up joint irritations under favorable circumstances. Owing to the great frequency of intestinal fermentations and putrefactions and their bearing upon orthopedic conditions it seems also that orthopedists should know how to treat skilfully, as well as recognize, these medical conditions. For undoubtedly they are causes of many chronic, mildly debilitated, anemic states that are accompanied by orthopedic complications, such as relaxed pronated feet, postural defects, sagging viscera, hollow backs, drooping shoulders, shifting muscular and articular pains about hips, knees, shoulders, elbows, scapulae and various joints, sacro-iliac relaxations, etc., as well as the more severe lesions, the multiple periarticular swellings and synovial accumulations seen in chronic progressive cases.

Careful weighing of the evidence at hand indicates that infectious foci due to streptococci, staphylococci, gonococci, etc., will not satisfactorily account for toxemias commonly accompanying run-down anemic states. Such foci very often cannot be demonstrated in them, nor is there any reason to suppose foci exist; and, furthermore, efficient regulations alone of digestive and eliminative functions quickly restore health when harmful concentrations in circulation of ordinarily harmless intestinal bacterial products are reduced.

The question arises, when it is realized that the blood always contains several substances capable of producing characteristic joint changes, why stop at intestinal toxemic arthritis, and why not insist that orthopedists also should know more about gout, atrophic and hypertrophic types, and the possibilities of regulations of diets and eliminative functions in treatments of these diseases.

It is certain at least that occasional medical consultations, of orthopedists who are managing treatments, are not productive of best results in these matters which require constant supervision from day to day; and it seems that orthopedists will gain greatly, through increasing their appreciation of internal medical features, and by closer co-operation with skilful medical internists.

And the latter will appreciate also much more fully why many of their own patients, although treated with perfect medical attention, continue to have articular weaknesses and defective attitudes because of failures in applying mechanical supports at the times symptoms were at their height, when ligaments were nonresistant.

Vaccine treatments, hydrotherapy, massage, medico-gymnastics and other physical therapeutic methods come to mind as being frequently used by orthopedists. They are getting to be important branches of medicine that are approaching the dignity of specialties like cardiac, renal, and gastro-enteric diseases.

They will not be discussed, however, and are mentioned mainly to emphasize the point that future developments of orthopedics seem likely to advance along medical lines as much as upon strictly mechanical and surgical ones, working forward to embrace more and more important physiological, biological, bacteriological and chemical considerations as well as gross structural ones.

REPORT OF EIGHTEEN CASES OF SEPARATION OF THE LOWER FEMORAL EPIPHYSIS AT THE BOSTON CITY HOSPITAL.

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AND

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Until the recognition of this lesion, thanks to the x-ray, had become generally possible, and the necessity understood for reduction by flexion, as well as immobilization in flexion in some cases, the results of the injury made it one of the gravest nature, and the early statistical reports made a melancholy chapter.

The past decade has seen a marked change in the results obtained by the more enlightened treatment, and the injury, while of great importance, is happily not to be so much dreaded as formerly. Such a record as is mentioned by Monsehr,[1] twenty-two cases, with four deaths and fourteen amputations, undoubtedly belongs to a bygone day. The striking contrast between the ease of handling and good result obtained in some cases, and the difficulties attending treatment that occasionally appear in others, has led the writers to a study of this group of cases, occurring at the Hospital in the past fourteen years.

Etiology. The usual description given by recent writers, notably, Scudder,[2] Stimpson,[3] and Cotton,[4] is found to obtain in this series,—hyperextension being the usual form of violence. In this series the leg was caught between the spokes of a moving wheel in seven Cases (2, 4, 8, 10, 17, and 18). In one case, Case 7, the force apparently was applied to the femur above the epiphysis, the wheel passing over the thigh just above the knee. In two cases (5 and 6), the force was a lateral one, being a kick by a horse on the outer side of the knee in one; in the other, the leg was caught between two logs, and the patient falling towards the same side, sustained an inward displacement of lower leg on the thigh. In the remaining cases the nature of the injury was not determined. The age of the patients ranged from 6 to 19 years.

Pathology. While many cases of this lesion are of simple displacement without serious injury to soft parts, a considerable proportion of compound injuries occurs, Scudder stating it to be 50%. In this series but five were compound cases (4, 8, 14, 15, 18.) The injury may be a simple loosening of the epiphysis, the conjugal cartilage usually adhering to the epiphysis, and there being but slight displacement forward or laterally of the fragment with relation to the shaft of the femur; or there may be great displacement of the fragment, which may ride forwards and upwards in front of the lower end of the shaft, the articular surface being behind patella and quadriceps tendon. In such cases the periosteum is likely to be extensively torn and stripped up from the diaphysis. It is in



Plate I.
Case 3, showing union of displaced epiphysis with shaft, three months after injury. Result—resection and wiring of tibia to femur.



Plate II.
Case 8 (1), showing lower end of femur six years after injury.

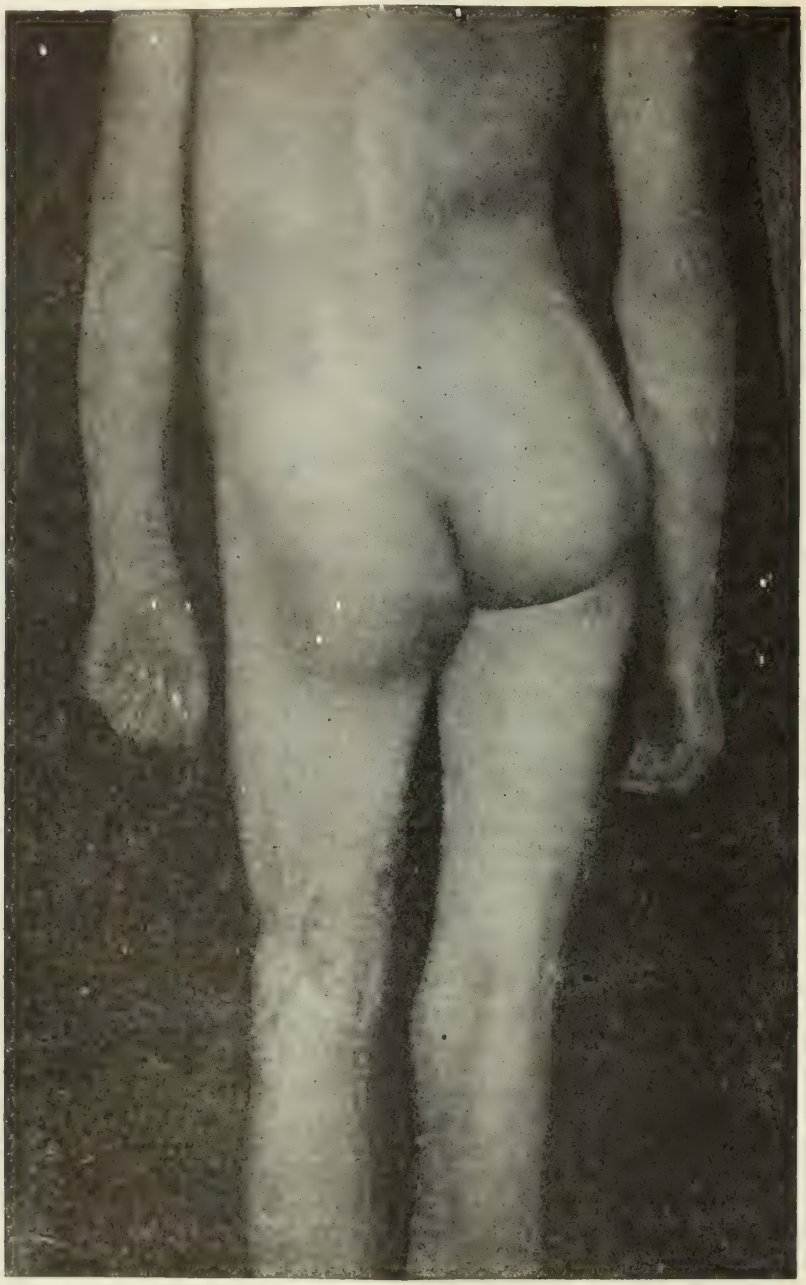


PLATE III.
CASE 8 (2), deformity and shortening due to epiphyseal separation eight years after injury.

these cases that there is always more or less pressure on the popliteal vessels and nerves, owing to the projection of the diaphysis backwards and downwards. In extreme cases this has produced rupture of the vessels requiring immediate amputation; again, the vessels may be drawn tightly over the end of the diaphysis like the strings over the bridge of a violin, as in the case of Coural (Kirmisson[5]). If not promptly relieved, the resulting arterial thrombosis may produce gangrene, or if in the vein, death from pulmonary embolism (Desmarest[6]). The nerve injury is usually to the external popliteal, a number of cases being followed by some degree of toe-drop. In this series the injury to popliteal vessels was rarely serious; only in one case did gangrene threaten as result of the injury, demanding amputation (Case 4.) There was peroneal paralysis in three cases (Cases 8, 14, and 15). Considering the severity of the trauma, it is not surprising that in many cases there was shock and a variety of other lesions, although in only one case was the femur fractured in addition to the epiphyseal injury (Case 9). In the compound cases the force was apparently so great as to drive the sharp posterior

edge of the diaphysis against the skin covering the popliteal space, and rupturing it to a varying extent. As a rule the edge of the diaphysis presents in the wound, or as in one case, the lower end of the diaphysis may actually project for three or four inches. There were five cases only where the injury was compound (4, 8, 14, 15, 18).

Mechanical Factors Affecting Displacement. In the usual type of injury, where the epiphysis rides forward in front of the diaphysis, the former, being attached to the patella and upper end of the tibia by the strong ligaments of the knee joint, is drawn upward by the pull of the quadriceps. The extent of this displacement, and its tendency to recur after reduction is apparently affected by the attachment of the gastrocnemius and the popliteus muscles. The gastrocnemius is attached to the posterior surface of the femur just above the condyles, partly above and partly below the epiphyseal line. The popliteus is attached to the outer aspect of the external condyle below the epiphyseal line. If, in a mild degree of separation, there is little or no detachment of these muscles, they will simply be put on the stretch and will evidently tend to prevent, after reduction, a tendency for the fragment to slip forward again, as they will antagonize the pull of the quadriceps; in other cases, however, the injury is likely to be severe enough to have caused detachment of the gastrocnemius and popliteus from the epiphyseal fragment; thus the quadriceps pull is not antagonized, and the recurrence of the forward dislocation easily takes place. In some cases, especially compound separations, the difficulty of reduction appears to be due to a strip of torn capsule or fascia, which is interposed between epiphysis and lower end of diaphysis. The extended position of the lower leg will, of course, tend to put such a band on the stretch, and traction alone on the leg may fail to remove this mechanical obstacle. By flexion of the knee joint this band will become relaxed, and may by proper manipulation be worked out of its position of interference with reduction.



Plate IV.
Case 10, showing slight forward displacement of epiphysis, before final reduction.



Plate V.
Case 14 (1) Ant.-Post. view, showing epiphysis reduced and held by wire nail.

Symptoms and Diagnosis. Any case of injury to the knee in a patient below twenty (the age of ossification of the epiphysis) is suggestive of epiphyseal separation. In the classical case the appearance is that of a fracture of the lower end of the femur with certain distinctive features, namely, the marked prominence in the region of the patella, with a transverse depression across the thigh just above the patella, the second pathognomonic sign being the bony prominence in the popliteal space, caused by the backward projection of the lower end of the diaphysis. Mobility just above the knee joint and



PLATE VI.
CASE 14 (2). Lateral view showing nail holding epiphysis in position.

a soft crepitus, if present, are suggestive. While in the milder cases with little or no displacement there is no evidence of pressure on popliteal vessels, this condition should be borne in mind, and should always be looked for. In cases with much anterior displacement of the epiphyseal fragment, pulsation in the vessels of the leg may be wanting, and if this has persisted long enough, there will be coldness, pallor, or cyanosis, and swelling of the extremity. In the slightest cases pain and swelling in the epiphyseal line only may be present. With any considerable amount of displacement, there will be shortening of the limb. In some cases the separation of cartilage from diaphysis is not clean cut, and a spicule of bone may be found to go with the epiphysis, resulting in possible sensation of bony crepitus, and adding to difficulties of reduction.

The diagnosis from dislocations of the knee is usually easy, the difference in the deformity being usually marked. A posterior displacement of the epiphysis, which is extremely rare, might resemble a posterior dislocation of the tibia, and therefore require x-rays for determination. In fractures of the lower end of the femur, the bony crepitus and character of the deformity should afford evidence by which we can differentiate between the two conditions. In the slighter cases, practically without symptoms or deformity, the x-ray alone may answer the question, and in any case where feasible an x-ray plate is of the greatest value both for diagnosis and treatment.

Importance of Repeated X-rays. There is no fracture which, after reduction, possesses a greater tendency to recurrence of the displacement or some mal-position of the fragments than this lesion. The literature contains many cases apparently reduced, and put up in fixation apparatus, only to show after a few weeks that the displacement has recurred with union of epiphysis in a wrong position, or of development of vessel- or nerve-injury from pressure. In this series of cases failure of the epiphyseal fragment to remain in place was not uncommon. In Case 4, where reduction apparently was accomplished, obstruction of the circulation developed on the day following, and it is to be assumed that the displacement had recurred, although no x-rays were available. In Case 15 displacement recurred after the operative reduction, the gas bacillus infection making it impossible to maintain the most effective apparatus. In Case 16 a good result was obtained only by repeated x-rays, in that the displacement recurred after two separate attempts, and success only followed immobilization in acute flexion. With the danger that exists in every epiphyseal injury of subsequent



PLATE VII.
CASE 15 (1), showing displacement of epiphysis on entrance to hospital. (Compound separation.)



Plate VIII.
Case 15 (2), showing resulting malposition three months after gas bacillus infection of wound, and two attempts at reduction.

faulty development of the involved bone, a prompt and exact replacement of the epiphysis is of the greatest importance, and the repeated supervision by means of x-rays during the first fortnight, until the union of the epiphysis has begun, is necessary.

Effect of Epiphyseal Injury on Subsequent Growth. The danger of some degree of arrest in growth in these cases is well recognized, and must be always considered in the prognosis. References in the literature to such unfortunate results of this accident are not rare. Broca[7] found a shortening of 4 cm. four years after operative reduction in a patient nine years old. The injury may affect one side more than the other, resulting in lateral deformity, as in the case of Reboul,[8] the patient showing a genu valgum two years after the accident. In this case operation and wiring of the epiphyseal fragment was performed. In case 12 of this series a shortening of the femur of two inches and a slight degree of genu valgum were found four

years after the injury. Open reduction was here performed with immobilization in flexion, but the epiphyseal displacement partially recurred, and correct position was not obtained until eight days after the injury.

While the introduction of a foreign body, such as a nail, screw or wire would seem *à priori* to increase the danger of disturbance of growth, the question arises whether or not the advantage gained of early and permanent fixation by such means actually lessens this danger. Certainly nothing was gained in Case 12 by refraining from the use of a nail or bone-plate. This question will be discussed further under the treatment of compound separation.

TREATMENT.

The treatment of this fracture presents many problems of peculiar interest. The first and most important of these is the fact that it is invariably associated with injury to the epiphyseal cartilage, so that no matter how simple and successful the reduction, there is always a possibility that the cartilage has been so injured as to interfere more or less with subsequent growth. Immediate reduction and the consequent placing of the divided cartilage in position and under favorable conditions for growth is, therefore, a matter of considerable importance. The treatment is also complicated by the concomitant injuries which have been enumerated above and which so frequently happen. Paralysis from pressure of the sharp posterior edge of the upper fragment has been produced as enumerated in several of these cases and injuries of the arteries have resulted in gangrene with consequent amputation.

Simple Separation. In simple cases of milder type, in which there is simply loosening of the epiphysis without extensive detachment of perineum or muscles and therefore little or no deformity, fixation in the extended or slightly flexed position, will suffice. As a rule plaster of Paris is preferable to the Ham splint, as more positive fixation is obtained. Where slight forward displacement has occurred, and is likely to recur, fixation in semi-flexion is often effective. In this series, extension or moderate flexion was used at the first application in all but Cases 14 and 16; but in five cases, or one-third of the total, deformity recurred, requiring further reduction and a change of method in the fixation. In two of these cases, the result was so serious as to require amputation (Case 4) and resection (Case 3). In the majority of cases a careful and thorough reduction can be obtained only by use of an anesthetic. In this series only three cases were reduced without ether (Cases 3, 7, 13). The more serious cases with marked deformity may be attended with considerable difficulty in reduction and subsequent treatment. Under full anesthesia the deformity, if a lateral one only, can be corrected by traction of the lower leg, and



PLATE IX.
CASE 16 (1), showing recurrence of displacement two days after reduction and immobilization on Ham splint.

manipulation of the epiphysis. With the more difficult anterior displacement of the epiphysis, traction and extension often fail to correct the displacement. As was emphasized by Hutchinson,[9] flexion usually furnishes the key to the situation. With the thigh elevated and knee flexed, traction on the lower leg will tend to draw the epiphysis down into its normal position. Manipulation of the epiphysis in front, and pressure forward in the popliteal space on the lower end of the diaphysis by an assistant, will facilitate the reduction. The problem then becomes one of preventing recurrence of displacement. Maintenance of the right angle position by means of plaster of Paris is usually a safe procedure. Great care, however, must be exercised to prevent pressure on the popliteal vessels and nerves. An x-ray must be taken during the first few days to insure maintenance of the epiphysis in the correct position. If the epiphysis cannot be held by this method, the question of immobilization in acute flexion, or of operation and fixation of the epiphysis by nail, screw, or bone-plate arises. Likewise, if the reduction cannot be accomplished, immediate operation should be done and it may then be found that, as in Case 4, the interposition of the torn capsule prevents reduction. Although Stimpson and others are opposed to fixation in acute flexion on account of the irksome attitude, this has been employed successfully in a number of cases, and in this series was resorted to successfully in Case 16. With evidence of vascular injury, however, one should hesitate to employ acute flexion for fear of increasing obstruction to the circulation. In the average case, it would seem

use of a nail through the outer condyle, as was by citing one case in detail:

performed in Case 14 by one of the writers (Dr. Binney).

Compound Separation. After thorough cleansing of the wound, which may have to be enlarged, and after removal of hindrances to

Case 14. The patient, a boy of six, sustained a compound separation of the lower epiphysis of the right femur by being run over. At the Relief Station a lacerated wound of popliteal space found with

CASE.	Patient.	Service.	Date.	Etiology.	Examination.
1.	P. C., 11.	Dr. Gavin.	April 20, 1899.	Leg caught between spokes of wheel.	Marked depression above patella. Prominence in popliteal space.
2.	M. M., 11.	Dr. Gavin.	May 22, 1899.	Leg caught between spokes of wheel.	Abnormal mobility above condyles. No deformity.
3.	H. C., 7.	Dr. Cushing.	June 11, 1899.	Run over.	Usual deformity. Leg cold and pale. No pulsation in post. tibial and dorsalis pedis.
4.	(?)	Dr. Munro.	1899 (?)	Leg caught between spokes.	Shock. Lacerated wound of popliteal space. Diaphysis projecting with vessels on stretch. No pulsation of leg vessels.
5.	F. G., 15.	Dr. Thorndike.	Aug. 6, 1899.	Kick by horse on outer side of knee.	Lateral (external) displacement of leg on thigh. Abnormal lateral mobility.
6.	T. S., 19.	Dr. Monks.	Nov. 30, 1899.	Caught foot between logs.	Lateral (internal) displacement. Deep sulcus above internal condyle.
7.	J. Z., 14.	Dr. Blake.	June 15, 1904.	Run over.	Swelling and tenderness just above knee.
8.	D. H., 8.	Dr. Monks.	Feb. 28, 1905.	Leg caught in wheel.	Ragged wound with diaphysis projecting in popliteal space.
9.	J. K., 6.	Dr. Thorndike.	July 30, 1906.	Fell off fence.	Crepitus and abnormal mobility just above knee and at middle of thigh.
10.	J. B., 11.	Dr. Bolles.	Dec. 4, 1907.	Caught in spokes of wheel.	Abnormal lateral mobility and displacement outward and backward.
11.	A. S., 16.	Dr. Watson.	April 7, 1908.	Caught foot on shaft in alighting.	Forward and outward displacement.
12.	E. B., 9.	Dr. Thorndike.	Aug. 23, 1909.	Struck by team.	Abnormal mobility just above joint. Forward displacement by X-ray.
13.	H. L., 10.	Dr. Monks.	March 6, 1910.	Fall.	Shock. Pain and swelling in region of epiphysis. X-ray showed slight post. displacement.
14.	J. B., 6.	Dr. Monks.	June 11, 1911.	Run over.(?)	Lacerated wound. Diaphysis projecting 3 inches. Injury of nerve and vein.
15.	W. B. G., 13.	Dr. Lund.	Sept. 26, 1911.	Struck by team.	Lacerated wound of popliteal space. Diaphysis projecting 4 inches.
16.	S. B., 10.	Dr. Monks.	Dec. 24, 1911.	Run over.	Swelling just above knee. Bony projection posteriorly.
17.	H. X., 10.	Dr. Monks.	Dec. 30, 1911.	Caught in wheel.	Abnormal mobility just above knee. Bony projection posteriorly. One and one-half inch shortening.
18.	J. C., 14.	Dr. Thorndike.	April 11, 1912.	Caught in wheel.	Wound over internal condyle, diaphysis projecting.

more serious cases with marked deformity may be attended with considerable difficulty in reduction and subsequent treatment. Under full anesthesia the deformity, if a lateral one only, can be corrected by traction of the lower leg, and

and in this series was resorted to successfully in Case 16. With evidence of vascular injury, however, one should hesitate to employ acute flexion for fear of increasing obstruction to the circulation. In the average case, it would seem

ES.

	Treatment.	Course and Complications.	Result.	Remarks.
hy-	Ether. Reduced with traction and flexion. Ham splint and light extension.		Recovery without incident.	
	Ham splint		Discharged with good function at end of six weeks.	
	Ether. Two attempts at reduction failed. Put up in double inclined splint. (See Plate I.)	Circulation of leg returned. Displacement persisted. Toe-drop.	September, 1899, Dr. Lund. Epiphysis is found impossible to reduce; resection. Two years later, much shortening.	Toe-drop persisted. Poor result.
	Ether. Reduction difficult owing to bit of capsule between fragments, pulled out with hook. Plaster.	Three days later no circulation. Sixth day, amputation just above epiphyseal line.	Good recovery.	
eral	Ether. Separation of epiphysis confirmed. Position corrected. Ham splint.	September 9, good union.	Good, immediate result.	
al).	Ether. Reduction (difficult) by flexion and manipulation. Ham splint.	January, 1900, shortening ½ inch.	Good, immediate.	
sen- ent.	Ham splint.	July 7, good union.	Good, immediate.	
	Ether. Cleaned. Reduced. Torn periosteum sutured in place. Plaster in slight flexion.	April 20, union firm. Later, nerve freed from scar tissue by Dr. Lund.	May, 1905. Toe-drop marked. (Plate II. and III.)	Two-inch shortening of thigh, causing lateral curvature.
en- of	Ether. Put up in extended position.	Uneventful.	Good, immediate.	
	Ether. Plaster.	December 19, good position.	Good, immediate.	
	(Dr. Cotton.) Ether. Reduction. Plaster.	Uneventful. May 4, union.	Good, immediate and final.	Seen January 31, 1913. Perfect result. April, 1913. Two inches shortening of femur: slight valgus deformity.
	Ether. Incision on outer side of limb. Manipulation, reduction. Plaster in slight flexion.	Slight displacement recurred. Showed by X-ray. Corrected September 1.	Good, immediate.	
	Plaster.	Uneventful.	Good, immediate.	
	Dr. Binney: Cleaning, reduction and fixation by wire nail in outer condyle. Plaster in slight flexion.	Superficial sepsis. Good union. Nail removed after seven weeks.	Partial toe-drop. Good, immediate.	
	Ether. Cleaned. Epiphysis pried into position. Second attempt, Dr. Blake; immobility in flexion also failed.	Gas bacillus infection. Recurrence of displacement. Partial peroneal paralysis.	See Plates VII. and VIII. Fair result in presence of infection.	
	Ether. Reduction. Ham splint. Displacement recurred twice. Held by acute flexion, February 10, 1912.	Operated by Dr. Lothrop, April 19. Ether. Full extension of knee.	See Plates IX. and X. Good, immediate.	
(See	Ether. Flexion and manipulation. Ham splint.	Uneventful.	Good.	January 28, 1913. No shortening. Flexion not quite complete.
	Ether.. (Dr. Penhallow.) Reduced by manipulation.	May 25, union firm. Good position.	Good, immediate.	

use of a nail through the outer condyle, as was performed in Case 14 by one of the writers (Dr. Binney).

Compound Separation. After thorough cleansing of the wound, which may have to be enlarged, and after removal of hindrances to

by citing one case in detail:

Case 14. The patient, a boy of six, sustained a compound separation of the lower epiphysis of the right femur by being run over. At the Relief Station a lacerated wound of popliteal space found with

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and in this series was resorted to successfully in Case 16. With evidence of vascular injury, however, one should hesitate to employ acute flexion for fear of increasing obstruction to the circulation. In the average case, it would seem



Plate X.
Case 16 (2), showing successful result after second reduction and immobilization in acute flexion.

more desirable in view of the quickness and certainty of good reduction to resort to operation and after open reduction, inasmuch as there is always more or less of a tendency to a recurrence of the deformity, the writers would advocate the use of a nail through the outer condyle, as was performed in Case 14 by one of the writers (Dr. Binney).

Compound Separation. After thorough cleansing of the wound, which may have to be enlarged, and after removal of hindrances to reduction, such as bands of fascia or capsule or a projecting spicule of bone, the displacement having been reduced, fixation of the fragment must be obtained. The technic of the method used by one of the writers may best be described by citing one case in detail:

Case 14. The patient, a boy of six, sustained a compound separation of the lower epiphysis of the right femur by being run over. At the Relief Station a lacerated wound of popliteal space found with



PLATE XI.
CASE 17 (1), showing position of epiphysis on entrance to hospital.

projection of lower three inches of the diaphysis through the skin wound. Soft parts much lacerated but artery intact. For cleansing as well as reduction operation performed by Dr. Binney. Wound thoroughly douched: on flexion and manipulation deformity was corrected, the epiphysis coming into place without difficulty, but could be displaced forward very easily. As the wound extended on to outer aspect of knee, the outer part of epiphyseal junction easily exposed. To prevent possible recurrence of the displacement, with the epiphysis held in place by flexion and pressure in front of the knee, a wire nail, 1⅛ inches long, which the Resident, Dr. Brickley, had provided, was driven through the outer edge of the diaphysis obliquely inward and slightly backward, into the epiphyseal fragment. The wound was then closed with drainage and a plaster of Paris spica bandage was applied with the knee slightly flexed. At the operation no serious injury to the external popliteal nerves was noted, although it was laid bare for the distance of two or three inches.

Except for superficial sepsis of the wound, he made a good recovery, and union was solid at the end of a month. Slight toe-drop noted. *Removal of nail:* To prevent possible interference with growth at the epiphysis, seven weeks after injury the boy was etherized, a longitudinal incision two inches long made over external condyle, carried down to the bone. Owing to considerable periosteal thickening head of nail hard to find, but on being disclosed, it was easily grasped with artery forceps and withdrawn. Wound closed. Ham splint applied. Wound healed promptly. At the end of eight and one-half weeks, boy was discharged on crutches to O. P. Dept., there being considerable degree of toe-drop. (See Plates V and VI.)

A somewhat similar instance was reported by Desmarest, in which the attempt to reduce displacement failing, he operated on the eighth day and by means of a lever behind the diaphysis, pressure on the epiphysis, and flexion, was able to reduce it. He used lateral incisions. The epiphysis was then secured by plates over both condyles, which were removed on the 40th day. Nine months after the injury there was no shortening, and the x-ray showed perfect position. He cites six other cases from the literature in which screws, nails, silver wire, or bone-plates were used with good immediate result, but the late result was not known, except in Reboul's case, which showed a genu-valgum at the end of two years.

The presence of the wire, or other foreign material for a limited period, does not seem to damage the epiphysis sufficiently to interfere with the growth of the bone. It seems wise, however, to remove fixation materials, such as nail, wire, or bone-plate, as soon as their object is accomplished, namely, within two or three weeks. In Case 14, the delay in removing the nail was due to complicating sepsis of the popliteal wound. This, however, was superficial, and did not involve the epiphyseal injury.



Plate XII.
Case 17 (2), showing epiphysis in good position after reduction under ether, and immobilization on Ham splint: not tendency to recurrence. Good final result.

Excision of the joint is probably never necessary. It was performed in Case 3 in this series, but that was a case in which the deformity had been allowed to remain unreduced for a very long time, and at operation reduction seemed impossible. Excision will practically remove the lower epiphysis and will, as it did in this case, form a very serious impediment in growth so that very marked shortening will result.

Case 8, referred to above as having peroneal paralysis, is very interesting, as showing the amount of interference with the growth of the epiphysis, which resulted from the compound separation. The epiphysis was reduced, remained in place and united. The injury occurred in 1905, when the boy was eight years old; subsequently the toe-drop was treated by Dr. Lund, who freed the external popliteal nerve from the surrounding scar tissue. He returned for observation in 1911, having grown to his full height and showing about 2 inches of shortening. He walks on the ball of his foot, and has to have a high heel on the shoe on that side. The accompanying photograph (Plate III) illustrates the amount of shortening and the smaller size of the limb.

The writers wish to express their thanks to those of their colleagues who have allowed them the use of their cases.

CONCLUSIONS.

1. Owing to danger of subsequent interference with growth, absolute reduction and fixation at the earliest possible moment is of great importance.

2. Early and repeated x-rays are necessary to control the completeness and permanency of the reduction.

3. In simple cases, where immobilization in flexion fails to hold the fragment in correct position from the start, open reduction with the use of a small nail or bone-plate is indicated.

4. In compound separation the same means of positive fixation is to be recommended.

5. The foreign body should be removed soon after union has begun in order to avoid interference with growth. This should be done not later than the 3rd week.

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Clinical Department.

EXCESSIVE POLYURIA OF ARTERIOSCLEROSIS.

BY W. E. PAUL, M.D., BOSTON.

A LAWYER, within a year of his demise at 45 years of age, suffered from dyspnea and cough, lost notably in weight (over 40 pounds), and found he was drinking an increased amount of fluids and passing a good deal of urine. In the last eight months of his life the blood pressure varied from 190 mm. to 220 mm. of mercury. He had little edema; 5 months before death a decided neuro-retinitis developed with a considerable loss of vision.

The analysis of the urine made by Dr. David L. Williams 7 months before death gave the following record: quantity, 4,060 c.c.; specific gravity, 1.008; reaction, slightly alkaline; albumen, slight trace; sugar absent; urea, 0.50%; no diacetic acid. Microscopic examination showed 2 to 3 small granular casts per slide, few small clumps of pus, few uric acid crystals, few triple phosphate crystals, little mucus, few squamous cells, few neck of the bladder cells, large numbers of bacteria.

The general course was of emaciation and increasing weakness with mild delirium and some restlessness in the final stage.

Transitory hemiplegic attacks with aphasia and accompanying mental torpor (claudicatory) recurred many times.

With this background the record of the amount of the urine, incomplete as it is, justifies

itself on account of the large quantity excreted:—

Eight months before death, Feb. 5,	154 ounces
May 20,	832 ounces
May 27	640 ounces
June 1,	640 ounces
June 10	832 ounces
July 23,	640 ounces
Aug. 1,	512 ounces
Aug. 5,	768 ounces
Aug. 13,	640 ounces

Reports of Societies.

BRISTOL SOUTH DISTRICT MEDICAL SOCIETY

The meeting of the Bristol South District Medical Society was held at the New Bedford Public Library, Thursday, May 8, 1913.

DR. BOWERS, President of the State Medical Society, was present and spoke upon the Midwife Question, stating why the Committee of the State Medical Society felt obliged to differ with the representatives who appeared from New Bedford when this law was under consideration and who advocated midwife registration. Dr. Bowers also spoke of other legislation pending and desirable in which the District Societies uniting and, as the Massachusetts Medical Society, should exert commanding influence.

The subject of the meeting was

DISEASES OF THE STOMACH.

DR. J. J. HATHAWAY, of New Bedford, presented a paper upon

MEDICAL DIAGNOSIS AND TREATMENT,

describing early symptoms, various conditions which patients presented in hyperchlorhydria and achylia gastrica. In discussing the question of diagnosis, difficulty of recognizing more serious conditions, particularly malignant diseases, was emphasized. Conditions were described, and cases cited in which medical treatment (which the speaker presented in detail) had proved successful, also cases which the internist, after a fair observation and trial, must refer to the surgeon.

DR. CANNY, of New Bedford, presented slides from x-rays of stomachs in various positions and conditions.

DR. P. E. TRUESDALE, of Fall River read a paper upon

CANCER OF THE STOMACH.*

The speaker showed lantern slides of microscopic sections excised at operation, giving history and final outcome.

* See JOURNAL page 44.

The discussion was opened by DR. FRED B. LUND, of Boston.

DR. LUND: In malignant disease in any part of the body, and in particular in the internal organs, earliest possible diagnosis is absolutely essential to cure. We know that cancer while a local disease can be cured, but when once extension into the lymphatics has begun, and this may begin very early, we are often unsuccessful. Cancer of the skin, being where it can be seen, is early recognized and often cured. Cancer of the breast, where the mass may grow to some considerable size before it is noticed, is cured much less frequently. Cancer of the stomach is often found very late and cures are correspondingly rarer. However, cancer of the stomach is not intrinsically more malignant than cancer of the breast or of the lip, although it is possibly a little more so than cancer of the large bowel. Cancer often begins in the site of a chronic ulcer, and the symptoms caused by the ulcer may lead to exploration and cure. But there are certain cancers, especially those which originate on the fundus and toward the greater curvature, the symptoms of which are very insidious, and which I believe at least may arise without chronic ulcer. I have seen several cases of cancer of the stomach where physicians themselves were patients, in which the surgeon was consulted too late for anything more than a fruitless exploratory laparotomy. Cancer which is located at the pylorus by causing early obstruction is much more likely to be recognized early, and, therefore, is much more amenable to surgical cure.

Depending upon the x-ray for diagnosis of cancer of the stomach is extremely dangerous. We cannot accept the diagnosis of the Roentgenologist who may declare that a condition is cancer and inoperable; nor may we any more accept as final the verdict of the x-ray concerning suspected conditions. Even at operation, it is sometimes impossible to tell a chronic ulcer from a cancer; but fortunately in this case, the surgeon usually has no difficulty in deciding what to do. If the chronic ulcer is on the stomach and the patient is in good condition, excision should be done. If the lesion is on the duodenum, where cancer is very rare and chronic ulcer is the rule, it is usually better to do an enterostomy than run the small likelihood of the growth being a cancer. The x-ray has been of value in the early diagnosis of ulcer in the duodenum and has assisted many a doubting Thomas in a determination to have an exploration done where the symptoms ought to have made the course perfectly plain without the x-ray. We have no feasible methods of direct inspection of the interior of the stomach such as we have for the interior of the bladder in cystotomy and the shadow pictures of the x-ray give us so far the best substitute. It should always be used, but is dangerous if depended upon to the exclusion of other diagnostic methods and of common sense.

We must be more on the alert and more suspicious in doubtful cases, and more ready to do laparotomy. Late explorations where nothing is done discredit surgery; but still they have to be done because, as we all know, every surgeon is familiar with the fact that in cases where symptoms have only recently appeared or been complained of, an inoperable condition is often disclosed. Greater readiness to explore will render this sort of thing less frequent. Delay in these cases is more often the fault of the patient in consulting the physician late, than it is

that of the physician in consulting the surgeon too late, but still the physician is not infrequently to blame.

So far in regard to the surgical treatment of cancer of the stomach, we can say with truth that no medical man can point with truth to any case that has been benefited by any medicine or drug more than when treated by surgery.

Personally, I have a man alive and well four years after an excision of one of the largest cancers of the stomach that I ever saw. All my cases of operated cancer of the stomach that have survived the operation have made a rapid gain in flesh, and several of them have worked hard and enjoyed life for two years before recurrence has taken place. I have now two patients on whom extensive resections were done who are perfectly well, two years after the operations.

There is no question that surgery is of the greatest benefit in these cases, and the mortality in skilled hands is not over 10 per cent.—surely a risk well worth taking in a disease of so formidable a nature as cancer of the stomach. Less timidity and greater willingness to deal with our health as we would with our business will render these cases less frequent in the future.

In closing the discussion Dr. Bowers advocated exploratory laparotomy as early as possible and compared the status of the diagnosis and treatment of surgical conditions of the stomach with the status a few years ago of medical and surgical treatment of appendicitis.

Dr. Cushman of Padanaram was elected president for the ensuing year, and the meeting was followed by the annual dinner of the Society.

WORCESTER DISTRICT MEDICAL SOCIETY.

A meeting of the Society was held April 9, 1913, on the general subject

PEDIATRICS.

The following papers were read:

RESOURCES IN ARTIFICIAL FEEDING OF INFANTS AND SOME INDICATIONS FOR THEIR USE

by Merrick Lincoln, M.D., Worcester.

CARBOHYDRATE DIGESTION AND INDIGESTION IN INFANCY,

by Fritz B. Talbot, M.D., Boston.

THE SPASMOPHILIC DIATHESIS IN CHILDREN WITH SPECIAL REFERENCE TO TETANY,

Timothy J. Foley, M.D., Worcester.

An abstract of Dr. Talbot's paper follows.

The foundation was laid for our knowledge of the digestion of the carbohydrates in 1874 when Zwiefel discovered a starch splitting enzyme in the parotid gland. Ibrahim discovered later that this ferment was also present in the submaxillary glands. This diastatic or starch-splitting ferment is always present in the saliva of healthy infants and its action may continue in the stomach for two hours after it is swallowed. The stomach, however, has no carbohydrate splitting ferments of its own. The pancreas contains ferments which split starch at birth and even in premature infants.

Investigators have been unable to demonstrate lactase in the pancreas of babies but are usually able to find maltase. The mucous membrane of the small intestines secrete lactase, maltase and invertin. So far as is known there are no such ferments secreted in the large intestine but it is continually covered with the secretions and food remains coming down from above. The stools contain ferments which split starch at a very early age.

A baby can, therefore, digest starch in small quantities at birth or shortly afterwards, but experience has taught us that it is not safe to give a newborn or young baby the amounts of starch which are given to older babies. The power of digesting starch increases rapidly so that according to Finizio it is twice as strong at eight months as it is at birth; while at twelve months it is almost as strong as at three years.

The complicated carbohydrates are broken down into the simplest forms of sugar by the various ferments described above. The monosacharide, dextrose is absorbed by the blood and carried by the portal vein to the liver where it is transformed into glycogen by the liver cells. The liver is the great store-house which supplies sugar from the glycogen whenever the body needs it. There is normally about one-tenth of one per cent. of dextrose in the circulating blood; when this is used up more is supplied by the liver so that automatically it is kept up to the normal standard.

Sugars have a purgative action when they are given in large enough amounts and in concentrated enough solution, their action differing only in degree. Little or no sugar can be found in the stools except when the food is pushed rapidly through the intestinal canal by peristalsis. Usually only the products of decomposition of sugar can be isolated. When the decomposition of sugar progresses beyond normal limits the end results are lactic and acetic acid. These acids in sufficient concentration are very irritating to the delicate skin of the babies buttocks and cause the familiar "scalded buttocks." When this is present it always means that there is too much sugar in the food.

The stools of carbohydrate indigestion are characterized by their intensely acid reaction due to the formation of lactic, acetic, or succinic acid. Occasionally the characteristic odors of these acids may be smelt in a fresh stool. They are usually loose, may be watery, vary in number from three to eight or more a day. The color is usually green. These stools are frequently designated as fermentative stools by other writers.

The acid burning stools often contain soft fatty curds and hard casein curds. The combination of the three usually come only at the onset of some acute illness, for example, diarrhea due to infected milk.

If the baby has signs of sugar indigestion, that is scalded buttocks, the sugar or starch should always be reduced in the formula. When this is done there is always clinical improvement.

Book Reviews.

Clinical Laboratory Methods. By ROGER SYLVESTER MORRIS, A.B., M.D. New York and London: D. Appleton and Company. 1913.

This volume, which is described on its title-page as "a manual of technic and morphology designed for the use of students and practitioners of medicine," does not aim to be a text-book of clinical pathology, but attempts to give in detail the means of detecting abnormalities in urine, gastric contents, feces, blood, sputum, and puncture fluids, for diagnostic purposes. It does not include the Wassermann or other serologic tests. The author has wisely avoided giving a multiplicity of methods, restricting himself in the majority of instances to careful exposition of one procedure of proved value. The book is well illustrated by two colored plates and 46 figures in the text. Concerned as it is with technic, not with interpretation, it should prove a valuable adjunct to other works as an explicit and convenient laboratory guide for study and reference in practice.

Solidified Carbon Dioxide. Fully illustrated. By RALPH BERNSTEIN, M.D., Philadelphia. Hammond, Ind.: Frank S. Betz Company. 1913.

This small volume aims to present the results of the author's clinical experience in the use of carbon dioxide snow in the "treatment of cutaneous neoplasms and other skin diseases, with special reference to angioma, epithelioma, and lupus erythematosus." The successful use of liquid air for these purposes, first suggested the employment of other freezing agents. The author employs the solid carbon dioxide in crayon form. After describing methods and technic, he presents an alphabetic discussion of the conditions which he has treated, from acne to x-ray keratoses, and reproduces some thirty plates illustrating improvements and benefits derived therefrom. Despite its untutored style, the book is fairly effective, though the author seems disposed to make too extensive claims for the superiority of this particular form of the therapeutic application of cold in the treatment of skin diseases.

Annual Report of the Surgeon General of the Public Health Service of the United States. Washington: Government Printing Office. 1912.

This forty-first annual report of the Public Health service records its operations and transactions for the fiscal year ended June 30, 1912. These activities are divided as usual under the headings of scientific research, domestic (interstate) quarantine, general sanitation, marine hospitals and relief. Among the needs of the service, to which attention is called, are an increase in the number of field officers, the establishment of a division of sanitary engineering, provision for the study and investigation of pellagra, Rocky Mountain spotted (tick) fever, and malaria, and the erection of a new building for the hygienic laboratory.

Year-Book of the Pilcher Hospital. 145 Gates Avenue. Brooklyn, N. Y. 1912.

The first annual report of the Pilcher Hospital was reviewed in the issue of the JOURNAL for Nov. 23, 1911 (Vol. CLXV, p. 805). This second report, for the period from April 1, 1911, to March 31, 1912, being the second year of the operation of the hospital, is of the same style and character as its predecessor. The fractures, the cancers, benign growths, affections of the digestive organs, and urological cases are considered under separate captions, composing the first third of the volume. The remainder consists of a series of 12 papers on special topics by members of the hospital staff, printed as appendices.

Minor Maladies and Their Treatment. By LEONARD WILLIAMS, M.D., M.R.C.P. Third edition. New York: William Wood and Company. 1913.

The first edition of this book was reviewed in the issue of the JOURNAL for Jan. 17, 1907 (Vol. clvi, p. 83). In this third edition an appreciable amount of new matter has been added without increasing the bulk of the volume by more than 13 pages. In its general plan and principles, however, the work has not been altered, and still merits commendation for its sensible consideration of the commonplace ailments which are often neglected by the practitioner.

Diet and Hygiene in Diseases of the Skin. By L. DUNCAN BULKLEY, A.M., M.D. New York: Paul B. Hoeber. 1913.

This book embodies the matter presented in six lectures at the end of the course of clinical lectures given at the New York Skin and Cancer Hospital. The special bearing on dermatology of much that is herein written is difficult to understand. Unquestionably the importance of diet and hygiene is not to be underrated in the management of skin diseases, or of any other class of diseases. The lectures may, as is said in the preface, reflect the experience of the writer, but they seem to us to be unworthy of a place among the many important contributions to dermatology that are constantly appearing.

THE BOSTON
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SANATORIA ON WARSHIPS.

The Italian Minister of Marine is reported to have authorized a medical committee to transform three old warships into sanatoria for the treatment of tuberculous children. It is regrettable not to know the name of the originator of this beneficent idea. Adult consumptives are likely to find that the sea air irritates the diseased pulmonary tissue, and increases cough. Besides, in long voyages, especially when places are visited where this disease has hitherto been unknown, it is possible that inhabitants of those hitherto intact regions have become infected by tuberculous visitors. Thus has tuberculosis been introduced among natives of the South Sea Islands and among Labradoreans by way of vessels carrying patients from Halifax.

Less objection on the score of infection would obtain as to tuberculous children, because their lesions are rather bony, joint and glandular than pulmonary; and they emit comparatively little sputum. For the kinds of tuberculosis from which children suffer sea air is almost unqualifiedly salutary, and oftentimes so effective as to obviate surgery.

Many years ago the French government recognized fully the healing potency in sea air, and it has long undertaken, on a large scale, the care of the tuberculous or scrofulous or rachitic children of its people; it has established to this end large and excellently equipped *hospitals maritimes* along its coast. There puny sufferers are assured the benefit of salt air and of ozone, sunshine, abundant pure food, careful nursing, and altogether adequate medical care of their various lesions. Thus, instead of early deaths, or what is worse, the prospect of growing up hunchbacks or cripples or weaklings, most of these children are vouchsafed happy futures and strong constitutions thereafter resistant to infection. Hygienic habits are also inculcated which are sure to abide with them throughout life, as are very nearly all habits formed in childhood. Thus are secured to the state many worthy and virile citizens, who would otherwise be lost to it; and there are surely none who would serve it more faithfully or more gratefully.

At Berck-sur-Mer, near Calais, the city of Paris maintains the Hospital Maritime, which institution was founded in 1861 and contains now at least seven hundred and fifty beds. The patients vary in age from three to fifteen years, and the average period of their stay is one year, although some are there for only three months and others as long as three years. A unique feature is large double-deck railway trucks used to carry the children, if necessary, to the water's edge. At Berck are also the Hospitals Rothschild, Bouvril, Parmentier Cornu and the Cazin Perrechaud. The sanatorium at Pal-sur-Mer is situated three miles from Dunkirk; it receives two classes of children,—those sent from the hospitals of Lille or other manufacturing towns in the north suffering mostly from surgical tuberculosis: and convalescent or debilitated children admitted during the summer months, either to complete their recovery or as a prophylactic measure. There are also sanatoria, of which that at Zuydcoote is a type, where older convalescent children are trained and encouraged to become farm hands, gardeners and agriculturists in their own right, in order to dissuade them from their former unhealthy environment in cities, and from the mining and industrial pursuits, in the midst of which they had become ill. Great hopes have been entertained for such *colonies sanitaires*—that they would be a means of attracting lads to a country life. But unfortunately it has been found almost impossible to retain the boys, the lure of the town being too strong for them to resist; they seldom settle down contentedly.

In 1904 Sea Breeze, on Coney Island, New York, was established on the plan of those beneficent French hospitals for tuberculous children. It is here that "Smiling Joe" was taken care of; and his photograph, strapped as he was to a Bradford frame for spinal caries, has permeated almost every corner in civilization.

There are now no doubt a number of such institutions along our own coasts. What a warship sanatorium can accomplish may be judged by the work done many summers past by St. John's Guild in New York. This charity maintains two "floating hospitals" and a seaside institution for sick children, tuberculous and otherwise. The former are fitted to take both sick children and their mothers on fresh air trips in the waters about the metropolis. Their purpose is to combine with the needed fresh air and salt water bathing, such medical care as will oftentimes complete the cure. These hospitals, besides being floating ambulances, bring to the seaside hospital children who need treatment and care through weeks. In such cases surgery is oftentimes unnecessary for the clearing up of tuberculous infections of bones and joints.

COMMITMENT AND CARE OF THE INSANE.

THE National Committee for Mental Hygiene has rendered a distinct service in publishing a volume entitled "Summaries of Laws Relating to the Commitment and Care of the Insane in the United States." The book has been prepared by John Koren of Boston, which is in itself a sufficient guarantee of its accuracy and merit.

It is evident that the laws of different states have a definite influence upon measures which may be undertaken for the betterment of the condition of the insane, inasmuch as, more than with any other class of the sick, the kind of care and treatment which the insane receive depends upon the existing laws relating to them. In spite of the progress which has been made, many of the present laws were enacted during a period in which the popular mind regarded the insane as not far removed from the criminal classes. It was natural that this popular impression should be reflected in legislation and it is also clear that the continuance of such legislation is likely to cause many hardships to mentally diseased persons. It is likewise true that the care of the insane differs widely in the different states, dependent upon the degree of enlightenment and progressiveness which the various legislatures may have. It is not too much to say that the crude, custodial measures of a century ago may still be seen in certain institutions, whereas in others the insane are treated, with the necessary limitations which their condition imposes, precisely as are persons ill with other diseases. Development of treatment of the insane has evidently not been so uniformly progressive as in the care of other conditions. Antitoxin, for example, is now universally used in the treatment of diphtheria and one finds the essentials of the treatment of tuberculosis practised uniformly in every state of the country. The fact that such disparity exists between the treatment of such diseases and the insane is manifestly not due to lack of initiative on the part of the medical profession or to unenlightened public spirit, but rather to the fact that laws enacted many years ago are still in force, and as in all matters legal, are far more difficult to change than public opinion. Naturally the enactment of laws is very much more necessary in relation to the care of the irresponsible portions of the community than is the case with others. Nevertheless, the lack of coördination between legislators and physicians no doubt has much to do with a condition of affairs which, though improving, is still deplorable.

Inasmuch as most of the present legislation regarding the insane was, as suggested above, enacted at a time when custody rather than treatment was the chief object, it has required a laborious process of popular education in these matters, which is still far from complete, to impress the necessity of more humane methods made possible by more progressive laws. To bring about the state of affairs which all right minded persons must desire, it is therefore necessary that there be a concerted effort on the part of all interested to obtain more satisfactory laws.

A significant step in the accomplishment of this result has been taken by the committee for mental hygiene in publishing the volume before us. Koren has very briefly stated the laws regarding the insane of each state in the country. The subject matter is arranged in such a way that one has no difficulty in turning immediately to the facts he may desire to know and in finding those facts expressed in the most succinct manner. Such a summary is invaluable as a book of reference as well as a preliminary step toward a more general education of the public in matters regarding the care of the insane and the laws by which it is often trammeled. The book should have a wide circulation not only among those particularly interested in the problem discussed but also among the growing class of public spirited citizens who are seeking knowledge in matters of broad public concern.

APPOINTMENT OF DR. REID HUNT, AND THE DEVELOPMENT OF PHARMACOLOGY.

As announced in our issue of last week, Dr. Reid Hunt of Washington has been appointed Professor of Pharmacology at the Harvard Medical School, a position until recently held by Professor Franz Pfaff. It is the purpose of the medical school to enlarge this department in such a way as to include teaching and research in pharmacology and its immediately allied branches. It may be said without fear of contradiction that pharmacology for many years has been one of the most neglected branches of study in our medical schools. The reason is not difficult to understand. On the one hand the subject has made no direct appeal to the student on account of the definite reaction regarding the efficiency of drugs through which we have of late been passing. On the other hand, the subject is one difficult to render interesting to a class of men whose main object is to gain that knowledge which will be most useful in their practical life work. This has now changed. The student is seeing far deeper into the problems of medicine than did his predecessors and the application of scientific methods in place of the empiricism of former days has given a stimulus to the study of pharmacology which will undoubtedly be permanent. Not only Harvard University, but the community at large, is to be congratulated that a man of Dr. Hunt's attainments has been willing to give up a position of much trust and responsibility to undertake the reorganization of this department at this medical school.

Dr. Hunt is peculiarly qualified from every standpoint for this task. He was graduated with the degree of A.B. from Johns Hopkins University in 1891, receiving the degree of Ph.D. from the same institution in 1896. He was also a student at the University of Bonn, Germany. He received the degree of M.D. from the College of Physicians and Surgeons of Baltimore the same year, 1896, that he gained his doctorate in philosophy. Following his graduation he became a tutor in physiology at the College of Physicians and Surgeons in New York for two years, leaving this post to become successively associate in and associate professor of pharmacology at the Johns Hopkins Medical School. These positions he held for five years and then was made chief of the division of pharmacology, United States Public Health and Marine Hospital Service, and professor of pharmacology at the hygienic laboratory of the public health service. It is this latter position which he relinquishes to come to Boston.

The utilitarian aspects of medicine have never been more in evidence than now. It is an interesting fact that while we are developing the scientific bearings of medicine we are at the same time and for this very reason widening the scope of its usefulness to the community at large. This has, for example, been shown in the establishment of a school for health officers under the auspices of the Harvard Medical School and the Massachusetts Institute of Technology. It is not to be doubted, with Dr. Hunt's wide experience in his official government work, that the science of pharmacology under his guidance will be seen to have far-reaching relations to matters of public health and hygiene and will thereby extend the usefulness of scientific medicine into fields as yet little cultivated, certainly in this community.

THE BOSTON FLOATING HOSPITAL.

The Boston Floating Hospital began its work for the summer on Saturday, June 28. The popularity of this charity and its increasing usefulness is shown by the fact that nearly fifty babies, twelve of whom were placed in permanent wards, were received on the first day. During the twenty years of existence of the Floating Hospital this was not only the largest first day but is said also, thanks to the admirable management, to have been the least confused of any during this long period. This year the accommodations are to be increased somewhat, whereby it will be possible for more children to be treated. Relatively few changes have been made in the medical staff; it is of interest that a Filipino graduate of the Government Hospital in Manila and a Chinese student at the Harvard Medical School will take part in the medical work. The resident physician is Dr. Henry C. Marble, who will be amply assisted by the various medical men connected with the hospital in a resident or consulting capacity. The superintendent of nurses has at her disposal sixty-five women to care for the babies. As heretofore, the Floating Hospital will serve as a means of postgraduate training for students of the Harvard summer school.

Among the various agencies for the treatment of the sick, none appeals more to the popular imagination than this of a floating hospital. The regret is that funds are not forthcoming which would enable several such hospitals to be in active operation during the summer months. The generous response which has been made to appeals for this hospital scheme, both in this city and elsewhere, demonstrate that it is a purpose for which money is willingly given. It is, indeed, difficult to conceive a simpler and more efficient way of meeting the problem of summer in the congested portions of our great cities. The benefit of the fresh air added to the directions which it is possible to give mothers in the care of their children during even one day combine to render the treatment peculiarly efficient. As we have stated from year to year, we commend this charity most strongly to public spirited citizens. What has already been accomplished by its means is not easy to calculate, but it is certainly little in comparison to what might be done if the full need could be met.

THE COCAINE EVIL.

FOR a long time cocaine has been recognized as one of the most dangerous of the habit-forming drugs. The federal food and drugs law, enacted several years ago, has done something and might do more to end the indiscriminate use of this drug. The matter has now reached the point that hereafter every sale in this country of cocaine or the leaves of the coca plant, however trifling, must be put on record with a sworn affidavit as to the proposed use. By this means the government should have perfected a means of regulating the sale of this drug so that hereafter it may be obtained only for use in legitimate medical purposes. It has been estimated that from one hundred to two hundred and fifty thousand persons in this country are addicted to the use of cocaine in one or another of its forms. An amount of the drug has been used which has been estimated as about ten times the quantity required in medical practice. Under that section of the pure food and drugs law which prohibits the importation of any drug or its products dangerous to the public health it has been possible to uphold the contention of the Bureau of Chemistry that the importation of cocaine for other than medical purposes constitutes an illicit traffic. This action has been rendered possible through the action of the Secretary of the Treasury, the matter having been called to his attention by officials of the Department of Agriculture. The decision makes feasible a much more definite attack against the evil of cocaine than has hitherto been possible. We recall with satisfaction the consistent protest made some years ago by Dr. Charles Harrington, then secretary of the Massachusetts State Board of Health against the illegal use of dangerous drugs. Undoubtedly "eternal vigilance" is the price which must be paid for the abatement of such evils.

MEDICAL NOTES.

A CHINESE CENTENARIAN.—It is reported, with what authenticity cannot be said, that a Chinese physician who has recently landed at New York and who died shortly thereafter had attained the age of 149 years. The possibility of such an age must be admitted, but we may be permitted to doubt its probability in any given instance. Dr. Chao is said to have lived on tabloids of concentrated food, and water.

EFFECT OF A THIRTY-DAY FAST.—A man in Washington, after fasting successfully for thirty days, was apparently unable to stand the strain of a return to eating. The result of his first meal was that he became temporarily insane and was taken to an asylum for treatment. He has, however, improved, and it is probable that he will recover from his ordeal. The desirability of fasting is, however, not demonstrated by this experience.

A EUGENIC BILL IN PENNSYLVANIA.—It is reported that a bill relative to prevention of marriage of the unfit has passed both houses of the Pennsylvania Legislature. The bill provides that no marriage license shall be issued when either of the parties is epileptic, an imbecile or of unsound mind, nor to any man who is, or has been within five years, an inmate of any county asylum or home for indigent persons, unless the applicant can show that the cause of such condition has been removed and he is able to support a family. Applicants for license to marry must also file a statement declaring themselves free from transmissible disease.

A Rural System of District Nursing.—The attempt has been made in the town of Roslyn, L. I., to establish a district nursing association similar to those in successful operation in many of the large cities. This is not the first attempt to introduce such nursing into country localities and it is therefore to be expected that it will prove a success, as it has elsewhere. A graduate nurse of the New York Presbyterian Hospital has charge of the nurses. She has an office hour in connection with one of the churches and sees there such patients as may come under her jurisdiction. About a thousand cases have been treated within a few months and instruction given in the extermination of flies and various matters regarding the hygiene of children.

Saving the Babies.—Through the activities of the Children's Bureau of the Federal Government, there is likely to be a decided reduction in infant mortality during the hot months of summer. The bureau proposes to issue bulletins of such character that the philanthropic activities for the welfare of the child may be available to all. In other words, here as elsewhere, the campaign of education is to be instituted which, no doubt, will bring the results it has in other departments of general hygiene. The bureau desires state aid in the collection of facts on child mortality. From statistics hitherto obtained it is estimated that 800,000 children die every year in this country under the age of twelve months. Much more complete statistics, however, than have hitherto been obtained, are desirable.

Birth Rate in France.—French vital statistics for 1912 appear to indicate an improvement in the matter of births as compared with deaths. In 1912 it is stated that the excess of births over deaths was about 58,000, as compared with the excess of deaths over births in the year previous, of 30,000. It is of interest that the actual increase of births is estimated as 8,500, the disparity between the two years lying chiefly in the notable decrease in the number of deaths, reaching 84,000. The high death rate of 1911 is attributed to the hot summer of that year. In spite of apparent improvement, it still appears that the number of births is distinctly less than ten to twenty-five years ago.

A Typhoid Carrier in the German Army.—A report comes from Berlin that a cook in a certain German regiment is responsible for the death of 23 soldiers from typhoid fever. The epidemic, involving several hundred, is said to have been traced to a certain salad prepared by a woman who was later shown to be a carrier of typhoid bacilli, presumably for years. The question has been raised in connection with this case as to the right of such unfortunate persons to demand a pension from the state as compensation for their permanent disability to follow their callings.

BOSTON AND NEW ENGLAND.

Endowment Fund at Tufts Medical School.—It is announced that the graduating class of the Tufts College Medical School has presented to the dean an endowment fund, the amount not stated, to which each member of the class agrees to add a certain sum yearly during his lifetime. Should this precedent be followed by succeeding classes a material endowment might well be established in the course of time.

Dental Registration.—At a recent examination in Boston the State Board of Registration passed 119 applicants, one of whom was a woman; 183 appeared for the examination.

Graduating Exercises, Nurses' Training School.—On June 26 graduating exercises of the Long Island Hospital Training School for Nurses was held at the hospital. This training school, which has now been established for approximately fifteen years, has amply justified its foundation. Training in the care of chronic disease of the most diverse character is possible at this institution, and its nurses should find an increasing field of usefulness.

Free Ferry Boat Service.—By order of the Mayor of Boston the city's ferry boats may be used on Sundays during the summer without payment of fares by women and children. It was furthermore ordered that on any excessively hot day during the summer the ferries might be similarly used by women and children.

Bequest to Lawrence General Hospital.—The will of the late Joseph Shattuck of Lawrence contained a bequest to the Lawrence General Hospital of a sufficient sum to build a much needed, adequate children's ward. Construction will probably begin soon.

GRADUATION OF NURSES.—The graduating exercises of the Lawrence General Hospital Training School for Nurses were held April 23, and diplomas were awarded to fourteen nurses by Mrs. William Shackford, president of the Ladies' Union Charitable Society. Hon. Louis S. Cox delivered the address, "The Hospital in Civic Life," and Miss Mary M. Riddle, superintendent of the Newton Cottage Hospital, addressed the graduating class. Dr. C. G. Carleton, president of the medical staff; Leon G. Beeley, chairman of the examining board for nurses; and Rev. M. W. Stackpole of Phillips Academy, also spoke.

BOSTON MORTALITY STATISTICS.—Cases of infectious diseases reported to the Boston Board of Health for the week ending July 1, 1913: Diphtheria, 42; scarlatina, 27, of which 2 were non-residents; typhoid fever, 1; measles, 98; tuberculosis, 64, of which 3 were non-residents. The death rate of the reported deaths for the week was 14.11.

NEW YORK.

MEMBERS OF PUBLIC HEALTH COUNCIL.—Governor Sulzer has appointed the following as members of the Public Health Council, established under the new law enacted by the Legislature on the recommendation of the governor: Dr. Hermann M. Biggs, general medical officer of the New York City Health Department, chairman; Dr. Simon Flexner, director of the Rockefeller Institute; Henry N. Ogden of New York, a sanitary engineer; Mrs. Elmer Blair, president of the Woman's Club of Albany; Homer Folks of New York, secretary of the State Charities Aid Association; and Dr. Edward Clark of Buffalo.

CONTROL OVER BAKERIES.—Up to the present, control over bakeries in New York City has been unsatisfactory, owing to the fact that both the state labor department and the city health department have had jurisdiction; though it was the practice of the latter to refer most of the complaints to the labor department. In May, however, there went into effect an act to amend the labor law in relation to bakeries, prescribing that in every city of the first class the health department of such city shall have exclusive jurisdiction to enforce the provisions of the law. Responsibility is thus fully lodged in the Department of Health, and, with this advantage, it is expected that a radical improvement of the sanitary conditions in the great number of small bakeries in the city, many of them in cellars, will now be effected.

KIDNEY DECAPSULATION FOR CORROSIVE SUBLIMATE POISONING.—At Bellevue Hospital, on June 24, Dr. George Woolsey, attending surgeon, performed, as a last resort, decapsulation of the kidneys in the case of a woman who had taken ten grains of corrosive sublimate on the 22nd.

BEQUEST UNDER WILL OF DR. FRANK HARTLEY.—Under the the will of the late Dr. Frank Hartley of New York, Princeton University, of which he was a graduate, and the Society of the New York Hospital each receive a cash legacy of $5,000, and Bowdoin College, from which his father was graduated, one of $15,000, to found a free scholarship. On the death of his wife the entire residuary estate goes unreservedly to Princeton University, and will constitute the "Hartley Fund," the income of which is to be used to establish free scholarships for needy students.

BEQUEST.—By the will of the late Karl Hutter of New York more than a quarter of his estate of $1,000,000 is left to public institutions in this country and Germany. Among the legacies are $10,000 to the German Hospital of Brooklyn and $20,000 to the Marien Heim, Brooklyn.

Current Literature.

MEDICAL RECORD.

JUNE 21, 1913.

1. *KELLOGG, J. H. *Incompetency of the Ileocecal Valve. Disorders Arising from This Condition and Their Treatment.*
2. BUERGER, L. *A Clinical Study of the Application of Improved Intravesical Operative Methods in Diagnosis and Therapy.*
3. EINHORN, M. *New Instruments for the Duodenum and Small Intestine.*
4. ISHAM, M. K. *A Paranoid State.*
5. ZIEGEL, H. F. L. *A Case of Graves' Disease with Scleroderma and a Positive Wassermann Reaction, Treated with Salvarsan.*
6. FOWLER, E. P. *Local Autogenous Temperature Variation a Cause of Labyrinthine Vertigo. Preliminary Report.*

1. Kellogg describes the results of incompetency of the ileocecal valve. They are many and varied. The

passage of undigested matter into the colon causes irritation and diarrhea, followed by distention, stasis and excessive putrefaction. The consequent drag on the mesentery causes obstruction at the jejunal end of the duodenum, which leads to gastric and duodenal stasis. Appendicitis is an almost necessary consequence of ileocecal incompetence. Of the 60 cases studied by the writer, 63% had inflammation of the appendix and 77% had either appendicitis or Lane's kink. Flatulence, constipation and toxemia are almost sure to result from ileocecal incompetency. This condition is in most cases permanent, but palliative treatment is often of benefit. The latter consists in moving the bowels with laxatives and in changing the intestinal flora by limiting protein in the diet and giving carbohydrates freely. The administration of lactic acid forming bacilli helps. In about half of the cases palliative treatment is of no avail and surgical relief is necessary. [L. D. C.]

NEW YORK MEDICAL JOURNAL.

JUNE 21, 1913.

1. ADAMI, J. G. *The Cancer Research Institute.*
2. SMITH, S. M. *Influenzal Otitis.*
3. PEDERSEN, V. C., AND COLE, L. G. *Mensuration and Projection of the Posterior Urethra and Vesical Floor by Means of Posterior Urethral Calipers and Radiography.*
4. SOUCHON, E. *The Philosophical Anatomy of the Lungs.*
5. *SMITH, O. C. *Bilateral Nephrolithiasis.*
6. BERNART, W. F. *Is the Rapid Cure of Syphilis Possible?*
7. KERR, L. *Healthy Sick Children.*
8. SKILLERN, P. G., AND PANCOAST, H. K. *An Additional Case of Fracture of the Floor of the Acetabulum. Coincident Fracture of Head of Femur.*
9. RUDIS-JICINSKY, J. *Exercise in the Science of Keeping Well.*
10. BOOGHER, L. *Malarial Hematuria.*
11. WEIDLER, W. B. *Exophthalmic Goitre; Hyperthyroidism.*
12. JONES, F. A., AND COLLIER, C. *Report of a Remarkable Case of Ascites Due to Failing Compensation in Mitral Regurgitation.*
13. CROCKETT, F. S. *Use of Thermostabile Toxines in Urethral and Bladder Infections, Using the Urine as a Vehicle.*

5. Smith writes a valuable paper on nephrolithiasis, reporting four cases with radiographs. The presence of a renal calculus, he says, is always a menace to health and life. In the absence of prohibitive contra-indications, the stone, if too large to pass the ureter, should be removed before serious infection and damage of renal tissue have occurred. It should always be remembered that calculi are bilateral in from 20% to 30% of cases. If both kidneys are involved it is probably better to operate on both at one time, provided the patient's condition warrants it. The more seriously impaired kidney should be operated on first. [L. D. C.]

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

JUNE 14, 1913.

1. ANDERSON, J. F. *The Problem of Typhus in the United States.*
2. BARTLETT, W. *Improved Device for Illuminating the Operating-Room.*
3. MCDILL, J. R. *Operating Departments for Modern Hospitals Which Provide for Spectators without Disturbing the Hospital Service or Its Personnel.*
4. HAWLEY, G. W. *Fracture and Orthopedic Table.*
5. SCHWINN, G. S. *Prognosis and Therapy of Cerebral Syphilis.*
6. *WOLFSOHN, J. M. *The Cutaneous Reaction in Syphilis. Second Report.*
7. LOEB, L., AND FLEISHER, M. S. *Intravenous Injections of Various Substances in Animal Cancer.*
8. FERGUSON, R. H. *An Artificial Airway for Surgical Anesthesia.*
9. *FRICK, A. *Gastric Dilatation. Its Treatment by Removal of Gastric Contents, Starvation and Rest in Bed.*
10. EMSHEIMER, H. W. *Significant Signs in Early Diagnosis.*
11. POSEY, W. C. *The Significance of Ocular Findings in Estimating Longevity.*
12. UNDERHILL, A. J. *Sexual Neurasthenia in Men.*
13. SINGER, H. D. *The Teaching of Psychiatry. A Reply to Drs. Burr and Dercum.*
14. ALDEN, A. M. *The Staphylococcus-Spray Treatment of Diphtheria Carriers.*
15. WILLETT, T., AND MAECHTLE, E. W. *A Report of a Case of Thrombosis of the Superior Vena Cava.*
16. CAFFREY, A. J. *Persistent Hiccups.*
17. FURNISS, H. D. *One Gauze Sponge Removed from Bladder, Another from the Vagina, Months after a Dührssen Operation for Prolapse.*

6. Wolfsohn, giving the results of his investigations with the luetin reaction for syphilis, believes that this cutaneous reaction is specific when properly performed. Intensive anti-syphilitic treatment in the late stages of syphilis may produce a negative reaction, which after an interval in which treatment is withdrawn, may become positive. Treated congenital and secondary syphilis is apt to give positive luetin reactions. The luetin reaction is especially valuable in parasyphilis and in tertiary and latent syphilis. In any case of suspected syphilis, whether previously treated or not, a negative luetin reaction must be watched for at least four weeks so as not to overlook a delayed reaction.

9. Frick states that a dilated stomach retains its contractibility wonderfully well, no matter for how long a time or to what degree it has been dilated. The chief purpose of the treatment of a gastric dilatation should be to give the dilated stomach every possible opportunity to contract. This is best accomplished by removal of gastric contents, starvation and rest in bed. [E. H. R.]

JUNE 21, 1913.

1. *LAMBERT, A. *The Treatment of Narcotic Addiction.*
2. CUMMINGS, R. S. *Animal Experiments with von Ruck's New Tuberculoproteins.*
3. *FLEXNER, S. *Accidents Following the Subdural Injection of the Antimeningitis Serum.*
4. LIKES, S. H., AND SCHOENRICH, H. *Experience with Over One Thousand Cases of a Form of Chronic Urethritis.*
5. SIMONS, I. *Cases of (Syphilitic?) Ulcer of the Bladder.*
6. GILLMORE, R. T. *Advanced Treatment of Puerperal Infection.*
7. BROWN, E. J. *Conservative Treatment of Some Aural and Nasal Conditions by Hot Air and Iodoform. A Simple and Practical Method.*
8. JUDD, C. W. *The Serum Diagnosis of Pregnancy.*
9. HARRIS, W. H. *The Experimental Production of Pellagra in a Monkey by Berkefeld Filtrate Derived from Human Lesions. A Preliminary Report.*
10. GAY, F. P., AND CLAYPOLE, E. J. *Specific and Extreme Hyperleucocytosis Following the Injection of Bacillus Typhosus in Immunized Rabbits.*

11. SHIMER, W., AND MCABEE, W. D. *Epidemic of Typhoid Due to Milk.*
12. DWIGHT, C. G. *Operating-Table for Rhinologists.*
13. HIRSCHLER, D. L. *Case of Urethral Calculus, Prostatic Division.*
14. DAY, H. F. *Double Vulsellum Cervix Forceps.*
15. ALLEN, M. D. *Ascaris Lumbricoids as a Complication of a Surgical Operation.*
16. HEALD, C. L. *Adhesive Support for Tension Sutures.*
17. ORBISON, T. J. *The Radical Cure of an Unusual Type of Headache.*

1. Lambert finds that nearly 80% of those addicted to the use of morphine and opium have acquired this habit through legitimate prescribing by their physicians or by self medication. In the treatment cholagogue action is necessary. He describes his method in detail. Eleven per cent. of morphinists and 12% of alcoholics return for treatment. After being cured of this addiction these patients should have, if possible, a change of environment and mental attitude. It is an excellent plan to put them into the hands of some physical trainer. A man's intellect is as poisoned as his body by a drug habit, therefore his mind as well as his body must be unpoisoned before complete cure can be expected.

3. Flexner ascribes the outward symptoms seen after subdural use of the antimeningitis serum as being due to increased intracranial pressure. This can be avoided by using a gravity apparatus instead of a hand syringe, and the operation controlled by blood pressure readings. [E. H. R.]

BRITISH MEDICAL JOURNAL.

JUNE 7, 1913.

1. *LINDSAY, J. A. *A Clinical Study of Pneumonia, with Notes of One Hundred Consecutive Cases Occurring in Hospital Practice.*
2. *KNOX, R. *A Lecture on Radium in the Treatment of Malignant Disease.*
3. OLIVER, T. *Diachylon or Duty: A Call to Action.*
4. GAUVAIN, H. J. *The Use of Celluloid in the Treatment of Tuberculous Disease of the Spine.*
5. GRIFFITH, T. W., AND KENNEDY, A. M. *A Case of Complete Auriculo-Ventricular Heart-block.*
6. PATERSON, A. M. *The Position and Form of the Normal Human Stomach.*
7. STOPFORD, J. S. B. *A Note on the Shape of the Normal Empty Stomach.*

1. This is an interesting study of 100 consecutive cases of pneumonia occurring in hospital practice. Lindsay discusses these cases as to age, occupation, previous history as to exposure to wet and cold, alcohol, previous attacks of pneumonia, tuberculosis, etc. In regard to temperature, the mortality of those over 105° F. was 100%, while the mortality of those patients whose temperature ran between 104° and 105° was only 30%, the lowest of the series; cases with temperatures of 101°-102° had the highest mortality, 57%. Cases under 101° had a mortality of only 6.25%. He discusses the complications, course of the disease and its seasonal incidence. Prognosis depends on age, extent of lung involvement, nature of symptoms, cases with marked cerebral symptoms having a high mortality, and the nature of complications. He describes the conditions for which pneumonia may be mistaken. He treats pneumonia as an acute general infection with special impact upon the lungs. He uses alcohol sparingly and only in very severe cases. The paper is of interest and value.

2. Knox discusses the use of radium in cancer. In all early cases the operative method is undoubtedly the best. Radium may be regarded as a useful adjunct to the treatment of all cases; in inoperable cases it is useful as a palliative measure. [J. B. H.]

MÜNCHENER MEDIZINISCHE WOCHENSCHRIFT.

NO. 21. MAY 27, 1913.

1. HOESSLIN, R. V. *The Clinical Significance of Lymphocytosis in Asthenia and Neuropathies.*
2. *BAERMANN, G., AND HEINEMANN, H. *The Treatment of Amebic Dysentery by Emetin.*
3. KÖNIG, F. *The Results of Inplantation of Ivory in a Plastic Operation on the Elbow Joint.*
4. PETRI, T. *The Occurrence of Ferments in Animals and Man After Parenteral Addition of Serum from the Same Species or Individual.*
5. HEGNER, C. A. *The Use of Abderhalden's Dialysis Method in Eye Disease.*
6. RÜBSAMEN, W. *The Biological Diagnosis of Pregnancy by the Optical Method and Dialysis.*
7. HERXHEIMER, K. *Falling of the Hair.*
8. MORO, E. *Erythema Nodosum and Tuberculosis.*
9. *WEICKSEL, J. *Syphilitic Pernicious Anemia.*
10. REICHART, A. *A Peculiar Typical Deformation of the Styloid Process of the Ulna.*
11. HAUCK, L. *Spontaneous Cerebral Hemorrhage in a Hemophiliac with Fatal Outcome.*
12. FRANK. *Curiosities in Practice.*
13. HAMMER, F. *A New Powder for Wounds.*
14. PARREIDT, R. *The Results of Treatment of the Bleeding of Hemophilia by the Thermocautery.*
15. HOLZKNECHT, G. *A Source of Error in Reading of the Saubourard-Noiré Tablets.*
16. GRASSMANN. *A Report of the Physicians' Visit to Bad Reichenhall on May 9 and 10, 1913.*

2. This article will be reviewed in the next number.

9. Weicksel finds in the literature reports of cases of lues followed by an anemia resembling pernicious anemia, which has improved markedly under antisyphilitic treatment. A few similar cases have been treated effectively by salvarsan. Weicksel reports a case of advanced pernicious anemia in a syphilitic patient having a positive Wassermann reaction. The patient was given .5 gm. of salvarsan twice at four-week intervals. The Wassermann reaction three months after the first injection was negative. The patient's blood and general condition improved steadily. From this observation Weicksel believes that salvarsan may be beneficial in the treatment of pernicious anemia. He advocates its use for this purpose, emphasizing that many more observations are necessary to determine whether all cases will react so favorably. [R. F.]

NO. 22. JUNE 3, 1913.

1. BRUCK, C., AND SOMMER, A. *The Value of Intravenous Injections of "Arthrigonin" in Diagnosis and Therapeusis.*
2. VOIGTS. *Mesothorium as a Substitute for Roentgen Rays in Gynecology.*
3. HERTEL, E. *Decrease in Ocular Pressure in Diabetic Coma.*
4. SPIETHOFF, B. *The Increase of Intracerebral Pressure in Lues After Salvarsan.*
5. MANDELBAUM, M. *A Noteworthy Phenomenon in Tuberculous Meningitis Found Post Mortem.*
6. ENGELHORN, E. *The Influence of Pregnancy on the Catalyse of Hemoglobin.*
7. *WEGENER. *Sero Diagnosis by Abderhalden's Method in Psychiatry.*
8. SCHIFF, E. *Is Abderhalden's Dialysis Method Useful for Differential Diagnosis?*
9. KING, V. L. *The Use of Dried Placenta Powder in Abderhalden's Dialysis Method for the Diagnosis of Pregnancy.*
10. FORCART, M. K. *Larosan as a Substitute for Milk Albumin.*
11. SCHMINCKE, R. *The Use of Iron in Generating Blood.*

12. MEES, R. *Alcoholic Loss of Pupillary Reflex.*
13. JENSEN, T. *Nitrite Intoxication Following the Injection of Beck's Bismuth Paste.*
14. SCHWAER, G. *The Hematological Diagnosis of German Measles.*
15. TREPLIN. *The Etiology of Intestinal Invaginations.*
16. *KOHN, J. *"Glättolin" as the Cause of a Stubborn Dermatitis Colli.*
17. HOESSLIN, R. V. *The Clinical Significance of Lymphocytosis in Asthenia and Neuropathies. (Concluded.)*
18. *BAERMANN, G., AND HEINEMANN, H. *The Treatment of Amebic Dysentery by Emetin. (Concluded.)*

1. "Arthrigonin" is a polyvalent gonococcus vaccine. It has been used successfully by intramuscular injection in the treatment of gonorrheal epididymitis and arthritis. It is not valuable for diagnosis when given by this method. Bruck and Sommer have injected the vaccine intravenously. For diagnosis .1 c.c. of vaccine diluted to .5 c.c. with saline was used for men, and .05 c.c. or less for women and children. Gonorrheal patients always reacted within forty-eight hours by a rise in temperature of more than 1.6° C. Non-gonorrheal patients showed much less reaction. No severe local symptoms occurred. For treatment, increasing doses were given at three to four day intervals, beginning with .1 c.c. and ending with .5 c.c. of vaccine. Patients so treated improved rapidly. No injurious effect was observed even in those cases which received the vaccine while the temperature was elevated. Various gonorrheal processes were included. Bruck and Sommer concluded from these observations that "Arthrigonin" given intravenously is of considerable value for the diagnosis and treatment of any gonorrheal condition.

7. Wegener has applied Abderhalden's dialysis method in the study of sera from over 200 psychiatrical cases. Abderhalden's technic was followed and carefully controlled. The sera were taken from patients with dementia praecox, manic-depressive insanity, epilepsy, luetic and meta-luetic diseases of the nervous system and from a few cases of peripheral neuritis. Organ extracts were made from the placenta, testis, ovary, kidney, liver, thyroid, lung, uterus, brain, cord and muscle.

Wegener found in women with dementia praecox, that the serum split ovarian and tubal extracts, while in men the serum split testicular extract. In manic-depressive insanity, the serum did not split any organ extract, confirming the assumption that the disease is functional. In epilepsy the serum split brain extract when dementia was present. In syphilis there was usually a splitting of brain extract. In neuritis the serum split muscle extract only. All control cases were negative.

Wegener concludes that Abderhalden's method applied to psychiatry may prove of great importance in drawing significant conclusions as to the etiology and differential diagnosis of various types of insanity.

16. "Glättolin" apparently is a proprietary medicine, consisting of talcum, 50 parts; canauba wax, 50 parts; benzaldehyd, .2 parts; liquid paraffin, .5 parts.

18. The rational drug treatment of amebic dysentery can be based only on using an agent destructive to ameba. These organisms are found in large numbers deep in the submucosa and muscularis of the intestine. Ulcers produced by them may become clean and healed, but the amebae persist, causing relapses at a given stimulus.

Ipecac has been shown to have a specific action against amebae, but cannot be given in efficient dosage on account of its accessory toxic effect. Emetin is an alkaloid of ipecac, which Rogers has shown to be of use in the treatment of amebic dysentery because of its low toxicity and its specific amebacidal effect. A dose of emetin containing seventy times the usual dose of ipecac can be given without injury.

Baermann and Heinemann have used various preparations of this drug in the treatment of 22 cases of amebic dysentery. Best results have been obtained by injecting intravenously 150-200 milligrams in 100 c.c. of salt solution, repeating the injection after eight or ten days. An after-cure is necessary. This consists in 4-5 subcutaneous injections of 100-200 milligrams at three or four week intervals.

On the whole, Baermann and Heinemann report very favorable results by such treatment. They believe that Rogers has rendered a great service in introducing a possible means for effectual cure of amebic dysentery. However, only especially favorable cases can be cured at once. Most cases relapse, and in chronic cases improvement is very slow. [R. F.]

No. 23. JUNE 10, 1913.

1. ZANGEMEISTER, W. *A Method of Version of Face Presentations.*
2. *AUTENRIETH, W., AND FUNK, A. *Colorimetry—The Determination of Total Cholesterin in Blood and Tissues.*
3. RIEDEL. *Middle Ear Fistulae and Perforations of the Base of the Brain; Cysts and Abnormal Ossifications as a Result.*
4. BENNECKE, H. *Pseudo-cholecystitis in Typhoid.*
5. SCHREIBER, R. *The Treatment of Raynaud's Disease.*
6. GEINITZ, H. T. *The Treatment of Varicose Veins by Spiral Incisions.*
7. MACCABRUNI, F. *The Value of Abderhalden's Reaction in the Sero-diagnosis of Pregnancy.*
8. KAUFFMANN, M. *Further Studies with the Use of Colloidal Palladium Hydroxide.*
9. PERUTZ, A. *Aluminum Lactate, a Stabile Substitution Preparation for Acetates of the Basic Earths.*
10. *BLECHER. *Camphorated Oil in Peritonitis with Abscess of Douglas' Fossa.*
11. KREISCH, E. *A Case of Missed Laborer.*
12. LEWY, J. *A Modified Adhesive Plaster of Paris Bandage for the Treatment of Club Foot.*
13. WEBER, A. *Automatic Development of Roentgen Plates.*
14. SCHAUMANN, H. *The Cause of Beri-beri.*
15. FRIEDMANN, M. *Continuous Intravenous Infusion.*

2. The usual quantitative estimations of cholesterin in blood and tissues are difficult and time consuming. Autenrieth and Funk describe a colorimetric test which is sufficiently accurate and simple for ordinary clinical use. It is a modification of Liebermann's and Burchard's, depending on the reaction of a chloroform or ethereal solution of cholesterin with acetic anhydride and concentrated sulphuric acid. There occurs a bluish green color varying in intensity with the amount of cholesterin present.

Autenrieth and Funk describe fully their technic for this test, estimating the quantity of cholesterin by a colorimetric reading in the Autenrieth-Königsberger machine against a specially prepared color tube. Their results compare favorably with those obtained by more elaborate methods.

10. Blecher has given 100 c.c. of 1% camphorated oil intraperitoneally in five cases of general peritonitis occurring among 50 appendectomies. In addition the customary treatment with subcutaneous and rectal saline solution, physostigmine, and heated air, was carried out. All the patients recovered. One, however, without such treatment died eight days after operation from peritoneal sepsis. The cases which received camphorated oil showed one peculiar feature. All were complicated by abscess formation in Douglas' fossa.

Blecher believes that an abscess occurs mechanically at this site after infection of the peritoneum. Camphorated oil is given to occlude efferent lymph and bloodvessels, thereby preventing toxic absorption and to lubricate the peritoneal surfaces. It may be assumed that when the peritoneum is thus oiled, an exudate will sink more readily to an underlying position, while the oil will float on its surface and form a protective layer. Blecher thinks that an abscess formed in this way is not unfavorable. It is less dangerous to the patient than the risk of toxic absorption from a more generalized process. Finally it may be possible to drain Douglas' fossa at the time of operation, making a secondary incision unnecessary. [R. F.]

DEUTSCHE MEDIZINISCHE WOCHENSCHRIFT.

No. 22. MAY 29, 1913.

1. LOEFFLER, F. *The Employment of Dry Sterilized Microörganisms, and of Such as Are Treated with Digestive Ferments, as Antigens, with Special Reference to Tubercle Bacilli.*
2. MONROSE, K. *The Knowledge of the Antigenic Action of Delipated Tubercle Bacilli.*
3. NAKANO H. *Fission Forms of Syphilis Spirochetes in Pure Culture.*
4. WILMS. *Operative Treatment of Flat-Foot and Club-Foot.*
5. RANTENBERG, E. *Auricular Pulse and Venous Pulse.*
6. KAPLAN, D. M. *Analysis of Spinal Fluid and of Blood-Serum in Its Significance for Neurology.*
7. HESS. *Cure of a Case of Cancer of the Uterus after Diagnostic Curettage.*
8. VON HAUSEMANN, D. *Observations on the Foregoing Report.*
9. FRÄNKEL, E. *Methods for the Bacteriologic Examination of the Empty Stomach.*
10. PINKUSS, A. *Mesothorium Treatment in Hemorrhagic Metropathies and Myomata.*
11. MÜHSAM, R. *Extirpation of the Spleen and of the Left Kidney for Crush.*
12. BURCHARD, E. *Some Specific Indications for Alendrin.*
13. CRAMER. *Iron-Iodocitin Preparations in Pediatrics.*
14. SCHOSSBERGER, A. *Two Cases of Eclampsia Cured by Hypophyseal Extract.*
15. GISEL, A. *Styptics, with Special Reference to the Erystyptic "Roche."*
16. PORTNER, E. *The Frequent Appearance of Exanthemata after the Use of Copaiba Balsam.*
17. SCHOTTLÄNDER. *Resection of the Tips of Tooth Roots.*
18. SPIESS, G. *A New Instrument Sterilizer, in Several Parts, Guaranteeing Adequate Automatic Sterilization.*
19. THIEME, B. *A Quartz Lamp for Medical Purposes.*
20. KAUP. *The Project of a Prussian Housing Law.*
21. MAMLOCK. *Foreigners in German High Schools. (To be concluded.)*

DEUTSCHE ZEITSCHRIFT FÜR CHIRURGIE.

BAND 122. HEFT 3-4. MAY, 1913.

1. *MAY, W. *The End Result of Radical Operation for Tuberculosis of the Knee Joint in Adults.*
2. VON WISTINGHAUSEN. *Retrograde Intestinal Incarceration in Herniae.*
3. STOPPATO, W. *A New Method of Decompressive Craniotomy with Primary Skull Plastic.*
4. *FLEISSIG, J. *The Granulation Tumors of Tendon Sheaths, Hitherto Designated as Giant-Cell Sarcoma (Myeloma).*
5. SCHMIDT, M. *The Radical Operation of Intestinal Herniae with Incomplete Sac.*
6. SASAKI, J. *Experimental Prostatic Atrophy by Roentgen Irradiation of the Testes.*
7. REINHARDT, A. *Intraperitoneal Hemorrhage Following Isolated Laceration of a Branch of the Left Hepatic Artery.*
8. GÖBELL, R. *The Relief of Ischemic Muscle Contracture by Free Muscle Transplantation.*
9. CAHEN, F. *Formation of an Artificial Bile-Duct by Means of a Drainage Tube.*
10. VON TAPPEINER, F. H. *Tuberculosis of the Gums.*

1. Reviewing the end-results of 77 radical operations on 76 adults, performed during the past nine years in the royal surgical clinic at Kiel for tuberculosis of the knee-joint, May finds that in only one was there any extreme subsequent shortening. None preserved any noteworthy flexion. The operations were 3 arthrectomies, 8 primary and 9 secondary amputations, and 57 resections. Helferich's method of resection gave an average shortening of 3.7 cm. Of the resected cases, 76.4% secured a serviceable limb.

4. Fleissig reports from Hochenegg's second surgical clinic at Vienna three cases of the type usually described as myeloma or giant-cell sarcoma of the tendon-sheaths, but which he believes are properly inflammatory tumors or granulomata. Macroscopically they vary from the size of a pea to that of a hen's egg, have a laminated structure and a tough, elastic consistency. This microscopic appearance is characterized by the absence of sarcoma tissue, and by the presence of lipoid phagocytes and giant-cells. Pigment is generally present, but is not characteristic, and has nothing to do with the peculiar coloration of the tumor. The tumor is absolutely benign, no case being recorded of extension of metastasis. Recurrences may almost surely be regarded as spurious. The treatment of these tumors should be restricted to extirpation; amputation is never indicated.

5. Schmidt presents various observations and comments on three cases of sliding herniae with incomplete sac, and illustrates his remarks by five diagrams representing the mechanics and operative treatment of this type of hernia. [R. M. G.]

ARCHIV FÜR KLINISCHE CHIRURGIE.

VOL. 101. PART 1.

1. *KATZENSTEIN, M. *The Formation of Gastric Ulcer. I. The Experimental Causation. (Concluded.)*
2. MIYAKE, H. *Statistical, Clinical and Chemical Studies in the Etiology of Gall-stones.*
3. UNGER, E., AND BETTMANN, M. *Experiments in the Prevention of Respiratory Paralysis During Brain Operations by Means of Meltzer's Insufflation.*
4. LONGARD, C. *The Treatment of Acute, Suppurative Appendicitis (Based on a Series of One Hundred Cases).*
5. POULSEN, K. *Multiple Mesenteric Chyle Cysts in a Seven-year-old Girl. Volvulus with Intestinal Perforation and Peritonitis. Resection of Ileum. Recovery.*
6. UFFREDUZZI, O. *The Pathology of Retained Testicle. (Concluded).*
7. *MÜLLER, E. *Carcinoid Tumors of the Appendix.*
8. BERESNEGOWSKY, N. *Intravenous Isopralnarcosis.*
9. HAUSMANN, T. *The Etiological Rôle of Syphilis in Many Cases of Ulcus Callosum Penetrans and in Some Tumors.*
10. BOGORAS, N. *Resection of the Lower Extremity.*

1. Katzenstein believes that the protective mechanism whereby the gastric mucosa resists digestion

consists of an antipepsin which is present in the blood in small amounts, and is taken from the blood by the selective action of the gastric mucosa. The destruction of this substance by the injection of decinormal HCl into the lining of the stomach was followed by the formation of typical ulcers, and the injection of concentrated NaCl by the formation of callous ulcers. Ulcers were also produced by searing the mucosa with a hot iron, and the healing of traumatic lesions in the stomach was greatly retarded by the weekly injection of dilute acid into the bloodstream, thereby destroying or neutralizing the antipepsin therein contained. Katzenstein concludes that "the gastric ulcer is the result of a circumscribed injury to the stomach wall, the healing of which does not follow because of the disturbance in the proportion of pepsin in the gastric juice to antipepsin in the gastric wall, this disturbance consisting of an increase of pepsin and a diminution of antipepsin."

7. Müller divides the so-called carcinomata of the appendix into three groups: (1) those involving the cecum so extensively that their origin is uncertain, 2) true carcinomata involving the appendix alone, and (3) round-celled tumors which microscopically appear malignant, but clinically are not. These occur frequently in young people in conjunction with inflammation of the appendix, and may be classed with the "carcinoid" tumors of the small intestine described by Oberndorfer. [G. G. S.]

Revue de Médicin.

May, 1913.

1. *Rogue, C., Chalier, I., and Novi-Josserand, L. *A Critical Study on the Conception of Pigmentary Cirrhosis.*
2. *Roubnier, C. *Tuberculous Pneumothorax.*
3. Coustaing and Filderman. *Dental Erosion, Regarded from the Standpoint of General Pathology.* (*Conclusion.*)

1. The pigment in these cases, deposited in the skin, as well as in other organs, is the result of hemolysis. One must not consider such a cirrhosis an entity because of this iron deposit, but such deposits may take place wherever there is such hemolytic action. The reason for this action is still unknown.

2. Roubier considers in this paper simply cases of double pneumothorax, excluding those of traumatic origin. The means of rupture of the pleural surface of the secondly involved lung is varied. It may be due to a spreading of the process through the mediastinum and an invasion of the lung through the pleural surface. Secondly, this condition may be due to the rupture of an alveolus of a secondarily emphysematous lung. Lastly, the other pneumothorax may be due—as is most commonly found—to a spread of the tubercular process by the usual paths and a rupture of a cavity or caseous area. Death is inevitable, but has followed as late as several hours or even several days, depending on the presence of adhesions, which render the process more local and thus fail to embarrass respiration to such an extent. [L. H. S.]

Il Policlinico.

May, 1913.

MEDICAL SECTION.

1. Antonelli, G. *Concerning Hemolytic Icterus.*
2. Gasbarrini, A. *Researches on Noma.*
3. Sabella, P. *Two Cases of Ulcerating Granuloma of the Perineum Cured with Neosalvarsan at Tripoli.*

Obituary.

FREDERICK FORCHHEIMER, 1853-1913.

Frederick Forchheimer was born in Cincinnati, Ohio, trained in the public schools of that city, and took his M.D. at the College of Physicians and Surgeons in New York in 1873, then passing two years of serious work in Europe. His mastery of both French and German helped to make his work more productive than is sometimes the case. He then returned to Cincinnati and rapidly got into the full tide of practice, which soon became enormous. Hospital and teaching positions came promptly. He was successively demonstrator of histology; professor of chemistry; of physiology; and at the same time lecturer on pediatrics; of medicine, all in the Medical College of Ohio. The latter chair he retained after the Ohio and Miami Schools were merged into the Medical Department of the University of Cincinnati, and he was dean of the medical faculty at this time. He was an original member of both the Association of American Physicians, and of the American Pediatric Society, serving both as president. He contributed numerous papers to medical periodicals. In 1892 he published a book on "Diseases of the Mouth in Children." In 1906 appeared "The Prophylaxis and Treatment of Internal Diseases," which attracted immediate and wide notice and met with a large sale. The second edition was called for in three years, and he then undertook the editorship of "Therapeusis of Internal Diseases," published by Appleton in 1913, writing himself the articles on "measles," "diseases of the adrenals," "diseases of the spleen," "diseases of the thyroid and para-thyroid glands," "diseases of the kidneys."

His writings compel notice in that they clearly express the conclusions of a sound and sane mind, of wide knowledge and of very large personal experience. They are individual. The reader feels that they are in no sense compilations, although they everywhere show that the writer was familiar with the views and practice of others. In 1912 Harvard University conferred upon him the well-merited honorary degree of doctor of science. It would be easy to say more of him as teacher, hospital physician and author; but we must pass on to that line of work in which he was truly preëminent.

His qualifications for the practice of medicine were very unusual, in degree and combination. Of sound health, he had an amazing capacity for work. His mind was so quick and comprehensive that it might fairly be called brilliant; but he was anything but erratic, as brilliant minds sometimes are. His conclusions were so rapid as to seem intuitive, while they were, in reality, based upon accurate reasoning from a thorough knowledge of his profession and were permeated by a rare common sense. He had the power of

harmoniously combining the points of view of the doctor and the patient. Keen diagnostician as he was, his interest in the case seemed to wax rather than wane when the question of treatment in the broadest sense was reached. The same remedial agent is more likely to be beneficial when clothed with a kindly and positive optimism than when naked from the womb of nihilism.

His character was of the highest; his personality won him confidence, friendship and affection. His industry and enthusiasm for his profession were unbounded, and he spared himself so little that after 20 years of the most strenuous life he took an enforced rest. Full recovery came under the resumption of work, with a realization of the fact that there are limitations to the strength even of the strongest. His relations to his patients were such as to make it very difficult for him to curtail his family practice. He early turned his attention to the diseases of children, doubtless influenced thereto by the example and teaching of Jacobi, like whom he was big enough not to apply an age limit to his patients.

His vocation was medicine; his main avocation was music. He might easily have become a brilliant violinist, and he took the greatest delight in an evening a week of stringed quartet at home, playing, of later years, the viola himself.

He married Edith S. Perry, who, with two sons and a daughter, survive him. He died after a brief illness, the leading medical consultant and practitioner in and about Cincinnati, fully deserving all the great success which came to him, respected by all, beloved by many. His place will not be filled.

Miscellany.

CHANGES IN THE MEDICAL CORPS, U. S. NAVY.

June 21, K. C. MELHORN, passed assistant surgeon. Detached from *South Dakota* and ordered to *Denver*.

C. B. CAMERER, assistant surgeon. Detached from *Denver* and ordered to *South Dakota*.

June 25, H. L. SMITH, passed assistant surgeon. Detached from *Chester* and ordered to *Des Moines*.

June 26, HEBER BUTTS, passed assistant surgeon. Detached from Naval Hospital, Canacao, P. I., and ordered to *Elcano*.

RECENT DEATHS.

DR. CHARLES P. MERRILL died June 27 at his home in North Andover, Mass., at the age of 74. Dr. Merrill was born in Chesterville, Me., attended the old Farmington academy and Bowdoin college medical school, going from the medical school into the union army. He received his medical degree from Georgetown University and practised medicine in North Andover 41 years. Dr. Merrill was a member of the town school committee for 25 years. Because of several years of ill health Dr. Merrill at the time of his death had retired from membership in the American Medical Association, The Massachusetts Medical Society and the Lawrence Medical Club. Thus has passed a man and a family physician of the highest type.

DR. J. HOWARD LEVER of Flushing, Borough of Queens, New York City, died suddenly from cardiac disease on June 25. He was born in 1846, of English parentage, on Staten Island, where his father gave its name to the village of New Brighton, and was graduated from the College of Physicians and Surgeons, New York, in 1869. Before Queens County became a part of the City of New York Dr. Lever was for 15 years health officer of the town of Flushing.

DR. GEORGE W. ROBINSON formerly of New York, died at Newark, N. J., on June 22. He was born in New York in 1843, and was graduated from the medical department of the University of the City of New York in 1863; after which he served in the medical service of the Army during the latter part of the Civil War.

FRANCIS LORING BANFIELD, M.D., a fellow the Massachusetts Medical Society, died at Worcester, June 25, 1913, aged 69 years.

BOOKS AND PAMPHLETS RECEIVED.

"Calm Yourself," by Dr. G. L. Walton. Houghton, Mifflin Co. 1913.

Medical and Surgical Reports of the Boston City Hospital. Sixteenth Series.

Transactions of the American Pediatric Society, Twenty-fourth Session. Vol. xxiv.

Proceedings of the First Annual Meeting of the National Association of Manufacturers of Medicinal Products.

Report of the Commissioner of Education for the Year ended June 30, 1912. Vol. i, Vol. ii.

RETURNS OF DEATHS FROM MASSACHUSETTS CITIES AND TOWNS OF MORE THAN 10,000 POPULATION, FOR WEEK ENDING JUNE 28, 1913.

Boston	32
Worcester	3
Fall River	8
Lowell	2
Cambridge	3
New Bedford	3
Lynn	3
Springfield	3
Lawrence	5
Holyoke	1
Brockton	1
Malden	1
Haverhill	1
Fitchburg	1
Taunton	2
Everett	1
Chelsea	1
Pittsfield	1
Chicopee	1
Gloucester	1
Medford	1
Revere	2
Westfield	2
Peabody	1
Framingham	1

Address.

CERTAIN FEATURES OF THE WORK OF THE LATE J. HUGHLINGS JACKSON OF LONDON.*

BY JAMES J. PUTNAM, M.D., BOSTON.

Dr. John Hughlings Jackson of London was too well known to the generation that is passing, in spite of his modest and retiring ways, to need any introduction. For many of the new generation his personality has presumably largely faded, and only his name remains, principally known as that of a student of epilepsy, especially of that form of epileptic seizure which was christened after him, and perhaps as the prophet of the localization of functions in the cortex cerebri. In fact, he was a man of a remarkable mind, capable of reaching with ease important generalizations, but not overlooking the detail in the principle. He was one of those individuals who stand midway between philosophers by profession and practical men of science. In philosophy he never went, so far as I am aware, technically very deep, tending rather to adopt the mode of thinking of Herbert Spencer and his school; but he might have gone much deeper had circumstances favored his so doing.

By birth, by his traditions, and by his lifelong training, Dr. Jackson was an Englishman. In all the six and seventy years between his birth, in 1835, and his death in 1911, he crossed but very rarely the narrow strip of sea that divided Great Britain from the Continent, and did but little reading in any language but his own. Yet within certain limits he was a thorough and a thoughtful student, and it is conceivable that had he not worked and thought so much alone he would have produced less that was his own. This is "conceivable," though by no means certain; but it is certain that we have good reason to be grateful for what he did produce. He was a voluminous writer, but his papers are so scattered that it would be a considerable task to bring them all together, even by name. Many of his earlier ones were published in the *West Riding Hospital Reports,* and in other journals no easier of consultation. A fairly complete list was made out to 1902 by Dr. Jackson's younger colleague and great admirer, Dr. William Broadbent.[1]

Dr. (now Sir) William Osler suggested at one time that he and I should make a somewhat extended review of Dr. Jackson's works, and this was actually proposed to Dr. Jackson; but he was then still somewhat active, and thought that he might make such a review himself. At any rate, our proposal was declined.

* Read before the Society for Medical Improvement, March 24, 1913.

The mention of Dr. Broadbent as Dr. Jackson's admirer leads me to wonder how far he was preëminent in this respect, for it is certainly true that few physicians have been so fortunate as to merit and receive the admiration and affection of those who knew them to the extent that this was true of Dr. Jackson. My own actual acquaintance with him was relatively slight, and yet enough to inspire me deeply with these sentiments.

I first saw him, I believe, in 1870, when I visited the old Queen's Square Hospital, and laid the foundations for a friendship with Dr. (now Sir) William Gowers, already showing himself the keen and active-minded, energetic man that he publicly proved later. For a long time he was Dr. Jackson's assistant in that famous institution, and was also an ardent admirer, though his views were always independent and his own. I saw Dr. Jackson again, and at much greater length, on a second visit to London, about ten years later, when I visited with him a number of times at the London Hospital, and really learned to know him and to appreciate especially the value of that particular portion of his work of which I wish to speak tonight. I well remember his kindly, thoughtful face, full of refinement and charm, and with lines that lent themselves readily both to the expression of humor and to quiet utterances of firm decision. I recall his taking me one day in his carriage from the London Hospital back to the neighborhood of his home and my boarding place, and his characterization, during our talk, of the quality of generosity as that which would make a man ready to give another, not only a portion of his dinner, but a portion of his digestion.

It was between the dates of these two visits that the world-stirring experiments of Fritsch and Hitzig, in Berlin, and Ferrier, in London, were first, and almost simultaneously, published, whereby the localization of functions in the cortex was demonstrated, and the foundation laid for the modern surgery of the brain. Dr. Jackson had previously arrived, through reasoning out what "must be," at conclusions substantially like those finally demonstrated to be true, and it was his suggestions that partly led Dr. (now Sir) David Ferrier, so I have understood, to put the theory to the proof.

I have no time to speak now at length of the outcome of these fertile investigations, but will call attention to one point. It is well known that Dr. Jackson's division of the epilepsies into those of "upper, middle, and lower level" gave an impulse, which has lasted ever since, to the conception that these processes of so-called "irritation" which result in one or another sort of cerebral discharge, actually start in those portions of the brain the electrical excitation of which give rise to similar phenomena. According to this view, the fits of the middle level would be represented typically by the now familiar, localized motor convulsions, not necessarily attended by loss of consciousness, still usually considered referable

to primary excitation of the Rolandic area; while those of the so-called upper and lower levels, respectively, would be represented by the more complex mental or emotional epileptiform disorders of consciousness, on the one hand pointing, it was thought, to primary discharges in the fore-brain, and, on the other, by eclampsia-like tonic spasms, following discharges due to "irritation" occurring primarily in the mid- or hind-brain. In fact, the situation turns out to be more complex than this description would suggest. It is true that localized foci of disease (spyhilitic meningitis, tumors, cysts, etc.) do cause phenomena of discharge that are of priceless value as pointing to focal and sometimes removable areas of disease; but similar signs and symptoms not infrequently occur which are traceable to lesions that do not primarily affect the Rolandic area, especially not the motor portion of this area, but, rather, parts of the brain correlated to the motor cortex, but often distant from it. The functions of these parts of the brain of which I now speak may be sensory, or perhaps vaso-motor, and their seat may be in those regions of the brain-stem which Jackson supposed to be concerned with the production of lower-level convulsions. In other words, it would seem that the discharges formerly supposed to be primary in the cortex often point really to disorders of relatively distant portions of the cerebral mechanism.

I am not prepared to give this important problem in brain physiology the scientific discussion which is its due. The very reference to it makes one think of the great names of Brown-Séquard, Von Monakow, Kussmaul and Tenner, and other investigators of more modern date. All I would pretend to assert is that Hughlings Jackson's conception of that species of epileptic disorder which commonly bears his name, important though it was, cannot now be held to obtain in the simple form in which he stated it. On the other hand, his other great generalization in brain physiology, to which I desire next to call attention, affords the basis for a conception which, as I apprehend it, is entirely in harmony with the more modern view above referred to.

This generalization of which I speak has reference to the division of the symptoms of cerebral damage (taking the word "damage" in a broad sense) into "negative" and "positive" symptoms—that is, into those primarily pointing to an actual loss or cutting out, of some form of cerebral activity, and those resulting from the attempt on the part of the organism to establish a new equilibrium in compensation for this loss. The terms "negative" and "loss" should not be taken as implying necessarily something equivalent to "paralysis" or inaction of any obvious sort. The loss of the higher inhibitory powers in alcoholism, for example, though detectable by careful tests, is obscured by the secondary phenomena of (socially inadequate) readjustments, which are of an active sort. Or, as Dr. Jackson was fond—possibly too fond—of pointing out, a violent convulsion, or an acute maniacal outbreak, may be secondary to an unnoticed cutting out of inhibitions.

To all intents and purposes, this generalization of Jackson's, looked at in a broad way, is another statement of the principle enunciated also by Virchow, and by Verworn, and in one or another form by many others—that "Die Krankheit ist nur das Leben unter veränderten Zuständen." In other words, the organism (and by "organism" we should mean, not alone the brain and body, but also the vital principle which animates them, yet which, in its essence, transcends at every point its corporeal manifestations),—the organism, when injured, wastes no time in regrets, but instantly sets to work to claim for itself a new place, even though an unsatisfactory one, amongst the active forces of the world. Dr. Jackson used to point out, for example, that the jabberings of the paraphasic patient, if they stand for signs of his illness, stand also for signs of his power. And so, too, every disease which is reacted from is at one and the same time an evidence not only of weakness, but of strength, on the part of the diseased organism. The activities of the idiot—futile, socially, though they may be—are, from the scientific standpoint, phenomena of great interest; and the same is true of the tendency to symptom-formation on the part of the psychoneurotic patient. Through these reactions the resources of the organism are sometimes best revealed, and in fact, as is well known, the best psychological researches of the past few decades have been those for which the experiments of disease have furnished the materials.

Another example that Dr. Jackson often used was that of the patient in delirium. When a man looks at the nurse by his bedside, and takes her for his mother, his act is a double one. The failure to recognize constitutes only the smaller half of it, while the larger half contains the active and significant generalization that the person whom he sees is a woman, and perhaps of a familiar type. If he had taken her for a burglar, the same principle would apply, namely, that he was still forming positive generalizations of a certain value, on the basis of a certain store of facts.

I am making no attempt to separate strictly, in this brief statement, the actual illustrations and conclusions to which Dr. Jackson called attention, from those which flow naturally from the principle itself, familiar as, in general, it is, and illuminated, as it has been, by new knowledge, and by old knowledge rehabilitated. I will, however, say that it was Dr. Jackson's custom to draw a pyramid upon the blackboard, which should stand for the hierarchy of the cerebral functions, the more fundamental of them being represented by the basal portions of the pyramid, the more complex and recently acquired, by the apex portion. His idea then was that when the hierarchy of functions repre-

sented by this pyramid suffers derangement *at any part* (and here I would ask you to revert in memory to the case of the epilepsies, above cited), the attempt at a re-establishment of some sort of equilibrium is always such that the new arrangement tends to safeguard itself by accentuating the more fundamental of its powers, while sacrificing, so far as necessary, the more elaborate. Here, again, of course, caution in statement is eminently in place. One could not, perhaps, assert that the new equilibrium thus established is necessarily constructed on psychological or biological principles which from any single given standpoint are necessarily the best. Diverse forces may seek to claim the damaged and self-reconstructing organism for their own purposes; and the history of the psychoneuroses, for example, shows that nature may wear a very cruel aspect. Still, in general, "devolution," to use Dr. Jackson's term, follows, or reverses, the lines of evolution, and seeks, first, the more vital interests of the individual, and still more so, of the race. It is mainly when the element of choice, for evil or for good, comes strongly in, and when the interests of the animal man and the spiritual man, contend for mastery, or, again, when parasitic diseases and embryonic diseases are "permitted," that the worst results appear.

In general terms, if I grasp correctly the tendency of his thought, and may state them in my own words, Dr. Jackson's conceptions were, even to a greater extent than he could then have realized, of a sort which sees in every organism, at every moment, the action of a self-renewing energy, the significance of which is, in general, too little recognized. He had great respect, as one should, of course, have, for investigations into the anatomical structure of the brain, in health and in disease, and listened to the lessons which they taught. But still, shining through this structure and towering over it, he saw, with the prophetic vision of the true man of genius, what might be characterized, not alone as the *function of the brain,* but the *possibilities of the personality,* of which the brain is only an imperfect, and in some measure a retrograde,[2] manifestation. At a later date, Goltz on the one hand, and Von Monakow on the other, arrived at conclusions analogous to Jackson's. But that which was implied, although not, so far as I know, expressed by either of these writers is the further generalization, already formulated, in principle, by the reasoning of Hegel, but which the keen analyses of Bergson, and the experiments of accomplished naturalists have presented in new light, that pervading the whole work of the nervous system, and not only the work of the nervous system, but the phenomena of evolution in every one of its departments, is the self-active, self-renewing, vital energy which can only imperfectly manifest itself in any material form, and which enjoys an indestructibility of which the life of the brain gives no adequate idea. In fact, we know nothing of structure, except in so far as to the discerning mind it reveals self-activating energy, itself invisible and immaterial.

These conceptions, even if taken only in their simplest form, might be utilized in a thousand ways, out of which I will select for brief statement only those which have interested me particularly.

In a paper on the internal secretions, presented many years ago before the Congress of American Physicians,[3] I called attention to the fact that some of the conditions resulting from a partial injury of a gland—as the thyroid, the testis, or the hypophysis—represent not only forms of life capable of doing no more than point back to former excellence, but really new types, the results of the formation of equilibria of new sorts. No one who has carefully observed a real cretin, for example, can have failed to notice that he is distinguished from the so-called normal man, not only by negative, but by strikingly positive qualities; by the possession of a type of intelligence which is *sui generis,* and very different from the mere common idiotic types. The same thing is even more manifestly true, of course, of the acromegalic patient, and of the eunuch, or of the curious reversions, if they may be so-called, towards an a-sexual or opposite-sex type shown by certain birds that have passed through their climacteric and entered on the involution period of their physical evolution.

The general principle might be stated that it is only through defeat and struggle that the best powers of evolution are called forth, just as it is true that virtue of enduring value implies contest, and difficulty overcome. Many other illustrations of this fertile doctrine are afforded by the flood of facts to which the psychoanalytic movement is giving birth. It has become an established canon of belief among psychoanalysts, that in the mental, as in the physical world, no act or thought passes without effect; that every deed, including every misdeed, produces its results; that every symptom, even though it appears under the form of a "lack," or of a "defect," is in part a positive sign of the action of this same vital energy, above referred to (technically called "libido"), pushing for the establishment of an equilibrium of some sort. So that, if we would seize these tendencies under their real forms, we must be keen to see, for example, under "fear," "desire," under "lack of courage," the longing to gain some primitive form of pleasure, or to assert one's self in some way, that the term "lack of courage" does not appear to hint at.

There are, of course, many applications of the principle that the injured organism, in exerting itself to repair damages, and to secure an equilibrium of some sort, gives rise not only to functional symptoms, but also to physical manifestations which would justly count as signs of actual disorganization and weakness, although biologically they are signs of strength. The

history of pathology is rich in indications of this sort of outcome.

I beg leave, in closing, to call attention to one more illustration from my own field. It has, namely, been one of the accepted doctrines of psychoanalysis, as I have already said, that efforts at compensation may lead to over-compensations of a morbid cast. The finical over-niceness, such as may lead to mysophobic tendencies, and which demonstrably results from a love (once manifest, now concealed) for physical or mental pleasures which later came to be denominated "filthy," would be a case in point, and numerous others could be cited. Indeed, the developed character of every adult is marked by features which express one or another of these over-compensations of some rejected yet insistent tendency of childhood.

One of the psychoanalysts of Vienna, Dr. Alfred Adler, has developed to a high degree this theory of compensation, in its different forms of imperfect compensation and over-compensation, as resulting from the inferiority, in childhood, of one or more special functions, and has demonstrated at great length the principle already recognized by Freud, that over-compensation may bring it about that the original defect shall serve as the starting point of efforts leading to an amount of efficiency greater than under normal circumstances would have been secured. Many an artist owes his success, in part, to a defect of vision, many a musician to a defect in hearing, many a courageous person to a primary tendency to shrink from danger.

To go further into the intricacies of these phenomena would be out of place. Enough has been said to call your attention to the fact that here, as in other cases, Dr. Jackson showed himself a wise prophet and a keen observer in seeing the importance of a principle of which he did not, indeed, foresee all the applications, but which time has shown to be of transcendent interest. Stated in its broadest terms, this principle is, that underneath mutability and apparent failure, a self-active, spontaneously self-renewing energy is everywhere to be seen, forever persistent, and forever discovering new forms under which to manifest itself. Life, in this sense, is the invisible potency of which the body and the material worlds are the symbols, and, in an imperfect form, the manifest translation.

REFERENCES.

[1] Brain. 1903, vol. xxvi, p. 356. Covers period 1861-1902.
[2] "Structure" like "acts," necessary as they are, belong to the forces which, as Goethe says, "impede the onward march of life."
[3] On the Internal Secretions. Cf. also the "Physiological Principles," l. c.

The new laureate of England, Dr. Robert Bridges, was for some years a practising physician. He studied medicine at St. Bartholomews in London. Since the age of forty he has given his time to literature.

Original Articles.

ADDISON'S DISEASE: CLINICAL AND PATHOLOGICAL OBSERVATIONS.

BY GEORGE MORRIS PIERSOL, M.D., PHILADELPHIA,

Associate in Medicine in the University of Pennsylvania; Physician to the Episcopal Hospital; Assistant Physician to the Hospital of the University of Pennsylvania, Philadelphia.

IN 1849 Thomas Addison[1] first called attention to the relationship that exists between disease of the adrenals and a certain symptom-complex characterized by pigmentation of the skin, extreme muscular and cardio-vascular asthenia, and gastro-intestinal disturbances. The disease did not attain particular interest and importance, however, until the many able experimental and physiological investigations of the past twenty-five years began to throw light upon the function of the adrenal glands.

Addison's disease is relatively uncommon. The annual average of deaths from this disease per 100,000 of population in the United States,[2] from 1900 to 1909, was 166; while from 1906 to 1909, in the cities of Pennsylvania, the number of deaths from it per 100,000 was 0.3. In two large Philadelphia hospitals, where the medical admissions number annually about 1000, no cases of this disease were recorded during 1911.

Although series of cases of Addison's disease have not infrequently been reported, observations correlating both the clinical and pathological findings in this condition, are still of sufficient interest to justify recording.

The material which forms the basis of this report came under my observation upon the service of the late Dr. Musser, in the Hospital of the University of Pennsylvania, and consists of four cases. Two of these cases presented clinically the typical symptom-complex of Addison's disease and showed at autopsy, lesions of the adrenal glands. A third case presented many clinical features of the disease, but lack of post-mortem observation prevented pathological proof of its existence; whereas the fourth case, though clinically one of grave primary anemia, showed symptoms suggesting adrenal insufficiency, a condition which was amply demonstrated by the autopsy findings.

The salient features in the clinical and pathological records of these cases are as follows:—

CASE 1. S. S. Female, white, aged 43 years. Chief complaint on admission: Brownish discoloration of the skin, extreme weakness, and vague gastric symptoms.

Present Illness. Four years ago she noticed her skin was becoming dark; three and a half years ago, following the birth of her youngest child, this discoloration became more marked; for the past 18 months it has steadily increased becoming a deeper

brown. People who have not seen the patient for several years are said not to recognize her because of the change in her color. For the last three and a half years she has been very weak, during the past three months her weakness has rapidly become exaggerated until at present she suffers from such extreme asthenia that she cannot sit up in bed five minutes, nor can she walk three yards. For the last two years she has had "gastric indigestion" but never vomited until one week ago. She now vomits frequently and has anorexia. She has some dyspnea, but no palpitation or edema. Her hands and feet become white and cold. She has lost 30 pounds in weight during the last few years. For the past three weeks she has had a little cough but no expectoration. There is no amenorrhea.

Previous Medical History. When 21 years of age she had a cervical adenitis which suppurated. Later she developed some enlarged supraclavicular glands which broke down eight years ago. She has had eight children. Between the seventh and eighth child she was in poor health and had a persistent cough but no expectoration. She has for the greater part of her life been a strong, active woman doing her own housework for the past 22 years. She has always had a clear light skin with pink cheeks.

Family History. Her mother is alive and well at 67. Her father died at 60 of "miner's asthma" and for four years preceding his death was unable to work because of cough, loss of weight and strength. He expectorated freely towards the end of his illness. One sister who was always delicate and weak, but had no cough, died of "green sickness." Another sister died at 28 of "anemia" and "weakness following grip." One son died at 11 of "capillary bronchitis," another died at 20 months of some pulmonary condition. The rest of her family history is unimportant in connection with her present illness. Although there is no definite history of tuberculosis, the above statements are suggestive.

The Physical Examination is in part as follows: The patient lies in a state of complete relaxation from absolute weakness. The facial expression is that of extreme fatigue, her voice is low and the effort of speaking exhausts her. There is a marked, uniform, dusky brown discoloration of her face, neck, hands, and arms. There is in addition a group of several small irregular, dark brown patches in the lumbosacral region, and there is a similar brown blotch at the level of the sixth rib in the right anterior axillary line. There is also well marked pigmentation of the areolae about the nipples as well as a prominent linea nigra. There are no bronze or brown patches on the visible mucous membranes. The scars of previous suppurating adenitis on either side of the neck above the clavicles are visible.

The examination of the lungs was virtually negative. The heart was not enlarged. The heart sounds were weak and at times irregular, but no murmurs were detected. The radial pulse was of small volume and of extremely low tension. The liver was just palpable. The spleen could not be felt.

The complete record of the physical examination concludes with this suggestive note: "The impression that one receives from the patient is that a degree of asthenia is present which is out of all proportion to the state of bodily nutrition."

The urine showed a faint cloud of albumin and contained many pus cells and numerous casts, chiefly hyaline and dark granular.

The blood examination was as follows: Hemoglobin, 78; R. B. C., 4,410,000; leukocytes, 9,840. Differential count: Polymorphonuclear neutrophiles, 61 per cent.; lymphocytes (large and small), 35 per cent.; large mononuclear, 2 per cent.; eosinophiles, 2 per cent. There were no nucleated red cells present, but a few macrocytes and microcytes were found.

From the time of her admission until her death ten days later, the patient's asthenia became progressively greater, her circulation failed steadily, she complained of sharp epigastric pain, vomited occasionally, and finally developed complete suppression of urine. Until the day of her death her temperature remained subnormal, on that day it once reached 99 4-5° F. For several days preceding her death she was pulseless at the wrist. The autopsy was performed by Dr. Lavenson. The essential features of the report are as follows:

The left suprarenal is considerably enlarged in its anteroposterior diameter and is extremely hard. On section the greater portion of the organ is seen to be replaced by firm, homogeneous, yellowish tissue uniformly surrounded by a narrow zone of grayish tissue. In one area towards the lower pole, this yellowish tissue is much softer and there are a few small calcareous granules. The right suprarenal is decreased in size to approximately one half. What remains is extremely firm and consists of two nodules, similar in composition to the tissue described as replacing the left suprarenal. In neither suprarenal can any true suprarenal tissue be recognized macroscopically.

The intestines are normal in appearance except just below the ileocecal valve, where there are two areas of ulceration, one about the size of a penny, the other half again as large. The edges of these ulcerations are irregular, not greatly indurated, and there is no undermining. There are no tubercles to be recognized in the surrounding tissues.

The retroperitoneal lymph glands, extending in a distinct chain from the right iliac vessels up as far as the gall bladder, are enlarged and of irregular outline. Most of them show diffuse irregular areas of calcification; in some there is a considerable amount of firm yellowish tissue, and in others distinctly caseous matter.

The left pleural cavity is free from fluid and adhesions. The right pleural cavity presents laterally and posteriorly, toward the apex, some moderately dense adhesions; no fluid. In the upper portion of the lower lobe of the left lung there is a caseated, partially calcified nodule about the size of a pea. Aside from this the lung is macroscopically without pathologic features. With the exception of some puckering of the pleura at the apex associated with slight induration of the tissues beneath it, the right lung presents normal features. A number of moderately enlarged, deeply pigmented bronchial lymph glands are found; one of them about the size of a hazel nut, in addition to pigmentation presents a number of small yellowish nodules the size of a millet-seed.

Microscopic examination of the suprarenal shows the greater portion of the section to consist of a caseous mass with complete loss of the structural characteristics of the organ. Interspersed throughout this tissue are necrotic areas in which the pecul-

iarities of structure of the organ are maintained. Surrounding the entire mass is considerable lymphoid hyperplasia. In one portion of the section there are a number of nodules formed by circular bands of connective tissue, enclosing suprarenal cells in various stages of degeneration. Surrounding and infiltrating these nodules are areas of lymphoid hyperplasia. Few epitheloid cells are present, but one large giant cell containing about twenty-five nuclei is noted.

CASE 2. J. W., male, white, aged 27 years; German. Chief complaint, weakness and shooting pains in lower limbs.

Present Illness. For a year the patient has been having pains in his shoulders and feet. Seven months ago he began to have shooting pains down his legs. Three months ago his attention was called to the discoloration of his hands and face, also to dark spots on his skin. He has of late progressively grown weaker and has lost ten pounds in weight. For a week he has had much flatulence, gastric distress, and sharp abdominal pains. Bowels are regular. He vomited several days ago. For two months he has had a slight cough, but no expectoration.

Previous Medical History. Except for smallpox as a child and gonorrhea ten years ago, he has always been well. He has always worked hard as a furniture maker. He is married. He drinks moderately, but does not smoke.

Family History. There is nothing significant in his family history. No member of his family has ever had tuberculosis.

In part the *Physical Examination* is as follows: The patient is rather poorly nourished. The skin has a curious velvety appearance and feels warm and smooth. There is a peculiar brown discoloration of the skin marked on the face, hands, feet and legs, while scattered over the face, trunk, and extremities are numerous small, dark brown, irregular round spots.

There is no brownish discoloration of the visible mucous membranes. The thyroid is normal. There is no noteworthy glandular enlargement. Tactile fremitus is increased over the upper lobes of both lungs, and over the same area there is impaired resonance most marked on the right side. There is bronchial breathing over the right upper lobe and in the right supra-spinous fossa there are a few crackling râles. Over the left upper lobe there is broncho-vesicular breathing. The area of cardiac dullness is normal. The heart sounds are of poor quality, but no distinct murmurs are present. The pulse is rapid and regular. Neither the liver nor the spleen are palpable.

The urine was normal except for a faint trace of albumin.

The blood examination was as follows: Hemoglobin, 75; R. B. C., 4,480,000; leukocytes, 10,400. Differential count: Polymorphonuclear neutrophiles, 60 per cent.; lymphocytes, 27 per cent.; large mononuclears, 5 per cent.; transitionals, 4 per cent.; eosinophiles, 3 per cent.; basophiles, 1 per cent.

The blood pressure was: systolic, 85; diastolic, 65.

A von Pirquet tuberculin reaction was positive.

After his admission to the hospital, the patient complained of extreme weakness and severe abdominal pain. Three days after admission his systolic blood pressure was only 75. On the fifth day at 8 a. m. he suddenly collapsed, became cyanosed, dyspneic, and his radial pulse was no longer palpable. He lapsed into semi-consciousness, became somewhat delirious and died an hour later in a profound state of asthenia. While in the hospital, he had an irregular fever, varying from 98° F. to 101° F.; shortly before death his temperature rose rapidly to 104° F.

The autopsy was performed by Dr. Veeder. The findings in part are as follows:—

Right adrenal is irregular to the touch and is found to be made up of several hard lobes. On section no normal adrenal tissue can be distinguished, the adrenal being almost entirely replaced by thick creamy purulent material. Left adrenal is practically in the same condition as the right. Along either side of the abdominal aorta beneath the peritoneum, several masses of enlarged, rather irregular lymph nodes are present. Some on section are firm with a white surface, others show softening and are about the consistency of thick cream.

The left ureter is enormously distended, measuring 2 cm. in diameter. The right ureter is normal in size. The distention of the left ureter is due to the damming back in the ureter of a slightly purulent fluid which apparently cannot escape into the bladder. Some difficulty is experienced in passing a probe through the bladder into the ureter on the left side. Following up the ureter the wall is seen to be extremely thin and there is found a much distended renal pelvis. The left kidney weighs 290 grm., is rather rough, irregular, and nodular to the touch; the nodules being about the size of a marble. On cut surface the entire kidney substance is seen to be made up of cystic cavities. Some of these are rather large and smooth walled, measuring 3 cm. in diameter, and containing a thin, slightly yellowish tinged fluid. Others contain a rather yellowish creamy material; the walls of these are necrotic and roughened.

At the apex of the right lung a few old contracted scars are present. From the cut surfaces of the upper lobe, which are distinctly moist and yellowish red, considerable fluid can be expressed on slight pressure. In the left lung between the upper and lower lobes, there is an old, firm, black nodule in the pleura, which on section shows the presence of calcareous material. At the apex a few black contracted scars are present.

The thymus is found enlarged, reaching down in a finger-like projection as far as the base of the heart.

Microscopically the lungs show here and there moderate congestion, while in other parts the presence of areas of fibro-hyaline change indicate healed tubercles.

Scattered through the kidneys, but especially in the cortex, microscopic examination shows rather large, non-caseated tubercles with fibrous walls; giant cells are few.

Section of the thymus shows well marked congestion, while fatty infiltration and fibrosis are present to an equal degree. The corpuscles of Hassel are fairly well outlined. The changes in this organ are interesting in view of the close association that exists between the organs of internal secretion.

Microscopically the adrenals show but little of the adrenal parenchyma and this appears in islands. There are numerous tubercles, large and small, most

of which are not caseated. Much fibro-hyaline tissue is seen, notably near the capsule.

Several tubercles are present in the retroperitoneal lymph nodes which show for the most part some fibrosis.

Case 3. M. C. Female, white, aged 44 years. When this patient was admitted to the hospital she gave a history of having had four months before a pneumonia followed by a pleural effusion which was tapped twice. A few months before admission she again developed symptoms of pleurisy. In addition to her pulmonary condition, however, she gave a history of epigastric distress and eructations, great weakness, amenorrhea for six months, and complained of having developed during the two and a half months preceding her admission a dusky, sunburned appearance of the skin.

Her previous medical history was unimportant except for the fact that for years she had been tremendously overworked. The only significant feature of her family history was that two of her eight children had had "tuberculous glands."

At this time her physical examination showed a right-sided pleural effusion and moderate consolidation, presumably tuberculous, of the right upper lobe. In addition it was noted that her face, neck, hands and forearms were dark brown in color as if weather-beaten, although for years she had led an indoor life. Scattered over her thorax and abdomen were small, irregular, brownish spots. Her mucous membranes, however, were not pigmented. There was enlargement of her thyroid.

Her urine was pale and contained a light cloud of albumin and a few granular casts.

The blood showed a normal hemoglobin and red cell count. The leukocytes numbered 7500. The differential count was: Polymorphonuclear neutrophiles, 77 per cent.; lymphocytes, 18 per cent.; large mononuclears, 2 per cent.; and transitionals, 3 per cent.

The fluid removed from her right pleura was reported sterile. Her von Pirquet reaction was positive.

Her systolic blood pressure ranged between 80 and 110 mm. This latter figure was obtained after the administration of adrenalin for some hours, but after a day her systolic blood pressure again fell to 80-90 mm.

She improved and was discharged. For the next few months she was treated in the Medical Dispensary. During this time her profound and obstinate asthenia, persistent low blood pressure, and the dark brown discoloration of her skin constituted noteworthy symptoms.

Four months after leaving the hospital she was readmitted, suffering from a tuberculous pneumonia which proved fatal in a few days. Shortly before her death her systolic blood pressure was only 65. It is also of passing interest, that on the day of her death she developed acute dilatation of her stomach.

Unfortunately an autopsy was not allowed. It was, therefore, impossible to confirm the diagnosis of Addison's disease which was made at the time of her first admission. In view of the fact that the primary disease in this case was pulmonary tuberculosis and knowing, as we do, that in such cases the adrenals may become secondarily involved, it seems not unreasonable to regard the asthenia, low blood pressure, marked pigmentation, and possibly the amenorrhea and digestive symptoms as evidences of adrenal insufficiency, the result of tuberculous involvement of these organs similar to that noted in the foregoing cases.

Case 4. E. M. Female, white, aged 53 years. The history and symptoms presented by this patient were those characteristic of a grave anemia of several years' duration. For as much as three months before her death she showed a degree of asthenia unusually marked even for a severe anemia. Her physical examination revealed on all sides the evidences of her anemia. An important fact, however, was the existence of an old abscess in the left upper jaw with necrosis of the alveolar process and a second abscess connected with the left upper central incisor. These foci of infection were regarded as of prime etiologic importance in her disease, which was looked upon as pernicious anemia of the type described by Hunter as due to oral sepsis.

At the time of her admission it was noted that although there was extreme pallor of her visible mucous membranes, the skin was not of the lemon yellow color commonly observed in pernicious anemia, but was rather of a darker brownish hue which amounted almost to bronzing about the neck, upper part of the chest, and at the flexures of the elbows.

There was nothing significant in her urine. The blood showed the changes peculiar to anemias of the pernicious type, except that in spite of repeated careful examinations, only once was a nucleated red cell found. Achylia gastrica was present. The blood pressure was: systolic, 88; diastolic, 30.

For a number of weeks before the exitus occurred, the possibility was considered of adrenal insufficiency being at least in part responsible for the extraordinary asthenia, marked pigmentation of the skin, and low blood pressure. It was, however, recognized that the grave anemia alone might account for these conditions.

The result of the autopsy by Dr. Keilty may be summed up by saying that for the most part the organs showed the changes usually observed in cases of pernicious anemia, with the exception that in the liver, kidneys, and spleen necrotic changes were unusually extensive and these organs contained considerable golden brown pigment.

It is of interest to note, in view of the absence of nucleated red cells in the blood, that the bone marrow removed from the middle portion of the right tibia was of a distinctly red mushy character. Microscopically it showed the ordinary fatty stroma between which free red blood cells were seen. Many of these cells failed to stain clearly.

Inasmuch as the existence of an adrenal lesion was considered during life, it was particularly significant to find extreme necrosis of the suprarenal glands. On both sides the adrenals showed the same characteristics. They were small and it was difficult to remove them without breaking, due to their necrotic condition, this necrosis being apparent especially in the medulla.

Microscopically the cells of the adrenals, particularly those of the medulla, were granular, a certain amount of granular debris and detritis existed between the cells, and there was an infiltration with

golden brown pigment, the condition being similar to that found in the kidneys and liver.

This case is recorded not because it in any way represents typical Addison's disease, but rather to emphasize Addison's original contention, namely, that the disease picture he described is to be regarded not as a clinical entity, but as a symptom-complex which may be produced by any lesion which causes disturbance of the suprarenals. It must also be admitted that the changes found in the adrenals may have occurred post mortem.

In discussing the above cases little need be said in reference to their clinical aspects. The original description of the disease as given by Addison, has become classic and has never been improved upon. The fact that in the most modern system of medicine published today the description of the general picture of this disease consists of a verbatim quotation from Addison's own writings, is ample tribute to the keen powers of observation displayed by that astute clinician.

A few points in the symptomatology are however, worthy of note. The pigmentation of the skin in the first three cases was typical in both location and color. Pigmentation of the mucous membranes, however, is said to be almost the rule, yet in the cases here described, although careful and repeated examinations were made, it was never observed.

Since the effects of adrenalin upon the blood pressure were carefully studied by Oliver and Schäfer[3] in 1895, particular interest has become attached to this feature of the disease. As might be expected from our present knowledge of the physiology of the adrenals, the blood pressure in Addison's disease is markedly lowered. This low blood pressure is probably due to the lack of pressor substance which results from the adrenal disturbance. The asthenia may be explained in part upon the same grounds. It is, nevertheless, difficult to exclude toxemia as a factor in the production of both these phenomena. In all of the cases here reported the existence of extreme hypotension was repeatedly demonstrated.

Although Addison originally regarded the disease as an anemia it is now generally conceded that such blood changes as occur are entirely secondary. Cases 1 and 2 furnish good examples of the blood changes typical of Addison's disease. In this disease hemoglobin is only moderately reduced. In these cases it was 78 and 75, respectively. There is no noteworthy diminution in the red cells. In Case 1 they were 4,410,000 and in Case 2, 4,480,000. In Addison's disease there is no leukocytosis, indeed leukopenia has frequently been observed. In these cases the leukocytes were 9,840 and 10,400. This slight increase in the white cells was probably due to the existence of inflammatory conditions. In the cases under consideration the differential counts were normal, which is the rule. Moderate lymphocytosis has been observed and the degree of the lymphocytic increase has been held by Musser to be of bad prognostic significance. In Cases 3 and 4, the existence of a severe acute infection and a profound anemia, respectively, markedly altered the blood findings.

Cases 1 and 2 and probably 3, from a clinical standpoint, may be regarded as typical pictures of Addison's symptom-complex. In Case 4, however, there may be some doubt as to how far the manifestations of a grave anemia were influenced by the adrenal destruction.

In spite of many anatomical observations and much experimental work upon the adrenals, the exact pathogenesis of Addison's disease remains obscure. Addison's original conception that the symptom-complex is due to any destructive lesion of the suprarenals, has been substantiated as knowledge of the important part played by the adrenals in internal secretion has advanced.

Bittorf[4] in recent studies on the pathogenesis of Addison's disease, believes the gradual complete arrest of adrenal function, the result of more or less complete destruction of the glands, is the cause of all the symptoms.

In this connection the work of Wiesel[5] on the condition of the chromaffin cells in Addison's disease is important.

It should be recalled that the suprarenal capsules consist of two varieties of tissue, the medullary and cortical portions. The cortex is composed of a capillary network and epithelial cells. The medulla is in part made up of non-medullated nerve fibers and sympathetic ganglion cells, but consists mostly of chromaffin cells. These cells are large branching cells which take on a brownish color with chromic salts and are found closely associated all over the body with the sympathetic nervous tissue. They occur in the carotid glands, coccygeal gland, and other accessory organs of the sympathetic system. Adrenalin, elaborated only in the medullary portion of the suprarenal, is obtained from these chromaffin cells. The function of the adrenal cortex is supposed to be chiefly that of neutralizing certain body poisons.

By a most painstaking investigation, Wiesel showed that in Addison's disease the chromaffin cells largely disappear from the medullary portion of the adrenals and other parts of the sympathetic system. If Wiesel's observations are correct, admitting that the chromaffin cells are chiefly concerned in the production of adrenalin, it seems more than likely that the dominant factor in producing the symptom-complex is a lack of this internal secretion. This failure in adrenalin secretion is most readily accounted for by the involvement of the adrenal medullary substance in destructive lesions of the gland.

Such a conception of the pathogenesis of the disease seems at present far more plausible than the nervous hypothesis at one time so vigorously advocated by Sir S. Wilks[6] and Greenhow,[7] who held that, although the suprarenals might be primarily involved, the symptoms were due not to the suprarenal lesion, but to secondary in-

volvement of the nearby semilunar ganglia and the solar plexus.

From a pathological standpoint the most frequent condition of the adrenals noted in this disease is tuberculosis. Widespread caseation is the most commonly found change. Such was the condition of the adrenals in Case 1. In Case 2 numerous tubercles were present, which has also not infrequently been observed. In short, all varieties of tuberculous lesions, from small tubercles to extreme fibrosis and calcification, have been noted. The lesions, however, are usually extensive and involve, as in Case 1 and Case 2, both medulla and cortex. Had an autopsy been allowed on Case 3, doubtless adrenal tuberculosis would have been found to exist. Primary tuberculosis of the adrenals has been reported but is rare, in most instances the tuberculous disease of these organs appears secondary to tuberculosis elsewhere, as in the lungs and retroperitoneal glands. Such was undoubtedly the fact in the first three cases here reported.

In addition to tuberculosis of the adrenals, Addison's disease has frequently been found associated with other lesions of these organs, such as simple and inflammatory atrophy, carcinoma, sarcoma, melanotic tumors, hypernephroma, and even gumma and echinococcus disease. Necrosis such as was observed in Case 4, is not mentioned as a usual adrenal lesion. It is interesting in connection with the chromaffin theory, to recall that the lesions in this case involved chiefly the medulla.

It is to be regretted that in none of the cases of this series were the semilunar ganglia and other sympathetic structures investigated.

Finally, it should be pointed out that there exists a form of Addison's disease apparently dependent upon a primary atrophy of both the adrenals, in which there is an absence of pathological processes in other organs. In this condition the true adrenal tissue has almost entirely disappeared and the glands are converted into thin parchment-like structures. This form of the disease has been investigated by several observers and is emphasized by Strümpell,[8] who regards it as the only true primary type of Addison's disease. It is possible, therefore, that it is incorrect to consider such cases as have been here described as Addison's disease, and that we should look upon them merely as examples of a secondary symptom-complex resulting from accidental adrenal involvement.

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A PRELIMINARY NOTE ON THE EXPERIMENTAL PRODUCTION OF GASTRIC ULCERS BY THE INTRAVENOUS INJECTION OF CLUMPED COLON BACILLI.

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Many facts suggest the theory that the colon bacillus is in some way causally related to the production of gastric ulcer in man. Up to the present time, however, although numerous experiments have been made by many investigators, no etiological connection could be established. It has long been known that an emulsion of colon bacilli in the presence of free hydrogen ions is agglutinated in from one to four hours when incubated at the body temperature. Gastric juice of high acidity possesses this agglutinating power. It occurred to me to investigate the results of injecting intravenously emulsions of clumped colon bacilli. Active strains of colon bacilli in broth emulsion were accordingly agglutinated with weak solutions of acetic acid and hydrochloric acid. In some of the experiments a weak alkali was added. When 2 c.c. to 3 c.c. of such an emulsion was injected into the ear vein of rabbits, *such an injection was uniformly followed by the formation of a gastric or duodenal ulcer within 24 hours.*

The method employed was as follows:—

The agglutinating reagent used was of the following type formula:

N-10 Acid,	85 c.c.
N-10 Sodium Hydrate	5 c.c.
Water	10 c.c.

Twenty-four hours old broth culture of the colon bacillus, treated with the above reagent in the proportion of about 2½ c.c. of broth culture to 1 c.c. of the reagent was incubated for twenty-four hours, and then centrifuged. The sediment was washed twice with normal saline, the wash water decanted and the residue shaken up with fresh saline. The turbid emulsion thus formed was injected intravenously in varying amounts into the ear of the rabbit.

The table herewith shows the results.

These results show with what certainty gastric or duodenal ulcers can be produced in rabbits with very simple means. It is natural to suppose that gastric or duodenal ulcers in

ANIMAL.	AMOUNT INJECTED INTRAVENOUSLY.	RESULT.	AUTOPSY.
Old Belgian hare.	2 cc. in each ear.	Sudden death 2½ hours after injection.	Very large perforation of stomach at left anterior surface. Gastric chyme projecting through it into peritoneal cavity, apparently a lysis of stomach wall.
Large white rabbit.	2 cc. in left ear.	Chloroformed after 24 hours.	Area about size of dime on right posterior surface near pylorus, deficient of mucous membrane (evidently a lysis of mucous membrane).
Immunized large white rabbit. Vaccine sub. Q. 5- 6-'13—2 cc. 5-12-'13—5 cc. 5-19-'13—5 cc. 6- 9-'13—5 cc.	2 cc. in left ear.	Chloroformed after 24 hours.	Band of hemorrhage in duodenum just below pylorus. Mucous surface shows many punctate hemorrhagic elevations. Overlying peritoneum is intact.
Small Belgian hare.	3 cc. in left ear.	Found dead 14 hours later.	Ulcer 2 inches by ½ inch on anterior surface of stomach 1 inch from pylorus. Margin of ulcer shows injection through peritoneal surface. Punctate elevations on mucous surface.
Old white rabbit.	3 cc.	Chloroformed after 24 hours.	Lines of punctate hemorrhagic elevations of mucous surface of duodenum, also a suspicious area of dissolution in mucosa of anterior wall of stomach rear pylorus.
Old white rabbit.	No injection.	Chloroformed.	Stomach normal, duodenum normal, no duodenal adhesion, no hemorrhage, no points of lysis. Marked power of contractility of stomach wall (not possessed by rabbits previously injected).
2-3 full grown white rabbit.	5 cc. in each ear and four days later 2 cc. unwashed colon sediment in left ear.	Chloroformed 6 days after first injection.	Cicatricial ulcer showing through intact peritoneum. Mucous surface shows typical ulcerous crater at bottom of which is a blood clot.
Full grown hare.	5 cc. of emulsion from sediment formed in incubated flasks containing sterile broth and acid alkali mixture. Proportion of 2½ to 1.	Animal apparently normal in behavior, chloroformed 24 hours after injection.	Stomach normal.

man are formed under analogous conditions. This matter will be presented in a paper to be published shortly. Many other important questions remain open for consideration.

Does the organism merely act mechanically as an embolus, or as a toxine, causing lysis, or in both capacities?

Has the colon organism a selective action on the stomach, or does it affect other organs as well?

Is the colon bacillus unique in causing gastric ulceration, or will other organisms behave in the same way when similarly treated?

Will introduction of small amounts of clumped organisms by mouth, rectum, subcutaneously or intraperitoneally produce ulcers?

All of these questions will be fully treated in the later communication.

THE END RESULTS OF OPERATIVE TREATMENT IN 33 CASES OF SPASTIC PARALYSIS.

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THE statement is sometimes made that free division of the tendo-achillis for equinus deformity may be followed by permanent and undesirable lengthening of the tendon in spastic paralysis, as well as in other conditions causing similar deformity. A study was therefore made of 57 cases of spastic paralysis which were operated

at the Children's Hospital during the five years ending in 1912, and which, with the exception of two cases, had been free from apparatus or treatment of any kind other than exercise and massage for at least the last six months. Without months of work it would have been difficult to locate the patients operated upon before 1907, and it did not seem expedient to consider cases which were operated upon within six months of the time of reporting, as a sufficient interval had not elapsed to arrive at fair conclusions as to the efficiency of treatment. The foundation of the study was supplied by the records of the Children's Hospital, Boston, and by a study of the present conditions of the patients.

During the last five years there have been operated at this hospital 57 patients with spastic paralysis. Of this number 12 lived more than fifty miles from Boston, 7 were found to have been private cases, and 5 were in institutions not easily accessible. Accordingly the investigation was limited to 33 cases, and of this number 22 have recently been seen either in the out-patient department or at their homes.

The selection of the patients for operative treatment has been conservative with reference to their mentality. Of the cases under consideration the records show that two patients were normal mentally when examined in consultation with the nerve department staff. One was diagnosed as spastic idiocy, and two showed mentality dull and stupid and refused to talk or answer questions when spoken to. The remaining patients in their intellectual abilities were in general of the mental equipment of children somewhat their junior, but all showed an interest to do everything in their power in the way of active exercise to aid those who were treating them.

It is a well agreed fact that in cases of very deficient mentality, and without the coöperation of the patient in trying to walk, surgical interference with spastic paralysis is likely to be of little use. It is only fair to mention the mental condition of the patients from whom conclusions concerning the ultimate results of surgical interference have been drawn.

The cases under consideration comprise 12 paraplegias, whose deformities ranged from simple contractions of the tendo-achillis resulting in mild equinus attitudes, to adductor contractions causing cross-legged progression; five hemiplegias, some of which showed great disturbance with the proper functioning of both limbs, while others showed the legs or the arms to be the more affected; four diplegias of all grades, and a monoplegia, which resulted in a simple equinus with a slight valgus.

Having defined the type of cases under discussion, one comes to the consideration of the operative side of the question, especially from the point of view of operative results. The conditions will be shown by groups as much as possible, but on account of the widely different degrees of the deformities of many patients it will be necessary to discuss individual cases in certain instances.

Of the 12 paraplegias, five were operated by simple subcutaneous tenotomies of both tendo-achilles, one had subcutaneous tenotomy of the tendo-achillis operation (twice performed) with adductors of the right leg and tibials of the left tenotomized, one had a subcutaneous tenotomy of the left tendo-achillis and double tenotomies of the ham strings, two a tenotomy of the tendo-achillis on both sides, with division of the ham strings; one had the adductors, ham strings and tendo-achillis tenotomized; one had both tendons and plantar fascia cut, and the twelfth had a tenotomy of the left foot with an alcohol injection of the right popliteal nerve.

Of the hemiplegias the Tubby operation on the arm was performed in two, a simple subcutaneous tenotomy of the tendo-achillis and removal of sections of the ham strings in another, and in the other two a subcutaneous tenotomy of the tendo-achillis on both sides, and a division of the inner and outer ham strings.

In the diplegias, one had subcutaneous tenotomies of the tendo-achillis only, another a subcutaneous division of the tendo-achillis on both sides, ham strings and tensor fasciae femoris, a third had sections of ham strings and adductors of both thighs removed and division of the tendo- achillis on both sides, and the fourth had a subcutaneous tenotomy of the tendo-achillis of one foot and sections of the adductor and ham string muscles, and later a Tubby operation on the arm.

With regard to the case of the monoplegia, a patient, M. P., entered the hospital with a noncorrectible equinus with a slight valgus position of the left foot. A subcutaneous zigzag tenotomy of the tendo-achillis was performed, and a plaster cast applied from toes to the knees with the foot at right angles. She wore the plaster for two months, after which she was allowed to walk without plaster, and was given daily massage for a length of time unknown. At the present time she walks with her heel to the ground with perfect dorsal flexion of the foot, showing a useful tendo-achillis. The valgus is still present and noted as slight, the same as before operation.

Of the 12 paraplegias discussed, five of the cases showed the feet in equinus with or without varus, and no other contractures were noted in the records. They were treated alike by subcutaneous tenotomy, two of which were done by the zigzag method. Each of these was put up in plaster with the foot at right angles for from five to ten weeks, and this was followed by the application of club foot braces (varus shoes), worn from six weeks to six months. Two were advised to give the feet massage, and whether or not this advice was heeded cannot be said. At any rate, at the present time each of these patients is walking with his heels to the ground and with a good amount of plantar and dorsal flexion. The reasons were not stated in the records why some had braces and others did not.

or why some were done by the zigzag method rather than by simple tenotomy, the different methods of operative procedure, and after treatment depending on the personal ideas of the individual surgeon in charge of the patients.

One comes next to the consideration of the more severe types of muscular contracture of the legs in these cases of paraplegia, with the variety of operative measures and results. Among those there was a case which showed a 20-degree contracture of the ham strings, on which a division of the ham string tendons was performed with tenotomy of the achillis tendon. The after-treatment consisted of a plaster spica with knees in hyper-extension for three weeks, when they were removed by an outside physician, and six weeks afterward the patient returned and had a second similar operation, and then wore a similar spica for four months, and now the legs are straight and the heel touches the ground when walking. There was another patient who six years ago had the adductors, ham strings and tendo-achillis tenotomized, because he could not walk without help, and only then with marked scissor gait. This patient returned to the hospital walking alone, with a slight adduction and ham string contraction, for a second operation to further improve his appearance. A second tenotomy of adductors and ham strings was performed and a spica applied. For some reason unknown the spica was removed in the out-patient department in three weeks. His present condition is no better than before his second operation. These two cases clearly illustrate the bad effects of too short after-treatment with plaster.

The remaining cases of severe leg contractures, considering all patients together, were all patients whose knees would touch in walking, and whose ham strings and tendo-achilles were contracted. Of these, three patients unable to walk without assistance had sections of the adductors and internal ham strings removed, together with tenotomies of their tendo-achilles. Previous to operation all of these patients showed cross-legged progression. Two were in plaster two months, followed by massage and hot and cold baths. One wore a caliper splint for six months. At present both of these children are walking with heels to the ground and have good plantar flexion. Their knees are bent very slightly, and they walk very well if they are not confused and do not try to hurry. The third was kept in a spica for three months, and the present note is as follows: "Marked spasticity of both legs, particularly in adductors of hips and flexors of knees, holds feet with flexion of terminal phalanges of toes and slight cavus and calcaneus. Has a tendency to inward rotation of entire legs." Even though this note does not seem as encouraging as the results obtained on the two patients first mentioned, nevertheless, to know that he can walk, when walking previous to operation was an impossibility, is a recommendation of the treatment which he received.

Eight cases of all classes have been noted as having been treated by cutting the muscles, with plaster spica as after-treatment, worn for from two to four months, and followed either by massage or massage and braces for about six months longer. In two of these eight patients the legs were so contracted that they could not be straightened, and these children could not walk without assistance before operation. At the present time they all have the power of abduction in both legs from 10 to 30 degrees, and their knees are practically straight so that they walk with a slow spastic gait without assistance.

The best result was in a boy operated on Nov. 25, 1907. He was seen in his home, and probably to the best advantage, where he did not realize that he was being examined, and where he was not confused by strange surroundings. Not until he was operated upon and had worn a spica for five weeks and braces for one year did he take a step alone. After leaving off the braces his father bought him a bicycle, and only after a whole year of persistent effort on the part of his parents did he learn to ride it. He continued exercise by riding this bicycle until a year ago, when he outgrew the machine. Now he can abduct his legs to fully 30 degrees, his knees are straight, and he walks with the heels to the ground, and has normal flexion in the left foot and about ¾ of normal in the right. His gait is spastic, but is improving, and he walks well if he does not hurry, but when hurrying he falls.

The only complete failure following the cutting of the ham string and adductors was in a case of the idiot referred to above. Her present condition is as before operation, marked adduction and flexion of legs, which can be partly straightened, and an inability to walk.

Having considered the cases treated by tenotomy of the tendo-achilles and ham strings and myotomies of ham strings and adductors, one comes next to a consideration of the results of treatment of spastic paralysis by 80% alcohol injections of certain nerves.

CASE 1. *Paraplegia.*

Left foot in equinus easily correctible, plaster was applied holding foot at right angles for six weeks. Result: Normal attitude of the foot. The *right foot* was held in extreme equinus and was not flexible. The treatment consisted of the injection 7.5 m. of 80% alcohol into the right internal popliteal nerve with the idea that the temporary paralysis caused thereby would be sufficient for the weakened muscles to overcome the spastic muscles and create a muscular balance. The right foot was put up in plaster at right angles, as the left foot, for a period of six weeks, and then removed with a note that the foot was in good position and that the patient walked well. Eight months following the operation a note appears on the out-patient department record reading as follows: "Walks with beginning equino-varus position of the left foot," new caliper splint with dorsal flexion straps ordered. When seen Feb. 19, 1913, the position of equinus

was as marked in the right foot as before the alcohol injection.

Case 2. *Paraplegia.*

Slight equinus position of left foot and easily correctible. No previous treatment. Marked equino-varus of right foot. Treatment: Injection of 30 m. of 80% alcohol into right popliteal nerve. Sterile dressing applied and no note as to the application of any plaster to foot. Three weeks later the nerve was again injected with 5 m. of alcohol and no plaster was applied. Just the reason of the second injection of alcohol was not stated in the record. The last note of February 15 reads as follows: Right foot held in equino-varus, not correctible, and patient walks in equinus with a contracted tendo achillis.

Case 3. *Diplegia.*

This patient, although operated upon for the spastic condition of the legs, will be used in this particular instance as illustrative of the alcoholic injection method and its results. This information comes from Dr. A. Thorndike, who reports her present condition. For the flexion deformity of her right arm, alcohol was injected into the right median nerve about six months ago, and at present the arm is as badly contracted as before the operation.

There remain three cases on which the Tubby operation was done. None of these patients had any power of supination, they were put in plaster for about three months with elbows at right angles and hands in full supination. Of these one has a practically straight arm and with very good power of both pronation and supination. The other two have some flexion of the elbows with about two thirds the normal amount of supination.

Generalizing from these observations it seems evident that excellent results in these cases have followed subcutaneous tenotomies, whether they were zigzag or otherwise, and this has an important bearing on the question as to whether there is danger of permanent and undesirable lengthening of the tendo-achillis after free division, and such conditions were especially looked for in the 22 cases discussed and none were noted. It would seem, therefore, that the open operation is not at all necessary.

It also seems that alcoholic injections have not in the cases reported prevented the return of spastic contractures. Children who have not taken a step, have been able to walk as a result of simple division or resection of the adductors and ham strings, and apparently much can be expected from the Tubby procedure of transferring the pronator radii teres to work as a supinator.

Although the operative procedure may be that properly suited to the individual case, it has also been shown that without careful after-treatment and the long continued after-use of plaster and apparatus the various operations are likely to be of little use.

A STUDY OF 197 CASES OF ENDOCARDITIS IN CHILDREN AT THE MASSACHUSETTS GENERAL HOSPITAL; WITH SPECIAL REFERENCE TO THE TREATMENT OF ACUTE ENDOCARDITIS.

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The material for this study was obtained by going over the records of the hospital from January first, 1901, to January 1, 1913. There were found to have been 197 cases of endocarditis in children under thirteen, besides six cases of congenital heart lesions. Of these 197 cases, 114, or 58%, were considered as acute and 83, or 42%, as chronic or chronic with acute exacerbations. The tables of statistics appended are, I think, self explanatory, and to them I shall refer from time to time. As to the method of compiling these figures, I will say that some of the "results" were obtained from letters and others from examinations. As to the "unknown," most of these cases are undoubtedly living; as the death records of Boston, to date, and the state records through 1909 have been examined and the deaths noted. Perhaps eight of the acute "unknown" are actually doubtful.

TABLE I.

Of the 83 chronic cases, 57 were purely chronic, while 26 were chronic with an acute exacerbation.

Fifty-seven purely chronic cases show 37 girls and 20 boys.

FORMS.

Mit. reg.	23
Mit. reg. and sten.	18
Mit. reg. and double aor.	1
Mit. reg. and aor. reg.	3
Mit. reg. and con. pul. sten.	1
Mit. reg. and tric. reg.	2
Double mit. and aor. reg.	3
Double mit. and double aor.	2
Double mit. and aor. sten.	1
Double mit. and tric. reg.	1
Aortic reg.	1
Mitral and aort. sten.	1

CAUSES.

Rh.	24
Chorea	8
Either or both	4
Pn.	2
Sc. or diph.	2
Typhoid	2
Tonsillitis	1
Unknown	14
History of sore throat	8

COMPLICATIONS.

Rh.	6
Chorea	10
Tonsillitis	4
Pericard	7
Pn.	3
Pleu.	1
Ty.	1
Periton	1
Myocard	1

Tonsils.

Tons. large	17
Slt. large	10
Neg.	27
Out	3

RESULTS.

Compensated	10	17.5%
Dead	24	42 %
Unknown	23	30.5%

Average life of those dying 577 days, or 1 year 7 months.

Average age at death 11 years 6½ months.

TABLE II.

Chronic and acute	26
Girls	15 or 58%
Boys	11 or 42%
Ages:	
7 to 9	11 or 42%
10 to 12	15 or 58%

FORMS.

Mit. reg.	12 or 46%
Mit. reg. and sten.	4 or 15%
Mit. reg. and aort. reg.	3 or 12%
Double mit. and aor. reg.	4 or 15%
Double mit. and aor. sten.	1 or 4%
Double mit. and double aor.	2 or 8%

Analyzed into chronic and acute we have:

Chronic.

Mit. reg.	16
Mit. reg. and sten.	6
Mit. reg. and aor. reg.	3
Double mit. and double aor.	1

Acute.

Mit. reg.	12
Mit. reg. and aor. reg.	2
Mit. sten.	3
Double mit.	1
Aor. reg.	5
Aor. sten.	2
Double aor.	1

CAUSES.

Primary.

Rheu.	9
Chorea	3
Scarlet	1
Either or both	6
Pn.	4
Sc. or pn.	1
Sc. or chorea	1
Quest	1

Secondary.

Rheu.	8
Chorea	7
Either or both	3
Pn.	1
Tonsillitis	1
Quest	6

COMPLICATIONS.

Rheu.	7
Chorea.	7
Both	3
Pericard	6
Pn.	1
Pleu.	3
Septicemia	1
Tonsillitis	1

Tonsils.

Large	11
Sl. or mod. large	2
Neg.	11
Out	2
History of sore throat	10

RESULTS.

Compensated	10 or 38%
Dead	7 or 27%
Unknown	9 or 35%

Average life of those dying 116 days or 4 months. Age at death 10 years 2 months.

TABLE III.

Acute cases	114
Girls	60 or 35%
Boys	54 or 47%

Ages. Under 4, 4 or 3%; 4-6, 28 or 25%; 7-9, 41 or 36%; 10-12, 41 or 36%.

FORMS.

Mit. reg.	76 or 67%
Mit. reg. and sten.	25 or 22%
Mit. reg. and aor. reg.	7 or 6%
Mit. sten.	2 or —2%
Double mit. and aor. reg.	4 or +3%

CAUSES.

Rheum.	49 or 43%
Chorea	39 or 34%
Either or both	4 or +3%
Tonsillitis	3 or 3%
Tonsillectomy	1
Pn.	5
Diph.	1
20 rheum. and chorea	80%
Question	9%

COMPLICATIONS.

Rheum.	32 or 29%
Chorea	41 or 36%
Both	3%
Pericard	14 or 12%
Tonsillitis	5 or 4 +%
Pn.	4%
Neph.	+3%
Embolism	1%

RESULTS.

Compensated	57 or 50%
Dead	27 or 64%
Unknown	30 or 26%
Perfectly compensated	14
Mit. reg.	10
Mit. reg. and mit. sten.	2
Mit. reg. and aor. reg.	2

Dead.

Mit. reg.	13 or 48%
Mit. reg. and sten.	8 or 30%
Mit. reg. and aor. reg.	4 or 15%
Double mit. and aor. reg.	2 or 7%

Mit. reg. 17% died, living average of 15 months.

Mit. reg. and sten. 33% died, living average 7 months.

Mit. reg. and aor. reg. 56% died, living average 27 months.

Double mit. and aor. reg. 50% died, living average 2 months.

Those dead lived an average of 1 year 1 month after admission.

Age at death averaging 8 years 8 months.

TABLE IV.

46 acute cases since establishment of Children's Department

24 or 52% girls; 22 or 48% boys.

Ages. Under 4, 2; 4 to 6, 13; 7 to 9, 16; 10 to 12, 15.

FORMS.

Mit. reg.	34
Mit. reg and sten.	6
Mit. reg. and aor. reg	6
Double mit. and aor. reg.	1
Mit. sten.	2

CAUSES

Rheum.	21
Chorea	15
Either or both	1
Tonsillitis	3
Tonsillectomy	1
Question	5

COMPLICATIONS.

Rheum.	15
Chorea	15
Tonsillitis	3
Pericard	5
Neph.	3
??? ?	10

Tonsils.

Slightly large	13
Large	19
Neg.	11
Out.	3
History of sore throats	14

RESULTS.

Compensated	35 or 76%
Dead	4 or 8%
Unknown	7 or 15.3%

10 perfectly.

Those dying lived average of 32 days. Age 4 years 2 months.

Of Perfectly Compensated.

Mit reg.	8
Mit. reg. and aort. reg.	2

Relapses. 4 known to have had them.

In comparing the lesions of the acute cases with those of the so-called chronic forms, the complicated character of the chronic cases is noteworthy. In the chronic cases there are ten distinct lesions or sets of lesions, not including the accidental congenital case, while only six are found among the acute cases. This point is very suggestive, and would seem to indicate the fact that we may be dealing not alone, with simple acute endocarditis become chronic, but with acute cases become chronic, plus something else. This idea is further borne out by study of the chronic cases with complicating acute endocarditis. Here we find four chronic forms becoming six after the acute complications or exacerbations, as one may choose to call them.

If a fairly large percentage of so-called chronic valvular disease is made up of repeated attacks or exacerbations of acute endocarditis, it would seem that the old idea of acute endocarditis must be changed, and the treatment modified and adapted to the new thought. Typhoid fever is treated as an acute disease throughout, not only the original period of fever, but through recrudescence and relapses, and the patient is not considered cured until these dangers are passed. Why should we not consider acute endocarditis, which leaves such severe results in its train, as worthy of the same degree of attention?

Some of the recent work of Rosenow of Chicago would seem to bear out the importance of this line of argument. He has apparently shown that this may be a disease entity, which as experimental infectious endocarditis, at least, is susceptible to a high degree of repair. He says,[1] "It is necessary to inject intravenously an exceedingly large dose or smaller doses repeatedly to cause fatal endocarditis in rabbits; otherwise healing results." Another point he makes is on the age of susceptibility: "Half grown rabbits yield the best results, it being difficult to produce endocarditis at all in old rabbits, while in the very young healing is more apt to occur." He was experimenting with an organism of human origin, and he considers the simple or benign cases of endocarditis following streptococcus tonsillitis, or developing in the course of chorea or rheumatism, as due to such cocci as produce endocarditis in the rabbit. Here is at least one experimenter whose work would seem to give added weight to what clinical study has suggested in the line of treatment. It is to some of the results of long continued treatment carefully carried out that I wish especially to direct attention.

In a way, this may be considered as a preliminary report of the results of treatment carried out by the Children's Medical Department of the Massachusetts General Hospital. The work started with Dr. Talbot's becoming chief of the department, and this study was undertaken at his suggestion.

Since Jan. 1, 1901, there have been in the hospital 114 cases that may be considered as acute endocarditis. These I have divided into two series, the cases before Talbot became chief of the department, and those after. We have then up to August, 1910, 58 cases, and 46 since. As to results up to the present time (May, 1913) at least eight months after admission of last case:—

	COMPENSATED.	DEAD.	UNKNOWN.
To August, 1910	22 or 32%	23 or 34%	23 or 34%
	(Of dead, average life 1 year 3½ months.)		
Since Aug., 1910	35 or 76%	4 or 8.7%	7 or 15.3%
	(Of dead, average life 32 days.)		

The natural objection to comparing these figures is the greater length of time that has elapsed since the earlier cases. In order to meet this, the length of life of those dying was studied.

Leaving out of consideration all the cases that died either in the hospital, or so soon after, as to seem probable that they were taken from the hospital in a dying condition, we have six cases, or

10% of the earlier series, dying within seven months; while no cases in the later series, died within that period. Now unless there has been a radical change in the "house" methods of treatment, and I think it fair to presume there has not, as the house mortality is practically the same in both series, our interest lies in the care of the cases after discharge.

That there has been some change in the character of the after-care of these patients is evidenced by the much larger percentage of cases coming to the Out-Patient Department, a recent survey showing that the attendance of heart cases was exceptionally good. How then does the present system of treatment differ from the old?

Formerly the patients were discharged to the Out-Patient Department, or the family physician, directly, or after a week or two at Waverly, where the patient did about as he felt able. Now, these cases are sent in a considerably large percentage to convalescent homes, especially adapted to their needs. Here they are under the absolute control of competent nurses, and forced to remain quiet over long periods. Other cases are sent directly to their homes, where they remain quiet under the supervision of the social workers, coming to the Out-Patient Department from time to time for examination and further advice. The temperature, size and reactions of the hearts being guides in the progress of the case.

By this system it will be seen that the whole manner of life of the child is directly under control, as to exercise, school, etc., over months at a time. As yet, the class method of dealing with these cases has not been tried; perhaps it may be feasible with the old cases but not with the fresh ones. In the early cases rest, and more rest, is the great essential. The whole course of treatment hinges on individualizing the cases, keeping the powers of resistance as high as possible, general supportive treatment, rather than the resort to so-called heart drugs. The attempt is made to put these patients under as nearly ideal conditions as possible. When possible, the case may be given the "fresh air treatment" on a piazza or porch, for instance; the general hygienic surroundings and conditions are improved as may be, the diet is looked after, in fact everything possible is done to put the child into the best general condition.

In order to successfully carry out this system in hospital cases, the closest harmony and cooperation must exist throughout the service, from the "house" through the convalescent home, the out-patient department, the social worker. Its success demands much tact and patience; and to the social workers a large degree of the success is due.

Now as to the results in 42 cases discharged to the Out-Patient Department:—

COMPENSATED.	DEAD.	UNKNOWN.	RELAPSES.
35 or 83%	0	7 or 17%	4

Of the compensated cases, 10 may be said to be perfectly so, being normal in size for the child's age, and showing only a slight murmur, perhaps only on exertion; 5 of this 10 showing no murmur at all. Of the earlier series of 22 compensated cases, 4 may be called perfect.

As to the prognosis in the individual case, little can be said except that these statistics give a smaller proportion of deaths in mitral lesions alone than when a mitral lesion is combined with an aortic.

As to the prognosis for perfect compensation little can be said from a study of these figures, and time alone can answer the question. Relapses seem fewer.

Of late much has been said in regard to the relation of the tonsils to the disease group, rheumatism, chorea, endocarditis, with the idea that here may lurk the infective agent ready to become active under proper conditions. Cooldige has stated,[2] and apparently proved, that size alone is of little significance, while a history of sore throats may be. Hence it has been more on the history of tonsillar infection, than on the mere size of the tonsils, that the few tonsillectomies done, have been advised. Whether this operation has been of value, it is hardly time to say, but there is a feeling that the operation has done no harm and may do good.

While recognizing that we are dealing with a very small number of cases, treated over a limited period, it has seemed worth while to report such results as we are having, and it seems fair from this study to conclude:—

1. Acute endocarditis should be considered as acute over a much longer period than has been the custom.

2. Treatment should be carried out over months and perhaps years, until all possible signs of acute disease have disappeared, and even then, until adolescence is passed, at least a certain amount of restraint should be exercised.

Before closing I wish to thank Dr. R. S. Eustis, the Children's house officer, for his valuable assistance.

REFERENCES.

[1] Journal of Infectious Diseases, Vol. ii, No. 2, Sept. 12.
[2] Paper read before the New England Pediatric Society, March 27, 1913.

FRACTURE OF THE CARPAL SCAPHOID IN CHILDHOOD AND ADOLESCENCE.

BY WM. PEARCE COUES, M.D., BOSTON,

Assistant Surgeon to the Boston Dispensary; Instructor in Surgery, Tufts College Medical School.

FRACTURE of the carpal scaphoid in childhood is so rare as to be almost unheard of. Anatomical conditions concerning the development of the carpal bones and the lower end of the radius, to be spoken of later, are in a measure responsible for its rarity.

Such fracture authorities as Stimson, Scudder, Cotton and J. Hogarth Pringle make no mention of its occurrence in childhood. Keene, De Forest Willard, Edward Martin, Kirmisson, Spencer and Gask, and many other general surgical authorities make no mention of it.

Anatomical Considerations. The lower end of the radius begins to ossify at about the second year and unites to the shaft at about the nineteenth year. Cartilaginous centers for the carpal bones appear early in fetal life. Ossification occurs from one center for each carpal bone, but

the radius and the shaft, and the scaphoid and radial region is more cushiony and resilient than in the adult. The whole wrist is more flexible and lends itself to strained and unusual positions more readily. This in a measure explains the rarity of the lesion in childhood.

Castruccio says on this matter, "It is unsual up to the fifteenth year on account of the ball-like form of the scaphoid up to this age, which offers no catching surface, and because between bone and bone there is an interval which is filled with cartilage, through which the impinging

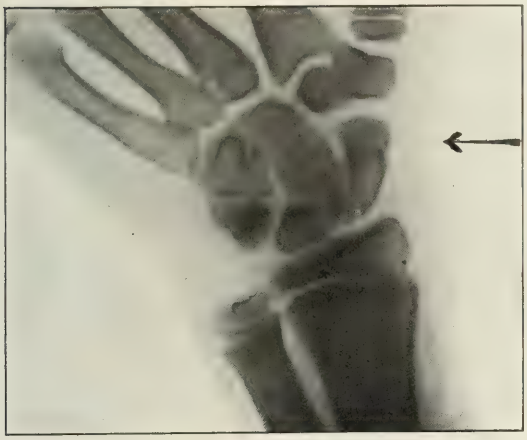


Fig. 1.
Fracture of carpal scaphoid. Boy of 12. Note transverse crack in distal half of bone.

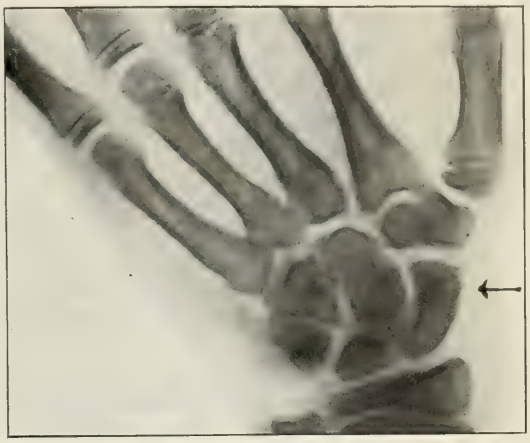


Fig. 2.
Fracture of carpal scaphoid. Boy of 12. Two weeks after injury. Crack in bone healed.

of this fracture.

Hessert,[4] in his article on this subject, gives no specific mention of the ages of the patients.

Wilbert,[5] in giving a study of fifty-two injuries of the carpus, says the ages were between fifteen and fifty-six years, but he does not specify about the ages of the scaphoid cases.

The only cases at any similar age to mine that I have been able to find are those of Ely,[6] fifteen years, and Castruccio,[3] fifteen and one-half years.

Considerations of the reasons which make this fracture of extreme rarity in childhood:—

As a rule this fracture is produced by a fall on the extended palm in the same manner as a Colles' fracture, the force sometimes fracturing the scaphoid, sometimes the lower end of the radius, sometimes both. Most authorities agree that direct violence applied to the flexed dorsum of the hand is a comparatively uncommon cause. In late childhood the scaphoid, having just become solid bone, is softer than later; there is a cartilaginous cushion between the lower end of

forts to move the hand away from the examiner were noted. There was no crepitus. Complete disability of the hand was present. A diagnosis of fracture of the carpal scaphoid was made, despite the unusual age, which was confirmed by the radiograph, which showed a transverse crack running completely across the distal end of the bone just below the tubercle. No tilting of fragments was apparent. The hand and arm were immobilized on a splint which was frequently removed and reapplied. December 30, all tenderness gone except directly over the scaphoid. Bandage and sling applied. January 6, discharged well. The radiograph, two weeks after the diagnostic picture was taken, showed the line of fracture filled with new bone and the upper half of the scaphoid slightly fuzzy in appearance. May 1, 1913, the boy reports there has been no trouble since injury except very slight pain occasionally after playing ball.

Report of Ely's case.

C. S., school boy, fifteen years of age, seen July 30, 1907. Fracture of the right scaphoid. History:

* An x-ray of this case was shown at a meeting of the New England Pediatric Society, Dec., 1911. See Pediatrics, Feb., 1912.

10% of the earlier series, dying within seven months; while no cases in the later series, died within that period. Now unless there has been a radical change in the "house" methods of treatment, and I think it fair to presume there has not, as the house mortality is practically the same in both series, our interest lies in the care of the cases after discharge.

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Anatomical Considerations. The lower end of the radius begins to ossify at about the second year and unites to the shaft at about the nineteenth year. Cartilaginous centers for the carpal bones appear early in fetal life. Ossification occurs from one center for each carpal bone, but the unciform and scaphoid may have two centers, according to Piersol. In this connection the bipartite scaphoid described by the late Professor Dwight should be mentioned. The scaphoid begins to ossify early in the sixth year. Before the x-ray was used for diagnosis and research it was thought that the center for the scaphoid did not begin to appear until considerably later.

According to Sobotta[1] the capitatum (os magnum) and hamatum (unciform) centers appear during the first year of birth. At nine years the scaphoid is well on its way to its permanent shape, but is shorter and less curved than later. At twelve years it is more nearly like the adult bone, and at fifteen years its shape is definitely fixed.

Numerous monographs have been written on fracture of the carpal scaphoid,—American, German and French being perhaps the most exhaustive. In none have I been able to find a case of fracture as early as the case to be reported,—twelve years.

Codman and Chase's[2] classic monograph, most often quoted in the German and French literature of any monograph on this subject, deals with eighteen cases, the youngest eighteen years of age.

Castruccio,[3] in an extremely thorough article, says he has never seen a case younger than fifteen and one-half years in his great experience of this fracture.

Hessert,[4] in his article on this subject, gives no specific mention of the ages of the patients.

Wilbert,[5] in giving a study of fifty-two injuries of the carpus, says the ages were between fifteen and fifty-six years, but he does not specify about the ages of the scaphoid cases.

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Vialle[7] says that in the rare cases when this fracture is due to a fall on the dorsum of the hand it is not often single and the records of published articles show that this fracture is observed only exceptionally in children and adolescents.

Report of Case.*

Frank F., twelve years of age, was seen at the Surgical Clinic of the Boston Dispensary, December 8, 1911. This history was as follows: Yesterday he fell down while running. He fell with the arm in front of him, while on the street, striking with the wrist flexed against his body, on a cobble stone. Examination showed a well-developed and nourished boy. The left wrist was markedly swollen on the dorsum, the swelling stopping abruptly at the radial and ulna styloids, thus presenting a sharply circumscribed and striking appearance. Palpation of the radius and ulna was not painful. There was no pain in rotation of the radius. There was much pain, however, on palpation over the dorsum of the wrist below the radius and ulna and the normal amount of pain on palpation over the snuff box was increased, so that exquisite pain, wincing and efforts to move the hand away from the examiner were noted. There was no crepitus. Complete disability of the hand was present. A diagnosis of fracture of the carpal scaphoid was made, despite the unusual age, which was confirmed by the radiograph, which showed a transverse crack running completely across the distal end of the bone just below the tubercle. No tilting of fragments was apparent. The hand and arm were immobilized on a splint which was frequently removed and reapplied. December 30, all tenderness gone except directly over the scaphoid. Bandage and sling applied. January 6, discharged well. The radiograph, two weeks after the diagnostic picture was taken, showed the line of fracture filled with new bone and the upper half of the scaphoid slightly fuzzy in appearance. May 1, 1913, the boy reports there has been no trouble since injury except very slight pain occasionally after playing ball.

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the boy fell on the right hand, two weeks ago. The hand was in extension. The injury followed by swelling and pain in the wrist and was treated as a sprain. Now the patient suffers pain when he uses his hand. Examination showed slight swelling on the back of the wrist, just below the radius. Sensitiveness present, most marked over the back of the scaphoid and in the snuff box. It was not present in the palm. Crepitus was obtained. There was practically no limitation of motion, no thickening and no displacement. The x-ray showed a fracture of the scaphoid. The hand and arm were put up in plaster paris. February 8, the visiting nurse reported that the patient had had plaster on for three or four weeks and then had it taken off at the Harlem Hospital. Since then he has had no trouble whatever and is at work.

Report of Castruccio's case.

Old isolated fracture of the carpal scaphoid, right. Pseudoarthrosis. G. I., twenty-one years when seen, a student of pharmacy. When he was fifteen and one-half years old he slipped and fell on his right flank with the right hand in extension. He did not immediately feel any sharp pain in the carpal joint and could use his hand throughout the day. That evening and night, however, the pain was excessive, there was swelling and ecchymosis on the outer side of the hand over the radius as well as the dorsum and palmer surface of the hand; all movements of the hand were painful. One judged that there had been a deformity of the carpal joint at this time. For a long time wet bandages and massage were prescribed. The symptoms gradually subsided but there remained sensitiveness of the right wrist so that he was obliged to avoid any unusual effort, even though it was a slight one. This sensitiveness changed into true pain when he wrote for long or quickly. There was pain on extension of the hand and he could not open or shut a door with the hand in this attitude. There was pain in the carpal joint also when he rode his bicycle and periods of awkwardness after use, with swelling of the carpus and increase of the joint pain. For a time he could not write or bring his hand to his mouth. Once this awkwardness lasted a month but at other times he could use his hand cautiously for periods varying from eight to fifteen days. In 1905 he fell again on the surface of the right hand, but with no great force. There was ecchymosis on the radial side of the carpus which was fifteen days in disappearing. The 18th of January, 1906, he came to the clinic. Examination showed the snuff box of the right hand less prominent than that of the left hand. There was no deformity or atrophy of the arm. The active movements were executed almost completely and only by forced extension was there pain. In the same way there was pain when he forcibly shoved or pressed anything. Palpation of the affected region showed nothing abnormal, but when the hand was in adduction there was severe pain and a little swelling appeared. If partial circumduction or abduction was performed one noticed a slight snapping. Pressure of the first metacarpal against the radius was not painful. A radiograph the same day showed a fracture through the middle of the scaphoid. When the hand is in adduction or abduction the two fragments can either go apart or approach each other in such a way that in the former there is a gap of 1 mm. between the fragments, and in the latter case an overlapping of 1 mm., as the distal fragment is pushed up over the proximal. The lateral view showed no such sliding of fragments, and no comminuted fragments were visible.

CONCLUSIONS.

Fracture of the carpal scaphoid in childhood or young adolescents is one of the rarest of injuries. The developmental conditions of bone about the wrist at these ages are probably largely responsible for this.

When children receive injuries to the wrist the possibility of this fracture must be thought of. Particularly is this true in cases where there is no tenderness over the lower end of the radius and ulna but pain and tenderness over the dorsum of the hand just distal to the lower end of the radius and in the snuff box. A marked swelling of the dorsum of the hand, stopping abruptly at the radius and ulna, which was present in my case, may be of considerable diagnostic importance. I have not found it mentioned elsewhere. A radiograph should always be taken of these injuries and the scaphoid scanned searchingly for possible fracture.

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[1] Sobotta: Human Anatomy, 1906, vol. i, p. 91.
[2] Codman and Chase: Annals of Surgery, 1905, vol. 41, pp. 321, 863.
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Clinical Department.

AN UNUSUAL CASE OF FRACTURE OF THE PATELLA (TREATED BY IMMOBILIZATION.)

BY D. PEARCE PENHALLOW, M.D., BOSTON,

Former Resident Surgeon, East Boston Relief Station.

THE following case is reported in the hope that it may prove of interest in showing a type of fracture of the patella which is not commonly met with:—

D. M. Age 60. Freight handler, walked into the hospital on August 17, 1911, and stated that earlier in the day he had fallen down and injured his left knee. Had been walking about and working all day, but finally knee became so swollen and painful that he decided to have it examined.

Examination of his left knee showed a marked effusion in the joint. Patella floats on pressure, passive and active motions somewhat painful and slightly limited. Leg could be voluntarily flexed and extended to practically normal limits. Patella normal in contour and showed nothing abnormal except some tenderness on pressure. The diagnosis of a simple traumatic synovitis was made and the knee was immobilized.

On the following day the patient returned and stated that his knee was much more painful than

on the previous day, and that he had been unable to sleep on account of the pain. The knee was again examined and a marked difference in the conditions, as they had existed on the previous day, was noticed. The knee was considerably more swollen and tender, and the whole region about the joint, and for a considerable distance above and below, showed very marked ecchymosis. The patella was again examined carefully and showed no crepitus and no abnormal mobility. Patient still able to voluntarily extend leg to within about 20 degrees of complete extension, and during flexion and extension there was no apparent change in the contour of the patella. No sulcus could be made out, but over the midde of the patella a horizontal slightly elevated ridge, which resembled a thickened fold of bursa, could be felt. Over this area the patella was acutely sensitive. On account of the marked ecchymosis and the extreme sensitiveness of the patella it was thought that a greater injury than a synovitis might exist and a tentative diagnosis of sub-periosteal fracture of the patella was made. The knee was immobilized on a wooden ham splint, the patient given crutches and referred for an x-ray.

X-ray showed fracture through center of the patella without separation of the fragments. Line of fracture corresponds to the ridge felt on examination. (See plate.)



Operation deemed unnecessary on account of lack of separation. Knee immobilized by means of a plaster applied from ankle to mid-thigh. Plaster was kept on for three weeks, at the end of which time the swelling and ecchymosis had disappeared. At this time the plaster was removed and a ham splint applied so that patient was able to bend knee slightly, and two weeks later the splint was finally removed, and the knee supported by means of a flannel bandage. On October 1, 1911, there was no pain in the knee, motions free both in extension and flexion. Patient able to walk without discomfort. Further treatment was deemed unnecessary and patient was discharged.

This case was of especial interest as there was only a very slight loss in the power of extension and furthermore the patient was able to walk about and keep at work for nearly a whole day after injuring his knee.

Reports of Societies.

PHILADELPHIA COUNTY MEDICAL SOCIETY.

Meeting of Wednesday, May 28, 1913, at 8.30 P.M.

The President, Dr. Charles A. E. Codman, in the chair.

Dr. William L. Clark showed a case of epithelioma of the lip in a man 65 years of age which had been treated by desiccation, with no return of the growth in seventeen months.

THE GONOCOCCUS COMPLEMENT FIXATION TEST AND ANALYSIS OF RESULTS FROM ITS USE.

By Dr. B. A. Thomas and Dr. Robert H. Ivy. (Read by Dr. Thomas.)

Dr. B. A. Thomas: In recognition of the admirable work by Schwartz and McNeil on the complement fixation test in gonococcic infections, the fact must not be overlooked that Muller and Oppenheim in 1906 were the first to apply this reaction to a gonorrheal affection and consequently are entitled to the distinction of being termed the originators. The present popularity of this test has been the outgrowth of the suggestion imposed by Schwartz and McNeil,—namely: the employment of a polyvalent antigen.

Careful analysis of the gonococcus complement fixation test performed with the sera of the cases tabulated in our series would seem to justify the following assertions:

1. A positive reaction is invariably reliable and always denotes the presence of a focus of gonococcic infection.

2. A negative reaction frequently fails to determine the presence of disease, especially in the acute and subacute stage when limited to the urethra and never if confined to the anterior urethra or vagina alone.

3. In no alien non-gonorrheal infections or systemic disease has a positive reaction been obtained, the test, therefore, appearing absolutely specific.

4. A positive reaction has been found to be present in 21.05 per cent. of patients clinically cured.

5. Not infrequently positive reactions will be discovered in patients denying gonorrhea, either when suspicious lesions are presented or accidentally.

6. In only 9.09 per cent. of cases of acute and subacute antero-posterior urethritis, has the complement fixation test resulted positively. The earliest appearance of a positive reaction in a primary attack of posterior urethritis, without complication, occurred in the sixth week.

7. In a number of cases of chronic recurrent urethritis, with acute exacerbations, the test was invariably positive; many of these cases undoubtedly had prostatitis.

8. The reaction resulted positively in one-third of all cases of chronic posterior urethritis: undoubtedly many of these cases had a mild or low grade prostatitis.

9. In 52.08 per cent. of cases of chronic prostatitis a positive reaction was obtainable.

10. Two-thirds of all stricture cases demonstrated a positive test.

11. In epididymitis, a positive complement fixation test was observed in 87.5 per cent. of cases. If from our series, one case probably tuberculous, may be eliminated, and a time duration of five weeks can be imposed, the positive results in this form of disease has been 100 per cent.

12. In arthritis undoubtedly gonorrheal in character, positive reactions were obtained in 100 per cent. of cases.

13. In the diagnosis and differential diagnosis of pelvic disease in women, the gonococcus fixation test is destined, unquestionably, to play an important rôle. We have been unable to obtain any positive results in uncomplicated urethritis, vulvo-vaginitis and Bartholinitis, and it would appear that the infection must ascend at least to the level of the uterus in order to produce a positive blood response.

14. Inoculations of gonococcus bacterin, antigonococcic serum and gonorrheal phylacogen, may in themselves, by the production of immune bodies, be causes of positive reactions. How long these immunizing effects may endure is unknown, but we have observed patients, treated by immunotherapy, who one year later demonstrated negative complement fixation reactions.

15. Although the bacteriological demonstration of the gonococcus culturally is the only absolute method for its identification in chronic inflammatory processes, the method as a routine procedure is impractical and susceptible of many failures and fallacious results, so that the complement fixation test is not only less laborious, but productive of a higher percentage of positive findings.

16. Finally, we hope and trust that the complement fixation test in gonococcic infections, and the Wassermann reaction in syphilis, are demonstrating their reliability to the extent that they will be recognized as indispensable so soon as the judicial courts shall rule that each applicant for marriage licensure must produce a health certificate properly attested.

DR. H. M. CHRISTIAN: The value of this test will depend upon the results shown in chronic conditions.

SOME REMARKS ON THE PROPOSED LEGISLATION IN REGARD TO THE FEEBLE-MINDED IN THE STATE OF PENNSYLVANIA.

DR. J. NORMAN HENRY: Attention is called to the enormous expense entailed on the State in the support of those who for mental causes, many of which are hereditary, are unable to support themselves. The proposed legislation to confine feeble-minded women to institutions during their child-bearing life is a good plan but inadequate to meet the necessities. Men also should be restrained either physically or physiologically. Under ideal conditions of prevention of procreation of the feeble-minded the 80 per cent. of such people who are estimated to suffer from their vitiated inheritance might be done away with and a new impetus given to the study and cure of the remaining 20 per cent. who are apparently without hereditary taint.

DR. J. M. BALDY: The legislation proposed by Dr. Henry is unpopular at the present time. The only hope for it lies in the education of the public. When the community wants it, it will be secured.

DR. CHARLES W. BURR: I am quite as pessimistic as Dr. Baldy, and I also am old-fashioned enough to have a very great personal sympathy in opposition to any law that mutilates the human body. I, personally, am not in favor of asexualization; first, because I do not think it is good for the world at large to have mutilation of the body recorded as a common, ordinary, every-day thing that doctors may do without much being said of it; second, because no law of asexualization would be carried out with sufficient frequency to have any effect at all. In one of the Western States where such a law was passed, for about 18 months a great many imbeciles were asexualized. Then there was a dropping off and for the last nine months no one has been asexualized at all. I believe we can induce legislators to make homes for the imbecile. The dangerous person is often the nice looking boy whose mental power is far beyond his moral sense. Quite a percentage of the criminal class represents imbeciles of this type.

DR. WOODWARD: While the legislature did not agree as to the propriety of establishing institutions to take care of the feeble-minded, appropriations were made for the enlargement of those already established. What has puzzled me is that if we do have institutions for the feeble-minded how are we going to get them to enter? As a matter of fact we have no law in Pennsylvania for commitment against the will.

STATE CONTROL OF MEDICAL PRACTICE. ITS POSSIBILITIES AND ITS LIMITATIONS.

DR. MAX GOEPP: The paper is a brief historical review of legislation bearing on medical matters during colonial times.—Law in force at the present time in Pennsylvania and the several acts preceding it during the last thirty years.—The duties and powers of the Bureau of Medical Education and Licensure: to influence the general standard of practitioners through control of preliminary education; to influence and gradually improve the standard of technical efficiency through control of medical education and examinations for licensure; to revoke license to practice on proof of moral turpitude or habitual inebriety; and to exercise some control over special systems of practice by prosecution of persons not legally qualified to practice.—Impossibility of completely eradicating quackery.—Regulation of the financial status of medical practitioners desirable, but not feasible by legal means.

ACUTE PHLEGMONOUS CHOLECYSTITIS; REPORT OF A CASE WITH GANGRENOUS ENTERITIS.

DR. ALBERT E. ROUSSEL, M.D.: The extreme rarity of the conditions mentioned in the title, either alone, and more especially combined, prompts the recital of the facts of the case as we know them and the detailed findings at necropsy. Perusal of the literature reveals no absolutely similar cases. In the case here recorded there was sudden onset with symptoms of myocarditis, purpura hemorrhagica and gastritis with a very rapid course terminating within a few hours in death. No other case quoted in the paper showed evidence of myocarditis although in Eskridge's first case pericarditis and endocarditis were present, and in Salter's case endocarditis and symptoms of heart trouble were observed. Babcock showed a relationship between chronic cholecystitis and myocardial disease mentioning a definite case in his own experience,

but his case was not of a phlegmonous or gangrenous character. The purpuric spots mentioned in the case in this paper were not observed in any of the other cases. The autopsy findings were, briefly, emaciation, edema, purpuric spots, ulcerations of the lobes of the ears and tip of the nose, extensive gangrene of small intestine, extensive discoloration of the stomach and colon, cholecystitis with ulcerated areas, gray necrotic membrane, and one gall-stone, few areas of fat necrosis in the pancreas, cloudy swelling of the kidneys, pericardial effusion, healed nodule of tuberculosis in the right pleura, congestion of both lungs, active tuberculosis of the right lung, and ulceration of the stomach. In view of the extensive inflammation of the entire gastro-intestinal tract beginning with gastritis and gastric ulcer, passing into gangrene in the small intestine, and terminating in inflammation and discoloration in the colon, it is reasonable to presume that it was due to streptococcic infection that extended into the gall-bladder producing similar changes in that structure. We are encouraged in this view from the records of other observers who found streptococci in their cases. It may be presumed that a mixed infection in the tubercular right lung of our patient, aided by the crippled heart, permitted a generalized streptococcic infection of the gastrointestinal tract. It must be concluded that gangrenous cholecystitis may occur independently of impacted gall-stones or typhoid fever and may be secondary to a similar process in the intestinal tract. Also it must be admitted that gangrenous enteritis independent of obstruction, intussusception, or malignant disease may occur as the result of some virulent infection, probably streptococcic, and may extend into the gall-bladder by continuity of structure. Further such infection may gain access to the gastro-intestinal tract directly or indirectly from localized foci. That the several organs of the chest and abdomen must be below par for the culmination of this process must be acknowledged, since all of the cases enumerated showed more pronounced changes in the gall-bladder and intestines, the more disturbed were the other viscera. In the face of these facts the conditions must be regarded as a fatal disease.

Book Reviews.

Physical Diagnosis. By Richard C. Cabot, M.D., Assistant Professor of Medicine in Harvard University. Fifth edition. Revised and enlarged with 5 plates and 268 figures in the text. New York: William Wood and Company. 1912.

This work in its new edition deserves a continuation and an increase in its popularity. It is particularly adapted to the needs of the elementary student, but may be consulted with profit by all who desire a clear and forceful presentation of the subject. The directness and simplicity which characterize its descriptions and the success with which these are supplemented by the illustrations are conspicuous merits.

A System of Clinical Medicine Dealing with the Diagnosis, Prognosis and Treatment of Disease for Students and Practitioners. By Thomas Dixon Savill, M.D., London. Third edition. Thoroughly revised. New York: William Woods and Company. 1912.

This work is one which can be highly recommended both for its completeness in covering the subject of medical diseases and also for the success with which emphasis is given to the features of chief importance. In addition to description of definite diseases, much attention is devoted to the discussion of common symptoms and symptom-complexes not confined to single diseases but occurring in different conditions. These discussions add materially to the value of the work.

Differential Diagnosis. Presented through an Analysis of 385 Cases. By Richard C. Cabot, M.D., Assistant Professor of Clinical Medicine, Harvard University Medical School, Boston. Second edition. Revised. Profusely illustrated. Philadelphia and London: W. B. Saunders Company. 1912.

The appearance of a new edition so shortly following the first one is evidence that the worth of this volume has been appreciated. In form the second edition is almost a repetition of the first, except for the addition of two new cases. Those who have not had their attention called to this work or to the method of case teaching which it follows will profit by its examination. The preface promises the publication of a second volume dealing similarly with additional symptoms.

Treatment of Syphilis by the Ehrlich-Hata Remedy. A compilation of the published observations by Dr. Johannes Bresler, Chief Physician to the Provincial Medical Establishment at Lüben, Silesia. Second edition, much enlarged, with the portraits of Ehrlich and Schaudinn; translated by Dr. M. D. Eder, with an abstract of the most recent papers. London and New York: Rebman Limited. 1910.

A small book of 122 pages, being a compilation of the published observations of Dr. Johannes Bresler of Lüben, Silesia, is of value in the collection of statistics regarding the treatment of syphilis by the new methods. The book makes no pretence to completeness, and describes simply results hitherto obtained. Such publications no doubt have merely a temporary value, but as epitomies of progress they fill a place of usefulness. The translation is good.

Skin Grafting. For Surgeons and General Practitioners. By LEONARD FREEMAN, B.S., M.A., M.D., Professor of Surgery, Medical Department, University of Colorado; Surgeon to St. Joseph's Hospital, the National Jewish Hospital and the City Hospital, Denver, Colorado. With 24 illustrations. St. Louis: C. V. Mosby Company. 1912.

A small volume of 125 pages, containing an excellent outline of the history of skin grafting, and a very satisfactory consideration of the various methods and materials which are of use in this important division of minor surgery. The bibliography is extensive, and is found in footnotes at the bottom of the pages on which the authors' names are mentioned. The descriptions of technic are short, but complete, and the writer's opinions, based on both personal experience, and familiarity with original monographs, are sound and worthy of adoption. The book is strongly recommended to students and practitioners.

Guide to Midwifery. By DAVID BERRY HART, M.D., F.R.C.P.E.; Lecturer on Midwifery, School of the Royal Colleges, Edinburgh, etc. With four illustrations in color and 268 diagrams. 765 pages. New York: Rebman Company.

Hart has divided his book into two parts, the first a very readable account of the "necessary facts of obstetrics," the second notes and discussions on the more difficult points raised in the first part. In this second part is also a partial list of obstetric literature. The best point in the book is the author's directions at the end of each chapter for the practical work to be done in relation to the contents of the chapter. It is a valuable plan and one if carried out would be of the greatest aid to the student.

There is much to be commended in this book, but there are many statements contrary to the best obstetric thought of the day, and furthermore the author does not give the student a clean cut idea of the procedures to be taken. The book on the whole does not measure up to the standards of American obstetrics.

Health and Longevity Through Rational Diet. By DR. ARNOLD LORAND, Carlsbad. Philadelphia: F. A. Davis Company, 1912.

This volume of "practical hints in regard to food and the usefulness or harmful effects of the various articles of diet" grows directly out of the author's experience as a practicing Carlsbad bath physician. The essence of his theory about diet is that foods should be selected particularly with reference to the mineral salts which they contain and which are necessary for the several body functions. He inveighs, not without justice, against "unintelligent and brutal methods of cooking by which many important nutritive substances and salts are withdrawn from our foods." In his introduction to this American edition, Victor C. Vaughan states his belief that the chief purpose of the translation is to contribute to popular education on the subject of good food and dietetics. The author, in his terminal chapter, states that longevity is principally dependent on correct nutrition. "Anyone who is the offspring of healthy parents has it in his power to live to the age of 100, if he is temperate in eating and especially in drinking."

Safeguarding the Special Senses. General Advice Regarding the Use and Preservation of the Eyes, Ears, Nose and Throat. By HENRY O. REIK, M.D., formerly Associate in Ophthalmology and Otology in the Johns Hopkins Hospital, etc. 123 pages. Illustrated. Philadelphia: F. A. Davis Company. 1912.

Dr. Reik has undertaken a practical and useful task in presenting from the point of view of an expert certain facts regarding the special senses and the care of the organs subserving them. Such a book as this should find an especially useful place among the laity as well as in the profession. In fact, the simplicity of style is such that persons of small medical training would find it entirely understandable. As a means of prophylaxis of many common and at the outset trifling affections, the small volume should find an acceptable place. An index adds to its value.

Diseases of the Heart and Aorta. By ARTHUR DOUGLASS HIRSCHFELDER, M.D., Associate in Medicine, Johns Hopkins University. With an introductory note by Llewellys F. Barker, M.D., LL.D., Professor of Medicine, Johns Hopkins University. 737 pages, 334 illustrations by the author. Second edition. Philadelphia and London: J. B. Lippincott Company. 1912.

This volume deserves to rank as the standard book of reference on the subject of diseases of the heart in all of its recent developments. It is a systematic discussion of this subject in all of its branches, compiled with great care and attention to detail, including mention of practically all significant publications of recent years so summarized and explained by lucid expression and ingenious diagrams and illustrations that it can be recommended to all who are un-

familiar with modern teachings in this department of medicine who desire a comprehensive statement of our present knowledge.

Wheeler's Handbook of Medicine. By WILLIAM R. JACK, B.Sc., M.D., F.R.F.P.S.G., Assistant Physician to the Western Infirmary of Glasgow. Fourth edition; 532 pages. New York: William Wood and Company. 1912.

This small volume may be highly commended as a condensed statement of the essentials of internal medicine, which is at the same time sufficiently comprehensive to serve as a text-book for students and as a means of rapid review for physicians.

Surgery and Disease of the Mouth and Jaws. A Practical Treatise on the Surgery and Diseases of the Mouth and Allied Structures. By VILROY PAPIN BLAIR, A.M., M.D., Professor of Oral Surgery in the Washington University Dental School, and Associate in Surgery in the Washington University Medical School. St Louis: C. V. Mosby Company. 1912.

Here is a volume of about 600 pages, well illustrated with nearly 400 pictures, almost all of which have been made directly from subjects or patients. It is the most satisfactory book dealing with this subdivision of surgery, that the reviewer has seen. Upon the important subjects of malignant disease of lip and tongue its advice is sound; tumors are adequately treated, and congenital defects of lips, jaws and palate are discussed in a manner at once convincing and interesting. The author shows an admirable grasp of his subject, and brings to the treatment of anomalies and disease of mouth and jaws the fundamental and indisputable principles of general surgery.

Bovine Tuberculosis and Its Control. By VERENUS ALVA MOORE, M.D., V.M.D., Ithaca, N. Y., Carpenter and Company.

In a short book, excellently printed on good paper, Dr. Moore presents a discussion on the subject of bovine tuberculosis, which is of distinct interest and value, not only to veterinary medicine, but to every physician as well as to those concerned with cattle and milk production in any way.

His chapter on the history of tuberculosis in cattle is of the greatest interest. His remarks on the distribution, economic and sanitary importance, and the causes of this condition are clear and sound. He speaks briefly and yet adequately on the methods of dissemination of tuberculin, and its use in diagnosis, the immunization of cattle, and the control of bovine tuberculosis.

In an appendix he gives the report of the International Commission on the Control of Bovine Tuberculosis, along with other reports on the same subject. There are 30 excellent plates showing pathological conditions in the different organs. There is an elaborate list of the more important references. The book is of distinct value and help.

A Handbook on Surgery. Intended for Dental and Junior Medical Students. By ARTHUR S. UNDERWOOD, M.R.C.S., (Eng.), L.D.S (Eng.), Late Examiner Royal College of S[illegible]geons (Eng.), etc.; and BAYFORD UNDERW[illegible] M.B., B.S. (Lond.), L.R.C.P., M.[illegible] (Eng.). New York: William Wood an[illegible] pany. 1913.

Using freely standard text-books, e[illegible] anesthesia, but including the eye, nose [illegible], the authors have condensed into 250 [illegible]es many of the essential facts of surg[illegible]cept that the text is not arranged in the [illegible] questions and answers, the book recall[illegible] of the many American quiz comp[illegible]s better made, better printed and m[illegible] efficiently written. In the preface the au[illegible]s say "they have also hoped that a clearly written elementary treatise might not be unwelcomed by the general student as an introduction to the study of surgery," though the original plan of the book was "from the point of view of the requirements of the dental license" (England).

The book is small, its statements positive, its style direct and effective; the text contains many dogmatic statements, of the authors and of other surgeons. For instance, "When you feel inclined to diagnose acute rheumatism in a child, *Don't*"; "An acute inflammatory affection of a single joint in a young man, where there is no history of injury, is gonorrheal arthritis." Theory is omitted wherever possible; facts are stated without qualification. The volume is a very good example of a very small handbook of a very large subject.

Surgical After-Treatment. A Manual of the Conduct of Surgical Convalescence. By L. R. G. CRANDON, A.M., M.D.; and ALBERT EHRENFRIED, A.B., M.D. Second edition: thoroughly revised; with 265 original illustrations. Philadelphia and London: W. B. Saunders Company. 1912.

A noted surgeon was reported to have said some years ago, that he cared not who might be in charge of the convalescence of his patients, provided he himself had done the operation. Such a remark suggests the great distance we

have travelled in the last few years in relation to the patient's comfort—apart from the patient's safety.

The second edition of Crandon's book "has been largely recast; some chapters have been entirely rewritten, and others nearly so; several illustrations have been replaced by better ones, and many new ones have been added."

As was stated in the original preface, the book is intended for house surgeons, and general practitioners, and "every procedure has stood the test of practice, and will safely do for the reader until, from his own experience, he develops his own methods." The volume contains a little more than 800 pages. Its arrangement, type, and general character of bookmaking continue at the high level set in the first edition. Though only two years have elapsed, very many changes and alterations have been necessary to keep abreast of the constant advances in surgery. This second edition is an admirable piece of work,—concise, accurate, modern and complete. It is a credit both to its writers, to the hospital from which both writers have graduated and to which both are now attached as assistant surgeons, and to the city of Boston.

The Blood. A Guide to Its Examination and to the Diagnosis and Treatment of Its Diseases. By G. LOVELL GULLAND, M.A., B.Sc., M.D., and to the Royal Victoria Hospital for Consumption, etc., Edinburgh; and ALEXANDER GOODALL, M.D., F.R.C.P.E., Lecturer on Physiology and on Practical Medicine at Surgeon's Hall, and on Diseases of the Blood in the Edinburgh Post-Graduate Courses in Medicine, etc. With 16 text illustrations and 16 colored plates. New York: E. B. Treat & Company. 1912.

In this volume of 344 pages including the index, the authors have attempted with success to give a record of their experience in disorders of the blood, modified and enlarged by the investigations of others. The first part is taken up with methods of examination and in this those methods are emphasized which have proved practically useful to the writers. In part second the formed elements of the blood are discussed, together with certain facts regarding the blood at different ages and the sources of the blood cells. The third part concerns the diseases of the blood, bone marrow and lymphoid tissues, and the fourth the blood in special diseases other than those of the blood-forming organs themselves. The final section is devoted to a discussion of diseases due to animal parasites. The book is written in a systematic and concise form and contains a vast amount of information connected with the blood and its diseases. The references to the literature on the subject are numerous but naturally incomplete, an inevitable consequence of the extended research and publication which has been going on during the past two decades. The illustrations are on the whole well executed and should serve as an easy means of identification of the actual blood pictures as seen under the microscope. There is a short description of the case from which each plate was drawn, which adds to its value. The text, with illustrations and the printing are each of them good. No attempt is made to cover the field completely, but as an aid in illustrating the subject the book fulfils its purpose well.

Tuberculin in Diagnosis and Treatment. By FRANCIS MARION POTTENGER, A.M., M.D., LL.D., Medical Director of the Pottenger Sanatorium for Diseases of the Lungs and Throat, Monrovia, California. St. Louis, Mo.: The C. V. Mosby Company.

In the short book of twelve chapters and an appendix, Pottenger takes up the subject of tuberculin in diagnosis and treatment. That the author is an enthusiastic believer in tuberculin is very evident; the general trend of medical opinion would not entirely support all of his claims as to the efficacy of this agent in diagnosis and treatment. In his first chapter on tuberculin in early diagnosis, he urges against waiting for a positive sputum and emphasizes the dangers of latent tuberculosis. In the second chapter, again he deplores the fact that "the attitude of the medical profession toward the tuberculous patient has been one of delay, indefiteness, and indecision throughout. The positive attitude, strange to say, has often been on the side of withholding measures of diagnostic, therapeutic, and preventive merit." These are strong words, but are unfortunately only too true. The writer's description of the methods of giving the various tests, technic, dangers and advantages are clear and concise. The tendency is rather to dwell too much on the bright side of tuberculin. The book is not overloaded with references and statistics, and those which are given are presented in a fashion which makes them easy to understand.

The chapters on treatment contain an interesting discussion of the complex question as to exactly how tuberculin acts in the body, which is put in language clear even to those not familiar with the complex phraseology of the subject

The appendix contains translations of Koch's original articles on the subject of tuberculin; these should prove of the greatest interest and value to all practitioners.

On the whole, the tone of the book is sane and sound, and it is a welcome addition to the literature on the subject. Running through the entire book is a plea for the early diagnosis and treatment of this disease. This alone makes the book of distinct value.

A Clinical System of Tuberculosis Describing All Forms of the Disease. By Dr. B. Bandelier and Dr. O. Roepke. Translated from the second German edition by J. Bertram Hunt, M.D. New York: William Wood and Company.

This on the whole is a very satisfactory book, despite the fact that it is a translation and that as such it suffers when compared with the original. The reviewer is not a believer in the idea that such an immense subject as tuberculosis can be adequately treated in one volume. Either certain phases are neglected or else the book is too large and unwieldy. The present volume is one of the type which weighs five pounds, contains 500 pages and costs five dollars; as a matter of fact it weighs a little over three pounds, contains 526 pages and costs six dollars. The translator calls attention to some of these points.

The volume contains many excellent plates and illustrations. The description of the various laboratory tests and methods is clear and easy to follow. The remarks on treatment are practical in that actual details and not vague generalities are given. The chapters are conveniently subdivided into paragraphs, each with a separate heading in heavy type, while marginal annotations make it still easier to look up any given point.

Almost one-half of the book is devoted to tuberculosis of lungs and pleura. The remarks as to the value of sanatoria, tuberculin, etc., are very sound; the early diagnosis seems rather neglected. Not enough space is devoted to tuberculosis in childhood, nor is sufficient attention paid to the subject of tuberculous bronchial glands. There is an excellent article on hemorrhage from the lungs and another on tuberculous enteritis.

With the exceptions mentioned above, the book is an excellent one and a distinct addition to the literature in English on this subject.

Principles and Practice of Obstetrics. By Joseph B. DeLee, M.D., Professor of Obstetrics in the Northwestern University Medical School, Chicago. Large octavo; 1060 pages, with 913 illustrations, 150 in colors. Philadelphia: W. B. Saunders Company.

The author has divided his book into three main divisions,—the physiology of pregnancy, labor and the puerperium, the pathology of these conditions, and third, operative obstetrics. The book is a most excellent exposition on obstetrics. The author's painstaking, clear descriptions, his attention to minute details make his book on the whole an excellent standard. The reviewer does not agree with him in many of his points in technic, but as many are personal points it is not necessary to mention them all.

One hesitates to criticize any procedure calculated to reduce puerperal infection, but is it necessary, or even advisable, to follow the author's advice to sponge the patient's body with corrosive sublimate solution 1:5000 from ensiform to knees? (p. 276) Figure 310 is a photograph showing the position of a patient for delivery on the side. In the reviewer's opinion it is totally wrong, for the patient's back should be at right angles with the length of the bed, with the buttocks well on the edge, not as the author has it pictured. The author's advice to deliver patients on the side with the obstetrician seated on the bed with his arm between the patient's legs is to the reviewer a very unclean way to carry out the delivery.

The author's fondness for doing episiotomy is well known. His reasons for doing it never were convincing and are not in the present work. He states in primiparous deliveries with forceps he seldom delivers without first doing an episiotomy. (p. 972.) In transverse presentations he advises that a cephalic version be done, the head brought down into the pelvis by forceps, *and the case left to nature.* (p. 624.) Also he advises the same procedure after a prolapsed cord is replaced (p. 632). This advice is questionable and if followed literally, poor results will be obtained. The author states (p. 600) that the majority of face presentations terminate spontaneously, happily for the mother and babe, yet takes a decidely pessimistic attitude on the outcome of occipito-posterior positions. Perhaps the reason for this latter stand is his condemnation of the Scanzoni manoeuvre, which so many obstetricians approve. The chapters on hemorrhage of all kinds and sepsis are by far the best in the book and all students and many obstetricians will profit greatly by reading them. Why, in the chapters on the toxemias of pregnancy, he has omitted to mention the blood pressure work that has recently been done, it is hard to understand, for at the present time careful blood pressure takings are the best guides to an impending toxemia that we have. The psychoses in the puerperium he has scarcely mentioned; in future editions this subject should be adequately dealt with. The section on operative obstetrics, especially forceps and breech presentations, is inadequate.

With all these criticisms the book is, however, a welcome addition to our text-books. At the end of each chapter the author has given a short but valuable bibliography. The book is well printed and bound and remarkably free from typographical errors. The illustrations are many and for the most part original and help the text wonderfully. It is to be regretted that in all the pictures of operative procedures the author did not have gloves on his hands. Comparatively few physicians will appreciate the fact that the author did not wear them for artistic reasons.

THE BOSTON

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CASUALTIES OF JULY FOURTH.

THE effort begun several years ago to make of Independence Day a festival of patriotism unaccompanied by unnecessary death has apparently in great measure been successful. More stringent laws, popular education regarding the danger of certain toys and a direction of attention to other forms of amusement have combined to bring about this result. Although, no doubt, final results cannot as yet be stated, it appears from statistics compiled immediately after July 4th that but 16 persons in the entire country died as a result of accident from fireworks or other explosives, with between 800 and 900 injured more or less seriously. A published report of the comparison in deaths and injuries between the year 1908 and 1913 is of more than passing interest. In 1913, 113 persons were injured in Philadelphia and none killed, whereas in 1908 two were killed and 256 injured. In New York eight were injured this year as against 28 on the earlier date, with six deaths. This year New York had no deaths, and in fact in nine of the larger cities, including Chicago and Washington, but one person was killed and that one happens to have been in Boston. In 1908 according to these statistics 25 were killed and the number of injured was likewise greatly in excess of this year. This is certainly a very gratifying showing and demonstrates beyond question the possibility, through law and sane regulations, of providing a day of interest, but practically without danger. As compared with drowning, automobile, and nowadays aeroplane accidents, the figures given this year are almost negligible. Under the caption, "The World Grows Better" a recent number of *Collier's* prints the following facts and comments:—

For the three years ending with 1909, New York City yielded 1339 killed and injured by reason of fireworks—more than the combined American casualties in the Revolutionary battles of Lexington, Bunker Hill, Fort Moultrie, White Plains, Fort Washington, Monmouth and Cowpens combined— and these losses of ours were not among fighting men, but among youths and maidens, almost all under eighteen, and children, the sufferings of many of whom have been the most awful and pitiable known to medical science. Ten years ago there were 466 deaths (more than 400 of them lockjaw—tetanus) and 3983 wounded; for 1909, 5307 dead and injured. The 1909 Fourth was on Sunday, so that the shooting, the uproar, and the shouting did not die until three days had passed. In 1910 the casualties were 2923; in 1911, 57 dead and 1546 wounded; in 1912, 41 killed and 947 wounded. In Illinois the casualties last year were 39, as against 546 in 1909; in penitent Massachusetts there were 45, as against 430 in 1909. Even in Pennsylvania, which has had the largest number of casualties for each of the last five years, there has been marked improvement, evidently the result of a powerful campaign in that state, and especially in Philadelphia, for more enlightened celebrations. Who will dare say that patriotism is lacking in Alabama, Florida, New Mexico, the Carolinas, South Dakota and Maine, yet in these states absolutely no casualties whatever have been recorded! Baltimore was, it would seem, the pioneer city in the agitation which has resulted so beneficently, with her ordinance that "no person shall cast, throw, or fire any squib, rocket, cracker, torpedo, grenade, or other combustible or explosive preparation within the city." Denver, Detroit, Minneapolis, St. Paul, Louisville and Omaha soon fell into line, and the honor roll is likely soon to become inclusive of pretty much every municipality in the land. In other years hospital lists of casualties came back filled; last year they were returned with but few names or with a legend like this, "No cases this year; this city has had a sane Fourth."

THE GETTYSBURG CELEBRATION.

THERE is certainly cause for congratulation that the celebration of the Battle of Gettysburg recently held should have resulted in but nine deaths directly attributable to the celebration week. When one considers that nearly 50,000 men, ranging in age from sixty-five to one hun-

dred years, should have been gathered together under conditions of great heat, in tents, and with none of the comforts which age usually demands, it seems almost incredible that the mortality should have been so slight. Credit should be placed where it belongs and this, no doubt, lies with the general management of the encampment and especially with the medical corps upon whom the responsibility of its hygiene depended. In the ordinary course of events it would not be surprising if, during a period of a week under excessive heat a dozen out of 50,000 men should die. It is, therefore, the more remarkable that no greater mortality resulted from what seemed a foolhardy exposure in a body of such aged men. No doubt those concerned with the management of the celebration learned much from the practical experience of camp sanitation under such conditions, and it should prove an object lesson as to the management of camps in times of war. It is not pleasant to contrast the result of the Gettysburg encampment with the pitiful conditions during the late Spanish war. That such efficiency is possible in times of peace makes one hopeful that in the more strenuous time of war, should such occur, an approximation, at least, to such results may and should be attained.

THREE ENGLISH MEDICAL MEETINGS.

During the coming month three important medical meetings are to take place in England.

The first is the eighty-first annual meeting of the British Medical Association, which will be held at Brighton, Sussex, from July 18 to 26, inclusive. The representative meeting will occupy the first two days, the third being Sunday. On the evening of Tuesday, July 22, the annual address will be delivered by the president-elect, Dr. W. Ainslie Hollis, consulting physician to the Sussex County Hospital. The remaining days of the meeting will be devoted to the sessions of the fifteen sections.

The second important meeting is an English-speaking conference on infant mortality, to be held by the National Association for the Prevention of Infant Mortality, and for the Welfare of Infancy, at Caxton Hall, Westminster, London, on Aug. 4 and 5, under the presidency of the Rt. Hon. John Burns, chairman of the Local Government Board.

"The conference will be held in two sections—administrative and medical—which will sit simultaneously. The provisional programme of subjects to be discussed is as follows: Administrative section—Aug. 4, the responsibility of central and local authorities in the matter of infant and child hygiene; Aug. 5, the administrative control of the milk supply. Medical section—Aug. 4 (morning session), the necessity for special education in infant hygiene, and (afternoon session) medical milk problems; Aug. 5, antenatal hygiene."

The third and most important meeting is that of the Seventeenth International Congress of Medicine, which will be held in London from Aug. 6 to 12.

"The last meeting of the congress in London took place in 1881, when Sir James Paget was president. This year the president is Sir Thomas Barlow, and the treasurers are Sir Dyce Duckworth and Mr. Makins. Sir Alfred Pearce Gould is chairman of the executive committee, Sir Henry Morris chairman of the Finance Committee, and Sir Lauder Brunton chairman of the reception committee.

"The central office of the Congress will be in the Albert Hall. The sectional meetings will be held in rooms in the University of London, the Imperial College, the Royal School of Science, the School of Art, and the Central Technical College. These bodies have generously placed their buildings, which are all close together in South Kensington, at the disposal of the Congress. The Royal College of Physicians, the Royal Society of Medicine, St. Thomas's Hospital, the Royal Army Medical College at Millbank, and the Royal Dental Hospital are also offering accommodation for sectional meetings.

"There are in all twenty-six sections and subsections. Their sessions will be held in the morning and in the afternoon. The morning sessions will be devoted to discussions on fixed subjects, which will be introduced by eminent medical men from every part of the world, who have been invited for the purpose. The invitations have been very generally accepted, and there seems no doubt that the discussions will be of great interest and importance.

"Five general addresses have been arranged. These will be delivered by Professor Chauffard (Medicine), Professor Harvey Cushing (Surgery), Professor Ehrlich (Pathology), Mr. W. Bateson (Heredity), and the Right Hon. John Burns, M.P., president of the Local Government Board (Public Health). They will be delivered in the Albert Hall."

The title of Dr. Cushing's address in surgery on Aug. 12 will be "The Treatment of Tumors of the Brain and the Indications for Operation."

"Other Boston men who are to speak include: Prof. Otto Folin, Dr. R. W. Lovett, Dr. J. L.

Goodale, Dr. Clarence J. Blake and Dr. Harold Williams.

"Prof. Folin will speak on "Clinical Application of Pathological Chemistry," on Aug. 9; Dr. Lovett on "The Treatment of Scoliosis," on Aug. 8; Dr. Goodale on "Indications for and Relative Values of Tonsillotomy and Tonsillectomy," on Aug. 9. Dr. Blake will speak on Aug. 12 on "Climatic and Occupational Influences in Diseases of the Ear." Dr. Williams, the remaining Boston speaker, on "Dental Diseases in Relation to Public Health."

The Congress, at which an attendance of about 5000 physicians is expected, is in charge of a large central committee, by which executive committees for other countries have been appointed.

"The executive committee for the United States consists of the following: William S. Thayer, M.D., president, Baltimore (succeeding Dr. J. H. Musser, deceased); Alfred Reginald Allen, M.D., secretary, Philadelphia; Frank Billings, M.D., Chicago; William T. Councilman, M.D., Boston; George W. Crile, M.D., Cleveland, Ohio; John B. Elliott, M.D., New Orleans; J. Marshall Flint, M.D., New Haven, Conn.; Albion W. Hewlett, M.D., Ann Arbor, Mich.; Abraham Jacobi, M.D., New York; Theodore C. Janeway, M.D., New York; Lawrence Litchfield, M.D., Pittsburg; Herbert C. Moffitt, M.D., San Francisco."

In connection with the Congress there has been arranged a travel study tour of American physicians which sailed from New York on July 3.

"About 75 physicians will participate in this tour, the chairman of which is Dr. W. B. De Garmo of New York; secretary, Dr. Richard Kovacs, 236 East 69th Street, New York. In cooperation with the International Committee for Postgraduate Medical Education, arrangements have been made for visiting clinics and hospitals at Paris, Munich, Vienna, Berlin, Dresden, Cologne and Brussels, and to inspect the health resorts of Carlsbad, Marienbad, Nauheim, Wiesbaden and Hamburg. The party will finally attend the International Congress of Medicine."

In conjunction with the Congress three important medical prizes will be awarded:—

"(1) The prix de Moscou, instituted in commemoration of the Twelfth International Congress, value 5000 francs, for the best work on medicine or hygiene, or for eminent services rendered to suffering humanity; (2) the prix de Paris, commemorating the Thirteenth International Congress, value 4000 francs, for a single discovery, or for a collection of original works, not dating farther back than ten years, and relating to medicine, surgery, obstetrics, or the anatomical or biological sciences in their applications to medicine; (3) the prix de Hongrie, commemorating the Sixteenth International Congress, value 3000 crowns, for a work in the domain of the medical sciences, which has appeared in the interval between the two congresses."

In another column of this issue of the JOURNAL is published an account of the museum to be open during the Congress.

The meetings of this Congress should be of considerable scientific interest and importance, and further reports of them will appear in the JOURNAL during the summer.

MEDICAL NOTES.

SPOTTED FEVER IN WYOMING.—Report from Cheyenne, Wyo., on June 16 announced that during the preceding fortnight there were in that state three deaths of Rocky Mountain spotted fever.

ROYAL SANITARY INSTITUTE.—The annual meeting of the British Royal Sanitary Institute is being held at Exeter, Devonshire, during the current week, from July 7 to 12.

BIRTH OF A SPANISH PRINCE.—Report from Madrid on June 23 announced the recent birth of her sixth child and fourth son to the Queen of Spain. The weight of the infant prince was not stated.

ATTITUDE TOWARD FRIEDMANN IN BERLIN.—It is reported that the Berlin Medical Society has taken definite action regarding further investigation of his so-called turtle serum for tuberculosis. A request from Dr. Friedmann's associate that the society appoint a committee to test the alleged tuberculosis remedy, after being exhaustively debated, was denied through a vote of the members by a large majority. The president in announcing the result of the vote, made the following statement:—

"If Dr. Friedmann really desires a test of his remedy he can have it whenever he shows a willingness to place his serum at the disposal of our hospitals and physicians."

MARRIAGE AND CRIME.—Figures recently compiled in the district attorney's office in New York appear to show that more crimes are committed by unmarried men than by those who are married. The same applies to women. With regard to suicide, in 1912 three times as many married men made an attempt as unmarried.

Extending over nine years, the figures show between 7000 and 8000 convictions of married men for various sorts of crime, as contrasted with upward of 18,000 in unmarried men. It is also noted that there is a gradual increase of crime among young men.

A Living Centenarian.—It is reported that Daniel Turner, a veteran of the Civil War, has celebrated his 107th birthday. His extraordinary longevity he attributes to the fact that he never married.

BOSTON AND NEW ENGLAND.

Appointment of Dr. B. L. Arms.—Dr. B. L. Arms, formerly director of the bacteriological laboratory of the Boston Board of Health, has accepted a similar position with the Oregon State Board of Health and will soon assume his duties as director of its laboratory at Portland.

A School Campaign Against Pests.—A new department of public health has been organized at the Farm and Trade School on Thompson's Island, Boston Harbor, where the boys have begun a systematic campaign against flies, mosquitoes and other pests. It is stated that this school is a pioneer in organizing such a department after the manner of municipal health boards. This school was the first also to teach manual training to small boys, to organize a municipal government with the necessary officials and to teach practical meteorology.

Randidge Fund Excursions.—A charity of much hygienic significance has been instituted for the months of July and August in Boston as heretofore for many years. Forty-six excursions to one of the islands in Boston Harbor have been planned, which will give an outing to approximately fifteen thousand children. The entire day is taken for these excursions and amusements of various sorts provided for the children on their arrival at Bumpkin Island, where the outings are held.

Infectious Diseases in Boston.—Cases of infectious diseases reported to the Boston Board of Health for the week ending July 8, 1913: Diphtheria, 32, of which 4 were non-residents; scarlatina, 13, of which 1 was non-resident; typhoid fever, 5; measles, 86; tuberculosis, 52, of which 1 was non-resident.

The death-rate of the reported deaths for the week was 13.05.

NEW YORK NOTES.

Automobile Fatalities. — The National Highways Protective Society reports that in the month of June the fatalities from automobile accidents in New York City for the first time since 1910 did not show an increase over those of the preceding month. The total number of persons killed by automobile was 20 (of whom 13 were children), as against 23 in May and 26 in June, 1912. Colonel Cornell, the president of the society, expresses the opinion that the decrease in motor-car accidents is due to a new city automobile ordinance, and to the affirmation of the constitutionality of that part of what is known as the Callan law, providing a separate penalty for drivers who run away after an accident. In the state, outside of New York City, 15 persons were killed by motor vehicles in the month of June.

Conviction for Illegal Sale of Opium.—A regular practitioner of medicine in New York and a graduate of a reputable medical school, has been sentenced to a term of two years in the Atlanta prison and to pay a fine of $3,000, having been found guilty, in the Federal District Court, of using the mails in violation of the law prohibiting the sale of cocaine and of engaging in the manufacture and sale of opium for smoking.

Mortality Statistics.—The weekly reports of the Health Department show that the mortality in the city in the month of June represented an annual death-rate of 12.87, as against 14.49 in May and 12.55 in June, 1912. Though the rate for the month as a whole was very slightly higher than in June of last year, it is noteworthy that in the week ending June 28 there was recorded the lowest weekly death-rate that the city has ever experienced, 11.48. The next lowest record, 11.59, was in the week ending Nov. 2, 1912. Among the diseases in which there was a diminished fatality were the following: The weekly average of deaths from measles declined from 27.5 in May to 20.25 in June; the weekly average from scarlet fever, from 15.75 to 12.75; from diphtheria and croup, from 32.25 to 31.50; from influenza, from 4.75 to 2; from pulmonary tuberculosis, from 188.5

to 155.5; from acute bronchitis, from 18 to 10.5; from pneumonia, from 107 to 77.25; from broncho-pneumonia, from 109 to 86.5; from tuberculous meningitis, from 18.5 to 14.5; from cancer, from 81.75 to 79.25; from apoplexy and softening of the brain, from 19.75 to 16.5; from organic heart diseases, from 191.75 to 178.75; from appendicitis and typhilitis, from 15.5 to 14.5; from cirrhosis of the liver, from 20.75 to 14.75; from Bright's disease and acute nephritis, from 109.25 to 95.5; and from puerperal diseases, from 13 to 11.75. Among a very few diseases there was a slight increase in mortality. Thus the weekly average of deaths from diarrheal diseases under five years increased from 38.75 to 45; from typhoid fever, from 2.5 to 3.25; and from epidemic cerebro spinal meningitis, from 3.5 to 4. The death-rate for the first 26 weeks of the year was 15.04, as against 15.06 for the first half of 1812.

TYPHOID FEVER.—From January 1 to June 15, 1913, the cases of typhoid fever in the city were fewer in number than during the corresponding period for many years. In 1912 the total number of cases was greatly below that of previous years, and it seems likely that the record of 1913 will be even better. The reported cases this year up to June 15 numbered 419, as against 809 in 1912 and a five year average of 729.8. As about 25% of all cases of typhoid in New York City are contracted in the country, and every autumn the large number of returning vacationists contribute heavily to the seasonal increase of the disease, the Health Department again urges vacationists to avail themselves of the protection afforded by typhoid immunization. The department now has on record 900 immunizations performed since Jan. 1 of this year, and in its experience the few persons injected who have subsequently been attacked by the disease were already infected at the time the injections were made. As it was, none of these cases exhibited the severity of the average case of typhoid fever, while, on the other hand, numerous instances have occurred where immunization was declined, and the disease was later contracted in its worst form.

PROSECUTION FOR USE OF SACCHARIN.—Recently the City Health Department prosecuted successfully, in the Court of Special Sessions, its first group of cases involving the use of saccharin in foods. As long ago as August, 1911, the Board of Health adopted a resolution declaring that food or food products containing saccharin should thereafter be deemed adulterated. This action followed the promulgation of the decision by the Secretary of Agriculture which declared that on and after Jan. 1, 1912, foods containing saccharin would be regarded as adulterated, under the Food and Drug Act. It is only lately, however, that prosecutions have been pressed for violations of this addition to the Sanitary Code.

Current Literature.

MEDICAL RECORD.

JUNE 28, 1913.

1. *HUNT, E. L. *Sciatica and Its Treatment.*
2. FISCHER, C. S. *Dietetic Habit and Gastric Function.*
3. WILE, I. S. *The Economic Importance of Speech Defects.*
4. BANDLER, S. W. *The Importance and Value of the Inverted T-Incision in Vaginal Surgery.*
5. DEWOLF, H. *Some Remarks on Bronchial or True Asthma.*
6. BASHORE, H. B. *Scientific Sanitation in Rural Health Work.*
7. BERNSTEIN, E. P. *A Case of Trichinosis with Autopsy.*
8. HORWITT, S. *Report of a Case of Complete Transposition of the Viscera.*

1. Hunt writes an interesting paper on sciatica and its treatment. He groups the causes of sciatica under four headings, as follows: (1) intrapelvic disease—exudates within the pelvis, venous congestion, pressure from new growth or pregnant uterus or a full rectum; (2) constitutional states—syphilis, gout, rheumatism, diabetes, typhoid fever, sepsis, gonococcus infection, chronic intestinal autointoxication, lead, arsenic and alcohol poisoning; (3) damage to the nerve trunk resulting from injury, fracture, inflammation or exposure; (4) damage to the sacro-iliac joint—sprain or relaxation. The following points are valuable in distinguishing a pathologic condition of the sacro-iliac joint from sciatica: (1) stooping forward causes pain in the joint with reflex spasm of the adductors; (2) flexion of the thigh upon the hip with the knee bent causes pain in the joint as well as along the course of the nerve; (3) there is tenderness and limited movement of the joint. [L. D. C.]

NEW YORK MEDICAL JOURNAL.

JUNE 28, 1913.

1. HARTWELL, J. A. *General Principles of the Surgical Treatment of Cancer.*
2. TURCK, R. C. *The Treatment of Infected and Ununited Fracture of the Shaft of the Femur.*
3. WHITALL, J. D. *Surgical Luck.*
4. FITZGERALD, J. G. *Preventive Medicine in Relation to Psychiatry.*
5. BARNES, F. M., JR. *Hallucinations in Paresis.*
6. SMART, L. G. *Management and Treatment of Functional Nervous Conditions.*
7. BARLOW, A. *What Is Sleep?*

8. Cunningham, W. P. *Eczema Decedens.*
9. Farr, C. B., and Glenn, R. A. *Myomas of the Stomach, with Report of a Case Terminating Fatally by Hemorrhage.*
10. Heller, J. S. *Teething in Children.*

[L. D. C.]

The Journal of the American Medical Association.

June 28, 1913.

1. Sewall, H. *The Auscultatory Determination of Early Pathologic Changes in the Lungs.*
2. Hamilton, F. A. *Osteomyelitis with Bone Transplantation.*
3. Bates, U. C. *New Operation for the Cure of Indirect Inguinal Hernia.*
4. Tunnicliff, R. *An Anaerobic Organism Associated with Acute Rhinitis.*
5. Coston, H. R. *An Analysis of Seven Hundred Cases of Labor.*
6. Montgomery, D. W. *An Instance of Unusual Sensitiveness to Resorcin.*
7. Street, J. P. *Diabetic Foods Offered for Sale in the United States.*
8. Osborne, O. T. *The Absurdities and the Commercialism of the Proposed Ninth Decennial Revision of the United States Pharmacopeia.*
9. Goff, A. P. *Bubonic Plague in Manila.*
10. Green, L. D., and Green, A. S. *A New Tonsil-Snare.*
11. Stevenson, M. D. *New Tonsil Clamps.*
12. Lurie, W. A. *Collection of Urine from Female Babies.*
13. Gradle, H. S. *New Scleral Trephine.*

Surgery, Gynecology and Obstetrics.

June, 1913.

1. *Goldthwait, J. E. *Orthopedic Principles in the Treatment of Abdominal Visceroptosis and Chronic Intestinal Stasis.*
2. *Halpenny, J. *The Thyroid and Parathyroid Problem.*
3. Lane, W. A. *Chronic Intestinal Stasis.*
4. Benedict, A. L. *Bibliography of Chylous Cysts of the Mesentery.*
5. Brown, J. Y. *The Value of Complete Physiological Rest of the Large Bowel in the Treatment of Certain Ulcerative and Obstructive Lesions of This Organ.*
6. Torek, F. *The First Successful Case of Resection of the Thoracic Portion of the Esophagus for Carcinoma.*
7. Moore, J. E. *Prostatectomy; with Special Reference to the Sequels.*
8. Prince, E. M. *Nitrous Oxide and Oxygen Anesthesia.*
9. *Crile, G. W. *Anesthesia and Anoci-Association.*
10. *Jones, W. C. *Inversion of the Uterus; with Report of a Case Occurring During the Puerperium and Caused by a Fibroid.*
11. Bell, W. B. *The Pathology of Uterine Casts Passed During Menstruation.*
12. Drummond, H. *Notes of Cases Illustrating Some of the Surgical Aspects of Persistent Meckel's Diverticulum.*
13. *Borchgrevink, O. J. *Acute Dilatation of the Stomach and Its Treatment.*
14. Lynch, F. W. *Cervical Decidua.*
15. Cotton, F. J., and Loder, H. B. *The Fate of Bone Grafts.*

1. Goldthwait points out that many of the failures of general surgery in the cures and treatment of the various ptoses are due to the failure of the surgeon to appreciate the importance of correcting not only the local ptoses, but also the general bad position of the body. Correct posture gives correct lying organs, and without this failure is bound to follow simple surgical treatment of the ptoses.

2. Halpenny's paper is a clear, concise review of the most thorough and convincing pieces of work by different men on the thyroid and its secretions and diseases. The author thinks perhaps we have laid too much stress on the importance of the parathyroids. In spite of all evidence we are as yet unable to say whether Graves' disease is a condition of hyper or perverted secretion of the gland. The author believes that Rogers' serum is a very valuable form of treatment.

9. Crile states briefly and concisely his principle of anoci-association and his procedure in operating under this method. The article is well worth thought and study.

10. Jones reviews extensively the subject of inversion of the uterus. The article contains nothing new, but is a good review of the subject and has a very complete bibliography attached.

13. Borchgrevink's article on acute dilatation of the stomach is one of the most exhaustive on record. It covers every phase of the subject, and in spite of being very long is extremely readable and worth while. [E. H. R.]

The Lancet.

June 14, 1913.

1. Gordon, W. *The Place of Climatology in Medicine.*
2. Whitman, R. *An Exposition of the Abduction Treatment of Fracture of the Neck of the Femur.*
3. *Sequeira, J. H. *The Finson Light Treatment at the London Hospital,* 1900-1913.
4. Forsyth, D. *Breast Feeding: the Consumption of Breast Milk.*
5. Naish, L. *Breast Feeding: Its Management and Mismanagement.*
6. Cran, D. H. D. *Breast Feeding: Dr. Variot's Teaching.*
7. Boyd, W., and Hopwood, J. S. *A Case Having a Bearing on the Localization of the Auditory Centre.*
8. Hood, N. L. *A Case of Full-term Living Child Removed by Laparotomy in an Extra Uterine Pregnancy.*
9. Seidelin, H. *Ethyl Chloride in the Treatment of Cutaneous Epithelioma.*
10. Singer, C. *An Experimental Research into the Origin of the Inorganic Chloride in the Gastric Secretion.*

3. This is an interesting review of the results of the Finsen light treatment of cancer at the London Hospital during the last thirteen years. The paper is short and is largely statistical and thus does not permit of adequate review. It is a valuable contribution to the work against cancer.

June 21, 1913.

1. *Gordon, W. *The Place of Climatology in Medicine.*
2. *Byers, J., and Houston, T. *Tetragenous Septicemia.*
3. Paramore, R. H. *The Intra-abdominal Pressure in Pregnancy.*
4. Chambers, H. *A New Spirocheta Found in Human Blood. Preliminary Communication.*
5. Harris, W., and Bankart, B. *A Case of Spinal Tumor with Scoliosis; Operation.*
6. Morton, R. *Some Results of Further Experience with Solid Carbon Dioxide.*
7. Digby, K. H. *The Ingestion of Bacteria by the Sub-epithelial Lymphatic Glands in Health.*
8. Edridge-Green, F. W. *A Criticism of the Report of the Departmental Committee on Sight Tests.*

1. Gordon, in these two Samuel Hyde memorial lectures, discusses the relation of climate and climatic conditions to tuberculosis in particular and other diseases in general. He considers the high altitude theory of tuberculosis immunity, covering under this heading the Swiss Alps the Andes and other regions. He gives numerous tables of places at various altitudes, showing the relation of the exposure to winds and the phthisis death rate. He refers to and discusses the work of others on this subject. The papers are of distinct practical value.

2. This case of tetragenous septicemia here described in full is of interest because of its rarity. [J. B. H.]

BRITISH MEDICAL JOURNAL.

JUNE 14, 1913.

1. WILSON, G. A. K. *The Clinical Importance of the Sympathetic Nervous System.*
2. *LANGMEAD, F. *Varieties and Treatment of Chorea.*
3. *SMITH, E. *On Avoidable Difficulties in the Hand-feeding of Infants.*
4. *MILLS, A. *Oral Sepsis in General Practice.*
5. *HUGHES, B. *Autogenous Vaccines in the Treatment of Chronic Joint Affections.*
6. *PIRIE, J. H. H. *Vaccines in the Treatment of Chronic Bronchitis and of Asthma.*

2. Langmead divides chorea into the following forms: Motor, maniacal, paralytic, cardiac, latent and residual. These forms he describes and separates one from the other, not with very great success. His remarks on the importance of latent chorea are of interest and value to all practitioners. Residual chorea is the term he chooses to use to describe the post-choreic condition. In treatment he considers arsenic a dangerous drug, but salicylates of great value.

3. Smith, in a short article, gives some useful hints as to the care of infants in regard to bathing, feeding and general hygiene.

4. Mills describes cases of indigestion, anemia, irregular menstruation, vomiting in pregnancy, climacteric disturbances, localized suppuration, arthritis and others, in each of which oral sepsis, in his opinion was an important etiological factor.

5. Hughes, discussing certain chronic joint affections and their treatment by vaccines, describes the details, technic and results of his treatment, dwelling particularly upon rheumatoid and gonorrheal arthritis.

6. Pirie, in 16 cases of chronic bronchitis treated with vaccines, has had a practical cure in 7, marked improvement in 4 others; in 9 cases of asthma treated with vaccines, there were 2 cured and 5 considerably improved. He believes that vaccine treatment should be used as an adjunct to and not in place of other methods.

JUNE 21, 1913.

1. *MORRISON, J. T. J. *The Ingleby Lecture on Spinal Anesthesia by Tropococaine, with a Review of 1295 Cases.*
2. *RUTHERFORD, L. T. *The Lachrymal Gland in Surgical Anesthesia.*
3. YORKE, W. *Sleeping Sickness and Big Game: a Proposed Experiment.*
4. DUNCAN, K. M. *Preliminary Report on an Outbreak of Febrile Disease in an Industrial School.*
5. REID, R., AND CALWELL, W. *Notes on a Case of Nodular Leukemia."*
6. TURNBULL, A. *A Case Illustrating Great Tenacity of Life.*
7. PORGES, M. *The Influence of Marienbad Sulphate Water on Albuminuria.*

1. Morrison, after reviewing 1295 cases of spinal anesthesia by tropococaine concludes that spinal anesthesia is a procedure of proved value and simple technic and that its province lies in subdiaphragmmatic operations. There is no prohibitive age limit; it prevents surgical shock, induces muscular relaxation, quiet breathing and "abdominal stillness." Used with discretion in conditions of extreme asthenia and instability of the medullary centres due to toxemia, exhausting disease, traumatic shock and old age it is superior to ether or chloroform.

2. Rutherford believes that the presence or absence of lachrymal gland secretion in anesthesia is a useful and constant guide to the depth of narcosis. He describes his results in 200 cases and is of the opinion that this phenomenon should receive more attention than is now the case. [J. B. H.]

EDINBURGH MEDICAL JOURNAL.

JUNE, 1913.

1. *BERRY, G. A. *The Outward Projections of Retinal Images and Its Bearing on Shooting.*
2. *HOGARTH, P. J. *A Method of Treating Umbilical Hernia.*
3. HART, D. B. *On the Pressure Experienced by the Fetus in Utero During Pregnancy; with Special Reference to Achondroplasia (Chondrodystrophia Fortalis).*
4. *CAMBBELL, B. P. *The Causation and Treatment of Deformities Following Anterior Poliomyelitis.*
5. COTTERILL, D. *Note on a Case of Amyotonia Congenita (Myotonia-Congenita of Oppenheim).*
6. CHURCH, H. M. *Linnaeus as a Physician.*

1. This is an interesting article explaining certain points in regard to accuracy in shooting and the lack of the same. It contains information of distinct value to those interested in the subject.

2. Hogarth discusses the usual methods used in treating umbilical hernia, and describes in detail his operation, which he believes to contain certain advantages over former ones.

4. This is the conclusion of a long and exhaustive review of the methods at present in vogue in treating the various contractures and other deformities following anterior poliomyelitis. It contains nothing especially new but is an excellent summary of the subject. [J. B. H.]

MÜNCHENER MEDIZINISCHE WOCHENSCHRIFT.

No. 24. JUNE 17, 1913.

1. HEINE. *Cerebral Pressure in Several Eye Diseases.*
2. *WEBER, A. *Intravenous Injections of Small Amounts of Human Blood for the Treatment of Severe Anemias.*
3. *WECHSELMANN, W. *A Thousand Subcutaneous Injections of Neosalvarsan.*
4. ERLACHER, P. *The Treatment of Scoliosis by Abbot's Plaster of Paris Bandage.*
5. MEYER, W. *The Surgical Treatment of Carcinoma of the Esophagus.*
6. PETRIDIS, P. A. *The Sero Diagnosis of Tumors by v. Dungern's Method.*
7. PAGENSTECHER, A. *The Use of Secondary Rays to Increase the Efficiency of Roentgen Rays.*
8. LOEWE, O. *Skin Implantation Instead of Free Fascia Plastics.*
9. SAENGER, H. *Sudden Clinically Obscure Causes of Death During or Shortly after Delivery.*
10. SCHMIZ AND KESSLER. *A Typhoid Epidemic Occurring in a Regiment of Dragoons.*
11. BRIX. *A Case of Puerperal Sepsis Cured by Operation.*
12. VOGEL, F. *Traumatic Rupture of the Vagina with Prolapse of the Small Intestine.*

13. Scherback, A. L. *A Simple Method for Discovering Minute Placental Defects.*
14. Fuchs, M. *The Treatment of Gastric Crises.*
15. Lubinus. *Mechano-therapy in Sweden and Germany.*

2. Weber, in cases of severe anemia, injects intravenously 5 c.c. of defibrinated blood drawn from healthy individuals and cooled for from 6-24 hours before use. He has made 46 such transfusions with no more than very slight reaction. He thinks that such small injections of blood are less toxic than larger amounts, and that the technic is much simpler than that for direct transfusion. In cases so treated the blood picture improves rapidly. Weber, however, believes that best results are obtained from combined injections of blood, arsenic, and by proper regulation of the patient's diet and hygiene.

3. Wechselmann reports on a thousand cases treated by subcutaneous injections of neosalvarsan. He describes his technic. The dosage has varied from .5-.9 of the drug dissolved in 1 c.c. of freshly distilled sterile salt solution. In many cases repeated injections have been made, one patient receiving 6 grams. The injection is given into the area around the great trochanter. The salvarsan must be deposited directly over the fascia, precautions being taken not to inject it into fascia, muscle or subcutaneous fat. This method is more difficult than that for intravenous or intramuscular treatment, but has many advantages. The effect is as good as when the drug is given by usual means, there are no complicating symptoms, no necrosis and no more lasting pain than that which follows intramuscular injections of mercury. When once learned, the technic is simple.

Wechselmann calls for control of these results by other physicians, hoping in this way to dispel the artificial prejudice against salvarsan as a curative measure.

Deutsches Archiv für Klinische Medizin.

April 17, 1913.

1. *Laquer, F. *High Altitudes and New Blood Formation.*
2. Cohnheim, O., and Weber, O. H. *The Blood Picture on High Mountains.*
3. *Voorhoeve, N. *The Study of Calcium Metabolism.*
4. Elfer, A. *The Effect of the Extract from the Infundibular Part of the Pituitary Gland under Pathological Conditions.*
5. Schöpp, P. *"Nahrklistieren" with Broken-up Albuminous Products and Their Influence on Respiratory Exchange and Heat Production.*
6. Wörner, H. *Tolerance Towards Galactose upon Direct Introduction into the Portal Vein.*
7. Schöne, C. *Experimental Investigation on the Effect of Big Doses of Serum with Diphtheria Poisoning.*
8. *Thorspecken, O. *Advancement in the Use of Strophanthin Intravenously.*
9. Hesse, E. *Relation between Endemic Goitre and Radio-activity.*
10. Marchaud. *Uncommonly Severe Lymphocytosis at the Conclusion of Infections.*
11. Löwy. *Addition to the Knowledge of Morbus Addisonii.*
12. Christen. *New Experiments upon Dynamic Pulse Diagnosis.*
13. Müller and Vöchting. *On the Question of the Volume of the Heart Beat.*

1. Laquer working at the international institute for the study of the effect of high altitudes, has completed an interesting and exhaustive study on the effect of altitude upon human and animal blood. He concludes that in young healthy adults a four weeks' sojourn at an altitude of 2900 meters causes an increase in the red corpuscles and hemoglobin per given volume. The hemoglobin and erythrocyte increase run parallel courses and reach the height of their increase at the end of two weeks. After returning to former levels the red cells quickly and the hemoglobin gradually in three weeks returns to normal. This increase is due to an actual new formation of blood elements.

3. Voorhoeve has studied the calcium metabolism in healthy and tubercular patients and reports at length. He emphasizes the difficulty in drawing conclusions from studies of this sort unless there is a large number of cases from which to draw comparisons. He finds, however, that in tubercular patients there seems to be a greater need for calcium than in the non-tubercular, suggesting therefore an inclination towards decalcification.

8. Thorspecken takes up the use of strophanthin intravenously in different types of cardiac conditions and concludes that it should be used in all cardiac cases when the digitalis preparations are poorly borne from gastro-intestinal symptoms or otherwise. In passive congestion of the liver and in asthmatic attacks or pulmonary edema of the contracted kidney type he recommends its use. [C. F., Jr.]

Annales de L'Institut Pasteur.

April 25, 1913.

1. Faroy, G., and Loiseau, G. *Contribution to the Experimental Study of False Diphtheria Membrane in Trachea of Rabbits.*
2. Bertrand, G., and Medigreceanu, F. *Researches upon the Presence of Manganese in the Animal Series.*
3. Cotoni, L. *Studies upon the Pneumococcus.*
4. Marie, A. *Suprarenal Glands and Toxic Infections.*
5. Chonkewitch, J. *Investigations upon the Bacterial Flora of the Large Intestine of Cattle and Sheep.*
6. Truche, C., and Cotoni, L. *Studies upon the Pneumococcus.*
7. Santon, B. *The Sporulation of the Aspergillus Niger and the Aspergillus Fumigatus.*
8. *Wladyczko, S. *Influence of Intestinal Poisons (Paracresol and Indol) upon the Central Nervous System of Animals.*

8. Wladyczko, working in Metchinkoff's laboratory, has carried on the experiments suggested by the latter to show that the products of intestinal putrefaction produce sclerotic and degenerative lesions throughout the body. He has worked with paracresol and indol in rabbits and guinea-pigs. The substances were given by mouth. Although small doses given in this way produced no visible effect upon the general health of the animals they did cause regressive changes in the blood vessels of the brain and a destructive effect upon some of the cellular elements of the central nervous system. [C. F., Jr.]

Miscellany.

INFANT MORTALITY IN AMERICAN CITIES.

The Children's Bureau of the United States Department of Labor* has recently issued a bulletin dealing with the work done in various American cities towards reducing infant and child mortality. This document appears to be of unusual interest as a summary and review of what has already been accomplished in our country in this important direction. The following abstract, therefore, seems to deserve republication:—

* Referred to in the issue of July 10, 1913.

"The efforts of city health officials have resulted in the last ten years in reducing the general death-rate in cities below that of the rural districts and villages. This reduction in the general death-rate is an encouraging indication of what is possible of accomplishment in efforts to reduce the infant death-rate. Babies die of diseases, which to a large extent are preventable, and thus when welfare work is directed toward saving their lives the response is immediate and decided. In certain large cities such as New York and Philadelphia, the result of systematic summer baby-saving campaigns has been shown in a reduction of between 30 and 40% in the deaths of children under two years of age, in the wards where the work was concentrated.

"Practically the only limit of the good results to be obtained by enthusiastic campaigns lies in the financial side of the question. The investigations of the Children's Bureau indicate that the principal impediment to effective work in the health departments of most cities is the lack of adequate funds for carrying on preventive measures intelligently, and experience verifies the truth of the motto of the New York Health Department, 'Public health is purchasable; within natural limitations a community can determine its own death-rate.'

"It is estimated that a baby nursed by its mother has approximately ten times the chances to live that a bottle-fed baby has. All welfare workers, therefore, are advised to encourage mothers to make every effort to carry out this most important maternal duty.

"A clean milk supply is a fundamental need. The ideal is, Nothing short of clean milk for everybody. But the need for the prompt remedy of bad milk conditions is more urgent in its relation to the welfare of babies than to that of adults, since dirty milk is largely responsible for the occurrence of enteritis, the most frequent cause of death among infants. The remedy lies in the intelligent and effective inspection of farms, the means of transportation, and the shops where milk is sold, and in ordinances governing the sale of 'dipped' or 'loose' milk.

"A constantly increasing number of cities of all sizes are establishing milk stations and dispensing milk, whether pure whole milk, certified, modified, pasteurized or sterilized milk, to mothers of babies that must be bottle fed. Some of the cities in which such institutions are maintained are: Albany, Baltimore, Boston, Buffalo, Chicago, Dayton, Detroit, Hartford, Honolulu, Indianapolis, Kansas City, Mo., Lawrence, Mass., Louisville, Lowell, Milwaukee, Newark, New Bedford, New Haven, New York, Peoria, Pittsburg, Providence, Rochester, St. Louis, Springfield, O., Waterbury, Wilkes-Barre, Worcester, Yonkers and Utica.

"The milk station is simply a room sufficiently large to accommodate the patrons and equipped with a large ice box, a desk, some chairs and a table. An ordinary store is suitable for a station and sometimes, as in the case of the station at Utica, N. Y., a schoolroom may be used for the purpose. The station is usually under the charge of a nurse, and a physician is in attendance at stated hours.

"Baby clinics are an almost inevitable outgrowth of the milk stations. It becomes apparent at once that many mothers need advice as to the care of their babies, especially those who are sick. Sometimes the clinic is established by the wholly volunteer services of doctors, who examine every baby presented at the milk station, weigh it, prescribe its diet and tell the mother when to bring it back.

"It is the opinion in some cities that visiting nurses, sometimes called 'Instructive Visiting Nurses,' should take precedence over all other forms of welfare work. The duties of such nurses consist in following up the cases brought to the clinics and in general welfare work in connection with the babies in the congested districts.

"Municipalities are just beginning to awaken to the importance of this kind of work, and to understand that much of the waste of infant life is due to causes that were operative before the baby was born. Some cities have a special maternity nurse who gives all her time to these cases; other cities direct the general nurses to take charge of them.

"Since it is useless to send pure, clean milk into a dirty home, to be handled by an ignorant mother or older child, instruction of the mother becomes a necessary feature of the milk station or a part of the duty of the visiting nurse. The instruction is often supplemented by public lectures.

"The value of training school girls who are caretakers of little children in the care of babies is regarded as of immense importance, not only in the improved care which is given to the babies in their charge, but in the influence which it cannot fail to have in the prevention of infant mortality in this and the next generations, and the organization of the 'Little Mother Leagues' or 'Little Mother Classes' forms an important part of the welfare work in most large cities.

"The house fly as a death distributor is only recently receiving the attention it deserves. Flies carry infection not only to exposed milk, but directly to the baby's mouth, or to the nipple of its bottle. Insistence upon screens for the baby's room and for the baby's bed is a part of the campaign against infant mortality; and the work should go even further than this and should include the destruction of flies by every known method and removal of the breeding places.

"Whether or not the stable fly is the only carrier of the germ of infantile paralysis, it is certainly one, probably the principal carrier. Upon the opening of summer a thorough listing of all horse stables and livery barns, whether

public or private, is made by such cities as Seattle and Indianapolis, and complete measures for the control of the fly-breeding places are instituted.

"Attention to housing conditions, to the thorough watering of the streets, and to the question of fresh air and ventilation is urged, and the distribution of circulars, pamphlets and other printed matter containing advice concerning the care of the baby is considered helpful. Sometimes the circulars are printed in several languages, and in the appendix of the bulletin will be found specimen 'Save the Baby' circulars in nearly every necessary language, ready for reproduction."

This report is further of peculiar significance on account of the coming London Conference on Infant Mortality, of which an account is published in another column of this issue of the Journal.

THE MUSEUM AT THE SEVENTEENTH INTERNATIONAL MEDICAL CONGRESS, 1913.

A committee, with Prof. A. Keith of the Royal College of Surgeons as chairman, has been formed for the purpose of organizing a museum in connection with the Seventeenth International Congress of Medicine, London, 1913. The arrangements have been entrusted entirely to this committee and it has been invested with the power of acceptance or refusal of any offered exhibit.

It has been recognized that the collection of material illustrative of recent advances in medical science in one centre possesses obvious advantages over the plan of leaving each section to collect and house the specimens and other material required by the readers of papers for their communications, separately. A central museum offers to a large number of members of the congress an opportunity of studying these advances from the available material, and this study is enhanced by the coördination of the various departments.

The committee has drawn up regulations which shall govern the museum and is following a plan of procedure. The museum will consist of exhibits illustrating the subjects which will be discussed in the various sections, and such other material as the committee may deem of interest or importance. The specimens will embrace the scientific side of medicine, to the exclusion of a commercial element. Excellent accommodation has been secured for the purpose at the Imperial College of Science, South Kensington, and the museum will be arranged in this place as far as is possible in correspondence with the sections of the congress. The cooperation of the officers of each section has been obtained, in order that the collections may be worthy of the occasion. It has further been decided that inasmuch as the meeting is to take place in London, and as the visitors will roubtless desire to inspect the metropolitan hospitals and other great institutions, material will not be collected from the museums of the metropolis. The committee is, therefore, seeking exhibits from provincial and foreign institutions and from private collections.

Medical practitioners and scientists who are willing to place at the disposal of the committee material illustrative of recent advances in any branch of medical science are requested to communicate with the Hon. Secretary of the Museum Committee (H. W. Armit, Ravenhurst, Talbot Road, Wembley).

The committee is prepared to defray the expense of transit of the exhibits and to insure them against damage and loss, and will take every precaution to return them in good condition to their respective owners.

Exhibitors will be invited to hold demonstrations in the Museum on their own specimens.

It may further be pointed out that permission has been obtained from the council of the congress to keep the museum open for a few days after the congress has ended, if it be found desirable to do so.

IRISH DOCTORS AND NATIONAL INSURANCE.

The working of the much protested National Insurance scheme in Britain has seemed to justify some of the protests made against it by physicians in that country. Not only have the panels in not a few instances been filled by inferior men, but serious accidents have in several cases occurred as a result, and the hardship to general practitioners from reduced fees has been considerable. Continued protests are frequent. The following item, from a recent issue of the *Dublin Independent*, indicates how the situation appears to the local profession:—

"At the last meeting of the local Medical Committee of the County Borough of Waterford a resolution was passed unanimously protesting against the action of the Insurance Commissioners for Ireland in appointing Medical Advisers, for the purpose of issuing certificates to insured persons under the National Insurance Act, for the discharge of which work the commissioners have refused to pay the medical profession adequate remuneration. In connection with the foregoing resolution, the committee desire to place the following facts plainly before the public: (1) The sum of £1,875,000 has been allocated as a special grant by the treasury on the recommendation of the chancellor of the exchequer to render possible the working of the Insurance Act. (2) The proportion of this grant to Ireland should be, roughly, £120,000 per annum. The amount actually allotted is

only £50,000, being less than half the amount to which the country is entitled. (3) Out of this sum the Irish Insurance Commissioners offer the sum of ninepence per insured person per annum to the medical profession in the county borough of Waterford in full payment for all certificates, including those for tuberculosis benefits. The profession consider this sum totally inadequate, but offered to discharge the duties for the sum of one shilling and threepence per insured person per annum—that is, they asked each insured person to tax himself or herself the sum of one halfpenny a month. The committee are of the opinion that the insured persons should bring pressure to bear on the treasury to obtain the balance of the proportional grant due to this country, which would enable the Insurance Commissioners to pay the medical practitioners a sum acceptable to them for the discharge of duties necessary to the smooth working of this act."

CHANGES IN THE MEDICAL CORPS, U. S. NAVY, FOR THE WEEK ENDING JULY 5, 1913.

June 27, J. A. BASS, assistant surgeon. Ordered to Naval Recruiting Station, Erie, Pa.

June 28, S. D. HART, assistant surgeon. Detached from Atlantic Reserve Fleet, and ordered to *Louisiana*.

J. B. HELM, assistant surgeon, Medical Reserve Corp. Ordered to Navy Recruiting Station, Richmond, Va.

June 30, O. D. NORTON, Medical Director. Detached from Navy Recruiting Station, Denver, Col., granted leave.

C. W. O. BUNKER, passed assistant surgeon. Ordered to the *Vermont*.

I. W. ROBBINS, assistant surgeon. Ordered to Naval Training Station, San Francisco, California.

W. L. IRVINE, assistant surgeon. Detached from Atlantic Fleet, and ordered to Naval Training Station, Newport R. I.

BOOKS AND PAMPHLETS RECEIVED.

Concerning Secondary Infection in Pulmonary Tuberculosis. Oswald T. Avery and Harold W. Lyall. Reprint.

Meningitis in an Infant Caused by the Typhoid Bacillus. Harold W. Lyall. Reprint.

RECENT DEATHS.

DR. ENRICO SALVINI, an ambulance surgeon of Lincoln Hospital, Borough of the Bronx, New York City, was fatally injured on July 3 in a collision of the automobile ambulance in which he was going to a case, with a heavy motor truck, receiving a fracture of the skull. The chauffeur was severely but not mortally, injured.

DR. HENRY SKELTON CARTER of Tarrytown, N. Y., died suddenly from angina pectoris on July 2, in his 65th year. Dr. Carter was graduated from the College of Physicians and Surgeons, New York, in 1872, and had practised in New York until five or six years ago.

DR. FRANK H. BOYNTON of New York, aged 63 years, died from cardiac disease on July 3, at his summer home at Mount Washington, Mass. He was an eye specialist, and at the time of his death was senior surgeon to the New York Ophthalmic Hospital

DR. JOHN G. WEBER of the Borough of the Bronx, New York City, died on July 2, at the age of 70 years. He was a native of Germany, and was graduated at Jena in 1865.

DR. FERDINAND N. SAUER of Jersey City, N. J., died from cardiac disease on July 8, at the age of 39 years. He was graduated from the College of Physicians and Surgeons, Baltimore, in 1901. Dr. Sauer was for a time chief inspector of the Jersey City Board of Health, and he organized milk stations and clinics for the poor.

WEEKLY RETURNS OF DEATHS

from diseases declared by the State Board of Health to be dangerous to the public health, from Massachusetts cities and towns of more than 10,000 population, for week ending July 5, 1913.

Boston, total deaths	22
Boston	22
Worcester	3
Fall River	13
Lowell	1
Cambridge	3
New Bedford	1
Lynn	4
Springfield	3
Somerville	1
Holyoke	4
Malden	1
Haverhill	2
Newton	1
Fitchburg	1
Pittsfield	1
Northampton	1
Beverly	1
Leominister	1
Westfield	1
Newburyport	1
Southbridge	1
Webster	1

Original Articles.

CONTRIBUTIONS FROM THE PSYCHOPATHIC HOSPITAL, BOSTON, MASSACHUSETTS: INTRODUCTORY NOTE.*

BY E. E. SOUTHARD, M.D., BOSTON,

Director of the Psychopathic Department of the Boston State Hospital; Pathologist to the State Board of Insanity, Massachusetts; and Bullard Professor of Neuropathology, Harvard Medical School, Boston, Massachusetts.

CONTENTS.

Laboratory contributions the order of the day, clearly derived, however, from the patients themselves.
Representative material the outcome of the *district-drainage*, as opposed to the arbitrarily selective, method of filling a clinic for mental diseases.
The scientific institute vs. the psychopathic hospital.
Juxtaposition of the medical and social points of view.
How far is the advance of German psychiatry due to the many psychiatric clinics of Germany?
Merz on national distinctions in scientific achievement.
Scientific atmosphere of the Psychopathic Hospital in Boston.
Alcohol investigation (Benedict) in the Carnegie Nutrition Laboratory.
The work of Cannon, Martin, and Porter in the Harvard Physiological Laboratory.
Harvey Cushing's work in the Peter Bent Brigham Hospital.
Folin's methods.
Traditions of Massachusetts in psychiatry.
Worcester, Meyer, Barrett, Hoch.
Three collections of papers issued in honor of retiring superintendents.
Statistical analysis of these recent products.
Conclusions.

THE psychopathic hospital idea is so novel in America that a word of explanation concerning the scientific program of the new state enterprise in Boston may well serve to introduce a series of papers representing in part its work.

What scientific contributions may be expected from a modern psychopathic hospital, conceived on lines which combine those of the best general hospitals for the sick and the best special hospitals for the insane and the nervous? The first impression of the modern observer must run to the effect that *laboratory contributions* will surely be the order of the day. As a fact, moreover, ample space has been provided in our Boston unit for most lines of research pertaining to the psychiatry of the present day; and the allotted space has been divided into: (*a*) smaller laboratories closely associated with the various wards, and into (*b*) larger main laboratories divorced from the immediate details of ward work. The installation of modern apparatus of use in mental testing, in the examination of various bodily functions, in the analysis of various body-fluids, secretions and products of disease, in the cultivation and determination of bacteria, and in the elucidation of post-mortem problems, obviously looks forward to contributions in a bewildering variety of laboratory problems which, if all solved, would reduce psychiatry to a science. And, should anyone doubt that progress sets in that direction, let him contemplate the extraordinary advances in the diagnosis of mental disease made possible since the introduction of lumbar puncture, the histological differentiation of general paresis, and the application of immunological methods for the diagnosis of syphilis. And, if the psychology of brass instruments has not as yet made extraordinary headway in psychiatry, it is not to be denied that the habits of precision born in the psychological laboratory have led to such major advances as are constituted by modern intelligence-tests and association-tests.

All in all, therefore, the modern observer would not go far wrong were he to conceive that the most startling advances will be made in the laboratories and with the aid of laboratory devices, rather than in the wards, and by means of naive clinical observations in a psychopathic hospital. But such an observer would be quite in the wrong were he to conceive that all such expected advances could be made equally well in an institute utterly divorced from wards and living material. It requires no argument to show that *the source of laboratory problems*, as well as the criterion of their solution, *lodges in the wards*. All the more, since the disorders of sense and intellect, of emotion and will, are best uncovered, as it were dissected out most plainly, in man rather than in the lower animals. The most concrete and obvious instance of the necessary human derivation of pivotal problems is probably the region of speech-disorder.

So far back as the 1902 report of the State Board of Insanity of Massachusetts, the ideal was upheld that an institution "*for the study of patients*" and "*for scientific research*" should be ultimately established in connection with the insane hospital system of the commonwealth. The upbuilding of public sentiment, the securing of suitable enactments by the Legislature, the preparation of plans and the construction of a proper plant required a full decade of work. The year 1912 saw the opening of such an institution, with the added virtues of a close articulation with the insane hospital system of the district naturally chosen for its establishment—the metropolitan or Boston district of Massachusetts—and of supervision by the Board of Trustees of the Boston State Hospital, the main hos-

* Being Contribution No. 1 (1913. 1) from the Psychopathic Hospital, Boston, Massachusetts. *Official information* concerning the Psychopathic Hospital can be obtained in various Annual Reports (notably in the Twelfth Annual Report, 1910) of the State Board of Insanity of the Commonwealth of Massachusetts, Pub. Doc. No. 63. A reprint of a portion of the Annual Report of the pathologist to the State Board of Insanity, dealing with the Psychopathic Hospital and containing reduced *plans of the buildings*, is available at the hospital. The Fourth Annual Report of the Boston State Hospital, Pub. Doc. No. 84, of which the Psychopathic Hospital is officially a department, contains the first report of the director to the trustees, dealing with operations from the opening of the hospital, June 24, 1912, to November 30, as to general operations and to September 30 as to statistics.

pital for the insane previously existent in the district.

It is not my present purpose to develop the advantages of the psychopathic hospital as *receiving hospital for all the insane of a district* except to point out the extent, variety, and representativeness of the clinical material secured under the "district-drainage" system. Nor shall I develop the superior diagnostic advantages of the modern psychopathic hospital or, as the Germans say, the *psychiatric clinic*, except to point out that the resort of *all* types of case from a sufficiently large district yields to the physicians and internes of the hospital an experience which cannot be one-sided and *must* produce well-rounded alienists, and better specialists in allied fields than have hitherto been produced. Must produce such, I repeat, regardless of the quality of the leaders at a given moment and the diagnostic and therapeutic ideals emanating therefrom.

This we can confidently say from the experience of the German institutions of similar type. It is a question whether to ascribe the eminence of the Germans in psychiatry at the present day to inherent qualities of the German mind or to the development of psychiatric clinics, themselves of course the outcome of the insight of a German alienist, Griesinger. And it is also safe to say that the qualities of the German mind in general might never have gotten their chance to work, had not the German university system formed a background, not to say a soil, for these qualities.

However that may be, it is clear that our country has developed its university background, that the main lines of travel are not devoid of scientific atmosphere, and that—for this particular purpose—the external needs as to buildings, equipment, and articulation in the economic system are being met. It is peculiarly desirable that certain conditions which I have termed "articulation in the economic system" be met in the investigation of insanity. In this field less than in a variety of others will the *scientific institute* constructed on French lines serve all purposes. I can conceive such separate and independent institutes for the special investigation of certain phases of psychopathology, as hypnotism, suggestion, speech-disorder, mental defects as shown in the feeble-minded, mental aspects of delinquents, "psychoanalysis," and the like; and I am sure that in the course of time such institutes will develop and engage the attention of special investigators.

But the broadest foundation must perforce be laid by such special investigators in institutions of a broader range, of which the modern psychopathic hospital is a type. The range of such a hospital was sketched in general in the 1908 report of the State Board of Insanity, where it was termed "*a center of scientific investigation into the nature, causes, and treatment of insanity*" as well as "*a center of instruction.*"

The strongest arguments for articulating such a scientific institution with the whole state system and with the particular task of a single district are not only that such an articulation provides ready means of securing extensive and varied material for investigation, provides ready means of extending the application of new or modified methods of diagnosis and treatment to long series of cases, provides ready opportunity for the state hospital assistants to supplement their training, and permits all of the Commonwealth's physicians and students to gain easy access to the hitherto neglected field of psychiatry, but also—and here is the crux of the matter from the public standpoint—that the concrete *problems of social service* as they arise in the district are *brought directly in focus with the medical problems of psychiatry* at large. The psychiatry thus developed can hardly be unilateral and scholastic but will not fail to breathe of sociology and of anthropology in their higher senses.

It is, I believe, in this *juxtaposition of the medical and the social points of view* that American psychiatry shall eventually excel.

In my note-books dating back to the early planning of the scientific arrangements of the hospital, which was carried out under the supervision of Dr. Owen Copp, then Executive Officer of the State Board of Insanity, I find notes concerning space and appointments for most of the special kinds of laboratory work mentioned above, but also notes strongly stressing the necessity of similar arrangements for the pursuit of *social service,* in its modern sense as embodying special case-investigation and recording, classification, and disposition, not to exclude the ultra modern arm of eugenics.

I am tempted, therefore, to point out that the development of modern sociology is bound to affect the course of our investigations and that the observer who should too narrowly interpret our tasks as laboratory tasks—tasks of exactitude and quantitation—would fail to see aright the scope of our investigations. Particularly in America, it would seem, should *the range of psychiatry advance from a medical to a medico-social range;* for particularly in America has the spirit of sociology been caught concretely in the shape of social service and its prophylactic branches, sex-hygiene, eugenics, mental hygiene, and the like.

Since Boston is a hotbed of medico-social interest (witness, to pick two examples, the Massachusetts General Hospital center with Dr. Richard Cabot and Miss Ida Cannon, and the Boston Dispensary center, with its Director, Michael Davis), work cannot fail to be stimulated in these directions in the psychopathic hospital and particularly in its out-patient and after-care services.

But the American emphasis on social service and the success now observable in the difficult fusion of the two points of view—social and medical—in many of our centers should not blind us to the fact that the science of psychiatry is not

the art of psychiatry. The art of psychiatry bids fair to benefit greatly here in America from the intimate interadhesion of physicians and social workers. I am bound to say, however, that the truths of social service and all but a fraction of the truths of psychiatry are hardly more than elaboration of the obvious. Now none can doubt that the sciences of psychiatry, as the future shall develop it, will do far more than elaborate the obvious.

Nor can the kind of coöperation and competition between workers which is seen in the German-speaking countries in the field of psychiatry be exhibited in America in many a year. At the present day, for example, it is well-nigh inconceivable that a group of independent workers all living and active in a single generation—such as Alzheimer, Bleuler, Bonhoeffer, Freud, Jung, Kraepelin, Nissl, Sommer, Wernicke, Ziehen, not to mention a variety of less outstanding or radical observers, in German-speaking countries—should suddenly spring up in America.

It is not that America would acknowledge herself brainless; but it is clear that American brains have not had the advantages, external though they may seem, of exercise in psychiatric clinics like those of the German-speaking countries.

Contrast the leading names of American neurology with those of American psychiatry! Neurologists can develop themselves in America to a high degree of efficiency in various urban clinics in association with general hospitals. Our best neurologists are middling good internists or better as a rule. But the psychiatrists as a group fail to be good internists; instead, they are good economists.

In any event and for whatever conspiracy of causes, American psychiatry has lagged, as has psychiatry in many another country. Why has psychiatry become so extensively a matter of Germany and the Germans? Is it the German brain which excels the others precisely in this branch of inquiry? I am inclined to think not.

The wide and well-nigh cosmopolitan reach of the recent historian of science, John Theodore Merz, in his "History of European Thought in the Nineteenth Century" gives us a certain clue. Nothing is more striking than the distinctions drawn by Merz between the manner of scientific achievement in England, Germany and France respectively. The achievements of private Englishmen, unattached to universities or institutes or working essentially without relation thereto, form the most striking contrast to the institute-aided, commission-guided, almost essentially Parisian accomplishments of the Frnech and the systematic and highly coördinated, school-forming, plurifocal achievements of the German universities.

Granting the tremendous modern emphasis upon laboratory tests and laboratory methods in psychiatry, we may pause to wonder why, here in the United States, we have lagged behind the workers in German-speaking countries in our product of new tests, new methods, and new laboratory ideas. I assume that no one can deny our laggard laboratory developments. Outside the District of Columbia, Maryland, Massachusetts, Michigan, New Jersey, New York, and a very few other foci, our American product of new ideas as to mental disease has certainly been slender. Where the laboratories have come at all up to expectations, we find particular men, particular conditions, and universally we find but one quality—scientific atmosphere. In the absence of scientific atmosphere, progress has been sporadic and of brief duration.

It was for this reason, I suppose, that the new Psychopathic Hospital in Boston was placed in more or less juxtaposition to other scientific institutions, of which may be mentioned the Carnegie Nutrition Laboratory, the two Brigham Hospitals, the Harvard and Tufts Medical Schools, and the Boston Medical Library. A still closer juxtaposition of all these varied institutions, with their varied interests and their trustees and adherents of the widest possible variety, might have been wished, and the more successful metropolis-planning of the future would doubtless have secured in still greater measure this end of greater scientific intimacy among men of allied hygienic aims.

What constitutes a scientific atmosphere—and what permits one to fly therein!—may always remain in doubt. There are, however, in the atmosphere now shared by the new psychopathic hospital a number of concrete influences, in the mention of which it may not be ungraceful to name names. For a number of men in neighboring institutions have been, or are in process of, working in topics closely allied to or even overlapping ours.

Thus Dr. F. G. Benedict, Director of the Carnegie Nutrition Laboratory, has long taken an interest in the mental side of metabolism work. As I write these lines, I receive from his laboratory an elaborate and comprehensive "Tentative Plan for a Proposed Investigation into the Physiological Action of Ethyl Alcohol in Man" and a "Proposed Correlative Study of the Psychological Effects of Alcohol on Man," the latter study having been prepared by Professor Raymond Dodge, the experimental psychologist of the Nutrition Laboratory. Of course alcoholism is not the Psychopathic Hospital's specific problem, and indeed, for obvious reasons, delirium tremens and drunkenness cases have been excluded from our wards under the operation of Chap. 395, Acts of 1911. Yet the importance of alcohol in mental disease other than delirium tremens, *e.g.* in the numerous and obscure group of so-called alcoholic hallucinoses, stands on a level with the importance of syphilis and of heredity in the causation of mental disease. Accordingly, nothing but advantage can accrue from our vicinity to the Carnegie Laboratory during the next years in which their alcohol program is carried out.

At the same time, Dr. W. B. Cannon, George

Higginson Professor of Physiology, Harvard Medical School, has turned all his attention to *problems of internal secretion.* His earliest results in the field, dealing with the relation of suprarenal derivatives in emotion, have turned attention to certain neglected factors in a field absolutely central in the alienist's interest. This novel turn to Cannon's work, not to mention the older lines of *neurophysiological interest* represented by Professor W. T. Porter and the new electric *sensory threshold test* of Professor E. G. Martin (already used in some of our cases to advantage), leads to the conception that the Psychopathic Hospital should not suffer for lack of physiological atmosphere.

The dominant neurological interests of the new Surgeon-in-Chief to the Peter Bent Brigham Hospital, Dr. Harvey Cushing, needless to say, are more than purely atmospheric or purely inspirational to our psychiatric work. His interest in obscure tumor cases and in cases of disorder in glands of internal secretion is both abstractly and concretely at our service.

I cannot forbear to mention also Dr. Otto Folin, who worked in our psychiatric field a number of years at the McLean Hospital and only left that service to develop as Kuhn Professor of Biological Chemistry, Harvard Medical School, chemical methods of broad scope which must be of the greatest advantage to all our own, as to all others' work with urine and blood.

The legal aspects of mental disease are such that, in the interests of patients and of society, the government must always keep a strong hand on the care and treatment of the victims of mental disease. As in all other countries, the state has responsibility toward its wards—wards to some extent the products of the state's own conditions—which can never, or will never, be discharged by private individuals or private enterprise. No one expects much in the improvement of the lot of the insane, the feeble-minded and the criminal except from the state itself. How fortunate, therefore, that the Commonwealth of Massachusetts has aligned itself in this country with New York and Michigan and in other countries with, *e.g.* Bavaria, Prussia, Switzerland in the work of investigation! And how fortunate also that here in Boston, distant as we may feel ourselves from the centers mentioned, we may still find a suitable atmosphere for investigation!

However, all this atmosphere of achievement even in closely allied branches may, perhaps, be at times more depressing than invigorating. *Alienists,* as a somewhat vehement reform-spirited friend of mine observed, *are a pussy-footed race!* They are inclined to claim immunity from close questioning on the score of the retardation of their science. What, then, are the actual traditions of Massachusetts in respect to psychiatry?

The scope of this note would not permit nor am I competent for the task of tracing the history of Massachusetts psychiatry and the various strong alienists of the early years. There were many achievements of those days which today sound like elaborations of the obvious—such as Pliny Earle's masterly stroke in suppressing the old habit in many countries of *counting recoveries twice or more,* viz., the error of not distinguishing persons from cases in official reports—but were, nevertheless, as positive and in their way difficult achievements as many of the present day. Those battles were fought and won, and the standards which raised *lunatic asylums* to lunatic hospitals, raised *lunatic hospitals* to insane hospitals, and then (by a triumph of euphemism) changed *insane hospitals* into *state hospitals,* are still with us. The cottage system, the boarding-out system, the system of elaborate and effective supervision without strangling of individuality in local institutions, improvements in financial accounting, economies, and coöperation, enlargement and improvement of medical staffs, are of fundamental importance to, and may well be regarded as parts of, the movement of science in this field. Today, also, signs of a spread of psychiatric knowledge to the criminal courts are even discernible. The problem of alcoholism is being scanned by alienists. And the movement for protection of the feeble-minded is of extraordinary dimensions and effective character. Social workers are looking for new fields to conquer in mental disease.

In the midst of this progress, therefore, science in its narrower sense of clinical and laboratory investigation does not move alone and is beyond question simply a portion of the larger progress above sketched.

In this narrower sense as clinical and laboratory science, psychiatry in Massachusetts surely also has its backgrounds. The strong forthright influence of Edward Cowles must surely stand pre-eminent in the modern movements, not alone in Massachusetts, but everywhere in this country. His direct and indirect influences started the laboratories that are now regarded as appropriate or indispensable portions of all hospitals for the insane which take their work seriously. His introduction of the seminary or conference method of studying cases has been a powerful adjuvant to the scientific movement, albeit the dominant type of alienist is all too ready to be a critic and nothing but a critic.

Both critical and constructive work marked the product of the late W. L. Worcester, Pathologist and Assistant Physician at the Danvers State Hospital, whose works I here list to align with those of others mentioned below to complete a picture of recent Massachusetts traditions in psychiatry.

TITLES OF PAPERS WRITTEN BY WILLIAM L. WORCESTER, M.D., AFTER HIS DANVERS APPOINTMENT.

What is Insanity? Am. Jour. Insan., vol. lii, p. 602, 1896. A Case of Paretic Dementia of Long Duration, Ibid., vol. liii, 319, 1895-6. A Case of Acromegaly with Autopsy, BOSTON MED. AND SURG. JOUR., vol. cxxxiv, p. 413, 1896. Sclerosis of the Cornu Ammonis in Epilepsy, Jour. Nerv. and Ment.

Dis., vol. xxiv, pp. 229 and 263. Cases of Paraphasia and Word Deafness, Am. Jour. Insan., vol. liii, p. 262, 1896-7. The Preservation of Serial Sections, Ibid., p. 827, 1896-7. The Psychology of Insane Delusions, Trans. Am. Med.-Psychol. Asso., vol. iv, p. 200, 1897. A Case of Landry's Paralysis, Jour. Ment. and Nerv. Dis., vol. xxv, p. 299, 1897. Some Difficulties in the Retraction Theory, Am. Jour. Insan., vol. lvi, p. 101, 1897. Regeneration of Nerve Fibers in the Central Nervous System. Jour. Exp. Med., N. Y., vol. iii, p. 579, 1898. The Relations of Renal Diseases to Mental Derangement, Trans. Am. Med.-Psychol. Asso., vol. vi, p. 210, 1899; also: Am. Jour. Insan., vol. lvi, p. 275, 1899. The Katatonic Symptom-Complex, Am. Jour. Insan., vol. lv, p. 659, 1898. Three Cases of General Paralysis in Young Women, Ibid., vol. lvii, 127, 1900. Case of Patent Foramen Ovale in Advanced Age, Boston Med. and Surg. Jour., October, 1900.

Another importation to organize a Massachusetts laboratory was that of Dr. Adolf Meyer, Pathologist and Clinical Director of the Worcester State Hospital. His Worcester papers are as follows: —

Worcester Papers Written by Adolf Meyer from 1895-1903.

A Case of Landry's Paralysis, with Autopsy, Am. Journal of the Medical Sciences, April, 1896. Etiological, Clinical and Pathological Factors in Diagnosis and Rational Classification of Infectious, Toxic and Asthenic Diseases of the Peripheral Nerves, Spinal Cord and Brain, from "Medicine," Geo. S. Davis, publisher, August, 1896. A Short Sketch of the Problems of Psychiatry, read before Worcester District Medical Society, March 10, 1897. The Morbid Anatomy of a Case of Hereditary Ataxy, from "Brain: A Journal of Neurology," Autumn, 1897. Anatomical Findings in a Case of Facial Paralysis of Ten Days' Duration in a General Paralytic, with Remarks on the Termination of the "Auditory" Nerves. Journal Experimental Medicine, Vol. ii, No. 6, 1897. Demonstration of Various Types of Changes in the Giant Cells of the Paracentral Lobule, Am. Journal of Insanity, Vol. xiv, No. 2, 1897. Critical Review of the Data and General Methods and Deductions of Modern Neurology, Journal of Comparative Neurology, Vol. viii, No. 3 and 4, 1898. Critical Review of Recent Publications of Bethe and Nissl, Journal Comparative Neurology, Vol. ix, No. 1, 1899. On Parenchymatous Systemic Degenerations mainly in the Central Nervous System, "Brain," Part xciii, 1901. On Some Terminal Diseases in Melancholia, from Proceedings of American Medico-Psychological Asso., Montreal, Quebec, 1902. Report of a Tranverse Lesions of the Mid-Thoracic Segments Leaving Intact the Posterior Columns, and Causing Syringomyelic Dissociation, Journal of Nervous and Mental Diseases, December, 1902. The Anatomical Facts and Clinical Varieties of Traumatic Insanity, from Proceedings of Am. Medico-Psychological Asso., Washington, D. C., May, 1903.

Massachusetts tries to persuade herself that Professor Meyer's later successes in organization—the New York Psychiatric Institute and the new Phipps Psychiatric Clinic in Baltimore—were facilitated by his Massachusetts work.

So, too, with Barrett's organization of the Psychopathic ward at Ann Arbor, Michigan, the first American clinic for mental diseases framed on the German lines. Barrett's Danvers papers were as follows:—

Disseminated Syphilitic Encephalitis, Am. Jour. Med. Sc., March, 1905. A Study of Mental Diseases Associated with Cerebral Arteriosclerosis, Am. Jour. Insan., vol. lxii, 1, 1905. Spinal Cord Degenerations in a Case of Acromegaly, with Tumor of the Pituitary Region, Am. Jour. Med. Sc., February, 1906. With H. W. Mitchell: Posterior Column Degenerations Following Injury to the Posterior Roots of the Seventh Cervical Nerves, Jour. Nerv. and Ment. Dis., vol. xxxv, 1908. A Case of Pure Word-Deafness with Autopsy, Ibid., vol. xxxvii, 1910.

A strong influence was also exerted upon Massachusetts men by the investigations of Dr. August Hoch, formerly pathologist to McLean Hospital, later of Bloomingdale, New York, and now director of the New York Psychiatric Institute. Hoch's papers from McLean Hospital are as follows:—

Ueber die Wirkung der Theebestandtheile auf körperliche und geistige Arbeit (from Kraepelin's laboratory), Psychologische Arbeiten, 1895. Kraepelin on Psychological Experimentation in Psychiatry, Am. Jour. Insanity, 1896. General Paralysis in Two Sisters, Commencing at the Age of Ten and Fifteen Respectively—Autopsy in One, Jour. Nervous and Mental Diseases, 1897. On Changes in the Nerve Cells of the Cortex in a Case of Delirium Tremens, Am. Jour. Insanity, 1898. Nerve-cell Changes in Somatic Diseases: a Preliminary Communication. Am. Jour. Insanity, 1898. On the Clinical Study of Psychiatry, Am. Jour. Insanity, 1900. On Certain Studies with the Ergograph, Jour. Nervous and Mental Diseases, 1901. Mania Manic-depressive Insanity, Melancholia, Buck's Reference Handbook of the Medical Sciences, 1902. A Review of Psychological and Physiological Experiments done in Connection with the Study of Mental Diseases, The Psychological Bulletin, 1904.

It is not my intention here to supply a complete bibliography even of recent work in Massachusetts psychiatry. But, in addition to the Massachusetts bibliographies of Worcester, Meyer, Barrett, and Hoch, I will add the titles of papers in three volumes of collected work in honor of three retiring superintendents of Massachusetts hospitals. The titles of the papers therein contained will suggest the present-day interests of our large state institutions and will indicate many of the lines of research which the new psychopathic hospital is likely to follow.

The first of these collections was issued in 1910 in honor of Dr. Charles Whitney Page and contained merely papers at that time accumulated in the laboratory of the Danvers State Hospital. The series was edited by the writer.

Danvers State Hospital Laboratory Papers, 1910, BOSTON MED. AND SURG. JOURNAL, vol. clxiii, No. 5, pp. 150-227, Aug. 4, 1910.

1. The Laboratory Work of the Danvers State Hospital, Hathorne, Mass., with Especial Relation to the Policy Formulated by Dr. Charles Whitney Page, Superintendent, 1888-1898, 1903-1910, by E. E. Southard, M.D., Bullard Professor of Neuropathology, Harvard Medical School, Pathologist to the Board of Insanity, Massachusetts.

2. The Margin of Error in the Diagnosis of Mental Disease: based on a Clinical and Anatomical Review of 250 Cases Examined at the Danvers State Hospital, Massachusetts, 1904-8, by E. E. Southard, M.D.

3. A Study of the Dementia Precox Group in the Light of Certain Cases Showing Anomalies or Scleroses in Particular Brain Regions, by E. E. Southard, M.D.

4. Ten Obscure Cases of Mental Diseases: A Clinical and Anatomical Study, by L. B. Alford, A.B., Special Laboratory Interne (1910), at the Danvers State Hospital.

5. A Study of the Senile Spinal Cord in Cases of Mental Diseases, by A. S. Hamilton, M.D., Instructor in Neuropatholgy, University of Minnesota; Interne, 1909, Danvers State Hospital.

6. A Histological Study of the Thyroid Gland in Mental Disease, with Special Reference to Chronic Thyroiditis, by Anna H. Peabody, M.D., Assistant Physician at the Danvers State Hospital.

7. Incidence of Heart Diseases in Acute Psychoses, Danvers State Hospital, Massachusetts, 1879-1909, by Albert A. Hornor, 2d, A.B., Student Harvard Summer School of Medicine, 1909; Laboratory Interne, 1909, Danvers State Hospital.

8. Bacterial Invasion of the Blood and the Cerebrospinal Fluid by Way of Mesenteric Lymph Nodes: A Study of Fifty Cases of Mental Disease, by E. E. Southard, M.D., and Myrtelle M. Canavan, M.D., Assistant Pathologist to the Danvers State Hospital.

9. Bacillary Dysentery at the Danvers State Hospital, Massachusetts, Subsequent to the Epidemic of 1908 (December, 1908 to June, 1910), by Myrtelle M. Canavan, M.D.

10. Organisms Recovered from Dysentery Cases Studied Bacteriologically, December, 1908, to June, 1910, Danvers State Hospital, Massachusetts, by Myrtelle M. Canavan, M.D.

11. The Persistence of Agglutinins for B. Dysenteriae in Danvers Hospital Cases, Together with a Series of Conglutination Tests, by Myrtelle M. Canavan, M.D.

12. Mannite- and Non-Mannite-Fermenting Organisms in a Case of Dysentery. Complicated by Hemorrhagic Endometritis Probably Due to a Third Organism, by Myrtelle M. Canavan, M.D.

13. Primary Adrenal Tuberculosis in a Case of Juvenile General Paresis with Meningeal Infection (Bacillus Coli Communis), by E. T. F. Richards, M.D., Assistant Physician, State Infirmary, Tewksbury, Mass.; Assistant in Neuropathology, Harvard Medical School; formerly Laboratory Interne of Danvers State Hospital. (Proctor Foundation for the Study of Chronic Disease.)

14. A Case of Autochthonous Sinus Thrombosis, by F. Robertson Sims, M.D., Assistant in Neuropathology, Harvard Medical School; formerly Assistant Physician, Danvers State Hospital.

15. The Diagnosis of Fractured Skull as Aided by the Finding of Brain Tissue in the Vomitus, by Gordon T. Brown, M.D., Brant, Alberta, Formerly Assistant Physician at Danvers State Hospital.

16. Note Concerning Brain and Other Visceral Weights in Sixty-six Subjects Showing Carcinoma or Sarcoma, by Newell B. Burns, M.D., Laboratory Interne, 1909, Danvers State Hospital.

17. Some Effects of Overfeeding with Fats in Certain Cases of Insanity, by Herman M. Adler.

The second of these collections was issued in 1912 in honor of Dr. George Smith Adams and contained papers prepared by members of the Westborough State Hospital in eighteen months (1911-1912).

Westborough State Hospital Papers, edited by Solomon C. Fuller, New England Medical Gazette, vol. xlvii, p. 467-686.

1. George Smith Adams.

2. The Psychopathic Division Westborough State Hospital, by Henry I. Klopp, M.D., Allentown, Pa., Superintendent, Allentown State Hospital; formerly Assistant Superintendent and Physician in Charge of Psychopathic Division, Westborough State Hospital.

3. A Study of the Miliary Plaques Found in Brains of the Aged, by Solomon C. Fuller M.D., Pathologist, Westborough State Hospital and Instructor in Normal and Pathological Anatomy of the Central Nervous System, Department of Neurology, Boston University School of Medicine.

4. Recoveries in Dementia Precox, by William W. Coles, M.D., Keene, N. H., formerly senior Assistant Physician, Westborough State Hospital.

5. The Selection of Stimulus Words for Experiments in Chance Word Reaction, by Eleanor A. McC. Gamble, Ph.D., Professor of Psychology, Wellesley College, and Alberta S. Guibord, M.D., Physician, Neurological Department, Evans Memorial for Clinical Research; formerly Senior Assistant Physician, Westborough State Hospital.

6. Two Cases of Multiple Sclerosis with Obscure Neurological and Mental Symptoms (Formes Frustes), by Solomon C. Fuller, M.D., Henry I. Klopp, M.D., and Michael M. Jordan, M.D., Assistant Superintendent, Westborough State Hospital.

7. Sleep and Somnambulism. (Authorized Translation from the French of Prof. M. Bernheim, Nancy, France), by William W. Coles, M.D.,

8. Purulent Streptococcic Cerebrospinal Meningitis from Middle Ear Disease: The Report of a Case, by Ruth B. Coles, M.D., Keene, N. H., formerly Senior Assistant Physician, Westborough State Hospital, and Solomon C. Fuller, M.D.

9. Brain Weights in Psychosis, by Stella B. Shute, A.B., Assistant in Histology, Westborough State Hospital.

10. A Report on the Therapeutic Use of Bacterial Vaccines and on Anti-Typhoid Vaccination at Westborough State Hospital, by Clarence C. Burlingame, M.D., Fergus Falls, Minn., Assistant Superintendent, Fergus Falls State Hospital; formerly Senior Assistant Physician Westborough State Hospital.

11. A Case of Multiple Papilloma of the Brain (Adeno Carcinoma), by Solomon C. Fuller, M.D.

12. A Case of Mongolian Idiocy, by Walter A. Jillson, M.D., Senior Assistant Physician, Westborough State Hospital.

13. Alzheimer's Disease (Senium Precox): The Report of a Case and Review of Published Cases, by Solomon C. Fuller, M.D.

14. Further Observations on Alzheimer's Disease, by Solomon C. Fuller, M.D., and Henry I. Klopp, M.D.

15. A Case of Huntingdon's Chorea with Late Onset, by Solomon C. Fuller, M.D., and John F. Lovell, M.D., Senior Assistant Physician, Westborough State Hospital.

The third of these collections was issued in 1912-1913 in honor of Dr. Hosea Mason Quinby and represents an endeavor to secure characteristic contributions from past as well as present members of the Worcester State Hospital Staff.

Worcester State Hospital Papers. 1912. Am. Jour. Insanity, vol. lxix, 1, July, 1912; 2, October, 1912; 3, January, 1913; 4, April, 1913.

1. Some Problems in the Study of Heredity in Mental Diseases, by Henry A. Cotton, Medical Director, New Jersey State Hospital, Trenton.

2. Unilateral Hypertrophy, Involving the Entire Left Side of the Body, by Peter Bassoe, Chicago.

3. The Relation of the Apraxia Problem to Psychiatry, by Isador H. Coriat, Second Assistant Physician for Nervous Diseases, Boston City Hospital; Neurologist, Mt. Sinai Hospital, Boston, Mass.

4. A Statistical Study of Manic Depressive Insanity with Especial Reference to Physical Illness as an Etiological Factor, by Theodore A. Hoch, Worcester State Hospital.

5. Some Technical Methods for the Routine Examination of the Brain from Cases of Mental Disease, by Samuel T. Orton.

6. The Nature of Metastatic Tumors of the Thyroid, by Adolf Meyer.

7. Report of a Case of Pellagra in Maine with Remarks upon Recent Work on the Etiology of the Disease, by Henry W. Miller, Superintendent, Maine Insane Hospital, Augusta, Maine; Junior Assistant Physician, Worcester State Hospital, Worcester, 1897-1898.

8. Diffuse Glioma of the Pia Mater, by Albert M. Barrett, Professor of Nervous Diseases and Psychiatry in the University of Michigan, and Director of the State Psychopathic Hospital.

9. New Formation of Nerve Cells in an Isolated part of Nervous Portion of the Hypophysis—Tumor in a Case of Acromegaly with Diabetes, with Discussion of Hypophysis—Tumors Found so Far, by Adolf Meyer.

10. A Study of the Brain in a Case of Katatonic Hirntod, by Samuel T. Orton.

11. A Series of Normal-Looking Brains in Psychopathic Subjects, by E. E. Southard, Pathologist to the State Board of Insanity.

12. Report of a Case of a Large Endothelioma of the Frontal Region of the Brain, by Ray L. Whitney, Worcester State Hospital.

13. The Curability of Insanity, by A. I. Noble, Kalamazoo, Michigan.

14. A Case of Epilepsy, by E. V. Scribner, Worcester State Hospital.

Perhaps nothing is more striking than the strongly *somatic* trend of a majority of the papers above listed. Were it not for the equally strong *social* trend of many powerful factors in Massachusetts, as well as the *functional* bias of many leaders in our immediate field here in Boston (*e.g.* Edward Cowles, James Jackson Putnam, Morton Prince), the tendencies of the new Psychopathic Hospital might be thought *over-somatic*. One of our former leaders has always deplored the neurologizing of psychiatry. Perhaps psychiatry has been unduly neurologized and a prey to conceptual artefacts of various sorts. I am, myself, assured that too little attention has been paid to the *intrinsic normality* of many or most of the structures that play a part in the production of mental symptoms and entities.

Just as the kidneys of a diabetic are to all intents and purposes normal and merely *purvey* the excessive flow of urine containing sugar, so too the brain *may* be to all intents and purposes normal and merely permit the excitement, depression, or other morbid functions by purveying suitable impulses. It is clear that parts of the nervous system are, nay *must be*, intrinsically normal despite the appearance of morbid function; it is but a step farther to suppose that in certain instances (albeit the minority) the nervous system as a whole is intrinsically normal, but permits reactions of a nature harmful or destructive to the total organism. This is probably the case in a proportion of instances of disorder of the glands of internal secretion.

There are accordingly theoretical reasons for holding that the causes and effects of mental disease may separately or together reside quite outside the nervous system, whether in the soma or conceivably in the environment at large.

Upon analysis of the papers of W. L. Worcester, Meyer, Barrett, and Hoch and the papers included in the three volumes of collected work, I find the distribution of interests somewhat as follows:—

	NO. PAPERS.
Dealing with structural changes in nervous system	43
Dealing with somatic, non-nervous changes	15
Dealing with general considerations	12
Dealing with strictly clinical considerations	11
Dealing with psychological considerations	7

It is clear that sociology has been gravely neglected and that psychology has not been pursued intensively in our institutions. Should the Psychopathic Hospital endeavor to draw a lesson from this state of affairs and should we con-

sider it our business to develop more evenly the course of psychiatry, we might well seek to throw our strength into the *after-care, prophylactic,* and general *auxiliary social work* of our out-patient department on the one hand and on the other hand into the *psychopathological field.* Such an altered bestowal of strength is already to some extent signalized in the first year of work which is drawing to a close as this is written. On the other hand, mediocre contributions on the somatic side are in some degree easier to make even than merely mediocre contributions on the functional sides of psychiatry. Our hands set to the somatic plow, perhaps it is wise not to drop the plow hastily for the finer instruments of brass.

SUMMARY.

The contributions of a psychopathic hospital like the new Boston institution are likely to emanate from the laboratory and to be of somatic trend. Their source will, however, be the patients themselves, since many psychiatric problems (*e.g.* those of speech) are hardly workable in lower animals. These clinical problems are bound to be of a wide range on account of the representativeness of the clinical material, the drainage-product, namely, of a metropolitan district. German models are available, and articulation with the state system of government carries with it sundry advantages.

The juxtaposition of the medical and social points of view must direct our progress. Local influences (Massachusetts General Hospital, Boston Dispensary) are of especial advantage.

We are not so happy in possessing as yet few competitors; nothing like the number of psychiatric observers (and of clinics for such observers) can soon be hoped for in America, as are to be found in German-speaking countries.

Juxtaposition of scientific establishments for medical research characterizes the recent Boston developments in which the medical schools, various privately endowed institutions, and the commonwealth have shared. Various examples are cited in the text of men working in adjacent institutions, whose work should be a stimulus to ours.

The traditions of Massachusetts in psychiatry are, however, by no means negligible. Examples are offered in the text of men who have set the more recent traditions.

A rough statistical analysis of contributions by these more recent Massachusetts worthies and of contributions by workers contributing to three separate sets of state hospital *Festschrift* papers serves to demonstrate that about one-half of all these contributions have dealt with matters of nerve structure.

The paucity of sociological and psychological contributions is clearly in evidence. To secure a more even development of psychiatry, these latter should be stimulated, though naturally our somatic studies should not be permitted to lag.

THE WASSERMANN REACTION IN ITS APPLICATION TO MEDICINE.*

BY W. P. LUCAS, M.D., BOSTON.

THE Wassermann reaction is made with the blood serum of the patient in question or with some other serous fluid,—usually cerebrospinal fluid. At times, however, the pericardial fluid, seminal fluid, fluid from cysts, or milk may be used. It is a reaction in which hemolysis plays a great part. On account of its method, it is a complement uniting reaction, which depends on the presence of antibodies or reaction bodies in the patient's serum combining with an antigen. An antigen may be defined as any substance which is able to produce antibodies when injected into an appropriate subject. These antigens may be bacterial toxins, albumen, or blood corpuscles. In the Wassermann reaction, the best antigen is made from an extract of syphilitic fetus liver. The hemolytic system may be regarded very much as an indicator in a chemical reaction. It is composed of three separate substances which enter into combination with one another: First, washed red blood corpuscles, for which, in the original Wassermann reaction, sheep's corpuscles are used. In Noguchi's modifications, washed human corpuscles are used. Second, a hemolytic serum or amboceptor, which is a serum produced by the injection of red blood corpuscles from the same species that are to be used for the reaction, that is, sheep or human; and third, fresh animal serum or complement, which is the activating part of the hemolytic system. These three in combination, when in the appropriate doses and strengths, heated to 37 degrees Centigrade for 30 minutes, always produce hemolysis. The Wassermann reaction is made positive by the fact that in the presence of a specific antibody and antigen, the complement is used up in their combining, therefore the original hemolytic system is deprived of one of its three component parts, *i.e.,* the complement,—which is necessary for the hemolytic reaction. In other words, there is inhibition and hemolysis does not occur. In a negative case where there are no specific antibodies, there is no combination with the specific antigen, and therefore the complement is left free to unite with the hemolytic system, and hemolysis occurs.

The Wassermann reaction is specific for syphilis. In all cases where the reaction is positive active syphilis is present. In other words, the positive Wassermann reaction indicates the presence of living spirochetes in the organism. The

*In connection with work done for the Massachusetts State Board of Insanity:—Analysis of work done in the Laboratory of Serum Diagnosis, Harvard Medical School, from January 1, 1912, to June 30, 1912, being contributions from the State Board of Insanity, Massachusetts, 1913. 2 (S. B. I. Contributions 1913, 1 "Contributions from the Psychopathic Hospital, Boston, Massachusetts: Introductory Note" by E. E. Southard, explaining the general scope of the S. B. I. contributions appears on page 109 of this issue of the BOSTON MEDICAL AND SURGICAL JOURNAL.

above statement is true with very few exceptions. There are only a few diseases which, at certain times during their course, give a small percentage of suggestive or positive reactions. These are: leprosy, scarlet fever during the acute stage, yaws (frambesia), trypanosomiasis, to a slighter extent the last stages of tuberculous carcinoma and certain diseases of the blood, and some metallic poisonings.

None of these, however, would be confused with syphilis if a careful clinical examination is made, except perhaps yaws, which is a condition very rarely seen in this country. A clinical examination should always be the most important feature in the diagnosis of any case of syphilis.

THE WASSERMANN REACTION IN THE VARIOUS STAGES OF SYPHILIS.

Primary Syphilis. In primary affections, the general consensus of opinion is that the chancre appears before the reaction is positive. The reaction is positive, according to most workers, in about 60 per cent. of all such cases. This low percentage is probably caused by too early examination and early active mercurial treatment. The reaction has been found positive as early as the fourth day after infection, but it is usually not present until about the fourth or sixth week, and in a great number of cases no complete inhibition of hemolysis is obtained. A negative reaction proves nothing against the syphilitic nature of a chancre. The Wassermann Laboratory at the Harvard Medical School in the last six months has had seventy cases with a diagnosis of primary syphilis, of which 85 per cent. gave a positive reaction.

Secondary Syphilis. Untreated secondary syphilis always reacts positively. A negative reaction in untreated cases makes the diagnosis of syphilis improbable. The positive reaction is, in untreated cases, always stronger than in treated cases. In treated secondary syphilis, when clinical manifestations are present, the reaction is generally positive. There are cases which react negatively, which at a later examination, say from a week to two weeks later, will give a positive reaction. For this there is no very good explanation. In our laboratory we examined during the past six months, 180 cases of secondary syphilis with 100% positive reactions.

Tertiary Syphilis. In untreated cases of tertiary syphilis the positive reaction is always present. In treated cases, the reaction may not be so strong as in untreated cases. We examined 160 cases with the diagnosis of tertiary syphilis, with 87% of positive reactions. In the laboratory, we also had 128 cases sent in without any stage of syphilis denoted; 98% of these cases gave a positive reaction. So that for general syphilis, with 538 cases of acquired syphilis in all stages, our percentage of positive reactions was 92%. This percentage is in accord with most of the large laboratories following the original Wassermann technic, which is the method we use exclusively.

Later Syphilis, or Latent Syphilis. In absolutely untreated cases of later syphilis, the reaction is almost always positive. In well treated cases the reaction is far less frequently positive, and then weaker than in those who have not been treated systematically.

SPHERE OF USEFULNESS OF THE WASSERMANN REACTION.

Tabes Dorsalis. The importance of this reaction as a diagnostic aid has been manifest in placing tabes dorsalis among the syphilitic diseases. In cases of tabes dorsalis which have not been treated for syphilis, the reaction is often positive. Some workers have found it positive in as high as 83% of cases. An average of all investigators is about 65%. In cases of tabes which have previously been treated for syphilis, the reaction may be absent. This occurs in about 30% of all cases of tabes. In our laboratory we have had in the last six months 30 cases of tabes, with 20 positive reactions.

General Paralysis. General paralysis gives positive results to various observers in 80% to 100% of cases. By most workers a negative reaction is supposed to exclude general paralysis in an untreated case. In our laboratory we have had 65 cases of general paralysis with 95% positive reactions. The five negative cases occurred in patients in whom we did not have a chance to repeat the examination, and were also treated cases. It is important to examine spinal fluid as well as blood. In general paralysis, both are usually positive, whereas in congenital lues frequently the blood alone is positive.

There are a number of diseases which are not generally supposed to have any connection with syphilis, in which the results of the Wassermann reaction are interesting. Nineteen cases of *dementia praecox* have been examined, with 11 positive cases, 8 negative, or 59% positive reactions; whereas in *depressive maniacs,* of which we have had 13 cases, all were negative. In *epilepsy*, we have had four cases with two positive reactions, or 50% positive results. Of *brain tumors,* we have had five cases with three positive reactions; of *mental defectives,* we have had five cases with three positive reactions; 28 cases of *alcoholism* with 40% positive reactions, which shows the close correlation between alcoholism and syphilis.

Cerebrospinal lues also gives a fairly high percentage of positive reactions, varying according to different workers from 16% to 88%. The importance of the Wassermann reaction in the study of nervous disease becomes very evident

when we study statistics as to its result in cases of non-syphilitic origin, or cases in which there is no evidence of syphilis. In such a study we find that the percentage of positive reactions is practically nil, being under 5% in the best laboratories dealing with large numbers of cases to be tested. The fact that we find certain psychiatric diseases of non-syphilitic origin giving a fair percentage of positive reactions suggests the fact that these may be cases of unrecognized cerebral, or latent, syphilis. This is true of such clinical diagnoses as are made in alcoholic psychosis, dementia praecox, and manic depressive insanity. Also the results in the studies of idiocy, epilepsy, feeblemindedness, and hydrocephalus show a close association with hereditary syphilis. It is not to be supposed that syphilis is the cause of these conditions, but rather that it is very frequently associated with them. Sachs states that the Wassermann reaction should be practiced in every neurological ward as a guide to diagnosis and therapy.

Cardio-vascular System. The past few years' work with the Wassermann reaction in cardio-vascular diseases has shown a very close relation of these conditions to syphilis. Chief among these is the productive type found in arteriosclerosis. This form of arterial degeneration is found to be the most frequent cause of arteriosclerosis in the young, of aneurysm of the aorta, and of narrowing of the coronary arteries. It has lately been shown that congenital syphilitic aortitis is quite analogous to acquired syphilitic aortitis; and in cases where any of these conditions are suspected, the Wassermann reaction should be employed to aid in finding the etiological basis of the condition. Aortic insufficiency has been found to have a syphilitic basis, especially in those cases where only the aortic valves are affected. The close correlation of cardio-vascular lesions with these so-called "parasyphilitic affections of the central nervous system" is of considerable importance.

The etiology of certain cases of cirrhosis of the liver has been determined by the Wassermann reaction to be due to acquired syphilis, so that the importance of such a test is evident when the cause of the cirrhosis is at all obscure.

Surgery. The Wassermann reaction also plays an important rôle in the diagnosis of certain surgical affections. It has been found that syphilis of the bony system gives a very high percentage of positive reactions, which makes its value very important in differentiating cases of syphilitic periostitis or syphilitic osteomyelitis from those of a tuberculous origin. Joint conditions of polyarticular and monarticular arthritis simulating the infectious type have by the aid of the Wassermann reaction been found due to syphilitic infection. Spondylitis, too, has its origin in certain cases in syphilis. In the diagnosis of tumors and gummata, this test is of great service. In tumors of the testicle, it is very important before operating to have thorough Wassermann tests performed so as to differentiate the syphilitic from the tuberculous type. It is also of aid in demonstrating the origin, syphilitic or otherwise, of various chronic lesions, such as fibrous orchitis.

In tumors of a sarcomatous nature, it is important to have the Wassermann reaction done, as it has been found that a certain number of these are not sarcomas, but syphilitic in origin. This is also true of many of the infectious granulomata and chronic inflammations. As blood-vessel surgery is increasing, the reaction in cases of aneurysm becomes very important and should be performed before any blood-vessel surgery is undertaken. A certain number of rectal strictures of specific origin have also been brought to light by the aid of the Wassermann reaction.

It must be remembered that the reaction, when positive, indicates the presence of a general disease and not necessarily a local one; so that in every case the local examination and history is of the utmost importance, and the presence of a positive reaction should in no case take precedence over a physical examination or history which would indicate that specific trouble is not at the basis of the condition.

Laryngology. In laryngology, the Wassermann reaction is often of aid in ulcerative lesions of the tonsils, pharynx and throat; and at times the differentiation from Vincent's angina has been aided by the reaction. The diagnosis of leukoplakia and of ulcerative conditions of the mouth has often been cleared up by this reaction. Ozena, at times found in cases of congenital syphilis, is, however, not supposed to be of specific origin, though it does not infrequently occur in conjunction with congenital lues.

In the differentiation of syphilis and tuberculosis of the respiratory passages, the reaction is often of the greatest aid. In deafness of the nervous type, it has been found that about 50% of the cases so examined are due to a syphilitic basis. Otosclerosis in a smaller per cent. (23) has been found to be due to a specific origin.

Ophthalmology. In ophthalmology we find another large field for the usefulness of this reaction. Interstitial keratitis is very often due to specific trouble. Many workers have found as high as 84% positive reactions in such cases.

Iritis is another condition which not infrequently is due to lues.

Retinitis and choroiditis are often of syphilitic origin. In all eye conditions with cerebral symptoms, the Wassermann reaction should be done. It has been found positive in about 59% of such cases.

In our laboratory we have had six cases of interstitial keratitis with four positive reactions; one case of orbital periostitis, positive; five cases of iritis, all positive; one case of uveitis, positive. Such results render the importance of the reaction evident to all.

Gynecology and Obstetrics. The Wassermann reaction has been of a good deal of interest both theoretically and practically in the fields of gynecology and obstetrics. It has called into question two didactically accepted laws:

1. The so-called Colles law, according to which the mothers of syphilitic children are immune against syphilis.

2. The Profeta law, according to which the children of syphilitic mothers are immune against syphilis. It is a well-accepted fact that syphilitic children have often no manifestation or external symptoms of lues; even the well known Hutchinson's triad is comparatively rare. There is often only a simple anemia or a slight nervous condition.

Opinions on Colles' and Profeta's Laws. Muller found that with the blood of wives of syphilitic husbands, where the wife had repeated abortions and premature births, the results were usually positive, and their offspring gave positive reactions in a large percentage of cases.

Knopfelmacher and Lehndroffer examined 32 apparently healthy mothers of syphilitic children, and obtained positive reactions in 18.

Halberstadler, Muller, and Reiche found that the reaction may be negative with children of syphilitic mothers and vice versa; while Boas and Thomsen assert that the reactions can develop later in children whose blood specimens give a negative reaction at the time of birth. They all agree that the negative reaction in these children or mothers is due largely to the latency of the disease, and is not a sign of immunity against the disease. Thus, while the mother of a syphilitic infant may present no sign of syphilis, yet the examination of her blood gives a positive reaction in at least half the number of cases examined.

The study of congenital syphilis by the Wassermann reaction has added much valuable information to our didactic knowledge of this condition. Baish, in an extensive study of 140 mothers who had miscarriages or luetic children, has elucidated some points regarding the transmission of syphilis. Of these cases, 24 mothers gave a negative reaction and the dead fetuses showed no spirochetes; while 102 mothers gave a positive reaction and gave birth to fetuses or children with congenital lues, in whom the Treponema pallidum was demonstrated. Of these 102 mothers, 27 had evidence of syphilis, while 72 were free from such evidence. With these women, the positive reaction may have been due either to a latent syphilis, the women being spirochete carriers, or the complement-fixing bodies may have been formed in the fetuses and have filtered through the placenta into the maternal circulation. Baish found Treponema pallidum not only in the placenta but in the maternal portion of the decidua, so he concludes that the mothers were actually infected. He showed that the intensity of the reaction in the mothers did not diminish after the delivery of the child, as would be expected were the antibodies formed in the child and filtered through the placenta. At times the blood of the mother and the child give different reactions; this would not be the case if the immune bodies filtered through the placenta.

In 12 mothers with a negative reaction, the fetus and placenta showed spirochetes, a finding which proves that they may be present without exciting the formation of the complement-fixing bodies, but the evidence of spirochetes in the placenta of all the positively reacting cases leads Baish to the conclusion that this fixing substance is always dependent on the presence of spirochetes somewhere in the body.

With all this evidence, it would seem that the period of immunity defined by Colles' law is really a period of latent syphilis, as shown by the reactions. A positive reaction in a high percentage of sound children from clinically syphilitic mothers similarly shows that their immunity defined by Profeta's law is only latency. It is well known that many of these so-called immune mothers and children later present evidences of syphilis. It should be made a rule to treat any such apparently sound mothers or children who give a positive reaction as though they presented active evidences of the disease, and to rule out any wet-nurse that reacts positively from nursing any but known luetic babies.

Pediatrics. In the field of pediatrics the Wassermann reaction is being much used in congenital syphilis, parasyphilitic conditions, and in obscure cases.

Swift examined the blood of 14 mothers with luetic children; 12 of these gave a positive reaction. The two negative reactions were obtained in women who had undergone years of mercurial treatment. In ten women who had borne children with congenital syphilis, or who had had syphilitic miscarriages, nine gave a positive reaction. None of these women recalled any evidences of syphilis before labor; later five of them presented tertiary manifestations; four remained free from all clinical evidences of the disease. Only one of these four gave a negative reaction.

I examined 20 mothers with syphilitic children with only one negative reaction, and ten women with babies in whom a positive clinical diagnosis could not be accurately made, with seven positive reactions. The three negative cases have not shown any more definite symptoms than when first seen, and their babies have thrived without any specific treatment. Only six of these 30 mothers gave any history of specific lesions or had any evidence of lues at the time the reactions were obtained.

The performance of this test on wet-nurses is specially important now that their use is being so widely acknowledged in difficult feeding cases or in cases in which breast feeding is desired during the first few months of life. The writer

has done reactions in 26 cases of wet-nurses with three positive reactions. All three of these cases had no signs of lues from their previous history; all were primiparas (mostly illegitimate births), and as far as their physical examinations went were apparently free from any specific taint, and at the time of the reaction their children were all free from many signs pointing to lues.

The value of this reaction has been shown very clearly by Churchill's analysis of 100 consecutive hospital cases. He makes the following very significant statements:—

"The observations made in this paper, based on clinical examination and the serum test, would tend to show that there is a large amount of congenital syphilis among hospital patients. We are struck with the great variety of conditions in which we find a positive serum reaction corresponding with the protean character of syphilis. The greater number of positive reactions is found, furthermore, in the bony, nervous, and circulatory systems,—tissues, it will be recalled, particularly apt to be attacked by the syphilitic virus.

"The comparatively large number of positive cases without physical signs, the 'symptomless' children, is another striking phenomenon, fourteen of the cases (37%) being so lacking. This again is quite in keeping with the character of congenital syphilis,—at least of the late variety,—and emphasizes the difficulty of arriving at a diagnosis, and the importance of the serum test in unearthing these obscure cases.

"The number of cases reported in this series is, however, small, and it may be that an analysis of larger numbers of cases will modify the points which have been discussed, and that the figures obtained in the first hundred cases may be considerably altered by future studies. Enough has been set forth, however, to demonstrate the importance of the serum test in studying our anemic, maldeveloped children, and the desirability of applying this test on a large scale to these children, in order, first, to determine to what extent syphilis prevails among them, and, secondly, to institute proper treatment."

Very interesting results have been obtained by Castelli and Pisani, who have found positive reactions in cases of myxedema, infantalism, and gigantism, and other conditions of distorted nutrition.

That the syphilitic virus often attacks with unusual severity the heart and blood vessels of the fetus is only lately being fully appreciated, as is demonstrated by the cases reported by Warthin. Of the small arteries, the arteries of the Arch of Willis are those most often attacked. An acute gummatous endarteritis of some of the large arteries in the brain as well as of the aorta is now positively and not infrequently recognized; obliterative endarteritis of the small blood vessels of the brain, and especially of the coronary arteries is met with. Fibrous myocarditis with anginal attacks occurs in the young. Gumma may occur in the heart wall. It is estimated that from 20 to 80% of aneurysms are due to syphilitic disease of the blood vessels.

GENERAL USEFULNESS OF THE REACTION.

The general usefulness of the reaction is being more and more recognized in cases of so-called latent syphilis or syphilis without manifestations. Many workers use the reaction in cases which give no outward,—that is, no clinical,—manifestations of disease, but which on examination give the positive Wassermann reaction.

The test is useful also in its application to life insurance. When we recognize the fact that syphilis is a protean disease, and that it has a wide-spread distribution throughout the whole human race, the value of the reaction in insuring life is seen at once. It is stated that one-third of all syphilitics die early in consequence of their luetic infection. It would be a wise precaution for insurance companies to have all questionable cases tested by this reaction for their own protection, but there are, of course, difficulties in carrying out such measures.

In forensic medicine, the importance of the reaction is manifest. It is being used in civil cases as well as in penal cases. The argument that a man is syphilitic can much more easily be made plausible to a judge by the fact that he has a specific reaction than by psychiatric explanations. The writer has had such an experience and the aid of the Wassermann reaction was acknowledged by all parties involved.

As our studies in eugenics proceed, we become more and more convinced that there must be and will be greater self-guarding of the marriage tie. The stand taken by the Episcopal Church in Chicago will undoubtedly compel a widespread recognition of the fact that those intending to marry should be free from infectious diseases. The infectious stage of syphilis is generally considered to be three or four years; but if the Wassermann reaction is still positive, and if it is true that this indicates spirochete carriers, then we must alter our control of the syphilitic. It seems very probable that this reaction will be used as an aid in deciding the question of marriageability, and that, to the present generally accepted rule which demands treatment over a certain period of years before marriage, will be added the requirement of a negative Wassermann reaction.

The therapeutic test for the presence of syphilis is of doubtful value and is being more and more replaced by this more accurate laboratory test, which saves much valuable time and enables us to institute proper and thorough treatment when needed. Such a test is of great value also in easing the minds of those numerous patients who are possessed by the idea that they have syphilis. Repeated negative tests in such instances are usually convincing and banish uncertainty. The writer has had occasion to test a number of such cases, with results very gratifying to the mind of the patient.

THE OBSTETRICAL PROBLEM OF THE POOR.*

BY A. K. PAINE, M.D., BOSTON,

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In discussing the obstetrical care of the poor, it is perhaps wise to limit ourselves to-night, to the problem as presented in the larger cities, that of the smaller communities offering a much less complicated and more easily adjusted situation. A consideration of this subject as presented in the larger cities might be facilitated by classifying those needing obstetrical service in three groups:—Of these, the first would be those unfortunates absolutely devoid of means, families in which the daily struggle for existence is so acute as to leave no thought or ability to provide for sickness, those to whom actual want is no stranger.

The second group would include the small wage earners, who by dint sacrifice in other directions are able to save a few dollars against the expected confinement.

The third group would include those, thankfully less numerous, but sufficiently in evidence to merit consideration, those in whom frugality has ceased to be a virtue, people of limited means perhaps, but not rightfully entitled to the services of a medical charity but who consider the successful "working" of it most desirable and commendable.

Three methods are available for the care of the poor during childbirth in most of our larger cities.

First, The midwife.

Second, The general practitioner of medicine who is able or willing to attend women during confinement for a minimum fee of ten or fifteen dollars.

Third, The medical charities which having departments for this work are able to carry it on by utilizing the services of medical students seeking instruction in this branch of medicine.

The midwife: An institution as old as antiquity and probably as little changed as childbearing itself. One can imagine the earliest midwife to have developed much as her sister of to-day, a neighborly service, repeated once or twice and then "qualifying as an expert." This of course, does not refer to the graduates of the schools for midwives which exist in certain parts of the continent of Europe.

In a way the midwife represents a natural outcome of an insistent social problem. A woman about to give birth to a child, what more natural than that some other woman, particularly one having herself been similarly afflicted, should come in answer to the cry for help? How easy and natural the transition from the friendly service to the professional midwife. Among primitive peoples, the old women outliving their abilities for hard work have naturally gravitated to the care of the children and as well assisting at the births. This condition is ingrained in the history of the human race and to-day we encounter the tendency to return to the practices of our predecessors, a tendency sufficiently strong to compel us to deal with an actual condition. To my mind, the midwife represents not only an economy but almost an instinct, so large a part has she played in the history of the human race.

Theoretically, the bearing of children is a physiological and therefore a normal and self sufficient process. Theoretically, labor itself should be completed with the slightest assistance, making the primitive midwife all sufficient. Unfortunately however, with childbearing as with other physiological processes, the way is beset with pathological pitfalls, and it is here that the primitive assistant may find herself insufficient or worse, becoming perhaps an unconscious, but none the less dangerous, enemy to the woman she would help.

Prior to the aseptic era the midwife and physician were on more equal terms so far as their value to the patient was concerned. With the dawn of that era, the physician generally mended his ways, the midwife continued as from earliest times. It would seem that with this knowledge and its application the results obtained by the physicians in their obstetrical work would have been so strikingly in advance of those obtained by midwives, as to have automatically settled the midwife problem. Unfortunately however, much of the benefit to be derived from the employment of aseptic technique by physicians is offset by ill advised attempts at operative procedures. Further, it is unfortunately true that the asepsis of some physicians has not been above reproach and it is a sad, but nevertheless actual fact that the patient has not much to choose between a poor physician and a good midwife. Abroad, it has been generally recognized that the midwife is permanently incorporated in the social fabric and in keeping with the Continental idea they have proceeded to regulate what they have not been able to eradicate. In various cities there are schools for midwives where a course embracing the essentials of midwifery is taught, and the practice itself is regulated most carefully and midwives under the pain of heavy penalties attend women in childbirth only within the prescribed limits. They are licensed to practice and as far as results go, their work compares favorably with that of the physicians who do a corresponding class of work.

Here, (in Boston for instance,) a much less desirable state of affairs exists, the midwife is not licensed, has no legal standing, her work is done sub rosa, and extensively by midwives whose training has been self acquired. Some of the graduates of the continental schools, com-

* Read before the clinical meeting of the Mt. Sinai Hospital Staff.

petent and capable, are here, but many of them have been so imbued with respect for the law, that when they found themselves without its pale they have not attempted to carry on the work to a great extent. This leaves much of the midwife practice in the hands of women whose knowledge of the essentials of obstetrics is slight. Some of them with native shrewdness and a large experience become quite skillful in detecting complications sufficiently far in advance to extricate themselves from difficulties by calling in a physician, who then accepts the responsibility and some have acquired as the result of more or less association with physicians under these circumstances a rudimentary idea of asepsis.

Aside from the inherent tendencies of some people to employ midwives is the economic problem; their services are procured for as small or a smaller fee than a physician will charge a patient in confinement and they do many things that are on the order of nursing which a physician cannot do and which must be done at extra expense to the patient or unsatisfactorily done by inexperienced members of the household. Considering every aspect of the situation, however, we are left no alternative but to condemn the untrained midwife. On the other hand to the thoughtful mind there is offered much opportunity for reflection as to the wisdom of employing the scientifically trained midwife whose practice is properly regulated.

To my mind the severest arraignment of the midwife (referring to the product of the training schools) is that her practice is not in keeping with the modern tendencies of medicine, where prophylaxis is the watch word and where preventive medicine is the battle ground on which the physician shall achieve his greatest victories. In the practice of obstetrics the usefulness of measures to guard against impending disasters is second to that of no other branch of medicine. Of what avail is it then if a midwife is required by law to seek medical assistance after eclampsia has supervened or labor allowed to advance with a placenta praevia, with deformed pelves or malpositions to the point where the life of one or both patients is jeopardized even with the most skilled assistance, when the employment of the simplest prophylactic measures might have greatly increased the probabilities of a favorable outcome?

As the next provision for the care of the poor during childbirth is the general physician who is willing to attend a case of confinement for ten or fifteen dollars, either as a single case or as a part of his work in the family. What care does he give the woman for that fee; does he make frequent urinalyses and blood pressure readings during pregnancy; does he measure and examine for pelvic deformities and mal-positions during the latter months? Is his asepsis perfect during delivery; does he refrain from operations which are theoretically for the patient's benefit but primarily intended for his own convenience; does he carefully repair all lacerations; does he avoid premature expulsion of the placenta, holding the uterus for the prescribed time, even though he is in a hurry to go to another case; does he make after visits until his patient is entirely well; does he spend much time in instructing her in the proper care of the breasts; does he make careful discharge examinations to see that no conditions exist which may produce morbidity in the future? If he does all this no better service to the child-bearing woman is possible. But the question insistently arises, can a physician earning his livelihood by his work devote the time necessary to a case for ten or fifteen dollars?

On the other hand does he see his patient for the first time when she is in labor? Does he pause between seeing a case of scarlet fever and doing a pus dressing to attend her? Does he discard rubber gloves because he cannot work so well with them? Does he wear a rubber apron bearing the vivid testimony of many such cases? Does he ever hesitate to attempt any operative procedure? Does he measure his skill by the rapidity with which he can do a forceps operation or the few assistants he needs? Is he one of those physicians who in "twenty-three hundred cases has never had a torn perineum?" Does he have much to say about post-partum hemorrhages? Does he get his patients out of bed early that he may not have to make so many post-partum visits? If he does all this is he more desirable than the poorest midwife?

Fortunately the great majority of physicians are conscientious. They do this class of work not because of the small fee but in spite of it, as a part of their general practice in the family; and at a great sacrifice of their time and comfort render to their patients a service for which they receive no adequate return, reluctantly continuing a class of work which the majority of physicians would gladly give up were it not that the confinement is the centre around which much general practice is built.

A not entirely satisfactory state then exists with the physician attending the poor during confinement, a majority of them doing it well but reluctantly without proper return and a few poorly, for a poor fee. In this connection might be mentioned the lodge doctor whose work includes attendance at the confinements of the organization's members, which variety of practice should receive the same condemnation as does any contract medicine.

The third method, that which, carried on by medical charities as a part of the teaching propaganda of medicine, is in some respects a satisfactory solution of this problem but not entirely without its shortcomings. In its favor it might be mentioned that provision is made, by means of the socalled ante-partum clinics, for the patients to receive all the benefits of the intelligent application of prophylactic principles by trained obstetrical staffs, in contrast to one of the weakest points in the midwife method. In this connection it might not be amiss to mention that

our institution was one of the pioneers in this work in Boston. Again the student who attends the case is under close observation by the house officer and staff organization, he alone is allowed to do no more than does, for instance, the trained midwife of the Continent, and his work is grounded on aseptic principles. Experience has shown that he is more ready and anxious to seek assistance than the circumstances actually require. Further competent nursing is available from various organizations working in conjunction with hospitals supplying this class of service which aside from the nursing aids in the application of the prophylatic measures and also serves as a check or guide to the kind of work done by the student. Again the patients receive the benefits arising from the hospital social service organizations and an opportunity is given for the early application of principles presented by the child welfare commissions.

On the other side might be mentioned the dislike some patients would naturally have to being treated by students, though considerable observation has lead me to believe that this objection is much less frequent than one might suppose. In fact, many of these people realize that should the occasion demand they would be the recipients of the services of specialists, who under ordinary circumstances, would command fees far beyond the patient's ability to pay.

Another objection is that a clinic of this kind is in a way a competitor of the general practitioner and especially in that class of cases which are easily able to remunerate a physician for his services but which class considers it commendable to get something for nothing. This is, of course, a problem confronting all the departments of a medical charity and not essentially obstetrical. There is no more reason why a medical charity should render services to those able to pay for such services than that some other charitable organization give money or provisions to a family perfectly capable of procuring such in the ordinary fashion. Most medical charities, however, have at present and are developing the organization to eliminate this form of grafting, that eventually one of the evils of medical charities may be eradicated.

While this paper may seem critical of all the possibilities for the obstetrical care of the poor, it is my aim in closing to suggest some possible solutions of the problem, realizing that alone. destructive criticism avails us little.

In the first place, the trained midwife should be licensed, with her work carried on under proper supervision and restriction, or she should be completely eradicated. The care of the abjectly poor offers no particular midwife problem, whose labor is for hire only, and it is hardly fair to ask the physician to do this work. That he does it frequently is to the credit of his heart, and while promises of remuneration in the days to come are honestly made, he knows in his innermost consciousness that his return will come only, with that for other and similar sacrifices, when he goes to his final reward. The very poor represent the reason for a medical charity. If the institutions doing this work in Boston devoted their services to this class of cases alone, they would be able to do it all and the general physician would regard them as an ally rather than a rival. The various cities without medical schools (for out-patient obstetrical work is impossible without medical students) will have to take one more step toward the paternalism our socialistic friends so earnestly seek.

The cases paying small fees should be left to the conscientious physician; some in his judgment might be referred to the medical charities; others he will have to attend, continuing those sacrifices to which he consecrated himself when he became a physician. In this work he might be helped if a larger number of men entering the profession of medicine resolved on the practice of obstetrics as a specialty. Graduating from school and fresh from the excellent training of the hospital, fully competent to do excellent work, *religiously* confining their endeavors to this branch of medicine, in that hiatus between the beginning of practice and the time they could command the acknowledgment and remuneration their attainments merited, they could devote themselves to attending these cases for the smallest fees with mutual advantage to the patient and themselves, and I am sure that the general practitioner would gladly turn much of this work over to them were he sure that in so doing he would not lose his position as family physician.

THE END RESULTS OF EXCISION OF THE KNEE FOR TUBERCULOSIS WITH AND WITHOUT THE USE OF BONE PLATES.

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The operation of excision of the knee joint is a very old one, and it would seem as if there could be no great variation in the methods of accomplishing this very definite surgical undertaking. There have been proposed, however, various modifications of the classical operation of exposing the joint by a U-shaped incision and sawing off the lower end of the femur and the upper end of the tibia. These modifications have consisted in (1) making the saw cut curved so that one convex surface fitted into one concave (Phelps), having the advantage of a quick fitting of the bone ends at any desired angle; (2) in mortising the joint to hold the bones firmly, a socket being sawed and chiselled out of the intercondylar notch of the femur and fashioned to receive an appropriately shaped ridge

of bone left in the centre of the tibial surface. This is theoretically an attractive method and has some pathologic basis, since the intercondylar notch is very commonly most diseased and the mid portion of the tibial head frequently free from disease. It prolongs and complicates an operation which is often attended by shock and is not to be advised as a routine. (3) A third modification is that suggested by Dr. Flint, a former Massachusetts General house pupil, of extra capsular excision. The orthopedic service has never attempted this, but its technic in the description would appear to be at least difficult The method which we have employed has been the following:—

A two to four day preparation is given to the knee joint, which has preferably been previously fixed in plaster for at least one month and the disease rendered somewhat equiescent. On the table benzine, iodine skin preparation is given and an Esmarch or tourniquet applied. The table linen is carefully draped so that extreme flexion of the knee may be carried out without risking the asepsis. The leg below the knee is separately covered and rests on the top of the table covering.

A U-shaped incision is planned, extending from just above the inner femoral condyle downwards across the patellar tendon an inch above the tubercle and upward to above the outer femoral condyle. Before the skin is cut through three tiny cross scratches are made, one at the lower limit of the incision and one on either side. The purpose of these is to facilitate accurate skin flap reposition at the close of the operation. The incision is now carried down to the bone, dividing the patella tendon. The edges of the wound are swabbed with tincture of iodine of full strength. The proximal end of the patella tendon is seized with double hooks and the flap containing skin, fat, patella, diseased tissue, and upper cul-de-sac is quickly dissected back, the knee being gently flexed as this dissection is being carried out. Much of the tubercular tissue is removed as the lower end of the femur and the upper end of the tibia are isolated. A quick dissection of the upper cul-de-sac is made. Calculating the desired angle of fixation, for a standing occupation 10°, for a sitting 30°, the lower end of the femur is sawed off with a flat saw. Only sufficient bone is taken to reach above the disease. The upper end of the tibia is next sawed off and a quick dissection of tissue in the posterior capsule is made. The patella is removed or its under surface sawed off. No attempt is made to remove more than the evident mass of diseased soft tissue. The bone and soft part surfaces are swabbed with straight tincture of iodine. The tourniquet is removed and the bleeding controlled.

It has been the custom in the Orthopedic service for the last four years in the absence of a sinus or a mixed infection to fix the bone ends by means of malleable iron bone plates, one on either side of the joint, or by means of the aluminum wire clamps devised by Dr. L. A. O. Goddu, usually three in number, one on either side and one in the middle. With the plates and wire clamps steel wood screws with threads carried up to the heads are used. After the plates or clamps are applied we like to be able to lift the leg by the foot and have the apposition remain firm. The patellar tendon is sutured and a few stitches taken through the deep tissues. The skin flap is sutured in place. If the oozing is considerable rubber tissue wicks are sometimes inserted in the upper corners of the wound. The leg is put up in plaster of Paris. In the absence of irritation the stitches may be left for two weeks, and a second plaster applied at least by the end of the fourth week.

In four weeks from the operation in the favorable cases we hope for the union to be quite firm, and under these circumstances the patients are discharged in these casts on crutches.

Since our attempts have been directed to ensuring close apposition of the bone ends from the start, we have remarked two things. One is that these patients usually have little pain following the operation, frequently requiring no morphia, and second, that firm union seems to occur in a shorter time than we had formerly been accustomed to expect. These seem to us to be advantages.

The results have seemed to bear out Ely's belief that tuberculous joint disease tends strongly to recovery as soon as the joint is removed.

End Results of Bone Plating. In order to compare the end results of the excision of the knee for tuberculosis, in which metal plates or clamps were used to hold the bone ends in close apposition, with the cases of simple excision, I have traced the twenty-eight excisions for tuberculosis of the knee joint done in the Orthopedic Service during the last five years. In twelve of these no metals were used to hold the bones in apposition. That is, a simple excision was done, chromic catgut or kangaroo tendon occasionally being used to hold the bones together. In two cases silver wire suture was employed. In fourteen cases aluminum wire clamps or bone plates were used, in eight the aluminum wire clamps devised by Dr. Goddu, and in six the malleable iron bone plates suggested by Dr. Brackett.

For purposes of comparison we will group the two wired cases with the simple excisions, since a simple loop of wire can offer only slightly more fixation than that of catgut or kangaroo tendon, and in neither of the cases did it hold firmly enough to accomplish union. We have, therefore, by chance groups of exactly equal number each.

Of the fourteen simple excisions, including the two wired cases, four had a second operation for re-excision, and two of these and one

other were subsequently amputated to save life. It is fair to say that these three amputations were in cases either secondarily infected when they entered the hospital, or which became so after leaving the hospital on account of discharging sinuses. Four had sinuses before the operation, and nine after. Pain persisted several months after the operation in five cases. Eventual union occurred in six. The time of union was two months or less in two. The time of union was in three months or more in eleven, and there is no record of eventual union in five. In both the cases in which wire was used it had to be subsequently removed.

Comparing now the cases in which bone clamps or plates were used (in eight the clamps, in six the plates), none came to operation for re-excision. There was one amputation done outside the hospital in a case in which a sinus had become secondarily infected after an oil injection, and the wound from an excision done on his second entry apparently later broke down so badly after he left the hospital that a local physician amputated, whether with good cause or not we do not know. Two had sinuses before the operation; five had sinuses after the operation, one from a silk stitch; all are now healed but one. Pain persisted several months after the operation only in the amputated case and as a slight occasional throbbing in a case done four months ago. Eventual union occurred in thirteen. The time of apparent firm union was one month or less in six, two months or less in four, and three months or more in three. In five cases, counting the amputation case as one, the bone clamps or plates gave subsequent trouble, and were removed in four cases, in two of which previous sinuses had existed.

The following questions have been asked in personal letters of all cases of excision done since 1908 in the Orthopedic Service: 1. Name. 2. Address. 3. Are you wearing any apparatus on your knee? 4. Does your knee give you any pain? 5. Is the knee entirely healed? 6. Have you any motion in the knee joint? 7. Do you use crutches or a cane? 8. Are you working? 9. Is your general health good? 10. Have you any trouble in your other joints? Of those whose end result is thus reported to the present date, nine may be said to have had an absolutely perfect result in a comparatively short time, and in all of these bone plates or clamps were used.

The comparative statistics of this small series of cases would seem to show that the holding of the nicely approximated bone ends firmly together has definite advantages. The post-operative pain is less, early union is favored, and the only untoward effect which we have noted is the occasional necessity for the removal of the bone clamp or plate. This possible eventuality seems of little import when compared to the greater assurance of diminished suffering and quicker return of safe and painless weight-bearing.

End Results of 28 Consecutive Excisions of the Knee for Tuberculosis.

done on the orthopedic service of the massachusetts general hospital by different orthopedic surgeons.

	14 Cases without Bone Clamps or Plates.	14 Cases with Bone Clamps or Plates.
Subsequent Amputation	3 Secondary infections from sinuses.	1 Secondary infection from sinus
Subsequent re-excisions for non-union or disease	4 Two later amputated	0
Persistence of pain several months after operation	5	1 Amputated case.
Apparent firm union in one month	0	6
Firm union in two months	2	4
Eventual firm union but requiring three months or more	6	3
No record of eventual union	6 Three amputated counted.	1 Amputated case.
Subsequent removal of material used to hold bone ends together	2 Wire removed from both cases in which it was used.	4 Not counting amputated case.

Medical Progress.

REVIEW OF BIOLOGICAL CHEMISTRY FOR 1912.

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THE INFLUENCE OF THOROUGHLY SPLIT PROTEIN ON NUTRITION.

The effect of split protein products, the abiuret stage, has long been studied by Abderhalden and his students, but it was left to Frank and Schittenhelm to study their effect on man. They found that these products, procured by long cooking of albumin with dilute acid and taken into the economy by the mouth, not only stayed the nitrogen waste of the body, but in all respects were a perfect substitute for the ordinary food protein, and could produce an increase in body nitrogen. The same effect occurred also when these products were introduced by rectum, since the absorption of the

amino-acids and peptids by the colon is excellent. The importance of this discovery lies in the fact that these products may be made available as a part of the diet for invalids, and predigested food will not necessarily hereafter merely mean proteoses and peptones, as at present, but peptids and amino-acids. At present, however, the price of these products is prohibitive. Furthermore, the former author, in conjunction with Strobel, has shown that the deeply split products of like protein, when brought in any quanity into the circulation of an animal, causes the same deleterious effects as those of an unlike protein, with which we are fully familiar; hence in the protein metabolism, disintegration and synthesis go on *inside the cell;* just as active intermediate products enter the circulation to any extent, it is always indicative of pathological processes. The same authors have called attention, however, to the fact that the strong odor and sharp taste of these products make it difficult to feed an individual on them for any length of time. To avoid these effects as much as possible it is advised to prepare such products from absolutely pure protein and avoid the secondary by-products as far as possible (from hemoglobin, etc.).

INCREASING IMPORTANCE OF THE DETECTION OF THE AMINO-ACIDS IN DIAGNOSIS.

Falk and Saxl have found that cirrhosis of the liver, and other diseases of that organ, are accompanied by a relative increase of the amino-acid and peptid nitrogen in the urine, and in distinction to those who possess a sound liver when glycocoll is taken, there is a marked increase in the actual quantity of this form of nitrogen. According to Labbe, Marcel and Bith, there is always an increased amount of ammonia in the urine of diabetics, which is derived chiefly from the amino-acids; when acidosis occurs, however, the amino-acids increase to such an extent that two-thirds to three-fourths of the total ammonia arises from these acids. The increased ammonemia in acidosis is closely associated with the increase of organic acids, while the increasing disturbance of the amidoacidolysis is dependent on the disturbed functions of the liver.

QUANTITATIVE DETERMINATION OF FERMENTS IN GASTRIC CONTENTS AND FECES AND THEIR SIGNIFICANCE.

Ruetimeyer, from an examination of 109 cases of various forms of gastric disease—employing for comparison all the better known methods of quantitative determination of pepsin and rennin, comes to the following conclusions:—

1. The dilution method of Boas gives the best results for rennin, while that of Mette affords the most satisfactory results for pepsin.

2. In the group of hydrochloric acid free gastric contents (true achylias, cancer and nervous achlohydrias) we find in dilutions of the content of 1 : 10 for rennin and 1 : 16 for pepsin, both milk coagulating and peptic power present in 80% of all cases.

3. Complete absence of the ferments in undilated content is rare.

4. In determination of rennin it was found that this ferment was very scanty in achylias (1:10), much more abundant in cancer (1 : 40 to 1 : 320), and almost equally as abundant in nervous anacidity (1 : 80), so that *repeated* findings of rennin in amounts of only 1 : 10 speak for achylia and not for gastric cancer.

5. In cancer, where there is stagnation, we should put more dependence on the findings in the filtered gastric residue than on the test breakfast.

6. The amount of rennin found is of much more significance than the amount of pepsin in differentiating achylia and cancer.

7. Even during the latest period of gastric cancer there appears to be a steady diminution of the ferments.

8. The secretion of hydrochloric acid and of the ferments bears no relation to each other.

Schlecht and Wittmund have completed a thorough study of the contents of an isolated coil of small intestine of a human, in order to determine whether the tests used on feces to determine the presence of trypsin and animal diastase may not be positive with the succus entericus alone, which, if true, would exclude them from determining a functionally sound pancreas. Their conclusions were that the digestion of a fibrin flake, of a Mette tube, a serum plate or Schmidt's nuclei, by a fecal extract, can be accomplished by trypsin alone, and in no degree by the succus entericus, or by any ferment which the latter may contain. On the contrary, the casein test of Gross and the diastase test of Wohlgemuth can be given in a moderate degree by pure intestinal secretion; however, on account of the minimum action of the latter and with a knowledge of this probability of error, the test may be employed clinically without any great possibility of mistake. Pratt comes to the conclusion that the detection of increased ferments in the urine, or their absence from the feces, cannot be made available for the diagnosis of acute pancreatic disease, but holds out the hope that increased urinary diastase may sometimes acquire diagnostic importance in this condition when a sufficient number of cases have been collated. In chronic pancreatitis there is usually a disturbance of the findings generally constant with a normal pancreas, though departures from the normal findings may be present with at least an anatomically sound pancreas. Noguchi, on the contrary, claims that after mechanical injury to the pancreas, a marked increase of diastase is found in both blood serum and urine, hence he concludes

that this increase after an accident can be utilized for proof that the pancreas has participated in the injury to the organs, if not the sole one impaired. The latter author, too, in conjunction with Wohlgemuth, came to the conclusion from a study of cases, that whenever one received a blow in the abdomen, and the urine and blood contained an excess of diastase, that the pancreas is impaired, and that therapeutic efforts must be directed toward a retribution of its functions.

SIGNIFICANCE OF LIPOIDS IN NUTRITION.

Stepp has instituted a series of experiments to determine the importance of lipoids in nutrition. Mice were fed on a ration containing sufficient fat, but which had been thoroughly extracted with alcohol and ether. It was found that in spite of all the ingredients of a balanced ration being present, they soon died. A deficiency in salts can play no part here, whatever. Hence a lipoid free diet is at the same time a fat free diet. The substances soluble in alcohol-ether, which are removed, and from the loss of which the mice died, are not fats. That lecithin and cholesterin were not the substances removed was shown by the addition of these products to the previously extracted food, but the mice died just the same. According to Cronheim, lecithin plays a very prominent part in the diet of adults and must always be present in not too small quantities. It is also probable that in case of loss of nitrogen-containing material in the adult economy, lecithin may play the same part as in childhood and replace a portion of it.

PURIN METABOLISM.

LaFronca found that the purin metabolism varies very markedly in the Laennec and Hanrot type of hepatic cirrhosis; in the former case it is very faulty and incomplete, while the latter pursues a normal course. The deficient metabolism of purin in atrophic cirrhosis is explained, for the most part, by the perverted transformation of uric acid. Lubieniecki has proved the effect of calcium salts on the purin metabolism of warm blooded animals, and found that in 9 cases out of 16 the calcium salts cause a lessened elimination of purin, *i.e.* allantoin; in three cases the salts had no effect whatever, and in three cases there was an increased elimination under their ingestion. v. Nustadt experimented with feeding purin bases to patients suffering from gout; persons who were healthy or rheumatic (not gouty) eliminated from 20 to 80% of the ingested hypoxanthin as uric acid. An unequal absorption of the hypoxanthin may be made accountable for a part of this wide variation in elimination. Persons with the gout do not eliminate more slowly nor, to any great extent, a diminished amount as compared with those in health. The transformation of hypoxanthin, then, follows a normal course, both as to time and amount. Therefore, we cannot make renal retention responsible for the variations in the transformation of hypoxanthin to uric acid nor for their elimination. From these experiments it is probable that there is simultaneously an intermediate destruction of uric acid. According to Sivén, the purin substances eliminated in the urine of humans are terminal products of the exogenous purin taken in the food; at least 50% undergoes a thorough disentegration in the digestive tract; another part is absorbed with the ring unchanged. This portion is not further destroyed, but in a comparatively short time (12-15 hours) is eliminated by the kidneys as a purin substance.

FATTY ACIDS AND THEIR SIGNIFICANCE.

By experimentation, Bickel showed that with purely vegetable diet the stools contained the least fatty acids, with exclusive meat diet the amount increases, while on a mixed diet the quantity increases, to reach a maximum on a diet of potatoes. Shimazono has found that the alcoholic or ethereal extract of rice has a hematolytic power, which upon isolation and identification was found to be due to palmitic acid. The hematolytic action of extracts of organs, worms, etc., which has previously been noted, supposed to be dependent on the lipoid bodies, is undobutedly due to a large extent to the contained volatile fatty acids. Labbé and Larue suggest the importance of a quantitative determination of the volatile fatty acids in the stool. These acids in their production and elimination offer very distinct and definite points on which to base a diagnosis of different intestinal affections; they offer a standard by which to judge the severity and intoxication of the patient.

SIGNIFICANCE OF CREATIN AND CREATININ ELIMINATION.

The formation of creatinin in the body is still clouded with uncertainty. Folin's investigations, and those of others, have shown:—

1. That creatinin is not present in normal urine.

2. That the amount of creatinin eliminated daily is dependent on tissue changes in the body, and bears no relation to food.

Starting from these conclusions of Folin, Roux and Taillandier in the clinic found that the healthy adult eliminates 20-25 mgms. of creatinin per kilo of weight. Pathologically, they found that neurasthenics eliminate much less than the normal amount, and in conjunction with this factor the patient exhibited great weakness, dizziness, headache, persistent constipation, and a dislike to meat. From these factors the authors conclude that this disease or condition is associated with marked tissue changes, which produce the lessened quota of

creatinin. Similar conditions are also found in the weaknes of old age, paralysis and melancholia. On the contrary, when there is rapid destruction of tissue, as accompanies a high temperature, the creatinin is very much increased in the urine. The figure for creatinin elimination and the intensity of the vital process are closely associated. Vas also has made a study of creatinin elimination under pathological conditions. In two cases of leukemia, no direct relation could be found between the creatinin and the purin bodies, but a close association was found between the elimination of the former and the total nitrogen. In one case of muscular atrophy, the increased elimination of creatinin in the urine could be brought into direct relation with the progressive destruction of muscular tissue.

METHOD FOR DETECTION OF THE INTEGRITY OF PANCREATIC FUNCTIONS.

Among the ingenious methods of testing the integrity of the pancreas, which has remained the sphinx of the body, is that of Ehrmann. It is based upon the fact that a neutral fat, free from fatty acids, can be split only by the steapsin of that organ, and when split the ensuing fatty acids give green salts with copper. The method is as follows: 30 grams of ordinary rice starch is to be suspended in warm water, a pinch of salt added, and then 75 grams of commercial palmen (neutral) are to be warmed, added to the former, and well mixed. This is to be taken by the patient while fasting and the contents removed two to two and one-half hours afterward. A portion of this fat containing gastric content is to be poured into a test tube, and an equal amount of reagent I (petroleum ether 90.0, benzol 10.0) added, and well shaken; then the upper ethereal portion is to be poured into a second glass, and an equal amount of reagent II (cupric acetate 3.0, water 100.0) added, and likewise shaken. If steapsin, and inferentially an intact pancreas is present, the upper layer is stained a more or less dark green, while if steapsin, and probably the other pancreatic ferments are absent, the upper layer is water clear and uncolored. If there is excessive hydrochloric acid secretion in the patient's stomach, it is well to give a teaspoon of sodium bicarbonate with the test meal.

TOTAL NITROGEN DETERMINATION IN URINE.

For the purpose of learning the ratio of ammonia nitrogen to total nitrogen, simpler and time saving methods have been long sought. No one questions the accuracy of Schloesing's method for the former nor of Keldahl's method for the latter, but for clinical purposes the saving of time is ever an object to be sought for—if long and cumbersome, the method will be abandoned in clinical laboratories. Sorensen has solved the problem of rapid urinary ammonia, and Folen and Farmer have apparently so modified the Kjeldahl method that it is practicable for clinical purposes, requiring not more than ten minutes for an estimation. Their chief change is the use of extremely small quantities, which hastens the process at every step. One c.c. of the urine is measured with an Ostwold peptone into a large test tube of Jena glass, then 1 c.c. of concentrated sulphuric acid, a gram of sodium sulphate and a drop of a 5% solution of copper sulphate, are added, and a clean pebble is introduced to prevent spurting. Boil the tube over a small burner for six minutes, or two minutes after the solution has become colorless; cool three minutes and then add 6 c.c. of water, drop by drop at first, then more rapidly to prevent solidification; then add 3 c.c. of a saturated solution of sodium hydroxide. The ammonia is then aspirated by an air current produced by a small water air pump, at first slowly, and then with full force into 100 c.c. measuring flask containing 2 c.c. of N-10 hydrochloric acid and 20 c.c. of water. This takes about ten minutes, when the apparatus can be disconnected from the receiving flask and the fluid in the latter diluted to 60 c.c. One mgm. of nitrogen, in the form of ammoniumsulphate is dissolved and diluted to the same extent in a second measuring flask.

Five c.c. of Nessler's reagent, to which 25 c.c. of water have been just added, are poured as near as possible at the same time into each flask; both flasks are then filled with water to the 100 mark and the relative intensity of color determined by a colorimeter; the reading of the standard solution divided by the reading of the unknown gives mgms. of nitrogen in the amount of urine taken. The chief precaution recommended by the authors in this process is that the ammonium sulphate must be absolutely pure.

ACIDITY OF URINE AND ITS CONTROL.

Henderson and Palmer have been making some interesting comparisons of the acidity of urine in different diseases, using a colorimeter method and comparing with colors of standard acid and alkaline solutions, produced by adding respectively a 2% sodium alizarin sulphonate and 1% phenolphthalein solution. It was found very difficult to increase the acidity of urine either by the ingestion of monosodium phosphate or hydrochloric acid; a slight increase occurred, but never to the extent occurring pathologically—as in diabetes. As the body never produces bases to any extent, with the exception of ammonia, it was found much easier to produce or increase alkalinity in the urine. Even here, however, a limit is found beyond which increased ingestion of alkali produces no change.

LACTIC ACID.

As an apparent intermediate product of the combustion of carbohydrates, this acid has always proved of extreme interest to biological chemists, nor has this interest ceased, as the following experiments show: Levine and Myer in a former contribution showed that glucose could be split by leucocytes to d-lactic acid, but that by this means the cleavage did not pass beyond this point. In this paper evidence was adduced to show that fructose, mannose and galactose were similarly split into lactic acid by leucocytes; pentose was unaffected, but it was found that animal tissue can split the hexoses as readily as leucocytes. Woodyat investigated the question whether the diabetic organism was able to split glucose into lactic acid by extracting and determining the amount found in isolated muscles after death. His conclusions are that glycogen from animals form some sarcolactic acid, but not more than 30% of the normal. This lactic acid cannot come from glycogen, but must arise from preformed sugar, or directly from amino or fatty acids. The muscle of a human, dead of diabetic coma, contained less lactic acid than that of a fully phlorhizinized dog. This suggests an impaired ability on the part of the diabetic to dissociate glucose, since such muscles are bathed with a fluid unusually rich in sugar, which, if utilized, would produce more lactic acid than is found in the muscle of phlorhizin diabetes.

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Reports of Societies.

AMERICAN ASSOCIATION OF GENITO-URINARY SURGEONS.

Twenty-seventh Annual Meeting Held at Washington Tuesday and Wednesday, May 6 and 7, 1913.

The President, Dr. Edward L. Keyes, Jr., of New York, in the chair.

INCRUSTATIONS OF THE RENAL PELVIS AND URETER. REPORT OF CASES.

Dr. John R. Caulk of St. Louis read this paper. Since reporting a case last year he had encountered three other cases. The etiology was in doubt. The majority of observers agreed that the essential process for calcareous infiltration was necrosis. The salts were evidently derived from the urine, which was possibly hypersaturated with them, on account of a special diathesis. Of the author's four cases, which he reported in detail, one was an obstructive calcareous papillitis with a retention cyst of the kidney; one an incrustation of calcium phosphate on the posterior wall of the renal pelvis; and the two others were incrustations in the ureter. Two of the cases exhibited a pathological condition back of the calcareous implantation, one an inflammation of the renal pelvis, and the other an inflammation of the papillae. In the two of the cases examined chemically calcium phosphate was found, with traces of calcium ovalate. The two renal cases were diagnosed as stone, and the true condition was not discovered until operation. Incrustations around the papillae should be treated by nephrotomy, if the symptoms demand intervention. In the ureter they might be removed by opening the ureter throughout the entire length of the incrustation and shelling out; by making a small incision above the incrustation and curetting; or by means of the ureter catheter.

MALIGNANT PAPILLOMA OF THE PELVIS OF THE KIDNEY. TRANSPLANTATION IN THE BLADDER.

Dr. William E. Lower of Cleveland reported this case. Cystoscopy showed a tumor to the left of the left ureteral orifice. Blood was escaping from the left ureter. At a second cystoscopy later a second tumor was seen on the other side of the left ureter. At operation the left kidney was found to be enlarged and the pelvis greatly distended. Palpation revealed a doughy mass. The kidney was removed

and the ureter ligated three inches from the kidney. There were no evidences of new growth at the point of ligation. The bladder was then opened and the papillomatous tumors removed. No other evidence of tumor was found anywhere in the bladder. Four days after operation the patient was still passing blood. About a month after the operation the patient was discharged in very good condition. Three months later the patient returned with hemorrhage. Cystoscopy showed a growth evidently coming from within the ureter on the side from which the kidney had been removed. At operation the ureter was completely removed with a portion of the bladder. About two months later cystoscopy showed a small tumor mass just behind the trigone. This was removed by fulguration. At the present time there was no evidence of further recurrence. When the kidney pelvis was opened it showed a considerable amount of broken down material with fringed edges along the calices. The ureter contained a number of patches of the growth.

DISCUSSION.

DR. HUGH CABOT of Boston had recently a case in which, on cutting the kidney, the three upper papillae showed distinct necrosis, and on these little areas of necrosis there was a calcerous deposit. He thought this bore directly upon Dr. Caulk's work, and tended to confirm the belief that necrosis was a very important factor in stone formation.

DR EDWARD J. KEYES, JR., of New York, said he had been struck several times by seeing small calcerous deposits in tuberculous ulcers in kidneys, and he had wondered why the incrustations in these cases had not produced symptoms. He reported a case similar to Dr. Lower's. The patient, a tuberculous young man, was brought into the hospital with the bladder full of blood clots. Cystoscopy showed a clot coming from the right ureter. Hemorrhage increased so that an immediate operation was required, and a large carcinomatous kidney was removed, with about three inches of the ureter. Three months after operation he was cystoscoped, there was no implantation, and a ureteral catheter run up and down the right ureter failed to produce any hemorrhage. It seemed to him that the theory of implantation down the ureter to account for any proportion of bladder growths was rather far-fetched, both because of the rarity of growths in the kidney pelvis itself, and because the bladder growths ordinarily seen grow from a portion of the bladder of a different embryological structure from the ureter.

DR. R. F. O'NEIL of Boston said he had recently seen a case in which a large tumor of the bladder was removed. The patient died, and at autopsy the ureters and renal pelvis showed numerous papillomata.

DR. CAULK, in closing, said he thought it was pretty definitely settled that necrosis was the prime factor in causing these incrustations, no matter what the locality. The most important diagnostic measure was an x-ray showing the ureteral catheter going through the shadow.

DR. LOWER, in closing, said he thought the case reported by Dr. O'Neil bore out his contention that a more complete post-mortem might reveal the presence of tumors of the ureter or kidney pelvis more often than we see them.

A CONSIDERATION OF A LITTLE KNOWN TYPE OF INSUFFICIENT KIDNEY.

DR. J. T. GERAGHTY and DR. H. W. PLEGGEMEYER of Baltimore: It was the purpose of the authors in this paper to call attention to the fact that a type of atrophied kidney which might be inconsistent with life could exist, and which secreted apparently normal urine. In shape, color and external appearance these kidneys were apparently perfectly normal. Notwithstanding the apparently normal looking kidney tissue the organ lacked entirely the power of taking up increased function under stress. The main point to be emphasized was that such kidneys were a menace to the surgeon when the opposite kidney was diseased. Their recognition might be extremely difficult, and their presence could be suspected only when functional estimations were carried out. When disease was present in the larger hypertrophied kidney the total function, as estimated by phenolsulphonephthalein, was decreased. The function of the diseased kidney might be and usually was greater than that of the supposedly healthy kidney. The function of this kidney showed marked decrease, although the urea percentage and the general character of the urine might be normal. The amount of urine secreted was relatively small. Pyelography might offer some help in showing a pelvis which was small as compared with its fellow on the opposite side. If the individual was not too stout it might be possible to get a shadow showing the presence of a diminutive kidney.

PYONEPHROSIS TUBERCULOSA OCCLUSA.

DR. H. A. FOWLER of Washington said this was one of the most unusual complications of renal tuberculosis. Smirnow had recently collected twenty-four cases scattered throughout the literature. Dr. Fowler reported the following case: A young man gave a history of bladder trouble extending over a period of twelve years. His first symptoms were referable to the bladder, frequency, urgency and tenesmus. Examination at that time showed a marked ulcerative cystitis. The urine contained quantities of pus, blood and tubercle bacilli. Twelve years later when he first consulted Dr. Fowler his urine was perfectly clear, but he was confined to bed with a perirenal abscess, on the left side, which was opened under local anesthesia. Cystoscopy four months later showed nothing coming from the left ureter. A colored solution injected into the left ureter did not appear in the sinus. At operation a large abscess was found in the upper pole of the kidney, which had invaded the pleural cavity in a tuberculous empyema, and it was this which was opened at the first operation. The remainder of the kidney was removed. The patient died ten days after the operation, and no autopsy was permitted. The absence of the marked ulcerative cystitis which was present at the first examination was due unquestionably to the blocking of communication between the infected kidney and bladder. With the flow of infected urine over the bladder, mucosa cut off, the vesical lesions cleared up and entirely disappeared. This showed how bladder tuberculosis sometimes healed when the primary source of infection had been closed off. This case illustrated very well the fact that autonephrectomy could not be considered a curative process.

RENAL FUNCTION.

Dr. B. S. Barringer of New York, who read this paper, said that phthalein was the best single drug for the estimation of the kidney function. The amount excreted varied with the destruction of kidney tissue, and generally but not always with the functional capacity of the kidneys. Because of the variations in its excretion it should be used in conjunction with the urea excretion. The four to one equation was of value in determining the amount of destruction of the kidney. In certain cases no known test of renal function could foretell the death from anuria that followed operation.

DISCUSSION.

Dr. Robert H. Greene of New York said that two years ago he had carried on a series of tests to compare the value of phenolsulphonephthalein and phloridzin, and he had come to the conclusion that of the two phloridzin was very much superior. In the case of a man dying of nephritis as the condition of his kidneys grew worse the phthalein test improved. All these color tests were influenced more or less by the amount of water the patient took before the test.

Dr. Louis E. Schmidt of Chicago said there were many cases in which, on account of urgent symptoms, an immediate operation was necessary, and in those cases a hypertrophy of the diseased kidney, in view of Dr. Geraghty's findings, would indicate palliative operative measures.

Dr. Hugh Cabot of Boston said that when the phthalein test first came out he had had a case of the type referred to by Dr. Geraghty. The patient obviously had kidney tuberculosis, but the bladder picture was so confusing that it was impossible to decide which side the disease was on. The function on one side was normal and on the other very low. He had jumped to the conclusion that the side upon which the function was low must be the tuberculous side. At operation the kidney on that side was found to be very small, but otherwise normal, and the tuberculosis was in the kidney which was doing the most work. Since then three other cases had been seen at the Massachusetts General Hospital. Dr. Cabot was not inclined to agree with Dr. Geraghty that a moderate depression of kidney function was evidence of bilateral kidney disease. He was also unable to agree with Dr. Barringer as to the value of the phthalein test as compared with the urea excretion. It had seemed to him that the urea excretion was an excessively unsound guide, and he had supposed it to be entirely or largely abandoned. He did not believe that phloridzin was now properly regarded as of any considerable value.

Dr. Henry H. Morton of Brooklyn said he had had a case of pyonephrosis tuberculosa occlusa a few years ago, and he was surprised to hear that it was such a rare condition. The difficulties of diagnosis were very great. It was first thought to be a case of renal calculus. The ureter catheter was arrested about half way up, but the x-ray showed no stone. At operation the kidney was found to be nothing but a small pocket of fibrous tissue. Dr. Morton was rather surprised that more use was not made of the indigo-carmine test. It was much easier in comparing the function of the two kidneys than the phthalein test. In, perhaps, twenty-five of fifty cases he had never known it to fail.

Dr. John R. Caulk of St. Louis said that recently he and Dr. Davis had reported in the neighborhood of 200 cases of renal disease and obstructions of the vesical neck in which the phthalein test had been used in conjunction with other tests, and almost invariably the results with the phthalein test had shown them the true nature of the renal disease.

Dr. Francis R. Hagner of Washington said that Dr. Geraghty's work had made us more conservative in kidney surgery. He recently had had a case of a poorly nourished man with a large number of calculi in one kidney and a large pus kidney on that side. On the opposite side there was a little pus, but the output from that side was only 9 per cent. in one hour. On account of the bad condition a palliative operation was decided on. The stones were removed and the pus evacuated. The kidney was drained, and the patient made an excellent recovery, and the output has increased from 9 to 26 per cent.

Dr. J. Dellinger Barney of Boston reported a case of closed renal tuberculosis similar to the case of Dr. Fowler. At operation the kidney was found to be a small fibrous affair, and on splitting it it was found to be practically entirely caseous material, with practically no renal substance left, and the pathologist's report was tuberculosis. He had an x-ray of a kidney of this type which was taken before operation, and which showed the kidney and practically the whole ureter a solid mass of calcareous deposit. This suggested that possibly the x-ray might be of more value in diagnosis of this condition than one would suspect. He called attention to the fact that in the presence of an alkaline urine with pus the color of indigo-carmine does not show up at all, or, if so, only slightly.

Dr. Hugh H. Young of Baltimore mentioned a case of tuberculosis of the kidney, in which at operation the upper portion of the ureter was found to be greatly dilated, and on following it down toward the bladder junction there was found an extremely tight stricture of the ureter, the ureter being bound up with the seminal vesicle. It appeared that the onset and growth of the process had come from the seminal vesicle, and some researches which he carried out in Guyon's laboratory in Paris showed that there was a number of cases where the disease had extended from the seminal vesicle and produced an occluding stricture with a dilatation above. He thought that infantile kidneys would have to be given more attention in renal surgery. The more he used the phthalein test, the more definite and certain it became. After a very careful comparative study with indigo-carmine, phloridzin, etc., it seemed far the simplest, the most accurate, and about the only test by which one could get a quantitative analysis.

Dr. Eugene Fuller of New York reported a case of pyelitis where obstruction had been caused by disease of the seminal vesicles, drainage of the latter relieving the pyelitis.

Dr. Charles H. Chetwood of New York said he thought we had arrived at more or less of a consensus of opinion, with a few dissenting voices, that the phenosulphonephthalein test was the best of all functional renal methods of diagnosis, and that the urea volume test had a certain amount of relative value. The employment of these two methods, together with a consideration of the clinical symptoms, would generally enable us to make a satisfactory diagnosis.

DR. EDWARD MARTIN of Philadelphia thought that almost everyone who had tried it had found the phthalein test more convenient than any other. Attention had been concentrated somewhat on its value in nephrectomy, but it was valuable not only in genito-urinary operations, but in all operations. He had adopted the test as a routine before all operations. In operations upon the urinary tract complete relaxation was not necessary, and in cases where the kidneys are damaged he had adopted the practice of using nitrous oxide anesthesia, thus avoiding the irritating effects of other anesthetics upon the kidneys.

DR. EDWARD L. KEYES of New York believed the phthalein to be the best test. The man doing the ureteral catheterization was a very important factor, and for that reason he thought it was wise to depend chiefly upon the phthalein test and to add to that a very intimate investigation of the ordinary microscopical constituents of the urine, and also the urea percentage and volume. He believed with Dr. Barringer that the urea volume was of considerable value.

DR. GERAGHTY, in closing, said that a definitely reduced total phthalein function meant, as a rule, bilateral disease—not necessarily surgical disease. An individual might have tuberculosis on one side and a kidney not tuberculous on the other side, apparently normal, but with a nephritis, which would frequently account for the reduction of the total function. Indigo-carmine was undoubtedly a valuable test if one was satisfied with the amount of information he could get from chromo-cystoscopy.

DR. FOWLER, in closing, said he felt certain that these cases of closed tuberculous pyonephrosis were not nearly as uncommon as we would be led to suppose by the literature, but the fact remained that very few cases had been reported. He had not touched upon the etiology, but the points brought out by Drs. Fuller and Young were very interesting, as illustrating that the etiological factor was stricture, and that that stricture might be due to a descending infection from the kidney, or a tuberculous process ascending, invading the seminal vesicles and producing stricture.

DR. BARRINGER agreed entirely with Dr. Cabot's views as to the estimation of renal function. He had tried to say in his paper that the phthalein test was the best we know of. Also that urea estimation alone was worthless in estimating the renal function, but he did believe it was of value in comparing the two kidneys, and should always be used in conjunction with the phthalein test.

(To be continued.)

Book Reviews.

Infant Feeding. By CLIFFORD G. GRULEE, A.M., M.D., Assistant Professor of Pediatrics at Rush Medical College, Attending Pediatrician to Cook County Hospital. Illustrated. Octavo: pp. 295. Philadelphia and London: W. B. Saunders Company. 1912.

The author of this little book has approached the difficult subject of infant feeding in the proper way, that is, from the standpoints of anatomy, physiology, metabolism and bacteriology. Having done this, however, he to a considerable extent disregards their teachings and recommends a relatively routine method of feeding, namely, the simple dilution of whole milk with the addition of malt sugar. He is apparently not familiar with or does not understand what is really meant by "percentage feeding." However this may be, he certainly misrepresents it. He is a believer in four-hour intervals and relatively large amounts of food at a feeding. He gives a more liberal diet after one year than is customary in this vicinity. The point of view throughout the book is essentially German. It is a reasonably good presentation of the teachings of the modern German school. He follows Finkelstein's classification of the disturbances of nutrition fairly closely, but is not quite so rigid in his classification. Those who are not familiar with the ideas of Finkelstein and his school will find the book a very convenient way to get acquainted with them. The closing chapters on nutrition in other conditions are not up to the standard of the rest of the book. Those on the exudative and spasmophilic diatheses are especially poor. We cannot refrain from calling attention to the picture entitled "stomach washing," in which a nurse is depicted alone in the act of washing out a baby's stomach. No observant reader can help wondering how she does it.

Diseases of the Throat, Nose and Ear. For Practitioners and Students. By W. G. PORTER, M.B., B.Sc., F.R.C.S. Ed. Surgeon to the Eye, Ear and Throat Infirmary, Edinburgh, etc. With 77 illustrations. New York: William Wood and Company. 1912.

This is a small book of about 250 pages, the object of which is to 'provide the practitioner and serious student with a volume embracing sufficient information of the diseases of the throat, nose and ear to be of value in practice." It describes briefly the methods of examination and the more common diseases of these regions with such treatment as does not involve major surgery. The descriptions are good, concise and clear. The illustrations are less satisfactory. The occasional cuts in the text are not well selected, and of the colored drawings a few only show typical lesions well enough to be of real aid in diagnosis. As a whole the book would be an attractive manual for the student in an elementary course. It is perhaps too condensed and superficial to satisfy the needs of a practitioner or advanced student as a book of reference.

Diabetic Cook Book. By Anna Colby Knowlton, Englewood. New Jersey: Anna Colby Knowlton. 1912.

This cook book consists of 142 recipes for the preparation of bread, muffins, biscuit, buns, cakes, waffles, puddings, custards, sauces, ice-cream, pie and other desserts, in such manner as to contain a minimum of starch and sugar and yet to possess palatability and variety of taste. The various gluten flours and products are used exclusively, but no recommendation as to their relative merits or guarantee of their standard of purity, is given. The food articles thus prepared are, of course, intended for those who, on account of glycosuria, must be on a carbohydrate free or restricted diet. The book should be of great value to nurses and others to whom falls the duty and responsibility of preparing the diet for diabetics.

Aids to Tropical Hygiene. By Major R. J. Blockham, D.P.H. (Lond.), R.A.M.C. New York: William Wood and Company. 1912.

This volume in the Students' Aids Series aims to present the data and principles of tropic hygiene in concise form and manner. After a brief consideration of climate and meteorology, the author considers succesively air and ventilation, water and water-supplies, food, clothing, sites, soils, houses, disposal of refuse and of the dead, insects and disease, animal parasites, the prevention of malaria, and disinfection. There is a valuable list of references, and in two appendices are presented tables of tropical diseases indicating preventive measures, and of the distinctive characters of the three more important species of flies found in houses, *musca domestica, homalomyia canicularis, and stomoxys calcitrans,* in their various stages. The problem of colonization of the tropics by white races is essentially one of hygiene. Hence the importance of the subject treated by this book, which should prove a useful manual to all concerned with this interesting branch of modern human activity.

A Text-Book of General Bacteriology. By Edwin O. Jordan, Ph.D. Fully illustrated. Third edition; thoroughly revised. Philadelphia and London: W. B. Saunders Company. 1912.

The first edition of this now well-known general text-book of bacteriology was reviewed in the issue of the Journal for June 3, 1909 (Vol. clx, p. 722); and the second in the issue for Feb. 2, 1911 (Vol. clxiv, p. 165). In this third edition, the chapter on leprosy has been largely rewritten, and new sections have been added to the chapters on cholera and typhoid fever. Recent work on poliomyelitis, measles, and typhus fever, and on several plant diseases, has been summarized, and the description of technical procedures in serum diagnosis has been considerably amplified. The book should continue to maintain its usefulness as an established standard on its subject.

A Text-Book of Obstetrics. Including Related Gynecological Operations. By Barton Cooke Hirst, M.D., Professor of Obstetrics in the University of Pennsylvania. Seventh revised edition. Octavo of 1013 pages, with 895 illustrations, 53 of them in color. Philadelphia and London: W. B. Saunders Company. 1912.

Professor Hirst has added a chapter in his new edition dealing with diseases of the breast. In so far as this chapter deals with the breast as it complicates the puerperium, it is fairly complete, but it would seem to the reviewer that it would have been better to have omitted the remainder of the chapter, which is incomplete, and despite Professor Hirst's contention, has not a great bearing on obstetrics *per se.*

There has been practically no revision of the chapter on operative obstetrics since the preceding edition, and as that was published three years ago, the reviewer cannot say that he concurs with everything that appears in the chapter. The indications for Cesarean section are certainly more elastic today than those given by the author. Furthermore, the reviewer believes that more attention should be paid to the outlet in prenatal examinations than Prof. Hirst thinks is necessary.

The arrangement of the book is admirable, and the system of sub-headings makes it extremely convenient in finding any division of a given subject. The illustrations are all good and some of the colored plates are excellent. The weight of the book is still considerable and it is not easy to handle.

Hunterian Lectures on Color Vision and Color Blindness. By Prof. F. W. Eldridge Green, M.D., Durh.; F.R.C.S., Eng.; Beit Medical Research Fellow. New York: Paul B. Hoeber. 1912.

In these two lectures Dr. Eldridge Green gives an exposition of his theory of color blindness. This theory is the only one that explains all the facts, and against which so far no serious objections have been advanced. He believes in the gradual evolution of the color sense so that all degrees of color perception may be met with today, from those who see no colors to the occasional individual who can distinguish one more color in the spectrum than the normal average person.

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SCHOOL HYGIENE.

THE importance which the general subject of school hygiene has attained during the last decade is strikingly demonstrated by the program of the forthcoming International Congress on School Hygiene. This congress is to be held in Buffalo the latter part of August and is the first of its kind in America, the three preceding meetings of the congress having been held in Europe,—the first in Nuremberg in 1904, the second in London in 1907, and the third in Paris in 1910.

The announced objects of the Buffalo congress are: To bring together men and women interested in the health of school children. To organize a programme of papers and discussions covering the field of school hygiene. To assemble a school exhibit representing the best that is being done in school hygiene. To secure a commercial exhibit of practical and educational value to school people. To publish the proceedings of this congress and distribute them to each member.

In addition to this somewhat ambitious plan it is also proposed to effect a permanent organization, the object of which is to carry out reforms in school hygiene throughout this country and possibly abroad as well. The scope of the congress is further shown by the fact that delegates representing the interest of the community at large in school hygiene are expected to be present, including persons appointed by the mayors and governors and women's clubs, by school boards, by mothers' congresses, charity organizations and boards of trade. The natural object of this wide inclusion of persons who might not at first sight appear to be interested in the problems at issue is to organize the community in the general campaign of reform.

Two hundred and fifty papers are announced and fifteen symposiums concerned with the hygiene of school administration in the broadest sense. The success of the congress is already assured by the names of those who are to take part in the various discussions. President Wilson has accepted the office of patron of the congress; its president is to be President Emeritus Charles W. Eliot of Harvard University, the vice-presidents, Dr. William H. Welch of Baltimore and Dr. Henry P. Walcott, president of the last International Congress on Hygiene and Demography, chairman of the Massachusetts State Board of Health and distinguished for his interest in all matters pertaining to the public welfare.

This congress as outlined above is another evidence of the tendency everywhere observed, to bring to the solution of any special problem various collateral branches of research which, apparently, have little connection with it. The extraordinary development of specialism of which the very existence of such a meeting is evidence, implies breadth of view as well as depth, a matter too little recognized by many critics of modern tendencies. When it comes to be recognized that progress in any field of research must come through highly specialized study combined with a broad perception of the relation of individual problems to outlying fields we may expect a far wider range of influence from our various scientific gatherings, of which this congress on school hygiene is a notable example.

HARVARD MEDICAL EXPEDITION TO SOUTH AMERICA.

A CABLEGRAM from Professor Richard P. Strong indicates that he, Professor E. E. Tyzzer and their associates, constituting an expedition to South America, for the purpose of studying certain tropical diseases, under the auspices of the department of tropical medicine of the Harvard Medical School, have discovered the parasite for Oroya fever in the presence of

minute intracorpuscular bodies in the red blood cells. These bodies have been previously observed, but their nature has not been proved. It is probable that they belong to the genus Theileri. The importance of this discovery is enhanced by the announcement that Oroya fever is a distinct disease from verruga Peruviana, and not merely a severe initial fever of the latter, as has been generally held.

Dr. Strong and his associates have also succeeded in inoculating animals with verruga Peruviana, and while the information in the cablegram is very brief, it is evident that the animal experiments constitute an important link in their evidence of the non-identity of Oroya fever and verruga Peruviana. As a large amount of work has been done on verruga Peruviana and Oroya fever, these announcements are of much importance, and mean that a great step forward has been made in the problems of transmission and prevention of these diseases.

Of general interest to parasitologists is the discovery that the genus Theileri has been found pathogenic for man. The members of the expedition have, before their work in Peru, devoted much time to an investigation of the medical conditions in Guayaquil and in the pest-ridden republic of Ecuador, and have collected much material which will be of value for future research on their return and for instruction in the department of tropical diseases of the Harvard Medical School. They intend also to study the diseases in the countries of Central America and the regions of the Gulf of Mexico.

ABUSE OF THE WORD "INSANITY."

WE are hearing much about the insane and the semi-insane, the feeble-minded, the criminal, etc. "Insanity" has become a very commonly and freely used term. With the popularization and more generalized use of any term we must always expect to find that it may be misunderstood by some, misused by others, and abused by still others. Surely we would resent with great vigor any attempt to label all respiratory disturbance "tuberculosis." Likewise, we would justly openly and forcibly oppose all efforts to include all conditions characterized by abnormality in the urine under the nephritides. And so also with all other organs. We must observe the utmost care and discretion in the use of these terms, which mean so much to the patient and to the doctor from the standpoint of diagnosis, and hence prognosis and treatment.

When we ascend from physical to mental disturbances the tendency toward generalization should be no greater or no less important than it was before. The sphere of the mind is by no means so limited that it is deserving of neglect and immediate relegation to a single diagnostic scrap-heap. All mental disturbance is not insanity. It should be generally appreciated that insanity is purely a legal term. It indicates that the individual has such a degree of mental disturbance that he is legally irresponsible, and, for the best interests of society and of himself, he should be kept under observation and receive treatment in a suitable hospital. Insanity means that the individual's condition demands intervention to safeguard all parties concerned. The case is certifiable. Insanity is, therefore, a phrase which is of social significance. True, the difference between the sane and the insane, like the difference between all normality and abnormality, is essentially and fundamentally quantitative and not qualitative. Between the manifestly sane on the one hand and the positively insane on the other hand there is a continuous series of gradation stages, until, at a certain point we arrive at those states of mind which it is difficult for us to class as either sane or insane and which are really on the border-line between sanity on the one hand and insanity on the other. Moreover, even when an individual is certifiably insane, the mere use of the word insanity is by no means sufficient. We no longer speak of one epilepsy but of the epilepsies. So also we have not mere insanity, but the insanities. The type of insanity—whether it be general paresis or insanity associated with cerebral syphilis, whether we have manic-depressive insanity or dementia praecox—is of the greatest importance for prognosis and therapeutics. Although the difference between various mental states is relatively one of degree and not of kind, this is no excuse for placing all mental disturbance or mind-sickness in the class of insanities. Mental disturbance is not synonymous with insanity. All insane patients are mentally disturbed, but not all mentally disturbed individuals are insane.

We do not include under the nosological label of insanity such conditions as the psychoneuroses, such mental states as we find present in

psychopathic individuals, states of general irritable weakness of the mind, sexual perversion and criminality. It is an open question whether all suicides can be classed as insane. Even acute mental disturbances resulting from states of intoxication are not generally grouped under the heading of insanity. Of course insanity may occur with any of them, but acute cocainism, acute alcoholic intoxication, etc., are not generally classed with the insanities. The relation of the chronic inebriate, the confirmed criminal and the pauper to the insane is a very fascinating and important problem. But the distinction between insanity and these other conditions must be held clearly in mind. Eccentricity, temperamental disposition, labile emotional make-up and conditions of an allied nature should not bring down upon one the designation "insane." It seems, therefore, that the very significant terms insanity, degeneracy, bad heredity, unfitness, psychopathic make-up, neuropathic disposition, feeble-mindedness, backwardness, are being used much too freely and unthinkingly. Mature deliberation and calm judgment should caution us against the too indiscriminate employment of any of these diagnostic terms. Nor should our enthusiasm and interest in certain special fields of study so dwarf our minds and obscure our mental horizon that we see, as through a telescope, nothing but what comes within the field of our own particular mental horizon.

At the risk of repetition we must insist that mental disturbance does not mean insanity, and that insanity itself includes many conditions of widely varying etiology and of different prognosis and treatment.

ANTI-VACCINATION IN THE ISLE OF MAN.

THE following situation regarding vaccination is of interest as illustrating how the form of government in the Isle of Man has served as an effective check upon an injudicious piece of legislation affecting the public health.

Early in the year the Manx House of Keys passed a Vaccination Acts Amendment Bill, the purpose of which was to enable the evasion of vaccination on the ground of "conscientious objection," as is done in England. The Council, however, conducted an inquiry, took expert evidence, and on April 21 rejected the bill. During the inquiry, in which the local physicians were unanimous in support of compulsory vaccination, a large amount of testimony was deposed, showing not only the immense security afforded by vaccination, but also the harm that has already been done in England by the increasing number of exemptions of conscientious objectors. One of the deemsters also pointed out that of 2671 deaths recorded in certain Manx parochial registers between the years 1704 and 1838, 1150 were from smallpox; whereas since universal vaccination was introduced, there had been no deaths from smallpox among persons properly protected.

In commenting editorially on this episode, *The Medical Press and Circular* said:—

"The Manx Legislative Council may be heartily congratulated upon its resolution to exclude that dangerous hybrid, the conscientious objector, from its realm. Were the Manx population to become permeated with such unprotected folk it would lay itself correspondingly open to invasion by smallpox. In some districts where vaccination is largely flouted, a large proportion of the local population is unprotected by vaccination. In such places it is usual to point with pride to the absence of outbreaks of smallpox. Sooner or later, however, the infection will gain an entrance and its deadliness will be rendered manifest among those who are unprotected by vaccination. That is a forecast founded on experience. It is framed in accordance with a law of nature so far as such things can be interpreted by modern medical science. It is one of the anomalies of legislation that the same parliament which adopted the principle of compulsory vaccination with results that constitute one of the most brilliant chapters in medical history should later call into existence the conscientious objector. The incident emphasizes the fact that a representative government cannot be expected to advance far beyond the general level of intelligence of its electorate. While the party system of government is retained in the United Kingdom the voice of the faddist is likely to make itself heard in the council chambers of the nation."

MEDICAL NOTES.

SMALLPOX IN AUSTRALIA.—Report from Sydney, N. S. W., on July 3, states that smallpox is epidemic in Australia, but the number of cases is not given.

BALKAN RED CROSS MEDALS.—Report from London states that on Tuesday, July 8, Queen

Alexandra distributed medals to two hundred nurses and orderlies who served during the recent Balkan War under the British Red Cross Society.

Recent Bequests to English Hospitals.—The will of the late Mr. Alfred King, of Charman Dean, Worthing, Sussex, England, who died on May 16 without issue, bequeaths his entire property of nearly £65,000, subject to his widow's life interest, to Guy's Hospital, London.

Sir Alfred Pearce Gould, of London, has recently given to the Middlesex Hospital in that city the sum of £1000 for the purchase of radium.

Death of Dr. Benjamin M. Lee.—The death of Dr. Benjamin M. Lee of Philadelphia is announced, at the age of eighty. Dr. Lee was secretary of the Pennsylvania State Board of Health for thirty years and during this period had charge of many important health matters; among others of the medical work about Johnstown after the flood of 1889. Dr. Lee also held the position at one time of assistant commissioner of health.

A Strike Complication.—It is reported that an attempt was made recently to cut off the water supply in the homes of strikers in the Paterson, N. J., silk mills. The excuse for this action was that landlords were not receiving rent from tenants, while obliged to meet water bills. The health department, fearing the consequences of such a deprivation of water, has ordered the property owners to restore the supply.

Centenarian.—It is reported from Philadelphia that Mrs. Freda Bidietzky has died at the reputed age of 109 years.

BOSTON AND NEW ENGLAND.

Notice to Milk Sellers.—Copies of the following law are being distributed throughout the city to milk men by Mr. James O. Jordan, inspector of milk. This law requires cleanliness, not only of the vessels employed in the production of milk and its handling and sale by milkmen, but also applies to the containers used for this commodity by shopkeepers, and in restaurants and hotels. It is the desire of the bureau to have this important subject brought to the attention of all who are engaged in sending milk to Boston or in its sale after delivery here.

Section 1. Vessels used as containers in the holding, handling or sale of milk to be sold, or intended for sale, shall be clean and free from foreign deposits upon the inside. Whoever by himself or by his servant or agent, or as the servant or agent of another person, sells, exchanges or delivers, or has in his custody or possession with intent to sell, exchange or deliver, milk in vessels used as containers unclean upon the inside or having foreign deposits upon the inside, shall be punished by a fine of not more than fifty dollars.

Section 2. All appliances, implements, utensils, strainers or materials used in milking and in the treatment or mixing of milk to be sold or intended for sale shall be clean and free from foreign deposits. Whoever, by himself or by his servant or agent, or as the servant or agent of another person, sells, exchanges or delivers, or has in his custody or possession with intent to sell, exchange or deliver, milk obtained, treated or mixed by the use of appliances, implements, utensils, strainers or materials unclean or having foreign deposits shall be punished by a fine of not more than fifty dollars. (Approved June 10, 1913.)

Condemned Fish.—Recently in Boston 984 boxes of salmon, numbering upwards of 2300 cans, were burned through the agency of the local pure food inspectors. This was accomplished by the use of kerosene oil to add to the vigor of the fire, with a result that a conflagration of apparently alarming proportions was produced. The shipment of fish came from Alaska, but through an accident the cases were immersed in water which, according to the manufacturers, injured the salmon. The claim of the pure food officers was that the fish was adulterated.

Diphtheria in Malden and Newton.—It is announced that a small epidemic of diphtheria has appeared in the Edgeworth section of Malden, Mass. The usual precautions have been taken and there is no apprehension of the ex-

tension of the disease. A few cases in an Italian colony at Newton Centre have also occurred.

MAD DOG IN WILMINGTON.—A mad dog in Wilmington, Mass., last week bit 9 persons before he was finally killed. The report from the State Board of Health stated the dog had rabies, and those attacked, all of whom were severely bitten, have been placed under the Pasteur treatment. Dogs which may have been bitten have been taken in charge and a muzzling order has gone forth within the confines of Wilmington and the neighboring town of Andover.

BEQUESTS.—Through the establishment of two trust funds under the will of the late Charles D. Sias the following institutions benefit, among many others of a non-medical character: $10,000 each to the Thomas Morgan Rotch, Jr., Memorial Hospital for Infants and to the New England Deaconess Association; $5000 to the Floating Hospital, the New England Hospital for Women and Children, the Industrial School for Crippled and Deformed Children, Nursery for Blind Babies, St. Luke's Home for Convalescents, Vincent Memorial Hospital, Boston Children's Hospital and its Convalescent Home, and Home for Incurables.

NEW MILK STATION FOR ROXBURY, MASS.—It has been possible to open another station of the Milk and Baby Hygiene Association in the Roxbury District of Boston. This will prove a great convenience for mothers who, heretofore, were obliged to go a long distance to secure the milk.

SCHOOL AT TUBERCULOSIS CAMP.—The day tuberculosis camp at Salem Neck, Mass., which provides for fifteen children, has established a school in connection with its work.

INFECTIOUS DISEASES IN BOSTON.—Cases of infectious diseases reported to the Boston Board of Health for the week ending July 15, 1913: Diphtheria, 40, of which 2 were non-resident; scarlatina, 25, of which 2 were non-resident; typhoid fever, 8; measles 37, of which 3 were non-resident; tuberculosis, 41, of which 1 was non-resident.

The death-rate of the reported deaths for the week was 14.82.

NEW YORK.

CITY ICE PLANT.—The Board of Aldermen has granted an appropriation of $32,000 for a city ice plant, which is to be installed in the new municipal building. It is not for general purposes, however, but simply to supply ice to the various city departments. In the great building there is power going to waste, and the idea is to utilize this in manufacturing ice.

REGULATION REGARDING MEATS.—In February last the city Board of Health adopted a resolution to the effect that on and after July 1, 1913, no meats or meat products (except canned meats) should be brought into or sold in New York unless tagged or otherwise marked to show that they had been inspected by the city health department or inspected in accordance with the provisions of the act of Congress relating to the federal inspection of meat and meat products intended for interstate commerce, or inspected in accordance with the laws of a state or the ordinance of a municipal division thereof maintaining a system of post-mortem inspection and marking of the standard maintained by the City of New York. This resolution was passed in the expectation that the New York State legislature would enact a law similar in nature and affecting the whole state. This, however, the legislature failed to do, and the board of health has therefore now been compelled to rescind this resolution, as it has been advised by counsel that there is no provision made in the agricultural law conferring upon the commissioner of agriculture power of control over the slaughter of animals for food whereby he could exercise the jurisdiction which would be required in order that animals slaughtered in the state of New York might have access for sale in New York City under the regulation adopted in February, and that the enforcement of such an ordinance would be a discrimination against persons slaughtering animals in the state outside of municipalities.

AN UNUSUAL FUND FOR CHARITY.—A fund of $5,000 collected from admission to the steamship *Imperator* while she was in dock after her first voyage to America has been presented by the Hamburg-American Steamship Company to Mayor Gaynor for distribution, at his discretion, to the charities of the city. The mayor

selected twenty of these, giving $250 to each, and nearly all the organizations are among those especially engaged in summer relief work for mothers and children.

Current Literature.

Medical Record.

July 5, 1913.

1. Castelli, E. *Methods of Localization of Spinal Tumors with Reference to Their Medical and Surgical Treatment.*
2. Shanahan, W. T. *Custodial Power Over Inmates of State Institutions for Defectives.*
3. Talmey, M. *Bilateral Optic Pseudoneuritis and Unilateral Medullated Nerve Fibres in Cranial Injury by Blunt Force.*
4. *Burnham, A. C. *Hexamethylenamine in Surgery.*
5. Oberndorf, C. P. *Sexual Periodicity in the Male.*
6. Cocks, G. H. *Foreign Body in Right Bronchus. Lower Bronchoscopy. Successful Extraction.*

4. Burnham discusses the merits of hexamethylenamine in numerous medical and surgical conditions. He is thoroughly convinced of its value and believes that in cases where it has been reported inactive or harmful it was not properly administered. It should be given early in sufficient doses and in sufficient dilution. [L. D. C.]

New York Medical Journal.

July 5, 1913.

1. Smith, A. J., and Crocker, W. J. *Note on Action of Testicular Extract.*
2. Lederle, E. J. *Plans for the Reduction of Infant Mortality.*
3. Kemp, R. C. *The Relations of Adhesions and Intestinal Angulations Resulting from Enteroptosis, to Chronic Constipation.*
4. Tousey, S. *Some Radiographs of Obscure Stomach and Intestinal Cases.*
5. Singer, G. *Torpor Recti; Dyschezia.*
6. Hirsch, I. P. *A New Biorout-genographic Apparatus.*
7. *Fishberg, M. *Non-tuberculous Apical Lesions.*
8. Bryan, R. C. *The Early Diagnosis of Renal Tuberculosis.*
9. Kaliski, D. J. *The Luetin Skin Reaction in Syphilis.*
10. Broadman, J. *The Need of the Microscope in the Treatment of Gonorrheal Urethritis and Prostatitis.*

7. Fishberg claims that unilateral apical signs which simulate those characteristic of phthisis are not as rare as is generally supposed. In mouth breathers one often finds retraction of the right apex, dulness, altered breath sounds, and even râles. Collapse atelectasis and induration should be borne in mind in all right sided lesions of the lung apex occurring in mouth breathers showing no tubercle bacilli in the sputum and manifesting no tendency to follow the usual course of pulmonary tuberculosis. In persons with mitral stenosis a diagnosis of phthisis should not be made without positive bacteriologic evidence. This combination is exceedingly rare, but cases of mitral stenosis not infrequently have fever, cough, hemoptysis and dulness, altered breath sounds and râles localized at one apex. Careful and prolonged observation is necessary to determine whether a given case of mitral disease is complicated by pulmonary tuberculosis or not. [L. D. C.]

The Journal of the American Medical Association.

July 5, 1913.

1. Jonas, A. F. *The Surgeon and the Research Laboratory.*
2. Sollmann, T. *Yesterday, Today and Tomorrow. The Activities of the Council on Pharmacy and Chemistry.*
3. *Ransohoff, J. L. *Anaphylaxis in the Diagnosis of Cancer.*
4. Mayo, C. H. *Surgery of the Thyroid. Observations on Five Thousand Operations.*
5. *Grulee, C. G. *Lange's Colloidal Gold Chlorid Test on the Cerebrospinal Fluid in Congenital Syphilis.*
6. Tuttle, H. K. *Exposure of the Brachial Plexus with Nerve Transplantation.*
7. *Kretschmer, H. L. *The Treatment of Profuse Kidney Hemorrhage by Means of Epinephrin.*
8. Snow, I. M. *Purpura, Urticaria and Angioneurotic Edema of the Hands and Feet in a Nursing Baby.*
9. Crawford, A. C., and Crawford, J. P. *The Cock's-Comb Test for the Activity of Ergot Preparations.*
10. Goldsmith, M. *Classification and Treatment of Nephritis According to Functional Tests.*
11. Wright, F. L. *Results of Schiötz Method in Ridding Diphtheria Cases and Carriers of Diphtheria Bacilli in the State Agricultural and Industrial School.*
12. Blackwood, J. D. *A Note on the Treatment of Cough in Advanced Pulmonary Tuberculosis.*
13. Strong, L. W. *A Rapid Method for Ripening Stains.*
14. Shalet, L. *A Simple Method of Applying the von Pirquet Test.*
15. Law, W. L. *Treatment of Pellagra with Lactic Acid Bacilli.*

3. Ransohoff's test for cancer is done by using guinea-pigs sensitized to normal blood serum and pigs sensitized to the blood serum of patients having cancer. It is an anaphylactic phenomenon. Non-malignant cases give uniformly negative results. It seems to be valuable in early cases. The author advises further trial by other critical workers.

5. Grulee and Moody believe that cases suggesting congenital syphilis can be definitely diagnosed by Lange's colloidal gold chlorid test and that treatment will probably modify this reaction less than it will the Wassermann.

7. Kretschmer successfully treated a pregnant woman with painless hematuria by means of intrapelvic injections of epinephrin. He suggests that by means of this treatment nephrectomy may be avoided. [E. H. R.]

The American Journal of the Medical Sciences.

June, 1913.

1. *Giffin, H. Z. *Clinical Observations Concerning Twenty-seven Cases of Splenectomy.*
2. *Palfrey, F. W. *The Administration of Ox Bile in the Treatment of Hyperacidity and of Gastric and Duodenal Ulcer.*
3. *MacNeal, W. J. *Observations on the Intestinal Bacteria in Pellagra.*
4. Ashhurst, A. P. C., and John, R. L. *The Rational Treatment of Tetanus with a Report of Twenty-three Cases.* (*To be continued.*)
5. Sutton, R. L. *The Occurrence of Cancerous Changes in Benign New Growths of the Skin.*

6. *HUNT, C. J. *The Use of Antityphoid Vaccine During the Course of an Epidemic.*
7. *MCKENTY, F. E. *A Study of Cases of Actinomycosis.*
8. *DAVIS, T. G. *Hema-uro-chrome: A New Laboratory Test for Cancer and Sarcoma, Also a Method of Separating Bile Acids and Pigment with the Application of Torquay's Test, Indican Being Obtained if Present. A Preliminary Report.*
9. O'MALLEY, M. *A Psychosis Following Carbon-monoxide Poisoning, with Complete Recovery.*
10. FOX, H. *Acute Polymyositis.*
11. *POMEROY, J. L. *Clinical Importance of Reflex Phenomena in Intra-Thoracic Diseases. Nervous Mechanism and Diagnostic Limitations of Regional Muscle Changes in Pulmonary Tuberculosis.*

1. Giffin reports an analysis of cases of splenectomy divided among three classes: 18 presenting the clinical syndrome of splenic anemia, 4 with splenomegaly probably secondary to some infection, and 5 from miscellaneous causes. Of the first class, 12 were apparently cured, 2 improved, 2 died more than two years after the operation and there were 2 operative deaths.

2. From analysis of symptoms, Palfrey has been led to suspect that the dyspepsia of hyperacidity and of gastric ulcer is produced by unduly long retention of acid contents on the gastric side of the pylorus. Since, according to Cannon, neutralization of acid chyme in the duodenum is necessary before the pylorus can open, and since stimulating the flow of bile should hasten this process in the duodenum, a series of cases with symptoms of hyperacidity, some also warranting the diagnosis of ulcer, were given ox bile in salol coated pills, 8 to 12 grains three times a day. The clinical improvement which followed in these cases was such that it is hoped that the treatment may find general application.

3. MacNeal, in studying a large number of strains of bacteria cultivated from the stools of pellagrins, has found one, "No. 67," which gave an agglutination reaction with the blood of a great majority of the patients. There were, however, parallel instances in sera of apparently normal individuals.

6. Hunt reports his experience with antityphoid vaccine in an epidemic, with the conclusion that its usefulness is confined to the immunization of persons not already infected.

7. McKenty has collected a series of 37 cases of actinomycosis encountered at the Royal Victoria Hospital during a period of twelve years. One striking fact is that with few exceptions all originated in certain geographical areas not far removed from Montreal. Males were infected much more frequently than females. Nineteen cases were of the cervicofacial type, 13 were attacked at the appendix, and two at the left groin; all cases of thoracic infection gave a history of previous abdominal symptoms. Nearly all of the jaw cases came to treatment between September and January, while the abdominal and pulmonary cases were usually admitted late in the spring. The infection seems to come from straw and some lesion of skin or mucous membrane is necessary for its entrance. Abdominal and thoracic forms show a high mortality, while in the skin and jaw cases the prognosis is satisfactory. Excision is to be performed if possible, otherwise incision, packing with iodoform gauze, etc., associated with large doses of potassium iodide internally.

8. Davis describes a comparatively simple procedure which facilitates the examination of urine for bile, for indican and for hematin. But of greater interest is the appearance at one stage of a red color which when intense is said to be diagnostic of cancer or sarcoma, and present in all cases of these diseases even in their early stages. Further studies are desirable.

11. Pomeroy discusses the etiology and diagnostic value of muscular rigidity and degeneration and of hyperalgesia in pulmonary tuberculosis in connection with Pottenger's recent report and those of other writers. He concludes that these phenomena occur, and that while in his experience they cannot be relied upon for accurate localization they deserve further study. [F. W. P.]

THE ARCHIVES OF INTERNAL MEDICINE.

JUNE, 1913.

1. *SINGER, H. D., AND POLLOCK, L. J. *The Histopathology of the Nervous System in Pellagra.*
2. *CLOUGH, F. E. *Blood Pressure Variations as Influenced by Rapid Changes in Altitude. A Study of One Hundred Normal Men.*
3. *BAETJER, W. A. *Superpermeability in Nephritis.*
4. RIESMAN, D., AND MÜLLER, G. P. *Acute Unilateral Nephritis, with Report of a Case.*
5. *KRAUS, W. M. *The Effect of Uranium Nephritis on the Excretion of Creatinin, Uric Acid and Chlorids, and the Effect of Creatinin Injections During Uranium Nephritis.*
6. COHN, A. E., AND HEARD, J. D. *A Case of Auricular Fibrillation with a Post-Mortem Examination.*
7. PARDEE, H. E. B. *The Relation of Heart-Block to Lesions of the Auriculo-ventricular Bundle, with Report of a Case.*
8. OERTEL, H. *The Classification of Nephritis.*
9. *LOVELACE, C. *The Etiology and Treatment of Hemoglobinuric Fever.*

1. Singer and Pollock report on an histologic study of the nervous system in pellagra. They find that the acute pellagra attack, in common with other intoxicative conditions, gives rise to a "central neuritis" reaction, but the changes are not characteristic. There is no evidence of a local infection of the nervous system with microörganisms. The writers are unable to say whether the more chronic changes found in the absence of recent pellagrous exacerbation belong to the pellagra picture. They find no evidence that chronic vascular changes are essential to the picture of pellagra.

2. Clough studied the effect on blood pressure of rapid changes in altitude in one hundred normal men employed in a South Dakota gold mine. He found that the change, either up or down, caused a fall in blood pressure of approximately five millimeters. It was demonstrated that after a day's work 1700 feet below the surface, the average blood pressure was about the same as on the surface before starting to work, and that abnormally high blood pressure was not a contra-indication to hard work under ground. These results show that there is little difference between sea level readings and those taken a mile above the sea.

3. Baetjer, in his studies of renal function, has been impressed by the discovery of a supranormal excretion of the substances employed in functional tests in the presence of severe renal disturbance. Four such cases he reports in detail. In all of them he observed impaired elimination of sodium chloride and supranormal excretion of lactose and phthalein. This evidence suggests, he says, that there may exist in some types of nephritis a stage in which the kidney is hyperpermeable, with an elective impermeability for chlorides.

5. Kraus experimented on dogs with the intention of determining the effect of uranium nitrate on the excretion of creatinin by the kidney, and the effect of creatinin injections on the nephritis produced by uranium nitrate. He found that in acute uranium nitrate nephritis creatinin was excreted in decreased amounts and uric acid in increased amounts. In sub-

acute uranium nitrate nephritis, the same is true and chloride excretion is increased. Creatinin injected in acute uranium nitrate nephritis causes creatinin, uric acid, chlorides and water to be excreted in decreased amounts; creatinin injected in subacute uranium nephritis is excreted "in toto" and has no effect on the excretion of these substances.

7. Pardee reports the case of an Italian laborer, 23 years old, with compensated aortic and mitral insufficiency who developed complete heart-block and died. Autopsy showed a streptococcus endocarditis superposed on a chronic process of the aortic valve which had involved the substance of the heart. The auriculo-ventricular bundle had been destroyed for one-half of its transverse section by the chronic process, and complete heart-block was produced by an involvement of the auriculo-ventricular system throughout its whole extent in an acute inflammation. The writer infers that the extent of anatomic changes is not the only factor which induces heart-block, and he suggests bacterial and metabolic toxins and deficient local blood supply as accessory factors which might act alone.

9. Lovelace discusses at length the etiology and treatment of blackwater fever, considering various aspects of 514 cases treated by American physicians in Brazil. He finds that there is a direct causal relation between malarial infection and this disease, but hemoglobinuric fever is not due to a particular species of malarial parasite. Quinine was an invariable antecedent of hemoglobinuria. For this reason quinine should never be given to a blackwater fever patient during the period of hemoglobinuria or for several days afterward. The effect of the hemoglobinuric paroxysm is itself that of a drastic but temporary therapeutic agent, decimating the malarial parasites in the patient's blood. The mortality in these cases is said to be lower when quinine is not used at all. Measures which sustain blood pressure are urgently indicated during the hemoglobinuric period; of these normal salt solution is the most valuable, and digitalis and caffein are also useful. The prophylaxis of blackwater fever consists in avoiding malarial infection. [L. D. C.]

Die Therapie der Gegenwart.

January, 1913.

1. Fischer, E., and Klemperer, G. *A New Class of Lipoid Arsenic Compounds.*
2. Lüthje, H. *Some Observations on the Clinical Picture of Hyperacidity.*
3. Schmidt, A. *Further Studies on the Treatment of Intestinal Diseases with Oxygen.*
4. Boas, J. *A Well-known Purgative in a New Practical Form: Fluid Extract of Senna Follicles (Folliculin.)*
5. Bonhoeffer, K. *On the Operative Treatment of Brain Tumors.*
6. Wilms. *The Vertical Resection of Ribs for Narrowing the Thorax in Pulmonary Tuberculosis.*
7. *Strassman, P. *On the Use of Roentgen Rays in the Treatment of Myoma of the Uterus.*
8. Klemperer, F. *On the Treatment of Tuberculosis with Living Tubercle Bacilli.*
9. Meidner, S. *New Remedies: I. New Preparations of the Opium Group.*

7. Strassman has found the x-ray valuable in the treatment of uterine myomata, especially in checking hemorrhage. He believes that a considerable percentage of operations can be thus avoided in these cases. The operation has a high degree of safety, but on the other hand it will not be necessary in many instances if the Roentgen treatment is given a thorough trial. [L. D. C.]

February, 1913.

1. Lauritzen, M. *Diabetic Acidosis and Its Treatment.*
2. *Neumann, W. *The Benzol Treatment of Leukemia.*
3. Klemperer, G., and Hirschfeld, H. *Further Communications on the Treatment of Blood Diseases with Thorium X; with Observations on Benzol Therapy.*
4. Loewy, A. *Experiments on the Action of Bürger's Secalysat.*
5. Hesse, O. *Melubrin as an Antipyretic in Tuberculosis.*
6. Lewin, C. *How Do We Treat Inoperable Tumors?*
7. Meidner, S. *New Remedies: II. Hypnotics and Sedatives.*

2. Neumann discusses the value of benzol in leukemia, reporting a case of myelemia in which this remedy was used. He finds that it is very efficient for this purpose, but that its administration requires the utmost caution because of the very real danger of poisoning. For this reason it is advisable to push the remedy only to the point where an appreciable tendency to diminution of leucocytes is observed. [L. D. C.]

Il Policlinico.

June, 1913.

1. *Massalongo, R., and Gasperini, N. *The Hematopoietic Value of the Serum of Animals Made Anemic by Blood-Letting.*
2. Ghilarducci, F. *The Curative Action of Static Electricity in Chlorosis.*
3. Paoloni, G. *The Resistance of the Red Corpuscles in Anemic and Icteric States.*
4. Anselini, B. *On the Value of the Deviation of the Second Complement of Dungern in the Diagnosis of Malignant Neoplasms.*

1. Massalongo and Gasperini review the literature of attempts to effect regeneration of the blood by the use of sera capable of stimulating the hematopoietic organs. They report their results with the serum of rabbits depleted by venesection on other animals and on cases of anemia in man. In their animal experiments they observed a constant and considerable increase in the red corpuscles following injection of the serum. In cases of chlorosis and of ordinary secondary anemia, after administration of their hematopoietic serum hypodermically or by mouth, they observed a rapid and considerable (1 to 3 million) increase in the erythrocytes of the blood, while in the progressive pernicious and other grave forms the stimulating action was very limited. The "hyperglobulia" was not accompanied by increase in hemoglobin or amelioration of clinical symptoms, but if iron preparations were administered simultaneously with the serum increase in hemoglobin was marked and much more rapid than when these preparations were given without the serum. The writer concludes that while a serum such as his cannot replace iron as the fundamental remedy for anemia it is a rational and effective supplement to ferruginous treatment. As a functional test it is also valuable for diagnosis and prognosis in these cases. [L. D. C.]

Correspondence.

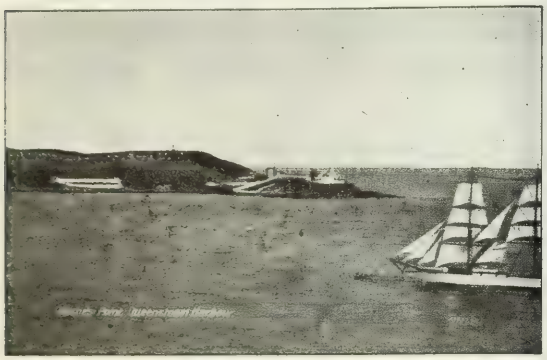
HISTORY AND ROMANCE IN IRELAND.

(From Our Foreign Correspondent.)

DUBLIN, 30 June, 1913.

MR. EDITOR:—

Though far from home, Queenstown is every bit as homelike as any place but home can be to pilgrims. After the rigors of open sea, the sunlit, land-locked harbor of Queenstown seemed as lovely and welcome



ROCHE'S POINT.

"From reef and rock and skerry, over headland, ness, and voe,
The coastwise Lights of England watch the ships of England go."

as when first we entered it three years ago. And once ashore, we found the purple wall-flowers still blooming profusely in every nook of the steep terrraces that embank the town.

Cork, some five miles up the river Lee, was another city of reminiscence. We reached it just at sundown, and just in time to hear again the "*squilla di Contano*," the chiming of the

"bells of Shandon
That sound so grand on
The pleasant waters of the river Lee."

These famous bells hang in the odd, square, piebald, red-and-white-stone tower of St. Ann's, the parish church of the old town on the hill north of the river. Cork was a very ancient Irish settlement which sprang up about Gill Abbey, founded by St. Finn Barr in the seventh century. The river here splits and reunites, enclosing an island, on which the later, medieval city was built.

An evening stroll about the streets sufficed to restore the land coördination of our semicircular canals after their week of adaptation to the sea, and to renew our recollections of the town, both as to its topography and its inhabitants. The people of Ireland are by no means as homogeneously Hibernian as one might imagine. There is, to be sure, a general broadness of accent in their speech, commonly called a brogue, which indeed pretty accurately represents the pronunciation of English in Elizabethan times, but which in its inflection is still much nearer the speech of England than it is to ours in America. The people, too, have many physical traits that remind one of the English. The predominant type, it is true, is Keltic, dark-haired and eyed, with quick tongue and ready humor. But other types are common, some red-headed, slow and surly, some tall, keen of face, and slender, some blonde and burly, descendants respectively of the Danes and Norwegians and Normans that repeatedly harried and plundered and colonized the country during the bloody centuries of its earlier history. There are not a few people of more modern English ancestry, too, who have settled here, from "business or desire"; so that the population of Ireland today is well-nigh as mixed as that of England itself. On the whole, the people seem comfortable and contented, although hardly prosperous in our sense; and though one sees squalor and poverty it seems not so sordid and hopeless as that of the same class in our own country. Migration, indeed, appears to disadvantage them also in respect of health. Though one sees some adenoid facies among the Irish children, they are in the main round-faced and ruddy-cheeked and wholesome; and tuberculosis is far less common in Ireland than among the Irish in the dry, rigorous, dusty climate of American cities.

With such observations and reflections we pursued our evening ramble along the river Lee till dark, then turned back through the night air, still faintly pungent with peat-smoke, a smell as pleasantly characteristic and as full of multitudinous subconscious reminiscence as only odors can be, like

"The smell of the wattle at Lichtenberg,
Riding in in the rain."

Next morning, after a thoroughly British breakfast of fried sole, tea, toast carefully cooled and ventilated in a massive silver rack, and orange marmalade,—the cement in which the foundations of English civilizations are laid,—we resumed our journey, and a few miles out of Cork passed Blarney Castle, most famous of the many ruins which keep alive in Ireland the memory of a warlike past. It was built in 1446 by Cormac McCarthy, a native chieftain, and must once have been an extensive fortress, though now little remains of it but the great, rectangular donjon tower. The Blarney stone is on the under edge of a projecting parapet or rampart at the top of this tower, whither he who would kiss must climb. Of all the legends that cluster about this romantic ruin perhaps the prettiest is that of "Sweet Katie Kearney, the Rose of Killarney," who, being unable to reach the stone, acquired its magic gift by kissing her bashful lover who had kissed the stone but had never dared to kiss her. If you go out to Killarney you



BLARNEY CASTLE.

may see Katie's identical cottage, where they lived happily ever afterwards; indeed it is the place where you leave the carriage and start pony-back through the Gap of Dunloe, to see the wishing bridge and the Serpent Lake, the very spot where St. Patrick killed the last snake in Ireland.

Our way this time, however, lay eastward, through open, rolling farm country, which, like the people, seems far more English than one might expect. The hillsides are checker-boarded with hedges, which separate the patches of mowing and arable land; and in the rougher slopes and valleys, sprinkled with furze and bracken, are pastures

"Where the nibbling flocks do stray."

The sheep have just been shorn, and look very naked, though not cold, among the bushes. Every flock, true

to tradition, contains one black wether, an evidence of Mendelian reversion to type, as strong as those to be observed among the people.

Waterford, our next stopping-place, is pleasantly situated near the sea-coast at the mouth of a river unfortunately named the Suir. It is a very ancient town, having been first settled in the tenth century by the Danes. Kingsley gives the best account of its early history in his "Hereward the Wake." In A.D. 1003 the Danish King Reginald built at Waterford a fort, of which a single massive round tower still remains standing at one end of the mall that runs along the water-front by the quays. There are other of these round towers in various parts of Ireland, and by architects and archeologists they are always considered pathognomonic of Danish origin, since the Normans used generally to build their towers square. At all events the tower is still there, and, though disused now, looks solid enough to last another nine hundred years. It has been restored and is marked by a tablet bearing the following inscription:—



Reginald's Tower.

In the year 1003
This Tower was erected
By Reginald the Dane.
In 1171 it was held as a Fortress
by Strongbow, Earl of Pembroke.
In 1463 by Statute 3d Edward 4th
A Mint was established here.
In 1819 it was Reedified in its
original Form.

From Wicklow, just beyond the vale of Avoca, one journeys northward close by the same shore along which Tristram and Iseult coasted in the "bronze-beak'd galley" on their immortal voyage from Dublin to Tintagel, where Iseult was to become the unwilling bride of King Mark of Cornwall. One sees now only fishing-boats or perhaps an ocean liner in the offing; but to the north Bray Head still thrusts its frowning Cambrian bulk far out across the horizon, westward the evening sun streams as gloriously as of old over the Wicklow hills, and the "wild waves of the wallowing sea" forever beat their magic rime along that timeless shore of high romance.

The modern city of Dublin, situate at the mouth of the Liffey, is in many respects not unlike our own Boston, as it faces its fine bay fronting the east. But the history of Dublin dates far back into a very remote past. The first mention of it is in 150 A. D., when it formed the eastern extremity of a boundary line between the domains of two Irish heathen kings, Mogh of Munster and Conn of the Hundred Battles. In 448, before Arthurian times, Saint Patrick is alleged to have converted the king of Dublin to Christianity and to have baptized him at a spring near the present site of Saint Patrick's Cathedral. Like Waterford and other primitive Keltic settlements along the Irish coast, Dublin was captured and colonized in the ninth century by the Danes. In the grand old battle-song of Brunanburgh it is mentioned, too, as a port of refuge for King Olaf and his Norsemen after their crushing defeat in Northumbria by the Saxons in 937. Danes and Norse were both finally expelled from Dublin by the native Irish in 1014 under Brian Boru; but in 1171 the city fell under the rule of Strongbow and the Normans and became a permanent feof of the British crown.

While viceroy, Strongbow built Christ Church Cathedral in Dublin, and here he is buried with his wife Eva, to whom he was married in the breach at Waterford, and their young son. Strongbow died in 1176, it is recorded, of a malignant ulcer of the foot, not long after killing his son in a fit of anger. The very ancient marble effigy over their tomb shows the child pressing his hands over a perforating wound of the abdomen. Strongbow is represented with his legs completely crossed, indicating that he had been on the third Crusade. As a Crusader it was natural that he established nearby, in the suburb of Kilmainham, a priory of Knights Hospitaller, a medieval order of militant monks. On the site of this priory, in 1679, Charles II built the present Royal Hospital, now a home for veteran soldiers and sailors. So that the figure of Strongbow is in this way a link between the medieval past and one of the most characteristic features of modern Dublin, its hospitals.

A little experience in the crowded streets soon makes one feel at home again in a large city, and helps one develop a new set of reflexes in crossing the left-handed traffic. Motor-cars, by the way, are to a pedestrian pleasantly infrequent; but the double-decked trams and swift little jaunting-cars make the streets seem busy as well as picturesque. On the way to Kilmainham you pass Dublin Castle, a fine old Norman structure, begun by one Fitzhenry in 1205, and incorporating a single round tower, now called the Record Tower, of earlier, perhaps Danish, construction, like that at Waterford. From dungeons in this castle prisoners used to be led to the



Dublin Record Tower.

gallows, which stood near Kilmainham, and the route was long cheerfully known as the "Kilmainham minuet." Medical students from Trinity College used to attend these executions in the hope of securing material for dissection. There was a peculiar old belief that a hanged man might be revived by opening one of his jugular veins, and it is reported that the students used often to fight for the possession of a body with friends of the deceased who were trying to perform this revivifying venesection.

Near the Royal Hospital, at Kilmainham, is St. Patrick's Hospital for Lunatics, established by the pathetic bequest of Jonathan Swift, who himself died insane in 1745, and

"left the little all he had
To found a house for fools and mad."

The very thick walls and originally small windows of the building, constructed before the days of nonrestraint, are sad evidence of the ancient horrors of Bedlam. Corridors, some 350 feet long, run the entire extent of the hospital, and from these the patients' bedrooms open on either side.

Near Swift's Hospital is still another, the oldest in Dublin, founded in 1720 by the charitable munificence of Dr. Richard Steevens and his twin sister Grissel, who, both dying unmarried, gave their joint fortune to establish a hospital for "such sick and wounded persons whose distempers and wounds are curable." The hospital, which contains 200 beds for general medical, surgical, and obstetric cases, is built around a quiet, cloistered quadrangle, after the manner of English colleges and other institutions. The wards, though modernized, keep the charming, homelike character of Georgian domestic architecture. Dean Swift was a trustee of the Steevens Hospital, and his autograph signature may still be seen, fine and clear, in a list of subscribers to the funds. The hospital has a very valuable library of old medical books, bequeathed to it many years ago by Dr. Edward Worth. The early case-records are preserved here, too, and an old dietary shows that each patient used to be allowed two quarts of beer daily with his meals. We do learn some things with the experience of changing years: but meantime for nearly two centuries thousands of the humble poor of Dublin have benefited by the charity of the lonely old doctor and his equally lonely, patient sister.

"So shines a good deed in a naughty world."

Of the other hospitals of Dublin there seems now neither time nor need to speak at length. At the Rotunda we found a new Master and assistants, but otherwise the institution and its work little changed in the past three years. Obstetrically there is still every evidence that "the Lord loves the Irish" as much as ever during these twenty centuries.

One cannot leave Dublin, however, without an afternoon spent in Phoenix Park, a splendid tract of 1500 acres on the north bank of the Liffey, originally belonging to the Knights Hospitaller of Kilmainham, but confiscated from them by Henry VIII, used as a site for building the Viceregal Lodge, and finally opened as a public recreation-ground. It has much natural beauty and contains several fine statues and monuments. But its really greatest interest is that it represents the ancient castle-grounds of King Agwisance of Ireland, whither Tristram came sailing up the river after vanquishing Sir Marhaus in single combat on an island. Here, in her father's castle, Tristram was healed at the hands of Iseult, and here she conceived her first passion for him. Here, too, he came again for her, to take her on the journey which was to make them one forever. Not a trace remains of Agwisance's castle; but the site of Iseult's bower is marked by an ancient village and a gate named Chapelizad, the chapel of Isoud, as the name is written in Mallory. There seems no good reason to doubt the identity of this situation, since ornaments and utensils and weapons of the period have been dug up here, and the name is known to have clung to the spot from remote centuries. Perhaps there could be no better example of the essential durability of romance. Generations in Ireland have come and gone; kings have

"Laid about them at their wills and died";

governments and monuments have passed away; human ambitions and powers have perished absolutely. But the name and site of Iseult's chapel have survived by the gently flowing river, and the story of her voyage with Tristram will live as long as there are lovers in the world.

PEREGRINUS NOVUS.

Miscellany.

CHANGES IN THE MEDICAL CORPS, UNITED STATES NAVY.

July 5, A. G. Geiger, commissioned surgeon from Oct. 28, 1912.

July 9, Surgeon G. L. Angeny, detached; Navy Recruiting Station, Richmond, Va., ordered to Navy Yard, Norfolk, Va.

Surgeon J. R. Dykes, detached; *South Dakota* to *Pittsburg*.

Surgeon J. W. Backus, detached; *Pittsburg* to *South Dakota*.

July 12, P. A. Surgeon A. J. Toulon, detached; Naval Hospital, Philadelphia, Pa., to *Ozark*.

July 14, Assistant Surgeon W. B. Hetfield, Medical Reserve Corps, to Naval Hospital, Newport, R. I.

July 14, Assistant Surgeon C. C. Ammerman, Medical Reserve Corps, to Navy Recruiting Station, Pittsburg, Pa.

July 15, Assistant Surgeon D. C. Post, temporary duty *Buffalo*.

BOOKS AND PAMPHLETS RECEIVED.

Genito-urinary Diagnosis and Therapy. By Dr. Ernst Portner. St. Louis: C. V. Mosby Company. 1913.

Practical Bacteriology, Microbiology and Serum Therapy. By Dr. A. Besson. London: Longmans, Green and Company. 1913.

Stammering and Cognate Defects of Speech. By C. S. Bluemel. Vol I. Psychology of Stammering. Vol. II. Contemporaneous Systems of Treating Stammering; Their Possibilities and Limitations. New York: G. E. Stechert and Company. 1913.

Text-Book of General Pathology. By M. S. Pembrey and J. Ritchie. London: Longmans, Green and Company. 1913.

Diseases of the Stomach. By George Roe Lockwood. Philadelphia: Lea and Febiger. 1913.

Obstetrics for Nurses. By Joseph H. DeLee. W. B. Saunders Company. 1913.

RECENT DEATHS.

DR. WILLIAM JOSEPH GLINNEN of Brooklyn, N. Y., died in St. Catherine's Hospital, Brooklyn, on July 14, after an operation for appendicitis. Dr. Glinnen was graduated from Bellevue Hospital Medical College, New York, in 1897, and at the time of his death was an attending physician to St. Catharine's Hospital.

DR. GEORGE W. TERRIBERRY of Paterson, N. J., died from cardiac disease on July 14 in his seventy-fourth year. He was graduated from Bellevue Hospital Medical College, New York, in 1866.

DR. EDWIN AUGUSTINE KEMP of Danvers, a retired Fellow of The Massachusetts Medical Society, died at Providence, R. I., June 12, 1913, aged 79 years.

Original Articles.

THE OUTDOOR TREATMENT OF SURGICAL TUBERCULOSIS.

BY ROBERT W. LOVETT, M.D., BOSTON,

Orthopedic Surgeon-in-Chief;

AND

JOHN E. FISH, M.D., CANTON, MASS.,

Medical Superintendent.

(From the Massachusetts Hospital School at Canton.)

THE value of outdoor treatment in surgical tuberculosis is no longer a matter of question and a literature is gradually accumulating dealing with the subject which is all one kind, extolling its virtues and speaking warmly of its efficiency; but such literature on the whole lacks definiteness and consists largely of general impressions or the recital of individual cases,[3], [6], [7], [8], [9], [10], [11]. It is hoped in the present paper to present more or less definite records of a group of children from five to seventeen years old studied at the Massachusetts Hospital School for crippled and deformed children at Canton, because in this group of cases the opportunities for the continuous observation of the effects of outdoor treatment extending over a period of years with the same children have been excellent and unusual.

The object of presenting the paper in this form is, that in the opinion of the writers the case for the open air treatment of joint tuberculosis has not been strongly enough stated. And, moreover, that in addition to its efficacy in surgical tuberculosis, it has a wider bearing in relation to institutions in which children, whether sick or well, are kept in large numbers. So that what may be formulated with regard to the effect of outdoor air on children with surgical tuberculosis may be applied to the distinctly larger field of its effects on children in general and probably on adults as well. The data here presented justify, however, conclusions only with regard to children.

The origin of the outdoor treatment of surgical tuberculosis apparently is to be credited to a small French watering place, Berck-sur-Mer,[4], [5] where in 1852, during an epidemic of cholera, a peasant woman, Marianne Brillard, lost her husband and four children. After this she was known as "Marianne toute seule." To the care of this woman were confided some children with rickets and from her they received most painstaking attention. The result in these cases was such that it attracted the attention of Dr. Perrochaud, who sent her as assistants three sisters of the Franciscan Order of Calais. The work gradually extended, the home became largely occupied with tuberculous children. By gradual evolution, hospitals for the purpose of furnishing outdoor care for surgical tuberculosis were constructed at Berck, the first in 1861, followed by the great hospital in 1869, and then by a series of others. Marianne died in 1874, and twenty years after, a public homage to her memory was offered and she was given the name of the Founder of Berck. At present the hospitals and sanatoria at Berck accommodate between five and six thousand. It is a city of surgical tuberculosis. The municipality of Paris maintains a great hospital there for its children with surgical tuberculosis with some twelve hundred beds, besides which there are numerous other institutions all of them devoted almost wholly to the care of patients with the same disease in the outdoor air.

In America the first movement on a large scale for keeping sick children out of doors, winter and summer, of which we are aware, originated at the Convalescent Home of the Children's Hospital at Wellesley, which was originally opened in 1879 but at first closed during the winter. The Convalescent Home, however, burned to the ground in 1904 and the only available place in which to carry on the work while a new building was being constructed was a small wooden frame house quite unfit to accommodate the required number of children. Additional buildings, therefore, were constructed in the form of roughly built wooden sheds spoken of as shacks. They were forty by twenty feet, with eight feet studding to the first pitch in the roof which was approximately nine feet. Rising from this perpendicularly was two feet studding, which supplied a row of windows on either side, another four feet pitch of the ridge pole finishing the roof. The sides of the building were fitted with sliding doors, which made it possible to open twenty feet of either side at a time. Windows were placed in these doors and at the ends of the building. A ten by six feet room furnished with a glass door was partitioned off at one end to enable the nurses and attendants to be more comfortable during the nights.

Here in December 1904, following the suggestion of Dr. H. L. Burrell[1], contained in a paper on surgical tuberculosis, some of the children, were given the open air treatment in place of what might be termed the country air treatment. That is to say, instead of living in a country house, some of the children were kept night and day, winter and summer, in the open shacks described. Each building had a capacity for twenty cots and the temperature was regulated to 20° Fahrenheit by two ordinary coal stoves. The children at night were supplied with sleeping bags and flannel nightgowns, with caps attached and draw strings at the bottom.

The winter that followed this departure, that of 1904-1905, was one of the severest of New England winters. The first night the temperature dropped to 5° below zero; but no harm resulted and the outcome of the shack treatment was so satisfactory that when the new Convalescent Home was built, the dormitories were

made wooden sheds similar to the pattern described with monitor roofs.

It is interesting to note that the provision bill at the Convalescent Home increased thirty per cent. after this treatment was instituted and the results in certain cases have been reported by Drs. Bradford[12] and Adams[13] showing great improvement in individual cases and a gain in weight and hemoglobin in a group of cases observed.

Many hundreds of children in the eight years since these shacks were opened have received this treatment; but an inquiry as to the number of cases of illness that could be attributed to exposure in that time showed that there were but three cases of pneumonia, and that these three occurred in the early years in children who had been operated upon for empyema. There have been no frost bites or other complications to be attributed to exposure and the results have been so gratifying that the surgeons of the Children's Hospital regard the Convalescent Home with its facilities for outdoor treatment as one of the most important factors at their command in the treatment of tuberculous joint disease.

The most modern exposition of this mode of treatment is in a hospital for surgical disease in children recently constructed at Heswall near Liverpool in England on the banks of the Dee, where the hospital is built without a front wall, the wards for the children containing only three walls, a ceiling and a floor. There are no curtains and only a few enclosed rooms.

We have all learned that it is not advisable to put children out of doors directly after operations and that it is unwise to expose to cold temperatures children under three years of age.

At present there are convalescent homes with provisions for out-of-door treatment, mostly at the seashore but often in the country, connected with many of the children's hospitals throughout this country and in Europe. There is as yet no evidence to prove that sea air is definitely more beneficial than country air.

Before proceeding to the consideration of the results obtained at the Massachusetts Hospital School at Canton, it may perhaps be best to define the class of children studied and the conditions under which they live. The institution is maintained by the State as a school and hospital for the education and care of cripples, Massachusetts being one of four states now providing for the proper education and care of this class of the unfit.

The Massachusetts legislature of 1904 appropriated a sum not exceeding $300,000 for the purchase of land and the construction of buildings to accommodate three hundred crippled and deformed children and the necessary officers and employees, and the institution was formally opened Dec. 1, 1907. Four children were at first admitted in January 1908 and the institution has by gradual evolution reached a stage in which it now houses 239 children. The class of children may be judged from the fact that in the first year, of 104 children admitted, the average age was nine years, yet 35½% were absolutely unable to read or write the simplest sentence. Of the 408 children admitted to the school from Dec. 1, 1907 to Dec. 1, 1912, 163 were cases of surgical tuberculosis of the bones or the joints, 84 were cases of infantile paralysis, 34 of rickets and the remaining 127 were cases of congenital deformities, various forms of paralysis and similar crippling deformities. The patients are admitted from all parts of the State upon the application of parent or guardian and a medical certificate that they are mentally competent but physically unable to attend the public schools. Many of them reach the institution so badly disabled that they cannot walk; some have never received previous surgical care; while others have unfortunately received improper treatment; some have discontinued treatment for one reason or another while others have been admitted by transfer from institutions in which they have made unsatisfactory progress or because conditions were such that they could not be properly cared for at home. The majority of the pupils are able to attend school on an average of one and one half hours daily and in addition to the school instruction, they receive industrial training in needle work, domestic science, gardening, shoemaking, carpentry, etc.



One of the four dormitory wards, showing arrangements of windows for direct ventilation.

The institution was established in Canton, Massachusetts, on a hill with sixty-five acres of rolling land on the north shore of Reservoir Pond about fourteen miles from Boston, at an elevation of 200 feet above sea level. About one hundred and fifty-two children live in two large dormitories. The architecture is similar to that of the shacks described at the Convalescent Home of the Children's Hospital, being of the monitor top construction and provided along the sides of the roof with windows which open wide. These dormitories are practically outdoor pavilions, excepting that they are closed and heated for a short time during the evening

when the children are put to bed and in the morning when they are being dressed for the day. By careful regulation of the monitor windows and the direct supply of steam heat, it is possible to prevent the temperature in the wards from falling below 34° Fahrenheit without at any time keeping all sections of the monitors completely closed. From October 15, 1911 to April 15, 1912, the maximum outside temperature was 62° Fahrenheit and the minimum temperature 2° below zero, the average being 31°.



Section of infirmary ward, showing evenly sloped ceilings.

In addition to these dormitories, there is a domestic science cottage in which sixteen of the children live. This is an ordinary wooden cottage, with the average amount of ventilation; but with no special provisions for outdoor air such as exists in the large dormitories. Some of the boys live in the industrial building, which possesses no special facilities for direct ventilation and some of the adults connected with the administration, live in the brick administration building also without direct ventilation. There are two large play rooms connected with each dormitory and except in the roughest weather large sliding doors are open, so that except at meal time, when the children assemble in an ordinary dining-room, they are living practically out of doors. There are no enclosed corridors and in passing to and from the dining-room all the children must go out of doors in all weather.



Out-door school in February.

Of the eight grades of the school, five are conducted out of doors, provisions being made for outside and inside rooms, the inside rooms being used in severe weather, the outside rooms being covered by an awning which is the only protection afforded. The chief difficulty in the outdoor school problem has been to find teachers who were willing to undertake to teach out of doors through the winter. The children have suffered no inconvenience. The weight of each child is taken every week, hemoglobin tests are now made regularly, the height is recorded at intervals, and a daily record is made of every child in the institution. Surgical records are also made on every child at entrance and at subsequent examinations.

Having thus defined the conditions under which these children live and the kind of children they are, it becomes of interest to consider several aspects of the life in this institution. These matters will be analyzed under the following headings:

1. Gain or loss in weight.
2. Gain in height.
3. Gain or loss in hemoglobin.
4. Effect on the prevalence and spread of contagious disease.
5. Effect on the prevalence of colds and sore throats.
6. Effect on auto-inoculation as shown by temperature.

In these respects definite results can be tabulated, and following this it may perhaps be permissible to say very briefly something of the general aspect of the cases from a surgical point of view; but in the subject under discussion general impressions without actual figures are of little value because there already exists a literature of general impressions from reliable observers and our only hope of adding to the subject lies in a chance of contributing definite data on certain points.

1. GAIN OR LOSS IN WEIGHT.

The children of the Hospital School are weighed at regular weekly intervals and any loss in weight is reported so that school attendance, recreation hours, diet, rest periods, etc. may be regulated accordingly. There appears to be quite a variation in the weight of children as recorded by different observers and Bowditch's average[15] on the growth of Boston school boys and girls, irrespective of nationality, have been taken for comparsion because the majority of the Hospital School children are from greater Boston. Of the present 239 cases 99 or all those suffering from tuberculous affections of the bones or joints have been taken for consideration. 77.77% of these cases were under weight when admitted. The same children after an average residence of approximately thirty months showed an average gain

of 13.84 pounds, while Bowditch's average gain for the same time for children of the same ages showed a gain of but 11.80 pounds. That is to say, the tuberculous children at Canton increased on an average of 2.04 pounds more than the standard estimated for normal children. As Bowditch's table includes only children from five to fourteen years no comparisons were made for seventeen of the Canton children who were over fourteen years. Had the older children been considered, the percentage of increase would have undoubtedly been greater because the older children have a longer record of out-door treatment. One of the striking features observed in the weight tabulation is that 46.46% of the children whose increase in weight exceeded that recorded for normal children were cases of hip joint disease. As might be expected the gain in weight is greatest during the first few weeks, the charts also showing a gradually progressive increase in the vast majority of cases.

2. GAIN IN HEIGHT.

The height records which were also compared with Bowditch's tables upon the same children as those whose weights were analyzed show, as might be expected, that the gain in height was not proportionate to the increase in weight. Sixty-six or 66.66% were at all times under the average height. Twenty-one children (21.21%) at the average age of 6.38 years showed an admission height slightly above the normal, an increase which they were not able to maintain, however, for after an average residence of 2.95 years the ratio fell from 21.21% to 5.05%. Six per cent of these cases were suffering from Pott's disease in whom the normal increase could not be expected, while those who were able to maintain the average normal growth were cases of tuberculous disease of the hip joint. Of the children who were under the normal average height when admitted, who increased to exceed slightly the normal (or 12.12%) were also cases of hip joint disease.

The above facts are chiefly significant as showing that children with hip joint disease are, under favorable conditions, able to maintain a fair average increase in height as well as in weight.

3. GAIN OR LOSS IN HEMOGLOBIN.

The great discrepancy in the hemoglobin figures given by various authorities renders it impossible to make any satisfactory comparisons. For instance Rotch[16] states the adult standard is reached at the end of the sixth year while Holt[17] observes that after the fifth year it gradually increases up to puberty. The wide variation not only between different individuals but also in the same individual referred to by Rotch is found in the Canton tests where the lowest was 50% and the highest 80% on admission with an increase to a minimum of 75% and a maximum of 95% by the Tallquist scale which was regarded as accurate enough for practical purposes. The fact that a gain was made of 1.4% to an average of 81.73% may be worthy of mention.

4. EFFECT ON THE PREVALENCE AND SPREAD OF INFECTIOUS DISEASE.

In the five years from December 1, 1907 to December 1, 1912, the daily average of all patients in the institution was 154.85. During this entire five-year period, the only reportable contagious diseases which have occurred were nine cases of whooping cough, ten of scarlet fever, five of diphtheria, and twenty-two of chickenpox.

Whooping cough occurred as follows: Four cases in September 1908, one in May, three in July, and one in August 1911. Because of the impossibility of an early positive diagnosis in whooping cough and the fact that the children were in close contact with each other daily in a congregate dining room, at school, and at entertainments, there is little doubt but that all were exposed to the infection, and the records of the institution showed that a comparatively small number had previously had the disease. The cases which occurred were contracted from children who were suffering from the disease when admitted. On account of the known highly transmissible character of whooping cough, it is evident that the tendency to spread in this institution was small.

Scarlet fever. There were ten mild cases in 1910, extending over a period of seven months, which were probably contracted from different sources. In May one boy developed scarlet fever six days after receiving a visit from his parents, who came from a locality in which there was a case of scarlet fever directly across the street. Thirty-three days afterward another boy developed the disease, nine days after admission from a home in which scarlet fever had recently been epidemic. Both cases were quarantined in detached cottages. In fifty-three days from the appearance of the second case, a girl showed symptoms of the disease three days after receiving a visit from her mother and her case was followed by two others, who received visitors on the same date, all sitting together on the same settee. This sequence in the occurrence of cases suggests that they were contracted from independent sources. One girl developed scarlet fever in May, 1911; but no other children contracted the disease.

Diphtheria. There have been five cases in five years and no immunizing doses of antitoxin have been given at entrance. Three cases of diphtheria occurred in 1908, one in 1911, and one in 1913. Two of the 1908 cases had the disease when admitted. The 1911 case developed the disease soon after admission and was a doubtful case.

Chicken-pox. This constitutes the largest epidemic. In March 1911 nine patients and one employee came down with the disease almost simultaneously and were followed by twelve others in April, including two employees and the three children of the superintendent, so that strict quarantine was practically impossible.

In regard to the exposure of these children to sources of infection, it has been the policy of the institution to allow all children physically able and having proper homes, to make one or more visits home during the year and on an average one hundred persons came to visit the children weekly. During the last year more than four thousand visitors were registered and 175 visits were made by the children during the same period. These conditions, of course, have greatly increased the opportunity for the introduction of contagious and infectious disease.

5. EFFECT ON THE PREVALENCE OF COLDS AND SORE THROATS.

One of the most notable evidences of the value of fresh air by day as well as by night, which the outdoor life in the ceiling ventilated wards affords, has been the freedom from common catarrhal head colds, so prevalent in this climate and especially in the congested tenement house districts, from which the majority of the patients come. By far the greater number of colds for the past five years have occurred during the past winter, which has been an exceptionally mild one, during which the population of the institution has averaged about three hundred, including employees.

Thirty-six individuals have had colds during the past six months and as nearly as it is possible to determine, they have been contracted outside of the institution by employees, who are frequently absent for recreation in crowded theaters and places of amusement and by children who have been absent on visits. The most significant fact is shown by the analysis of colds in the individual buildings, contrasting those which appeared in persons who live practically out of doors with those occurring in the ones who occupied buildings without direct ventilation.

At the infirmary, which is constructed on the monitor roof principle, with constant outdoor air, and with the majority of the children kept on open verandas during the day, there has been an average of from fifteen to twenty-five patients and no colds have been observed during the winter either among the patients or employees. Four infirmary nurses were under treatment for simple sore throat, but without coryza or other symptoms of cold. In the east dormitory, with a monitor roof, no colds were reported during the past winter but nineteen children and five employees were reported as having simple sore throats. This dormitory accommodates an average of seventy children and six employees. In the west ward, also a monitor top building, with an average population of eighty-two small children and six employees, twelve colds were reported and eleven cases of sore throat, four in employees.

Coming now to the buildings without direct ventilation, the industrial building is an ordinary wooden structure without special facilities for ventilation. The population of this building was an average of thirty-five, consisting of the strongest, most active and robust older boys. Here occurred during the past winter thirteen simple sore throats and nine colds. At the domestic science cottage, another well constructed, airy building but not provided with special facilities for ventilation where sixteen of the older girls of the more robust type live, every individual suffered from colds and sore throat, all of more protracted character than has elsewhere been observed except at the administration building, also without special facilities for ventilation, in which officers, domestics, and other employees are quartered to the number of thirty-five.

These figures are almost conclusive proof of the value of the monitor ceiling ventilated wards, in diminishing the number of colds, as in each of these buildings an insignificant number of colds occurred, while in the indirectly ventilated buildings, with more convenient and generally approved methods of living, the record has been distinctly different.

But such a group of figures relating to colds, sore throats, and infections is significant chiefly by comparison with those relating to healthy children for the same period and fortunately by the courtesy of the attending physician of a large residential school for boys near Boston, it has been possible to obtain corresponding figures with regard to 220 healthy school boys from seven to sixteen years old for the same period from September to June, 1912, inclusive. These boys, coming from all over the country and belonging to the well-to-do class in the community, live in modern school buildings, in a delightful country town. They indulge freely in all out-of-door sports and are much more in the open air than the average boy. If one were to select a community in which boys lived under what would seem to be the best conditions for health, as to good food, regularity of life, reasonable discipline, close and intelligent medical supervision etc., one would be likely to select this school as embodying these conditions and the general reputation of the school for good health is excellent. Other schools would perhaps show more cases than here recorded, city schools undoubtedly would.

In order to present this important matter graphically it is necessary to resort to tabular form to bring out the point that out-door air apparently diminishes the liability to colds, sore throat, and respiratory affections and the comparison will be made only between those children at Canton who live under outdoor conditions. Those who live in closed buildings are

not included as vitiating the figures nor are employees included for the same reason.

BOYS' SCHOOL.

Population.	Affections. Respiratory		Coryza.	Sore Throats.
220	Bronchitis	23	98 (44.5%)	Pharyngitis Tonsillitis 113 (51%)
	Catarrhal Pneumonia	7		
	Croupous Pneumonia	4		
220		34 (15%)	98 (44.5%)	113 (51%)

Total 220 boys. 245 illnesses (111.36%)

CANTON.

	Average Population.	Respiratory Affections.	Colds.	Sore Throats.
Infirmary	20	0	0 (0%)	0 (0%)
East Ward	70	0	0 (0%)	19 (23%)
West Ward	82	0	12 (14.6%)	7 (8.5%)
	172	0	12 (14.6%)	26 (22%)

Total 172 children. 38 illnesses (22%)

That is to say, of 172 children living out of doors at Canton 22% suffered from coughs, colds, or respiratory troubles in a given period, while in the Boys' School in the same period 111.36% suffered from similar affections.

EFFECT OF AUTO-INOCULATION AS SHOWN BY TEMPERATURE.

The effect of the outdoor treatment has also been most agreeably noticed in the reduction in temperature of the 99 tuberculous children at Canton as compared to some observations made by one of the writers upon out-patient cases of surgical tuberculosis of the spine and hip in the out-patient department of the Children's Hospital in 1890.[14] The temperature of these children were taken at the out-patient department, where they were all under ambulatory treatment. The cases at Canton have been correlated and cross indexed with great care, as were also the cases which were tabulated at the Children's Hospital 23 years ago, so that analogous cases are accessible to systematic investigation. At Canton, however, there is a larger proportion of convalescent or quiescent cases than was the case in the Children's Hospital group. Nevertheless, there were in the Canton cases 70 patients in whom the disease was acute, and who were under treatment by apparatus. In the 250 observations made at the Children's Hospital the evening temperature was found to be in general from one to three degrees above the normal, there being but 6 patients in the 250 whose temperature was below 99°. Of the 99 cases at the Hospital School at Canton, but two cases in the entire group were found to have an evening temperature above 100°, the variation in all others being but a fraction of a degree above or below normal. Nineteen were below 98°, 68 were between 98° and 99°, and 10 between 99° and 100°. Two cases showed a temperature of 100° or more. In one of these an alveolar abscess was present, which probably accounted for the temperature. The other was a case of advanced amyloid degeneration with discharging sinuses. Discharging sinuses were present in 15 of the Canton cases, and all of these showed a normal evening temperature, with the exception of the case of amyloid degeneration spoken of above. In the Children's Hospital group of cases those with sinuses showed a uniformly high temperature.

A high temperature in tuberculous joint disease is generally accepted as evidence of activity and absorption, and that children in what may be considered the acute stage of the disease, pursuing the active life that is lived at Canton, show a normal temperature, is strong evidence of the fact that the process of auto-inoculation is favorably affected by the outdoor life.

With regard to the general effect of outdoor life in the cases of surgical tuberculosis under consideration, it is difficult to present anything more definite than general impressions.

Taken as a whole, these children have good color and are well nourished, very few of them suggesting by their appearance that they are tuberculous. In appearance they are quite different from the average child with bone tuberculosis seen in the outdoor department of the Children's Hospital. To be sure in the latter children the proportion of cases in the acute stage is large, whereas at Canton the proportion in the convalescent stage is larger. Still comparing acute cases with each other, the above statement holds good.

Children who come to Canton with distinct signs of tuberculous auto-inoculation in the way of anemia, fever and poor general condition as a rule improve rapidly and lose these symptoms.

But the most striking feature from a surgical point lies in the apparently increased power of repair which the patient seems to possess, over the local process, that is to say, the lesions are less destructive than those seen in the out-patient department in the city in the same class of cases. There is less induration, suppuration diminishes where it exists, abscesses rarely develop and acute symptoms do not often arise in cases under treatment. In short, the local process seems more amenable to treatment.

In conclusion, it can only be repeated that this paper represents an attempt to present definite figures as to the effect on children with surgical tuberculosis of living in the outdoor air. That the material presented shows that even in the winter climate of New England this is not attended with risk of exciting respiratory troubles, frost bites or pneumonia. That coughs, colds and sore throats are infrequent among the children living out of doors and much less frequent than among a group of healthy boys who do not live wholly out of doors. That infec-

tious disease has not spread among the children as easily as would have been expected. That after admission weight increases faster than in normal children and that hemoglobin also increases. That symptoms of auto-inoculation, as shown by increased temperature, are as a rule absent and that, in the opinion of the writers, the power of resistance and repair improves under these conditions.

It is hoped later to present a detailed study of certain cases of bone tuberculosis from these patients, but such a study cannot be entered on in the present paper.

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PSYCHOPATHOLOGY AND NEUROPATHOLOGY: THE PSYCHOPATHIC HOSPITAL AS RESEARCH AND TEACHING CENTER.*

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Next to genuine discoveries and generalizations—such in the field of *neuropathology* as *lumbar puncture, the plasma cell differentia* in general paresis, the application of *immunochemical tests* to the syphilitic group of mental disorders, the structural cross-light afforded by *cell-findings in* subjects dead with *dementia praecox and senile dementia,* or such in the field of *psychopathology* as the finer *effects of drugs,* in the mental the standardization of *intelligence-tests,* the observation of characteristic *residual dementias* in different mental diseases, the definition of *apraxia* on the lines of aphasia, the *association-test,* the significance of *sex-factors,* the scope of *suggestion*—next to the making of concrete contributions in these fields stands the public duty of aiding and abetting such creations and greater creations in the future.

To stem the tide of syphilis, to wage war on alcohol, to counsel against the marriage of defectives, to generalize the insane hospitals, to specialize the general hospitals, to weed defectives out of general school classes, to open out the shut-in personality, to ventilate sex-questions, to cure all stutterers under forty, to perturb and at the same time reassure the interested public—these are infinitives that belong perhaps in a rational movement for mental hygiene. They are things the past has taught us more or less clearly to do. And in that sense the movement for mental hygiene is surely not much more than elaboration of the obvious.

I propose to maintain, however, that the mental hygiene movement is more than elaboration of the obvious, more than exploitation of the discoveries and generalizations of the past.

We must not merely execute the national will along the pyramidal tract of the National Committee and out the muscular nerves of innumerable local committees and social agencies. Somewhere back of the aforesaid pyramidal tract and its transmitters lies a field of intelligence. This field of intelligence we must electrify or magnetize or in some way energize—I have long been unable to do more than mix metaphors hopelessly when intelligence enters discussion—so that continually new ideas flow in. Here stands firm the National Committee like that departure-platform for the will known to anatomists as the precentral gyrus. Early to ripen—like that remarkable convolution—the National Committee can but send out available impulses. It must react upon those *convolutions,* if such exist, *for new ideas* and ripen them. But first, some might say, let the firm, present, available basis for action be rendered firmer, wider and deeper, more available.

Was it not an American professor who advocated that every high school boy and girl should dissect the brain of a shark? His wise though perhaps over-concrete suggestion was probably regarded in many quarters as a sample of American humor. Who can now be quite sure that the suggestion was over-concrete?

I should doubtless be equally before my time should I advocate that every prospective clergyman, lawyer, social worker, and large employers of labor should receive, *instead of a Junior and Senior year of this, that and the other,* a Junior and Senior year or simply *one year* devoted to the broad-gauge pursuit *of first- and second-year medical studies,* the fundaments of anatomy, physiology, hygiene, and pathology.

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For the present, at any rate, we can encourage prospective psychologists, social workers (among whom include rich persons who are likely to become trustees as well as politicians in the making), future medical students, and all other interested persons (including, I hope, lawyers who will some day try criminal cases, and clergymen who are consulted in the psychopathic scrapes of their practitioners)—these we can encourage *while still college students* to become acquainted with something of psychopathology.

These students should be encouraged to pursue in the community social service inquiries, eugenic inquiries, inquiries into individual personal difficulties and under supervision to extend a helping hand and brain to the victims of heredity and environment or—what is perhaps more common still—the victims of the interplay of both.

The supervision I advocate for these difficult but absorbingly interesting and illuminating concrete inquiries by college students is supervision by available schools for social workers or, where such arrangement exists, also by psychopathic hospitals.

In the medical school itself, I should of course *á priori* like to see various persons who had no idea of practising medicine, but who conceived that their practice of law, or their pursuit of divinity, or their participation in philanthropic and social work would be benefited by medical studies. These I should like to see privately or officially following juvenile court cases, minor wards, difficult adolescents, school-age stutterers, and deriving benefit from available intelligence-tests and motor-capacity tests under supervision of the local psychopathic hospital or its most available substitute. I would force nobody into such pursuits but would provide the opportunity. Opportunity must as ever act as a vacuum.

A university leader, with whom I talked over the conception of the unique general culture value of first- and second-year medical studies, thought the conception was hardly practical. Precisely, it isn't practical, it isn't precentral yet, it isn't in anybody's forehead. Education is new in people's foreheads. Yet, beyond question, conceptions of the cultural value of biology and its more and more autonomous branch, pathology, are conceptions bound to enter the collegiate head and finally dominate its will. In passing I will merely point out the curious fact that medical educators, conscious as they must be of the cultural value of fundamental medical studies, keep blindly insisting on four years of A.B. work, non-medical, instead of boldly asserting that the first two years of medical study are as good, as broad, as deep, as effective purveyors of culture as any conceivable Junior and Senior college-years, whatever their content. You see what I would personally like: it is to bring a man to his M.D. in six years from his high-school diploma, with an A.B. or M.B. appropriately set in the middle years, bring him to a pair of hospital or research years at the age of twenty-four instead of twenty-six, and avoid overlapping the era of personal ambition, of matrimony, of money-making, with the era of of study and preparation for life-work. Incidentally my hospital graduate at 26 would be better off than the present hospital graduate at 28, having in my opinion all the qualities of culture, some time left in which to sweeten the routine of life with research, and the well-known advantages of youth in spying out the chance of making a eugenic, not to say an aristogenic, marriage.

Some say this is not practical, not knowing the terrible voluntaristic implications of that unfortunate word. It is so much easier—in pedagogy—to *quantitate* culture than—if such a word exists—to *qualitate* it. Eight years are *longer* than six, therefore *better!*

On the teachers' side in the medical school, I would advocate a fore-and-aft correlation of all those instructors dealing exclusively or predominantly with the nervous system, as those in neuropathology, neurology and psychiatry. Nor is any medical school ideally complete, as it seems to me, where the interests of the nervous system are upheld by *only one man.* Be he ever so good, the one man is not likely to fit the minds of all the likely students who might be encouraged to go into the field.

Nor are two men much better, if for example one takes a strongly structural attitude and the other a strongly functional attitude to psychopathological problems. Schools are then formed and irreconcilable attitudes fixed in favor of the mind-twist hypothesis on the one hand or the brain-spot hypothesis on the other, obliviscent of the fact that both hypotheses are nothing but hypotheses.

No! the committee principle is best, and every medical school should provide on its faculty *at least three members* who are fundamentally and forever interested in the nervous system and who, spread over two or more years of the curriculum, may work together to effect a fore-and-aft or longitudinal correlation of studies in the nervous system in place of the horizontal intraannual correlation now afforded by the division system in vogue in certain faculties.

Every opportunity for revising the curriculum should be seized in order to improve, either quantitatively or better, qualitatively, the position of the neurological sciences. Thus Harvard, on a basis of 1000 hours of medical study, gives from 1.4 to 1.6% of its attention to mental disease. Is this a proper percentage? I do not know. But I doubt whether the curriculum has been properly studied to determine the point.

I am personally inclined to advocate the extension to psychiatry of the plan of so much practical work therein for each student at some time before graduation, the plan long followed in many medical schools of so much obstetrical work, so many urine, blood, gastric, fecal analy-

ses, so much anaesthesia, so much bandaging, so much fracture work, and the like. I should tentatively propose, for each student, the examination under supervision of two mental cases, one perhaps of insanity and one of feeble-mindedness and the attendance upon at least ten staff conferences (reports thereon) as held at the local psychopathic hospital or at the best available equivalent.

Such are detail questions. Their execution, or the execution of similar details, depends on the development and maintenance of a high-standard psychiatric clinic or psychopathic hospital in the medical center associated, if possible, with an out-patient department.

In this connection I can do no better than read to you some extracts from the reports of the State Board of Insanity of Massachusetts, which describe briefly the scope of a psychopathic hospital as conceived for one center, namely, Boston. I would ask you to remember that the characteristic local independence and differentiation of conditions in different parts of the United States would forbid the exact reproduction of such a clinic elsewhere as has been opened (in June, 1912) in Boston. Nor does the establishment of a psychopathic hospital (and this I would emphasize) abolish the necessity that every large general hospital must also take seriously its mental cases and begin to adopt modern methods of treatment therefor. In any event nobody can safely take bodily the idea of, say, the psychiatric clinic of the Charité in Berlin, or the pavilion type of clinic as in Giessen, or the Munich type, or the Ann Arbor type, or the Boston type, or the new type being built in Baltimore, and lay down any one of those plans (as with a rubber stamp) as suitable in Ontario, say, or Wisconsin, or New York. For certain conditions, I would insist, the Pavilion F type of clinic, as at Albany, may be best, or the grafted-on kind of institution found, say, at Göttingen.

For Boston, it was recommended "that the Psychopathic Hospital should receive all classes of mental patients for the first care, examination and observation, and provide short, intensive treatment of incipient, acute and curable insanity. Its capacity should be small, not exceeding such requirement.

"An adequate staff of physicians, investigators and trained workers in every department should maintain as high a standard of efficiency as that of the best general and special hospitals, or that in any field of medical science.

"Ample facilities should be available for the treatment of mental and nervous conditions, the clinical study of patients on the wards, and scientific investigation in well-equipped laboratories, with a view to prevention and cure of mental disease and addition to the knowledge of insanity and associated problems.

"Clinical instruction should be given to medical students, the future family physicians, who would thus be taught to recognize and treat mental disease in its earliest stages, when curative measures avail most. Such a hospital, therefore, should be accessible to medical schools, other hospitals, clinics and laboratories.

"It should be a center of education and training of physicians, nurses, investigators and special workers in this and allied fields of work.

"Its out-patient department should afford free consultation to the poor, and such advice and medical treatment as would, with the aid of district nursing, promote the home care of mental patients. Its social workers should facilitate early discharge and after care of patients, and investigate their previous history, habits, home and working conditions and environment, heredity and other causes of insanity, and endeavor to apply corrective and preventive measures."

How far have we been able to realize this plan, which had been expressed in general so far back as the annual report of the Massachusetts Board of Insanity in 1902?

The Psychopathic Hospital was formally opened in June, 1912, and now we may say that the forms of its major branches of activity are uder way, *i.e.*:

1) the *reception hospital,* expressing what has been briefly termed the *clearing-house function* for the insane and alleged insane of the city of Boston and, so far as temporary cases and voluntary commitments go, also of the remainder of the metropolitan district,

2) the *observation hospital,* for more protracted "research" cases and certain cases held throughout their period of recovery,

3) the *laboratories,* hardly as yet under way except as regards routine work which is being held up to general hospital standards,

4) the *out-patient department,* with special emphasis on follow-up work, on intelligence and motor capacity tests in the feeble-minded, and on the diagnosis of vocal disorder.

Reviewed from the standpoint of the mental hygiene movement, our beginning of work already seems to show

a) the need of a *mental sanatorium* for the rural regime of borderland cases and the quiet pursuit of psychopathological investigations

b) the need of a campaign to *deal with uncured syphilis* in our population, classifying as such subjects with positive Wassermann serum test

c) the need of *resident alienists in many reformatories and training schools* (experience with referred cases)

d) the advantage of *associating mental out-patient departments and dispensaries with hospitals having wards* to which difficult cases may be referred requiring several tests not well carried out in a single day

e) the advantage of *associating social service work and work in eugenics*

f) the value of *centrality and accessibility of the institution* as readily securing capable offi-

cers and a succession of internes desiring to round out their other hospital work with some psychiatric work.

g) the value of *mixing normal with abnormal patients* in such wise that no patient is aware on *prima facie* evidence that the next patient is insane

h) the value of a *medical atmosphere,* that is to say, the atmosphere characteristic of *a general hospital,* which conveys the impression to each patient that he and the others there are regarded as medically sick rather than as legally insane.

As relatively novel proposals brought out by our work from the mental hygiene standpoint, I would mention two points. First, the majority of patients in a mental out-patient department (and a type to stimulate the social agencies to send) are children and adolescents. By consequence, we chose as head of the out-patient service a trained pediatrician, Dr. W. P. Lucas, who had distinguished himself in previous work at the Boston Dispensary by the establishment of a *clinic for adolescents.* Secondly, it has actually proved feasible for us to go out into the community (on the basis of old general and children's hospital records) and bring to the clinic for examination and counsel a considerable number of patients early damaged by syphilis, meningitis, and what we regard as encephalitis. Their parents who might not resort to clinics for years or not at all are often exceedingly glad to get the benefit of these examinations. Here is a program of positive mental hygiene worth considering.

I have little time left in which to discuss research, in whose performance and fortunate issue we are all so fundamentally interested. You will see, however, the significant, well-nigh indispensable part played by the psychopathic hospital in this deliberate endeavor, *not merely to permit research, but to foster research,* whether medical, hygienic, or otherwise profoundly social.

A warning, as ever, must be extended to those who stand by to tell us that Aristotle is *passé.* If it happens not to be Aristotle, perhaps it is Hippocrates, or Galen, or Pinel, or Griesinger, or Krafft-Ebing, or Charcot, or Janet, or Wernicke, or Kraepelin, or Freud who is already *passé.* I have even heard that anatomy is a forlorn variation, that there is a new psychology greatly superior to the old, that there is little in physics but much in chemisty (or vice versa).

We have an examiner who sometimes fails to convince others that Binet-Simon tests are all some state them to be. He has, however, apparently solved the problem of why one boy was a school "terror" by showing his perceptual capacity to be irregularly defective; he can possibly be taught by the auditory route; it is hopeless to work with that particular boy's visual imagery.

The democratic atmosphere of a psychopathic hospital, where there is more than one independent thinker, where (God willing) there should *be at least three* independent thinkers, is good for the patient. Tug-of-war discussions over abstractions and discussions based on the confidence that deductive principles exist are abrogated. All have faith in the concrete, and belief that the only logic is inductive. Students, whether lay or medical; social workers, whether voluntary or trained; nurses and attendants; friends of patients; and patients themselves get infused with the democratic, many-brained system of attack on our problems, where the fortunate issue is anybody's issue and is bound to be concrete.

In fine, the task and opportunities of a psychopathic hospital—medical, hygienic, social—intellectual, moral, religious—educational, legislative, philanthropic—are really too good to be true, when rendered in the aforesaid concrete. They are likely to take one's breath away, at least that of your humble servant, the director of one.

Abstract.—Theoretical and practical objects of the mental hygiene movement. That movement more than elaboration of the obvious. Some training in fundamental medical sciences desirable for all educated persons. Supervision by schools for social workers of lay workers in the medical field. Lowering the age of graduation in medicine desirable to leave time for a little research before money-making. Improvement advocated in the correlation of studies of the nervous system in medical schools. Every medical faculty should have at least three members fundamentally interested in the nervous system. Practical work in psychiatry. Proper medical school arrangements for psychiatry greatly dependent on the existence of a psychopathic hospital. No one model possible or desirable. The new Boston arrangements. Branches of activity of the Psychopathic Hospital in Boston. Some practical conclusions already arrived at since opening the hospital in June, 1912. Novel conclusions: importance of pediatrics in relation to psychopathic hospital work (*e.g.* Lucas' Boston Dispensary *Clinic for Adolescents*), possibility of prophylactic work in cases on older hospital records as having had nervous disease. Research should be, not merely permitted, but fostered.

SOME ASPECTS OF LABOR MECHANISM AT THE PELVIC BRIM.*

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IN presenting this paper tonight it is my aim to call attention to certain aspects of the mechanism of labor, particularly at the pelvic brim, which seem to me to have not received the emphasis their very practical importance merits.

* Read before the Boston Surgical Society.

It will probably provoke no discussion to say that the successful instrumental termination of labor depends to a considerable degree on an accurate understanding of its normal mechanism together with the technical ability to apply that knowledge. That the more closely the normal procedure is simulated the less will be the resultant injuries to the birth canal and to the child. One might think that the last word had been said on the anatomy and mechanism of labor and that the difficulties experienced, especially in the higher forceps operations are largely those of technic or faulty selection of cases. Admitting the importance of the personal equation in obstetrical, as in other surgical procedures, I would still maintain that our common conception of the mechanism at the brim is sufficiently at variance with actual conditions present to account for some of the difficulties encountered in operations at this point.

To emphasize this, it will be necessary to review briefly the anatomical considerations and the teachings of normal mechanism in head presentations at this point. The brim, superior strait, or inlet of the true pelvis is spoken of as being "blunt heart shaped," or somewhat oval with a depression posteriorly corresponding to the projection forward of the promontory of the sacrum. It is bounded posteriorly by the promontory, laterally by the linea terminalis, anteriorly by the horizontal rami of the pubic bones and the symphysis pubis. Its important diameters are the antero posterior of 11 cm., the right and left oblique, 12.5 cm. and the transverse of 13.5 cm.

In the mechanism flexion and descent occurring more or less simultaneously with engagement in an oblique diameter followed by internal rotation etc., are the cardinal steps with moulding, ordinarily an important adjunct and synclitism occasionally replaced by lateral flexion of the head.

Williams says, "At first glance it may appear strange that the head does not engage in the transverse diameter of the pelvis, which measures 13.5 cm., but when one recalls the normal outlines of the superior strait, it is seen that the promontory of the sacrum juts forward in such a manner as to make it impossible for engagement to occur this way, as the available transverse diameter is considerably shorter than the oblique." On a preceding page in the same book there is a picture of a frozen section showing the head in the occiput "right transverse" position, which brings me to the point I wish especially to make, and that is: that the normal engagement of the head is not in the oblique, but on the contrary, in the great majority of cases, is in the transverse diameter of the inlet.

The frequency with which it is possible to clinically demonstrate this transverse position of the head, above, at, or just below the superior strait led to the consideration of the possibility of its being a normal method of entry of the head into the pelvis. The projection forward of the promontory being given as the principal reason for the oblique position, a considerable number of bony pelves were examined to ascertain the extent of this projection, disclosing the fact that in the female pelvis the promontory of the sacrum does not project a material distance into the inlet. And further that the contour of the inlet is more oval in shape than is most generally described, the angular or heart-shaped pelvis being decidedly of the male type. The so-called projection of the promontory is really the apparent projection of the sacro-verterbral angle, when seen through a line parallel to that portion of the vertebral column above the pelvis, which does not affect the shape of the inlet or the mechanism at this point, remembering that the head normally enters the inlet at right angles to its plane.

Edgar gives as a further reason for the oblique engagement the effect of the psoas magnus muscles on either side of the pelvis which materially lessen the actual transverse diameter, overlooking the fact that they affect the oblique diameter to an even greater degree. Measurements of the transverse and oblique diameters through a point midway between the symphysis and promontory in a number of female cadavers with the soft parts intact showed the average transverse to be 11.5 cm. and the right oblique to be 10 cm. in length. Ordinarily the rectum lies internal to the beginning of the left oblique, but in a few cases was sufficiently far to the left to shorten that diameter 1 cm. In a bony pelvis with a true conjugate of 11 cm. the soft tissues behind the symphysis shorten that diameter to 10 cm., to which in the parturient state must be added the thickness of the bladder, which may be above the plane of the inlet.

In studying the method of engagement it is necessary to consider the plane of the fetal head presenting at the superior strait at the beginning of the descent. Edgar says the head is completely flexed in utero, later modifying that by saying it is nearly completely flexed, flexion being completed during its entrance into the pelvis. Most of the obstetrical authorities agree, however, that the head in utero is in the state of incomplete flexion and comes to the brim as such, descent into the cavity taking place as rapidly as increasing flexion permits, thus considering flexion an integral part of labor mechanism, admitting, of course, that it is possible for descent to go on without flexion being necessarily complete. Partial flexion of the head presents the occipito-frontal plane, having a long diameter (occipito-frontal) of 10.5 cm. and a short diameter (biparietal) of 9.5 cm. When this plane comes to the entrance of the pelvis, according to Pajot's well known law of accommodation, its long axis should seek out the longer diameter of the inlet, and we are justified in thinking that the 10.5 cm. occipito-frontal will adjust itself to the 11.5 cm. available transverse diameter of the inlet, sinking through as rapidly as increasing flexion permits.

This view of the mechanism of labor was taught as early as the middle of the last century by Spiegleberg and was called after him, Spiegleberg's demonstration. He held that 81% of vertex presentations engaged in the transverse diameter of the inlet; the oblique engagement of the other 19% of the cases is sometimes called Solayres' obliquity of the head, after the obstetrician who first accurately described this less frequent position. As far as ascertained, Dorland is one of the few American authors to accept this teaching, which he describes in his book published in 1902 and again more in detail in the chapter on mechanism written by him for Peterson's recent book. (See note.)

It would seem that the importance of this transverse position has impressed itself upon observers from a clinical viewpoint. Even those writers who in their chapters on the theory of mechanism mention it only to remark on its impossibility, devote considerable space in their writings on operations to the technic of forceps application in the transverse position both above and below the brim.

The question of the transverse or oblique engagement of the head does not, to my mind, present only an opportunity for an academic discussion, but is of considerable practical importance, for unfortunately, in those cases of delay at the brim the question of room is of prime importance, for such delay is not infrequently *prima facie* evidence of contracture, and while in many of these border line cases Cesarean section is the operation of choice, in some high forceps unfortunately becomes the operation of necessity, and under such circumstances it is most essential to bring the head through the brim in a position encountering the least resistance. That the transverse engagement of the head provides this more favorable position is capable of proof anatomically and clinically.

The effect of pelvic deformity on this mechanism is largely dependent on the variety of deformity. Statistics of deformity in general vary all the way from the ½% of Barnes to the 25% of Davis, but the consensus of opinion seems to be that some degree of deformity or contracture exists in about 12% of the cases. Of these, by far the greater per cent. are contractures of the brim, fairly equally divided between the so-called small, round pelvis (aequabiliter justo-minor) and the simple, flat, non-rachitic pelvis. Actual bony deformities other than these, as conditions due to diseases of the superimposed or subjacent skeleton, kyphosis, scoliosis, rachitic dwarfs, etc., are very decidedly in the minority and are less interesting from the point of view of clinical mechanism because they more frequently furnish absolute indication for Cesarean section.

The mechanism of labor means in part the adjustment of the fetus that it may offer and encounter the least resistance in passing through the birth canal. Naturally increased resistance, as would be found with the small round pelvis or simple flat non-rachitic, would accentuate the adjustment. The transverse diameter offering the most room, it would follow that with these cases the probability and necessity of transverse engagement would be increased.

The object of this paper is not to present a brief for the high forceps operations, a difficult procedure at best. In those comparatively rare cases, however, in which it is the operation of choice, the best results will be obtained if the head is brought through the superior strait in the position providing the most room, *i.e.*, the transverse. To accomplish this, Williams recommends applying the blades obliquely to the head, rather than striving for a perfect cephalic application, his contention being that with the cephalic application the handles cannot be depressed posteriorly sufficiently to make traction in a line at right angles to the superior plane. With a properly dilated perineum, which should antecede all operative deliveries, it is on the contrary anatomically possible to make traction at right angles to the plane of the inlet with the blades antero posteriorly applied, this cephalic application permitting and encouraging flexion, which is of the utmost importance. Further, no great force is necessary to bring the head into the pelvis in any case in which the operation is justifiable. Force is only necessary to overcome the resistance of the soft parts, which are, unfortunately imperfectly dilated in the greater portion of these cases, and manual dilation, if ever so carefully and thoroughly done, cannot lessen resistance to the degree that does normal dilation. As the head comes into the pelvis, rotation will occur, permitting the use of the axis traction, if desired. Care should be taken not to bring about too rapid rotation, the best results being obtained when the head is allowed to get as far into the pelvic canal and as completely flexed as possible before anterior rotation takes place, improper flexion offering greatly increased resistance to the unsatisfactorily dilated cervix.

It cannot be denied that operative interference in labor is decidedly on the increase, due in part perhaps to various social and economic conditions which have materially added to the difficulties of child bearing. Of these might be mentioned the more advanced age of primaparous patients and the heightened nervous devlopment, as well as the frequent occurrence of pelvic deformity of the small round or simple flattened non-rachitic type. These latter are considered to be due to faulty development, but why such faulty development should occur, no satisfactory reason has been given.

The possible effect of over indulgence of girls in the more vigorous athletic sports during the developmental period, as running, jumping, basket ball and the like, requiring speed and agility, which might tend to the development of the male type of skeletal structure, is worthy of consideration. That the broad shouldered, narrow hipped athletic type is subject to difficult labor is common clinical experience. The converse of this is to be found among the peasantry of the conti-

nent, with short, thick-set figures and wide pelves, a type associated with hard manual labor but which lends itself to less difficult deliveries.

But whatever the justifiable cause for the operative interference in labor, it is essential to closely simulate normal mechanism; the earlier the interference the more important this becomes.

Note.—Since the reading of this paper the new text-book of DeLee, recently published, states in this connection that the author "after careful study of hundreds of cases, believes the head enters transversely in the majority of cases."

THE X-RAY METHOD IN DIAGNOSIS OF GASTRIC AND DUODENAL ULCER.*

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AND

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Our aim in this paper is not to review the literature, but to give briefly our own conclusions from personal experience.

We have chiefly used the method of serial Roentgen plates recommended especially by Cole of New York. This has proved one of the most valuable American contributions to the x-ray study of the digestive tract.

In ulcer of the stomach and duodenum, we may get many changes according as the ulcer is simple and shallow, or chronic and calloused or has caused adhesions or obstruction of the pylorus or hour glass contracture, or has perforated the wall. They cause deformities of the bismuth shadow and abnormal retention of bismuth in the stomach or duodenum. The most important point in x-ray diagnosis of peptic ulcer is observation of *form,* defects and irregularities in the bismuth shadow and irregular peristalsis.

In many cases two series of plates are desirable for diagnosis, the second confirming the first in every important detail.

GASTRIC ULCER.

Local or Pyloric Spasm. Slight erosions and simple ulcerations not penetrating below the mucous membrane, do not show any defect in the bismuth shadow as a rule, but are frequently accompanied in the stomach by muscular spasm in a circle at the level of the erosion. This is best seen when the stomach is almost empty; when the stomach is well filled the contraction may be smoothed out.

This sharp indentation of the greater curvature makes a very definite picture, not to be mistaken for anything else, except the contraction due to scar tissue. The spasm is intermittent, however, and the contraction of scar tissue constant. In these spastic cases the surgeon may be surprised at operation not to find the contraction shown on the x-ray plate.

Some ulcers may cause no *local* spasm but a reflex spasm of the *pylorus* with retention of the bismuth meal for more than six hours.

The pyloric spasm may last from a few minutes to hours, the pylorus relaxing only at intervals to discharge chyme. Ulcers in other parts of the stomach may cause such spasm of the pylorus that the bismuth is retained two to four times the normal period, even up to twenty-four hours, while operation shows the pyloric walls perfectly normal. A considerable residue in the stomach at the end of six hours associated with hyperacidity and with no anatomical defect and nothing found elsewhere to explain it, suggests gastric ulcer. At the same time, we must remember that the stomach empties itself entirely in six hours in about one-half the cases of gastric ulcer.

The Vienna School has described a condition of irritability of the vagus system called vagotonus, characterized by spasmodic action in various organs and tissues supplied by the vagus nerve. This may be important, but we must not make a diagnosis of pure vagotonus unless other causes of spasm can be excluded.

Spasm in the stomach may be general or affect only the pyloric, or only the central portion, and in most cases is due to organic cause, in our opinion; most frequently to gastric or duodenal ulcer; also to gall stones, appendicitis, renal calculi, gastric tumors, tabes, nicotine or morphine poisoning, named in the order of frequency. The search for the cause of the spasm may require much patience and very careful technic, and some of the above causes cannot be shown by x-ray. A careful search for a cause must be made before calling the condition primary vagotonus.

Changes in peristalsis alone are not diagnostic. It may be irregular or interrupted in indurated gastric ulcer by the deformity and stiffening of the wall. It is usually very deep and active in pyloric stenosis. We may say in general that the stomach frequently empties slowly in gastric ulcer as a result of pyloric spasm, irregular peristalsis or organic obstruction, but in about one-half the cases, the stomach is empty six hours after a meal.

Changes in Form.—Ulcers with much contracting scar tissue give very characteristic and striking hour glass pictures. The bismuth shadow is indented toward the lesser curvature, and the bismuth meal is retained overlong. In many old hour glass contractions, the entire lesser curvature is pulled to the left of the spine and held there. There may be some spasm in

* Read by title at the sixteenth annual meeting of the American Gastro-Enterological Association at Washington, D. C., May 5 and 6, 1912.

addition to the organic contraction. True organic hour glass contraction is usually easily distinguished from the intermittent spastic type by its constancy, its usually narrow, clean cut ring and lack of progress toward the pylorus, the fact that the upper segment is usually large in proportion to the lower one, and by the position of the contraction, central and symmetrical in the spastic type, and lateral and unsymmetrical in the organic type.

In contraction of the lesser curvature, the pylorus is pulled toward the cardia producing the so-called "snail" shaped stomach. In contraction involving the pylorus, the stomach becomes more globular than normal, and the antrum is often dilated in "undershot" form. This shape with its vigorous peristalsis and good tone is easily distinguished from the feeble sagging drain trap form due to atony.

The position of the stomach may help in diagnosis; if definitely over to the left, a contracting gastric ulcer is suggested; if held far to the right, adhesion to the gall bladder.

Adhesions. Adhesions may be shown in other ways. The lumen of the stomach may be narrowed and variable, but not dilating to normal size. The rugae of the mucous membrane may be distorted at the site of the adhesions. At the pylorus the sphincter may be deformed, irregularly widened and not clean cut. Adhesions about the pylorus naturally are more likely to cause dilatation of the stomach already referred to. Extensive adhesions may resemble hour glass stomach, or cancer, but in cancer we have definite projection into the stomach. The contour of the adherent area may show which organ the stomach adheres to. Adhesion of the stomach to the liver may be shown by an absence of palpatory mobility with good respiratory mobility.

Adhesions are caused by peptic ulcer or gall bladder infection in most cases, the x-ray shows their character and position, but it is wiser to let the clinician or surgeon determine the cause.

Penetrating Ulcer. An ulcer which has penetrated through the stomach wall gives a clear peculiar picture; an outgrowth or pouch of the bismuth shadow like a little stomach, sometimes with an air bubble at the top. This bubble has been frequently described, but is not a constant feature. In most cases the pouch will show a little bismuth residue after the rest of the stomach is empty. Penetrating ulcers are commonly found on the lesser curvature, more or less posteriorly. They are often associated with the hour glass stomach. Sometimes they are not seen in plates taken in front, either with the patient lying or standing, but are clearly shown in side views. A shadow due to the sticking of bismuth to the surface of a flat peptic ulcer is a rare event of little diagnostic value even with an ordinary crater formed ulcer. It is rare that any remains of bismuth are seen after the stomach is empty.

DUODENAL ULCER.

The examination of the duodenum is very important and usually requires very careful technique. The most important lesions are ulcers and their result,—scars, adhesions and stenoses. These lesions are found chiefly in the first portion which is subject to considerable and repeated trauma by the opening and closing of the pylorus, and the squirting of chyme. The first portion called by Cole the "cap" and by Holzknecht, the "bulbus duodeni" sits as it were on the pylorus and should be considered radiologically part of the stomach, since its contraction corresponds with the gastric cycle, and is entirely unlike the small rapid peristalsis of the bowel. It is early filled with bismuth and remains visible till the stomach is empty. The acidity of its contents and the location here of 90% of the duodenal ulcers indicates its surgical importance.

Changes in Form. The first portion may point backward or be hidden behind the stomach or may be deformed by tension upon it, and the second and third portions are often not easy to identify, as intestinal peristalsis is so active that they are found empty. The duodenum, contrary to our previous ideas, is a relatively mobile organ and in ptosis of the pylorus the first portion elongates remarkably.

The "cap" varies somewhat in size, shape, and position in different persons, but it is on the whole a very constant and definite thing from the x-ray point of view. Changes from the normal can be definitely diagnosed with proper technique, and by this we do not mean any one method of examining a patient. Some patients show the first portion of the duodenum well filled, when they are lying on the abdomen; others must be examined from front to back in the standing position. Others, and these are the majority, do not show the first portion of the duodenum well in either of these views; a lateral view is necessary, the patient lying on the plate with his right side down. This fills out the antrum and first portion of the duodenum, partly by gravity, and partly by peristalsis, and gives a clear picture.

If, after careful examination, in these three positions, we cannot show a normal "cap," we are sure that something is wrong. Contrary to the general opinion, we feel more sure of our ground in the duodenum than in the stomach. Apparent lesions in the stomach may be due to pressure of the spine, liver, spleen, outside tumors, dilated bowel, or other causes which may have to be ruled out before making a diagnosis.

In the duodenum, the possibilities of error are limited, and any constant deformity is an important fact. If we cannot fill out the duodenal cap by using the above technique, and especially if the defect persists, at a second examination, we have a right to diagnose a lesion in the first portion of the duodenum. Repeated plates are often as definite and char-

acteristic as those of the patient's face. Conversely negative or normal results have great value; if a complete and normal cap can be shown, we feel reasonably sure that no callous mass, no adhesions, contractions, pouches or perforations are present; in short that a "surgical" duodenal ulcer is absent. A simple erosion may be present, however, without being discovered by the x-ray.

Ulcers of the duodenum usually show themselves by scar tissue and adhesions. These make the cap ragged, deformed or displaced, or may produce little pouches which retain bismuth after the stomach and rest of the duodenum are empty. These pouches may be due to penetrating ulcer as in the stomach, but usually are caused by adhesion which fix a small part of the wall and limit peristalsis.

The deformity due to the healed scar of an old ulcer often cannot be distinguished from the deformity of an active ulcer.

The first part of the duodenum in addition to normal outline has a normal quality of shadow. The mucous membrane is normally smooth here, and the picture should be of a smooth mass of bismuth. The second and third portions, on the contrary, have *valvulae conniventes* which give a characteristic accordian pleated effect. Lesions of the second and third portions are rare but can be definitely shown if obstruction occurs. The bismuth mass will be interrupted and there may be dilatation behind the obstruction. Penetrating ulcers and pouches may occur here as above. Irregularities in the normal line of the valves are easily shown.

Stenoses at the duodeno-jejunal angle are not very rare. They may produce much dilatation of the whole duodenum and greatly delay the passage of bismuth. In our experience, kinking at the jejunal angle, is rather rarely found with duodenal ulcer, and it seems unlikely that these ulcers are largely a secondary condition due to such kinks and the resulting stases and absorption, as Jordan and others have stated.

Fixation of the pylorus and first portion of the duodenum is very definite and important when present, but is found in only a small proportion of the cases of duodenal ulcer. It is most easily shown by fluoroscope.

Adhesions from gall bladder inflammation may deform the duodenum in a characteristic way. The first portion may be pulled to the right toward the costal margin and remain there in spite of change of the patient's position, and the cap and sphincter at the same time have a normal outline. Duodenal ulcer, on the other hand, is likely to make the lower surface of the sphincter irregular and the cap contracted or worm-eaten, but may or may not draw it to the right.

Very rarely the second and part of the third portion of the duodenum may be pulled over and fixed, as a result of gall bladder adhesions.

Motility. The effect of duodenal lesions, on the emptying of the stomach, has caused much discussion of late. Some men claim that stasis always results, while others, especialy the x-ray men, feel that hypermotility is the rule.

The emptying of the stomach depends on several more or less opposing factors: peristalsis in the stomach, mechanical obstruction at the pylorus or in the duodenum, and the reflex control of the opening and shutting of the pylorus.

Peristalsis in the stomach is frequently increased in the presence of simple duodenal ulcer and hyperacidity, and other things being equal, it empties at first more rapidly than normal, and little food remains at the time when pain begins two or three hours after a meal; later we have spasm of the pylorus and infrequent opening. The myenteric reflex worked out by Cannon, of this city, probably plays an important part. It is briefly as follows:

Stimulation of a muscle causes contraction above and relaxation below the point of stimulation. In this case, the stimulus is free hydrochloric acid, secreted in the stomach during digestion and not yet combined with albumen, which relaxes the pylorus below and contracts the muscles above, sending a squirt of chyme into the duodenum. The free acid in the duodenum, in the same way, contracts the pylorus above and relaxes the duodenum below. This contraction of the pylorus persists till the intestinal juices neutralize the free acid in the duodenum. Then the acid in the stomach relaxes the pylorus and a similar series of events follow.

It is conceivable that an injury to the duodenal wall may disturb this reflex and when acid chyme is squirted into the duodenum the absence of the reflex allows the pylorus to remain open or relaxed, and permits the rapid emptying of the stomach. This theory would explain the condition found when lesions of duodenum are present, not far enough advanced to mechanically obstruct.

When indurated duodenal ulcer or scar tissue or adhesions cause mechanical obstruction, the result depends on the balance of the opposing forces. The stomach will empty in the normal time or earlier or later, according as the obstruction overcomes the tendency to rapid emptying which results from active peristalsis or interference with the pyloric reflex.

The amount of obstruction bears little relation to the gross size and appearance of the ulcer. Ulcers of considerable extent may not cause stasis because the reflex mechanism is apparently uninjured. If the duodenal ulcer involves the pylorus, it may make it rigid and open, which favors rapid emptying of the stomach, or rigid and small, which favors stasis. Much depends on the size of the opening and the power of the muscle behind it. There may be a rapid attempt at emptying the stomach at the start, and a stasis after six hours, or there may be delayed motility throughout. It is evident that

the emptying of the stomach in duodenal ulcers is variable. There is always a balance between reflex and mechanical factors which varies from case to case and makes prediction difficult.

Gastric and duodenal ulcers have been, and can be diagnosed in the majority of cases by means of the clinical history and the ordinary physical examination including the stomach contents and feces; but the x-ray method is a great help, and the x-ray data are just as important as any of the chief symptoms or signs of this disease. No other method approaches this in exact localization of the ulcer and its deformities.

Many ulcers are latent, important symtoms may be absent, and any additional aid in diagnosis is most welcome. The x-ray often gives us definite information not otherwise obtainable, and may occasionally be worth more than all the rest of the examination put together. Like every other clinical method it is not perfect; exceptions and artifacts occur, and results may be misinterpreted; nevertheless, we believe the method has great value and is one we should be sorry to do without. It has already taught us many new things about the digestive tract, and we believe it has a great future.

The hope has been expressed that the x-ray will take the place of the stomach tube, since most people would rather swallow bismuth paste than a tube. We still need the tube since the x-ray can give no information about secretion and pathological products of the wall, such as mucus, blood, etc., data essential to diagnosis. The x-ray is a part of the physical examination and needs to be so used to give best results.

New Instrument.

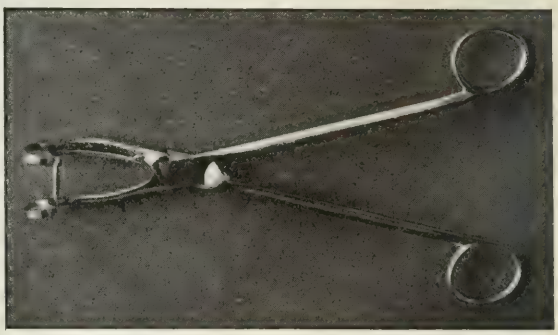
MODIFIED ADENOID FORCEPS.

BY JOSEPH PRENN, M.D., BOSTON.

THE adenoid operation is undergoing the same phases of evolution as that of the faucial tonsil. Both having their origin in foetal life, are found normally in human beings, and are parts of the lymphatic system of the naso-pharynx. Like all the other lymph glands of the body they grow and enlarge in childhood, and decline and atrophy normally as the years advance. We reckon with them only when they deviate from the normal and exert a bad influence locally or on the human organism generally. Unlike the tonsils, however, the adenoids do not give clinical evidence of acute inflammation and general toxemia.

Here we are dealing mostly with the symptoms of chronic hypertrophy of varying degrees of mechanical obstruction to respiration; pressure upon the eustachean eminences or their openings disturbing the equilibrium of air pressure in the middle ear, thus resulting in diminished hearing distance; in children also giving rise to exudative ears, and in small children even in suppuration. When the interference of both the respiration and the hearing is present, everybody agrees that the thorough eradication of all the adenoid vegetation is indicated.

In cases, however, where either the respiration or hearing alone suffers, there are differences of opinion as to whether adenectomy or adenotomy should be the operation of choice. Some even claim that with the removal of the central adenoid growth the remainder will disappear by itself. In view, however, of the frequent recurrences of the adenoid growth there are more adherents to the radical operation.



Showing the instrument ready for use after being introduced in the naso-pharynx. It is introduced closed with the protecting bar foremost.

Dr. Max Halle of Berlin, uses Beckmann's curettes, No. 4 or 3 as the case may be, for the removal of the central part of the growth, then No. 2 or 1 respectively, for the removal of the remaining portions at either side of the naso-pharyngeal wall, and finishes up with a Hartman curette for the removal of any glandular tissue left along the vault at the posterior naso-pharyngeal wall, and also of the fossae of Rosenmuller. In many cases the writer saw him bringing out a new mass of glandular tissue with each trip of the curette in use, and himself tried it in Dr. Halle's clinic with the same results. No one can doubt the thoroughness of the complete eradication of the adenoid vegetation by this method. So far as known, no middle ear inflammation resulting from infection and injury to the eustachean eminences has resulted. The whole process is done under perfect control and absolute feel of the operator. The drawbacks, however, this method of operating has are, the excessive loss of blood; the number of instruments necessary in performing it; and the occasional difficulty in removing the entire adenoid growth completely from its base.

The Schutz or Schutz-Passow adenotome has the advantage of leaving a smooth surface behind, and of performing the operation with comparatively little loss of blood, but does not



FIG. 1.
Hour-glass stomach due to ulcer. Operation, Dr. Ryder.



FIG. 2.
Cicatrix of first portion of the duodenum due to ulcer. Confirmed by operation. Dr. Germain.

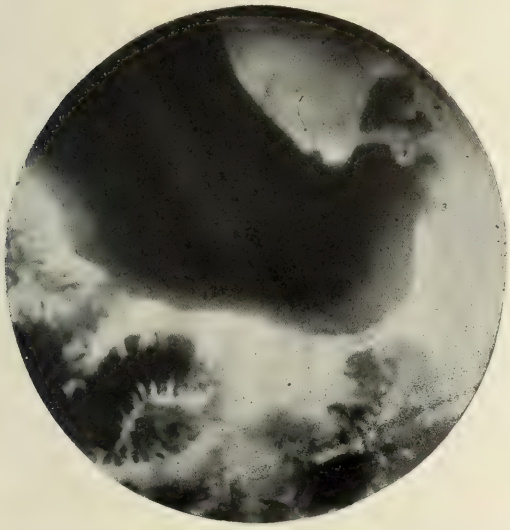


FIG. 3.
(1) Shows penetrating ulcer on posterior wall and lesser curvature.
(2) Ulcer near pylorus.
(3) Ulcer on greater curvature near pylorus.
(4) Ulcer of duodenum.
Patient of Dr. H. Ehrlich. Clinical diagnosis, gastric ulcers. Confirmed by operation. Dr. Charles Mixter.

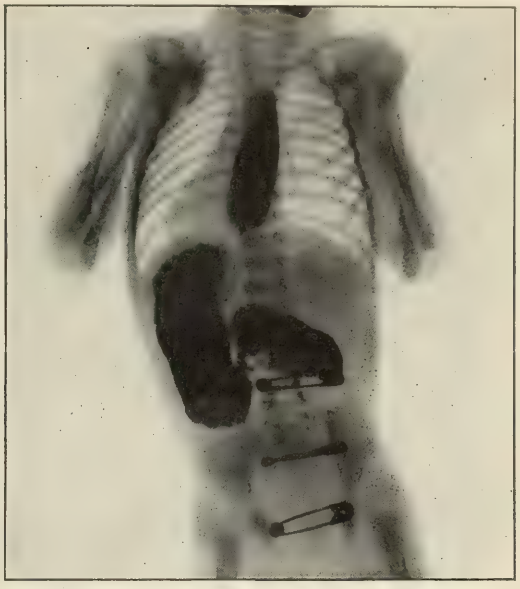
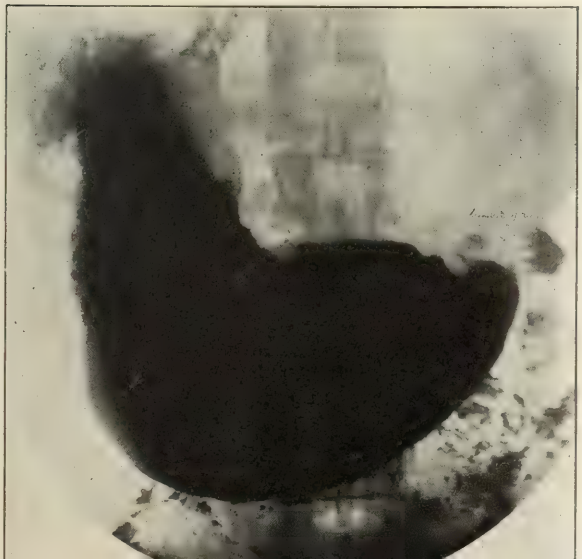


FIG. 4.
Roentgen plate of four-day old baby, showing obstruction in the beginning of the transverse portion of the duodenum. Confirmed by autopsy.





aim at thoroughness and, once the adenotome has been engaged, it is no more under the personal feel of the operator's hand. It simply removes everything in its way.

With the Jurasz forceps, again, the operation can be performed practically bloodless, and will leave a smooth surface behind. But even the experienced operator does not always work with safety when the forceps are brought well forward toward the choanae. There is always danger in injuring the septum (the vomer part.) Some injuries of this kind have actually happened.

The writer has, therefore, been led to modify and add to the Jurasz forceps a septum protector. In this way we can practically explore the region of the naso-pharynx and take out what we want with safety. It is absolutely under the control and feel of the operator. Two sizes are sufficient to meet all cases. The forceps work from side to side instead of from above downward, as in the case of the curettes. It usually requires the introduction of the instrument but once.

Reports of Societies.

AMERICAN ASSOCIATION OF GENITO-URINARY SURGEONS.

Twenty-seventh Annual Meeting Held at Washington Tuesday and Wednesday, May 6 and 7, 1913.

(*Concluded from page* 132.)

THE CURE THROUGH GENITO-URINARY SURGERY OF ARTHRITIS DEFORMANS AND ALLIED VARIETIES OF CHRONIC RHEUMATISM.

Dr. Eugene Fuller of New York read this paper. By an improved method of obtaining smears from the seminal vesicles at operation in cases of chronic rheumatism the streptococcus had been uniformly found. Since his last report he had performed vesiculotomy 95 times, making the present total 346 cases. In this last series the operation was done for rheumatism in 69 cases. In this series his first death had occurred. Of these cases 25 were cases of extremely chronic or advanced conditions of rheumatism. The gonorrheal fixation test had also been tried on very many cases of acute, chronic and intermediate grades of rheumatism associated with gonorrhea and subsequent to gonorrhea. In the acuter forms of the affection the test was usually positive, and oftentimes in cases showing a marked tendency to chronicity the test would be positive a year or two after the time, according to the clinical history, the gonorrheal infection had occurred. In most chronic cases, however, where there was evidence that a recurrence of gonorrheal infection had not occurred, seminal vesiculitis persisting as a resulting lesion, the fixation test was negative. The streptococcus was always found in such cases.

THE COLON BACILLUS IN GENITO-URINARY DISEASES.

Dr. James Pederson of New York read this paper. Though of great motility, the colon bacillus was supposed to be short lived in the blood current. Nevertheless, it was certain that it could live outside the intestinal canal. Hematogenous infection of the kidney or kidney pelvis was no longer debatable. Direct infection by way of the lymphatic channels had been demonstrated. Direct infection by the ureters was not excluded. Intestinal and urinary stasis and surgical operations were potent factors. The typical course was chronic, with febrile exacerbations. The urine was typical of pyelitis or pyelonephritis. Bacilluria might exist without pus. Vaccine and sero-therapy had not been very successful. There was said to be seventeen varieties of colon bacillus, and the difficulty was to isolate the particular organism in a given case. In medical treatment a good deal of attention was paid to the gastro-intestinal tract.

OPERATIVE AND POST-OPERATIVE TREATMENT OF GENITO-URINARY TUBERCULOSIS.

Dr. Richard F. O'Neil of Boston said that the best results in genito-urinary tuberculosis could only be obtained by supplementing the operative treatment by long continued observation and treatment. At the Massachusetts General Hospital a department for the observation and treatment of non-pulmonary tuberculosis had been established. Of twenty-three nephrectomies, twenty-one had shown marked improvement. There had been little local bladder treatment. Gomenol oil had been used in a few cases, and santal oil internally in most of the cases. In some of the cases tuberculin had been an important factor, given once a week in doses ranging from .0001 to .50 mg. He did not attribute to tuberculin alone the improvement that had been brought about in these patients. He did think it helped. There could be no doubt of the value of the psychic effects of the treatment, for which patients will return regularly, thus enabling the physician to keep them under observation with greater regularity and for a much longer time than otherwise would be the case. The improvement he considered to be due to the judicious combination of surgery, hygiene, tuberculin, and a careful consideration of the individual needs of each patient.

SOME SUGGESTIONS FOR VESICAL DRAINAGE.

Dr. Charles H. Chetwood of New York described an apparatus which he had devised for vesical drainage, consisting of a large drainage tube inside of which was a smaller glass tube, connected by a rubber tube with a suction bottle, the vacuum being maintained by a hydraulic pump or by an electrical pump. The advantages of this means of drainage were: (1) the possibility of leaving a smaller suprapubic opening than ordinarily required; (2) the constant removal of all fluid blood; (3) the surfaces of the abdominal cut are kept clean instead of being bathed in foetid urine.

THE APPROACH TO THE URETER.

Dr. Edward Martin of Philadelphia said the ureter might be approached through or behind the

peritoneum, through or between the muscles. The usual approach was extra-peritoneally. The ureter was too soft to feel and must be seen by direct vision. The peculiarity of the ureter was that it was accompanied by a peri-ureteral fat. The approach to the upper ureter and kidney pelvis was best facilitated by excision of one or two of the last ribs. Also by opening the peritoneum, introducing one hand and pushing the kidney into the wound. In the lower ureter it was best to reach the ureter where it was most accessible, that is, where it crossed the brim of the pelvis, work the stone up from the bladder, open the peritoneum, fix the stone with the finger and then remove it.

DISCUSSION.

DR. HUGH CABOT of Boston said he had used all of the incisions described by Dr. Martin and had abandoned them. He did not believe that resection of a rib was a wholly harmless procedure, pneumothorax not unfrequently resulting. He thought the incision described by Gibson gave good access to the lower two inches of the ureter.

DR. FRANCIS R. HAGNER of Washington said that in stones low down in the ureter he had found it a great help to make an incision in the ureter just about the pelvic brim, pass a guide down the ureter until it came in contact with the stone, and then open on that. He agreed with Israel that an intravesical operation should never be done unless the ureteral stone was projecting into the bladder.

DR. BRANSFORD LEWIS of St. Louis, in discussing Dr. Chetwood's paper, said he preferred intermittent suction by some apparatus like that of Bremmerman, rather than continuous suction.

DR. CHETWOOD said that an additional arrangement had been added to his apparatus in the nature of a clock which could start the apparatus going at stated intervals. The trouble about the Bremmerman apparatus was that oftentimes the suction was not enough.

DR. MARTIN said the point he wished to make was not that all ureteral exposures implied a resection of the rib, but that if we could not expose the ureter easily by the simple muscle splitting incision, resection should be proceeded with at once. In that way it was much more apt to be done without trauma to the pleura than if done at the end of the operation. The operation proposed by Gibson for stone in the lower ureter was good if the stone was palpable.

LARGE VESICAL CALCULUS. REPORT OF A CASE

DR. A. T. OSGOOD of New York exhibited a specimen of vesical calculus measuring three and three-quarters by three and a half inches. The patient had had some symptoms for about eight years. Two years before coming to the hospital he had developed painful and frequent urination and great pain in the rectum and perineum. The x-ray showed a shadow occupying the entire pelvis. The patient died following operation. He had a gangrenous cystitis. The entire mucous membrane had sloughed away and the muscle of the bladder wall was gangrenous. He developed a general suppurative peritonitis after the operation. There were fifty or sixty such cases of large vesical calculi in the literature, and about half of them had died.

ANASTOMOSIS OF VAS DEFERENS TO EPIDIDYMIS OF OPPOSITE SIDE FOR STERILITY.

DR. FRANCIS R. HAGNER of Washington reported this case. The patient, aged forty, had had gonorrhea twenty years previously, complicated by double epididymitis. Repeated examinations failed to show spermatozoa. An anastomosis was done on the left side in 1910. No spermatozoa were found in that testicle. Later he was operated on the right side, but the vas on this side was found to be occluded. It was then suggested to bring the left vas over and anastomose it to the right side. The left vas was proved to be patulous by injecting argyrol through it. Only a few non-motile spermatozoa were found in the globus major on the right side. The man was still sterile after the operation. Although this particular case was unsuccessful there was no logical reason why another individual presenting the same features, with motile spermatozoa, should not be successful.

SARCOMA OF THE PROSTATE. REPORT OF A CASE.

DR. ALFRED T. OSGOOD of New York reported this case. A man nineteen years of age was admitted to the hospital with the diagnosis of retention of urine due to prostatic abscess. Examination revealed a distended bladder and an enlarged soft prostate. The prostate felt about the size of a hen's egg, softer than normal, symmetrical in shape and even in consistency. Immediate operation was necessary for bladder drainage. Incision was made in the capsule of the prostate, and with the finger enucleation was attempted to obtain tissue for examination. Masses of tissue the size of walnuts were easily turned out, when it was evident that a neoplasm within the confines of the prostate was being thus broken down and removed. The pathologist reported this to be a spindle-celled sarcoma (small cells). Of this particular type of sarcoma of the prostate there are recorded very few cases in the literature, perhaps ten in all. Large and small round-celled sarcomata are somewhat more numerous, and of all forms of sarcoma primary in the prostate, verified by competent pathologic authority, there are not over fifty on record at the present time.

DISCUSSION.

DR. EDWARD MARTIN of Philadelphia said the idea of crossing the vas had occurred to him, but he had never carried it out in practice. The operation of anastomosis was very uncertain, sometimes failing where everything favored its success, sometimes being successful when one would least expect it to be. He sometimes had to make five or six punctures in the globus major before getting live spermatozoa. For sounding the vas he generally used a fine strand of silkworm gut.

DR. EDWARD L. KEYES, JR., of New York said it was a curious fact stones could get so large without troubling the patient. He had had one case in which, from the history, the stone had been in the bladder apparently thirty-five years, with very mild symptoms. The patient died at operation.

DR. HUGH H. YOUNG of Baltimore said that in the cases of sarcoma that he had seen it had seemed to him that they were not really sarcomata of the pros-

tate at all. In his own case, although there was a mass almost as large as a cocoanut in the region of the prostate, when he got in perineally he found that the prostate was perfectly normal, sitting up on top of this mass, which had evidently formed in the capsule of the prostate, and had evidently begun just about the juncture of the prostate and seminal vesicles. Pathological examination showed the prostate itself to be normal.

Dr. Keyes thought Dr. Young's suggestion that so-called sarcoma of the prostate was not sarcoma of the prostate was very striking, and led him to report a case which he would call, since hearing Dr. Young's remarks, lympho-sarcoma of the neck of the bladder. The case came in as a prostatic hypertrophy. The tissue at the bladder neck shelled out very nicely, and to his astonishment he recognized the two normal lateral lobes of the prostate lying down below. The pathologist reported lympho-sarcoma, and the growth grew very rapidly after operation. Whether the growth was attached to the median lobe he was unable to say.

Dr. Osgood said, in closing, that sarcoma of the prostate was a perfectly definite pathological entity. He was sure that this growth was within the prostate.

Dr. Hagner said he agreed fully with Dr. Martin as to the uncertainty of the operation for sterility. He always told his patients that it would not make them any worse, but he could promise no more than that.

THE MECHANICS OF PROSTATIC OBSTRUCTION.

Dr. Edward L. Keyes, Jr., of New York read this paper. There were two clinical types of prostatic retention, chronic incomplete or complete retention and acute complete retention; prostatic retention represented the interaction of two forces, the bladder muscle and the obstruction. The action of the bladder muscle was influenced by the condition of the muscle itself, the condition of the nervous system and the condition of the will. The strength of the bladder muscle played a large part in prostatic retention; and when the obstruction was slight and muscular weakness was the predominant cause of retention, removal of the obstacle at the bladder neck must be more thorough than when the bladder muscle had retained its strength. Not more than half the men whose prostates were enlarged suffered from prostatic retention, and some of those who suffered from prostatic retension had no hypertrophy of the prostate. The size of the prostate had no bearing upon the amount of residual urine. The mere fact of hypertrophy of the prostate was not of itself sufficient cause for prostatic retention. In order to cause prostatic retention prostatic hypertrophy must interfere with the outflow of urine from the bladder. This interference might be due to deformity of the bladder neck, or to an actual compression of the urethra within the hypertrophied gland. Even the lateral compression of greatly enlarged lateral prostatic lobes probably had little or no effect in interfering with the outflow of urine. Acute complete retention was due to a congestion and spasm at the bladder neck of such intensity as to apply the posterior lip of the sphincter against the anterior even when the bladder was full. The practical deductions were: Prostatic retention might sometimes be relieved by removal of the obstacle at the bladder neck without any attention to the prostate, even when it was hypertrophied. Yet when the prostate was considerably enlarged, it was obviously futile to satisfy oneself with division or excision of the bar or middle lobe. The problem of prostatic retention was a mechanical problem; the bladder neck and especially the elevation of its inferior lip was the important mechanical obstruction; prostatectomy; suprapubic or perineal, total, subtotal or partial, should be performed for the purpose of obliterating this obstacle at the bladder neck.

SUPRA-PUBIC PROSTATECTOMY.

Dr. Hugh Cabot of Boston read this paper. He said it seemed to him that in dealing with the type of prostate in which the obstruction resulted from the formation of adenomatous masses the suprapubic route had a clear advantage over the other methods of attack, because the avoidance of the ejaculatory ducts was highly speculative; the lobes were covered by nothing properly described as a capsule, but only by mucous membrane and a fibrous tissue which adhered to the lobes with extreme intimacy. If these lobes were to be easily enucleated they must be enucleated from under the mucous membrane. In the Young operation greater or smaller portions of the lateral and median masses were removed, the amount of adenoma left behind depending on the skill and experience of the operator. These masses left behind caused more or less obstruction, and from them new masses were formed which might lead to permanent obstruction. For anatomical reasons, then, prostatectomy must be done by some form of intra-urethral enucleation. For functional results he believed the suprapubic route better.

WHEN IS THE TWO-STAGE PROSTATECTOMY INDICATED?

Dr. James Pedersen of New York said all patients required more or less preparatory treatment before undergoing prostatectomy. To relieve bladder infection and improve kidney insufficiency there was nothing more certain than free urinary drainage plus free diuresis, sometimes with urinary antiseptics added. To benefit a bad cardio-vascular condition, good renal elimination and rest were essential. All these could be compassed by cystostomy. It decreased the danger of sepsis by allaying the cystitits and reducing the overwhelming number of pathogenic bacteria in the bladder. It relieved the kidneys of back pressure and improved their function. It rested the bladder and allowed it to recover its expulsive power. It diminishes the hemorrhage of the prostatectomy. It was indicated in active and severe bladder infection; kidney infection; bad general condition, whether from chronic sepsis, chronic gastro-intestinal toxemia and inanition, or threatened uremia. The period of drainage varied from a few days to several months, apparently depending somewhat upon the operator's predilection, but chiefly upon the local and general condition of the patient. The aim was to restore the patient as nearly as possible to a condition of health in preparation for the radical operation. Local anesthesia or gas might be used for the cystostomy.

FACTORS INFLUENCING THE MORTALITY OF SUPRAPUBIC PROSTATECTOMY.

Dr. Hugh Cabot of Boston said he still believed that the operation of suprapubic prostatectomy had

a higher mortality, as at present performed, than when the operation was done by the perineal route. There were three factors which contributed most importantly to the mortality of operation, anesthetic, shock (entirely apart from bleeding), and the bleeding itself. There could be no question that spinal anesthesia was the ideal one if it could be shown that it was as safe as those with which it must be compared. He believed that statistics were now at hand, from reliable sources, extending over a term of years, to show that this method of anesthesia carried no considerable danger. He had been unable to find evidence that the mortality was more than one in a thousand, but even if we were to admit a mortality of one in five hundred, it would still have a long lead over any form of general anesthesia. Looked at purely from its anesthetic qualities, he believed it to be no more dangerous than the other anesthetics. It seemed clear that the shock of the suprapubic prostatectomy was considerably greater than that of the perineal operation. Since he had employed spinal anesthesia as a routine measure for all operations upon the prostate the elimination of shock had seemed absolute. These patients went through the operation without change in the character of the pulse, and he had been unable to see that the operation had any effect upon their nervous mechanism. He had come to believe that suture of the bladder neck was the most efficient method of controlling bleeding.

VITAL STATISTICS OF PROSTATECTOMY.

DR. J. BENTLEY SQUIER of New York said he had included in this study the vital statistics of a series of patients suffering from varying degrees of prostatic obstruction who were not subjected to operation, as well as those of the operative cases. Thirty patients suffered from benign hypertrophies, and five from malignant disease. Seventeen were upon catheter life, using the catheter only during the attacks of acute retention. Of these 17, 14 had died, with an average duration of life of two years and ten months after commencing catheter life. Of the patients not upon catheter life, the mortality during the same period of observation as with the others had shown a great difference. Fifty per cent. were still living, and of the fifty per cent. who had died the average length of life after the onset of obstructive symptoms had been four years and eight months. The average length of life of the cases of carcinoma was thirteen months from the onset of symptoms. There were 110 cases that had been operated on since 1909. Exclusive of 10 cases of carcinoma, there had been seven deaths occurring in from twelve hours to one week following the operation. Exclusive of the cases of carcinoma, there had been six deaths occurring in from two months to three years after operation. Of the ten cases of carcinoma, 5 were still living, an average of two years after operation.

DISCUSSION.

DR. FRANCIS S. WATSON of Boston said he had done the intra-urethral operation through the perineum and suprapubically since he first began to do prostatectomies, and he had familiarized himself with the Young operation. He had never been an advocate purely of suprapubic or perineal operation, but had selected the operation according to the conditions present. He was surprised at Dr. Cabot's statement about hemorrhage and sepsis. He had never had but one patient die of hemorrhage. He did not know why hemorrhage should occur in prostatectomy, and he had never packed but one patient. All of his patients that had died had been uremic, or had pulmonary complications. It seemed like going back to the dark ages to speak of the catheter treatment. Dr. Squier's remarks were almost identical with those which Dr. Watson had made twenty-five years ago, in which he mentioned that the use of the catheter was more dangerous than a prostatectomy.

DR. GEORGE K. SWINBURNE of New York said we all knew that the introduction of a patient to catheter life was a very serious matter, but he had had three cases that had absolutely refused operation, who lived, two of them for twelve years, when they passed from observation, and one for fifteen years. He thought the two-step operation should be used in certain cases.

DR. HUGH H. YOUNG of Baltimore said he fully agreed with Dr. Keyes that the size of the prostate had nothing to do with the degree of obstruction. As a matter of fact, the largest prostate he had ever removed, which weighed over 300 grammes, caused no residual urine. He thought the obstruction depended a good deal on the capsule of the prostate. Quite frequently on rectal examination one would find a prostate with a rather lax capsule and a wide groove between the lateral lobes. He had sometimes taken out large lobes from which there was very little obstruction, but they had a wide groove between them. It seemed to him that the fibrosity of the capsule had a great deal to do with the question of whether the lateral lobes obstructed or not. The remarks of Dr. Keyes about the orifice of the prostatic urethra being the principal thing, he thought absolutely true, and he felt that many of the failures of the perineal operation were due to the fact that the operator, after removing the lateral and median lobes failed to investigate the internal orifice. For a long time he had urged the necessity of inserting a finger and feeling the orifice, and not infrequently one would find a little pedunculated lobe which had been missed. While Dr. Cabot was correct when he said that in the Young operation one went through normal prostatic tissue, at the same time he did not remove any of it. He believed a great many people had had trouble in trying to shell out the prostate completely from behind because they had not gone down and commenced their work upon the hypertrophied lobe. The posterior lobe almost never hypertrophied. It was undoubtedly true that it was rather difficult to remove the ejaculatory ducts in an enucleating operation. In over six hundred specimens examined there were not more than two or three in which he had found one ejaculatory duct. As to why he still did perineal prostatectomies, he would admit that the large adenomatous prostates shelled out more easily from above, but some of the cases were in bad shape, some very old, and he could not fail to give them what he thought was the operation of the lowest mortality, although at times it was a more difficult operation. Another reason for perineal prostatectomy was that about twenty per cent. of the cases were carcinomatous. Also in cases where the internal sphincter was not at all impaired, where the growth was extra-vesical, it seemed a shame to go in and tear out a large gland through a perfectly normal sphincter.

DR. FRANCIS R. HAGNER of Washington said he used to be absolutely wedded to the perineal opera-

tion, but now he did both. He thought very few men could do the Young operation as Dr. Young did it. He thought there was at least some shock following the use of spinal anesthesia.

Dr. Louis E. Schmidt of Chicago did not understand why spinal anesthesia should be taken up all of a sudden again. For the past five years a great many surgeons had used it. He was using it in prostatectomies and perineal work as far back as 1907. Deaths occurred the same with spinal anesthesia as with any other method. As much as five years ago he had tried to control hemorrhage by suturing, but he had not been pleased with the results. He had been in the habit of packing without any hesitancy. If properly done and removed at the proper time he saw no objection to it.

Dr. Keyes said he was second only to the Boston school in his enthusiasm for spinal anesthesia. He thought it was very superior to any form of general anesthesia for these old men. He did not share the idea that there was no shock. In his cases as soon as the pulse showed any evidence of weakness the patient was given a hypodermic of two grains of caffein. In order to prevent shock he had recently adopted the method of having the patient inhale a small amount of ether, which was slightly stimulating and distracted the attention of the patient.

Dr. Cabot said he believed the Young operation, in the hands of most operators at least, destroyed the posterior lobe very largely, though perhaps not infrequently leaving the ejaculatory ducts. He did not believe the preservation of the posterior lobe was such an important matter, but he had supposed that it was upon the preservation of this posterior lobe that Dr. Young had based his term conservative. There were two perfectly distinct kinds of shock. The kind he was discussing was operative shock, due directly to the operation. The type of shock referred to by Dr. Hagner was an entirely different matter. It was the shock which occasionally accompanied the withdrawal of fluid from the spinal canal and the introduction of any other fluid. One got accustomed to that kind of shock in spinal anesthesia. It occurred, perhaps, once in fifteen or twenty cases. It passed away in the course of an hour or so, and did not carry with it the effect of operative shock.

OPERATIVE TREATMENT OF ACUTE GONORRHEAL EPIDIDYMITIS.

Dr. John H. Cunningham, Jr., of Boston, read this paper. Since 1906 he had employed this method in most of the cases of acute gonorrheal epididymitis that had come under his care. He had done the operation in fifty-seven cases. A double operation had been done in six cases. In all but five cases there was fluid in the tunica vaginalis. No organisms were present in this fluid. In sixty-seven per cent. of the cases gross pus was demonstrated, and in each case in which it was not present but the material obtained by the punctures examined microscopically, pus was found in it. The organisms found in the pus were always gonococci. The absence of pain on recovery from the anesthetic had been the greatest recommendation for the operation. Of the six cases on whom a double operation had been done, four showed living spermatozoa obtained in a condom after operation. The other two showed no spermatozoa on massage of the vesicles. He believed that epididymotomy offered the best means of ending acute gonorrheal epididymitis and allaying the symptoms dependent upon this pathological condition. Convalescence was materially shortened. The fact that recurrent epididymitis had never been known to take place in an organ operated upon was significant and important.

VASOSTOMY—RADIOGRAPHY OF THE SEMINAL DUCTS.

Vas and vesicle usually hold from four to six c.c., which would not escape through the ejaculatory duct until the vas and vesicle were filled. For days after the filling peristalsis of the vas and vesicle occurred, shown by the continuous presence of argyrol in the urine. Escape of urine through the vasostomy incision had been observed in two cases. In each the patient had suffered from recurrent epididymitis for many years. The normal peristalsis of the seminal duct explained certain hitherto obscure phenomena, prominent among which was the phosphaturia so frequent in sexual neurasthenics. These men usually showed a mild infection of the seminal vesicles, with hypersecretion and consequent active peristalsis of the contents. Since the vesicular secretion was known to cause precipitation of lime salts when mixed with urine, it was apparent that the constant discharge of such secretion into the prostatic urethra and thence into the bladder could throw the lime compounds out of solution. That was the correct explanation in two cases he had proved by catheterization of the ureters. From both of these catheters clear urine escaped, while that leaving the bladder through the sheath of the cystoscope was cloudy from undissolved phosphate and carbonate of calcium. Occlusion of vasa and ejaculatory ducts was not infrequent.

DISCUSSION.

Dr. E. Wood Ruggles of Rochester, N. Y., had never used any operative treatment for epididymitis, but he had become accustomed to tell patients that in one case out of three recovery from the gonorrhea followed an attack of epididymitis, and he did not think the result was any better after operation.

Dr. Francis R. Hagner of Washington said that early in his work he had noticed that after operation many of the cases were cured of their gonorrhea. There was no question that a certain percentage of cases did get perfectly well very shortly after the operation. Another advantage of the operation was that it enabled one almost immediately after the operation to begin treatment of the vesicles and prostate, which one was often afraid to do after the palliative treatment on account of the danger of bringing on another attack of epididymitis. Dr. Hagner said he had found pus in approximately eighty per cent. of his cases, but most of the cases he had operated on were severe cases. It was absolutely impossible to tell whether pus would be present until one got into the epididymis. In nearly a hundred cases he had never been able to demonstrate any organism but the gonococcus, though some cases failed to show any organism, either by cultural or staining methods. He had operated on several cases with tender nodules remaining after an epididymitis. These nodules were nothing but encysted abscesses, consisting of broken down material surrounded by a mass of scar tissue. He had operated on four cases of double epididymitis. Two remained sterile and two had live spermatozoa after the operation. The essential pathology of acute gonorrheal epididymitis was an infiltration outside of the tubules. It was important in doing the oper-

ation to puncture and not cut. He used an iridectomy knife. The relief after operation was just as great in cases where pus was not present as in the cases in which it was present.

DR. LOUIS E. SCHMIDT of Chicago had done epididymotomy in over one hundred cases. He had somewhat selected his cases. He had varied the technic somewhat in certain cases. If the body of the epididymis was much involved he went in posteriorly without entering the tunica vaginalis. He always did a vasostomy through a separate incision higher up in the scrotum.

DR. WILLIAM T. BELFIELD of Chicago protested against calling this Hagner's operation. He said that in Guyon's Annals for October and November, 1903, there was a description of this operation as practiced on six cases by Escart, a French surgeon. That Dr. Hagner had reported more cases and really popularized the operation was entirely to his credit, but he thought we would lay ourselves open to criticism if we ignored the priority of Escart. Up to a generation ago physicians treated gonorrhea as a disease of the anterior urethra. About that time they began to recognize the necessity of treating the posterior urethra. In the last ten years they had begun to realize the necessity for treating the other end of the seminal duct, that is, the epididymis. He hoped that in another generation they would see the wisdom of treating the intervening parts, vas and vesicle.

DR. HUGH H. YOUNG of Baltimore said that in his first paper Dr. Hagner had made it clear that this operation was not original with him. It had occurred to him as an original thing, but when he looked up the literature he had found that it had been done many years ago in England. The trouble was on account of the enthusiasm of his friends. It was the man who brought out a thing most repeatedly and impressed it upon the medical profession who got the credit for it, and Dr. Young rather thought he deserved it.

DR. HAGNER said he had never called this the Hagner operation, or asked anybody else to call it that. He had never spoken of it as anything except epididymotomy. He said he had the literature looked up and found that they were making punctures in those cases as far back as 1846. At that time he did not know that Bazie had been doing a similar operation, but he gave him credit in his second paper.

A QUANTITATIVE TEST FOR FORMALDEHYDE IN THE URINE.

DR. FRANK HINMAN of Baltimore said that of the many quantitative tests for formaldehyde none had been applicable for an estimation of the drug in the urine because of the associated presence of hexamethylenamin. This latter substance readily broke down under certain conditions of temperature, acidity, etc., into ammonia and formaldehyde. It was in an effort to control the variable results obtained with the qualitative Rimini test that a rough scheme of quantitative estimation had been evolved. The directions for the Rimini test as used by Burnham were as follows: To 10 c.c. of the specimen are added three drops of a 5 per cent. phenylhydrazine hydrochloride solution and then three drops of a two or three drops of a strong solution of sodium 5 per cent. sodium nitroprusside solution; then add hydroxide or as sufficient quantity to make the liquid alkaline. A blue color develops in the presence of traces of formaldehyde. In the preliminary work with this test it was early seen that to obtain a characteristic reaction there was needed a definite proportion of test drugs to the percentage of formaldehyde present. In order to definitely determine this relation known dilutions of formaldhyde in fresh urine of from 1 to 5000 to 1 to 100,000 were made up and tested with varying known dilutions of the test solutions. For a characteristic reaction was taken the appearance of a dark blue or purple cloud on the addition of the alkali.

A NEW OPERATION FOR RECTO-URETHRAL FISTULA.

DR. HARVEY B. STONE and DR. H. H. YOUNG of Baltimore described an operation which they had devised for the cure of recto-urethral fistula. The rectum was dissected up very much as in the old Whitehead operation for hemorrhoids, well up beyond the fistula. The fistula in the urethra was then closed. The bowel was pulled down, cut off above the fistulous opening and sutured to the skin.

The following officers were elected for the ensuing year:

President, DR. HUGH CABOT of Boston.

Vice-president, DR. FRANCIS R. HAGNER of Washington.

Secretary and Treasurer, DR. RICHARD F. O'NEIL of Boston.

Place of next meeting, Stockbridge, Mass.

Book Reviews.

Sprue: Its Diagnosis and Treatment. By CHARLES BEGG, M.B., C.M., Edinburgh, formerly Medical Officer Chinese Imperial Maritime Customs, etc. Illustrated. New York: William Wood and Company. 1912.

This small volume is written to call attention to the disease known as sprue, which occurs with considerable frequence among residents in India, Ceylon, China, and other tropical countries, especially in the East, and to advocate its treatment by the administration of yellow santonin.

A Manual of Immunity. For Students and Practitioners. By ELIZABETH T. FRASER, M.D. Glasgow. Glasgow: James Maclehose and Sons. 1912.

This is a small volume of 184 pages, which presents in condensed form the principal facts and theories relating to immune phenomena, and the practical applications thereof. The book is very well arranged, and the presentation excellent in conciseness and directness. It should serve admirably as collateral reading for the elementary student and for those desiring general information and a comprehension of the subject. A short glossary is appended. It is favorably distinguished from similar attempts to present the subject of immunity in semi-popular form, by the omission of the halo which is too often added.

Diseases of the Eyes. By C. Devereux Marshall, F.R.C.S.; Surgeon to the Royal London (Moorfields) Ophthalmic Hospital and Ophthalmic Surgeon to the Victoria Hospital for Children, Chelsea. London: University of London Press. 1912.

This is a well arranged manual of three hundred pages with numerous illustrations. Of course it is more suitable for the student and general practitioner than for the specialist. Operations as well as diseases are considered, and the book may be recommended to those who wish a concise, but sufficiently thorough account of diseases of the eye.

Obstetrics. By J. Whitridge Williams, Professor of Obstetrics, Johns Hopkins University. Third enlarged and revised edition with 16 plates; 668 illustrations in the text; 977 pages. Boston: D. Appleton and Company. 1912.

In Prof. Williams' third edition of his text-book no material alterations in its arrangements are made. It is a delightful book to read, the statements made are clear and concise, the student obtaining an excellent idea of the best obstetric thought. There must of necessity be differences of opinion in obstetrical procedure, but the reviewer feels there can be no question that the hand illustrating suprapubic pressure in breech extractions is wrongly placed and shouid in future editions be corrected. Unquestionably, the book holds a very high place in obstetric text-books of our day.

The Principles and Practice of Medicine. Designed for the Use of Practitioners and Students of Medicine. By Sir William Osler, Bt., F.R.S., Fellow of the Royal College of Physicians, London; Regius Professor of Medicine, Oxford University, etc., etc. Eighth edition. Largely rewritten and thoroughly revised with the assistance of Thomas McCrae, M.D., Fellow of the Royal College of Physicians, London; Professor of Medicine, Jefferson Medical College, Philadelphia. New York and London: D. Appleton and Company. 1912.

This edition of Osler's well known work in every way sustains the high standard set by its predecessors. Its completeness and its clearness of diction justify its position of supremacy as a text-book, and the thoroughness with which previous teachings have been revised in the light of recent reports render it worthy of extensive use as a volume of reference.

Studies in Clinical Medicine. By C. O. Hawthorne, M.D., Fellow of the Royal Faculty of Physicians and Surgeons of Glasgow; Lecturer on Medicine, Medical Graduates' College and Polyclinic, London, etc., etc. London: John Bale, Sons and Danielson, Limited. 1912.

This volume is a collection of articles, addresses and case reports, many of them previously published at different times during the past decade. While many of them are of value, others are not of sufficiently conspicuous interest to justify repetition. All may be read with profit as discussions of matters of general medical interest, but the disconnected nature of the work as a whole adapts it rather to the use of the cursory reader than to serious study or reference.

Surgery of the Rectum for Practitioners. Oxford Medical Publication. By Sir Frederick Wallis, M.B., B.C. (Cantab.), F.R.C.S., Surgeon to Charing Cross Hospital, St. Mark's Hospital, and the Grosvenor Hospital for Women and Children. London: Henry Frowde, Oxford University Press.

A compact book of 350 pages, of convenient size, excellently printed in large, clear type upon good paper, illustrated by 130 adequate picture diagrams. It is about one-fourth the size of most American volumes on the same subject, and yet it is worthy of serious study. Sir Frederick Wallis writes clearly, briefly, with directness and force; wastes little time on theoretical discussion, presents his own opinions firmly, and shows throughout the evidences of excellent judgment and wide clinical experience.

The volume makes an admirable text-book for four-year medical students, and for general practitioners.

A Manual of Elementary Zoölogy. By L. A. Borradaile, M.A., Lecturer in Zoölogy in the University of Cambridge and in Natural Sciences at Selwyn College. pp. ix-470. London: Henry Frowde, Oxford University Press. 1912.

Starting with the assumption that the student has an elementary knowledge of chemistry and physics, the author of this excellent text-book describes the forms of animal life usually studied in elementary zoölogical courses. It is stated in the preface that a guiding principle of the work has been to regard the organism as a whole. "I have taken indivision, not indivisibility, to be the essence of individuality." The text is arranged with side headings leading to

ease of reference, and the book is increased in usefulness by a very liberal use of illustrations which are admirably printed. In general the book should serve as a useful addition to works on elementary zoölogy, a subject of increasing importance to the student of medicine.

The Practitioner's Encyclopedia of Medicine and Surgery in All Their Branches. Edited by J. KEOGH MURPHY, M.C. (Cantab.), F.R.C.S. London: Henry Frowde and Hodder and Stoughton. 1912.

This excellent English volume, dedicated to Sir William Osler, is designed to supply the busy practitioner with simple, clear, and reliable information "upon all subjects with which he may be called to deal in his daily work." The work is the product of many contributors, each an expert in his special subject. The chapters on aneurysm, on diseases of the lymph vessels and nodes, liver and bile ducts, and on the medical aspects of syphilis, are contributed by Dr. Osler; those on insanity and bodily disease, and on adolescence and insanity, by Sir Thomas S. Clouston; and that on the treatment of wounds, by Sir William Watson Cheyne. The subjects are arranged under sections familiar to the practitioner, and easy reference is facilitated by an abundant index. The volume, of over 1400 pages, is a valuable compendium of the latest knowledge on a very wide variety of medical topics.

Muscle Spasm and Degeneration in Intrathoracic Inflammations. Their Importance as Diagnostic Aids and Their Influence in Producing and Altering the Well Established Physical Signs, Also a Consideration of Their Part in the Causation of Changes in the Bony Thorax. And *Light Touch Palpation.* The Possibility and Practicability of Delimiting Normal Organs and Diagnosticating Diseased Conditions Within the Chest and Abdomen by Very Light Touch. By FRANCIS MARION POTTENGER, A.M., M.D., LL.D., Medical Director of the Pottenger Sanatorium, Monrovia, California. Sixteen illustrations; pp. 105. St. Louis: C. V. Mosby Company. 1912.

This monograph, as may be inferred from the title, is a description of certain phenomena which promise to be of diagnostic importance. The first of these is the clinical observation of spasm in the muscles of the neck and chest in association with, and apparently an early sign of, tuberculosis, or other disease, of neighboring portions of the lung or pleura. Muscles in which such spasm had been present showed on post-mortem examination constant degenerative changes. The second subject is the significance of light touch palpation as a means of outlining organs and diseased areas. Such palpation is closely allied to percussion, with reference not to the sound but to the sense of resistance to the finger. It is applicable alike to chest and to abdomen.

Man's Redemption of Man. A Lay Sermon. By WILLIAM OSLER. New York: Paul B. Hoeber. 1912.

This little volume consists of the address delivered by Sir William Osler at a service held for students of the University of Edinburgh, in connection with the meeting in that city in the spring of 1912 of the National Association for the Prevention of Tuberculosis. It is written in the author's happiest literary vein.

Dr. Osler declares that "to man there has been published a triple gospel,—of his soul, of his goods, of his body." The development of the first has been the service of religion, and culminates in modern Christianity. The growth of the second has been through the political history of the world, and is based on personal and international justice and right. The third, man's physical redemption of man, began, as did all else in civilization, in Greek thought remained latent through the centuries of medievalism, and only in recent generations has finally sprung forth again to evangelize humanity.

The Greeks were masters of observation and deduction, but never discovered the secret of experiment. Pythagoras alone grasped it; but the lesson was forgotten, and not until the days of Copernicus, Kepler, and Galileo did experimentation become established as a method of science.

The development of this method has wrought three great changes in man's relation to the world. First, through Charles Darwin, the knowledge of evolution has brought the realization of man's true position in the universe. Second, the development of chemistry and physics has given man mastery of the material world. Third, the discovery of anesthesia and the applications of bacteriology have made possible, and in large measure already realized, the healing of the nations.

The prevention of disease by modern sanitary science is represented first by Lister's discoveries in antisepsis, second by the control of the acute febrile infections. It is in these that our era has found its greatest glory and expression.

Dr. Osler is a great teacher, not in medicine only, but in philosophy; and this latest contribution of his to the understanding of life should be universally read as a new revelation in the gospel of man's redemption by man.

THE BOSTON
Medical and Surgical Journal

THURSDAY, JULY 31, 1913.

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REFRIGERATION WITHOUT POWER FOR HOME USE.

Three or four days of a "hot wave" will destroy more lives from sunstroke or heat exhaustion than will the low temperatures of a whole winter season; nor would this statement be inclusive of those far more numerous deaths in hot weather from indigestion, apoplexy, renal and heart disease, to which the heat has been contributory or predisposing. Yet houses, at least, may be comfortably cooled in summer, at a cost far from prohibitive, and in one of several ways. A plant may be installed by which air can be cooled by ice in the cellar, as last summer in the White House; or where pipes and radiators have been installed for steam or hot water heating in the winter, the same apparatus could be utilized in the dog-days for conduction of brine chilled to below freezing. The cold thus produced could be regulated precisely as the heat is regulated in the winter. It is especially desirable that bedrooms be thus cooled, because a hot, sleepless night after an exhausting day in the nineties is extremely enervating—how often fatally so is evident from the lists of those who have succumbed in great cities during hot waves.

A method is described by which houses may be comfortably cooled.[1] A portable apparatus, based on the "ammonia-absorption" principle, is operated by an oil, coal or wood fire, electricity or steam; it is suitable for homes or hotels, is hermetically sealed, vibrationless and maintainable at any required temperature. One such machine, having a cooling power equal to that of one hundredweight of ice per 24 hours, consumes about 250 cubic feet of gas; assuming the rate of the latter to be 62 cents per 1000 cubic feet, the cost of working this machine would equal that of ice delivered at 15 cents per hundredweight. And the larger the refrigerator the cheaper, size for size, would be the working. One must consider also that such an apparatus would not be needed throughout the summer, but only during hot periods. Where steam at a pressure of not less than 50 pounds per square inch is available, the cost of working the apparatus is practically negligible. Mr. Perkins, to whose paper one is referred for technical details, declares that the air in any room thus cooled is dry and free of the damp mustiness inseparable from chambers otherwise ice-cooled. Another important use of this method is for cold storage; one such equipment will give a room 5 x 4 x 6 feet a cooling power equal to that of five hundredweight of ice in 24 hours. Thus may foodstuffs be frozen or cooled; ices and ice-cream made, and blocks of ice of any desired shape or size produced,—and perfectly clear ice, if distilled water is used.

[1] Perkins, F. C.: Making Ice with Heat, Scientific American Supplement, Dec. 15, 1912.

PHYSICIANS AND POPULATION.

From time to time statistics are collected relative to the number of physicians in various countries and communities in proportion to the general population. Such facts have recently been compiled, showing that the total number of physicians in Europe is 160,000. Of these England has 7 to every 10,000 inhabitants, Germany, France and Italy about 5, Brussels shows 24 to every 10,000, in contrast to Amsterdam which has only 2 in an equal number of inhabitants. The situation in Europe is apparently less acute than in America. In Boston the estimated relation of physicians to patients is 1 to every 392 inhabitants, or slightly over 25 to every 10,000. We cannot vouch absolutely for these figures but they, no doubt, express the general situation with a fair degree of accuracy. It has long been evident that there are more physicians than are necessary to protect the health of the people under ordinary conditions of civil life. It should however, in estimating the worth of any such statistical study be recognized that very many physicians do not practise

and that many others are so poorly equipped, particularly in this country, for their work that they are negligible as factors in the general estimate. The matter also becomes less disturbing when one appreciates the development of specialism and the fact that the proverbial competition among doctors no longer exists except in the smaller communities and country districts. When, however, all these factors are taken into account it is still sufficiently obvious that the profession is overcrowded with mediocrity, a peculiarity, however, by no means confined to the medical profession. The aim should constantly be in medicine, as in other callings, to eliminate the unfit, a process which goes on partly by natural means and partly by general raising of standards. If, in the future, as seems not improbable in many broad fields of medicine, prophylaxis is to take the place of individual treatment, we may well look forward to a complete readjustment of the medical situation, possibly on socialistic lines. In the meantime, whatever the future may have in store for us, there is no menace in the number of physicians. In this, as in other social and economic situations, the law of supply and demand will doubtless solve the problem.

ANNIVERSARY OF BENDER LABORATORY.

THE Bender Laboratory of Albany, N. Y., has recently celebrated its eighteenth anniversary by appropriate exercises of a simple sort. The chief event of these exercises was a speech by Dr. Abraham Jacobi, now in his eighty-fourth year, who dwelt on the progress which had been made in the work of the laboratory since its dedication in 1896 when he delivered the dedicatory address. Remarks were also made informally by Dr. George Blumer of the Yale Medical School and formerly of Albany, who spoke of the early days of the laboratory and of the somewhat primitive methods of its work. Dr. R. M. Pearce, formerly of the Harvard Medical School, director of the Bender Laboratory from 1903 to 1908, now professor of Research Medicine at the University of Pennsylvania, told of the benefit which the laboratory had been to the city and state, as well as an important agent in the education of students. Dr. S. B. Wolbach and Dr. Thomas Ordway, both at present members of the Harvard medical faculty, spoke of the practical usefulness of the laboratory, with which each had for short periods been associated as directors. The present director, Dr. H. S. Bernstein, gave an account of the work now being done in connection with the laboratory, and showed in convincing fashion the extraordinary utility of such an institution as a teaching center, as a means of conserving the public health, as a help in the practice of medicine and as a training school for research students.

The success of this laboratory in a city of moderate size should be a stimulus to other communities in establishing similar facilities for the study of disease and the general dissemination of medical knowledge. With the increasing necessity for the use of accurate laboratory methods in diagnosis, it is becoming increasingly apparent that if the welfare of the people is to be completely subserved means for making the necessary clinical and laboratory tests should be supplied relatively near at hand. Each state should unquestionably be provided with laboratories for the determination of all ordinary tests, rather than place physicians under the necessity of sending specimens and material of various sorts to distant cities or other states for purposes of diagnosis. In the present state of the syphilis question this is particularly important in relation to the Wassermann reaction. The evidence is strong that this test is of the greatest possible value in the determination of the infection and it is equally evident that, to be reliable, the test should be performed by sero-technicians, who have both the time and the experience necessary. There are, however, still certain states boasting much progressiveness in which this test cannot be satisfactorily made. The need of the future in this regard is apparent, and the far-reaching usefulness of the Bender Laboratory in Albany to the physicians and people in that part of the state, should, as we have suggested above, prove an incentive to the building and maintenance of similar institutions in many cities of the country which are now dependent upon outside aid for the services which such laboratories should render.

MEDICAL REFORMS.

To what extent can one expect the medical profession to reform itself? It has already almost obtained a patent on that well-worn

phrase, "the most altruistic of professions." This is not to be disputed here. The best of the profession are steadily working for the elimination of its business. The reform to which we would draw attention is one tending to the elimination of the unfit doctor, a reform which will make the way of the upright smoother and surer. Who shall be the prophet of medicine in its legislation, the profession or the legislators?

State rights versus federal control and usurpation is a slogan which rouses state jealousy and pettiness to an extraordinary degree. It is self-evident, however, that there are larger things than state rights, namely, state responsibilities to the nation and the people. The country has gone mad with the cries of "rights" and one hears too little of the responsibilities and duties laid upon men as citizens.

Take, for example, the licensing of practitioners. For the welfare of all the people this ought to be a national question. At present a man practising in the corner of a state might be an osteopathist, surgeon and Christian scientist all in his daily rounds, but he must know his geography. Such men of course are few, because it takes an enterprising man to register in three adjoining states. Adjacent states as the laws stand now seldom have reciprocity privileges. A doctor in Springfield, Mass., may not practise over the line in Connecticut, but a man in Portland, Me., may practise as much as he likes in Arizona. Each state clings to its own examining board and refuses to allow even the most distinguished men in the profession, who may be called from one state to another, to practise without formal registration by examination. He must review, if he is an internist, for example, academic chemistry; he must know the origins and insertions of the muscles of the body or of the "lower leg," as one recent state paper denominated the leg. The candidate physician must pay his fee for the privilege of being examined by physicians often far less competent than himself.

The type of examination which one often sees is little fitted to test the ability of a man to practise, calling, as such examinations usually do, for an amount of unpractical academic knowledge.

There is no question that reform is needed. It ought to take the form of a divorce of politics from legislative matters in medicine. The whole business of licensing might well be a national affair. Graduates of schools ranking well in an impartial investigation, such as that of the Carnegie Foundation, should be licensed without examinations. Other candidates should be examined by attendance at hospital clinics and should have practical work assigned by skilled assistants. Such qualifications and examinations should allow the candidate to practise anywhere in the United States.

Further than this, in the light of the rapid progress of medicine in the past twenty years and in the prospect of still greater progress in the future, there ought certainly to come in a country where keen critical competition in medicine only exists in the larger cities, legislation demanding re-examination every six to eight years, thus protecting the people against the non-progressive public parasites in medicine.

MEDICAL NOTES.

Cholera in the Balkans.—Report from Belgrade, Servia, on July 8, states that there are many cases of Asiatic cholera among the wounded brought to that city from the front, and that the disease is prevalent among the Bulgars at Ishtib. It is to be feared that with the return of summer the new Balkan War is likely to be complicated by more severe pestilential outbreaks.

Tuberculosis in Scotland.—The problem of providing properly for tuberculates seems as urgent in the large cities of Scotland as elsewhere in the world. In Edinburgh recently the public health committee of the town council recommended the establishment of a municipal dispensary and farm colony for consumptives. At Glasgow, the corporation sub-committee on the prevention of tuberculosis recommended some time ago the erection of a sanatorium for the care of city children predisposed to pulmonary phthisis, and a site has already been selected for that purpose.

Panic at a Board of Health Picture Show.—At a recent exhibition given by the New Jersey State Board of Health in connection with the Newark Anti-Tuberculosis Association, through a sudden panic due to the setting of a flashlight, nearly one hundred persons, most of them children, were more or less seriously injured.

MEETING OF MEDICAL EXAMINERS.—It is proposed during the meeting of the Panama-Pacific International Exposition to be held in 1915 to arrange for a joint meeting in San Francisco of all the medical examiners of the United States and all of the medical examiners' associations. There are over eighteen thousand medical examiners in this country and this will be the first time that an effort has been made to provide a general meeting.

LYNCHINGS IN 1913.—Booker T. Washington for some years has gathered statistics regarding lynchings and the causes which led to them. The latest compilation shows that for the period of six months this year there have been 12 fewer lynchings than for the same period in 1912, 24 as against 36. The crimes for which the individuals were lynched were of the most varied sort, and it is of interest that in but one of the 36 was rape charged against the individual lynched.

BOSTON AND NEW ENGLAND.

MILK AND BABY HYGIENE ASSOCIATION.—According to figures recently published the Milk and Baby Hygiene Association during the period from June 1 to July 5 cared for 1337 babies who were receiving medical and other necessary care at the various milk stations. This is an increase of 104 babies over the corresponding period of last year. But one baby in the whole number cared for has died.

TUBERCULOSIS IN BOSTON.—At the recent hearing on the investigation of tuberculosis in Massachusetts the superintendent of the Mattapan Hospital stated that this instituion should be provided with at least six hundred beds, in order to segregate a certain proportion of the advanced tuberculosis patients, which are said now to number not less than twelve hundred, for whom there are no hospital facilities. Three hundred and fifty beds, including one hundred outside the hospital, are now available. The waiting list is naturally a long one. At the same meeting Dr. Thomas B. Shea of the Boston Board of Health spoke somewhat more encouragingly of the situation, though recognizing present deficiencies.

LABELING OF STORAGE EGGS.—The Massachusetts State Board of Health is about to enforce the new act requiring that cold storage eggs selling at retail shall be displayed with signs plainly telling their character or in containers conspicuously labeled. The Board has made a definite rule as to the type to be used in the lettering.

AVOIDANCE OF TYPHOID FEVER.—In an endeavor to reduce the number of typhoid cases the Massachusetts Board of Health has recommended that traveling men be inoculated against the disease. It is pointed out that although the death-rate from typhoid has steadily declined it is, nevertheless, greater than in some other cities, for example, London, which in 1910 is said to have lost but four persons out of every 100,000 from this disease. Material for inoculation is furnished free to citizens by the State Board of Health.

BEQUESTS.—By the will of the late James M. Marsh of Lynn $36,000 is left to charity. Among other beneficiaries are $5000 each to the Lynn Home for Aged Women and the Lynn Hospital, $2500 to the Boston Floating Hospital and to the North Shore Baby Hospital at Salem.

INFECTIOUS DISEASES IN BOSTON.—Cases of infectious diseases reported to the Boston Board of Health for the week ending July 22, 1913: Diphtheria 35 of which 1 was non-resident; scarlatina, 6; typhoid fever, 8, of which 1 was non-resident; measles, 48, of which 3 were non-resident; tuberculosis, 78, of which 8 were non-resident.

The death-rate of the reported deaths for the week was 13.26.

NEW YORK.

SMOKE NUISANCE.—The efforts of the City Health Department to abate the smoke nuisance have been obstructed, temporarily at least, by a decision handed down by the Court of Special Sessions on July 18. This opinion was written by Justice Russell and concurred in by two other justices, and declared "unconstitutional and unreasonable" Section 181 of the Sanitary Code, which prescribes that "no person shall allow dense smoke to be discharged from any building, vessel, stationary or locomotive engine, or motor vehicle, on any place or premises within the city of New York or upon the

waters adjacent thereto within the jurisdiction of the city." The department has lodged a large number of complaints against the New York Edison Company for violation of this ordinance, and the company paid the fines and went on creating the nuisance. In the specific complaint on which the decision was based it was charged that this company, at its Water Side Station on the East River, had violated the ordinance on April 4 and on subsequent dates; and it was in the demurrer put in by the defendant that the court rendered its opinion. In this it is stated, "Whenever an ordinance is unreasonable and interferes with the carrying on of lawful occupations and with the rights of private property, and whenever it is repugnant to the Constitution, the court should hold it to be inoperative and void." The Health Department will no doubt appeal from this decision, and in the event of such appeal proving unsuccessful will endeavor to draw up a more acceptable ordinance which will enable it to continue smoke nuisance prosecutions.

Committee for Congress on School Hygiene.—Mayor Gaynor has announced the personnel of the committee which is to represent the city at the Fourth International Congress on School Hygiene, to be held in Buffalo during the last week in August, and among its members are Health Commissioner Lederle, Dr. L. Emmett Holt, professor of diseases of children in Columbia University, Dr. L. Pierce Clark, the neurologist, and Dr. Luther H. Gulick, formerly director of physical training in the public schools.

Death from Corrosive Sublimate.—On July 17 another death from the accidental use of corrosive sublimate occurred in Brooklyn. The victim, a young Italian woman, took by mistake two 7½ grain tablets on July 5, and since then had been treated at the Cumberland Street Hospital. The case has started a movement to bring to the attention of the legislature the need of a special law to regulate the sale of mercuric chloride, and the coroner's physician in Brooklyn, Dr. C. F. Pabst, has undertaken to obtain the support in the matter of the coroners of the other boroughs, the medical profession, and the druggists.

Appointment by Board of Health.—The Board of Health has appointed the following prominent Brooklyn physicians as consulting and attending physicians to constitute the medical board of the Kingstone Avenue Hospital, for contagious diseases, in that borough: Consulting physicians, Drs. John A. McCorkle, Jacob Fuhs, Glentworth R. Butler, and Elias H. Bartley; consulting surgeon, Dr. H. Beeckman Delatour; consulting otologist, Henry A. Alderton; consulting dermatologist, Dr. James McF. Winfield; attending physicians, Drs. Frank M. Sharpe, Raymond Clark, Maurice T. Lewis, Henry G. Webster, and James S. Waterman.

Current Literature.

Medical Record.

July 12, 1913.

1. Haig, A. *Metabolism and the Circulation.*
2. Knox, H. A. *Psychogenetic Disorders; Cases Seen in Detained Immigrants.*
3. Woods, R. H. *Thirty Heads in Mesial Section. Air Sinuses.*
4. Teschner, J. *The Physiological Treatment of Flat Foot.*
5. Walker, J. T. A. *Note on the Influence of Fomites in the Transmission of Disease.*
6. Lewisohn, R. *The Present Status of Esophagoscopy in Cancer of the Esophagus.*
7. *Stover, G. H. *Negative Roentgenological Diagnosis in Clinically Diagnosed Gastric Carcinoma.*

7. Stover reports a case diagnosed clinically as gastric carcinoma in spite of negative x-ray findings, which proved to be not malignant and ended in complete recovery. The writer considers the x-ray of the utmost value in gastro-enterology and believes that no case should be diagnosed as cancer of the gut without radioscopic examination. [L. D. C.]

New York Medical Journal.

July 12, 1913.

1. Nascher, I. L. *Longevity and Rejuvenescence.*
2. Lloyd, S. *Wounds.*
3. Swan, J. M. *The Relation of Industry to Diseases of the Heart and Lungs.*
4. *Beveridge, J. W. *Diabetes Mellitus; Treatment with Bacillus Bulgaricus Cultures.*
5. McMurtrie, D. C. *Further Notes on Prostitution in Japan.*
6. Essenson, S. J. *Exophthalmic Goitre.*
7. Hazen, C. M. *Anterior Poliomyelitis; Infantile Spinal Paralysis; Polioencephalomyelitis, Acute Central Infectious Paralysis.*
8. Ormsby, R. *Neosalvarsan: Intramuscular or Intravenous?*
9. Farrar, L. K. P. *Interpretation of Pain in Surgical Emergencies.*

4. Beveridge presents the first installment of a paper on the use of *Bacillus bulgaricus* in diabetes mellitus. He reports in detail five cases in which very encouraging results were obtained by this method. Great relief of glycosuria, polyuria, pruritus, thirst and the symptoms of acidosis was observed. [L. D. C.]

JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

JULY 12, 1913.

1. DEAVER, J. B. *Posterior Gastrojejunostomy in Acute Perforative Ulcer of the Stomach and Duodenum.*
2. *SIMPSON, R. E. *Radium in Skin Diseases.*
3. FOSTER, B. *Skin Complications of Diabetes.*
4. *NOGUCHI, H. *The Transmission of Treponema Pallidum from the Brains of Paretics to the Rabbit.*
5. STEVENS, W. C. *Diagnosis and Treatment of Multiple Urethral Calculi with Report of Unusual Case.*
6. ROSENBLOM, J. *Clinical Methods for Estimation of Total Nitrogen and Ammonia-Nitrogen in Urine.*
7. *PORTER, M. F. *Injection of Boiling Water in the Treatment of Hyperthyroidism.*
8. *JANEWAY, H. H. *The Relation of Gastrostomy to Inoperable Carcinoma of the Esophagus. With a Description of a New Method of Performing Gastrostomy.*
9. *RAVOGLI, A. *Salvarsan Versus Profeta's Law.*
10. FRAZIER, C. H. *Mesenteric Cysts. With Report of a Case of Sanguineous Cysts of the Mesentery of the Small Intestine.*
11. HOLT, L. E. *Tuberculosis Acquired Through Ritual Circumcision.*
12. KESSLER, J. B. *Pemphigus Foliaceus.*
13. *MACHT, D. I. *The Action of So-Called Emmenagogue Oils on the Isolated Uterus. With a Report of a Case of Pennyroyal Poisoning.*
14. COHEN, S. S. *Recent Improvements in the Quinin Treatment of Lobar and Lobular Pneumonia: The Auxiliary Use of Cocain, Posterior-Pituitary Extract, and Bacterial Products.*
15. DITSON, A. *The Human Stock Show.*
16. *INGALS, E. F. *What Relation, If Any, Have the Faucial Tonsils to Pulmonary Tuberculosis?*
17. MACLACHLAN, J. *Diplosal—Its Toxicity.*
18. *KIMPTON, A. R., AND BROWN, J. H. *A New and Simple Method of Transfusion.*
19. CORNWALL, E. E. *When and How to Use Nitroglycerin.*
20. NICHOLS, H. J., AND HOUGH, W. H. *Positive Results Following the Inoculation of the Rabbit with Paretic Brain Substance: A Preliminary Note.*
21. CLOUGH, F. E. *An Interesting Case of Hemophilia Treated with Repeated Injections of Blood-Serum.*
22. CRABBE, A. A. *Unusual Concretion Removed from Nasal Cavity through the Mouth.*

2. Simpson states that from present experience the radium treatment of epithelioma may be summed up by saying that it is useful in the same general class of cases in which we now use the Roentgen rays. Its effectiveness as compared with x-rays cannot now be decided. Much depends on the operator, the amount of radium used and the method of use. The treatment of angioma has been very brilliant. The cosmetic results are excellent. Some workers claim its has great efficiency in psoriasis.

4. Noguchi has successfully transplanted the treponema pallidum from the brains of paralytics to the rabbit. The reaction is slow and the percentage of infection is low, possibly due to the low virulence of the pallidum in the brain.

7. Porter gives a review of his work with boiling water in hyperthyroidism and illustrates with 22 case histories, 6 drawings, and several experimental histories. He believes the method of distinct value, especially in cases too sick for operation.

8. Janeway's new method of performing gastrostomy by forming a tube of a portion of the stomach wall is an excellent idea. It should have adequate trial. He urges the early employment of gastrostomy before the patient's nutrition has suffered.

9. Ravogli gives a case to show that a child may be born of syphiiitic parents and yet be free from syphilis at birth, but later contract syphilis from its maternal parent. His cases and discussion are interesting.

13. Macht claims that the so-called emmenagogue oils are by no means inocuous substances. They have absolutely no direct stimulating action on the uterine contractions or tonicity, on the contrary, they inhibit such contractions and even paralyze the uterus. Their action as abortifacients, if they act as such, is no different from that of any other powerful systemic poison, such as phosphorus or arsenic.

16. Ingals does not believe that there is any relation between the faucial tonsils and pulmonary tuberculosis.

18. Kimpton and Brown's method of doing transfusion is worthy of further trial as it eliminates many difficult features of ordinary transfusion.

[E. H. R.]

DEUTSCHE MEDIZINISCHE WOCHENSCHRIFT.

MAY 29, 1913.

1. LOEFFLER, F. *Technic for Obtaining Antigens.*
2. MOMOSE, K. *The Antigen Properties of Fat-free Tubercle Bacilli.*
3. DRESEL, E. G. *Tuberculosis Mortality in Baden.*
4. NAKANO, H. *Fission Forms of Spirocheta Pallida.*
5. WILMS, M. *Operative Treatment of Flat Foot and Talipes.*
6. RAUTENBERG, E. *Auricular and Venous Pulse.*
7. KAPLAN, D. M. *The Significance of Findings in the Cerebro-spinal Fluid and in the Blood Serum for Neurology.*
8. HESS AND VON HANSEMANN. *Cure of a Case of Uterine Carcinoma Following Diagnostic Curettage.*
9. FRAENKEL, E. *Bacteriological Examination of the Fasting Stomach.*
10. PINKUSS, A. *Mesothorium Treatment of Uterine Apoplexy and Myomata.*
11. MÜHSAM, R. *Extirpation of the Spleen and Left Kidney for Dislocation.*
12. SCHLOSSBERGER, A. *Two Cases of Eclampsia Cured by Hypophysis Extract.*

JUNE 5, 1913.

1. KRAUS, R., AND BAECHER, S. D. *The Relation Between the Antitoxin Content and the Curative Power of Anti-Diphtheritic Sera.*
2. SCHELBE, H. *Tuberculosis in Children.*
3. LUST, F. *The Pathogenesis of Tetany in Children.*
4. LEVY, M. *Radiotherapy in Diseases of the Mouth and Teeth, Especially Pyorrhea Alveolaris.*
5. KNAUTH, B. *Paratyphoid.*
6. SCHMID, M. *Experiences with Melubrin.*
7. MOMBURG. *The Use of Omentum to Tie Off the Pylorus.*
8. PROPPING, K. *The Treatment of Peritonitis by the Method of Rehn.*
9. *JONAS, W. *The Clinical Value of Abderhalden's Method of the Sero-diagnosis of Pregnancy.*
10. SIEVERT, C. *Postpartum Hemorrhage.*
11. ALSBERG, P. *Treatment of Inversion of the Puerperal Uterus.*

9. The author's report is based on a series of tests on the blood of 50 pregnant women seen at the university clinic in Greifswald. Two cases gave negative actions. He cites 5 cases of pelvic tumor in which the reaction was negative and in which operation showed a non-pregnant uterus. He also obtained negative reactions in 2 cases each of advanced tuberculosis, nephritis and carcinoma. Jonas concludes,

that although the specificity of the reaction is not surely proven, it has won a permanent place in the differential diagnosis of pregnancy. [C. H. L.]

MÜNCHENER MEDIZINISCHE WOCHENSCHRIFT.

No. 25. JUNE 24, 1913.

1. BAÜNLER, C. *The Differential Diagnosis of Smallpox.*
2. *MÜLLER, P. T. *Preliminary Report on Bacteriological Findings in Typhus Fever.*
3. STOFFEL, A. *A New Cause for Ischial Neuralgia and a New Method for the Operative Treatment of the Disease.*
4. HOHMANN, G. *Personal Experiences with Stoffel's Operation in Spastic Paralysis.*
5. STEIN, A. E. *Cosmetic Corrective of Facial Paralysis by Free Fascia Plastic.*
6. CHRISTEN, T. *A Simplification of Dynamic Pulse Diagnosis.*
7. *REICHMANN, V. *The Prognosis and Treatment of Meningitis.*
8. JUNKER. *The Treatment of Pulmonary Tuberculosis by Cyanide of Gold.*
9. BERGEAT, H. *The Treatment of Granulating Wounds.*
10. GRÜNWALD. *A Simple Method for Tracheo-bronchial Injections in the Treatment of Asthma.*
11. KOHLSCHÜTTER. *A Word on the Question of Leaving Bed Shortly After Abdominal Operations. A Personal Experience.*
12. THERSTAPPEN. *The Clinical Picture of Ostitis Fibrosa.*
13. REINACH, O. *The Establishment of Stations for Washing and Preparing Materials for Nursing in Connection with Existing Nursing Hospitals or as Private Institutions.*
14. DREUW. *A Pressure Douche for Gynecological Practice to be Used Before Vaginal Operations and in the Examination of Prostitutes.*
15. LIEPMANN, W. *The "Antifluor," a New Instrument for Dry Treatment of Vaginal Catarrh.*
16. DESSAUER, F. *Experiments with Hard Roentgen Rays.*
17. WEINBRENNER. *Willy Thorn.*

2. Müller has made bacteriological studies in an epidemic of typhus fever occurring among patients quarantined in Triest on their return from Bosnia. In all cases observed, Giemsa preparations of the blood showed rare cocci, diplobacilli, and ovoid bacilli which were usually surrounded by a thin capsule. Of eleven blood cultures in bouillon, five contained a growth of diplobacilli. Three subcultures were successful. The organism grown was a non-motile bacillus, at times resembling a coccus, gram positive at the outset, but becoming gram negative. It grew poorly on agar, and produced a slight opacity in bouillon with a slimy precipitate. Its pathogenicity for animals was little. Müller believes that this organism is similar to those isolated by Fuerth, Rabinowitsch and Predjetschensky.

7. V. Reichmann recognizes two classes of meningitis: one, in which bacteria are not found in a purulent cerebro-spinal fluid, and two, in which bacteria are found in a purulent cerebro-spinal fluid. The first is of two types: (*a*) of unknown etiology tending to recovery after a short course, and (*b*) occurring as a result of a localized purulent process in the brain and usually subsiding if the primary focus of infection is removed. Meningitis with bacteria in the cerebro-spinal fluid, excluding the epidemic form, is usually fatal. The prognosis is especially bad in tuberculosis, though authenticated cases of recovery have been reported. Lumbar puncture is indicated in treatment. It should be made if the patient is in stupor and as often as it seems beneficial. The amount of fluid to be withdrawn depends on the intra-cerebral pressure, care being taken to keep it above normal. Patients with meningitis should be fed as much as possible to prevent rapid loss of fluids and weight. Finally, no case should be given up until death occurs. [R. F.]

WIENER KLINISCHE WOCHENSCHRIFT.

No. 20. MAY 15, 1913.

1. ALBRECHT, P., AND JOANNILICS, G. *Experimental Growth of Human Tumors.*
2. KRAUF, R., AND KIRSCHBAUM, P. *Anaphlactic Poisoning.*
3. LOWENSTEIN, E. *The Occurrence of Aviary Tuberculosis in Man.*
4. ARZT, L., AND KERL, W. *Variola and Spotted Typhus in Bosnians Returning from the Balkans.*
5. POTPESCHNIGG, K. *Report of the Floating Hospital.*
6. *ZARZYCKI, S. *Typhoid Infection of the Bile-Passages in Aplasia of the Gall-Bladder.*

6. The author concludes that his experiment shows that even in the absence of a gall bladder there remains a permanent sty house in the bile passages for a permanent growth of typhoid bacilli (this has been shown clinically before) from which there can at any time be a reinfection.

No. 21. MAY 22, 1913.

1. MULLER, R., AND STEIN, O. *The Skin Reaction in Lues and Its Importance in the Wassermann Reaction.*
2. BAUER, J., AND SKUTETZKY, K. *The Pathology of the Lipoids of the Blood, with Especial Reference to Syphilis (Preliminary Report).*
3. RÖFLER, O. *The Benzol Treatment of Leukemia.*
4. PRZYGODE, P. *The Formation of Specific Agglutenins in Experimental Tissue Growth.*
5. CZYHLARZ, E., AND FELK, A. *Comparative X-ray Pictures of the Stomach in Gastric Crises and in Vomiting.*
6. DANTWITZ, F. *Radium in Alveolar Pyorrhea.*

3. The author concludes that the height of the treatment of leukemia with benzol four grains of the drug is the optimum dose, and this amount can be used for weeks without toxic symptoms. They have observed no injury either of the kidneys or liver, though they looked carefully for this. [F. S. K.]

DIE THERAPIE DER GEGENWART.

MARCH, 1913.

1. HINSMANS, L. *The Curative Action of the German Sea Baths.*
2. SIPPELL. *On the Treatment of Depressed Respiratory Power in Anemic Persons.*
3. *SCHRUMPF, P. *Maragliano's Specific Treament of Tuberculosis.*
4. STERNBERG, W. *The Treatment of Anorexia.*
5. MEYER, O. *Early Forms of Möller-Barlow's Disease and Their Treatment.*
6. POLLAND, R. *The Internal and External Administration of the Yeast Preparation "Furunculin."*
7. RULAND, W. *A Case of Intestinal Obstruction from Ascarides.*
8. LEWIN, C. *The Etiology of Malignant Tumors.*
9. MOELLER, A. *On Active Immunization Against and Treatment of Tuberculosis with Living Cold-Blooded Tubercle Bacilli.*

3. Schrumpf reports three cases of active tuberculosis in which he observed the effect of Maragliano's bacteriolytic serum. Two of the cases were practically cured and the other was much improved. The writer thinks that the good results must be attributed very largely to the specific treatment. The treatment

is very simple and requires no special apparatus and is not dangerous. It can be used by the ordinary practitioner and is especially applicable to early cases in which sanatorium treatment is impossible.
[L. D. C.]

APRIL, 1913.

1. SCHREIBER, R. *Tonsillectomy (with Reference to a New Procedure of Klapp's).*
2. MEIDNER, S. *Remarkable Effect of Mesothorium Rays on a Carcinoma of the Cervix.*
3. COHNHEIM, P. *The Diseases of the Pancreas and Their Treatment.*
4. *JUNKER. *Mesbé in Pulmonary Tuberculosis.*
5. LEWIN, C. *The Valerianic Acid Ester of Amylene Hydrate (Valamin).*
6. HOEFER, P. A. *Hydrophobia.*
7. MEIDNER, S. *The Present Status of Roentgen Therapy in Gynecology.*

4. Junker studied the therapeutic value of mesbé inhalations in six cases of active pulmonary tuberculosis, five of which had laryngeal involvement. He found that this remedy had no favorable or specific effect on the process, either in the lung or the larynx. The claims and promises made for it must be rejected, he says. Possibly it has a certain symptomatic effect in easing the upper air passages, but in this respect it does not excel other well known remedies. [L. D. C.]

ANNALES DE L'INSTITUT PASTEUR.

MAY 25, 1913.

1. BORDET, J., AND DELANGE, L. *The Nature of Cytozyme; Investigations upon the Coagulation of the Blood.*
2. NICOLLE, M., AND CESARI, E. *Studies upon Ricin. Ricinic Intoxication in Guinea-pigs.*
3. BERTRAND, G., AND ROSENBLATT, MR. AND MISS. *Investigations upon the Hydrolysis of Saccharose by Different Acids in the Presence of the Sucrase of Koji.*
4. *SERGENT, ED., AND ET. *Epidemiological Studies on Malaria in Algeria.*
5. KIESEL, A. *Study of the Action of Different Acids and Acid Salts upon the Development of Aspergillus Niger.*

4. These authors give a very interesting description of the campaign against malaria in Algiers. They first take up the frequency of the disease and its virulence especially towards foreigners. The campaign has been waged in three ways: (1) against the larvae of the mosquitoes, to prevent their development, and against the adults to destroy as many as possible; (2) prophylactic and medicinal doses of quinine; and (3) education of the public by the extensive distribution of placards containing information about the disease and its method of eradication. They end up with a few charts to show the value of these prophylactic measures. [C. F. JR.]

IL POLICLINICO.

JUNE, 1913.

SURGICAL SECTION.

1. PEREZ, G. *So-Called Bone Cysts. (To be continued.)*
2. *SCHINCAGLIA, I. *The Exact Position of Foreign Bodies in the Human Body.*
3. *VACCARI, L. *Intestinal Invagination.*
4. MARRASSINI, A. *Further Researches on Internal Testicular Secretion.*

2. In this note on Roentgen technic, Schincaglia describes what he believes to be an absolutely infallible mathematic method of determining the exact location of foreign bodies in the human tissues, but it seems hardly practicable.

3. Vaccari distinguishes and classifies six forms of intussusception, reports two cases, and from his study of them derives the following conclusions: (*a*) The predisposing causes of intussusception, which determine its form, are congenital anatomic and pathologic dispositions and alterations of the intestine, which determine the equilibrium of elasticity in its various parts. (*b*) The initial and immediate causes are usually lesions or processes, such as enteritis, tuberculosis, or neoplasms. (*c*) Laparotomy is indicated whenever a few enemata under low pressure do not restore the intestinal circulation. If disinvagination is impossible, resection and lateral anastomosis or enterostomy should be done. [R. M. G.]

Miscellany.

SCHOOL DENTAL CLINICS IN IRELAND.

THE following item from a recent issue of the Cork *Examiner* indicates the progress which the dental care of school-children is making in Ireland, a country where hitherto this important preventive work has been much neglected:—

"In Belfast the Children's Aid Society have established a dental clinic, which, we are informed, is working most successfully. The object of this clinic to to provide dental treatment for national school-children between the ages of six and ten years. The National Board has issued rules regulating the work of the clinic, and have given a sum to cover working expenses equivalent to what they regard as the money-value of the services rendered to the clinic by the local dentists. The fact that the dentists have taken an active interest in the project counts for much, but the members of the society also render valuable assistance in the registration of the cases and the general management of the clinic. The importance of efficient dental treatment for children has been emphasized in our own city in connection with the proposed dental hospital, and also in connection with the proposal by the Cork Guardians to provide the services of a dentist for the children in the house. The Belfast scheme is distinct from either of these, and it would appear to be one which could be adopted in Cork without much trouble and expense in connection with the national schools."

NATIONAL HEALTH INSURANCE IN ENGLAND.

A volume has recently been published of upwards of six hundred pages giving a detailed report of the working of the National Health Insurance measure in England during its first

year. It appears that insurance has been secured for 14,000,000 persons, that 20,000 persons have received free hospital treatment, and that $25,000,000 in benefits have been paid out to working people. In relation to sanatorium benefit it is shown "that in England alone, during the first four months after July 15, 1912, 2865 applicants received such benefit, 1467 in residential institutions, 507 in or through a tuberculosis dispensary and 891 at home. By April 30, 1913, the number in residential institutions had increased to 7464, while 2167 had received treatment in or through a dispensary, and 4993 at home—in all 14,624. At present in England alone over 200 residential institutions have been approved, these sanatoria having accommodation for some 8000 cases."

In general it appears that the medical side of the insurance act has worked with satisfaction. On January 15 nearly 18,000 doctors were on the lists and in April this number was materially increased so that between 80% and 90% of all physicians engaged in industrial practice were available to treat the insured population. In Scotland the act is said to have been satisfactory, and also in Ireland, although that country presented certain difficulties not met with elsewhere.

PRACTICAL PROBLEMS OF NATIONAL INSURANCE.

The subject of national insurance continues to vex the souls of the British medical profession, and the practical application of the law has given rise to a number of perplexing minor questions. At a conference of the Scottish committee of the British Medical Association, held on July 4 at Dundee, some of these were discussed and the following conclusions, which indicate their nature, were reached:

"That the name of the illness should not be inserted in certificates; that the suspension of sickness benefit in venereal disease is injurious to the nation as well as to the individual; that contracting out for the services of unqualified practitioners should not be allowed; that the Midwives' Act should be introduced for Scotland without delay; that in rural practice the mileage question can be settled only on the basis of a one-mile limit; that insurance committees should be asked to send any proposed agreements to the medical committees at least six weeks before the agreement must be concluded; that a service of medical referees should be established by the insurance commissioners.

"The following resolution was ordered to be communicated to the general press:—That this conference protests emphatically against the charges of encouraging malingering which have been brought against practitioners by officials of approved societies and others, in recent utterances published in the press, and demands that such charges should at once be substantiated or withdrawn."

Nurses, as well as physicians, are affected by the provisions of the act, and important problems have arisen regarding its application to them.

"The essential consideration in determining whether a particular nurse is compulsorily insurable under the act is the same as that dominating the issue in the case of all other employed persons, viz., Is the nurse employed under a 'contract of service' or not? It may be accepted as a general statement that nurses are employed under such contracts, though there may be exceptions in individual cases. There is, for instance (1) the visiting nurse whose work consists less of service and personal attention than advice and direction; (2) the nurse who attends patients such as convalescents or persons of chronic ill health without the supervision of a doctor; (3) the maternity nurse who attends confinements where no doctor is called in; (4) the masseuse who pays professional visits to patients but gives her skilled services in the way in which she thinks best. In all such cases a decision can be given only when the full facts have been ascertained, and the commissioners should be asked for a formal determination, the facts being reported to them. Nurses in employment and employers of nurses are advised to act on the principle that the act includes them until they are informed authoritatively that it does not. Further, it is to be noted that a nurse may be at times employed within the meaning of the act, while at other times the terms of her engagement would not bring her within the compulsory provisions. In such cases it would be to the advantage of the nurse to continue to make her contributions, paying the whole herself, so that she may not fall out of benefit on account of arrears."

Correspondence.

LETTER FROM FRANCE.

ON THE

"MALADIE DU BOUQUIN."

(From our Special Correspondent.)

Paris, June 27, 1913.

It is never without a feeling of profound melancholy that I turn over the leaves of a catalogue of a sale of books,—a frame of mind that is hardly lightened by the possible satisfaction of coming across some work among its contents that I may have long been seeking; for man's passion for books is one of the very strong ones, with roots that go down deep, and I imagine that no one who has ever really experienced it can help partaking figuratively in the mental anguish which the owner would have experienced had he been here to witness the disposal of his slowly and laboriously accumulated treasures. And besides, back of this sympathy for the other fellow,

is always lurking the sorrowful realization that sooner or later your shelves too will be emptied and sent off to the soulless dealer.

In speaking of booklovers I have here only in mind the individual who pursues books for the purpose of reading them: he who merely collects rare editions and rich bindings in order to say that he owns them, is deserving at the most of very moderate consideration. Such an amateur as that is little more than a means to an end, gathering together and putting in safe-keeping books that otherwise might become scattered, lost or destroyed; but he is only their guardian *pro tem*, in the interests of other and better men,—for inevitably at some future time his collection in turn will come to auction, and the books will then stand a chance of reaching those capable of really appreciating them. How many works in J. P. Morgan's priceless and wonderful library do you suppose he ever read, or even looked through, for that matter?

Such book-hunting as that, where values soar to altitudes at which the ether vibrations are altogether too rapid for ordinary mortal senses and prices are quoted in hundreds and thousands of guineas, is of course quite unfamiliar to me; mine has remained at very moderate levels, but has been none the less absorbing on that account. There is also another aspect of this question that I have always found it difficult to understand,—the pursuit of books and literary curios purely for association's sake. For instance,—I received recently the catalogue of the sale of "the Browning Collections," books and papers having belonged to the poet and his wife. Now among the items appear: An address-book in the handwriting of Robert Browning; 52 pp. of the names and addresses of his friends, *seven guineas!* a receipt for fourpence, due from Robert Browning to the estate of Wingrove deceased, *one guinea;* and a passport issued to Robert Browning for travelling in Russia, *six guineas*. Now really, a person has to have money to *throw* away, to go in for that sort of thing; thirty-five dollars for Browning's passport, 4 pp. folio, in Russian and German, 1834!

It is a matter for congratulation that in most instances the owner of a collection of books has passed on to the majority before it comes to be placed on the market; he is thus spared what must certainly be a very harrowing experience. But recently I had sent to me from Copenhagen the catalogue of the library of a celebrated philologist, which was to be disposed of at auction during its owner's lifetime. And such a library! The printed octavo catalogue covers 412 pages, with 12,182 items, and contains apparently everything ever written on the Indo-European tongues from Sanskrit down. If in order to be a philologist it is necessary to have read all that, what amusing creatures we other poor worms must seem who merely dabble in languages as a hobby.

For a number of years now I have taken an interest in the Eastern branch of the Germanic tongues. Now one of the peculiarities connected with books published in Scandinavian lands is that since their populations are small and not very well-off, the book-buying public is restricted; furthermore, the people outside of these countries who are able to read these languages are very few. Consequently, the editions published there are not large, and when any book proves a success it becomes exhausted and "out of print" in a very short time. That is the appointed hour of the dealer, who as soon as a copy falls into his hands has no trouble whatever in finding a purchaser at any rascally price he chooses, his rôle consisting in being capable of gauging the cash value of the aspiring owner's anxiety to enter into possession. The first requisite, then, of the perfect book-dealer is to be an expert psychologist!

What shrewd fellows these book-dealers are! It does not take them long to ascertain what your particular little hobby may be; you do not have to tell them, they guess from the nature of the books you order, and from that time on you are a marked man. They never suffer a chance to escape, and whenever there is anything going that touches on your subject, however remotely, along comes a catalogue, a card or a letter. The business has been wonderfully systematized. And how well they know the genus booklover and his little weaknesses; for the man who is out after a book is going to have it, even if it means bread and water for the next three months. And it is on his thorough comprehension of this fact that the dealer bases his demands. But what really would interest me would be to know what sort of prices a man gets who *sells* his library to one of these middlemen. Perhaps it will be just as well not to raise that point; I fancy it is a tragic transaction.

Since, then, the books concerning my hobby are as a rule "out of print," I have been obliged to build up an intimate connection with the "antikvariats" of all Northern Europe. The chief centres for my branch are Copenhagen, Christiania, Oxford, Stockholm, and Leipzig, and at the last-named place the resources of Otto Harrassowitz are inexhaustible; what he cannot find must be hidden away pretty securely. What are the joys of the chase compared with the pursuit of an obsolete volume: the ascertaining from these dealers that they have not got it; the long wait, sometimes for years, for it to turn up in some generally altogether unexpected quarter; then the frenzied telegram, and feverish expectation until you hear whether you were in time to secure it or not. No gambling could be more nerve-racking, with its alternatives of failure and success. There was a book I wanted very much, for reasons of sentiment, as it really had no particular value *in se*,—an early guide to the valley of Aosta that I was anxious to acquire because I had personally known the old priest who wrote it, the Abbé Goret, whom I shall have occasion to mention again presently. This book was, of course, "out of print," in fact I had long given up hope of getting it, when it suddenly bobbed up the other day in Tunbridge Wells, of all places, and at a ridiculous price, mere old paper, two and six, I believe. I felt so sure that no one else could possibly want this book that I ordered it by letter. But behold the irony of Fate. There actually was, somewhere in England, another "freak," also on the lookout for it, who, being nearer to the spot, carried it off before my letter arrived! Another one of the trials of my career has been a collection of Icelandic proverbs. It is a custom of the Scandinavian publisher to issue books in sections, and here are probably people who buy one, but who neglect to get the others. This particular book originally came out in two parts; but although it is not infrequent to see the first at a booksale, it seems impossible to unearth the second. However, with patience even this feat may yet be accomplished. But I have recently had the satisfaction of adding to my library two books that I had long been looking for, and which, as usual, were "out of print," though one of them, a dictionary, is not yet twenty years old. You would not think that a dictionary of Norse dialects would be a work likely to get out of print in a hurry, would you? Well, these two volumes came from the sale of an Oxford philologist, recently deceased, and for once, I must say, my grief over a library dispersion was somewhat mitigated, as I owed that learned man a grudge. In the course of my linguistic pursuits I have on various occasions ventured to write to certain authorities at different universities to ask for information, which I knew they could give me offhand, but which it might take me, an amateur, a long time to obtain by myself. In nearly every instance I have received prompt and courteous replies, the persons addressed appearing rather gratified than otherwise at the recognition of their position. To this rule I have met with only three exceptions, and, strange to say, all three at Oxford and Cambridge. I do not know whether the English philologist is a particularly grouchy individual, but such has been my per-

sonal experience. The first man I wrote to did not reply at all: I had asked him which the best Icelandic dictionary was; there was at that time only one, and five words on a postal card would have sufficed. The second man I asked something about Anglo-Saxon; he did not reply either, but he requested a bookdealer to send me a catalogue, through which, with some trouble, I was ultimately able to get the information that he could have given me in two minutes. The third is the man whose books I have just acquired. In reply to my question, also about Anglo-Saxon, he wrote me three pages to explain that he had not time to send me the information I wanted; half of this space would have more than sufficed to answer my question, had he been in an obliging mood.

In looking over these two books I observe that learned philologists do not always read the works on their library shelves. This Norse dialects dictionary, so hard to get, has not even got its leaves cut; it is just as it came from the printer's. But I can tell even a queerer tale than that. I am inclined to think that the study of Norse dialects is not pushed very strenuously by the general reading public. There is a famous dictionary on this subject, a most fascinating work, the *Magnum Opus* of a lifetime, full of erudition and as interesting as a novel, published in 1873 by one Ivar Aasen. The Bibliothèque Nationale of this city possesses a copy, but likewise with its leaves uncut and with their tops black with the dust of ages! The other book I have just acquired, the standard work on Runic Inscriptions, a presentation copy, curiously enough, from the Danish philologist mentioned above, has also only got a few pages cut in the beginning; I am afraid that the Herr Kollege would not be flattered could he see this. When my own collection of books comes to be distributed I shall at least have one consolation; it may not be a large one, but I am pretty certain that there is not an uncut book in the lot.

Have you ever considered how the joys of man follow a centripetal, ascending line of progression, as he passes from childhood to youth, manhood and old age? The boy is only happy when he is using to the utmost his limbs and lungs; during the adult stage the interests of life are apt to be subphrenic and to centre largely in the abdominal viscera; but once this agitated period over, they become purely cerebral, and these years are certainly the most delightful of them all. At last, at any rate, your pleasures are secure. No danger of your *books* going back on you; they are as reliable as the affection of your dog. Your stomach is likely to become dyspeptic, your lady friends turn to more modern gods, and your dog, alas! grows old before you do and dies; but your books are everlasting. Is there any purer pleasure on earth than to sit of an evening among the well-lined shelves of your library, to pass in review one by one the familiar titles, and to muse on the history of each and its special associations. The very arrangement of my books tells a tale, for each group indicates one of the many hobbies of which I have been a devotee at one period of my life or another. And the precious moldy smell that the older ones have acquired, as highly-valued as the dust on the few remaining bottles in the most sacred corner of your cellar. It is a sensuous delight merely to handle them and get a whiff of this mark of time. An old lady friend of mine once wished to give me a surprise at Christmas and ascertained through diplomatic channels that there was a certain book for which I was then looking. She gave the order at a bookshop, and the volumes were duly unearthed in an "antikvariat" in Copenhagen and forwarded. But one day, long before Christmas, she handed them over to me, with the following remark: "I had intended this as a surprise at Christmas; but yesterday, when they arrived, they smelled so badly that I had the servant put them out on the windowledge for the night, and as I am afraid they may get rained on I thought it would be better to give them to you right away." They had only the smell peculiar to books that have long been stored; but my amusing friend has an idiosyncrasy for odors, about which many tales could be related were this the proper occasion.

One of the side-joys in the book-life lies in what might be called the rehabilitation of derelicts. Talk about slumming, or the rescuing of fallen women from the sidewalk; that is mere nothing in comparison with putting on its feet again a book that has met with evil days. About eighty years ago there was published in Denmark a very curious quarto edition of the Faroese saga in three languages, Danish, Icelandic and Faroese, on the paper used in those days—thin, coarse and gritty, looking as though made of dirty straw. This, like all of these books, was hard to procure; but I finally came across a copy, in paper cover and lacking the title and first ten pages of the introduction, the text itself being complete. Now it was a genuine pleasure to me to have a transcription made in Copenhagen on similar paper of the missing pages, and then to have the whole thing put in a simple but serviceable binding. An act of this sort confers, in a way, the feeling that you have rendered a service to society,—very much as though you had culled a tramp by the roadside and taken him into town and fitted him out from head to foot. You have also done a good turn to generations to come; for there is a book now that may give pleasure to who knows how many students of the future, whereas otherwise it was probably doomed to be nibbled by rats or used as wrapping paper.

Bookbinding is another source of enjoyment connected with this pursuit, as it brings you into contact with some very original characters in that profession. Here on the continent there is an almost universal custom of publishing books in paper covers; this certainly has one advantage, in that it enables many people to buy books at moderate prices who could never afford to do so were they produced in handsome bindings. But on the other hand, it diminishes the life of a book enormously, since if such a volume is exposed to any unusual handling it soon grows dirty and falls to pieces. I always have bound without delay any book that I care for; this seems to me an elementary act of respect, just as I should not like to have friends about me in very shabby clothes if I could afford to supply them with good ones. Binders I have met in my time and many, some artists, some robbers, and some cranks. My favorite, a man who has worked for me for twenty-five years, and who has lived for thirty-five to forty years over in a dark, narrow and vilely-smelling street in the Latin Quarter, inhabits a ramshackle old place that dates back to the thirteenth century and that once formed part of a convent. His abode is not more than a pistol-shot from Place St. Michel, and, as is well known, that part of the town was in the middle ages mainly given up to ecclesiastical establishments. He and his wife moved to this workshop soon after their marriage, and have lived there ever since; neither the smells, the darkness, nor the prevailing decrepitude have ever troubled their happy natures, but they have there pursued a career of honesty and hard labor on which they are entitled to look back with much satisfaction.

Another little rescue that I once effected likewise afforded me much gratification. In the 1840-ies, before the movements of glaciers were fully understood, a party of Swiss scientists spent a summer up at the Grimsel engaged in experiments with a view to demonstrating the mode and rate of progression of these masses of ice. These were the great days, when Agassiz and his associates were carrying on and completing the study of glaciers begun by de Saussure. Desor, one of the party, published in 1844 a most delightful account of this campaign, following it up the next year with a species of supplement. I had been able to find without much difficulty the first

volume in its old binding: but it took me a long time to get the second, and when I did it was in paper and in very bad condition. Now it is difficult to describe the pleasure it gave me to clothe suitably this dilapidated supplement, and to unite it once more with its fellow, from which it ought never to have been separated.

Finally, one of the most highly-prized books that I possess is a little 16° of hardly one hundred pages, published in 1879 by Abbé Gorret of the Vallée d'Aoste, mentioned above. This Abbé was quite a remarkable man in his day, 1836-1907, a friend of old King Victor-Emmanuel and of Queen Margherita, and an ardent climber and mountain-lover. He was the guiding spirit in the party of four who in 1865 made the first ascent of the Matterhorn from the Italian side, three days after Whymper had succeeded in attaining the summit from Zermatt. The Italians had far the more difficult task, and deserved at least as much credit as the others; but Whymper's party met on the descent with the appalling accident that he has so graphically described in his mountaineering classic, "Scrambles in the Alps," whereas the Valdostans reached home safely and Gorret's modest account of their exploits is buried in a little local paper in Aosta where no one will ever see it again. The consequence was that Whymper got all the credit, while Gorret and the guide Carrel are practically forgotten. In 1906 I went to visit the aged priest, broken in health and almost blind, at St. Pierre, and had a long talk with him about times gone by. His pleasure at our visit was positively pathetic, and by a few little attentions we were able to brighten up his path



ABBÉ GORRET, ST. PIERRE, 1906.

momentarily. I took his photograph, and in the autumn sent him a copy of the little book he had published twenty-eight years previously, asking him whether he would not like to write a few lines of introduction in it for me. This he did, in his trembling and uncertain script, and I then had it handsomely bound. This book, with dedication and photograph, I shall some day present to the Italian Alpine Club, of which the good Abbé was a distinguished member. At one of the annual meetings of this association he aroused great merriment by taking as the text of his discourse the following paradox: "Where should we Alpinists be if the world had been created flat?" This conception, when I first heard of it, struck me as so original that I wrote to him to ask what he could possibly have found to say on such a subject. To this he replied in a long and interesting letter, which I shall also ultimately send to the Alpine Club, together with several others that I received from him during our brief acquaintance,—for he passed away about fifteen months after our visit to his native valley.

"S."

SOCIETY NOTICE.

INTERNATIONAL ASSOCIATION OF MEDICAL MUSEUMS.—The second Triennial International Meeting will be held at the Museum of Royal College of Surgeons, Lincoln's Inn Fields, W. C., and the Museum of the Seventeenth International Congress of Medicine, Imperial College of Science, South Kensington, London, England, August 5, 6, and 7, 1913.

BOOKS AND PAMPHLETS RECEIVED.

Invertebrate Zoology. By Gilman A. Drew. W. B. Saunders Company. 1913.

Diet in Health and Disease. By Julius Friedenwald and John Ruhräh. Fourth edition. W. B. Saunders Company. 1913.

The Elements of Bacteriological Technique. By W. H. Eyre. W. B. Saunders Company. 1913.

Reference Handbook of the Medical Sciences. Vol II. New York: Willam Wood and Company. 1913.

RECENT DEATHS.

DR. CHARLES PLUMMER MORRILL, a retired Fellow of The Massachusetts Medical Society, died at his home in North Andover, June 27, 1913, aged 73 years.

DR. RODERICK MCLENNAN, a Fellow of The Massachusetts Medical Society since 1895, died at Quincy, July 23, 1913, aged 53 years.

WEEKLY RETURNS OF DEATHS

from diseases declared by the State Board of Health to be dangerous to the public health from cities and towns in Massachusetts of more than 10,000 population, for week ending July 19, 1913:

Boston	24
Worcester	9
Fall River	3
Lowell	2
Cambridge	5
New Bedford	3
Springfield	4
Somerville	1
Holyoke	1
Brockton	1
Malden	1
Haverhill	2
Salem	1
Taunton	1
Everett	2
Waltham	1
Brookline	1
Chicopee	2
Gloucester	2
North Adams	3
Northampton	1
Beverly	2
Leominster	1
Newburyport	1
Southbridge	1
Webster	1
Methuen	1
Arlington	1

Original Articles.

THE SURGEON AND THE PTOSIS PROBLEM.

BY F. B. LUND, M.D., BOSTON.

Some fifteen years ago the writer, attracted by the observation of certain remarkable instances of ptosis associated with movable kidney existing in certain subjects in the dissecting room at the Harvard Medical School, was led to make an investigation into the mechanism of ptosis and its symptomatology, especially in connection with movable kidney, which, at that time, was considered to be the only manifestation of ptosis admitting of surgical treatment. The connection between movable kidney and general ptosis of the intestines was not then so generally recognized as it is now, and many cases of movable kidney were being operated upon in which the symptoms, intestinal stasis, mucous diarrhea, neurasthenia, emaciation, and others not dependent upon the ptosis of the kidney, but the general ptosis of the abdominal organs, were naturally not relieved by the operation upon one or both kidneys.

The conclusions reached in this paper which I quote were the following:—

"A more general realization of the importance of enteroptosis as a factor in many conditions which are presented to physicians for treatment may, it seems fair to expect, lead to certain not unimportant results.

"First, a rational system of therapeutics may be more generally applied to a large class of cases of 'nervous dyspepsia.'

"Second, the same treatment will probably relieve a large number of patients who are subjected to local gynecological treatment, with a view of benefiting general and gastro-intestinal symptoms supposed to be 'reflex' to various local troubles.

"Third, a more rational means of prognosis in cases of movable kidney, and of decision as to mechanical or operative treatment may be possible. For instance, in the very large class of cases where movable kidney is complicated with enteroptosis, although by suturing the kidney in position we may relieve the symptoms due to torsion of the renal vessels or ureter, and the like, we will probably find, as we all know from our own experience to be sometimes the case, that the general neurasthenic and gastro-intestinal symptoms may not be benefited by the operation. It is hardly fair to expect that suturing the kidney in position will cure dilatation of the stomach or ptosis of the other viscera. The propriety of following a nephrorraphy by measures calculated to increase and maintain increased abdominal pressure can hardly be questioned. Cases of movable kidney which are found on examination to be uncomplicated by enteroptosis will naturally stand more chance of benefit from nephrorraphy.

"Nephrorraphy, then, will relieve such symptoms as arise directly from the descent of the kidneys, and are due to torsion of the renal vein or twisting of the ureter, but it cannot be expected to cure the symptoms due to ptosis of the stomach and other viscera. I do not mean to imply that nephrorraphy is not indicated in cases where nephroptosis is associated with enteroptosis, as I believe the fixation of the kidneys if freely movable and causing symptoms to be one of the most important steps in the treatment of these cases, but that such an operation must be both preceded and followed by treatment of the general condition.

"Although we have no absolute data of the proportion of cases of movable kidney which are complicated with enteroptosis, the observations which I have made, although few in number, have led me to the belief that ptosis of the kidneys is almost always associated with more or less ptosis of the other abdominal viscera, and that slipping down of the kidney behind the peritoneum, without more or less general relaxation of the latter, and of the supporting ligaments of the viscera, is the exception rather than the rule.

"Careful attention to the subject in post-mortem rooms can alone determine the absolute frequency of relation of enteroptosis to movable kidney, and I cannot help thinking that attention to the subject will show that the condition is more frequent than has been heretofore believed.

"It is probable, also, that a routine physical examination for mobility of the kidneys and dilatation of the stomach in medical and gynecological clinics will disclose a more frequent occurrence of this condition than we have heretofore suspected, and will greatly aid us to a rational and efficient treatment of many obscure and hitherto unexplained cases."

The time these conclusions were reached was twelve years after Glenard's classical description of that condition of enteroptosis in 1885. Glenard believed that nephroptosis was always a part of general enteroptosis, and that the natural supports of the kidney were loosened by the dragging down of the loaded intestines in constipated patients, stretching the mesentery and loosening the retroperitoneal areolar tissue so that kidneys deprived of their support descended. Glenard's description of the symptoms, the dyspepsia, fermentation, constipation alternating with diarrhea and mucous stools, emaciation, neurasthenia, etc., holds as good today as any of the descriptions which have been made by the later writers on the subject of the disease.

Ewald and Kuttner in 1890 studied the rela-

tion of movable kidney to ptosis of the stomach by distending the latter with gas and percussing its outline, and it was even in those early days recognized that there was a large class of cases in young women and girls who had never had the abdomen stretched by pregnancy, or other causes, and in whom the primary conditions could not be relaxation of the abdominal wall. The effect of tight lacing was believed to be, and undoubtedly was, a frequent cause of ptosis in young women, and the writer had (*loc. cit.*) noted the possibility of ptosis of the organs in the upper part of the abdomen because of being dragged down by adhesions to those in the lower, *e.g.* dilated and movable cecum and ptotic transverse colon. Treves and others had noted these conditions at operation.

At the time of the writer's studies, in 1896, the question of the relief of the symptoms dependent upon a general ptosis of the stomach and intestines by surgery did not urgently present itself; the condition seemed too general, too complicated: there were too many organs involved, and too many unknown factors as to the condition being only a part of a general nervous weakness, etc., to make it wise, or even possible, to attack the condition by surgical measures which would seem in the first place safe, or, in the second place, even if safe, adequate to the relief of the symptoms. However, surgeons were found who were willing to attack the condition by measures for shortening the ligaments supporting the stomach, Beyea of Philadelphia being one of the first. His own results, as reported, seemed fair, but other surgeons who tried them found the gastro-hepatic omentum too delicate a tissue to hold up a ptotic and dilated stomach with the dragging colon also, and the procedure was not generally adopted.

In 1898 Rovsing began to treat ptosis by the suture of the stomach to the abdominal wall above the umbilicus. This was avoided by many surgeons on account of the belief that it would cripple the stomach and that the gastro-colic omentum would not be sufficient to hold up the colon. Rovsing, however, has persisted in the practice and reports excellent results.

His method consists in passing three strong silk threads in and out along the anterior wall of the stomach, taking in the serous and part of the muscular coat, parallel to the lesser curvature, leaving the pyloric part of the stomach and the greater curvature free. The serous coat of the anterior surface is scarified, as is also the parietal peritoneum. The threads are then brought out through the abdominal wall and tied over a glass plate. Rovsing has now performed (1912) 163 of these operations, and other Scandinavian surgeons 93, making 256, of which 63% are "cured," 12.8% have been greatly relieved, and there has been a mortality of 4.2%.

In 76 of Rovsing's 163 cases a constipation which had lasted for years, and proved intractable to other forms of treatment, was cured. In cases where the gastro-colic omentum is greatly elongated a simple gastropexy does not elevate the colon sufficiently to cure the constipation, so that in these cases Rovsing shortens the gastro-colic omentum, picking it up with basting sutures, beginning in the serous coat of the colon and ending at the greater curvature.

Then Coffey's suspension of the colon and stomach by suturing the omentum to the abdominal wall was published and was not received enthusiastically by the surgical world.

For the cure of the gastric symptoms and dilatation accompanying ptosis of the stomach, many surgeons in various parts of the world, believing that the cause of the symptoms was kinking at the duodenum, have performed gastro-enterostomy, with disappointing results. The gastric fermentation and vomiting have been generally made worse, and few there be of experience who have not been compelled to separate these ill-advised anastomoses and restore the *status quo* in order to render life endurable to the patients.

Then x-ray and bismuth examination began to be applied to the study of ptosis, as well as other lesions of the intestinal tract, with the result of a notable increase of our facilities for the study of these cases and the elucidation of certain remarkable facts. It was found, for instance, as had long been suspected, that there is a marked difference in the position of the full and empty stomach, and of the full and empty colon; that in many patients in perfect health the full stomach may descend well into the false pelvis. In the case of the colon, truly remarkable angulations at the hepatic and more especially the splenic flexures have beeen noted without any noticeable effect on the condition of the patient or the movements of his bowels. In cases where these conditions exist in connection with constipation colics and intestinal fermentation, however, the question of angulations, at the pylorus, hepatic and splenic flexures, becomes often a matter for serious study. Adhesions of the ptotic viscera, colon and stomach to the pelvic organs, as a result of inflammation also, may, as has been often brought out in the writer's experience, severely cripple their functions.

In this connection Clark has suggested and performed, in cases where raw surfaces were left in the pelvis by operative procedures, to which the omentum is likely to become adherent, the fixation of the colon at a high level by Coffey's omentopexy, so as to prevent the omentum from becoming adherent and dragging down the colon. The writer performed Coffey's omentopexy once to elevate a ptotic colon which had become adherent in the pelvis after a pelvic operation and considerably crippled thereby. The result, although the operation was apparently performed with thoroughness may be described as only a partial success. It seems to the writer true, however, that these ptoses, when complicated by adhesions, congenital, post-operative or otherwise, are more legitimate subjects for op-

eration than the ptoses alone, as will be emphasized later in this paper.

The study of the congenital conditions which throw light upon ptosis has, of late years, proved of the greatest interest.

The failure of the ascending meso-colon to adhere to the abdominal wall, producing in the least instance a movable cecum and in the greatest instance entire freedom of the ascending colon or even its median or left-sided position, may be noted, and has been reported by Dr. C. H. Mayo, as has been observed although not reported by the writer. Partial congenital adhesions may produce bands across the ascending or descending colon or even across portions of the small intestine, as has been observed by the writer. Adequate and interesting discussion of the congenital origin of ptosis and other abnormalities of the intestinal canal may be found in the papers of Coffey and Clark, to which the reader is referred. Sharp angulations at hepatic or splenic flexure undoubtedly tend to produce constipation or intestinal stasis and this same stasis to cause intestinal fermentation and possibly, in some cases, infection of the intestinal wall sufficient to cause adhesions. The rich bacterial flora of the large intestine, particularly the cecum, render this stagnation and fermentation particularly frequent. The drying out of the feces in the cecum and ascending colon and the influence of gravity render more strenuous muscular efforts necessary for their advancement. It has certainly been my experience as an operating surgeon to find that adhesions, both flat adhesions and bands, which fail to have any effect when they concern only the small intestine, are of most serious crippling power where the large intestine is concerned. Large portions of the small intestine may be glued together into balls, without affecting the progress of their contents, while a few adhesions about the cecum and sigmoid may cripple the gut and make an invalid of the patient.

Jackson's membrane and other bands and veils across the cecum, often angulating and obstructing the ascending colon, may be readily called to mind. The movable cecum is almost always dilated, because hanging free in the pelvis, it has to lift its heavy, mushy load much further against gravity than does the usual cecum, and is unequal to the task.

Movable cecum is a congenital condition, as Clark believes colonic ptosis to be also, and it is interesting that associated with Jackson's membrane or colonic adhesions, there is almost always more or less mobility of the cecum. Partial cecal obstruction from the cecal veil, has, as Harris has pointed out and my experience will bear out, a definite symptomatology somewhat different from appendicitis. The pain is not acute and colicky but constant and dragging; there is dyspepsia, constipation and intestinal fermentation. The pain covers a larger area, as does often the tenderness, than in chronic appendicitis. It is often made worse by exercise, but never becomes very acute. It may be relieved by certain exercises which facilitate motion of the viscera, such as horseback riding. On palpation of the abdomen, gas can always be made to gurgle on pressing the large, distended cecum against the pelvic brim, and in opening the abdomen for the relief of the condition, even after free catharsis, mushy feces will be found in the caput ceci, while all other portions of the abdomen are empty.

Roentgen examinations show the delay of the bismuth mass in the cecum and the writhings of the latter as it endeavors to force up the mass between the veil, which is stretched into a narrow band as the loaded cecum falls into the pelvis, and the pelvic brim. The way this band may compress and partially obstruct the ascending colon may be easily demonstrated at operation by drawing the cecum with very moderate force down into the pelvis and observing how the band compresses the bowel against the pelvic brim.

To Wilms must be given the credit of calling attention to the importance of cecum mobile, and perfecting its treatment by fixation of the cecum, a procedure combated by some authorities, but proven by a sufficient number to be of real value, especially when associated with removal of obstructing membranes extending across the ascending colon.

The subjoined figures, 1, 2 and 3, show x-rays taken eight, twelve and twenty-four hours after the ingestion of the bismuth meal in such a case, showing the retention of bismuth in the cecum and the presence of some bismuth in the appendix. The x-rays were taken by Dr. A. W. George. Figure 4 shows a sketch of the cecum, showing the dilatation of the cecum and the membrane, by Miss Blair. A so-called Lane kink is also shown. When, at operation, the cecum, which after a thorough treatment with castor oil and enemata, was found to contain feces, was gently drawn downward across the pelvic brim, the membrane became stretched into a hard cord, which compressed the ascending colon against the pelvic wall and must have rendered the upward progress of its contents extremely difficult. The membrane was peeled off from within outward and sutured to the lateral abdominal wall so as to leave a broad, raw surface, to which the ascending colon and cecum were sutured in turn, fixing the cecum effectively and relieving the symptoms. Six similar cases have been operated upon by the writer.

The adhesions of the sigmoid, particularly at the junction between the ascending limb with the pelvic wall, forming a fixed point around which it is twisted as it falls over into the pelvis, and in this way causing partial obstruction, is, to my mind, a very frequent cause of chronic constipation and may lead to severe dilatation of the sigmoid.

Clark and others have preferred sigmoid-sigmoidostomy for these conditions, or even re-



FIG. 1.—X-ray taken eight hours after the ingestion of the bismuth meal.

moved a redundant and dilated sigmoid. My own cases have been relieved by dividing the adhesions to the pelvic brim, and suturing the raw surfaces in the opposite direction so as to cover them. These adhesions are important, as favoring the occasional dilatations of the sigmoid and also the acute volvulus seen not infrequently in the aged, and unless quickly relieved, resulting in gangrene. Congenital adhesions are believed by Clark to have an important influence in the production of those enormous dilatations of the colon known as Hirschsprung's disease.

The most radical of all those who have attempted the surgical treatment of ptosis has been Lane of London, who, following Metchnikoff's theory of the ill consequences of absorption from the ptotic colon, advocates and practises the entire removal of the ptotic colon and ileosigmoidostomy. In cases too feeble for ablation of the colon ileosigmoidostomy is performed, and lately, I am informed, Lane almost always performs ileosigmoidostomy, and does not ablate the colon as a primary procedure. The total ablation of the colon is certainly a major operation to be performed for the indication of constipation. Removal of intestine for ptosis, however, is greatly facilitated by thinness of the patient and relaxation of the ligaments and is much safer and simpler than its removal in normal individuals. Ileosigmoidostomy, however, in proper hands is simple and safe, and has been, in my hands, efficient for chronic stasis from ptosis of the colon combined with multiple bands and adhesions, when removal of bands, suture of the colon to the anterior abdominal wall in such a manner as to take out the kinks, etc., had been tried without relief.

Lane's views of the importance of stasis as a predisposing cause of bone tuberculosis which has led him to operate upon the intestines in cases of hip disease, etc., hardly deserves or will attract imitators. His attribution of cystic disease of the breast and thyroid to ptosis as a cause, lacks scientific proof. When we consider the results of the studies of Smith, referred to below, which may be said to have established the

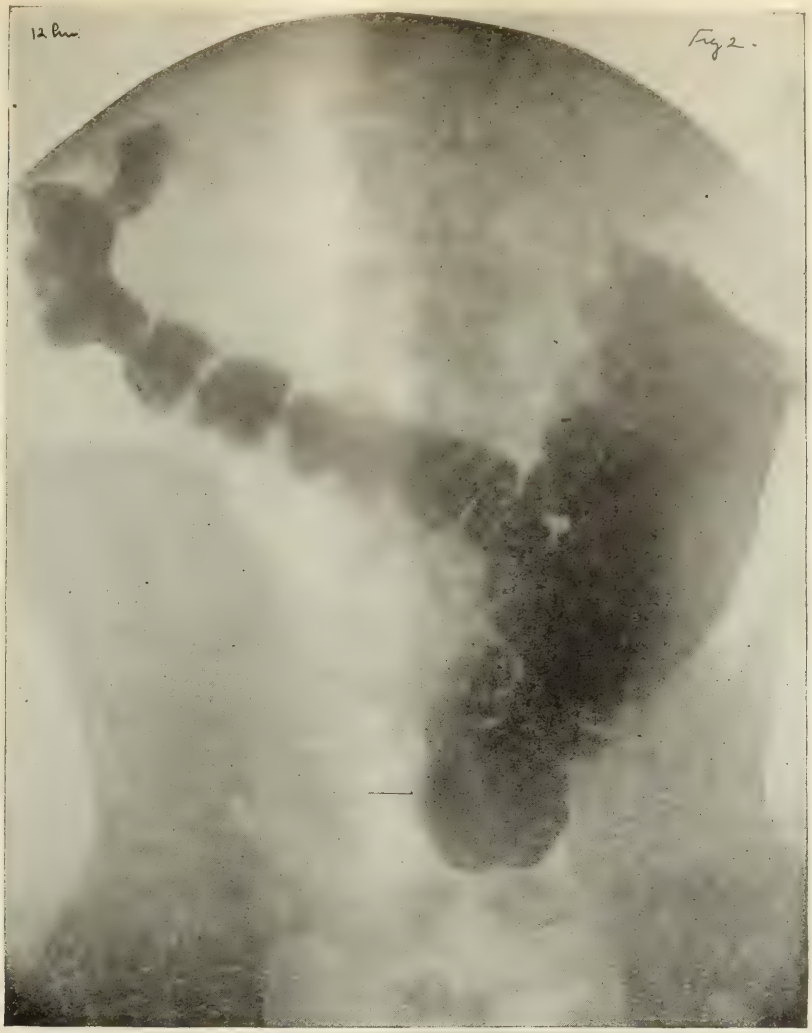


Fig. 2.—X-ray taken twelve hours after the ingestion of the bismuth meal.

fact that ptosis is a gradually developed condition, adumbrated in childhood only by frailness, weakness of frame, lack of fat, etc., and that it develops gradually as the child grows to the adult, the actual ptosis and intestinal stasis (so far as dependent upon ptosis) only developing long after the bodily frailty with its concomitant symptoms, functional and nervous, have been recognized, how futile does it appear to attempt to cure these symptoms by the removal of the ptotic colon. Although, as Clark has pointed out, the colonic tract may be the prolific source of neurasthenic symptoms, still it has certain important functions to perform, among others, the absorption of residual food products passed along from the small intestine. Its ablation should not, therefore, be done unless the certainty of relief corresponded with the magnitude of the operation, which it does not. Lane's career has been one of the most interesting in modern surgical history. His technical skill is of the highest order and his enthusiasm contagious. Few can follow him, however, in the realms of surgical speculation. He has pointed the way, nevertheless, to several real steps in advance and taught us many things of value.

Coffey has given us a most masterly description of ptosis from all points of view, embryological, practical and theoretical, in a recent elaborate and well illustrated paper. He has recently made a tour of Europe and America with reference to the study of this disease, but has returned still persuaded that of operative procedures his own is by far the best. He abjures the colonic ablation of Lane and prefers milder measures.

He limits his operation for ptosis to those in which kinking at the duodenum and hepatic flexure cause obstruction of the duodenum and cecum, respectively; what he calls a midline ptosis. He calls attention to the fact that in the late stages of ptosis, after the flexures of the colon have fallen down and at last have lost their angulation, a diarrhea and not a constipation ensues. A proper query is, Do the nervous symptoms, dry skin, emaciation, etc., improve as



FIG. 3.—X-ray taken twenty-four hours after the ingestion of the bismuth meal.

soon as this relief of the hepatic kinks and consequent stasis takes place? We have not data enough to decide, but I trow not. And yet we are face to face with the fact that many have ptosis of great degree without symptoms.

His procedure of support of the cecum by suture of the omentum close to its base transversely to the abdominal wall has the advantage that it does not cripple the intestine by actual suture of its muscular wall to the abdomen. In case the two layers of the great omentum have not adhered, it is necessary, in order to properly support the stomach, to include the posterior layer in this suture. By plastics on the muscles and fascia of the upper and lower abdominal wall, he enlarges the former and contracts the latter in an ingenious manner. His x-rays and case histories show good results. A brief characterization of his work could be made in the sentence that he does a great deal that is safe but nothing involving risk to the patient. As to the effectiveness of his work, it must have further trial in other hands.

In regard to the efficiency of this expansion of the upper and contraction of the lower bowel, while the latter may be efficient, it is hard to see how the former can do much good in the presence of the narrow chest and acute angle between the borders of the ribs which these patients present. To the gymnastic methods which have been so thoroughly elaborated by Goldthwait of this city and Franklin Martin of Chicago, the relaxation of the upper abdomen and contraction of the lower I think would best be relegated.

At the present time, tight lacing is thought to be of less importance in the etiology of ptosis, while congenital conditions aided by faulty attitudes, poor nutrition, lack of proper exercise and muscular tone are believed to have a far greater influence in bringing on the narrow costal angle, contracted upper abdomen, etc., which characterize the subjects of this disease. The careful studies of Smith have shown that enteroptosis is rarely evident in children under 12 years, but that the enteroptotic habit of adult life finds its counterpart in the frail child, presenting lack of fat and slenderness of muscle, lack of vigor in



Fig. 4.—A sketch of the cecum, showing dilatation of the cecum and the membrane.

bodily development. Any actual collapse in the thorax or diminution of the capacity of the upper abdomen is seen only in older children, and then only exceptionally, even in frail subjects. These studies concern chiefly the position of the stomach and kidneys, and are not quite conclusive in regard to the colon.

In these frail, weak children, whose weakness may, as far as we know, result from inherited tendencies, chronic or long continued acute disease, faulty diet, or what not, the presence of congenital lack of support of the viscera, movable cecum, failure of adhesions of the mesocolon, and the continued action of gravity in the presence of faulty attitude in the erect position, may well be supposed to produce an enteroptosis, which may be fairly considered to be the result of a combination of all these factors. Coffey's excellent delineation of the results of faulty position and loss of fat in allowing the kidney under the influence of intra-abdominal pressure deprived of its normal shelving support to gravitate into the lower abdomen, may now be called to mind, as may also Goldthwait's similar studies.

The studies of this latter, of the effects of position and of nutrition, in aggravating conditions, the way for which have been paved by congenital abnormalities, have been of great value.

Goldthwait finds congenital stasis in many cases of chronic joint disease (arthritis) and treats his patients, even when bedridden, by postural methods, padding, etc., followed as soon

as may be by gymnastic methods. The importance of standing and sitting up straight and keeping your shoulders back, which even we in our youth were taught, before ptosis was ever discovered, have received a new emphasis from the study of this complicated and difficult problem.

Now, as practical surgeons, what are we to get out of this mass of contradictory material reporting intestinal stasis, ptosis and the like?

In the first place, a most wholesome respect for the human organism as a whole, and the realization that measures, dietetic, medicinal and gymnastic addressed to the condition as a whole are to be adopted for the majority of cases. The effect of the personality of the surgeon on the mental condition of the patient, so efficient in the practice of many in cases of poor, weak, nervous humanity, is of great importance here. For expanding the upper and contracting the lower abdomen, gymnastics, regulation of diet and exercise, Coffey's operations *sub judice*.

FOR PTOSIS, PER SE, NO SURGERY AT ALL.

For constipation, when due, as it frequently is, to kinking of the colon, due to congenital conditions, acquired adhesions, or ptosis, or a combination of any two or all three of these factors, a rational surgical therapeusis may be cautiously applied. This may consist in the separation of adhesions, with closure of the raw surfaces in the opposite direction so as to prevent re-adhesions, in the division of the bands, the removal of membranes, in lateral anastomosis, in ileosigmoidostomy, or even in resection of a dilated cecum and ascending colon, with the hepatic flexure and part of the transverse, as has been done by the writer in two cases, too recently to report on the results. The latter procedure commends itself as less radical than the ablation of the entire colon, and as sparing the omentum, and having comparatively little raw surface on the posterior abdominal wall to which small intestine might be adherent. It also, as pointed out by Bloodgood, relieves the drag of the loaded and movable ascending colon across the pylorus, which kinks the latter and cripples and dilates the stomach. A fold of peritoneum was dragged across the stomach in both the cases operated upon by the writer.

This procedure removes *in toto* the cesspool where stasis and fermentation chiefly take place, and leaves enough of the colon to perform its absorptive functions. It has been practised by Finney, Mayo, Bloodgood and others.

Resection of the sigmoid may be indicated and may be successful. Clark, and doubtless others, have resected the transverse colon for ptosis in cases where the redundance was so great that it was thought that an omentopexy would not accomplish the desired result.

An interesting application of lateral anastomosis for the cure of a certain form of ptosis, namely, prolapse of the rectum, is McArthur's sigmoido-sigmoidostomy, which has been successfully performed by the writer in a case which had resisted other treatment. So far as the writer's short experience goes, he has attempted in two cases to take out kinks in the colon by the suture of the latter to the abdominal wall so as to straighten the angulation. One had to be followed by ileosigmoidostomy with relief to such an extent that the patient can follow her occupation as a nurse. A previous division of adhesions encircling the colon had given relief for six years, when the trouble returned, the kinks due to ptosis being reinforced by adhesions binding the descending and right portion of the transverse colon like a double-barreled gun. Separation of these adhesions and suture of the transverse colon to the abdominal wall failed to give relief, which was at last afforded, as stated above, by ileosigmoidostomy.

The procedures to be adopted in any case may be a matter for most careful judgment. Failure to relieve may bring discredit upon surgery, suffering and expense to the patient and chagrin to the surgeon. Careful study, large experience and a mastery of technic sufficient to render intestinal anastomosis and resections simple and safe, are prerequisites to the very moderate success which may be attained in this field. I say very moderate success, because even if fortunate enough to relieve a chronic constipation, the operation does not change the patient's mental and physical habits, moral tone, or the physical and financial environment which go so far in the production of the symptoms. The habitual use of cathartics, if the patient is in fair health and able to work, I do not consider a fair indication for operation. Discomfort sufficient to keep the patient from earning a livelihood, or in case the patient leads a sheltered life, to render him thoroughly miserable and a burden to himself and his relatives, seems to me a sufficient indication.

There are two large classes in the community: General practitioners, who, for the sake of, as they believe, increasing their income, are willing to learn surgery on their private patients, and recent graduates of hospitals who assume that a superficial knowledge of technic renders them capable of coping with the problems of major surgery in a manner honest to their patients and honorable to themselves. For such, this field, which may be entered timidly only by the best equipped, should be taboo. It is more dangerous to enter it than to keep out of it.

Clark puts it very well when he says that symptoms, and severe symptoms alone, form an excuse for operating in this condition.

The history must show constipation unrelieved by medicine and referred by the symptoms and x-ray to a certain point and really dangerous to the health, if not to the life, of the individual; careful histories are essential.

The x-ray can be considered only an adjunct though often a most important one. Stasis it

can show. But it must be carefully interpreted, or, as says Percy Brown, "the narrowings consequent upon compression of the lumen by the writhings of the bowel may be mistaken for the permanent narrowings of the extrinsic or intrinsic disease."

Ptosis and kinks of all degrees may be shown by the x-rays, but unless associated with most definite symptoms of stasis would best be left severely alone. The normal angulation of the splenic flexure, as shown by the x-ray, almost always looks like a complete obstruction to the fecal current, the shadow being almost always interrupted at that point.

Recent cases have come to the writer's knowledge where an association of chronic constipation and an apparent obstruction at the hepatic flexure, as shown by the x-ray, were present. The lesions were, a hydronephrosis in one case, and a perinephritic abscess in the other. We hear of a diagnosis (*sic*) of cancer of the stomach being made by the x-ray, and the patient denied exploratory operation.

The diagnostic assumptions of certain exponents of the x-ray must be carefully checked by the clinician and the surgeon. That we are to operate for symptoms and symptoms alone we must not forget. In the language of Dr. Percy Brown, "The practitioner of the future is in danger, through such hopeful agents as these, of becoming a clinical scientist instead of a scientific clinician. His primary mission is entered on at the bedside and at the bedside he has little else to aid him than had his predecessors of earlier days, his wits. Let him, therefore, use them and then he shall be able to stretch forth his hand toward the laboratory, not beseechingly, as one who is helpless, but with the authority born of knowledge, as becomes a master."

The above brief review is not an attempt to consider the subject exhaustively, a purpose for which a book of many volumes would be required. It is merely an attempt to sum up what the writer believes should be our present attitude with regard to the employment of operative surgery in these cases. The field is most difficult and complicated, and affords many subjects for study as fascinating as they are difficult. When cases are presented to us for treatment, however, in this as in other fields, the careful study of the individual case associated with those indispensable guides, common sense and experience, will in certain instances enable us to do successful surgery.

In interpreting our end results, however, we must be particularly careful; cures will be rare. Even relief is a good deal. It is not an uncommon belief among surgeons that a careful review of the large number of cases reported by those who have operated freely in this field would show a large proportion of real failures from a therapeutic point of view. For this reason, conservatism and candor in reporting results are to be desired, as well as optimism and courage in proceeding with this work.

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THE RÔLE OF GASTRIC AND INTESTINAL STASIS IN SOME CASES OF EPILEPSY.

(From the Neurological Department of the Boston City Hospital. Service of Dr. Philip Coombs Knapp and Dr. John Jenks Thomas.)

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About six months ago the writer decided to select a few of the cases of epilepsy in the outpatient department of the Boston City Hospital and give more attention to the treatment of gastric and intestinal stasis in the selected cases than is usual in the treatment of epilepsy, the object being to throw additional light upon the part of these conditions in the etiology of the disease.

If we assume irritability of the cerebral cortex to be the sole cause of epilepsy our theory will explain neither the epileptic seizures nor the intervals between the seizures. There must be not only an irritable something, but there must be an irritant somewhere and somehow produced. By assuming a constant factor, namely cortical irritability, and an inconstant or variable factor, namely some toxic substance produced in the alimentary tract or elsewhere, both the seizures and the intervals may be accounted for.

It was the suggestion of Dr. Thomas that the work would be better begun by first demonstrating the presence of stasis by serial radiographs. The writer's intention was to observe the cases carefully for a year before reporting the work, but reference to similar work in a paper recently read by Dr. L. Pierce Clark of New York makes it seem advisable to publish a preliminary report at this time.

In one of the cases the diagnosis of cerebral syphilis has been made and the epilepsy is probably of the so-called organic type. Upon the

assumption that in cerebral syphilis the lesions may simply produce an idiosyncrasy for substances carried to the brain in the circulation, it was thought proper to include this case. In one of the cases there is a history of epilepsy in two uncles. As enteroptosis is just as transmissible to offspring as is "cortical irritability", this case is included. The illustrations are diagrammatic drawings from the x-ray plates. Twenty-five radiographs in all were taken. The cases are arranged in the order of their severity.

In his work upon "Constipation and Allied Disorders" Hertz exhibits diagrams which show the passage of the bismuth meal through the colon of the normal individual to be about as follows: After four hours it has entered the cecum. After six hours it has reached the hepatic flexure. After eight hours it occupies the ascending colon, the hepatic flexure and the transverse colon. After ten hours it still occupies these portions of the colon and has begun to traverse the splenic flexure. After twelve hours it occupies the entire colon, including the sigmoid flexure. After twenty-eight hours a small amount still remains in the cecum, the ascending colon, the hepatic flexure and half of the transverse colon are empty and the rectum is partially filled. After thirty-two hours there is none except below the splenic flexure.

CASE 1. Male, age 24, Syrian, waiter by occupation. Entered the clinic July 8, 1910.

A history was given of slight lapses of consciousness from the fifth until the fifteenth year, but none from the fifteenth until the twenty-first year. Since the twenty-first year he has had one or two attacks daily, of both petit and grand mal, sometimes being unconscious twenty minutes. Examination was negative. Subsequently under bromides, diet and laxatives he has improved somewhat. He is now a traveling razor vendor. He reports grand mal attacks at intervals of from several days to a week and he complains that his bowels sometimes do not move for four days.

On March 4, 1913, the first radiograph of this patient was taken. Plate I, not here illustrated, taken immediately after the bismuth meal, shows the stomach only partially filled and with no peristaltic nodes, indicating atony. Plate II, six hours after, shows the greater curvature of the stomach at the level of the umbilicus and the organ still partially full and relaxed, demonstrating atony and stasis. Plate III, after twenty-four hours, shows entire colon filled, whereas normally there should be very little remaining in the ascending colon. In this plate the hepatic flexure is seen to extend downward below the iliac crest and then upward again before reaching the transverse colon. Plate IV, after thirty hours, is self-explanatory. Plate V, after forty-eight hours, shows much remaining in the hepatic flexure with traces in the cecum and transverse colon and small masses in the descending colon. Normally this would be the condition after from twelve to twenty-eight hours. In this series the tendency of the contents of the transverse colon to break up into small boli suggests, in the writer's opinion, undue absorption of fluid in this tract and the small, compact masses in the descending colon have the same significance. On March 10, diet,



Case I. Plate II. 6 hours



Case I, Plate III, 24 hours



Case I, Plate IV, 30 hours.



Case I. Plate V, 48 hours

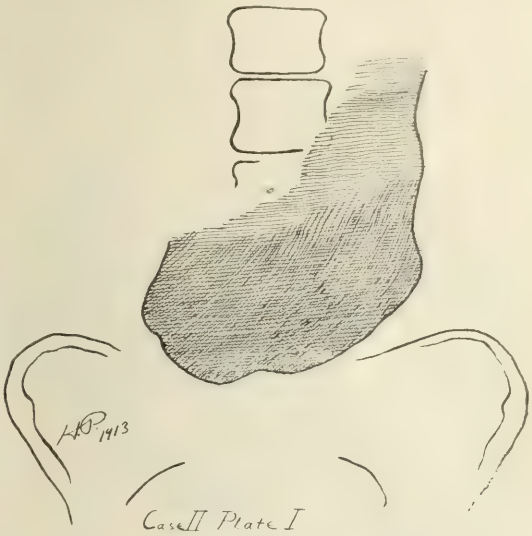
copious water drinking, laxatives, specific exercises and a new form of self-massage were prescribed, while the bromide was continued. On March 19 he reported having had one mild attack and one severe one since the last visit. On April 7 he reported that the bowels were moving more frequently and that he had had three light attacks without falling down since the last visit. On May 14 he said he had not taken his laxatives or followed instructions for two weeks and was having from one to three petit mal attacks daily. His bowels had not moved for three days. Previous instructions were repeated, with some emphasis, and in addition, Bacillus Bulgaricus was prescribed. On June 9 he returned looking exceedingly well and reporting no attacks of any kind, not even vertigo since the last visit.

His father had assured him that he had had no nocturnal attacks. He has not had such a long interval in six years. His limited knowledge of English makes it difficult to treat him except by drug therapy and this good report was not expected.

Case 2. Male, age 23, occupation, clerk. Entered the clinic February 15, 1911.

Two paternal uncles had epilepsy. His father's grand parents were first cousins. He is a brunette like his father's family. At 15, he had measles and shortly afterward, his first epileptic seizure. The attacks have occurred about once in two or three weeks since then. They are preceded by tremor of the facial muscles sometimes twenty-four hours beforehand. They are of grand mal type, lasting a few minutes and followed by stupor for a half hour and drowsiness for the remainder of the day. Examination was negative except for a fine tremor of the outstretched fingers. Salt-free diet and Sodii bromidi gr. X t. i. d. were prescribed. Later because of a bromide rash, Bromontone gr. V t. i. d. was prescribed. Under treatment there has been no change in the severity or frequency of the attacks. On October 9, 1912 he reported that while in New Hampshire during the summer he had been very much worse. He was then instructed in abdominal exercises and in a method of self massage and advised to use laxatives more frequently. On January twenty-seventh he reported only one attack since the last visit on October ninth, and this occurred on Christmas Day after dinner.

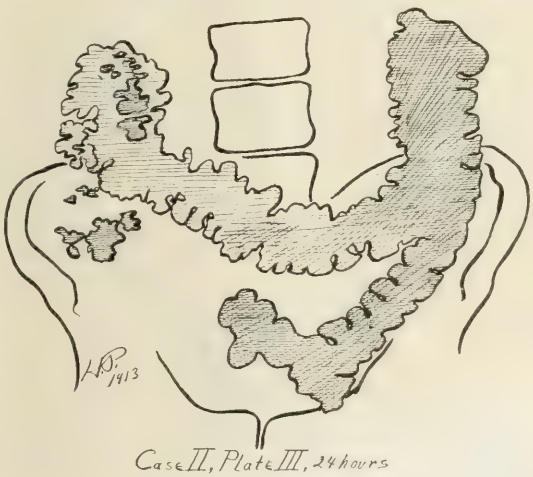
On January twenty-eighth, 1913, the first radiograph was taken. Plate I shows the stomach very



Case II Plate I

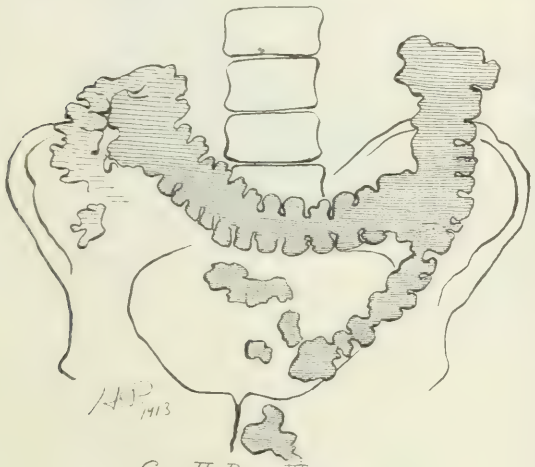


Case II, Plate II, 5½ hours

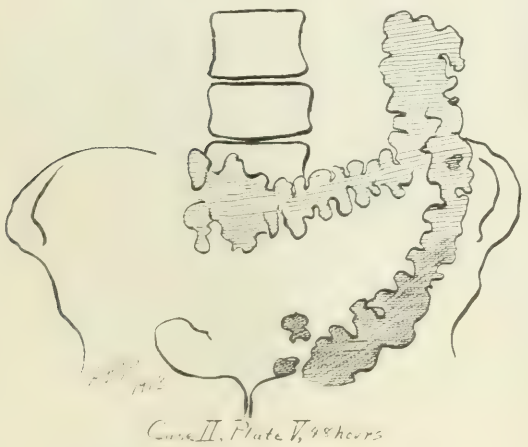


Case II, Plate III, 24 hours

much dilated and extending down into the pelvis. Plate II, after five and one-half hours, however, shows the stomach quite empty and the bismuth occupying part of the ileum and the colon as far as the splenic flexure. The transverse colon is far below the iliac crests and the hepatic and splenic flexures are thereby much accentuated. Plate V, after forty-eight hours, shows the transverse colon still occupied by the bismuth meal, which would be normal after twenty- eight hours. There is none in the cecum or in the hepatic flexure and this



Case II, Plate IV, 30 hours



Case II, Plate V, 48 hours



Case II, Plate VI, 54½ hours

points to the very low transverse colon as the cause of stasis. Plate VI, fifty-four and one half hours after, shows the descending colon and rectum still full, which would be normal after thirty-two hours. In this case the possibility of relief through surgery, suggests itself, and this will be attempted with the patient's consent.

CASE 3. Male, age six. Entered the clinic April 11, 1913. History is given of an aunt insane. The patient is the oldest of three children. Delivery, normal. Breast fed. The mother has had no miscarriages. The child had a convulsion at the age of eighteen months after eating a banana. At the age of two and again at the age of four he had a fall, each time striking upon his head. At the age of four he began to have attacks and since then he has averaged ten in a month. During an attack his pupils are dilated and he shivers, flexes the arms and clenches the fists. Several times during the past year he has become unconscious. The attacks are preceded by abdominal pain. Examination was negative except for adenoids. An adenoid operation was performed on April seventeenth. An x-ray picture of the head was negative.

The first radiograph, May 15, 1913, not illustrated, shows the stomach normal in position and outline. Plates II and III, not illustrated, show nothing abnormal. Plate IV, forty-six hours after-



Case III, Plate IV, 46 hours

ward, shows bismuth extending from the cecum to the splenic flexure and some in the sigmoid and rectum, which would be normal after twenty-eight hours. Plate V, not illustrated, after fifty-one hours, shows no bismuth except in the rectum, which would be normal after thirty-two hours. The constipation is not the effect of bromides for the child has not taken them. Advice as to diet was given and fluid extract of cascara aromatic, one half teaspoonful after each meal was prescribed. No bromide was prescibed. On June second, after two weeks, he returned with a record of four attacks much lighter than the customary ones.

The worst of the four followed eating fried pigeon with greasy gravy and it lasted only a few seconds during which time he appeared conscious but unable to speak. In spite of taking cascara he had remained somewhat constipated, therefore an additional dose of the laxative was prescribed and the mother was given instruction in abdominal massage and certain exercises were advised.

Case 4. Male, age thirty-seven, longshoreman. Entered the clinic January 20th, 1913, having been for two weeks a patient "in the house." A history was given of epileptic seizures for one year. At first they occurred about once a week but of late there have been as many as three in a day. Until nine months ago he was a heavy drinker. Examination shows him to be a short, muscular man, apparently in very good health. The liver is slightly enlarged, otherwise the examination is negative. He says he has to take a dose of salts about once a week. Since he entered the hospital he has had no attacks. On January 21, 1913, the first x-ray picture was taken. The series of four plates, not illustrated, show nothing abnormal, there being no bismuth above the sigmoid after thirty hours. The patient was in good condition following two weeks of hospital regime and a series of pictures taken before treatment would have been of greater interest. Diet and laxatives and sodium bromide gr. V t. i. d. were prescribed. On March 24th he reported three attacks in a week, he having been constipated at the time. On April 25th he reported one attack two days previously but said that he had eaten strawberries on that day. He had taken no bromide since March 14th and this was the only attack. However the bromide was again prescribed.

Case 5. Male, present age forty-six, dentist. Entered the clinic July 25, 1902. He gave a history of gonorrhea fourteen years ago and a chancre ten years ago. From 1895 until 1897 he drank six bottles of beer and two whiskey cocktails daily. In 1897 he had measles and was very sick. Soon after this he studied very hard for examinations. After the examinations he began to have attacks of vertigo and in time he began to have grand mal attacks almost once a week. He now uses no tobacco or alcohol. He has taken potassium iodide and the bromides. Examination. Right pupil smaller than left. Both react to light and distance. Eye and Ear Infirmary reports no visual disturbance. Tongue central without tremor. Some tremor of outstretched fingers. Pulse ninety. Heart area normal. Systolic murmur at valvular area, not transmitted. Prolonged expiration at right apex. Increased vocal fremitus and some whispered bronchophony. A diagnosis of cerebral syphilis and epilepsy was made. Subsequently he has taken a course of potassium iodide twice a year and has continued the bromides. At present he takes gr. V t. i. d. which he finds as efficient as larger doses. He is very careful about his diet and bowels. He has not had a grand mal attack for five years and his attacks occur at intervals of two weeks or more and are so light as not to interrupt his work when he is drilling a tooth. He was x-rayed on May 6, 1913. The last plate, not illustrated, after thirty-six hours, shows some bismuth remaining in the transverse colon but this may be considered normal. The Wassermann is negative. This patient whose nervous system has been damaged by syphilis is just as dependent upon diet and the regulation of the bowels as is any case of "idiopathic" epilepsy.

IN ORDER OF SEVERITY.	CASE 1	CASE 2	CASE 3	CASE 4	CASE 5	TOTALS
Type	Grand mal	Grand mal	Petit mal	Arrested Grand mal	Petit mal	
Stasis, hours delay	20-36 hrs.	22 hrs.	19 hrs.	none	none	3 cases
Ptosis	—	+	—	—	—	1 case
Brain lesion	—	—	—	—	+	1 case
History of alcohol	—	—	—	+	+	2 cases
History of bromides	+	+	—	+	+	4 cases
History of syphilis	—	—	—	—	+	1 case
First attack following measles*	—	+	—	—	+	2 cases
Family history of epilepsy	—	+	—	—	—	1 case
Worse when indigestion	yes	yes	yes	yes	yes	all cases
Worse when constipated	yes	yes	yes	yes	yes	all cases
Benefited by diet, laxatives and exercises	yes	yes	yes	yes	yes	all cases

* This sequence, epilepsy developing after measles, has often been observed by the writer.

SUMMARY.

There have been presented five cases of both grand and petit mal, having histories that differ widely in most respects. However, all suffer more when constipated and when careless about diet, and all have been benefited by diet, laxatives and exercises, and two have improved while not taking bromides. The x-ray demonstrated stasis in the first three cases but not in the last two, in one of which there was an arrest of the disease and in the other only the lightest of petit mal attacks. The amount of stasis was in proportion to the severity of the disease. In one case there was atony of the stomach with a question of iliac stasis. In another there was marked ptosis, the greater curvature of the stomach being below the iliac crests and the transverse colon being down in the pelvis, with consequent lengthening and accentuation of the hepatic and splenic flexures. One case, Case 3, has never taken the bromides, therefore in this case the stasis is not the result of the treatment. In Case 5 there is a history of cerebral syphilis and of epilepsy developing five years after the primary lesion. But the epilepsy appeared at a time when the patient was debilitated from overwork and was also drinking to excess. As debility with alcoholic excess probably always cause gastro-intestinal disturbance, it is fair to assume that such a con-

dition existed before the epilepsy in this patient. In other words, it may have been the cause of the epilepsy. In one case, Case 2, there is consanguinity and epilepsy in two uncles, but it must be borne in mind that anomalies of the viscera, such as ptosis, are sometimes hereditary and that epilepsy in this patient may be the result of an inherited tendency toward enteroptosis rather than of inherited "instability of the nervous system."

CONCLUSIONS.

A great deal of work has been done to demonstrate the presence of certain toxins in the secretions and excretions of epileptics, but probably this is the first, or one of the first, attempts to determine with the aid of the x-ray the frequency of gastric and intestinal stasis in a series of such cases and the relation of the amount of stasis to the severity of the disease. In this group of cases the concomitant variation of the severity of the disease with the amount of stasis would indicate a causal relationship. In the study of many cases of epilepsy in young children at the Children's Hospital, the writer came to believe that the gastro-intestinal disturbance preceded the epilepsy and was not merely a symptom. It must, of course, be admitted that the vast majority of individuals who suffer from stasis do not have epilepsy, but in the writer's experience they do have headache, vertigo and other nervous symptoms caused by the toxemia that results from stasis. These symptoms of toxemia are of all shades of severity so that sometimes the diagnosis between these conditions and epilepsy is made with great difficulty and, it may be said, arbitrarily.

While nothing can be proven by so small a series of cases, the writer feels reënforced in a belief that in so-called "idiopathic" epilepsy the essential lesion is not in the nervous system.

If it be true that epilepsy does not imply a defective central nervous system with a tendency to degeneration in the cells of the cortex and consequent mental deterioration, then the social status of the epileptic will have to be reconsidered. Laws designed to prevent the propagation of epileptics should then be so phrased as not to bar from marriage those in whom the disease is curable and probably not transmissible as such. A law barring from marriage the syphilitic, the alcoholic, the feeble-minded and the insane would in effect bar those epileptics who ought not to be permitted to marry.

Finally, if it can be definitely established that the phenomenon known as "idiopathic," "inorganic" or "true" epilepsy is produced by a toxemia and that this toxemia is the result of stasis in the gastro-intestinal tract, the prognosis should be much better than it is at present, provided that the physician be equipped, not with drug therapy alone, but also with a knowledge of mechanical therapeutics, and that he use the bromides only as an adjunct to other treatment. A new exercise and a new method of self massage for the treatment of stasis will be described in a subsequent paper.

The writer wishes to acknowledge the kindness of Doctor Philip Coombs Knapp and Doctor John Jenks Thomas in permitting him to use the material of the clinic, and to thank Dr. S. W. Ellsworth for his valuable aid in interpreting the plates, and the assistants in the X-ray Department for their help in this work.

Clinical Department.

HYSTERIA WITH FEVER AND ANKLE CLONUS; A CASE REPORT*

BY A. MYERSON, M.D., BOSTON,

Psychopathic Department of the Boston State Hospital.

Summary of Case. Female, aged 22, presenting as evidence of hysteria persistent vomiting, variable losses of consciousness without epileptiform characteristics, hemianesthesia and mutism, had in the course of her stay in hospital, a sharp rise in temperature lasting one hour and unilateral ankle clonus of a persistent type. No Babinski, Gordon or Oppenheim, Wassermann reaction (blood and spinal fluid) fundus and color fields were negative. Recovery.

The patient, an Irish girl of 22, entered the Psychopathic Hospital on Nov. 5, 1912. Her history summarized is as follows:—The family, both remote and immediate, have been quite normal people. Father and mother, brothers and sisters have had no nervous or mental diseases. Grandparents lived to old age. The only peculiarity presented is a family tendency to turn gray early.

She was educated in a convent and up to her fifteenth year showed no differences from the rest of the family, either in development, temperament, behavior or disease history. At about that period of her life she began to be troubled by pains in the abdomen, accompanied or followed by vomiting. These pains had no relation to the ingestion of food or the nature of her diet; they were sharp, localized to the upper abdomen and severe enough to prostrate her. The vomitus was usually clear and contained no blood. These symptoms became intensified on her arrival in America and occasioned the almost constant care of physicians, as well as two stays of one month each in a large hospital of this city. At about the same time she had "fainting" spells, said to be caused by worry

* Being Contributions of the Psychopathic Hospital, Boston, Massachusetts, (1913. 15). The previous contribution (1913. 14). "Outlook for Work at the Psychopathic Hospital, Boston, 1913," by E. E. Southard, will appear in a later issue of the BOSTON MEDICAL AND SURGICAL JOURNAL.

or reproof of any kind, and characterized generally by their variable duration (fifteen minutes to a day) and by the fluctuation in intensity of the disturbance in consciousness which varied from semi-consciousness to apparently complete loss. There were at no time convulsive movements, relaxed sphincters, or injury. Despite the frequency of these gastric disturbances and these alarming syncopes, she remained a well nourished person. She became a familiar figure in a large neurological clinic and was often pointed out as a typical hysteric with predominating gastric symptoms.

In June of 1912, she came into the hands of an internist who, after examination of her stools, made a diagnosis of duodenal ulcer. She was operated upon; an old duodenal ulcer with definite scars and adhesions and another ulcer near pylorus with puckered scar, were found. The appendix was embedded in adhesions. A posterior gastroenterostomy and appendectomy were performed; there was a good recovery (June 21.) Following the operation, patient remained well until about Sept. 11, when she began to have pain in the right side, in the chest down near the sternum, and vomited a great deal. From then on until entrance into the hospital her trouble grew, until it reached its climax on Nov. 5. On that date, while in the office of the internist, patient was seized with a "convulsive attack" which to him appeared hysterical. She closed her eyes, stiffened her muscles and gave vent to slow, sighing sounds. She did not fall out of the chair; did not bite her tongue. Remained in this "unconscious" condition for a long time, during which time she was brought to the Psychopathic Hospital.

Condition during first day in hospital:—She lay in bed her eyes closed, moaning continually and tossing her head from side to side, her hands pressed to her abdomen. The words she uttered could not be distinguished, except for the name Hannah whom she called upon frequently to help her. No definite answers to questions could be elicited.

Patient is well nourished; face is pale, hair streaked with gray. Temperature 99.6 by rectum; pulse 98, moderate tensions, regular. Hands warm. No symptoms of collapse. Circulatory system negative; lungs negative. The abdomen is held rigid, but uniformly so,—rigidity apparently due to voluntary muscular contraction; no masses to be felt; tympany is moderate and there is uniform tenderness. Nervous system,—pupils cannot be examined; patient does not open her eyes on command, although she apparently makes the effort, as the eye lids flutter to and fro and the forehead wrinkles into several horizontal ridges. Active effort on the part of examiner to open the patient's eyes is resisted. There are no other facial palsies. Tongue protrudes straight and facial movements are good. No paralysis of arms or legs, although patient will not stand or walk. Reflexes of the arms are increased, including the triceps and deltoid contraction as elicited from the ulnar styloid. Knee-jerks and ankle-jerks very lively and active. Adductor responses are elicited from internal condyles, shaft of tibia and sole of foot. No abdominals (rigid muscles), no Babinski, Gordon or Oppenheim, no clonus. Sensory examination, no pain reaction when right half of body is pricked with a pin; definite when left half is so stimulated. When right eye is opened forcibly, conjunctiva can be pricked with a pin, no reaction; on left side there is definite reaction to pin point.

When patient is given a drink of water she vomits a grayish, odorless fluid. This, however, occurs without her swallowing any liquid, it being only necessary to touch the inside of mouth to provoke the vomiting symptom.

At this time and at all later times attempts to hypnotize failed. Suggestions had no effect upon her symptoms.

November 7:—Stomach analysis,—fasting contents not obtained. Stomach washed; washwater came back tinged a greenish yellow color and had suspended in it a small amount of fine material. Test for lactic acid, 0; hydrochloric acid, slightly +; guaiac, 0; no acetone or bile. Microscopic examination of centrifuge sediment showed a small amount of epithelial cells and a very small amount of microscopic food particles which, tested by iodine, proved to be starch. No Boas' bacilli. Urine was negative throughout the disease; patient was untidy for a few days and the specific gravity in the small amounts obtained was 1035. The blood picture was, with the exception of white count of 10,600, negative.

Temperature at first ranged from 99 to 100.2 by rectum. On the second day of her stay her sister (the Hannah of her moanings) visited her. She became agitated, vomited almost continually and at the end of the visit her face was much flushed. Her temperature was taken by rectum and found to be 105.2,—pulse rate 125. Everyone connected with the case became very anxious and a perforation was suspected. An hour later temperature was again taken with the same thermometer and found to be only 100.2, which it had been earlier in the day,—a drop of five degrees in one hour. From then on, her temperature slowly became normal.

By November 22 patient had become able to sit up. For over two weeks she had been fed by rectum and on the date mentioned had, for the first time, taken all her nourishment by mouth. Vomiting had practically ceased by that time except when she had visitors or when physicians questioned her closely or disturbed her. At this time she answered such questions as were put to her well enough to make it apparent that she was oriented, had no delusions or hallucinations, and had preserved her memory for remote occurrences intact; she claimed to be unable to remember the events of her stay in the hospital, but close questioning showed that this defect was more apparent than real.

Physical examination made on that date (November 22): Her eyes could now be partly opened voluntarily. Under such conditions pupils could be said to react to light. Reflexes were still very lively. No response, either of plantar or of dorsal flexion, to stimulation of sole.

Ankle clonus elicited on attempting ankle jerk on right. By ordinary methods a regular, uniform clonus was obtained, which lasted indefinitely and had a rhythm of about 200 to the minute,—the leg seeming to be relaxed all the time. After the foot was let go, the clonus lasted for at least half a minute, the rhythm then being slightly slower. On left there could be elicited a few irregular

jerks of the type usually described as spurious clonus.

Fifteen minutes later no clonus could be elicited, although feeble rhythmic responses were obtainable. However, the ankle clonus first described was again elicited during her stay and demonstrated to the hospital staff. Its character, apparently in no way distinguishable from that seen in organic disease, suggested the possibility of such disease. The eye grounds were examined and found to be normal; the visual fields for perception of objects and for color discrimination were not in any definite way changed. The blood was negative to Wassermann, while the spinal fluid to the butyric acid and the ammonium sulphate tests was negative to globulin; there was no lymphocytosis; negative to Wassermann. The negative character of these tests and the fact that with the ankle clonus there was no associated spasticity, no Babinski, or paralysis, together with the course of the disease to recovery rules out, so far as it is possible in life, any organic disorder, The previous history, the bizarre vomiting, the excessive reaction to a possible organic disease of her stomach, the ptoses of both upper lids, the hemianesthesia and hemianalgesia together with the recovery in five weeks make up a syndrome hardly to be classed as other than hysterical.

Without entering into a complete account of the literature it is interesting to note some of the important opinions on the subject of ankle clonus and hysteria.

Gowers states that a uniform, persistent clonus such as is common in organic disease is extremely rare in hysteria, and his whole attitude seems against admitting such a phenomenon in the disease. Oppenheim, while conceding the extreme rarity of the phenomenon, positively asserts its existence and quotes some of the older writers as having reported cases in which it appeared. Schuster agrees with Oppenheim, while the best that Church will say is that a spurious ankle clonus is found in hysteria,—a fact conceded by all the writers. Dejerine and Norero report a case very similar to the one here considered, in which there was "true" ankle clonus on left with a few clonic movements on right. Raymond cites a similar case.

Worthy of special consideration are the views of Babinski. This dogmatic writer is particularly positive on the subject of ankle clonus. He distinguishes two varieties of clonus, the true (epilepsie spinale vraie) and the false (epilepsie spinale frustre). The first appears in organic disease and presents the following characteristics: It can be elicited at each examination with the leg relaxed, the movements are constant; if attention is distracted the clonus does not disappear or change. The second differs in that it requires innervation on the part of the patient and therefore disappears when her attention is distracted, and it is regular neither in character nor ease of elicitation.

H. Claude and F. Rose in a graphic study of the two types of clonus, the first in organic disease and the second in hysteria, agree in their conclusions with Babinski and add other points of differentiation. The difference in regularity of oscillation to a large extent disappears when the hysteric fixes her attention on the process; or, in other words, the clonus takes on a more organic character when she coöperates. Moreover, the rate in organic clonus is 4 to 6 oscillations per second (here they disagree with Weir Mitchell, 7 per second, and Horsley, 8 to 10 per second),—while in hysteric clonus it becomes very rapid, 12 to 14 per second. In other words, a voluntary innervation can bring about a more rapid oscillation than the organic.

Criticising Babinski's statements, Lewandowsky says that his criterion that the clonus must always be elicitable to be considered organic would throw out much of the clonus found in undoubted organic disease. This statement will probably be verified by the experience of most neurologists, for even in hemiplegics and other diseases of the pyramidal tract, clonus is often fugitive, hard to elicit and not persistent. Concerning the statements of Claude and Rose, it is essential to note that their statements regarding organic clonus are based on the examination of two cases that were picked because the clonus was uniform and regularly elicitable. It does not seem to have occurred to these writers that in picking their cases as they did they were begging the entire question of the character of organic clonus.

Lewandowsky states that if clonus is found on one side and not on the other it is almost surely organic. It is true that the unilateral clonus should arouse grave suspicion, as should any clonus,—but a hysteric patient may have a paralysis of one extremity and not of the other; may have a hemianasthesia (this being the current opinion despite Babinski's dictum that there is no real anesthesia to hysteria); may have unilateral contractures, etc. If the possibility of bilateral clonus be conceded there is apriori no impossibility in unilateral hysterical ankle clonus,—a conclusion which in the case here cited seems verified by fact.

The writer takes this opportunity of thanking Dr. E. E. Southard for the privilege of reporting this case and also wishes to express his obligation to the members of the Hospital Staff, who have aided him in many ways.

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Medical Progress.

PROGRESS IN SURGERY OF THE THORAX.

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Although there is constantly appearing an abundance of literature on the various phases of thoracic surgery, and surgeons are continually trying new and ingenious methods of combating intrathoracic lesions, the difficulties are so great that progress is very slow; and in spite of occasional remarkable results, the handling of these conditions is still discouraging and often dangerous. The published papers are often merely suggestive of new lines of treatment, without much to back them up save mediocre or even bad results. Probably the most important single advance in recent years is the use of intratracheal anesthesia—this will be referred to later.

It is of interest first to consider some of the physiological facts which have recently been ascertained, by Flint and others, in animal experiments. The untoward effects of simply opening one pleural cavity are negligible, but rough handling of or pulling on the pleura will cause dangerous symptoms. The use of the intercostal rib spreader will, if there is tearing of the pleura at the ends of the incision, cause marked increase in respiratory rate and fall of blood pressure, which may go on to disastrous results. Crushing or fracturing ribs under anesthesia, if carefully done, is void of danger. Careful ligature of the root of a lung is well borne, provided there is no traction on the root. This is surprising in view of the serious results of pulmonary embolism, but Flint says that in the latter case probably the resultant thrombosis is largely accountable. Incision of the pericardium causes a temporary inhibition of the heart and falling of blood pressure, due probably to the injury of direct mechanical stimulation, and this irritation should be avoided as much as possible. The holding between the fingers of the great vessels at the base of the heart, for temporary hemostasis, in heart wounds, is, though at times necessary, dangerous because of the great drop in blood pressure caused thereby.

As just mentioned, a great aid in thoracic surgery is the insufflation anesthesia. The three most common methods now in use are the intratracheal, the pharyngeal (or intranasal), and the simple positive pressure mask. The cumbersome positive and negative pressure cabinets are now things of the past. In addition to the above should be mentioned the artificial respiration apparatus of Meltzer. The technical details are too much to go into here, but there are some interesting remarks just published by Robinson in regard to results. He collected 1400 cases of intratracheal anesthesia from 35 surgeons and anesthetists. Of these cases, 7 died after the operation, 5 from extra pulmonary causes, 1 from broncho-pneumonia which was attributed by the surgeon to the method of anesthesia, and one from emphysema resulting from forcing the tube into one bronchus, thus plugging it, and a subsequent rupture of the lung. Of the 1400 cases, 6 had pneumonia, 1 had aphonia for three days, 1 had bronchitis, and 18 had tracheitis. Thus only one case can be surely said to have died as the result of the anesthesia, and this would appear to have been an avoidable mistake, which would not be repeated in the future. (Another case has been recently reported by Luke, of extensive subcutaneous emphysema on one side of the body, during intratracheal anesthesia, probably due to rupture of some portion of the lung from overdistension. The patient recovered from this, to die later of another condition.) Robinson says that although less than 5% of all chest operations require insufflation, there is no contra-indication to its use in any operation, and the complete oxygenation and lack of cyanosis thus attained have *per se* a distinct influence in diminishing shock. Two-thirds of the surgeons have said that nausea and vomiting are less after intratracheal anesthesia. He believes that every surgeon should familiarize himself with the method of introducing a catheter into the trachea, because such familiarity may some time prove to be of vital importance to a patient.

Taking up first the lungs and pleura, empyema holds a primary place. In a series of 1335 cases of unilateral emphysema, recently collected, the mortality was 22%, which seems decidedly high. One hundred cases were looked up in regard to prognosis,—the shortest time for complete healing was four weeks, the average ninety days, and all but six were healed in four months. Schädler says the average time for healing is fourteen and one-half weeks. Thomas of Philadelphia in a recent article advocates very strongly dependent drainage, by resection by as low as the tenth or usually the eleventh rib, and he lays especial emphasis on the point that for the lung to expand and fill the cavity the drainage opening must be smaller than the size of the trachea, and that after the production of a large opening by an extensive operation the lung cannot possibly expand. He thinks that suction drainage is unnecessary, though this procedure is much in vogue at present. Von Eberts uses a complicated suction apparatus of his own attached to the drainage tube, Brewer uses a siphon drainage by means of Wolff glass bottles filled with water, and Bryant accomplishes the same results by attaching a deflated Politzer bag to the end of the tube. These authors speak most highly of suction drainage and think it shortens the time of healing very much. When the process is nearly healed and drainage

apparatus no longer necessary, a Bier cup may be applied over the wound several times a day. Murphy's treatment of empyema has of late been not to resect and drain unless he was sure that there was already air in the pus cavity (*e.g.* through a ruptured bronchiole),—instead, he aspirates the pus and injects a variable amount of 2% formaldehyde in glycerine, repeating the aspiration and injection at the end of three or four days and thereafter every ten days, until the effusion is no longer purulent. He reports excellent results, but in the hands of Brewer and others this method has not been so successful, and numerous cases have later had to be drained. Concerning chronic empyema nothing much can be said. Ochsner has recently reported 14 cases cured by injections of Beck's paste. He uses two mixtures, first, a solution of 1 part bismuth subnitrate in 2 parts sterile vaseline, and later one made up of 30 parts bismuth, 60 of vaseline, and 10 of paraffine. For those cases which resist all medical treatment, perhaps the best operation is that proposed by Friedrich, of extra-pleural thoracoplasty or rib resection,—by this procedure the skin and muscle can fall in and close the cavity without any enlargement of or tampering with the original pleural opening.

The surgical treatment of bronchiectasis and lung abscess has made no encouraging advances, though recently Sauerbruch has treated eight cases of bronchiectasis by extensive rib resection to cause collapse of the chest wall and compression of the lung, and Robinson reports one case of successful lung excision. The object of the rib excision is to give rest to the affected part and close the cavities,—the results in some cases have been favorable. Robinson says that the only hope in bronchiectasis is lung compression followed by excision. The methods to produce compression are: (1) injection of nitrogen gas, (2) rib resection, (3) tying of the pulmonary artery to the affected lobe, and (4) pneumotomy with drainage. Willy Meyer has reported two cases of artery ligation—through an intercostal incision he tied, in one the artery to the right middle and lower lobes and in the other the branch to the left lower lobe. Of bronchiectasis, which has resisted all medical treatment and demands surgical aid, Robinson says, "The attack should be piecemeal and not too radical; repeated but cautious attempts to drain the peripheral cavities under local anesthesia; incident and subsequent limited rib excision; separations of adhesions from time to time to favor shrinkage and organization of the remaining lung tissue, and finally excision." Robinson's case of lung excision was a man who had been quite incapacitated for work by bronchiectasis and empyema. After three preliminary operations the left lower lobe was excised, and the man has been again at work, greatly improved. Within a month, however, he has been back in the Massachusetts General Hospital for the closure of two bronchial fistulae in the wound, which were a source of unpleasantness rather than disability.*

Perhaps the greatest advance in the treatment of pulmonary tuberculosis is the production of artificial pneumothorax, by nitrogen-gas, on the affected side. That it is not dangerous is seen from the figures of Forlanini, who collected 1454 cases, with one death and three minor accidents. Following the injections, the lung collapses, the cavities close. There is less cough, fever and night-sweats, less nausea, better eating, and so gain in weight. The patients have reported even eagerly for further injections. A number of apparent cures have been reported, and besides these so-called cures, in a very large group of cases, the disease has been apparently arrested; this is true of statistics from several clinics. The chief contribution to the radical surgical treatment is that of Sauerbruch, who reports 24 cases of phthisis in which he did extensive extra-pleural rib resection on the affected side. He says: 2 cases were cured, 2 were very much better, 4 considerably better, 5 slightly improved, and 2 no better. Only 1 died as the result of the operation, and 2 others died at the end of about nine months. He is very enthusiastic, and advises this operation in cases which show no improvement under hygienic treatment; which have a tendency to advance, and a bad prognosis. It is not necessary for the opposite side to be intact. It is especially favorable in cases with marked thickening and adherence of the pleura to the chest wall. He says, "In the operative treatment of lung tuberculosis we possess a means of favorably influencing extensive phthisis, especially of one side, which cannot be further improved by climatic and dietetic treatment,—indeed of attaining great improvement or healing. Marked decrease of sputum, falling off of fever, diminution or indeed disappearance of tubercle bacilli, gain in general condition, and increase in body weight are the demonstrable evidences of the improvement." Friedrich reports 8 similar cases, also with extensive rib resection for unilateral uncomplicated tuberculosis. Of his cases 6 were improved and 2 unimproved. It may be well just to mention the theory of Freud, who says that an important predisposing factor in tuberculosis of the apex is the presence of an ossified and abnormally short first rib, and he advises chondrotomy of this rib. Kausch and Braun support Freud in this and some cases have been reported relieved, though theoretically the operation may not appear to be justifiable.

Alveolar emphysema has also been the subject of surgical attack, and Freud and Tuffier advise resection of the costal cartilages, especially the second, third and fourth, to allow more free respiratory movement. In one case Tuffier removed the first six costal cartilages on one side; in a second case he removed a large number on both sides,—both of these patients had been in-

* This patient has recently, since leaving the hospital, died of pneumonia.

capacitated, but as a result of the operation were able to go back to work. For the same condition Hirschberg advises transverse division of the sternum at the level of, or between the second and third costal cartilages. This operation is said by Braun to increase the capacity of the thorax from 400 to 500 c.c., and Hirschberg reports the cure of an advanced case of emphysema in a child of twelve years.

There have been reported by Picot in his Paris thesis 282 cases of gangrene of the lung. Of these 133 were treated expectantly with only 6.5% of cures; 149, on the other hand, were operated on and the mortality was only 26%. The inference here is obvious, that without surgical intervention the prognosis is very bad, and that there is a reasonable hope of cure by operation. Two unique cures of gangrene are reported by Tuffier. In one he produced a collapse of the lung locally by rib resection and implantation of a lipoma which he had just removed from another patient. The other case was similar save that he used a piece of omentum from another patient. In this connection Coenen in the *Deutsche Medizinische Wochenschrift* says that gangrene of the lung is peculiarly frequent after resections of the stomach and duodenum. Following 138 such operations of his own he had eight deaths from gangrene of the lung, and he says that other authors have spoken of it. He is entirely unable to explain this condition, unless it is by passage of putrefactive bacteria from the stomach through the lymph vessels into the lung. All of his gangrene cases died.

I have not been able to find any encouraging reports of surgery of pulmonary embolism. Läwen and Sievers state that in the Leipzic clinic, patients who show premonitory symptoms of this are hurried to the operating-theatre and there kept under close observation. If grave symptoms supervene artificial respiration is started followed by insufflation and immediate operation. These authors, basing their views on the results of animal experimentation, advise for treatment artificial respiration with oxygen, plus, if possible, heart massage; even better than this is the injection of adrenalin into the left ventricle. On animals they injected from 0.2 mmg. to 0.3 mmg. into the left heart. They give no cases, however, to back up their views of the treatment.

Malignant disease of the lung is usually secondary and practically always inoperable. Edlavitch, however, reviewing the literature, says that primary carcinoma of the lung is a definite pathological entity. It may arise from the epithelium of the bronchi, the alveolar epithelium, or at times from the bronchial mucous glands. It is twice as common on the right side as on the left, and metastasizes most frequently in the brain. Surgical treatment is, of course, quite hopeless. Guimbellot has collected a series of 225 cases of the unusual condition of echinococcus cyst of the lung. All of these were operated on either by complete removal or drainage of the cyst, and of the cases 87% were reported cured. Foreign bodies in the bronchi may be classed as surgical conditions of the thorax, but in the present use of the bronchoscope their removal will fall usually to the throat specialist. Davidson and Tiegel report experiments in transpleural bronchotomy, but this procedure is at present too difficult to be justifiable in humans.

The question of the treatment of bullet and stab wounds of the lung (I mean where the lungs seem to be the part requiring chief attention) opens up a considerable field for discussion. The question is whether or not to explore. The chief danger of letting a wound go is the overlooking of some unsuspected lesion, as a wound of the heart, diaphragm or abdominal viscera. Untoward results also are hemorrhage into the pleural cavity and pneumothorax; less commonly, emphysema of the mediastinum and what Lenormant calls "pneumothorax à soupape," or valvular emphysema, where air is forced from the lung into the pleural cavity with every inspiration and kept there by a valve-like closing of the wound in the visceral pleura, thus causing an ever-increasing air-pressure in the pleural cavity. Felten and Stoltzenberg say that for the great majority of cases of penetrating wounds conservative treatment is the best, that pneumothorax and emphysema are very rare and that even severe hemorrhages usually stop spontaneously. According to their figures the total operative mortality is about 32%, that of stab wounds being about 25%, and that of bullet wounds much higher, 40%. Holmberg agrees with these authors, and reports 324 cases, all but four of which were treated conservatively. The total mortality was only 15.8%. Of these, 266 were stab wounds with a mortality of 8.1%, 39 gunshot wounds with a mortality of 27%, and 19 closed or subparietal ruptures with a mortality of 47%. On the other hand, Lawrow says that every penetrating wound should be immediately explored, because a correct diagnosis is impossible in many of the cases, and late untoward results will arise from wounds of the heart or abdominal organs. He reports 155 cases operated on, with lung injuries in only 40, heart injury in 12, and wounds of the diaphragm and abdominal viscera in 55. He says it is not fair to compare statistics from operated and non-operated cases. The view of Brewer is apparently sound when he says that in the absence of grave symptoms conservative treatment is advisable, but that everything should be ready for operative interference, should such symptoms arise. In case operation becomes necessary the simple intercostal incision is best, with subsequent treatment of the internal wounds as the indications point.

Before taking up the surgery of the heart, a few further facts and suggestions as ascertained by recent animal experimentation, as reported by Schepelmann, Carrel, Läwen and Sievers,

D'Agata and Erlanger may be worth mentioning. In a series of dogs varying sized portions of the pericardium have been removed and the animals have seemed to get along all right. Insufflation is advisable in operations on the heart, as that organ is pushed forward somewhat and better exposure obtained. Even slight injury near the auriculo-ventricular septum or auricular sinus may cause sudden paralysis of the heart and death. The auricles may be temporarily compressed, but this also is dangerous. Both venae cavae may be completely clamped off for about one minute, according to Läwen, or even three to six minutes (Carrel). In these procedures the stasis in and anemia of the brain, are a great source of danger. Erlanger has tried methods of resuscitating the heart after it had stopped beating, under chloroform anesthesia. He has used both direct massage through an abdominal opening and stimulation of the auricular sinus by an electrode passed into the pericaridum through a nick in the skin just to the right of the sternum. He found that after complete cessation of the heart action some cases could be started by simple massage, but that more could be started by massage plus the sinus stimulation. One dog revived thus after both the respiration and heart beat had stopped for four and one-half minutes.

The most complete article on wounds of the heart is that of Hesse, who has collected 198 such cases from the literature, and operated on 21 himself. Of these 21 cases, 6 were cured and 15 died. In his series the external wounds were at various points from the second rib to the seventh intercostal space, and from the right parasternal line to the left anterior axillary line, thus showing clearly that the location of the external wound does not prove much as to whether the heart is wounded or not. In only 4 were the heart sounds normal; in 10 they were more or less dulled and obscured. A heart lesion was definitely diagnosed in 11, suspected in 4, and entirely missed in 6. The time elapsed between the injury and the operation is of great prognostic value; of these operated on without four hours the mortality was only 25%, over four hours it was 100%. Of the 198 cases which he collected, plus his own, 116 died and 113 lived, but, as he points out, these figures are not fair because so many isolated cures have been reported, while a larger number of isolated deaths have not been. If possible, always sew the wound up tight. Of 98 cases reviewed by Rehn, 30 were sewed up tight with a mortality of 30%, 43 had both pericardium and pleura drained with a mortality of 42%, and 25 had the pericardium closed and pleura drained, with a mortality of 60%. Pool and Wagner agree that immediate exploration is advisable; Bircher says that it is in wounds from knives and large bullets, but in those from small calibred conical bullets it is often safe to wait. As to the technic of the operation, transpleural exposure is usually necessary, but this is a safe procedure. The utmost care should be used in the handling of the heart, which should be sutured with fine greased silk. Drainage is inadvisable, if it can possibly be dispensed with. The above remarks as to the advisability of immediate interference hold only for civil life, not in war.

Coming to the opening of the pericardium for other than traumatic conditions, the most recent review of the subject is that of Von Walzel. He says that paracentesis is justifiable for diagnosis and for the relief of *only* non-purulent effusions. The point of election for puncture is, according to Von Walzel, in the fifth or sixth intercostal space just outside the left nipple line, and not close to the sternum, as was formerly done. Radical operation with rib resection is advisable in all purulent cases, and Lundemark says this is often indicated even in simple serous effusions. Curschmann and Rehn have stated that in a large pericardial effusion the heart is almost always pushed up against the anterior wall, thus increasing the possibilities of injuring it. Indeed Venus has reported seven cases of wounds of the heart from the exploring needle, and in one of these there was immediate death. Von Walzel suggests that after evacuation of fluid by paracentesis it is often of value to blow up moderately the pericardium with air, as one means of preventing subsequent adhesions. The operative procedure of Von Eiselberg, as shown in three reported cases, was, in two of them, resection of the fifth rib and costal cartilage, and in the other resection of the fourth. Gunson has recently reported in the *Lancet* the case of a little child who in falling drove a needle into the chest wall and pericardium and quickly developed a severe hemorrhagic effusion. Following two tappings, which relieved her only temporarily, she was operated on and died of infection. A similar case which, however, was less severe and recovered after a simple tapping, was reported some years ago by Dr. J. L. Morse.

Radical surgical procedures on the aorta have not, as far as I know, at least in human beings, been attempted. Boothby, however, has recently reported six cases in which he divided and resutured the thoracic aorta in dogs, using intratracheal anesthesia and working through an intercostal incision. Four of the animals recovered fully from the operation and showed no ill effects; two died. Two recent articles are of interest regarding the treatment of aortic aneurysm. MacEwen introduces a very fine needle into the wall of the sac and scratches the intima; this he says causes the formation of a white thrombus which tends to go on increasing in size and at the same time organizing. Several treatments may be necessary, and should be preceded by a few weeks in bed on restricted diet and iodides. He reports the case of a woman who from being completely incapacitated, was so much improved that she could do a moderate amount of housework, and felt comparatively well. Lusk claims to have com-

pletely cured a case by passing into the aneurysm a long coil of gold platinum alloy wire till it lay in contact with the intima and then passing an electric current through it. He uses different strength currents and runs them through several times.

Cancer of the esophagus offers no more hope than it ever did. Of 33 operated cases recently collected from the literature, 17 died as a result of the operation, and not one was actually cured. Willy Meyer has just reported four cases of his own in which he attempted transpleural removal of the tumor, but all the cases died in a few days. He advises a two-stage operation following a preliminary gastrostomy. First, through an intercostal incision, he divided the esophagus below the tumor and invaginates both ends. Then about ten days later he goes in again and attempts complete removal. The results are indeed discouraging,—enough so to make one hesitate in attempting this operation. Roux and Wallstein devised a unique palliative operation, with which they have each had one success. Through an abdominal incision they free up a part of the jejunum, cut it across, bring it up over the chest and transplant it under the skin of the chest wall, suturing the upper end into the esophagus through a deep incision above the upper end of the sternum. This operation, while it seems to be rather a curiosity than a warranted procedure, has given certain relief in two reported cases. Zaaijer has reported the attempted removal of a diverticulum of the esophagus transpleurally, but at the time of his communication not enough time had elapsed to allow him to give a conclusive statement.

The proper and desirable removal of foreign bodies of the esophagus is through the esophagoscope, and Jurasz has been able to collect only three cases from the literature of attempted approach to them through the thorax. In each case the ribs were resected posteriorly close to the vertebral column,—in one the esophagus could not be found, in the other two it was found and opened with great difficulty, and one of the two cases died following the operation. It seems to be an operation of last resort.

Diaphragmmatic hernia has received considerable attention of late, and Scudder and Griffin have recently written about this condition. Scudder reports a case in which the patient's stomach, part of the transverse colon and omentum were in the left pleural cavity, having gone up through an opening in the diaphragm, thought to be congenital, and about two inches in diameter. He was able to deliver these into the abdomen by enlarging the opening in the diaphragm, but without otherwise opening the pleural cavity, and before he closed it the lung was blown up under positive pressure till it again assumed its normal position. In regard to the diagnosis, Griffin lays especial emphasis on the x-ray as being the one sure means of correctly ascertaining the condition.

An interesting case has recently been reported by Stenbeck of death following severe contusion of the chest, by hemorrhage into the mediastinum and left pleural cavity from a ruptured azygos vein.

The surgery of the mediastinum has been undertaken by Sauerbruch, and he says it is advisable under certain conditions. Removal of the thymus, or rather a large part of it, is indicated in those in whom it is known to persist, and in certain cases of Basedow's disease in which it persists and is enlarged. Capelle, in a review of autopsies, states that in 60 cases of exophthalmic goitre, dying of an intercurrent disease, 44% had an enlarged thymus; in the cases dying of a severe exophthalmic goitre 82% had it, and of the post-operative deaths, 95%. Some authors state that the thymus *per se* may give rise to a typical Basedow's disease. Garré and Sauerbruch both report such cases, in which after the removal of an enlarged thymus, the patients regained practically normal health. Sauerbruch enucleated it through an incision above the supersternal notch. He also reports four cases in which the mediastinum was opened for tumor. Two of these turned out to be inoperable growths, but one of the patients obtained great temporary relief from symptoms. In a third case he removed several enlarged glands which were causing pressure symptoms, but the patient died in eight hours. In the fourth case, however, that of a rather young man with very severe obstructive symptoms, he was able to open the mediastinum by partially splitting and sawing through the sternum, and remove a small circumscribed tumor—a fibroma. The patient made a perfect recovery. Some have advised transverse sawing through of the sternum at about the level of the third rib and then pulling the fragments apart, but Sauerbruch says this causes too much laceration to the soft parts. He advises median division of the sternum from the top down to about the third interspace, then carrying the incision to the side, thus lifting up half of the sternum, above a given level. This operation seems to be a reasonable procedure in certain cases which have an otherwise bad prognosis.

In looking back briefly, and considering all the difficulties which attend the invasion of the thorax, and considering also that the viscera therein are most vitally concerned in keeping up life, it does not seem surprising that progress is not faster. The fact that so many things can be done to the lungs and heart and yet the patient survive, is perhaps one ground for encouragement as regards the future.

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Reports of Societies.

MEDICAL SOCIETY OF THE STATE OF NEW YORK.

ONE HUNDRED AND SEVENTH ANNUAL MEETING, HELD IN ROCHESTER, APRIL 29 AND 30 AND MAY 1, 1913.

The meeting of the House of Delegates was held on April 28, when the usual reports were presented. In the

REPORT OF THE PRESIDENT,

DR. J. F. W. WHITBECK of Rochester, were a number of recommendations. One was for the appointment of a committee for each specific purpose of such importance as to require extended investigation, tests of expediency, and presentation to those who have the power to act, either in a legislative or an executive capacity. In this connection he referred to the desirability of having a national bureau of public health, the authorization of which by Congress was urged by the House of Delegates in a resolution passed in 1910. A more recent development, he said, was the inquiry into the causes, control and prevention of those accidents and diseases which particularly concern industrial workers, and he recommended that the consideration of the New York Industrial Diseases Reporting Law should be referred to the committee on legislation. He expressed his belief that the arrangement of the five sections in the society, as now constituted, would prove satisfactory to the members, and said that, if positively advisable, other divisions might be incorporated into the existing sections, without radically changing those on trial, by simply extending the scope of their usefulness.

OTHER REPORTS.

The secretary reported that 400 new members were added during the year 1912, and that the total membership on Jan. 1, 1913, was 6964, as against 6742 on the corresponding date last year. The committee on legislation reported that its work during the session of the Legislature in 1912 was very much less arduous than in the previous year, as the field of operation chosen by the opponents of scientific research by means of animal experimentation and those opposed to the vaccination laws was the assembly, instead of the senate; so that the chairman of the committee could give the bills coming up his more immediate personal attention. Three slightly different anti-vivisection bills and two anti-vaccination bills were introduced, and all were killed in committee. Two bills of interest to public-spirited medical men which became laws were one prohibiting medical schools from matriculating students who are deficient in any part of the educational requirements, and one providing for the creation of a commission to examine into and report on the advisability of the sterilization of degenerates, perverts, insane and feeble-minded, a class the propagation of whose kind has been shown to be at the present time far in excess of that of normal individuals. The committee on experimental medicine, of which Dr. William H. Park is chairman, gave an account of its work during the years, and, in concluding it, expressed the belief that its continued vigilance and its activity in various ways had been of material service in safeguarding the humane work of medical experimenters, and the hope that the members of the profession throughout the State would use their utmost efforts to keep clearly before the minds of the public, and especially of the legislators, the folly and injustice of hampering in any way the magnificent work which medical research is doing to prevent and relieve the suffering of mankind and, incidentally, of dumb animals.

On Tuesday, April 29, after addresses of welcome by the mayor and the president of the Chamber of Commerce of Rochester, the

ANNUAL ORATION ON MEDICINE: CERTAIN ELEMENTARY CONCEPTS IN EDUCATION APPLIED TO MEDICINE,

was delivered by PROF. JOHN G. ADAMI of McGill University, Montreal. In it he criticized severely the system of education, preparatory as well as professional, in vogue in this country, and especially in New York. The New York State Board of Regents, he said, made the grave fundamental mistake of putting far too much emphasis on instruction, and far too little on education, properly so called. It laid out a rigid curriculum, with an allotted number of "periods" for each of many definitely listed subjects, and to this it sternly held, not only every student, but every school. Individuality was thus repressed, and the experimenting upon which all progress depends was cruelly discouraged. In regard to the study of medicine he said that the main premise of the Board of Regents was that the requisite standard of medical education could be attained only by rigidly fixing the minimum preliminary training of the student; however distinguished had been his record as a medical student, unless that preliminary standard had been attained it was hopeless for anyone to practise medicine in the State save under conditions tantamount to exclusion. If the matriculation examination of a university outside the State did not in the opinion of the regents exactly conform with that demanded by them, that university could not be registered. Surely there was "something rotten in the State" of New York and its educational system, that this should be, that the regents should thus force all the universities of this continent to bow to the graven image they had erected. Later on in the address Dr. Adami referred to the plan and scope of the General Medical Council of the United Kingdom, and said it seemed to him that the time was ripe for a similar

procedure here, for the appointment of a Federal Medical Council, subsidized by the U. S. Government and formed of representatives of all the States, a council which should appoint well-known leaders of the profession to act as committees or assessors to visit, report upon, and make recommendations regarding the efficiency and deficiencies of the individual medical schools of this continent; the expenses of such inquisitions to be met by the schools visited.

In the evening there was a general meeting, open to the public, at which an address on

THE PREVENTION AND CURE OF CANCER

was delivered by Dr. Parker Syms, of New York.

Section on Medicine.

SYMPOSIUM ON DISEASES OF THE CIRCULATORY SYSTEM, CARDIAC AND ARTERIAL DECOMPOSITION: PREVENTION AND TREATMENT.

Dr. L. F. Bishop, New York. The cause of broken compensation might be extra strain from exertion, but much oftener it was a deterioration in the heart muscle. Three conditions were considered: (1) Pure cardiac compensation in non-progressive valvular disease; (2) arterial compensation, maintaining a necessary increase in blood-pressure; (3) combined cardiac and arterial compensation where valvular defects exist with kidney or other demands for pressure. He had frequently met with instances of the first in young persons, who presented themselves with murmurs and a compensating cardiac hypertrophy. Such patients should be wisely advised, for they were plastic material for the easy creation of chronic invalids on the one hand, or the development of useful lives on the other. They should be warned against things demanding strain, but told that they could not afford to neglect other forms of exercise—tennis, horseback-riding, swimming and walking were all appropriate. They should be taught to respect their "wind," and let this be their guide for the moderation or cessation of exercise. Many showed a tendency to defect of circulation in the liver, and would do better on a few-protein diet. Plain living, with abundant exercise, devoid of strain, was the ideal thing for the young person with pure cardiac compensation. In the care of arterial compensation the few-protein was much more satisfactory than a low-protein diet. As much as desired should be allowed of a few selected proteins, and the others absolutely prohibited. Many patients responded to outdoor exercise, simplification of diet, intestinal hygiene, and the use of vascular tonics, of which theobromine was one of the best. While in the second class of cases the heart was always slightly involved, in the third it was sometimes difficult to say which was primary, the arterial or the cardiac condition. Here the condition developed after years of compensatory life, and secondary blood-pressure was always present, though the pressure measurement might be misleadingly high on account of local vascular spasm. The treatment the speaker advised involved the thorough clearing up of the faulty intestinal condition present, the complete digitalization of the heart, the withdrawal from the diet, at first, of eggs, fish, meat, soups and, in a large measure, of milk (allowing bread and butter, vegetables and cereals), and, as soon as possible, the commencement of graduated exercise; leading up to as much of outdoor life as possible, and gradually to a more liberal diet.

PAIN AND OTHER CLINICAL MANIFESTATIONS OF MYOCARDITIS

Dr. Alexander Lambert, New York. He thought it should be recognized that cardiac pain occurred with various degrees of intensity, and that there might be slight pain in the heart without fear of impending death, and as an early symptom of myocardial changes. Mackenzie had emphasized the fact that the heart has no means of expressing pain to the muscular wall, and that the nerves of the heart cannot produce the sensation of pain, so that the pains might occur in various situations, and according to Head the distribution of pain and hyperesthesia bore a close relation to the chamber of the heart most affected. It was the failure to recognize the extensive area in which pain from the heart might be felt that had led to so many mistakes in considering what pain cardiac pain was. Probably the most frequent seat of pain, as well as hyperesthesia, was somewhere between the fourth and sixth rib, over the pectoral muscle near the nipple; but it was not uncommon for pain (perhaps treated as gout or rheumatism) to appear in the left wrist as the first expression of myocarditis. It was the speaker's opinion that pains coming from the heart were so common on the left side of the chest and in the left arm that in the presence of pain thus located it was the best plan to start with the supposition that such pains were probably cardiac, and proceed to exclude other conditions. Shortness of breath was also spoken of as one of the early signs of myocardial disease.

THE SYMPTOMS AND DIAGNOSIS OF INVOLVEMENT OF THE HEART IN SYPHILIS

Dr. Harlow Brooks and Dr. J. H. Carrol, New York. A study had been made of 200 selected cases in private and hospital practice, and in 75 of them autopsies were included. In the diagnosis the importance of associated clinical evidences of syphilis, of the Wassermann reaction and of the therapeutic test were emphasized.

A paper on

THE RELATION OF INTERNAL SECRETIONS TO THE CIRCULATION

Drs. N. G. Russell and C. J. Roberts, Albany, was also presented.

DISCUSSION.

Dr. S. Neuhof did not agree with Dr. Lambert that the pain in most of these cases was due to changes in the myocardium. He had made a study of more than twenty cases of fibrillation, and found that the first symptom was dyspnea.

Dr. H. S. Stark said that frequently a clinical diagnosis of myocarditis had been made where this was disproved by the autopsy. Such cases were apt to be instances of masked endocarditis which were not sufficiently advanced to produce adventitious heart sounds or cardiac hypertrophy.

Dr. A. Bassler said he was convinced that a large number of cases of cardiac disease were of intes-

tinal origin, since in so many instances analysis of the intestinal contents gave findings of choline and other substances indicating a protein break-down. More attention directed to the gastro-intestinal canal, he believed, would distinctly diminish the number of cases of heart disease.

THE POLYGRAPH

DR. G. W. ROSS, Toronto, Canada, with lantern slide demonstration. The great advantage of this instrument was that it enabled us to record simultaneous tracings of two separate points in the cardiovascular system, and to interpret the meaning of the waves recorded. This was of especial importance in the so-called venous pulse, since certain of the waves gave valuable information in regard to the vital activities of the right side of the heart. The modern conceptions of cardiac anatomy, physiology and pathology were reviewed; after which the various arrhythmias, their recognition by means of the polygraph, and their significance, were described.

ASSOCIATION OF UTERINE GROWTHS WITH GOITRE AND TYPICAL EXOPHTHALMIC GOITRE

DR. H. L. ELSNER, Syracuse. He called attention to this association, in a large number of cases, to the frequency of atypical cases, and to the advisability of a thorough examination of all the organs, in the presence of goitre, as the associated anomalies were very numerous. His own clinical experience had demonstrated the frequent association of thyroid perversion, often hyperthyroidism, including simple goitre and exophthalmic goitre, typical and atypical, with fibro-myomata of the uterus. Two points were especially worthy of note: (1) The disease was often self-limited, and spontaneous recovery was not uncommon. (2) The subjective and objective phenomena present proved the protean character of many goitres.

BENZOL IN THE TREATMENT OF LEUKEMIA: WITH RESULTS IN A CASE OF THE MYELOGENOUS TYPE.

DR. JEROME MEYERS AND DR. T. W. JENKINS, Albany. From a study of the case they reported and other cases reported in which this agent had been employed they concluded that benzol was apparently a valuable addition to the therapy of leukemia, but that its introduction had been so recent, and clinical experience with it was still so limited, that definite conclusions regarding it could not as yet be reached. The results from its use seemed to depend largely on the size of the dose, which had to be varied according to the special conditions presented. It was, therefore, suggested that the effect of the drug should be carefully checked by daily blood examinations, so as to gauge the maximum dose and to forestall any symptoms of benzol poisoning.

TYPHLOALBUMINURIA

DR. HEINRICH STERN, New York. This was an alimentary albuminuria originating in the cecum, and probably the most frequent of the intestinal albuminurias. It invariably occurred in the subjects of habitual constipation, was irregularly intermittent, and its pathogenic factors were cecal atony, rapid absorption of fluid from the intestine, with resulting dryness of the feces, and coprostasis. The occurrence of typhloalbuminuria did not depend more on the amount of protean ingested at any one time than on the interrupted draining of the lymph stream into the venous system.

CARDIOSPASM

DR. A. BASSLER, New York. Cardiospasm had always been described as a spasm of the cardiac orifice of the stomach, but his studies had led him to conclude that the spasm was epicardial in almost every instance. He gave the detailed results of dissections of five cadavers which he had made, and went on to say that in seven cases of so-called cardiospasm his x-ray observations indicated that the constricting factor was the esophageal opening of the diaphragm. When such cases were dilated mechanically the effects were produced by the stretching of this, and if his interpretation was correct it seemed warrantable to consider an operation for intractable cases which had to do with the division of the crura, either at their insertions or the bisection of the inner portions of both at the back of the esophagus or some portion of the esophageal opening.

THE INDUSTRIAL DISEASE REPORTING LAW

L. W. HATCH, Ph.D., statistician of the New York State Department of Labor. The purpose of this paper was to set forth the fundamental reasons for the reporting of industrial diseases and to illustrate from actual experience how this purpose was to be worked out in practice; also to emphasize the necessity for certain details required in reports, and to suggest the larger opportunities beyond mere legal requirements which lay at the physician's door in this field. With reference to the general purpose of compulsory reporting of industrial diseases, the New York law did not represent something new and untried, as this had been for a considerable time the settled practice elsewhere. Thus, in Great Britain reporting of industrial diseases, precisely like that now in force in New York, had been required for 18 years.

COÖPERATION OF STATE MEDICAL SOCIETIES IN PUBLIC HEALTH EDUCATION

DR. ELEANORA S. EVERHARDT, Dayton, Ohio, Chairman A. M. A. Committee for Public Education Among Women (read by invitation). In 1909 the women members of the American Medical Association were requested to take the initiative in their respective societies in the organization of educational committees to act through women's clubs and other similar bodies for the dissemination of knowledge concerning the nature and prevention of disease. At the same time all county, district and other local medical societies were requested to hold annually one or more open meetings, to which the public should be invited, for the discussion of this and other public health subjects. The last annual report showed audiences aggregating little less than 400,000, and the report for this year would show a material increase over this. The committee of which the speaker was chairman found its most appropriate field in co-ordinating the educational work of the several States, and to the State medical societies remained the privilege of coöperating with the committee by assisting the county societies in the promotion of this educational work.

EXPERIENCE WITH NEOSALVARSAN AT THE HARLEM HOSPITAL

Dr. Howard Fox, New York. Neosalvarsan was employed in a series of 56 syphilitic cases, in 45 of which it was given intravenously and in 11 intramuscularly. His conclusions were as follows: (1) Neosalvarsan is an excellent symptomatic remedy in the treatment of syphilis; (2) its symptomatic action seems to be slightly weaker than that of salvarsan when used in corresponding amounts; (3) its serological action seems to be considerably weaker than that of salvarsan when used in corresponding amounts; (4) it possesses a decided advantage over salvarsan in the greater ease and rapidity with which it can be prepared and injected intravenously; (5) intravenous injections of salvarsan are much less disturbing to the veins than similar injections of neosalvarsan.

THE PRESENT OBLIGATIONS OF THE GENERAL PRACTITIONER REGARDING SYPHILIS

Dr. E. W. Ruggles, Rochester. In his opinion it was absolutely immoral for a physician to let a suspicious genital sore remain a single week without employing methods to make an early diagnosis, if possible; and it should be borne in mind that, as a rule, two or three early injections of salvarsan obliterated the contageousness of syphilis. He was convinced of the superiority of salvarsan over mercury in the treatment of this disease. and at present, in spite of a greatly increased number of cases, he saw absolutely no mucous patches except in patients sent for consultation who had not received salvarsan; whereas formerly, even after he had employed mercury only intramuscularly or by inunction, practically every case would present some mouth or throat lesion during the first year.

SYMPOSIUM ON PULMONARY TUBERCULOSIS.

This included the following papers: Examination of Those Exposed as a Factor in the Prevention and Relief of Tuberculosis, by Dr. J. H. Pryor, Buffalo; Auscultation of the Acromian Process: Its Importance in Apical Disease; by Dr. Robert Abrahams, New York; Tuberculin Treatment, by Dr. E. R. Baldwin, Saranac Lake; Incidence of Renal Involvement in Pulmonary Tuberculosis, by Dr. H. S. Bernstein, Albany; Treatment of Pulmonary Tuberculosis by Artificial Pneumothorax, by Dr. J. W. Price, Saranac Lake; Control of Advanced Cases, by Dr. H. M. Biggs, New York.

Dr. Pryor said that at the Buffalo Tuberculosis Dispensary, where the method of examining the exposed had been begun in 1907, the following results were shown where all the families were examined and one case existed: Pulmonary tuberculosis was found in one or more members of 248 families (35%). In 87 families 100 cases were discovered. In 113 families where other members were examined before and after the death of a consumptive other cases were found in 40%. Hemoptysis occurred in 8% of 2000 cases under observation. The examination of the exposed afforded the best opportunity to learn the art of early diagnosis, and, especially with the recently introduced auscultation with cough, there was little excuse for failure to recognize incipient cases.

Dr. Abrahams said he had studied auscultation at the acromial ends of the clavicles for more than three years, and had come to the conclusion that this deserved a place in physical diagnosis. In practising this the bell of the stethoscope should be carefully adapted to the conformation of the bone while the patient was successfully to breathe deeply, count, whisper and cough. The usual acoustic phenomena met with in the first stage of tuberculosis of the apex were greatly exaggerated by this method, and the character of these sounds was described in the paper.

Dr. Baldwin said that cures were not made by tuberculin alone; they might be assisted or retarded by it. The object of the treatment was either to reduce the hypersensitiveness or to stimulate the tuberculous to heal by intermittent reactions. Cases for treatment should be built up in health and nutrition, and rested until acute symptoms had subsided—all bad complications were contra-indications. The treatment was empirical, and really an experiment in each case. Rules about dosage were not hard and fast, though skin tests at the outset formed some guide to dosage.

Dr. Bernstein said that the post-mortem records showed a percentage of 3.4 of kidney involvement in pulmonary tuberculosis. One hundred urines from cases of pulmonary tuberculosis were examined for the presence of the tubercle bacillus by guinea-pig inoculations, but while ten of these produced tuberculosis in these animals, symptoms referable to the urinary tract were absent in each instance.

Section on Surgery.

USES OF RADIUM IN SURGERY

Dr. Howard A. Kelly, Baltimore (read by invitation). Dr. Kelly spoke with enthusiasm in regard to the great value of this agent. He said that its use in dermatology, medicine and general surgery bade fair to bring about a re-alignment, or at least a readjustment, of the work in these departments; expressing the opinion that radium was destined to make a change as great, and perhaps even more decided, than that which followed the introduction of the x-ray. If employed early, it would definitely cure many forms of cancer, and in skin cancer no less than 96% of the cases. Other conditions mentioned in which it was of efficient service were angiomata, uterine and other fibroids, some forms of pelvic inflammatory trouble, obstinate pruritus of vulva and anus, exophthalmic goitre, and parotid growths. Dr. Kelly spoke particularly of its use in gynecology and related a number of cases chiefly of malignant character, from his own experience. The first one in which he had employed it was that of a woman upon whom he had operated six years previously for carcinoma of the uterus. She suffered from hemorrhages, and he found a sinus in the right vaginal vault leading into the posterior pelvis over the uterosacral ligament; undoubtedly a cancerous recurrence and absolutely beyond operative relief. He gave three radium applications of 24 hours each, at intervals of one week; as a result of which the patient recovered promptly, and had remained free from recurrence.

POSSIBLE ERRORS IN THE DIAGNOSIS OF ABDOMINAL CANCER—A PLEA FOR EXPLORATORY LAPAROTOMY

Dr. W. S. Bainbridge, New York. The purpose of the paper was to emphasize the importance of

early exploratory laparotomy in abdominal conditions where the diagnosis by external methods was uncertain, and the value of this was demonstrated by a number of illustrative cases. The following six classes of cases coming under the subject of cancer were referred to: (1) Cases diagnosticated as cancer, with no cancer present; (2) cases of cancer not recognized as such, and diagnosticated and treated as something else; (3) cases of small cancer diagnosticated as cancer, but having far more of something else present; the latter being mistaken for extensive malignant disease or considered otherwise too serious, in conjunction with the cancer, to warrant operative interference; (4) cases of advanced cancer correctly diagnosticated, but regarded as hopeless by reason of an added condition not in itself of serious prognosis; (5) cases in which the error in diagnosis concerns the stage or extent of cancer; (6) cases in which the error in diagnosis concerns the type of the cancer.

Among the others papers presented in the Section on Surgery were the following: Differential Diagnosis of Sarcoma of the Long Bones, by Dr. W. B. Coley, New York; Operations Pertaining to the Bile Passages, by Dr. L. F. O'Neill, Auburn; The Present State of Nerve Injection, by Dr. O. G. T. Killiani, New York; Some Conclusions Reached after Thirty Years of Brain Surgery, by Dr. Roswell Park, Buffalo; Treatment of Fixed Scoliosis by the Abbott jacket; Some Aspects in relation to the Chronic Gonorrheic, from the Standpoint of Surgery and Eugenics, by Dr. J. N. Vander Veer, Albany; Report of Twenty-two Cases of Tumor of the Bladder and Conclusions as to Appropriate Methods of Treatment, by Dr. P. M. Pilcher.

JOINT SESSION OF THE SECTIONS ON MEDICINE AND SURGERY.

SYMPOSIUM ON DUODENAL ULCER.

This was opened by Dr. MARSHALL CLINTON, Buffalo, with a paper on

ETIOLOGY AND MORBID ANATOMY.

Duodenal and gastric ulcers, he said, were closely allied, and in the etiology the gastric juice played an undoubted rôle, for associated with ulcer there was usually found an excess of this, and with a greater degree of acidity than normal. The ulcer had a typical punched-out appearance, and sections of the ulcer did not seem to bear out the old idea that thrombosis was an important factor in its production.

COMPLICATIONS

DR. J. B. HARVIE, Troy. The complications calling for the most energetic treatment were cancer, hemorrhage and perforation. The complication of obstruction due to contraction would permit of greater deliberation. Unfortunately, malignant disease had usually passed beyond all likelihood of successful surgical intervention when the diagnosis was made. The differential diagnosis between perforation of duodenal ulcer and other abdominal perforations was attended with difficulties, and when there was general peritonitis, with distention of the abdomen, the attempt to localize the lesion clinically was largely speculative.

NON-SURGICAL TREATMENT.

DR. C. G. STOCKTON, Buffalo. Treatment was not addressed to the direct cure of the ulcer, but to so control the patient and secure such favorable conditions in the gastro-intestinal tract that the ulcer would heal spontaneously. The patient should be kept in bed continuously for several weeks, and voluntary movements of the pylorus and duodenum minimized, to avoid overtonicity and spasticity of the parts. In addition, the treatment should aim to diminish the quantity of gastric secretion and also its acidity and enzyme activity. An excellent method of cambating pyloric spasm was duodenal alimentation, as advocated by Einhorn, and adrenalin was also useful for this purpose.

SURGICAL TREATMENT.

DR. J. B. MURPHY, Chicago (read by invitation). It was true that surgical treatment had usually been instituted at a time when it was not easy to save life, but of late there had been a great improvement in this respect. Ninty-three per cent. of all lesions of the duodenum, including ulcers, occurred in its first portion and on the anterior surface. When perforation took place the indication was to stop the leak, and as quickly as possible. It might be unnecessary to perform gastro-enterostomy at that time, but the tension caused by the products of infection and the material escaping into the peritoneal cavity should be relieved by the use of the Fowler position and drainage of the lower abdomen. The patient's arterial tension should be restored immediately on the table, intravenous transfusion being made if necessary. It was on this plan that a great reduction in mortality had been made. As to the local treatment of the ulcer, the best results at the present time were secured by infolding the ulcer area by the method devised by Mitchell, who had reported 18 recoveries in 19 cases. After a paper by DR. GEORGE WOOLSEY, New York, on

SOME PHASES OF THE SURGERY OF THE STOMACH,

DR. J. P. PILCHER, Brooklyn, read a paper on

THE DIAGNOSIS AND PROGNOSIS OF DUODENAL ULCER.

In a review of some 200 cases observed by him he said that four especially prominent characteristics stood out; (1) the chronicity of the affection; (2) the periodicity of the exacerbations of gastric distress; (3) the occurrence of pain of peculiar character at a definite time after eating and just at the onset of the exacerbation; (4) the relief of this gastric distress, especially in the earlier stages of the condition, by the ingestion of food or alkalies. Of late the chronicity had not been quite so marked a feature as formerly, owing probably to the increased familiarity with the condition. The relief afforded by the ingestion of food he had demonstrated experimentally to be due to the mechanical stimulus thus given to the stomach, which by reflex action excited the flow of the alkaline secretion of the duodenum, by which the hydrochloric acid in this was neutralized. Of the accessory aids to the diagnosis the x-ray was the most important, though its evidence should be received with caution. One of the most essential elements to be recognized in duodenal ulcer was the determination of the etiology of the lesion. The prognosis was a somewhat relative matter. In ulcers of the anterior wall, which were the more numerous and differed markedly in their characteristics from those of the posterior wall, there was considerable danger of perforation if the affection were allowed to continue its course. Posterior ulcers, on the other hand, seldom perforated,

but they were likely to give rise to such complications as duodenal stenosis, pancreatitis and common duct obstruction, which might eventually prove quite as dangerous as perforation. In many instances the prognosis was dependent upon the etiological factor in the production of the ulcer. Not infrequently this was to be looked for in the appendix, and numerous cases had been observed of death from a ruptured appendix in which duodenal ulcer was found at the autopsy. The engraftment of carcinoma was so rare that it might be disregarded. While many of the patients entered into a state of chronic invalidism, there were no doubt many others who suffered but slight discomfort, and in cases properly chosen for medical or surgical treatment the prognosis, in the great majority of instances, was good.

DISCUSSION.

Dr. Max Einhorn expressed the opinion that 99% of the cases of duodenal ulcer would recover under careful and judicious medical treatment.

Dr. R. T. Morris said that in regard to acute duodenal ulcer calling for immediate treatment he had but one new point to offer, and that was that at the present time the whole effort was to conserve the vital powers of the patient to such an extent that he might be able to produce his own phagocytes and thus work out his own salvation.

Dr. C. L. Gibson said he was sorry that the alleged sign of free air in the peritoneal cavity masking or obliterating liver dullness had ever been thought of, as it had proved a great pit-fall in the matter of diagnosis. Another pit-fall was laying too much stress on blood examinations. The indications for gastro-enterostomy were, in his opinion, very limited.

Dr. A. Bassler said that cases where there was recurrent hemorrhage, even though but moderate, were, like cases with perforation, surgical.

Section on Pediatrics.

THE WASSERMANN REACTION IN VARIOUS CONDITIONS IN CHILDREN

Dr. L. E. Holt, New York. The use of this test enabled us to determine the presence of syphilis in many doubtful cases, and also to exclude syphilis in many instances where it had beeen customary to suspect this disease. Like all laboratory tests, however, the Wassermann was not infallible; but while a positive reaction might sometimes be observed in scarlet fever and in infection with the trypanosomes, neither of these conditions were likely to be confounded with syphilis. The speaker gave the results noted in a series of cases at the Babies' Hospital, in all of which the Noguchi modification of the Wassermann reaction was employed, as it had the advantage in infants of requiring much less blood. Two of the many points of interest brought out in this investigation were that the great proportion of congenital deformities have no relation to syphilis, since not a single positive reaction was obtained in 56 consecutive cases, and that, at least in the infants admitted to this hospital, syphilis could not be regarded as a common cause of marasmus.

DISCUSSION.

Dr. L. E. LaFetra said that the Wassermann reaction was a great aid to diagnosis, especially in skin affections and stomatitis. In a series of 82 syphilis was found to be present in 44 where the disease was suspected and in 15 where it was supposed not to be present.

PULMONARY TUBERCULOSIS IN CHILDREN: REPORT OF TEN CASES TREATED WITH MIXED BACTERINS.

Dr. L. C. Ager, Brooklyn. In spite of recent reports to the contrary, he was convinced by the investigations of Avery that secondary organisms were practically never found in the blood of phthisical patients; and if this were true, pulmonary tuberculosis was to be regarded as almost entirely a local process, so that the mixed vaccines ought to be of benefit. Under this conviction, he selected ten patients showing active lesions and representing different types and stages of the disease, and administered to them a mixed influenza bacterin, as containing the organisms occasionally found in washed specimens of sputum. No definite reaction, however, was noted in any of the cases; showing that this particular bacterin bore no special relation to these particular cases. Possibly autogenous vaccines would have shown a definite reaction.

DISCUSSION.

Dr. E. G. Whipple said that when tuberculosis was sufficiently far advanced to be recognized there was present a mixed infection, but until the amount and character of the infection could be determined it could not be expected to get a definite reaction with bacterins. It did not seem to him that the use of mixed bacterins was scientific or good therapeutics. The treatment of tuberculosis in children was not different from that in adults, and as regards this disease the all-important matter was prevention. It was only by keeping the resistance of the child up to the proper level that it could be avoided, and, therefere, the pediatrist should take a prominent part in the campaign for clean milk and sanitary surroundings.

Drs. L. E. Holt and Matthias Nicoll, Jr., unqualifiedly condemned the kind of treatment described in the paper.

TREATMENT OF HEMORRHAGIC AFFECTIONS IN CHILDREN

Dr. J. E. Welch, New York. He expressed the opinion that the hemorrhagic condition due to primary fault in itself, to some was not the blood, but rather general disease, causing increased blood-pressure, an altered state of the blood, and a change in the endothelium of the blood-vessels. In the treatment he advocated the use of human blood serum because it was easily obtained, was efficient, and had no untoward effects; while the serums from animals produced a reaction and were dangerous. He believed that normal human blood serum served to control hemorrage chiefly through its value as a food. He was now endeavoring to obtain by means of serum precipitation by acetone and ether a product easily soluble in water and which would check hemorrhage.

Dr. LaFetre spoke of the success which Dr. Schloss had met with in the use of whole blood, which took less time to procure than the serum, while a smaller quantity of blood was required than when the serum alone was employed. He said it was surprising how readily the whole blood was absorbed, without clotting, when injected into the back; but two days being required for its total absorption.

TREATMENT OF DIPHTHERIA.

DR. J. R. CULKIN, Rochester, read a paper on diphtheria in which he advocated large doses of antitoxin, and as early as possible. In pharyngeal and tonsillar cases at least 10,000 units should be given, in nasopharyngeal cases, 15,000 units, and in laryngeal cases, 20,000 units; the doses to be repeated in twelve hours if results were not apparent. If a clinical diagnosis were made, a culture report should not be waited for before using the antitoxin, as no harm would result should true diphtheria not be present. Also, immunizing doses might be given to the same individual a number of times without causing any untoward symptoms. All the speakers in the discussion of the paper were agreed as to the importance of the early and free use of antitoxin.

DR. NICOLL, however, said that the dosage advised by Dr. Culkin was somewhat larger than in the routine practice at the contagious disease hospitals in New York, and expressed the opinion that in children more than 10,000 units was rarely necessary. As regards a second dose in twelve hours, Dr. Park had found that the antitoxin reached the blood stream slowly: increasing up to the third, fourth or fifth day, and then slowly decreasing. Hence, if a second dose was given twelve hours after the first, the beneficial effects which might be attributed to it were really due to the continued absorption of the first dose; the second only gradually contributing its share. It had also been shown that when antitoxin was given intravenously a large amount of it went into the blood stream immediately. This method, therefore, should be employed in desperate cases, and when in other cases it was supposed that the initial dose had not been large enough he thought it advisable that a second dose should be given intravenously.

RECURRENT VOMITING IN CHILDREN.

DR. A. C. MERCER, Syracuse. Of the theories which had been advanced regarding the etiology of recurrent vomiting, that of acidosis, as shown by the presence of one or more acetone bodies in the urine, had received most attention. Acetonuria, however, was found to be present in a large proportion of infants after a change of foods, and the fact that acetone excretion did not occur during the prodromal stage, but only after the onset of emesis, supported the view that acidosis was an incidental effect, rather than the fundamental cause of the vomiting. The attacks of recurrent vomiting, while violent, were self-limited, and after the first attack the diagnosis was usually not difficult. In fully developed attacks no treatment could control the vomiting, but if the prodromata were recognized, the diet curtailed, the intestinal tract cleared, and sodium bicarbonate given freely, an approaching attack might often be averted. Such successful abortive treatment suggested a systematized prophylaxis along the same lines, every effort being made to eliminate possible etiological factors and to build up the resistance of the child.

In the discussion of the paper Dr. DeW. H. SHERMAN cited three cases in which a cure was effected by the use of glasses to correct ocular defects found to be present, and emphasized the importance of attention to the neurotic element in these cases.

THE DIFFERENTIAL DIAGNOSIS OF THE PARALYSES OCCURRING IN EARLY LIFE

DR. H. A. GRIBBON, Poughkeepsie. He thought the extremity paralyses might be roughly divided into three groups, the pseudo palsies, the spastic, and the flaccid. The first, which were often due to pain from various injuries and diseases, could be differentiated by single points of tenderness, evidences of local injury, and ability to move fingers and toes. The spastic group were well illustrated by the cerebral palsies, characterized by rigidity of the extremity affected, exaggeration of the deep reflexes, and absence of reaction of degeneration and of atrophy; and general spasticity signified brain lesion or lesion of the posterior or lateral tracts of the cord. In the flaccid group the paralysis was due to anterior cord or peripheral nerve lesions, and was characterized by flaccidity, atrophy, diminution of reflexes, and change in electrical reaction. Anterior poliomyelitis had to be distinguished from multiple neuritis as the peripheral type.

In this section there were several papers on infant feeding and an elaborate discussion on the subject. Among the other papers read were the following: Certain Neglected Aspects of the Problem of Infant Mortality, by Dr. Philip VanIngen; The Physician and the Mentally Defective Child, by Dr. I. T. Smart; Social Pediatrics, by Dr. I. S. Wile; A Plea for the More Frequent Use of Lumbar Puncture, by Dr. E. J. Wynkoop.

OTHER SECTIONS.

The program of the Section on Eye, Ear, Nose and Throat included a

SYMPOSIUM ON THE HYPOPHYSIS,

with the following papers: The Physiology of the Hypophysis, by Prof. Sutherland Simpson, Ithaca; Ocular Disturbances of Hypophyseal Diseases, by Dr. Arnold Knapp, New York; Intranasal Approach to the Hypophysis, by Dr. L. A. Coffin, New York; Surgical Aspects of the Pituitary Question, by Dr. H. W. Cushing, Boston. Among the papers presented in the

SECTION ON OBSTETRICS AND GYNECOLOGY.

were, The Difficulties in the Diagnosis of Extra-Uterine Pregnancy, by Dr. S. M. Brickner, New York; Pituitrin in Obstetrics, by Dr. J. K. Quigley, Rochester; Nephrocoloptosis in Women, by Dr. H. W. Longyear, Detroit; A Critical Review of the Medical and Surgical Treatment of Puerperal Eclampsia, by Dr. E. G. Zinke, Cincinnati; Preliminary Report on the Treatment of the Toxemias of Pregnancy with Placental Serum, by Dr. A. J. Rongy, New York; The Principles Underlying the Successful Treatment of Sterility, by Dr. Edward Reynolds, Boston; The Stigmata of Decadence in Gynecology, by Dr. R. T. Morris, New York; Methods of Minimizing the Mortality and Morbidity of Abdominal Sections for Pelvic Disease, by Dr. G. W. Crile, Cleveland.

ELECTION OF OFFICERS.

The following officers were elected for the ensuing year: President, Dr. W. F. Campbell, Brooklyn; first vice-president, Dr. W. S. Gleason, Newburgh; second vice-president, Dr. G. F. Blauvelt, Nyack; third vice-president, Dr. M. B. Palmer, Rochester; secretary, Dr. W. R. Townsend, New York; treasurer, Dr. Alexander Lambert, New York.

The next annual meeting is to be held in New York City, April 28, 29, and 30, 1914.

Book Reviews.

Blood-Pressure. From the Clinical Standpoint. By Francis Ashley Faught, M.D., Illustrated. Philadelphia and London: W. B. Saunders Company. 1913.

This book aims to present in convenient form a synopsis of recent experimental and clinical studies on blood-pressure, in relation not only to cardio-vascular and renal diseases, but also to other conditions. After an introductory sketch of the history of sphygmomanometry, the early chapters are devoted to a discussion of the circulation and its physiologic relation to blood-pressure, and to a description of methods and technic of estimation. Various pathologic conditions are then considered, and the importance of blood-pressure observations in their diagnosis, prognosis and treatment is emphasized. Particularly pertinent is the chapter on blood-pressure in obstetric practice. The volume should prove of value to practitioners in applying the principles of sphygmomanometry and in the interpretation and intelligent, effective use of its results.

The Psychology of Insanity. By Bernard Hart, M.D. (Lond.), Lecturer in Psychiatry, University College Hospital Medical School; Medical Superintendent, Northumberland Home Asylum. Cambridge: the University Press; New York: G. P. Putnam's Sons. 1912.

In this small volume of but 176 pages, being one of the Cambridge Manuals of Science and Literature, Dr. Hart has presented in most readable form the recent views regarding the genesis of the neuroses and psychoses. As a writer, he has the rare faculty of clear exposition and conciseness,—qualities peculiarly desirable in discussing the somewhat abstruse psychological theories underlying disturbances of the mind. Among the many books of greater pretence, this stands pre-eminent as a lucid exposition of modern doctrine as applied to psychiatry. Dr. Hart is clearly a believer in the psychological approach to psychiatric problems, and lays comparatively little stress upon the somatic side of the discussion. In this also he has rendered a service which should be generally acknowledged. Whatever the ultimate outcome of the discussion may be, the time is ripe for a psychological exposition on the basis of the newer theories. This has been most admirably accomplished in the volume before us. An idea of the scope of the book may best be obtained through the chapter headings, which are as follows: The history of insanity, the psychological conception of insanity, the phenomena of insanity, dissociation, complexes, conflict, repression, manifestation of repressed complexes, projection, the irrationality of the lunatic, phantasy, the significance of conflict. We most strongly commend this book to all classes of readers, both within and without the medical profession.

The Blood of the Fathers. By G. Frank Lydston. Chicago: The Riverton Press. 1912.

The advent of eugenics, whatever scientific good it may do, has unfortuantely afforded the writers of so-called problem plays, novels, and other sensational compositions, a brand-new set of terms, motives and material, upon which they have seized with avidity, and which they have already begun to retail to the always gaping public. "The Blood of the Fathers," a four-act prose drama by a physician, is a study in hereditary criminology, imitating the style and methods of Mr. George Bernard Shaw, but without redeeming Shavian genius. The plot is similar to that of Ibsen's "Ghosts," in so far as it deals with the effects of inherited degeneracy.

"The story is, briefly, of a young physician who marries the wrong sort of wife, the adopted daughter of a wealthy couple. Before the marriage day it is revealed to the physician that his fianceé is the daughter of a murderous housebreaker and of a suicidal "dope" fiend, and the granddaughter of a drunkard and of a variety actress who 'ran away with a nigger minstrel.' Despite the physician's knowledge of his fianceé's probable inheritance, he does not avoid the marriage.

"The transmitted taint of degeneracy appears in the young wife in the form of theft, politely disguised as kleptomania. The husband tries to shoot the detective, who informs him of what he himself has known to be highly probable, and the kleptomaniac drinks the laboratory supply of potassium cyanide and dies off stage."

Apart from the intrinsic unlikelihood, not to say impossibility, of such a plot, the atmosphere of unreality is still further thickened by the often inelegantly epigrammatic conversation of the supposedly cultivated *dramatis personae.* The physician in the play, Dr. Gilbert Allyn, is doubtless a fool, and, like most fools, follows his natural bent; but of course he steps entirely out of character when he shoots the detective. The mere fact that his wife was a degenerate kleptomaniac does not logically make him a homicide.

"The Blood of the Fathers" is one of the horrid train of misconceived forms which in our generation self-styled followers of art drag into her retinue and cause to masquerade in her livery. It should be as much a social misdemeanor to do this, as for a man to don woman's clothes

in public. The business of science is to investigate everything, the ugly as well as the good, and to make the exposition of its research dispassionately by its own legitimate methods. It is not its business to usurp the methods and forms of art for the sake of giving its work sensational notoriety. Such usurpation is quite from the purpose in hand, for it fails to carry conviction. Moreover, it brings wanton discredit on art, whose concern is properly with the beautiful and the ideal, and which should deal with evil only to transmute and glorify it into goodness.

Diseases of Women. By Thomas George Stevens, M.D., B.S. (Lond.); F.R.C.S. (Eng.); M.R.C.P. (Lond.); Obst. Sur., with Charge of Out-patients, St. Mary's Hospital, Paddington; Surgeon (Gynecological), The Hospital for Women, Soho Square; Physician to In-Patients, Queen Charlotte Lying-in Hospital; Examiner to the Central Midwives' Board. With 202 illustrations. pp. xiii-431. Published for the University of London Press, Limited, by Hodder and Stoughton and Henry Frowde. London: University of London Press. 1912.

This small book has many excellent features. It is the result of ten years of teaching gynecology to students and fulfils the expectation of a brief, concise, clear statement. There are but few students to whom, at the beginning of their work, the encyclopedic text-book is the most helpful, and it is the great majority to whom this work will appeal. In the preface the author says that "Gynecology must be presented on a sound pathological basis"; the statement of a principle not as generally recognized as its axiomatic character would indicate.

The order of the chapters suggests the compromise between the pathological and the anatomico-clinical classifications which the author deemed expedient and might be changed to advantage in future editions. There appear first chapters on diagnosis, and pain in diseases of women; then on anatomy, as observed in the adult, and in development, normal and abnormal. The discussions of menstruation and its anomalies follow. Infections, pathological effects of parturition and displacements are grouped in separate chapters, as are disturbances of the sexual functions and anomalies of pregnancy. The chapter on the urinary system is intentionally incomplete and the student is referred to works on general surgery, a point of view not generally held by gynecologists. The general conditions associated with pelvic disease deserves careful attention from the student, and the chapters on preparation for operation and technic, after-treatment of operations and post-operative complications finish the text.

The index is inadequate, but the illustrations are appropriate and well selected. The tendency to condense has occasionally been carried too far; for example, "The carunculae myrtiformes are developed as a result of childbirth, and do not form after coition alone," is the succinct treatment of this unimportant topic. But a definition of the condition would have doubled the value of that sentence to the student.

The chapter on new growths of the generative system including cysts, the chapter just preceding the discussion of operations and technic, is the longest and hardest chapter to write and is not very satisfactory. The subject requires an insight into pathology which is not manifest, and some of the statements are at variance with generally accepted conclusions. For example: "The results of operation for vulval carcinoma are comparatively good." (p. 290.) "Glandular invasion occurs very late" in squamous epithelioma of the cervix (p. 334). "There is no evidence that glandular infection is more likely to occur in this type of growth (adeno-carcinoma of the cervix) than in squamous epithelioma" (p. 336). Of hilum cysts he says (p. 366): "These cysts rarely attain a large size because the papillomatous growths have the power of perforating the cyst wall and thus rupturing it; when this occurs the papillomata grow luxuriously out of all proportion to the original size of the cyst." This cyst, from which "the papillomata grow luxuriously," he classifies as a distention cyst and not as a true new-growth.

In spite of numerous other slight errors which might be cited, and which are perhaps especially likely to occur in a first edition, the book has much merit. The following quotation is a characteristic sample of most of the text and leaves little to be desired on account of its fitness in just such a book as this is meant to be (p. 7): "The *sound* is an instrument the use of which is becoming more and more restricted. Formerly no gynecological examination was thought complete unless the sound was passed into the uterus. It has three great disadvantages, and on their account is a most dangerous instrument: it may be passed into a pregnant uterus if the history does not clearly point to pregnancy, abortion resulting; it may introduce septic material into the uterus, setting up endometritis and possibly salpingitis; and finally it may perforate a softened uterus when scarcely any force is used. Practically it amounts to this, that the information to be gained by the passage of the sound is the length and direction of the uterine canal, the character of its walls, and occasionally the presence of a tumor projecting into its cavity. Now the length of the whole uterus should be estimated by the fingers; the direction of the canal is of no practical importance, but the direction of the body (if displaced) can be discovered by the fingers. The character of the lining is best found out by curettage, and the presence of a tumor can be discovered bimanually."

Nervous and Mental Diseases. For Students and Practitioners. By Charles S. Potts, M.D. Third edition, revised and enlarged. Illustrated with 141 engravings and 6 plates. 8vo. pp. viii-610. Philadelphia and New York: Lea and Febiger. 1913.

The first edition of this book, published in 1900, seemed to us superior to the average brief manual of nervous diseases, and it had the advantage—rare at that time—of including mental diseases as well. The present edition, nearly one-half larger, can hardly be regarded as a very brief manual, but it shows a distinct improvement on the original edition. Although the descriptions of the various diseases have been made as brief as possible, much has been added to bring the book up to date. Indeed the author has shown surprising skill in indicating most of the important points under each affection discussed and in making some reference to most of the rare conditions recently described, such as myotonia atrophica, progressive lenticular degeneration and dysbasia lordotica deformans. The section on mental diseases has been wholly rearranged so as to correspond to the classification now in vogue. The new edition is a trustworthy guide for the student who is looking for a brief compendium.

London Medical Publications. The Medical Diseases of Children. By T. R. C. Whipham, M.A., M.D. (Oxon.) M.R.C.P., Physician to the Evelina Hospital for Sick Children, Assistant Physician and Physician-in-Charge of the Children's Department at the Prince of Wales' Hospital, Lecturer on Diseases of Children at the North-East London Post-Graduate College. With 67 illustrations. pp. 417. London: University of London Press. Published for the University of London Press, Limited, by Hodder and Stoughton and Henry Frowde.

This little book has the unavoidable defect of all books of its class; it is, on account of its size, necessarily superficial and incomplete. A surprisingly large amount of material has, however, been crowded into it and much good judgment exercised in the selection of this material. It is far more complete than most books of its type. The chapters on the various infections are very good, while those on feeding and the diseases of the alimentary tract are poor. The book is well up to date and the treatment recommended safe and sane. It gives, on the whole, a very fair presentation of the present knowledge of pediatrics.

The Treatment of Diseases in Children. By G. A. Sutherland, M.D., F.R.C.P.; Physician to Paddington Green Children's Hospital, and to the Hampstead and North-West London Hospital; Late President, Section for Disease of Children, Royal Society of Medicine. pp. 403. London: Henry Frowde, Oxford University Press. Hodder and Stoughton, Warwick Square, E. C. 1913.

The object of this small book, as stated in the preface, is to provide a practical guide to the young practitioner in his treatment of the diseases of infancy and childhood. In order to do this the author has given only those lines of treatment which have proved useful in his hands, and has not attempted to give all the methods advocated by others. In this way the practitioner gets something definite to follow and is not confused by a multiplicity of possibilities. The book presumably represents what is best in English pediatrics and is of interest to American pediatrists for this reason. The treatment recommended is, on the whole, safe and sane, although many might differ with the author as to some of the details. Few American pediatrists would agree to the diet recommended for healthy children and most of them would consider his recommendations as to the diet in disease somewhat rudimentary. He uses more drugs and more complicated prescriptions than are usual in this country, and evidently still regards alcohol as a stimulant.

A Text-Book of Physiology. By Isaac Ott, A.M., M.D., Professor of Physiology in the Medico-Chirurgical College of Philadelphia; ex-Fellow in Biology, Johns Hopkins University; Consulting Neurologist, Norristown Asylum, Pennsylvania; ex-President American Neurological Association, etc. Fourth edition, revised and enlarged. pp. 911. 434 engravings. Philadelphia: F. A. Davis Company. 1913.

Professor Ott in this new edition of his text-book of physiology, has replaced some of his former cuts by 24 new ones, including interesting reproductions of films made by the Roentgen kineomatograph, showing the movements of the stomach and intestines in man. Some material not in former editions dealing with most recent work upon internal secretions has been added, as has also some material dealing with electrocardiograms of normal and diseased hearts. In other respects the work is similar to the third edition, which has been on the market several years.

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THE QUESTION OF THE FEEBLE-MINDED.

A COMMITTEE on the protection of the feeble-minded of the Massachusetts Society for the Prevention of Cruelty to Children has recently brought renewed attention to the large question of our defective classes through the publication of a bulletin entitled "The Menace of the Feeble-Minded in Massachusetts." The primary object of this pamphlet is to place in accessible form reliable information for the benefit of the legislators. The publication, however, should have a far wider circulation than this and should serve as a further definite means of bringing to the attention of citizens the precise situation regarding this great state and national problem.

It will be remembered that in 1912 the State Board of Insanity made a census of the number of feeble-minded in Massachusetts, the general result of which was that slightly over 5000 cases were tabulated As a further test of the accuracy of this census a house to house canvass of twenty-one towns in Worcester County was made which revealed a decidedly greater number of feeble-minded than had come to light through the original census The returns gave a proportion of one feeble-minded person to about five hundred of the population. If these corrected figures represent the true state of the matter in one county it is probable that five thousand is a very decided under-estimate of the number of cases in the entire state; probably ten thousand would be a juster estimate, and this number does not include the nineteen hundred feeble-minded persons now receiving care in two schools at Waverly and Wrentham.

Probably Massachusetts has not been behind other states in realizing the extent of its problem in the care of this class of dependents. The stress, however, which recently has been made upon the propagation of the feeble-minded through intermarriage or less regular relations, and the renewed attention being given to eugenics in its larger aspects, have drawn attention to the menace of the feeble-minded as never before. It is no doubt true that these persons, particularly those of higher grade, both men and women, are a most serious danger to the morals of a community, a matter upon which Dr. W. E. Fernald of the Massachusetts School for the Feeble-Minded has long insisted. Segregation is undoubtedly the only rational or, in fact, possible solution of the problem. This means, however, large appropriations and extensive additions to the facilities already in existence for the care of these patients. It is certainly not to be hoped that the dengeneracy which is inevitable if they are left at large can be overcome or diminished by any less drastic measure than segregation. It may naturally be said that the same problem exists with relation to other defective or delinquent classes in the community, but with no other is the menace so great as with the feeble-minded, a fact amply attested by police records and the studies of social workers. If the situation remains unchanged it is not to be expected that a diminution in this type of person can be secured through any natural process of selection It is, therefore, important, as the pamphlet before us points out, that our legislators should be informed of the situation in detail and that through them, as well as by other means, a stronger public sentiment be aroused of the necessity for systematic legislation. It is suggested, and we think wisely, inasmuch as a complete housing of these delinquents at once cannot be expected, that each year the state place under care a number somewhat in excess of the natural increase. Could this be done a first step, at least, would be taken in their ultimate elimination.

"The Commonwealth of Massachusetts faces two alternatives. Shall it continue forever to pay the constantly increasing cost that the feeble-minded and their unfortunate descendants are laying upon us through courts, prisons, county jails, almshouses, hospitals, probation service, care of children through the State

Board of Charity and overseers of the poor,—to which must be added the burden that they lay upon infant and orphan asylums, associated charities, relief societies, and child-helping agencies; or, shall we adopt the other alternative and face courageously this problem with a remedy which lies at hand? Segregation is humane and effective, and a good financial investment for developing greater prosperity and happiness in the future."

REPORT OF THE BOSTON CITY HOSPITAL.

The forty-ninth annual report of the trustees of the Boston City Hospital gives renewed evidence of the far-reaching work of this institution. As is of necessity the case, the expenditures for the maintenance of this hospital and its various departments is a very considerable item in the finances of the city. During the past year the entire expenditure amounted to nearly $600,000, and this amount, no doubt, will and in fact should, increase year by year with the growth of the institution and the often unexpected demands made for certain special purposes. Of the many public expenditures for which the city is liable few should appeal so strongly to the tax payer as that for this great city hospital. Were it possible to calculate the saving brought about through the prevention of disease and its results, the account would no doubt be looked upon as less formidable to the taxpayer than the mere figures would indicate. In this respect the South Department has rendered a unique service, undoubtedly reducing very greatly the incidence of the various contagious diseases through the possibility of the quick removal of patients to this admirably equipped hospital. This department of the hospital has also aroused especial interest during the last year through the fact that it has cooperated with Dr. F. B. Mallory in the discovery of the causative agent of whooping cough. For several years past, also, the so-called Van Noorden treatment of scarlet fever, the object of which is to avoid the complication of uremia, has been systematically carried out. It is reported that there have been no deaths from nephritis from the South Department during the past four years and no instance of uremia in patients free from nephritis on entrance. The neurological department of the hospital has been given the privilege of a number of beds in the ward, and it is the general feeling that the advantage of this arrangement is becoming more evident. There can be no question that in fairness to patients suffering with nervous disease and to the physicians who have charge of such diseases every well equipped hospital should set aside a reasonable number of beds for the close study of this important branch of internal medicine.

The report is largely taken up with statistics which give one a realizing sense of the amount of work, surgical and medical, which this hospital yearly accomplishes.

ALCOHOL AS A STIMULANT.

The alcohol question has been in the forefront of medical discussion for many years, with the general result that alcohol has ceased to occupy a place of usefulness in our armamentarium against disease. Like other entrenched customs, it has been exceedingly difficult to eliminate alcohol from medical practice. It is still no doubt used very widely by physicians in good standing and no doubt will continue to be for many years to come. That it has a certain place of usefulness no one will be disposed to deny, but it is increasingly desirable not to deceive ourselves by the supposition that it has intrinsic virtues in combating disease. Were a census of the various large hospitals made, it would undoubtedly be shown, as it has been at the Massachusetts General Hosptal, that the use of alcohol as a stimulant or for other purposes, taken internally, has steadily diminished during the last few years. This has come about partly through clinical experience and largely through experimental evidence. Leading clinicians of the later school are practically united in the opinion that so far as the treatment of disease is concerned alcohol no longer occupies a place of usefulness except naturally for certain external conditions. Professor Ewald of Berlin has recently taken this position in making the statement that the value of alcohol in infectious diseases has not been proved and that it actually diminishes natural resistance. It is said that in Ewald's clinic alcohol is ordered only under two conditions, either in severe collapse or as a means of euthanasia. It is probable that the next fifty years will see the gradual increase of this reaction, already firmly rooted in the practice of the most progressive clinicians, against the indiscriminate use of alcohol.

MEDICAL NOTES.

HONORS FOR DR. WILLIAM J. MAYO.—It is stated that Dr. William J. Mayo of Rochester, Minn., has sailed for Europe and that among other honors paid him, he is to become a Fellow of Royal College of Surgeons in London.

CENTENARIANS.—The death of Tilden Pierce of Plymouth, Mass., is announced at the reputed age of 101 years. His entire life had been spent in Plymouth. He had abstained strictly from the use of alcohol, but was somewhat partial to tobacco. The death also is announced at Peoria, Ill., of Dr. W. T. Linn, at the age of 108.

CINCINNATI GENERAL HOSPITAL.—Work on the new Cincinnati General Hospital is progressing rapidly. This hospital occupies a plot of twenty-seven acres and is being erected at a cost of $4,000,000. The administration building, six of the pavilion hospitals, the surgical pavilion, kitchen, power plant, laundry, laboratory building, nurses' home, and the contagious hospital will all be completed and opened this fall. The university is located ten minutes' walk to the west. The site for the medical college is on the hill across the street on the north. The Jewish Hospital is located immediately in front, the new Good Samaritan Hospital just north of the university, and the German Deaconess Hospital just south of it, on Clifton avenue. Christ's Hospital, St. Mary's Hospital, Episcopal Hospital for Children, and Cincinnati Tuberculosis Hospital are in the neighborhood. Longview Hospital for the Insane is open for investigation of nervous and mental diseases. Sixty-five acres additional to the west and the north of the new hospital have been purchased for a day and night tuberculosis camp or other hospital purposes. The portion completed this year contains eight hundred beds. With laboratory, museum, and numerous operating amphitheatres, including every convenience for medical research and teaching, this hospital, in connection with the others enumerated will go far toward making Cincinnati an important medical teaching centre.

CONDEMNATION OF TUBERCULOSIS "CURE."—It is announced that the United States Government under the Sherley amendment of the pure food law has succeeded in the condemnation of a quantity of so-called stramoline, an alleged cure for tuberculosis.

BOSTON AND NEW ENGLAND.

A POSSIBLE SOURCE OF CONTAGION.—A well on Governor's Island in Boston Harbor under the jurisdiction of the Park and Recreation Department, has been found to be contaminated. A warning has been issued by the health authorities to campers and others visiting the island that the water from this well should be boiled. The recommendation has also been made that those using the island for camping purposes should burn their garbage.

FREE ANIMAL DISPENSARY.—The Massachusetts Society for the Prevention of Cruelty to Animals has opened a free dispensary in Boston, properly equipped for the treatment of the injuries and diseases of the various domestic animals. A veterinarian will be on duty daily from ten until four to furnish the necessary medicine and perform surgical operations. It is proposed later to enlarge this hospital and possibly to build a separate structure for the purpose of caring for animals. New York and Philadelphia are similarly provided with such hospitals.

DEATH OF OLDEST HARVARD MEDICAL SCHOOL GRADUATE.—Dr. Oliver Brewster Taylor died July 27, in Hartford, Conn., in his ninety-fourth year. He was graduated in the Harvard medical class of 1842 and for three years had been the oldest living alumnus of the medical school.

PEDIATRIC DEPARTMENT, BOSTON DISPENSARY.—It is announced that Dr. Arthur A. Howard has been appointed physician-in-chief of the Boston Dispensary Hospital for Children and its children's out-patient department. He succeeds in this position Dr. William P. Lucas, recently appointed professor of pediatrics at the medical school of the University of California.

AN UNUSUAL ACCIDENT.—A thirteen year old boy at Newburyport was recently very seriously injured, leading to the amputation of a number of his fingers, through the passage of a high tension electric current from a cable line to a wire kite string attached to a kite he was flying.

INFECTIOUS DISEASES.—Cases of infectious diseases reported to the Boston Board of Health for the week ending July 29, 1913: Diphtheria,

37, of which 5 were non-resident; scarlatina, 16; typhoid fever, 8, of which 1 was non-resident; measles, 27; tuberculosis, 56, of which 1 was non-resident.

The death-rate of the reported deaths for the week was 15.14.

Milk Standards.—To further improve the quality of milk, skimmed milk and cream, and secure greater care in their handling, the Boston Board of Health, beginning June 21, will for the present publish semi-monthly, as an insert in its bulletin, the results obtained in the examination of these products, where they are found to exceed the bacteriological standard of 500,000 per cubic centimeter or the temperature regulation of fifty degrees Fahrenheit. Concerning pasteurized milk, the opinion is expressed here and will be so stated in the publication of these findings, that milk so treated should not have over 100,000 bacteria per cubic centimeter. Copies of these publications may be obtained on application to the Board of Health. In pursuance of this policy a published bacterial examination of two hundred and thirty-nine collected milk samples from June 30 to July 14, inclusive, showed that forty-two of the samples examined failed to comply with the standards of the Board of Health, of 500,000 bacteria to the cubic centimeter. Fifty-six samples out of six hundred and fifty-nine examinations from June 30 to July 14, inclusive, showed a temperature higher than 50 degrees Fahrenheit.

NEW YORK.

A Home for Convalescents.—Under the will of Mrs. Anna Moore of New York, who died at the Presbyterian Hospital on July 17, property variously estimated between $800,000 and $2,000,000 is to be devoted to the establishment, in memory of her husband, of a home for convalescents, to be known as the James Amory Moore Memorial. The will provides that the institution shall be incorporated under the laws of New Jersey and shall be situated in that state, its particular location being left to the discretion of the executor. The entire residuary estate, after the deduction of $275,000 for specific legacies, is left for the home, and $160,000 of the legacies are in the form of trust funds which are eventually to revert to the residuary estate, to be applied to the same purpose. The aim of the institution, as stated in Mrs. Moore's will, is "to provide a suitable place where worthy persons recovering from sickness can, without expense or at such limited expense as they can afford, secure attention, care, rest, recreation and nursing suited to their needs and wants; to provide proper medical services for all such convalescents; and to do and perform any and all acts which may be deemed of benefit in improving the physical, moral, mental and material condition of all such convalescents."

Industrial School for Convalescents.—As a result of recent deliberations of the Social Service Conference of Hospitals, following a report on the subject by the social service committee of Gouverneur Hospital, it is announced that an institution will shortly be established, to be known as the Industrial School for Convalescents, which is designed to teach suitable trades to patients recovering from acute cardiac disease and other heart patients whose condition is such as to permit of their engaging in some form of work. Arrangements have been made to locate the school at Sharon, Conn., and the funds for establishment and maintenance are to be provided by the Burke Relief Foundation of New York, with such aid as may be secured from voluntary contributions. In the report of the Gouverneur Hospital it is stated, "Of all the various problems of hospital social service that we have encountered during our two years of practical experience, the most baffling has been the problem of convalescent care for cardiac cases." Many of the patients of this class are men making their living by heavy manual labor, and not only is a return to their old occupations dangerous, but, as is well known, this danger is greatly increased by the fact that such patients, who need a long period of rest for convalescence, ordinarily go back to work as soon as they are discharged from the hospital. In this new institution the needed rest will be afforded, and at the same time they will have the opportunity of learning a trade which they may follow with a minimum of risk. A property known as Dunham's farm, about one mile from the village of Sharon, has been leased for the school, with the privilege of renewal or purchase, and Miss Helen Hillard, recently in charge of the social service department of Fordham Hospital, has been selected for the position of superintendent. The selection of suitable patients and the determination of the length of convalescent care will be made by a

medical board composed of the following prominent New York physicians: Drs. L. A. Conner, Warren Coleman, H. V. Guile, Alexander Lambert, N. G. Seymour, and J. H. Huddleston. Some of these are also members of the board of managers, and among the other members of the latter are Dr. J. W. Brannan, president of the board of trustees of Bellevue and allied hospitals, and Drs. Frederick Brush, F. H. Denman, and George O'Hanlon.

Current Literature.

MEDICAL RECORD.

JULY 19, 1913.

1. NEWTON, R. C. *A Short Study of the Career of Paracelsus.*
2. *GUTMAN, J., AND DRUSKIN, S. J. *Experiences with the Abderhalden Test in the Diagnosis of Pregnancy.*
3. MORRIS, R. T. *The Bowel Doormaker; with Description of Technic of Operation for Short Circuiting Bowel.*
4. KELLOGG, T. H. *Mental Morbidities of the Conjugal State.*
5. VINCENT, W. G. *An Unusual Case of Renal Hematuria.*
6. BRECKLIN, C. A. *Castration and Operations for Varicocele and Hydrocele without Wounding the Scrotum.*
7. BECK, E. C. *Hemorrhoids and Office Practice.*
8. GOODHUE, E. S. *Leprosy and the Knife.*
9. SHEARS, G. P. *The Administration of Oxygen to the Fetus.*

2. Gutman and Druskin report encouraging results with Abderhalden's biologic test in the diagnosis of pregnancy. This test is founded on the fact that detached chorionic cells are to be found floating in the maternal circulation. The proteins of these cells are foreign and the maternal organism reacts by producing a specific proteolytic ferment. Such ferments are found only in pregnant women. The test consists in the demonstration of the presence or absence of this particular kind of proteolytic power in the blood serum of the person examined. [L. D. C.]

NEW YORK MEDICAL JOURNAL.

JULY 19, 1913.

1. BURR, C. W. *A Case of Dementia Precox with Autopsy.*
2. BAUDLER, S. W. *The Internal Secretions as They Concern the Gynecologist.*
3. BAKER, F. *The Faculty of Paris in the Seventeenth Century.*
4. COUGHLIN, R. E. *The Sense of Smell as an Aid in Diagnosis.*
5. STRINSKY, M. *Creating False Motor Paths.*
6. BREWER, I. W. *Tuberculosis in the United States Army.*
7. BOWERS, P. E. *Causes of Crime.*
8. *BEVERIDGE, J. W. *Diabetes Mellitus.*
9. GOLDMARK, J. *Work of Women in Department Stores.*
10. BRECHT, N. D. *A Suggested Improvement in the Allis Ether Inhaler.*

8. Beveridge concludes his paper on the treatment of diabetes mellitus with Bacillus Bulgaricus cultures, reporting in detail six more cases. He believes that the use of this culture in diabetes is far preferable to that of opium and offers the only rational internal therapy really of value and permanent recovery in many cases. Its efficacy is undoubtedly due to its property of preventing intestinal putrefaction. Its acidity powerfully stimulates the pancreas and its power of converting starch into lactic acid is considerable. The writer recommends the routine examination of the blood for both acetone and sugar in cases treated by this method. [L. D. C.]

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

JULY 19, 1913.

1. HAGGARD, W. D. *The Qualifications of the Surgeon.*
2. *CLOCK, R. O. *One Hundred and Seventeen Cases of Infantile Diarrhea Treated by Intestinal Implantation of the Bacillus Lactis Bulgaricus at the Babies' Hospital of the City of New York.*
3. LAIN, E. S. *Skin Diseases Among Full-Blood Indians of Oklahoma.*
4. THOMPSON, J. E. *Study of the Collateral Circulation in Some Cases of Spontaneous Gangrene of the Foot.*
5. KOLISCHER, G. *Mid-Operative Diagnosis in Urologic Operations.*
6. SCHALEK, A. *Cutaneous Affections of Childhood.*
7. ROBINSON, G. W. *Occlusion of the Posterior Inferior Cerebellar Artery.*
8. *CARLSON, A. J., AND WOELFEL, A. *The Solubility of Lead Salts in Human Gastric Juice and Its Bearing on the Hygiene of the Lead Industries.*
9. GOODMAN, C. *Phenolsulphonephthalein in Estimating the Functional Activity of the Kidneys. A Further Contributon to Its Value.*
10. WILBERT, M. I. *Carelessness in Pharmacy as a Reason for a Restricted Materia Medica.*
11. CARSON, G. R., AND CUMMINS, W. T. *A Case of Coccidioidal Granuloma (California Disease).*
12. FARNELL, F. J. *Luminal, Its Toxic Effects. With the Report of Two Cases.*
13. GREENE, C. L. *The Treatment of Anginal Pains.*
14. BARTON, W. M. *Potassium Permanganate as a Local Anesthetic to the Genito-Urinary Mucous Membranes. A Preliminary Communication.*
15. HAYES, W. M. *New Style Drain-Pan for Operating-Table.*
16. TODD, M. H. *Simple Electric Attachment for Ophthalmoscope.*
17. SCHEIR, R. B. *Report of a Case of Hematospermia Due to High Blood-Pressure. Associated with Chronic Interstitial Nephritis.*
18. REED, E. N. *Infant Disemboweled at Birth—Appendectomy Successful.*

2. Clock's conclusions are about as follows: The treatment of infantile diarrhea by lactic acid implantation is marked by gain in weight in spite of the number of stools, rapid change in color of stools to yellow, rapid subsidence of fever, absence of blood and mucus from stools at the end of 48 hours, and the fact that the hygienic surroundings and degree of intelligence of the mothers had no influence on the results. On the other hand a starvation diet, accompanied by purgation is productive of loss of weight and strength and serves to prolong the course of the disease, and further such a procedure can no longer be advanced as a rational method of treating infantile diarrhea. The author's full article and case reports should be read.

8. Carlson and Woelfel have determined that lead carbonate is so much more toxic than the lead sulphate that lead workers, as well as the state, should aim at the elimination of the use of the carbonate in all industries in which it is possible. As a valuable

prophylactic measure the authors suggest that lead workers should drink a glass of milk between meals in order to diminish the chances for any swallowed lead to be dissolved by the free hydrochloric acid of the gastric juice, as in some persons there is considerable secretion of gastric juice in the empty stomach.

[E. H. R.]

The American Journal of the Medical Sciences.

July, 1913.

1. *Tileston, W. *The Occurrence of Ankle Clonus Without Gross Disease of the Central Nervous System.*
2. *Hawes, J. B. *The Rational Treatment of Surgical or Non-pulmonary Tuberculosis.*
3. *Anders, J. M. *Myocardial Hydrothorax, with Reports of Cases.*
4. McDonald, A. L. *Congenital Atresia of the Duodenum.*
5. *Pitfield, R. L. *Recovery from Tubercular Meningitis, with Report of Cases.*
6. Siler, J. F., and Garrison, P. E. *An Intensive Study of the Epidemiology of Pellagra. Report of Progress. (To be concluded.)*
7. Baer, B. F. *The Diagnosis of Inflammation of the Anterior Ocular Segment.*
8. *Reynolds, W. S. *Epididymitis Due to the Colon Bacillus.*
9. *Ashhurst, P. A. C., and John, R. L. *The Rational Treatment of Tetanus. (Concluded.)*
10. *Willson, R. N. *Isolated Sclerotic Involvement of the Mitral Valve.*

1. Tileston calls attention to the occurrence of ankle clonus without accompanying organic nervous disease in a variety of conditions, as follows: Acute infectious diseases, especially typhoid; chronic infections, especially third stage pulmonary tuberculosis; uremia; epilepsy immediately after the convulsion; intoxication from hyoscine, ether or chloroform; excessive fatigue; certain cases of neuroses or psychoses; chronic articular rheumatism. Except in the last of these a toxic action on the nervous system may be assumed as the underlying factor. Absence of spasticity and of other signs of organic disease, notably the Babinski and Oppenheim toe signs, usually serve to distinguish the clonus of toxic states from that of organic nervous disease.

2. Hawes reports the results in 116 carefully followed cases of non-pulmonary tuberculosis treated by the class method in the out-patient department of the Massachusetts General Hospital. In a majority tuberculin was used, but except in cases of tuberculosis of the genito-urinary tract, this is regarded as having played only a subordinate part in the improvement which followed. Chief stress is laid upon the education of these patients, prevented by circumstances from entering sanatoria, in suitable modes of life at home.

3. Anders writes to emphasize the frequence of hydrothorax in chronic myocarditis without valvular disease. He is convinced that collections of fluid often exist unrecognized by physicians not expert in physical examination where aspiration would furnish relief.

5. Pitfield reports a case of proved tuberculous meningitis with recovery, and has collected 21 such cases from the literature. He estimates that recovery occurs in one-half per cent. of all cases and urges that all cases be treated as not entirely without hope. Frequent lumbar punctures, urotropin, and tuberculin are advocated.

8. Reynolds reports a case of epididymitis apparently due to infection by the colon bacillus, and discusses the possibility that such cases are more frequent than is generally supposed.

9. The article of Ashhurst and John is an able discussion of the pathogenesis of tetanus and of the different methods of using antitoxin in its treatment. They conclude that most is to be accomplished by at the earliest possible moment exposing the motor nerves supplying the region of the wound as close to the spinal canal as possible, for instance the sciatic nerve for wounds of the sole of the foot or the brachial plexus for wounds of the arm, and injecting toward the spinal cord as much of the antitoxin as the nerve trunks will receive; injecting into the spinal canal according to the technic of spinal anesthesia not less than 3000 units; widely opening the wound of infection and after cleaning and irrigating with peroxide of hydrogen and packing with gauze soaked in 3% alcoholic solution of iodine injecting 1500 to 3000 units of antitoxin into the muscular tissues about the wound. Continuous proctoclysis, sedatives and nasal feeding are recommended. The intraneural and intraspinal injections of the antitoxin are to be repeated daily under chloroform anesthesia, and every 12 hours or less a moderate amount is to be injected intravenously. With such treatment they believe that the mortality should be not over 20%.

10. Willson publishes photographs illustrating the occurrence of sclerotic thickening and deformity of the mitral valve. He suspects that tuberculosis or syphilis may be etiological factors, and finds the condition to be associated with premature sclerosis of peripheral arteries. [F. W. P.]

Surgery, Gynecology and Obstetrics.

July, 1913.

1. *Mills, R. W. *The X-ray in the Diagnosis of Gastric Ulcer and Its Sequelae.*
2. Chipman, W. W. *Problems of Obstetrical Practice.*
3. *Stewart, J. C. *The Malignancy of Giant-Cell Sarcoma.*
4. *Kleinberg, S. *Observations on the Abbott Treatment of Rotary Lateral Curvature of the Spine and Details of the Technic.*
5. MacCarty, W. C., and Sistrunk, W. E. *Benign and Malignant Ovarian Cysts.*
6. *Davis, C. H. *Review of the Literature and Case Reports of Ruptured Uterus.*
7. Horsley, J. S. *Abdominal Pregnancy with a Living Child.*
8. Hertzler, A. E. *"Pericolic Membrane" of the Broad Ligament.*
9. *Magnuson, P. B. *Lengthening Shortened Bones of the Leg by Operation.*
10. Smith, R. R. *A Description of the Enteroptotic Woman.*
11. *Stokes, C. F. *How Can the Surgeon in Civil Life Best Serve His Country in Time of War?*
12. Hendry, E. S. *Report of Interesting Bacteriological Findings in a Case of Pemphigus.*
13. Frazier, C. H., and Eisenbrey, A. B. *Decompression in Case of Severe Intracranial Tension with Failing Circulation: An Experimental Study.*
14. Payne, R. L., Jr., and MacNider, W. DeB. *An Experimental Study of Unilateral Hematuria of the So-Called Essential Type.*
15. Friedman, L. *Retrograde Incarcerated Hernia: Hernia "en W."*
16. *Heaney, N. *A Contribution to the Study of Pituitrin.*
17. Handley, W. S. *Three-Finger Fluctuation.*

1. The paper of Mills and Carman is a most excellent one, too long for review, but admirably illustrated with many plates and schematic drawings. An article worth study.

3. Stewart cites two cases in which giant-celled sarcoma was quickly fatal. He believes in the malignancy of this disease in spite of many general statements to the contrary.

4. Kleinberg thinks that Abbott's treatment of spinal curvature is a severe one and in many cases treatment must be prolonged over a considerable time. He believes it is a good method on the whole.

6. Davis, reviewing ruptured uterus, finds that this condition is probably much more frequent as a complication of pregnancy than is supposed. The rupture involves the lower uterine segment and cervix in at least 53.8% of cases, the rent being more often on the left side and frequently involving the uterine artery. A considerable number of ruptures follow Cesarean section. Operative treatment gives better results than the conservative.

9. Magnuson uses ivory screws in his plastic bone plating work and highly recommends them.

11. Stokes' paper is of great practical interest. He urges all properly qualified surgeons to inform themselves in regard to the Medical Reserve Corps and to be enrolled.

16. Heaney finds that pituitrin is not a galactagogue. [E. H. R.]

MÜNCHENER MEDIZINISCHE WOCHENSCHRIFT.

No. 26. JULY 1, 1913.

1. *LIEFMANN, H. *The Differentiation of Allied Varieties of Bacteria by Precipitation of Their Albumin with Concentrated Salt Solutions.*
2. *HOHLWEG, H. *Further Experiences in the Treatment of Pyelitis by Douching of the Renal Pelvis.*
3. LAMPÉ, A. E., AND PAPAZOLU, L. *Serological Investigations in Healthy and Diseased Individuals According to Abderhalden's Dialysis Method. Studies in the Specificity of Protective Ferments. First Communication.*
4. FRANK, E., AND ROSENTHAL, F. *Experimental Studies on the Specificity of Proteolytic Protective Ferments.*
5. LICHTENSTEIN. *Abderhalden's Serum Reaction.*
6. MULZER, P. *The Technic for Withdrawal of Blood for the Wassermann Reaction.*
7. REICHMANN, V., AND RAUCH, F. *Two Cases of Tuberculous Meningitis with Recovery.*
8. BADE, P. *The Treatment of Spondylitic Paralysis.*
9. WEBER, F. P. *Traumatic Thrombosis of the Inferior Vena Cava in Relation to Life Insurance.*
10. NUSSBAUM, A. *A Simple Method for the Replacement of Herniae in Infants.*
11. BERTLICH, H. *Thrombosis of the Cavernous Sinus in a Five Months' Infant.*
12. KREISS, P. *A Rare Malformation of the Thorax.*
13. GRUMANN. *An Example of the Effect of Pituitrin.*
14. SANITER, R. *An Obstetrical Instrument Case.*
15. ANTON, G. *In Memory of Fritz Gustav V. Bramann.*
16. SUDHOFF, K. *Syphilis and Plague in Munich at the End of the Fifteenth and the Beginning of the Sixteenth Centuries.*
17. LAQUER, B. *An Opposition to the Anti-Alcohol Movement.*

1. Liefmann and Porges have shown independably that salt solution in different concentrations will cause the precipitation and agglutination of certain micro-organisms. Liefmann details a series of experiments in which progressive dilutions of magnesium and sodium sulphate were mixed with various strains of typhoid, paratyphoid, Gärtner bacilli and cholera vibrios. The paratyphoid organisms were constantly agglutinated.

Liefmann considers his results of practical significance as adding a method of differentiating these various kinds of organisms and of theoretical significance in possibly affording a means for studying the physical and chemical nature of certain immunity reactions.

2. Will be reviewed in the next number. [R. F.]

Miscellany.

TUBERCULOSIS AND PUBLIC EXPECTORATION.

AT the annual congress of the Royal British Sanitary Institute, held in Exeter, Devonshire, from July 7 to 9, inconclusive, an important paper was presented by Dr. Arthur Latham, of St. George's Hospital, London, on "Tuberculosis and Sanatorium Benefit." Apparently the attempts of the government, under the insurance act, to systematize and improve the control of tuberculosis among the poor, have not met with the favor of the profession or resulted in any improvement of the situation.

"Dr. Latham said it was doubtful whether in the past year any real progress had been made in the attack against tuberculosis. Sufficient time had elapsed for the broad principles of the attack to be settled, but it was the failure of sanatorium benefit to reach even that position which was such a bitter disappointment. The information at his disposal led him to doubt whether under sanatorium benefit much was being done beyond an attempt, in many instances half-hearted, to alleviate suffering and distress. In hardly a single district in England was there any real working scheme on the lines of the Astor report. In London sanatorium benefit was in a position of hopeless muddle. Under the act they were told that thousands of patients were receiving treatment at sanatoriums. This answer might satisfy politicians, who to the man in the street seem to live in an atmosphere of make-believe, but it did not satisfy men who know what sanatorium treatment is and who recognize that an institution such as a hospital in a town cannot be turned into a sanatorium by a mere change of name, or that treatment suitable, it may be, for advanced cases did not become sanatorium treatment for curable cases simply because it was defined in this way by those who were anxious to stifle criticism. The net result was that sanatorium benefit was poor-law medical relief under another name, and among the reasons for this deplorable state of affairs was the employment of administrative officers, such as medical officers of health as medical advisers to the committee, and in too many instances the treatment had been carried out by men of no special experience in the disease. Another reason was the reactionary attitude of the local government board. He did not despair that gradually some ordered scheme would be evolved. Three things were required, namely, the instruction of the insurance committees, the increase of available funds, and the appointment to the posts of tuberculosis officer of clinicians with a real knowledge of the disease and its clinical requirements."

Another aspect of the tuberculosis question, that of indiscriminate public spitting, was discussed before the same congress by Dr. Morley Mathieson:—

"Dr. Mathieson referred to the part played by indiscriminate spitting in the spread of tuberculosis. There were few circumstances that necessitated habitual spitting. Tobacco smoking, for example, ought not to call for it. While the most common infection distributed was that of tuberculosis, it was well known that the casual organisms of many other diseases, such as pneumonia and cerebro-spinal meningitis, could be similarly spread. The majority of the public continued to regard habitual spitting as natural and necessary, and observed neither care in the manner of disposal nor anything approaching privacy in the act. Spitting here, there, and everywhere was regarded as a prerogative of the free-born Briton, while with the street corner habitués, whose chief muscular exertion appeared to be devoted to chewing tobacco, the act of expectoration was used 'to point a moral or adorn a tale.' There was a strong probability that bacilli inhaled in fine dust reached the recesses of the lungs by a direct route, proceeded Dr. Mathieson. The fall in the tuberculosis death-rate during the past twenty or thirty years might be traced to various causes. It had probably been coincident with the improved conditions of housing, especially in the direction of providing better lit and better ventilated rooms, more air space per individual, and the opening up of narrow sunless congested streets and alleys. If they accepted the conclusion that tuberculosis was being freely spread by indiscriminate spitting, the question that at once presented itself was—'How is this infection to be controlled?' They heard a great deal about the gradual education of public opinion. The growing feeling in favor of control was, however, restricted to one section of the community, indeed to the section where phthisis was comparatively uncommon, and where its presence was detected early. There remained the large majority who were thoughtless and potentially dangerous. The method had been tried of appealing to this class with public notices, 'Please do not spit.' Personally he was of the opinion that these notices did not disturb the equanimity of the class which it was desired to reach. The effect was frequently merely to remind the casual reader that he could spit if he liked, and many lost no time in asserting the right by practical demonstration. He was convinced that no marked decrease in the habit of spitting would be seen until by-laws had been obtained for its control, not only in covered places, halls, etc., but also to some extent in the public streets. He complained that the home office had hitherto shown reluctance to sanction a by-law to control spitting on public footpaths. At the present time only Southport and Birmingham had it in force. In the United States the laws in force in many cities prohibiting spitting in the streets had been stringently carried out."

It is interesting to observe Dr. Mathieson's complimentary faith in the enforcement of expectoratory laws in the United States. Certainly, in the interests of public decency, as well as of the public health, one could wish them at least half as rigorously enforced as they are conspicuously posted and openly violated.

Correspondence.

THE WORD "INSANITY."

Boston, July 24, 1913.

Mr. Editor: Your editorial on the Abuse of the Word "Insanity" has appeared at a most opportune time. It is most regrettable that the word "insanity" is so freely used, but it is commendable that the real alienists and the men who know when to apply the term "insanity," do so only when it is necessary. It is the self-appointed alienist, the would-be alienist who uses the word "insanity" promiscuously, often victimizing some decent individual. As you know, some of our sanest men have been called "crazy" by narrow-minded and often-times malicious individuals.

Many children are dubbed feeble-minded, etc., because they happen to indulge in the pranks that most of us indulged in when we were children.

Yours very truly,

Gaetano Praino, M.D.

POLISHED RICE. A REJOINDER.

Kyoto, Japan, May 28, 1913.

Mr. Editor: The April 10th issue of the Journal containing Dr. Joseph W. Warren's reference to my communication on polished rice has just reached me. Will you kindly permit me to say in answer that Dr. Warren has taken a very different view of my position than I intended to convey and I regret that I failed to express my attitude in sufficiently lucid language for his discerning mind to comprehend.

The question at issue is "how far can the human animal demineralize its food supply and still maintain a vigorous, enduring, disease-resisting life?" I have been making a study of this subject for several years. I am in a receptive state of mind and shall be glad of any authoritative information from any source. The fact seems to be, however, that there is very little reliable data available.

Several years ago in a spirit of inquiry and in search of enlightenment upon the still very obscure question of the cause of cancer, I made a careful study of its natural history as it exists among the peoples of the earth. The result of this has been to arouse a very strong suspicion that something in the food supply or something absent from the food supply of the civilized nations of the earth may be a contributing factor in the alarming prevalence and increase of cancer. This may not be, probably is not, the initial cause of the disease. Unhygienic conditions of environment and food are now universally accepted as contributory causes of tuberculosis. No one with common intelligence sweeps them aside as of no consequence even though a specific microorganism has been discovered and demonstrated as the initial cause of the disease.

With this strong suspicion in the writer's mind of a possible causative relation between food supply and cancer careful scrutiny of existing conditions showed

that the main difference between those people who are practically cancer-free and those who are cancer-plagued is a fully mineralized diet of the former and a partly demineralized diet of the latter.

Since this view of the subject has been entertained very many cancer cases have been treated. In conjunction with the ordinary routine of generally accepted appropriate measures a fully mineralized diet has been established. In many such cases, irrespective of any possible changes for the better in the cancer condition some rather surprising and gratifying changes have accrued in other respects, mainly as follows:

1. Improvement in general feeling of strength and vigor and increased inclination to activity.
2. Better facial appearance and color; in marked contrast with the sallow cachectic appearance usually observed.
3. Better digestion and assimilation of food.
4. In some cases of chronic functional weakness of the heart complete restoration of cardiac vigor.
5. Fairly regular movements of the bowels in cases which had previously been chronic constipates and dependent upon cathartics.

The result of all this is that a strong impression has been created in the writer's mind that the mineral elements of our daily food are the chief energizers of the blood corpuscles and plasma: of the involuntary and voluntary muscles; of the nerve centers and ganglia; of the special organs of digestion, secretion and excretion.

Granting that the mineral elements of our food hold such an important place in the well-being, health and vigor of adult life, how much more important must be the bearing of this matter upon the life of childhood and youth when in addition to the routine needs for maintenance of life, provision must be made for growth of bones, cartilage, ligaments, teeth, brain and nerve tissue, muscles, the organ of special function, and in fact all the tissues and structures of the body.

There is evidence that an unconscious craving exists in all animal life for food salts (of potassium, phosphorus, sodium, iron, lime, silica, manganese and probably other elements in minute quantities) and if these are not supplied in the ordinary routine of diet all sorts of indiscretions are indulged in. Such immoderate gorging and gormandizing of meat foods, pastries and sweets is attested by the multitudes of inordinately adipose, flabby, dyspeptic men and women in modern civilization.

There may be "more serious questions at our door" pressing for solution but in the writer's mind this looms sufficiently large to merit unprejudiced examination. Will not Dr. Warren co-öperate in solving this problem by instituting test experiments?

It is my privilege at the present time to be in close touch with a people whose chief article of diet is rice. Some very valuable and interesting facts have been observed which I hope to make public in a future communication.

Very truly,

HORACE PACKARD, M.D.

RECENT DEATHS.

DR. WILLIAM J. DARBEY, a retired physician of New York, died at his home in that city on July 25. Dr. Darbey served as assistant surgeon of the 82d New York Regiment throughout the Civil War, and was at the battle of Gettysburg, in which his regiment lost 192 out of 300 men.

DR. GEORGE R. WESTBROOK of Brooklyn, N. Y., died from cardiac disease at his summer home near Benson, N. Y., on July 23. He was sixty-five years old, and was graduated from the Long Island College Hospital, Brooklyn, in 1878.

DR. GREGORY DOYLE of Syracuse, formerly prominent as a surgeon, died on July 23, at the age of seventy-three. He was graduated from the medical department of New York University in 1865, and for a number of years was surgeon to the House of Providence and St. Vincent's Asylum. Dr. Doyle was president of the United States Pension Board of Syracuse from 1885 to 1889, and served as a surgeon in the National Guard of New York from 1872 to 1890, in the latter part of that period being Surgeon General of the State.

DR. AUGUSTUS J. KIRSTEN of Jersey City, N. J., died from cardiac disease on July 25, at the age of forty-eight years. He was the son of the late Dr. Adolph J. Kirsten, one of the founders of the Jersey City Hospital, and was graduated from the Long Island College Hospital, Brooklyn, in 1895.

DR. GEORGE WARREN JONES died at Boston, June 5, 1913, of cerebral hemorrhage, aged 64 years. He was a Fellow of The Massachusetts Medical Society.

DR. JOHN BAKER SWIFT, a Fellow of The Massachusetts Medical Society, formerly Assistant Visiting Surgeon to the Free Hospital for Women and Visiting Gynecologist to the Carney Hospital, died at Waverley, July 29, 1913, aged 59 years.

CHANGES IN THE MEDICAL CORPS, U. S. NAVY, FOR THE WEEK ENDING JULY 26, 1913.

July 21, W. H. HALSEY, assistant surgeon, Detached from *Montgomery*, granted sick leave.

July 23, R. P. CRANDALL, medical inspector. Detached from Norfolk Receiving Ship, and ordered to command Naval Hospital, Canacao, P. I.

July 24, S. L. HIGGINS, passed assistant surgeon. Detached from New York Hospital, and ordered to *Arkansas*.

H. L. DOLLARD, passed assistant surgeon. Detached from *Arkansas*, and ordered to New York Hospital, for treatment.

D. C. WALTON, assistant surgeon. Ordered to Naval Hospital, New York.

D. C. CAMERER, assistant surgeon. Detached from *South Dakota*, and ordered to temporary duty at Washington, D. C.

BOOKS AND PAMPHLETS RECEIVED.

Invertebrate Zoölogy by Gilman A. Drew. Second Edition. W. B. Saunders Company. 1913.

WEEKLY RETURNS OF DEATHS

from diseases declared by the State Board of Health to be dangerous to the public health from cities and towns in Massachusetts of more than 10,000 population, for week ending July 26, 1913:

Boston	29
Worcester	5
Fall River	5
Lowell	4
Cambridge	4
New Bedford	1
Lynn	3
Springfield	3
Lawrence	4
Somerville	1
Holyoke	6
Brockton	3
Malden	2
Haverhill	3
Salem	1
Fitchburg	1
Taunton	1
Chelsea	1
Waltham	2
North Adams	1
Northampton	1
Westfield	2
Newburyport	1

Original Articles.

SPHINCTERIC ATROPHY: CAUSES, CONSEQUENCES AND TREATMENT.*

BY RALPH W. JACKSON, M.D.,

Proctologist to the Union and City Hospitals, Fall River, Mass.

Sphincteric hypertrophy as a source or sequence of rectal pathology is a topic for frequent and perhaps undue discussion, but there is an antithesis which is quite as much in evidence and about which one finds too little said. Sphincteric atrophy is both a cause and an effect of numerous unpleasant conditions. Futhermore the former state is definitely easier to correct than the latter. Incision and divulsion are much simpler and more effective treatment for a hypertonic muscle, than attempts to repair a damaged or to regenerate an atrophied sphincter.

It is scarcely necessary to review the anatomical structure of the sphincters, which is sufficiently familiar to all, but some consideration of their nerve control and physiology, and the function of defecation will open the way for matters to follow.

The musculature of the anus and rectal ampulla is innervated through the sympathetic, and from the spinal cord through the sacral nerves. Fibres of the two systems are so combined and the complexity of distribution is such as to defy exact anatomical demonstration of the specific nerve trunks which carry the various afferent and efferent impulses responsible for the functional activities of the parts. But there is no doubt that the sympathetic exercises motor and trophic control of the unstriated muscles involved in the first or involuntary part of the act of defecation; and further that centers in the conus terminalis exert similar control over the striated muscles of the pelvic diaphragm concerned in the second or involuntary part of defecation, which centers, like all other lower neurons, are subject to cerebral inhibition and stimulation.

The following may be stated in the way of physiological differentiation. The two sphincters differ widely in control and function. The internal is closely allied to the circular muscular fibres of the intestines and is more or less continuous with them; is likewise controlled by the sympathetic; is normally in a state of tonic contraction; and is nature's most important safeguard against fecal mishaps. We all know that it cannot be damaged with impunity. The external sphincter is a genuine part of the skeletal muscles; is likewise controlled by the central nervous system, and therefore largely voluntary; is normally, unless constantly irritated, in a state of comparative relaxation; and, together with the levators, is a safeguard against the involuntary dilatation of the internal sphincters at inconvenient times. We know that it can be damaged with considerable impunity. The levator ani muscles coordinate with the external sphincter and with practically synchronous action, whether we will or not. In fact in the absence or disability of the latter a goodly portion of its duty may be performed by the levators.

Defecation reflexes start ordinarily in the ampulla of the rectum and are due to one or both of two factors. Normally the sigmoid is the site of fecal accumulation, and the usual teaching has been that the dropping of portions of this onto the ampullar floor just above the anus excites the sensory terminals, assumed to be there, whereby reflex relaxation of the internal sphincter results through the sympathetic, *i.e.* the first part of defecation. This fairly explains the inception of the act and is perhaps in some measure true. But since Hertz has proved that the tactile sense of the rectum is practically nil, a more adequate explanation of the origin seems to be found[1] in his contention that "the call to defecation is a specialized form of visceral muscle sense," *i.e.* that ampullar distention by the feces and their gases excites the desire and will be efficient in direct proportion to the tonicity of the circular muscle fibres and the strength of their reaction. In proof of this witness the sharp response to the gas generated by the injection into the rectum of a quantity of hydrogen peroxide too insignificant to affect the tactile sense of the mucosa. Disturbances of the above mechanism often cause trophic changes in the anal musculature and probably more frequently of the degenerative type.

The second part of defecation is the action of the levators and external sphincter, and counter-pressure by the abdominal muscles, etc., which action is aroused by central nervous reflexes through the lumbar centre. We are inclined to query whether these do not always originate in the anus, *i.e.* whether normally the entrance of some fecal matter into the canal through the already relaxed internal sphincter is not necessary to excite this part of defecation. Hertz has shown[2] "that the rectum is insensitive," but "the anal canal is sensitive to stimulation by glycerine" with subsequent call to stool. Therein are certainly sensory terminals of marked power to excite sphincteric spasm. We are all familiar with the muscular over-growth resulting from the constant irritation of chronic fissures, cryptitis, the oxyuris, etc. In the opinion of many the anal papillae are sensory bodies. When enlarged they are hypersensitive to the touch and almost always accompanied by tight sphincters; their removal relieves much of the pain and it is reasonable to infer that they have much to do with the change in the muscles. In general it would seem that intra-anal pathology tends

* Read before the meeting of the American Proctologic Society, Minneapolis, June 16 and 17, 1913.

rather to increase than to diminish the tonus of the sphincters.

All muscular tissue hypertrophies with use and atrophies with disuse. There are no muscles in the body which obey this law more promptly or with more unpleasant consequences than the anal sphincters. Atrophy without disuse may arise from direct interference with the trophic centers, either sympathetic, of which we know nothing, or central, of which we have some definite knowledge; but the disuse, partial or complete, incident to most of the causes of atrophy will be found to play the major part in the degenerative change. For convenience of classification the causes may be grouped as congenital, coincidental with general debility, traumatic, and nerve.

Nature sometimes begins early to create conditions favoring sphincteric debility. They are found in the two extremes of faulty embryonic development, viz. imperforate anus and the cloaca of a common anal and vaginal orifice.

In the former, if there be but a mere membrane between the rectal ampulla and the anal orifice, there is little possibility of serious danger in the necessary operative interference. If there be much thickness of tissue between, it means that the gut has never approximated the anus, and that there will be practically no development, even rudimentary, of the internal sphincter, which, it must be borne in mind, is really a prolongation of the circular muscular fibres of the rectum. The external muscles only will be present, and no process can develop an internal one out of nothing. If on the other hand, an unnatural fistulous opening occurs in the vagina, perineum, scrotum or elsewhere, the conditions become the same as in some of the worst types of acquired fistula in adults, and the prognosis as to control is equally uncertain, because no satisfactory surgery can be done which does not sever the sphincters and other tissues intervening between the anus and the unnatural opening.

In case of congenital common ano-vaginal orifice, nature has already severed both sphincters and probably the levators. The muscular fibres are present only in rudimentary form, and one needs no more than one trial to appreciate the obstacles in the way of plastic work to give continence.

Sphincteric weakness is often a part of general muscular debility. It is quite commonly seen in poorly nourished infants and improves along with general gain in muscular strength and adipose tissue. In the feeble and emaciated senile patient the sphincters often seem scarcely more than a cord. At either age the condition predisposes to some degree of anal or rectal prolapse; and of this more later. The exhaustion of extreme illness leads to fecal incontinence partly through actual decrease of sphincteric substance and partly through interference with the nerve control.

The traumatic causes of sphincteric degeneration are either operative or non-operative, and chiefly proctologic or obstetric, or due to overstretching.

The perfectly legitimate procedure of incision of the external sphincters for fissure, or of that and possibly of the internal as well for fistula, is performed but with disastrous results on account of faulty method of after-care. The severed ends are not properly approximated because the fibres have been cut obliquely instead of radially; or, in place of being united by a well developed wedge of granulation tissue filling the cut, they are kept apart by a sulcus resulting from one of two causes, either the hemorrhoidal overhang, which occurs on each side of any incision through the sphincters, has not been trimmed off, but allowed to dip down into the cut, or the mucosa from the edges has been permitted to follow its certain tendency to proliferate faster than the granulations from the bottom. In such cases the muscles contract inefficiently, fall into partial disuse, and in time the consequent atrophy is only too apparent.

Similar and more marked and extensive structural changes result from common obstetric injuries. The fact is well known that cutting the sphincters forward into the female perineum involves more risk of impaired continence than incision through one of the posterior anal quadrants. How much more so then such injuries as complete perineal laceration with severance of both sphincters and levators? The obstetrician's immediate repair rarely brings the sphincters into proper apposition and is usually followed by a flabby anus, which does not improve with age and favors hemorrhoidal protrusion. If primary perineorrhaphy fails or is criminally neglected and the gynecologist attempts it long afterward, he finds all the muscles atrophied almost to the point of being unrecognizable, and his operation, while perhaps affording adequate support for a rectocele, seldom produces an anus with thoroughly satisfactory function.

Rarely overdivulsion at operations has produced permanent sphincteric injury and impairment of function; but, however rare, we feel that undue stress is generally laid on the necessity for vigorous divulsion in all anal surgery. Our rule is to do it to an extent directly proportionate to the amount of muscular tonicity ascertained by digital examination before the anesthesia. It might well be omitted entirely in many cases where it is done.

The protrusion of internal hemorrhoids is frequently favored by sphincteric laxity, but, when chronic and allowed to protrude long or continuously, their action becomes one of constant divulsion with eventual semi-paralysis, inactivity and decrease in sphincteric substance. Palpation for the muscles while the piles are protruded is almost negative, and, after reduction, shows extreme laxness with no

contractile power. There is very little left to contract. Hemorrhoid operations in the more exaggerated cases of this type are very liable to be followed by recurrence.

The occurrence of procidentia in infants and adults has already been suggested as well as its usual association with general muscular atonicity; but, whatever the degree of the procidentia, when once existent, the reaction on the sphincters is to reduce their tone still further just as in the case of the continuously protruded piles. A vicious circle has been established; the atrophy favors the prolapse: the prolapse aggravates the atrophy. The sphincteric inadequacy has much to do with the flat failure of much of the operative work for this condition.

From the side of the sympathetic very little can be said of the nerve causes of sphincteric atrophy, except in so far as the inception of the reflexes is palpably interfered with. We conceive of stricture of the rectum as producing exactly this condition. Stenosis above the anus, due to malignant, specific or other disease, in almost all cases finally produces degeneration of the internal sphincter and secondarily of the voluntary muscles. The stricture obstructs the onward progress of the feces; the normal excitation of the defecatory reflexes is thus lost; the sphincters have only to transmit the ooze which comes through the contraction, become practically functionless and promptly begin to degenerate; finally even the ooze is retained with difficulty. The diminished blood supply and nutrition below the stenosis may also have some bearing on the atrophy. The markedly patulous anus is characteristic, and, along with other symptoms, may be valuable suggestive evidence of malignancy to the general practitioner and prompt him to overcome his usual reluctance to make an intra-rectal examination.

From the side of the cerebro-spinal system considerable can be said in regard to change in sphincteric structure. "Disturbance in the action of the bladder and rectum occurs in almost all forms of spinal cord disease, and therefore is not diagnostic of any special pathological lesion or its location."[3] Physiological experiments by section of the cord at various points have shown the reason for known clinical facts. Disease or injury at any level does not interfere with the involuntary control of the internal sphincter; the only exception being the immediate and temporary results occasionally following the shock of trauma or acute cerebral congestion. Disease above the sphinteric centers means anesthesia, automatic defecation without power of cerebral inhibition or augmentation, and may even accentuate the external sphincter tonus because of lost inhibition of trophic control. But disease at or below the sphincteric centers means anesthesia, continence maintained only by the internal muscle, and atrophy of the external sphincter because of lost trophic control and disuse from paralysis. The prognosis for all of these cord lesions and for the consequent muscular deficiency is poor. Many are of course of luetic origin and of the myelo-malacic type, and, to some extent therefore, amenable to treatment.

In general degeneration of the voluntary and involuntary portions is more or less simultaneous, but rarely one sphincter may be present and the other nearly or quite absent.

A few cases have been noted where the external muscle is wanting. Apparently the condition is congenital, or may it not be possible that there has been some interference with its trophic control either at the center in the cord or between there and the periphery, with ultimate disappearance of the muscle? The results are not serious, the unstriated control being good and the levators giving partial voluntary control.

When the other condition pertains of absence of internal sphincter, it may be congenital (as already stated) in the case of imperforate anus with undescended rectum, or conceivably it might have degenerated through some trophic fault of the sympathetic. But practically always it is the result of trauma from too deep dissection in an unskilful Whitehead operation or other similar cuff removal of the lower end of the bowel. The results of this condition are unpleasant enough, and the patient follows the operator about like a spectre seeking relief. The normal involuntary control is gone, and the continual, conscious "holding on," unless the bowels are constipated, is a poor substitute.

The consequences of sphincteric atrophy have been apparent in the enumeration of the causes. Primarily they are local and sufficiently serious there, but secondarily may be so far reaching and detrimental to the patient's physical and mental welfare that life may become almost a burden. A poorly functionating natural anus may become even a greater nuisance than an efficient colostomy. The following notes present a not unfamiliar, though extreme, picture of symptoms liable to appear in any degree of sphincteric inadequacy. Mrs. R., of the upper working class, middle age and no organic troubles, fifteen years before had a severe breech delivery, and complete perineal laceration through the levators, with immediate but unsuccessful attempts at repair. Results were absolute incontinence of flatus and feces; the patient became a recluse and a household drudge, emaciated, anemic, and melancholic. With difficulty, out of the few remaining muscular elements the perineum was repaired, and with adequate anal control. Results were a gain of thirty lbs. in three months, and complete restoration of health and social enjoyment. A pleasing picture, but the outcome is not always so successful in attempts at sphincteric restoration.

The treatment of such conditions must be

preventive or restorative. Neither can amount to much in atrophies and lost function resulting from faulty innervation and cord involvement, where local measures are useless, and the treatment of the disease, whether medical or surgical, too often equally so. Cases of syphilitic origin, however, carry a somewhat more favorable prognosis. But prevention or restoration may accomplish much in cases arising from the other causes mentioned, especially the traumatic.

The minimizing of all trauma is the first necessity. Many of the common obstetric injuries are in part avoidable. But the necessity for severing one or both sphincters in fistula operations and the tedious granulation process following, are one of the most prolific causes of later muscular degeneration. The most crying need in rectal surgery is for some really practical operation that will do away with the necessity for sphincteric incision. Various procedures have been proposed to this end, but none are free from objection. One of the most feasible is the recently published[4] method of Elting's, whereby he adapts the Whitehead operation to the purpose.

Given the muscular trauma, the next necessity is immediate and accurate repair, to forestall the inevitable result of partial disuse and atrophic structural change. Otherwise later attempts at restoration are difficult or futile with the shrunken materials available.

Given unrepaired trauma and much structural loss of the peri-anal muscles, the problem of securing continence is one either of restoration or of substitution of other structures for the damaged muscles. They must be recognized and approximated as closely as possible; but, practically, in all such surgery we depend for much of our result on cicatricial contraction of the parts united, producing a partial stenosis of the anal canal. This with the little that may be left of the internal sphincter gives the only substitute that can be had for the normal unconscious control of that muscle.

The loss of voluntary control is met by a similar use of cicatrix and attenuated external sphincter. But if that muscle be wanting, resort must be had to substitution, and in this way much can be done by close approximation of the levators. Even in the almost complete absence of sphincteric substance in congenital common recto-vaginal orifice, very satisfactory control has been given by utilizing this principle. Tuttle recounts[6] the operation of Chetwood, which uses strands of the gluteus maximus from each side to cross and surround the anus. Data are wanting of the successful employment of this ingenious plastic work: and indeed in five cases so operated by that surgeon, Lynch states[7] that the results were definitely unsatisfactory.

There remains the question of the restoration of sphincters attenuated by long continued divulsion by chronic protruding piles or prolapse. With such sphincters the recurrence of hemorrhoids even after thorough removal is very common. The muscles may give fair fecal control but do not afford sufficient support to prevent the natural tendency to outward protrusion of the hemorrhoidal zone. Faithful voluntary exercise of the muscles of the pelvic diaphragm and faradism seem to restore some of the tone to the enfeebled muscles. And every effort must be made to increase the patient's general weight, and thereby the amount of peri-anal fat which helps so much to support the anal walls. Surgically it may be possible to shorten the muscle under cover of a dissected-up flap of anal mucosa, but the value of this is doubtful.

The prognosis in all cases of sphincteric deficiency is somewhat uncertain; and the elements that make for that uncertainty are varied and the information considerably scattered. Some of this discussion may have been trite to you, who are daily doing rectal work, but we hope that it may have summarized in a way useful to the general practitioner the facts in regard to this very troublesome phase of his occasional proctologic work.

REFERENCES.

[1] Hertz: The Sensibility of the Alimentary Canal, p. 35.
[2] *Ibid,* p. 15.
[3] Starr: Nervous Diseases, Organic and Functional, p. 181.
[4] Sahli, p. 1167, quoting from L. R. Müller, Zeit. für Nervenheilk, vol. xxi, parts 1 and 2.
[5] Elting: Annals of Surgery, November, 1912.
[6] Tuttle: Diseases of Anus, Rectum and Pelvic Colon, p. 417.
[7] Lynch, J. M.: Personal Statement.

THE RÔLE OF "FAMILY CLUSTERS" IN THE PREVALENCE OF PULMONARY TUBERCULOSIS.

BY CARL C. MACCORISON, M.D.,

Superintendent North Reading State Sanatorium;

AND

NEWELL B. BURNS, M.D.,

Assistant Superintendent North Reading State Sanatorium.

IN reviewing the records of 1300 admissions to the North Reading State Sanatorium in the three and a half years of this institution's existence we have found therein an interesting study in data relating to the pedigrees of certain cases. We have learned that in 134 distinct examples there occurred the incidence of at least three cases of pulmonary tuberculosis in a single family. These groups of infected people we have designated as "Family Clusters."

That we must expect to find tuberculosis occurring in more than one member of the same family is not strange, but that we should find so many almost identical instances in a little over one thousand cases does seem worthy of attention.

The late E. G. Pope of Saranac Lake in Draper's Memoirs stated[1] that: "When an infectious disease is as widely prevalent as tuberculosis we must expect to find frequently several members of the same family, household or workshop dying from the disease without taking into account either heredity or direct infection as causative factors. Where, for instance, one person in every ten dies from tuberculosis, if we take one hundred families, or groups of five persons each, we shall expect on the doctrine of chances to find two or more members thus dying in each of eight groups out of one hundred groups simply as a result of a chance distribution of the disease."

Giving all possible credit to the strength of Mr. Pope's deductions we are led to believe that it is possible to lower the one in ten mortality rate by breaking up these centres of malignant influence wherever such action is possible.

We are not prepared at the present to enter upon a dissertation to the effect that the accompanying data prove conclusively the existence of a definite quantitative intensity of inheritance of the tubercular diathesis. That they do favor such a belief seems a well-warranted assumption, and this assumption tempts a further investigation of our own, together with other collateral data, to establish proof if possible. But having the greatest respect for the ideas of Prof. Carl Pearson regarding the requirements[2] for a complete inquiry into the problems of inheritance of any character, we cannot, without further search, including the perusal of general hospital statistics, discuss the question of hereditary influence as affecting the multiple incidence of phthisis in the same family, as appearing in the "Clusters."

A study of these family groups, as shown on the annexed charts, would lead us to believe that the domiciliary distribution of tuberculosis may be due wholly or in part to the establishment of foci of infection following carelessness of individuals, usually adult open cases with the disease. The swiftest channels for spread of disease and for furtherance of its activity is through the family lines.

Some authorities[3] propose that tuberculosis is not as a rule contracted in adult life and that the infection is established in children, to be manifested by disease activity as the stress of later responsibilities of adult life wears down the resistance. One may note upon the accompanying charts that infection was present in the patient's family years before he came down with the disease, and that when the patient was two years of age, for instance, his mother was dying with tuberculosis; in such cases the whole family was probably closely housed and all subject to exposure.

On the other hand, there is quite regularly admitted to this sanatorium a patient whose brother, sister, or conjugal partner has been a patient here or in some other sanatorium, or at any rate has been a victim of the same disease, where the source of infection seems easily traced, and the origin of the patient's morbid condition of recent happening.

In this instance we cite the case of a patient we have just admitted. He stated that to the best of his knowledge there had been no tuberculosis in his antecedents or immediate family until four years ago, when a brother became ill with that disease and died after a year's residence with the family. During his period of illness he was careless, and spent much of his time when able to be out, in dissipation, often bringing home convivial companions, one of whom was a particular friend and also afflicted with tuberculosis. Since the death of this brother three other members of the family have come down with the disease, two of whom have died within a year of each other. Through the means of this family the disease was perpetuated, in part, by carelessness on the part of the patient and by close association between all members of the family circle.

The lack of prophylaxis in the home is not entirely eradicated by a residence in a sanatorium, as we have lately learned through one of our patients returning from a short leave of absence, that a former patient who had had the benefit of sanatorium instruction, was then living in the same room with his family, consisting of his wife and four children, and that he was in the habit of expectorating freely upon the floor. Heedless of his teaching to the contrary, he was entirely neglecting the proper laws pertaining to the care of virulent sputum, particularly where his own children were exposed. A visiting nurse later confirmed this account.

Thus, through the laxity of this ex-patient's habits a new focus of infection is set up, about which we find clustered four susceptible children and the hard working and ill nourished mother. By such of these too many instances will the morbidity rate of the near and distant future years receive its acceleration.

The two section diagrams exhibited herewith need but little comment, we hope, for they are so drawn as to offer the reader opportunity to scrutinize the data *en masse* and to appreciate the significance of the family cluster factor in the spread of tuberculosis. It should be kept in mind that the patient whose age at time of admission to the hospital is given in a column headed "Patient's Age" always makes up another number in the cluster. Again, the columns 0 to 10, 10 to 20, etc., etc., located to the right of the relative's name, include the number of years since that relative died of tuberculosis. Many times no record is found in the histories of the time when decease took place, hence the column "No record." In some of the cases tabulated it should be noticed how the disease has run along in the same family year after year, one member apparently handing on the infection to the next member.

"FAMILY CLUSTERS" IN T.B. PREVALENCE
NORTH READING STATE SANATORIUM
1913
MALE PATIENTS.
1913
DRAWN BY F.J. BOUVÉ

PATIENTS AGE	RELATIVE HAVING TUBERCULOSIS	LIVING WITH T.B.	NO. OF YEARS DECEASED 0 TO 10	10 TO 20	20 TO 30	30 TO 40	40 TO 50	NO RECORD	PATIENTS AGE	RELATIVE HAVING TUBERCULOSIS	LIVING WITH T.B.	NO. OF YEARS DECEASED 0 TO 10	10 TO 20	20 TO 30	30 TO 40	40 TO 50	NO RECORD	PATIENTS AGE	RELATIVE HAVING TUBERCULOSIS	LIVING WITH T.B.	NO. OF YEARS DECEASED 0 TO 10	10 TO 20	20 TO 30	30 TO 40	40 TO 50	NO RECORD
20	FATHER	•						•	66	DAUGHTER			•	•			•	42	FATHER			•				
	MOTHER							•		"									BROTHER							
	SISTER							•		SON	•							31	FATHER							
	"							•	20	BROTHER		•							MOTHER			•				
	"							•		"								19	BROTHER							
	BROTHER							•		SISTER			•		•				FATHER							
30	MOTHER			•					31	MOTHER				•				16	SISTER			•				
	BROTHER			•						SISTER									"							
	"		•							BROTHER							•									
	SISTER	•							20	SISTER			•					20	FATHER			•				
	"		•							MAT. UNCLE									MOTHER			•				
43	MOTHER					•			18	SISTER	•								BROTHER	•						
	BROTHER			•			•			"		•						35	SISTER			•				
35	FATHER					•			31	MOTHER			•						"			•				
	BROTHER		•							FATHER									"			•				
	WIFE		•							MOTHER		•							"			•				
	BRO-IN-LAW							•	20	SISTER		•							WIFE			•				
	SISTER					•				"		•							BRO-IN-LAW		•					
25	BROTHER							•			•								"			•				
	SON							•																		
24	FATHER			•					42	FATHER		•	•					15	FATHER		•					
	SISTER		•							BROTHER									SISTER							
30	WIFE		•							SISTER		•							SISTER		•					
	CHILD	•								GRANDMOTHER							•	20	BROTHER							
	"	•																			•					
43	MOTHER				•				19	MOTHER		•	•					30	WIFE		•	•				
	BROTHER			•						FATHER									CHILD	•						
	"	•		•					24	FATHER			•						"							
19	BROTHER	•		•						SISTER		•						24	FATHER		•					
	"								26	FATHER							•		MOTHER		•					
30	BROTHER							•		MOTHER							•		MAT. AUNT							
	SISTER							•		SISTER							•	30	MOTHER							
25	MOTHER		•						32	FATHER			•						WIFE		•					
	SON	•								BROTHER									CHILD			•				
31	MOTHER			•						SISTER									"			•				
	BROTHER								35	MOTHER		•	•					27	FATHER		•					
25	MOTHER		•							SISTER			•						MOTHER							
	SISTER									"			•						SISTER			•				
30	FATHER							•		"			•						"			•				
	MOTHER							•		"			•						"			•				
	BROTHER							•		"			•					42	MOTHER				•			
35	BROTHER							•		BROTHER									FATHER							
	"							•											BROTHER							
	SISTER	•							17	FATHER			•						SISTER			•				
	"	•								SISTER			•						"			•				
15	FATHER		•						44	SISTER		•						16	FATHER		•					
	SISTER		•							"			•						MOTHER		•					
23	MOTHER		•							"				•					SISTER		•					
	SISTER		•															20	FATHER		•					
38	WIFE							•	36	MOTHER				•					BROTHER							
	CHILD							•		FATHER				•					SISTER				•			
	"							•		MOTHER				•				39	BROTHER				•			
53	SISTER						•		21	BROTHER			•						MAT. AUNT							
	WIFE	•								SISTER		•							" UNCLE							
27	BROTHER		•						32	MOTHER				•					WIFE	•						
	"		•							SISTER				•				43	MOTHER				•			
	"		•																SISTER				•			
																			WIFE				•			

Even though there is an apparent lapse of time in some cases between the death of one number of the cluster and the breaking out of disease in the next number, yet the deadly certainty with which the disease recurs excites inquiry for an infection maintenance factor other than that afforded by direct association with the active case. Much added interest would have obtained in securing data concerning whether or not the family continued living in the same house, but none were generally available. Only occasionally do we find it recorded that the family had occupied the same domicile for a considerable number of years, or perhaps to this effect, "Family moved into house sixteen months ago which had been used by a consumptive and not fumigated."

The evidence is more circumstantial than di-

SECTION OF 1913 DATA FROM 1300 CASES. COMPILED BY DR. N.B. BURNS.

"FAMILY CLUSTERS" IN T.B. PREVALENCE NORTH READING STATE SANATORIUM 1913

FEMALE PATIENTS.

DRAWN BY F.J. BOUVE'

PATIENTS AGE	RELATIVE HAVING TUBERCULOSIS	LIVING WITH T.B.	NO. OF YEARS DECEASED 0 TO 10	10 TO 20	20 TO 30	30 TO 40	40 TO 50	RECORD NO.	PATIENTS AGE	RELATIVE HAVING TUBERCULOSIS	LIVING WITH T.B.	NO. OF YEARS DECEASED 0 TO 10	10 TO 20	20 TO 30	30 TO 40	40 TO 50	RECORD NO.
48	FATHER					•		•	31	BROTHER							•
	MOTHER					•		•		SISTER							
	BROTHER		•							HUSBAND		•					•
	"								15	FATHER		•					
	SISTER	•								BROTHER	•						
	HUSBAND	•								"							
45	FATHER						•	•		SISTER		•					
	BROTHER							•	33	MOTHER							•
	"							•		BROTHER							•
	SISTER							•		SISTER							•
	HUSBAND	•								"							•
29	FATHER			•						CHILD	•						
	MOTHER			•					42	FATHER		•		•			
	BROTHER							•		SISTER							•
	"							•		CHILD		•					•
	PATERNAL UNCLE							•	14	SISTER		•					
28	MOTHER		•							"							•
	SISTER			•						BROTHER	•						
	HUSBAND	•								"	•						
	DAUGHTER	•							33	FATHER							•
20	GRANDMOTHER		•							MOTHER							•
	MOTHER		•							BROTHER							•
	BROTHER		•							"							•
	"		•							"							•
	"		•							"							•
	"		•							"							•
	SISTER	•		•					17	MOTHER							•
	"			•						SISTER							•
	"		•							"							•
23	MOTHER							•	27	MOTHER							•
	FATHER	•								SISTER							•
31	FATHER									MATERNAL UNCLE		•					
	BROTHER							•	42	FATHER							•
	"							•		BROTHER							•
24	FATHER		•							"							•
	MOTHER			•					46	SISTER	•						
22	MOTHER	•								UNCLE							•
	SISTER		•							NIECE							•
	"	•								"							•
18	MOTHER		•							GRANDNIECE							•
	SISTER		•						22	FATHER		•					
	BROTHER	•								MOTHER		•					
23	MOTHER	•							20	FATHER							•
	MATERNAL UNCLE									MOTHER							•
	"	•		•					74	MOTHER							•
39	MOTHER			•						BROTHER							•
	SISTER		•							HUSBAND							•
	"							•	30	BROTHER							•
	PATERNAL AUNT							•		"							•
31	FATHER							•		"							•
	BROTHER							•		"							•
	SISTER							•		SISTER							•
28	MOTHER							•	35	MOTHER							•
	BROTHER							•		BROTHER							•
	"							•		SISTER							•
	CHILD							•	23	FATHER							•
	"							•		MOTHER							•

PATIENTS AGE	RELATIVE HAVING TUBERCULOSIS	LIVING WITH T.B.	NO. OF YEARS DECEASED 0 TO 10	10 TO 20	20 TO 30	30 TO 40	40 TO 50	RECORD NO.
43	MOTHER		•					•
	BROTHER							
	SISTER			•				•
	"							
	CHILD		•					•
32	FATHER							•
	MOTHER							•
	CHILD							•
	"							•
25	MOTHER	•						
	BROTHER		•					
29	MOTHER		•					
	BROTHER		•					
	SISTER		•					
24	FATHER							•
	MOTHER							•
	SISTER							•
	"							•
42	FATHER							•
	BROTHER							•
	SISTER							•
26	SISTER		•	•				
	"		•					
22	BROTHER			•				
	"			•				
33	MOTHER			•				
	FATHER							
	SISTER							•
18	MOTHER							•
	BROTHER							•
	SISTER							•
	"							•
27	FATHER							•
	MOTHER							•
25	MOTHER							•
	SISTER							•
	"							•
39	CHILD		•	•				
	"		•					
	"			•				
	"			•				
	"			•				
	"			•				
45	SISTER		•					
	CHILD	•	•					
	"	•						
45	MOTHER							•
	FATHER							
	BROTHER			•				
	HUSBAND							•

rect that the disease is transmitted from member to member of the family often by domiciliary seclusion in one infected location. Substantiating such a conclusion we have the report[4] of the French authorities recently published by the chief of the Paris bureau of hygiene, describing the researches of his bureau into the house distribution of tuberculosis in that city. In 1911[5] there were 9,371 persons dying of tuberculosis in Paris, and of this number 2,523 were in houses which are confirmed foci of the disease. The bureau is now striving to do away with these houses and similar domiciliary foci of cancer and to replace them by new buildings of more hygienic character and construction.

So it seems very likely that the spread of the disease among the community, or as concerns us at the moment, among the members of a family,

is greatly aided by the tendency of a family to reside in what is virtually a pest house year after year; and to remain closely housed with each other, sick and well alike, indifferent to the consequent dangers, the healthy members exposing themselves to direct infection afforded by the sickened "don't care," negligent consumptive.

We do not intend to propose positive remedies or to make fanciful suggestions of a Utopian nature for the eradication of the family cluster evil because it lies too much enmeshed with other social misfortunes to offer one opportunity to isolate and exterminate easily the trouble. Patience and reasoning on the part of those whose business it is to deal with such people will, we believe, accomplish some measure of success in results. As the local health boards probably realize, some stronger power of coercion than moral persuasion is necessary in breaking up family clusters in a great many instances.

At the sanatorium, in the matter of preventive tactics, we come to the point of contact with the family cluster evil in this way: A far advanced consumptive, incurable and hopelessly ill, beseeches his family to take him home. The family, overcome with sympathy and fraternal pity, are inclined to accede to the patient's wishes, even though they have scant means with which to care for him properly at home, and what is most important, no safe place to house him in such a way as to preclude danger of contaminating the several young children of the family. If the family is patiently remonstrated with and if they can be impressed with the full significance of the family cluster danger, viewing the diagrams such as are shown herewith, we may meet with some success in preventing a further extension of phthisis in their midst. Oftentimes this action brings forth a storm of protest from the patient, who sees his plans frustrated, and immediately directs a tirade of abuse and fabrication against all parties connected with the institution, making up false stories of all sorts in the hope of arousing the relative's indignation. There is no limit to the amount of calumny heaped upon us by such an individual. But we feel that the good accomplished in keeping from that family an infection focus, more than offsets our trouble. Furthermore, we believe that we are exercising our good offices in so doing, for, according to our observations and conclusions, we are thus preventing the formation of what would otherwise be still another "Family Cluster."

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DIAGNOSIS OF TYPHOID FEVER ON ADMISSION TO A HOSPITAL.

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THE importance of promptly recognizing typhoid fever after admission to a hospital can hardly be questioned. It is the rule at the Massachusetts General Hospital that cases in which the diagnosis of typhoid fever seems clear shall be put at once on "enteric precautions," and that for other cases in which typhoid is suspected "special enteric precautions" shall be ordered, pending a diagnosis.

Certain utensils are reserved for typhoid patients, and those on "special enteric precautions" have other utensils reserved for the individual. Thus, exposure to typhoid is avoided when the diagnosis is doubtful, and at the same time other non-typhoid patients are protected from possible danger.

After admission to the hospital, patients are examined by the senior house-officer in charge of the service before they are seen by the visiting physician. It is the duty of the house-officer to prescribe preliminary treatment, and he is expected to order suitable precautions, when indicated, whatever may have been the diagnosis made outside the hospital.

Being desirous of obtaining information as to the signs most to be relied on for the diagnosis of typhoid under these circumstances, the writers tabulated facts from the records of the

TABLE I.

Temperatures F.	Typhoid Cases.	Non-typhoid.	Pulse.	Typhoid.	Non-typhoid.	Respiration.	Typhoid.	Non-Typhoid.
a. Below 100°	6%	18%	*a.* Below 70	3%	3%	*a.* 15–20	5%	2%
b. 100°–101°	5%	17%	*b.* 70– 80	4%	4%	*b.* 20–25	48%	52%
c. 101°–102°	17%	22%	*c.* 80– 90	15%	16%	*c.* 25–30	30%	21%
d. 102°–103°	25%	27%	*d.* 90–100	29%	18%	*d.* 30–35	12%	18%
e. 103°–104°	27%	12%	*e.* 100–110	24%	32%	*e.* 35–40	5%	6%
f. 104°–105°	16%	3%	*f.* 110–120	16%	15%	*f.* 40–+	0	1%
g. 105°–105.2°	4%	1%	*g.* 120–130	9%	11%			
			h. 130–140	0	1%			

Massachusetts General Hospital in a series of 231 cases in which the diagnosis of possible typhoid was made and for which precautions were ordered at the time of entrance to the hospital.

The cases were divided into two groups of 100 each, one group consisting of cases which ultimately turned out to be typhoid, and the other of cases which at entrance were thought might be typhoid but which turned out otherwise. All were fourteen years of age or older. The remaining 31 patients were children under fourteen years of age, and of these 19 proved to have typhoid and 12 did not.

The cases were taken from the records of several different years so that the peculiarities of any particular epidemic, seasonal variations in disease, and the individual equation of the house-officer should be neutralized. Five cases of typhus fever were added intentionally to the non-typhoid group, but the other cases of this series were recorded without selection as to diagnosis. Patients below fourteen years of age were excluded from the groups of 100 because typhoid and other diseases in children differ from those of adults, both in symptomatology and incidence. Paratyphoid fever was left out as not belonging clearly to either group of cases.

By means of classified tables the temperatures, pulse-rates, respiration-rates, and white-counts of the various groups were compared, and, in addition, the groups of 100 were contrasted as to age, duration of illness before admission, palpable spleens, rose-spots, bronchitis, pulmonary congestion and the Widal test. The statistics for the groups of 100 will be presented first and those for the children later. The patients that proved to have typhoid fever will be referred to hereafter as "typhoids"; others as non-typhoids.

FINDINGS.

*Temperatures.**

1. Below 101°: typhoid 11%, non-typhoid 35%.

2. 104° or higher: typhoid 20%, non-typhoid 4%.

3. Typhoids had temperatures ranging from 103°-104° in 27%.

4. Non-typhoids had temperatures from 102°-103° in 27%.

The figures indicate that the temperatures in the typhoids were decidedly higher than in the non-typhoids."

*Pulse-rates.**

Pulses ranging from 90-100: typhoid 29%, non- typhoid 18%.

Pulses ranging from 100-110, non-typhoid 32%, typhoid 24%.

Pulse-rates in the typhoid cases were decidedly lower than in the non-typhoid cases, although temperatures showed the opposite relation.

* See Table I.

*Respiration.**

In typhoids the respiration ranged from 20-25 in 48%.

In non-typhoids the respiration ranged from 20-25 in 52%.

Typhoids with respiration below 25, 53%; rates of 35 or higher, 5%.

Non-typhoids with respiration below 25, 53%; rates of 35 or higher, 8%.

Respiration-rates were practically identical for the two groups, although of the non-typhoid cases 37% suffered from bronchitis, pneumonia, or from some other pulmonary disease. Comparison of respiration-rates in the typhoid series shows that they were not more rapid in the patients having bronchitis than in those without it. The tachypnea in these cases was due, probably, not to pulmonary complications, but to toxemia.

White Counts

Counts.	Typhoids.	Non-typhoids.	
1600–3000	10%	0	Leucopenia.
3000–5000	30%	3%	
5000–7000	31%	17%	Normal.
7000–9000	20%	25%	
9000– +	9%	54%	Leucocytosis.

Typhoid cases: leucopenia in 41%; leucocytosis in 9%. Non-typhoid cases: leucopenia in 3%; leucocytosis in 54%.

The figures tabulated above show a striking difference between the typhoids, in which a leucopenia was common and a leucocytosis unusual, and the non-typhoids, in which the reverse was true.

The Spleen was felt in 49%, or about one-half, of the typhoid cases, and in 21%, or approximately one-fifth, of the non-typhoid cases, which shows that failure to feel the spleen is not strong evidence against typhoid, and that a palpable spleen is common in other diseases which may be confused with typhoid at the outset.

Rose-spots, typical in appearance, were seen in 45%, or less than half, of the typhoid cases and in 5% of the non-typhoid group. Atypical spots were noted in 7% of the typhoid cases and in 17% of the non-typhoid patients. Hence, the importance of recognizing typical rose-spots, when present, and of drawing no inferences from those that are not typical.

Absence of rose-spots, like absence of demonstrable enlargement of the spleen, was strikingly frequent in this series.

Bronchitis was shown by the presence of râles at the time of entrance in 23% of the typhoid and in 24% of the non-typhoid cases. Whereas râles are not constantly present at all times in bronchitis, it is fair to assume that there was bronchitis at the time of entrance in a larger number of patients of both series than

* See Table I.

the percentages would indicate. Neither the presence nor absence of bronchitis seems valuable of itself for the diagnosis of typhoid.

Congestion, manifested by fine râles at the bases of the lungs, was noted in 7% of the typhoids and in but one of the non-typhoid cases, the latter having been ill for a long time. Three of the seven typhoid patients showing congestion were in the second week and one was in the first week of the illness. This fact suggests that congestion of the bases is likely to occur earlier in typhoid than in other diseases which might be mistaken for typhoid fever.

Congestion was not relatively commoner in the elderly typhoid patients, but corresponded in frequency to the numbers of cases in the different decades of life.

Duration of Illness Before Entrance.

The typhoids had been ill from 1-2 weeks in 42%.

The non-typhoids had been ill for 1 week or less in 56%.

The typhoids had been ill from 1-3 days in 5%, from 3-6 days in 20%.

The non-typhoids had been ill from 1-3 days in 21%, from 3-6 days in 29%.

The typhoids had been ill less than 1 week in 25%.

The non-typhoids had been ill less than 1 week in 50%.

Comparison of figures shows that three-quarters of the typhoid cases were admitted during the second week of illness, and that half of the non-typhoid group had been sick less than one week before entrance, or, in other words, that non-typhoids more often entered the hospital early than did the typhoids. There was a marked difference in this respect between cases of ordinary bronchitis and cases of typhoid with bronchitis; those having ordinary bronchitis generally entered during the first week of illness, and those having typhoid with bronchitis entered, as a rule, during the second week of their sicknesses or later still.

Ages by decades were parallel for the groups of 100. The decade between 20 and 30 showed the highest morbidity.

The Widal Test was positive within the first 24 hours after admission in 47%, or in nearly half, of the typhoid cases. It was negative in the single non-typhoid case in which the test was done on the first day.

A negative Widal test, then, is no more important than absence of rose-spots or of a palpable spleen.

Children. The small number of cases in the groups of children renders it impossible to draw from them any but the roughest inferences. The figures for the cases in question show that the typhoid children had higher temperatures, much more rapid pulses, higher respirations, and higher white-counts than did the typhoids of the older series. The typhoid children showed remarkable differences of pulse-rate, and it ranged frequently above 120.

DIAGNOSTIC RESULTS IN TYPHOID GROUP OF 100.

Cases put on precautions at entrance	= 94%
Cases put on precautions within 24 hrs.	= 4%
Cases put on precautions later	= 2%

FINAL DIAGNOSIS IN NON-TYPHOID CASES.

Diagnosis.	Adults.	Children.
Bronchitis		
Influenza	29%	0
Broncho-pneumonia		
Undiagnosed fevers	15%	1
Gastroenteritis		
Diarrhea	12%	5
Colitis		
Phthisis		
Pleuritis	7%	0
Tonsillitis		
Pharyngitis	5%	0
Malaria	4%	1
Meningitis	2%	2
Endocarditis	2%	0
Gen. Miliary Tb	1%	0
Trichinosis	1%	0
Lobar pneumonia	1%	0
Various diseases	16%	2
Typhus fever	5%	0

This list of final diagnoses seems to the writers of special interest because it presents from an unusual standpoint the common difficulties in the diagnosis of typhoid fever. It shows, firstly, that the milder types of pulmonary infection may lead often to the suspicion of typhoid; secondly, that unclassified fevers and various gastro-enteric disorders frequently present the same difficulty; and, thirdly, that in young children gastro-enteric disorders head the list.

Malaria, trichinosis, miliary tuberculosis, tuberculous meningitis, and endocarditis were represented among the diagnoses, but they formed together only 10% of the list of 100 non-typhoid cases.

SUMMARY.

	Typhoid.	Non-typhoid.
White-count, normal or lower	91%	45%
Spleen felt	49%	21%
Widal test positive	47%	——
Typical rose-spots	45%	5%
Leucopenia	41%	3%
Bronchitis	23%	24%
Congestion of lungs	7%	1%
Temperature generally	103–104°	102–103°
Pulse-rate generally	90–100	100–110
Respiration generally	20– 25	20– 25
Duration generally	1 wk. or +	1 wk. or —

DISCUSSION.

Although much has been written on the diagnosis of typhoid fever, the writers have found little on this subject which can be compared directly with their statistics. Most of the data

in the literature has been compiled on the basis of occurrence of signs over the period during which the patient was under observation, and the percentages of incidence of signs are, therefore, considerably higher than would have been the case had the findings of the first examination only been recorded. The list which follows shows this clearly.

Lüdke found a white-count of 7,000 or less in 85% of 75 cases. He considers that such counts represent a leucopenia and emphasizes the diagnostic value of leucopenia in typhoid. The writers agree with this view in general, but believe that a larger margin should be allowed for variations in the count resulting from causes other than disease. Another reason for choosing a count lower than 7,000 for the diagnosis of typhoid is that our non-typhoid list showed 20% of cases with leucopenia according to Lüdke's criterion and only 3% when the dividing line was drawn at 5,000 cells. When their counts are compared with Lüdke's on the same basis their figure for typhoid stands at 71% against his of 85%.

With regard to enlargement of the spleen, criteria vary. Some estimates have been based only on spleens which were palpable and others on spleens found enlarged, either by palpation or by other methods, and presumably by percussion. Percussion of the spleen is seldom relied upon at the Massachusetts General Hospital because the belief prevails there that it is less reliable than palpation.

Believing that it will be interesting to compare the writers' figures with estimates prepared in the usual way, the following table has been inserted:—

Name	No. of Cs.	Palp. Spl.	Rose-spots	Pos. Widal	Pos. Diazo
Wesener	508	60.4%	78.5%	75%	85.2%
Thompson	221	69%	69%	93%	———
Lüdke	75	60%*	75%*	———	80%†
Writers	100	49%	45%	47%	———

* Approximately

† During first week.

Cabot says that in 5,978 cases from the literature a positive Widal test was obtained at some time in the course of the disease in 97.2%, and in 101 of his own cases it was positive in 96%.

The table appearing above indicates how much more difficult it is to make the diagnosis of typhoid at the first examination than after a period of observation. It suggests also that the Diazo reaction, which appears early in typhoid and which is more constant in this than in other diseases, should be more valued than it often is at the present day. The importance of a typical onset of symptoms for the diagnosis of typhoid is so generally accepted as to need no further remark.

CONCLUSIONS.

1. When patients suffering from febrile conditions which have lasted from a few days to a few weeks enter a hospital for treatment, typhoid fever should be suspected until some other diagnosis seems reasonably certain. Meanwhile, these patients should be treated under precautions to prevent the possible spread of infection. If this be done, it is possible to avoid risk of spreading infection in nearly all instances.

2. In our series of 100 non-typhoid patients of fourteen years of age or older in which typhoid fever was suspected, bronchitis, bronchopneumonia and influenza represent 29%, or nearly one-third of the whole, undiagnosed fevers 15%, and gastro-enteritis, diarrhea and colitis 12%.

3. The importance of these diseases in the differential diagnosis from typhoid has not been fully appreciated.

4. Absence of rose-spots at the first examination has little weight for diagnosis. The same is true of splenic enlargement when not demonstrable by palpation, and of the Widal test when negative.

5. A positive Widal test is of the greatest importance. Typical rose-spots are very important and a palpable spleen is a valuable indication of typhoid, but is common in various conditions simulating typhoid.

6. Atypical rose-spots are valueless for diagnosis.

7. Absence of leucocytosis in a febrile disease strongly suggests typhoid. A white-count below 5,000 is a valuable indication of typhoid fever, and is unusual in conditions simulating typhoid.

8. A white-count above 9,000 is presumptive evidence against typhoid.

9. Bronchitis has no weight *per se* either for or against the diagnosis of typhoid fever. Ordinary bronchitis, as a rule, entered the hospital during the first week, and typhoid with signs of bronchitis generally during the second week of illness.

10. Congestion of the bases of the lungs, when present in febrile disease uncomplicated by cardiac insufficiency, points to typhoid.

11. The temperature in typhoid fever is seldom below 101°, whereas in other conditions simulating typhoid the temperature is commonly below 101°.

12. In typhoid, the pulse-rate is more apt to be low in proportion to the temperature than in other diseases.

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[3] Thompson: Johns Hopkins Bulletin, vol. 16, p. 264, 1905.
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EXPERIMENTAL SCORBUTUS AND THE ROENTGEN RAY DIAGNOSIS OF SCORBUTUS.

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I. THE ROENTGEN RAY DIAGNOSIS OF SCORBUTUS IN INFANCY.

FRITZ B. TALBOT, M.D., AND WALTER J. DODD, M.D.

E. Fränkel[1] found certain changes in the bones in infantile scorbutus by the Roentgenogram, which he considered characteristic and of diagnostic value. These changes may be found before any of the cardinal symptoms of scorbutus appear, and before there is any evidence of subperiosteal hemorrhage, either clinical or on the Roentgenogram.

The characteristic picture is as follows: There is a definite "white line" at the end of the diaphysis at the junction of the epiphysis and the diaphysis on the x-ray plate or negative. This "white line" appears in the accompanying illustrations (positives) as a "dark line," which runs transversely across the bone as a narrow or broad dark shadow, either in a straight or crooked line. It represents an increased density at the end of the diaphysis. Attention was again drawn to the "white line" by Klotz[2] and Riesenfeld[3], who both published x-ray pictures of the bones showing the line. Klotz reports a case of scorbutus in which plates were taken every three weeks after the diagnosis was made and treatment instituted. He found that the "white line" persisted long after there was a complete clinical cure. The line could be seen for three months at the ends of the radius and ulna, and for five months in the tibia and femur after apparent cure.

The writers have seen the "white line" at each end of the humerus, radius, ulna, femur, fibula and tibia. Usually pictures are only taken of the long bones of the legs for diagnostic purposes in actual practice.

The following case serves as an illustration of the diagnostic importance of the "white line":—

THERESA K., age eight months, entered the children's ward of the Massachusetts General Hospital, Oct. 25, 1912, with the following history: She had always been fed on malted milk and cream in uncertain proportions and had done well. Two months ago the mother heard a "snap" in the right knee while she was pulling on the baby's stocking, and dates the trouble from then. Since that time the baby has been fretful and irritable, especially while being handled, and has not wanted to move her leg as much as she did before the injury. One week ago there was an increase of pain in the legs and rise of temperature without nausea or vomiting or any loss of weight. The physical examination was normal except for the following facts, which are worthy of note. There were no teeth. The gums and mucous membranes of the mouth were of normal color without any trace of redness or swelling. The head was square and there was a moderate rosary and enlargement of the epiphyses of the radii showing a moderate degree of rachitis. The heart, lungs and abdomen were normal. The right leg was held partially flexed, the normal contour being obliterated by swelling which was connected with the middle third of the femur. This mass was hard and smooth and although it was painful to touch, it was not exquisitely so. The right thigh 5 cm. above the patella, was 5½ cm. larger than the left and right calf was 2½ cm. larger than the left. The white count was 8,000 the von Pirquet skin tuberculin and Wassermann were negative. The diagnosis lay between an osteosarcoma, a low grade osteomyelitis and scorbutus. The x-ray showed the typical "white line," thus establishing the diagnosis of scorbutus. Orange juice did not cause any marked improvement for ten days, after which time the improvement was rapid and the child quickly became clinically well. X-rays were taken of the leg about once a month and the "white line" has persisted up to April, 1913, a period of five months. In one instance examined two years after the disease was treated, the "white line" had gone.

The "white line" usually persists for six months after there is an apparent clinical cure of the scorbutus and suggests that, although to all intents and purposes the child is well, the pathological changes persist. The only accurate study of the metabolism of scorbutus in adults has been made by Baumann and Howard,[4] who found that the loss of the various food constituents through the feces was less when fruit juice was added to the diet. The total sulphur metabolism was abnormal throughout the experiment, the quantity eliminated being in excess of that ingested. Chlorine and sodium were retained during the fruit juice period, but were excreted in excess of the intake during the preliminary period. More potassium, calcium and magnesium were retained during the fruit juice period than during the preliminary period. Lust and Klocman[5] studied the metabolism of nitrogen and the mineral salts in a typical case of scurvy in an infant 18 months old. Observations were made for three periods of four days each, the first while the disease was at its worst and the child was not being treated; the second after a month's treatment; and the third a month later, after all symptoms had disappeared. The nitrogen balance was normal at all times. The balance of mineral salts, particularly of calcium, was somewhat in-

creased in the first period; at the second period, during convalescence, it was markedly decreased, and at the third period was approaching, but had not yet reached normal, though the child was clinically well. This is in decided contrast to the conditions in rickets. These works, while important, do not explain the persistence of the "white line" after the clinical cure, and further investigation must be carried on to clear up this point.

When scorbutus is associated with rachitis there is in addition to the "white line" a distinct roughening of the ends of the shafts of the bones just as if the end of the bone had been teased out with a needle. There is also the characteristic enlargement always found in rachitis. Plates 1 and 2 illustrate both rachitis and scorbutus, showing both the distinct teasing, enlarged epiphysis, and "white line." Rotch (Roentgen Ray in Pediatrics, Philadelphia and London, 1910) shows a plate (No. 79) in which he calls attention to an "irregular zone of proliferation" in a case of scorbutus.

Since presenting this paper, the writers have studied several cases of congenital syphilis. In several of them, some of the bones showed a "white line"; this finding was by no means constant. When the "white line" was present, the babies might also have had a very early scorbutus without any clinical evidence of the disease. In two babies with positive Wassermann reactions the "white line" was absent. Further observations must be made to determine whether the "white line" has any connection with syphilis or rachitis, or whether it is characteristic and is present only in scorbutus.

II. EXPERIMENTAL SCORBUTUS IN GUINEA PIGS.

FRITZ B. TALBOT, M.D., AND HUGO O. PETERSON, M.D.

Practically no observations were made on experimental scorbutus until Holst, Frolich and Von Furst,[6] Scandinavian physicians, commenced their extensive investigations. Their work has been so complete and painstaking that it is necessary to describe it in considerable detail.

Guinea-pigs were fed exclusively on various forms of bread and grain and as a result died in four to six weeks of a disease in which the pathological anatomy corresponded with that of human scorbutus. The most common changes were as follows: The teeth became loose, the gums were hyperemic with microscopic hemorrhages, there were extravasations of blood about the costo-chondral articulations and in the soft tissues about the joints of the extremities. There was frequently subluxation of epiphyses of the long bones, more especially of the upper end of the tibia and there were characteristic microscopic changes in the bone marrow. Hemorrhages in the skin were seen less often than in infantile scorbutus. There were frequent hemorrhages into the muscles.

These results have been criticized on the ground that the post-mortem changes and the hemorrhages were due to the inanition of starvation. These criticisms were met by the following experiments: Guinea-pigs were fed on fresh white cabbage, dandelions or carrots in such amounts that the animals lost 30-40% of their weight. None of these animals contracted scorbutus, whereas those animals that were fed on dried grains or bread and lost a like amount of weight or relatively a few grams, showed scorbutic changes. These experiments proved conclusively that the scorbutic changes were not due to simple inanition. It is interesting to note in this connection that there are records of cases of human scorbutus which followed a diet which was the same or similar to that given to the guinea-pigs.

Scorbutus in guinea-pigs is relieved or cured by fresh vegetables in the same way as in the human. These antiscorbutic properties are usually, if not always, weakened by the process of cooking, yet they are rarely entirely destroyed. There seems to be some connection between the intensity of the heat used in cooking and the loss of the therapeutic properties. For example, white cabbages are of less therapeutic value when they are cooked at 110-120° Centigrade than when they are boiled.

The fresh vegetables lose their antiscorbutic properties in varying degrees when they are dried. Among those investigated are potatoes, carrots, dandelions and white cabbage. They are, however, affected differently: dandelions lose their therapeutic value immediately on drying, while white cabbage retained it longer when kept in an open vessel in an incubator at 37° than when it was kept at room temperature. Freshly pressed cabbage juice quickly loses its antiscorbutic properties when it is heated at from 60-100° C. for ten minutes. The same thing happens when it is preserved for a long time either at room temperature or in an ice chest. Pressed dandelion juice also loses its prophylactic properties when heated for a short time.

In contradistinction to the above, lemon juice will withstand for a long time the same heat that will weaken or entirely destroy the virtue of white cabbage or dandelion juice. Raspberry juice can be cooked for one hour at 110°C. without losing any of its antiscorbutic properties. Holst and Frölich thought that there must be some connection between the acidity of these juices and their antiscorbutic properties and they were able to increase the resistance of white cabbage and dandelion juice to heat by the addition of acids. They were not able to increase this resistance so that it would stand prolonged heating. They were unable to determine the nature of the antiscorbutic bodies by dialysis, by extraction or other experimental methods. Fürst[7] found that feeding guinea-pigs exclusively with plant seeds would produce scorbutus, though not so easily and regularly as with ex-

clusive grain feeding. Plant seeds that produce scurvy would acquire antiscorbutic properties when infected with fungi. He concluded from his experiments that neither the ash nor any of its alkalies plays any part in the incidence of scorbutus. There was no connection between the fat, albumin, carbohydrate, cellulose or enzymes in the food and disease.

Frölich[8] investigated the question of heating milk on the basis that the soluble calcium salts in milk are changed by heat into insoluble calcium phosphates, which according to some investigators are utilized with more difficulty by the organism.[9] The citric acid in the milk is also changed into insoluble calcium citrate by heat.[10] He found that he could produce scorbutus in guinea-pigs by exclusive feeding with raw or cooked milk, although not so perfectly as by exclusive grain feeding. When fed on oats and raw milk they did not develop scorbutus; when fed with oats and cooked milk they did. Bolle, and after him Bartenstein,[11] tried the effect of heating milk, and found that heating it for a short time had no especial effect on guinea-pigs. When the milk was heated to a high temperature for a long time the guinea-pigs died and single bones showed changes which Bolle identified as scorbutus. Finally the significant experiment of W. Heubner and Lippschultz[12] should be noted. They fed dogs for many weeks on a food poor in phosphorus and found microscopic changes in the bony system which were very similar to those found in scorbutus.

The work of Japanese investigators may be mentioned incidentally. Okada and Saito[13] and others injected the blood of soldiers suffering from scorbutus or cultures from their blood into animals. These experiments do not seem to be free from error and the results add nothing definite to our knowledge of scorbutus.

EXPERIMENTS.

The writers undertook to repeat the work done by Scandinavian investigators, both to confirm their results and to obtain experimentally the "white line" by x-ray. The work was as follows: Three guinea-pigs were used as controls and were kept in cages beside the other animals and under identical conditions except for the diet. Three guinea-pigs were kept in each cage. The room has been used for guinea-pigs and rabbits for many years without any of them developing scorbutus. It measured 12 x 14 feet, has three windows on the sunny side and two doors which open into corridors. The temperature varies from 75 to 88° F. The control guinea-pigs were fed on bread, oats, grass, carrots, cabbage and water. At the end of eight weeks they had gained weight and were normal in every way. One female produced two healthy offspring.

Eight guinea-pigs weighing less than 250 grams (young animals) were fed on oats or bread and water only and died within ten days without showing any scorbutic changes. The Scandinavian investigators had the same experience. These young guinea-pigs, therefore, cannot stand the stress of such a rigid diet long enough to show any pathological changes which can be considered scorbutus.

The other eighteen guinea-pigs were divided into three lots, one of which received oats and water alone, another rye bread and water alone, and the third white bread and water alone. During the first week they ate the food greedily and gained slightly in weight. After that they began to lose weight. After the second week they would sit still in one corner of the cage instead of running about as formerly and they would not eat unless the food was put directly in front of them. At the beginning of the third week the teeth of some of the animals became loose, and the gums swollen and hemorrhagic, bleeding easily at the slightest touch. When they walked they limped as though protecting a painful extremity.

They became emaciated in four to five weeks; the spine was very prominent and they looked shriveled up. Death occurred in thirty to forty-five days.

Guinea-pig.	Food.	Date.	Weights	Postmortem.
1 Female	Oats and water	Aug. 15	570 grams	Loose teeth. Purple gums. Hemorrhages into the spleen. Died Sept. 14.
		Sept. 8	420 "	
		Sept. 13	320 "	
2 Male	Oats and water	Aug. 15	665 "	Died Sept. 14. Loose teeth. Purple gums. Hemorrhages. Spots in nose and muscle of left hind leg.
		Sept. 3	570 "	
		Sept. 13	310 "	
3 Male	Oats and water	Aug. 14	742 "	Died Sept. 12. Loose teeth. Purple gums. Hemorrhages. Spots in nose and muscle of left hind leg.
		Sept. 5	580 "	
		Sept. 9	500 "	
4 Male	Graham bread and water	Aug. 14	760 "	Died Aug. 29. Teeth loose. Gums spongy and blue.
		Aug. 19	690 "	
		Aug. 23	570 "	
		Aug. 27	485 "	
		Aug. 28	460 "	

Guinea-pig.	Food.	Date.	Weights.	Postmortem.
5 Male	Graham bread and water	Aug. 14	665 grams	Died Sept. 14. Teeth loose. Gums purple. Urethra hemorrhage.
		Aug. 19	630 "	
		Aug. 27	620 "	
		Sept. 3	600 "	
		Sept. 8	505 "	
		Sept. 13	380 "	
6 Male	Graham bread and water	Aug. 14	451 "	Died Sept. 14. Hemorrhage in right front leg. Nose, intestines and gums marked stomatitis. Loose teeth.
		Aug. 19	460 "	
		Aug. 27	400 "	
		Sept. 3	305 "	
		Sept. 8	300 "	
		Sept. 13	210 "	
7 Male				Died in 4 days, as a result of a fight with another male.
8 Male	White bread and water	Aug. 14	840 "	Died on Sept. 15. Gums blue. Teeth loose.
		Aug. 19	760 "	
		Aug. 29	570 "	
		Sept. 3	550 "	
		Sept. 8	480 "	
		Sept. 10	390 "	
9 Female	White bread and water	Aug. 14	640 "	Died Aug. 28. Teeth loose. Gums purple and spongy.
		Aug. 19	590 "	
		Aug. 23	500 "	
		Aug. 27	480 "	
13 Male	White bread and water	Sept. 1	600 "	Died Sept. 30. Hemorrhagic spots in mucous membrane of stomach and small intestine. Large hemorrhages underneath costal muscles on right side. Teeth dirty and loose, gums purplish and swollen.
		Sept. 7	610 "	
		Sept. 15	580 "	
		Sept. 20	560 "	
		Sept. 30	500 "	
14 Male	Oats and water water	Sept. 1	800 "	Died Sept. 29. Large hemorrhages in right forearm under muscles and traced to wrist joint. Teeth loose and dirty.
		Sept. 5	810 "	
		Sept. 15	790 "	
		Sept. 21	780 "	
		Sept. 29	740 "	
15 Female	White bread and water	Sept. 1	615 "	Died Sept. 30. Ate nothing during last six days. P. M. hemorrhages beneath muscles of right hind leg. Teeth loose, dirty. Gums purple, not swollen
		Sept. 5	618 "	
		Sept. 15	600 "	
		Sept. 21	580 "	
		Sept. 29	520 "	
16 Male	Graham bread and water	Sept. 1	700 "	Died Oct. 10. Teeth dirty, not loose. Gums few hemorrhagic areas. Hemorrhages under costal muscles left side.
		Sept. 5	710 "	
		Sept. 10	600 "	
		Sept. 18	680 "	
		Sept. 25	640 "	
		Sept. 30	630 "	
		Oct. 5	600 "	
		Oct. 10	580 "	
17	Oats and water	Sept. 1	410 "	Died Oct. 5. Spongy hemorrhage gums. Teeth dirty. Not loose.
		Sept. 6	415 "	
		Sept. 12	400 "	
		Sept. 24	380 "	
		Sept. 29	365 "	
		Oct. 5	320 "	

Guinea-pig.	Food.	Date.	Weights.	Postmortem.
18 Male	White bread and water	Sept. 1	482 grams	Died Sept. 29. Teeth dirty. Right foreleg hemorrhagic.
		Sept. 4	481 "	
		Sept. 10	472 "	
		Sept. 20	460 "	
		Sept. 28	400 "	
19 Male	White bread and water	Sept. 1	565 "	Died Oct. 12. Teeth dirty. Gums purplish.
		Sept. 4	560 "	
		Sept. 6	550 "	
		Sept. 20	542 "	
		Sept. 30	536 "	
		Oct. 12	522 "	

		10.	11.	12.
Control guinea-pigs.	Aug. 14	600 grams	820 grams	450 grams
	Aug. 20	610 "	820 "	450 "
	Aug. 28	610 "	822 "	452 "
	Sept. 4	612 "	822 "	452 "
	Sept. 10	615 "	825 "	455 "
	Sept. 20	615 "	825 "	455 "
	Sept. 30	615 "	830 "	458 "

Guinea-pigs Nos. 20 to 28 inclusive, weighing respectively 200 grams, 180, 230, 240, 211, 206, 190, and 198 grams, all died within ten days.

The following macroscopic pathological changes were found at post mortem. The teeth were loose and of a dirty grey color instead of the healthy pearly white lustre. The gums were hyperemic or purplish and swollen. There was increased fragility of the bones and hemorrhages into the muscles of the legs in many animals. In one instance it was traced to the periosteum near the epiphyseal line of the ulna. In another there were small hemorrhages into the mucous membrane of the stomach and small intestine.

The following pathological reports were made by Dr. N. Chandler Foote:—

GUINEA-PIG 1. Humero-ulnar and femoro-tibial articulations examined.

Grossly. Numerous intramuscular hemorrhages in the neighborhood of the bone; a few scattered subperiosteal hemorrhages.

Elbow. Periosteum and bone negative. Bone marrow very much congested, with occasional focal hemorrhages. (Of these some fresh, some several days old.) Occasional hyaline thrombi in vessels. No rarefication of marrow. No epiphyseal lesions.

Knees. Extensive subperiosteal hemorrhage about upper end of tibia, with large number of pigmented wandering connective-tissue cells. Diffuse round-celled infiltration of periosteum and peri-articular soft parts. Bone marrow for the most part intact; in the cancellous portion of the bone of the head of one tibia is an area 2 x 2 mm. of rarefied marrow, composed of a fine reticulum of young connective tissue, fibro-blasts, round cells and marrow cells, with a bluish, granular, myxomatous material between them. This is just distal to the epiphyseal line in the upper end of the shaft. The epiphysis is somewhat ragged and eroded in appearance. The other knee duplicates the condition throughout.

GUINEA-PIG 2. Knee and shoulder joint examined.

Grossly. There are a few subperiosteal hemorrhages, many intramuscular extravasations in the soft parts about the joints.

Knee. Marked intramuscular hemorrhages, microscopic subperiosteal hemorrhages about the shaft of the tibia throughout its upper two-thirds. Marked round-celled infiltration of the peri-articular soft parts. The structure of the bone marrow is normal, but the organ is markedly congested, with numerous focal hemorrhages into its substance. There is a slight leucocytic exudate into the joint-cavity.

Shoulder Joint. Shows the same conditions, but the peri-articular infiltration is less marked. There is slight infiltration and thickening of the periosteum.

Opposite Knee. There is very marked subperiosteal hemorrhage about the tibia with equally marked extravasations into the soft parts. The bone marrow, aside from scanty localized hemorrhage, shows nothing abnormal. Epiphysis in every case normal.

GUINEA-PIG 4. Both knee joints.

Grossly. Moderate subperiosteal and intramuscular hemorrhages.

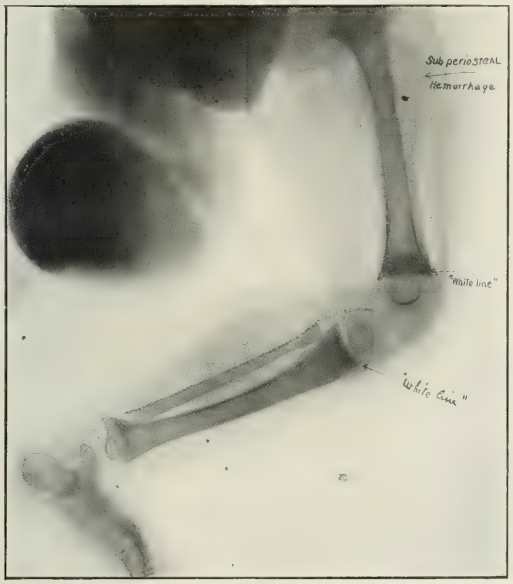
Microscopically. Periosteum everywhere thickened, with extensive extraperiosteal hemorrhages overlying it. Over the upper end of the shaft of the tibia there are spaces under the periosteum, where osteoclasts are situated and where these have eroded the subperiosteal surface of the shaft until it is very ragged in appearance. In such areas there is a concomitant infiltration by round cells and occasional polymorphonuclear leucocytes. The bone marrow is everywhere markedly congested and rarefied, the lymphoid character of the organ being retained only in the immediate vicinity of the blood vessels or sinuses. There is much bluish granular mucoid material in the rarefied portions, embedded in which are fibroblasts and other young connective tissue cells, which form a reticulum far more delicate than was the case in Guinea-Pig No. 1. The entire bone marrow is involved in this process here. There is



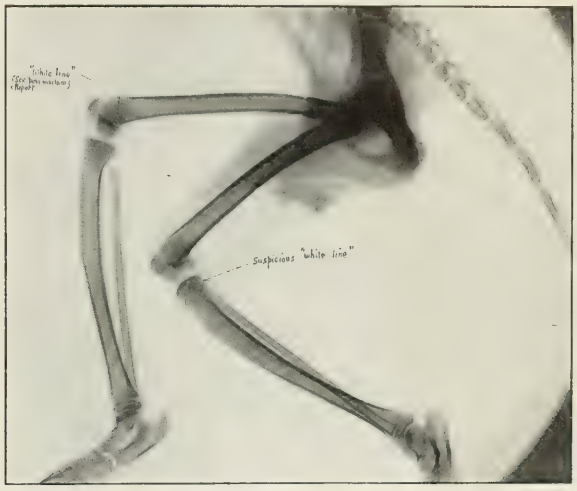
Radiograph of Experimental Monkey. Jan. 27, 1913.
No evidence of "white line" at diaphyseal junction.



Radiograph of Experimental Monkey. April 6, 1913.
This plate shows distinct evidence of "white line" at lower diaphyseal junction of radii and ulnae.

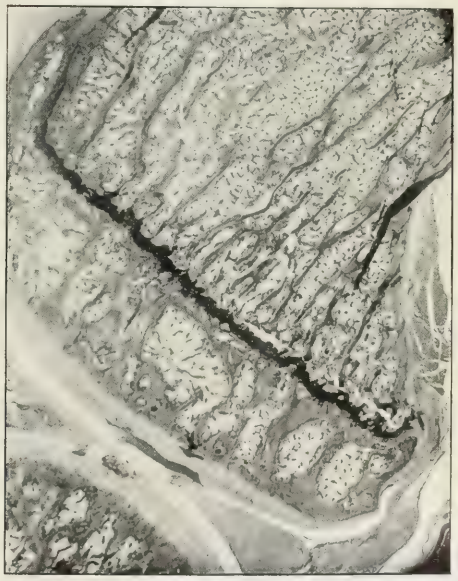


Case Theresa K.



Radiograph of Experimental Monkey. April 6, 1913.





Microphotograph. Guinea-pig No. 8.

some rarefication of the beam work of the cancellous portion of the head of the tibia and the shaft below the epiphysis. The latter is dense and eroded on its under surface. In one place it is markedly thickened and its cartilage cells irregularly formed and distributed. The femur shows a similar process, but to a lesser extent and there is no subperiosteal resorption going on its case.

The bony members of the other knee joint show less absorption in the cancellous tissue. The femur shows more periosteal thickening and infiltration than does its fellow. Occasional minute subperiosteal hemorrhages are to be found. The marrow is in every way analogous to that of the bones of the opposite side.

Guinea-Pig 5. *Grossly.* Scanty hemorrhages located almost entirely in the muscular tissue. Both knees examined.

Microscopically. The femora show no subperiosteal hemorrhages or periosteal thickening of infiltration. The marrow of the shaft is normal, that of the condyles shows a few areas of early rarefication, with very little of the myxomatous, bluish intercellular substance. Usually the reticulum lies in a clear homogeneous medium and is extremely delicate in its structure. In the tibiae the same condition obtains. The epiphyseal cartilage is normal in every case.

Guinea-Pig 6. *Grossly.* Slight intramuscular hemorrhages. Both knees.

Microscopically. The right femur shows extensive, old and almost absorbed subperiosteal hemorrhage, extending along the shaft. The periosteum is thickened and infiltrated, with many polymorphonuclear leucocytes. The bone marrow is congested, but normal. Epiphyseal cartilage normal, regular, not eroded. In the other knee there are similar conditions, excepting that there is marked rarefication of the marrow of the head of the femur, distal to the epiphysis, and moderate myxomatous change. There are none of the subperiosteal hemorrhages, as noted on the other side. There is, however, marked thickening of the periosteum, with infiltration and swelling of its tissue.

Guinea-Pig 8. Grossly. Slight intramuscular hemorrhages at both knees and hip on one side.

Microscopically. Marked subperiosteal extravasation about the head of the tibia, near the joint surface. Marked infiltration of periosteum and muscle in vicinity of the femur, without hemorrhage. Moderate medullary rarefication without any myxomatous deposits.

Other Knee. As above, but with some myxomatous deposit. The femoral epiphysis somewhat thickened and of irregular construction, the *tibial dense and eroded* (see microphotograph and compare with radiograph). The subperiosteal surface of the tibia is rough, but no active resorption is going on. The head of the femur shows medullary rarefication without other lesions, save hemorrhage into the muscle in the neighborhood of the joint.

Guinea-Pig 9. *Grossly.* Marked hemorrhages into soft parts.

Microscopically. Marked hemorrhage into the tissue about the knee, though no true subperiosteal hemorrhage is to be found. The soft tissues are infiltrated and swollen. The marrow is normal, contains much fat and is moderately congested. The bone of the opposite knee joint is normal in every case. All the epiphyses are regular and normal in appearance.

The gross pathology in all the guinea-pigs and the microscopic pathology in all those examined, except No. 5, show the characteristic changes of scorbutus. Animal No. 5 may have had a very early scorbutus which did not have time to develop the microscopic changes. It did have the clinical manifestation of scorbutus in loose teeth and purple gums.

In the majority of instances the x-ray showed that the epiphysis and diaphysis had joined and there was no evidence of the formation of the "white line." The very young guinea-pigs whose epiphysis and diaphysis had not joined, died before there was any evidence of scorbutus. Guinea-pig No. 8 (see accompanying radiograph) shows a definite though slight "white line" at the upper diaphyseal junction of the right tibia. This appears as a dense area in the microscopic section and corresponds with the "white line" in the radiograph.

III. EXPERIMENTAL SCORBUTUS IN THE MONKEY.

WALTER J. DODD, M.D.

Scorbutus is not a spontaneous disease which appears under natural conditions in animal life, because nature supplies the animal world with fresh food. It is, therefore, only under exceptional conditions that the young and growing animal will be given a diet which will cause disease. A baby is naturally fed at the breast and it is doubtful whether scorbutus ever develops under those circumstances. When it is fed on one of the proprietary foods or boiled milk, scorbutus often develops. The experiments reported below were undertaken to determine whether scorbutus would develop in the monkey if one of the proprietary foods were given and also to cause the formation of the "white line."

In March, 1911, Hart[13] fed a young monkey on trade condensed milk and kept it in such surroundings that it did not become rachitic. It eventually died with typical scorbutus, while the control monkey which received a mixed diet did not. The earliest symptom observed was bleeding of the gums; later the molars became loose. None of the teeth fell out and there was no ulcerative stomatitis or hemorrhages into the skin. There were hemorrhages accompanied by swelling and pain either in the knee, hand or foot. In another instance exophthalmos with an edematous hemorrhagic swelling of the upper eyelid appeared suddenly. Abnormal crepitus during life was found to be due to fracture at post mortem. Bloody diarrhea was a frequent occurrence, while hematuria was not observed. He found the "white line" by x-ray.

The above experiments were repeated by the writers in the following manner:—

Two young Java monkeys, aged approximately six months each and about the same size were placed side by side in cages in a warm,

airy, clean room where they could obtain plenty of exercise. The female or control animal was fed on cow's milk, carrots, raw apples, bread and bananas. At the end of the period of observation she was healthy and strong and showed no signs of rachitis. The male animal was fed on one of the common brands of condensed milk. Both monkeys were kept under observation for some time before the experiment was commenced. The diet of condensed milk was started on January 6, 1913, and was taken well for several days. Later the monkey lost his appetite and would only take it when hungry. The stools changed rapidly from the normal reddish color, became yellow and eventually shiny, like the white of an egg. The character of the urine changed so that after the diet had been given several days there was no odor of ammonia in the male monkey's cage, whereas it was very marked in that of the female. There was no apparent change in the condition of the male for eight weeks except that his appetite became very poor and it seemed wise to give him a little dry bread and boiled milk because he developed a diarrhea. As soon as possilbe (about forty-eight hours) unsweetened condensed milk was substituted for the boiled milk and the sweetened condensed milk. He then began to show the effect of the diet; he would sit on the floor of the cage with his head between his front paws and would raise his head with much difficulty. His face and ears showed signs of a marked anemia. Finally it was necessary to feed him forcibly with the bread and condensed milk. On March 29 the gums around the two upper middle incisors became purplish red and spongy but there was no tenderness around the bones or evidence of subperiosteal hemorrhages. Seven days later, April 5, the redness had extended to the first molars and the part first affected had become ulcerated. He died on April 6, exactly three months after the condensed milk was started and nine days after the redness of the gum was first observed.

The pathological report is as follows (by Dr. Chandler Foote):—

MONKEY. Rhesus Macaque, 45 cm. in length.

Eyes. Sclera totally obscured by discolored, subconjunctival hemorrhage.

Mouth. Numerous hemorrhagic ulcerations of both upper and lower gums, involving the frenum of upper lip. Teeth not loosened.

Abdomen. Abdominal fat reduced in amount, of a butter-like appearance.

Diaphragm at normal level, liver does not present. Intestines in normal position, collapsed.

Thorax. Shows no abnormalities in situs of contained organs.

Viscera. Heart normal in every respect save for its epicardium, which is spotted with innumerable punctate hemorrhages, which are distributed over the right heart, roots of the large vessels and extend into the myocardium for a short distance. Microscopically they are the only discoverable lesion aside from slight cloudy swelling.

Lungs. Show marginal hemorrhages at their lower anterior borders; otherwise normal. Confirmed microscopically.

Mediastinum shows numerous hemorrhagic foci.

Organs of Neck free from lesions.

Liver shows generalized fatty infiltration and slight hemosiderosis, the latter seen only under the microscope.

Spleen shows marked hemosiderosis and some congestion. Infective splenitis ("septic spleen").

Pancreas normal.

Stomach normal. Small intestines show marked mesenteric hemorrhage, but are otherwise normal. Colon is the seat of a well developed ulcerative colitis, the ulcers in some cases extending completely around the gut, having sluggish, everted margins and eroded, hemorrhagic bases. The mesocolon is the site of enormous hemorrhages between its two layers.

Kidneys and genito-urinary apparatus intact.

Skeleton. Aside from slight hemorrhages into the serous ligaments of the joints (ligamentum teres at hip, ligamenta alaria at knee, etc.), the bones show no lesions in the bone marrow. There are no subperiosteal hemorrhages, no medullary hemorrhages or areas of gross rarefication. Microscopically, the epiphysis in the lower end of the right femur (see radiograph) shows localized denseness extending into the epiphyseal cartilage for approximately one-quarter of its total thickness. Wrist-joint, where "white line" was most evident in the radiograph, not examined owing to misunderstanding.

Anatomical Diagnosis. Ulcerative stomatitis. Extensive ulcerative colitis (chronic, hemorrhagic). Multiple hemorrhages into conjunctivae (bilateral, complete), epicardium, anterior mediastinum, lungs (slight), mesocolon, mesentery, synovial ligaments of knee, hip, shoulder and elbow joints. Fatty infiltration and hemosiderosis of liver. Marked hemosiderosis of spleen, with slight splenitis.

Cause of Death. Chronic ulcerative colitis.

NOTE.—The condition is suggestive of infantile scurvy when considered with the clinical history of the case. There is, however, no definite proof that this disease was present. The findings in the bones were negative throughout both for rachitis and scurvy.—N. C. F.

During the period of observation radiographs were taken of the animals to determine any changes in the bones and to find the "white line" and the time of its appearance. No lesions were observed on the radiographs taken during life. The plate taken just after death shows a slight but definite increase in density, *i.e.* a "white line" at the diaphyseal junction of the lower end of each radius and a suggestion of the same thing at the lower end of the ulna. There is also a thin but clear "white line" at the lower end of the right femur. This plate is a much better radiograph than those taken during life and has much more contrast. This additional contrast does not in our opinion explain the increased density at this point.

SUMMARY.

The "white line" on the radiograph is a constant sign in infantile scorbutus. It may persist many months after there is a complete clinical cure, suggesting that the pathological changes in the bones are not repaired for many months and that the repair is very slow.

Scorbutus may be produced experimentally in the guinea-pig and in the monkey. Although our monkey was clinically scorbutic, the pathological findings were *not* characteristic. Hart's monkey showed both clinical and pathological changes characteristic of scorbutus, and we feel, therefore, that it is safe to say that scorbutus can be produced experimentally in the monkey. The "white line" can be produced experimentally in both the guinea-pig and the monkey; this line is seen under the microscope as a localized area of increased density.

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Medical Progress.

REPORT ON DERMATOLOGY

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AUTOHEMATOTHERAPY IN CERTAIN DERMATOSES.

M. Paul Ravant[1] has followed the lead of several German writers who have recently published observations of patients suffering from cutaneous disorders, who have been treated and benefited by injections of human serum. Mayer and Linser were the first to record the benefit derived by pregnant women with herpes gestationes from injections of human serum derived from other pregnant women. Later it was discovered that it was not necessary to use the serum of a pregnant woman, but that similar results could be obtained from any other human serum. In this way Linser successfully treated cases of prurigo, urticaria, eczema, and senile pruritus. In further researches Spiethof and Henck have shown that this method could be used with advantage in dermatitis herpetiformis, psoriasis, and in pruritic affections in general. Finally Spiethof, in a recent article, has shown the results obtained by reinjecting a patient with his own serum.

Ravant's method has been the simpler one of reinjecting the patient directly with his own blood, and practising thus an autohematotherapy. With this method the results seem to have been quite as good as those obtained by the German authors with the serum. It has the advantage of being more simple and of offering no risks of infection. Furthermore it is possible that there are substances contained in the fibrine or in the red corpuscles which may produce useful reactions when absorbed. He draws the required amount of blood from a vein in the arm and then reinjects it under the skin of the abdomen or better into the gluteal muscles. The injections were made once a week at first, later every second day, or even daily in the amount of 20-25c.c. per injection.

Thirteen patients were treated in this way. In a case of dermatitis exfoliativa that was extremely pruriginous, a complete suppression of the pruritus was attained, but the result was only temporary. A case of generalized seborrhoeic dermatitis was cured by 8 injections of 20 c.c. each. A very pruriginous lichen planus was benefited at once as far as the subjective symptoms were concerned. Later a lumbar puncture caused a much more rapid disappearance of the lesions than was effected by the injections. Three cases of psoriasis were not influenced by repeated injections. Benefit seemed to be derived from the injections in 3 cases of acne.

In this series of cases it is shown, as was the case with the injections of serum by the German writers, that the most effect is obtained in pruriginous dermatoses. When other lesions are benefited by this treatment it seems probable that the good effect is produced by the absorption of the blood injected under the skin causing the organism to put into commission a larger number of phagocytes in order to secrete a larger number of antibodies. On this hypothesis we may explain the action of certain older remedies such as that of blisters and setons, that they stimulate the defensive organic reactions.

In these cases no local reactions resembling the phenomenon of Arthus, and no anaphylaxis, were observed; it is proper to add that

not more than two and a half months intervened between the first and the last injection in any case. The writer says that if in the future any symptoms of anaphylaxis should appear, it is probable that they could be avoided by making use of small repeated injections according to the method of Besredka.

CHRONIC DERMATITIS FROM THORIUM.[2]

Friedländer describes a case of this affection that occurred in Lesser's clinic in Berlin. The subject was a working girl of 17, whose occupation caused her to work with a solution of nitrate of thorium in water. It was not until she had been exposed for a year that any ill results were observed, when a marked, progressive diffuse dermatitis of the back of both hands began to make its appearance. There was an hypertrophy of the whole skin, characterised by a pronounced redness, a severe infiltration and a soft tumefaction. These appearances presented themselves on the back of the hand and fingers, while on the forearms there were a number of isolated, sharply bounded patches. The clinical picture was similar to that of the chronic radium and Röntgen dermatitis of mild grade, as has often been described as occurring after long x-ray exposures. It is not believed that an idiosyncracy existed in this case.

Histologically the epidermis was found to be greatly thickened. The lower epithelial layer was compressed, so that the cells appeared flattened, although the very lowest cells, immediately above the papillae were of perfect cylindrical shape. In the second row of cells a honeycombed condition of the cells began to make its appearance, the nuclei appearing free in the centre of the meshwork in many places. Toward the upper layers of the epidermis, the swelling of the cells became more pronounced, and the vesicular appearances were increased.

The prognosis of the case was considered unfavorable. When the affection had existed six months, some improvement resulted from treatment by six exposures to the quartz-lamp. A recurrence, however, occurred as soon as the ultra-violet treatment was omitted, and the patient returned to her occupation, and at last accounts the affection had lasted for over a year, without permanent improvement.

MILIARY TUBERCULOSIS OF THE SKIN.

In April, 1909, Wilder Tileston[3] read at a meeting of the Boston Society of Medical Sciences a paper on disseminated miliary tuberculosis of the skin, an important sign in general miliary tuberculosis of infancy. This eruption, although seldom recognized, he asserted to be almost pathognomonic of miliary tuberculosis, and fairly common. It is characterized by scattered, discrete papules becoming vesicular at the apex which soon is converted into a well-defined dell or hollow. Healing occurs if the infant survives, and the duration is probably from one to several weeks. The situation of these lesions is chiefly the buttocks, genitalia and thighs—the so-called napkin region. There are usually some lesions also on the upper part of the body. The eruption is not as a rule symmetrical or profuse.

The characteristics of this eruption are very prominent, an especially marked feature being the umbilication. Tileston found out of 32 cases of tuberculosis of children in the first 3 years of life that this eruption was present in 7, or 21 per cent. The cases were those of tuberculosis of the bones, lymph nodes, lungs, intestines, meninges, and peritoneum. All those with this eruption who came to autopsy were found to have tuberculosis. The eruption in itself is of little importance, as it gives rise to no symptoms and usually has a marked tendency to heal.

Histologically the lesions show necrosis in the advanced types without inflammatory reaction, with nothing to suggest tuberculosis except the presence of tubercle bacilli. In 70% of Tileston's cases tubercle bacilli were present, often in large numbers. He considered that the process was embolic in its origin, analogous to the formation of rose spots in typhoid fever.

Tileston considers that this eruption, apparently accurately described for the first time by him, belongs to the group of cases that have been classified by Darier and others as tuberculides. He thinks that the papulo-squamous and papulo-necrotic tuberculides of Darier are identical with the eruption that he has described. Also the acne scrofulosorum of Colcott Fox is to be placed in the same category.

This work of Tileston's is entitled to more recognition than has been given to it. It really adds a new variety to the known forms of cutaneous tuberculosis, and in view of the comparative frequency that he ascribes to it, it is strange that it has not excited greater attention. This is probably due to the fact that the infants are so desperately ill at the time the eruption appears that it seems, as is indeed the case, of very trivial importance. Tileston, however, is probably wrong in classifying his cases with the tuberculides of Darier and others. The group described as tuberculides is not as yet well defined, and the cases claimed to belong in this class never present in their lesions evidence of the presence of tubercle bacilli, as is the case with Tileston's cases. Tileston's cases lay just claim to be regarded as a hitherto undescribed, true tuberculosis of the skin.

In the June, 1913, number of the *American Journal of Diseases of Children,* Wronker of New York contributes an article on the papulo-necrotic tuberculides of infants. The name

papulo-necrotic tuberculides is taken from Boeck. After a brief review of the history of the tuberculides, the writer reports 9 cases that have been met with in infants. All of these cases except one, a child of 16 months, were in infants under 1 year of age. He considers that these lesions are much more common than one would suppose from the literature. He considers it good practice to look for these lesions in every case that has a history of chronic cough, frequent "colds," loss of weight, fever, etc. Most, if not all, of Wronker's nine cases would seem to fall into the same category as Tileston's. The location of the lesions, most frequent upon the "napkin" region, less often upon other parts of the body; their usual sparse distribution; their appearance, that of small rounded papules, usually with a central depression or umbilication; and their association with tuberculosis frequently of the miliary variety,—all of these features are in common with those of the eruption described by Tileston. The von Pirquet reaction is regarded as of great help in clinching the diagnosis, especially in young infants, although a negative reaction should not be relied on, as such a reaction often occurs in general miliary tuberculosis. The prognosis he regards as very bad, although not absolutely a fatal one. In his nine cases Wronker states that the diagnosis was first made by finding this eruption, and asserts that if this eruption is searched for and recognized more cases will be discovered before the disease has reached an advanced stage, and in this way the mortality may be lowered.

It seems evident, therefore, that there exists in infants a pretty well-defined type of cutaneous lesions that occurs in connection with tuberculosis, generally of the miliary disseminated variety, and is usually, but perhaps not always, indicative of a fatal result. It would seem proper to separate this form, for the present at least, as a distinct variety of cutaneous tuberculosis. Although possessing some of the features of the tuberculide group, its characteristics and mode of occurrence are too well defined to group it with the several types of lesions occurring in adults that have been given the names of Folliclis, Acnitis, etc., etc., and whose etiology is still a matter of speculation and dispute, although the relationship of many of these forms to tuberculosis cannot be denied.

A SMALL EPIDEMIC OF ALOPECIA AREATA.[4]

Colcott Fox describes an interesting occurrence of this affection in epidemic form occurring in the Downs School for girls. The patients were all girls sent from the Bethnal Green schools at Leytonstone and they all came from one house in these schools. They were 21 in number, ranging in age from 9 to 14 years and were admitted to the Downs School within a period of a month, all affected with small patches of alopecia areata. Previously, a girl who had been in the schools for over two years, had been twice before admitted to the Downs School, with alopecia areata. These girls all had long hair and the patches were so small that they might without care have been easily overlooked. The patches are described as ranging from the size of a fingernail to that of a shilling, two being lanceolate and about 1½ inches long. The surface of the patches was not especially scaly; they were mostly denuded of hair, but there were many "exclamation-point" stumps, firmly attached to the skin. There were many follicles plugged with dark débris. The edges were not sharply defined, but ramifications extended out into the normal hairy scalp. In most of the cases there was only a single patch. Repeated microscopical examination of the hair and stumps failed to show any organism. (This is the more convincing as Fox has made a special study of the trichophyton and allied fungi.)

All of the cases were seen at an early stage and yielded quickly to the application of an ointment of the red oxide of mercury with cantharides, and no new patches developed. Fox asserts that in his experience the evidence of any contagion from alopecia areata in London is very meagre. He has seen several members of a family affected at different ages, but there was no strong evidence of contagion, as in ringworm, and unlike ringworm, there was a pronounced tendency to recurrence.

The clinical appearances, while those of alopecia areata, presented some especial features in that the patches were small, of slow evolution, very few in number, often oval or lanceolate in shape, and yielded very readily to treatment. Fox states emphatically his own view that ordinary alopecia areata is not contagious, and asserts that he has never known it to be communicated in schools. He refers to two epidemics somewhat similar to his own, one reported by Hellier in 1865 who described an epidemic at the Hanwell Schools, in which nearly 50 children were affected. The other epidemic occurred in Boston and was described by the present reporter in 1899.[5] There were two epidemics which evidently came from the same source. A girl of 11, an inmate of an institution for girls was first affected, and soon after 63 of the 69 children in the institution were found to have alopecia areata. Six years later the first patient, who had never fully recovered, was readmitted to the institution with the result that 26 out of 45 children were affected. In this case the prevalence of smaller and more irregular areas than is usual in alopecia areata was remarked on. It was also of interest that the husband of a woman with whom the first patient went to live when she left the institution also developed alopecia areata.

BREAKING OF THE HAIR.

Herxheimer[6] of Frankfort relates an interesting and unique case of breaking of the hair in a woman of 46. Heretofore this phenomenon had been observed only in Trichorrhexis nodosa and in intermittent aplasia pilorum. The patient in question had been treated for pityriasis capitis and resultant loss of hair, when suddenly it was found that a great mass of hair had been broken off. Investigation showed that many hairs had in fact broken off in the middle of the hair shaft, but no thickening or constriction could be found at the points of fracture. It was strenuously denied that there was any artificial causation. It was noticed, however, that there were less gray hairs than on a previous visit, and upon questioning, the patient admitted that a hair dye had been employed. The dye in question had been obtained from Paris and consisted of two solutions A and B, which produced a consistent deep black color. It had been used daily for several months, and had undoubtedly produced the changes in the hair that have been described. When examined microscopically almost all of the hairs showed in different parts of the free shaft a loss of substance. These losses of substances led in many instances to a fracture of the shaft. In only one case could a cavity in the shaft be verified. When examined chemically solution A was found to contain nitrate of cobalt and ammonia in excess. Solution B was proved to contain pyrogallol, with an alkaline sulphide.

The strongly alkaline character of these solutions is to be condemned as they must deprive the hair of fat to such an extent that it becomes brittle, and the presence of an alkaline sulphide in excess must disintegrate the hair. It is to be noted that such preparations have been used as depilatories, especially sulphide of Barium. That the breaking of the hair was caused by this dye was proved by the further course of the case, as the breaking ceased as soon as the dye was discontinued. Herxheimer remarks that he has never met with such a case in the literature.

MESOTHORIUM IN DERMATOLOGY.

Kunitzky[7], assistant in Neisser's clinic in Breslau, publishes the results of his trial of mesothorium in various dermatoses. He made use of capsules containing mesothorium not over 20 mg. in amount, with a diameter of 5, 10, and 15mm. The places to be treated were covered with the mesothorium capsule, which was retained in place by strips of plaster. Over this a thin pad of cotton was laid which was bound down by a firm bandage. The time of application varied according to the amount used and the depth of the affection. In many cases a carcinoma has been made to disappear after a sitting of 40 minutes, without recurrence up to the present time. The inflammatory reaction usually appeared one or two days after the exposure, and consisted of an erythema corresponding to the size of the capsule, at first of a bright red, later changing to a brownish red and followed by superficial necrosis of the epithelium, which attained its maximum at the end of the second and in the third week. The crusts fell at the end of four to six weeks. The shorter the time of exposure, the more sightly the resulting scar tissue.

Of 24 cases of cutaneous carcinoma, 19 were clinically healed, 2 extremely improved. In only 2 cases were there recurrences, at the end of four and eight months respectively. On the whole the results are claimed to be most favorable. A definite opinion cannot yet, however, be ventured, as half of the cases had been controlled for only from seven to fifteen months. Thirteen cases of small, isolated, partly cavernous angiomata, chiefly of the face, were treated. The results, in his estimation, were fully as good as those obtained by carbon dioxide snow —not, however, as Saalfeld reported, superior.

Favorable results were also noted in cases of more or less extensive vascular naevi. Every case responded by an improvement of the part exposed, commensurate in degree with the intensity of the application. Better results are claimed than from Röntgen rays, radium, or carbon dioxide snow, inasmuch as the procedure is more simple and reliable. As the desired result is purely a cosmetic affair, the exposures ought to be carefully regulated as to time, 20, 30, and at most 40 minutes at a sitting.

Six cases of so-called "spider cancer" responded perfectly to exposures of 20-30 minutes.

Pigmented, hairy, naevi are notoriously difficult to treat successfully. With the exception of the cases in which surgical excision was practicable, the quartz lamp and carbon dioxide snow are the only remedies that have been used with success. To these mesothorium proved itself superior, although it must be confessed the results were variable. Three of 10 cases treated were uninfluenced, the others were all essentially improved, while 3 could be claimed to be healed. This required a comparatively energetic treatment—from 40-60 minutes, and naturally there resulted a superficial scar tissue. A permanent epilation was always attained, so that the use of this method in hypertrichosis might be thought of, provided the time of exposure could be shortened, and the scar tissue minimized. The effect on the pigment was also pronounced, but the action on the tumor cells was least apparent. The most that was accomplished was a diminution in the prominence of the tumor mass.

In lupus vulgaris, the writer cannot confirm the favorable results of Wichmann. Eight cases were treated, some of which were subjected to from 5 to 7 sittings, of 1 to 2 hours'

duration. Numerous nodules appeared continually at the edges, so that the treatment had to be stopped, and recourse had to the usual methods with pyrogallic acid, ultra-violet light, etc.

The results of the treatment of 8 cases of lupus erythematosus were remarkably favorable. The improvement could not have been due to the natural remissions of the disease, as it occurred in each case immediately after the employment of mesothorium, and in cases which had previously been treated for a long time with the quartz lamp, carbon dioxide snow, and iodine-quinine. The mesothorium method was found much more agreeable by the patients than the others mentioned. In most of these cases it would be almost fair to speak of a cure, although part of the cases were still under treatment and in one a recurrence had been observed. The cosmetic result was not, however, entirely satisfactory, as the bluish-white scar tissue was almost as conspicuous as the lesion itself. No increase of the process from the treatment was observed. He considers the results better than those from quartz or carbon dioxide snow.

Other affections, such as keloids, scleroderma, dermatitis papillaris, soft warts, etc., are at present under trial.

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Reports of Societies.

THE AMERICAN GYNECOLOGICAL SOCIETY.

Thirty-eighth Annual Meeting, Held at Washington, D. C., May 6, 7 and 8, 1913.

UTERINE INERTIA; ITS TREATMENT.

The president, Dr. Henry C. Coe, New York, in the chair.

Dr. George Tucker Harrison, of Charlottsville, said that when the uterine muscle showed feebleness in the beginning of labor and during dilatation, this condition of atony was called primary uterine inertia. The cause may be due either to anatomical changes in the uterine muscle or in disturned innervation. Secondary inertia was a condition of exhaustion which came on during the period of expulsion from various causes. Before rupture of the membranes in primary inertia there was no indication for active intervention. After rupture, if there was danger to life of the child from the discharge of liquor amnii, or the mother's life was imperilled from danger of septic infection, dilatation should be brought about by the metreurynter (rubber bag); version followed by extraction then employed. In secondary inertia a too protracted labor was dangerous to the mother and child, active intervention was indicated; if the head was well down in the pelvis and resting upon the perineum, the forceps were applied. It had been recently proposed to perform Cesarean section in certain cases of uterine inertia, especially in the interests of the mother. The obstetric resources at our command were amply adequate, and there was no indication for such operative procedure in inertia *per se*. In primary inertia, a combination of morphia, atrophia and strychnine often had an excellent effect when given hypodermically. After dilatation pituitary extract had found favor with sime obstetricians. The exact field of application awaited further investigation.

PITUITARY EXTRACT IN UTERINE INERTIA.

Dr. J. Clifton Edgar, of New York City, reported 70 cases of which records had been kept, and these cases were from two hospital services, namely, Bellevue and Manhattan Maternity and from private practice. They included in the first and second stages of labor, 30 cases; immediately after the third stage, 19 cases; in Cesarean section 6 cases; and for the induction of abortion 6 cases. He drew the following conclusions: 1. Ampules or vaporales of the drug should alone be employed, as in his experience, constant results failed when the pituitary extract in bulk solution was used. 2. There were three reliable proprietary preparations of the drug now or the market; all of these were used at different periods in his cases. 3. For decided action, 0.4 gram of the drug was usually called for, although in ordinary cases, with little obstruction, half that dose was found sufficient. 4. As the effect of the drug lasted but 30 minutes, repetition of the dose was often called for. 5. Intra-muscular injection was usually satisfactory; causing no local reaction or pain. Further, no toxic symptoms were observed from the use of the drug even in maximum doses. 6. Pituitary extract might be combined with ergot when the action of the former failed, and with heart stimulants in shock cases, without compromising the actions of these drugs. 7. Pituitary extract had no place in normal labor, the administration should be confined in obstetrics to instances of primary and secondary inertia, to post-partum hemorrhage and Cesarean section, in the last as a substitute for ergot. 8. The drug produced strong intermittent uterine contractions often prolonged for several minutes. He had never observed true continuous tetanic uterine contractions (tetanus uteri.) 9. Although theoretically the uterine contractions were intermittent, practically in the face of resistance, the contractions approached to the continuous in character and clinically might be so reckoned with. 10. Full and even small doses of the drug in the first stage of labor, had caused in his cases fatal compression of the fetus, premature separation of the placenta, and deep rupture of the cervix. 11. In the first stage or where some obstruction existed in the second stage, he gave small tentative doses of pituitary extract not with complete delivery by means of the drug in view, but to bring the head in easy reach of a simple forceps operation. Seven of his 39 cases were

thus treated. 12. Pituitary extract acted promptly and efficiently in most of the 39 cases of inertia in the second and first stages. Its actions were more positive in multiparae than in primiparae; it acted better at full term than in premature cases; also better in the second than first stage of labor, and when administered shortly after the spontaneous artificial rupture of the membranes.

In the 18 cases in which the drug had been used, immediately after the third stage for post-partum hemorrhage due to inertia, his results were disappointing. So much so that he considered its action here most unreliable and not as positive as the ergot preparations.

In 18 post-partum cases he found no effect of the drug in two cases; it was necessary to use ergot in two instances; hot acetic acid douche in two more; to pack the uterus in seven cases, and in the remaining six cases only were good uterine contractions observed. 13. In Cesarean section, he could not observe any advantage of pituitary extract over ergot, aside from the observation that the former acted more promptly and hence need not have been administered so early in the operation. 14. In induction of labor the drug failed to initiate contractions, but apparently initiated them after the use of gauze, the bougie or hydrostatic bag for inducing labor. His belief was the drug strengthened already existing contractions not yet apparent to patient or physician. 15. For primary inertia in abortion cases, his results with the drug were disappointing. 16. For atony of the bowel and bladder and as a galactagogue his results were frankly negative. 17. The dangers to mother and child in the indiscriminate administration of this drug for primary or secondary inertia of the first or second stage of labor must be reckoned with.

Only a few of the 39 cases of inertia were frankly in the first stage of labor and these were earlier cases. The remainder were of the second stage or borderline cases just merging into the second stage.

He considered the use of the drug in the first stage a dangerous practice, liable to cause death or deep asphyxia of the fetus, separation of the placenta, uncalled-for laceration of the cervix and possible uterine rupture.

18. He had to report of his 39 cases of inertia in the first and second stages, two and probably four stillborn children due, in his opinion, to the use of pituitary extract, before full dilatation, and three instances of deep laceration of the cervix requiring suture to control the bleeding. 19. He looked upon the use of pituitary extract before full dilatation or dilatability of the cervix as equivalent to the use of ergot at this time. In fact it was probably more harmful than ergot, by reason of the more powerful contractions produced, and the uncertainty of its action. 20. He had repeatedly observed prolonged tempestuous contractions, when the drug was given in the face of too much resistance, closely simulating tetanic contractions of the uterus (tetanus uteri). 21. The action of the drug was most uncertain. One could never predict in a given case, either from the amount of the drug administered, or from the character of inertia and the obstruction to be overcome how powerfully the drug would act upon the uterus. 22. He had repeatedly observed, that both in private and hospital practice, 0.2 gram of pituitary extract, half the usual dose commonly employed, produces such prolonged and powerful uterine contractions that uterine rupture was imminent and anesthesia was required to control the action of the drug on the uterus. 23. In his opinion the drug should never be employed for inertia in any stage of labor, unless anesthesia was at hand for immediate use, and preparations complete for immediate operative delivery, if necessary, to avoid uterine rupture. 24. Finally, with due regard to its action, and possible dangers, pituitary extract was a most valuable addition to the resources for the treatment of primary and secondary inertia.

UNDER WHAT CONDITIONS SHOULD UTERINE INERTIA BE TREATED BY ARTIFICIAL DELIVERY?

DR. EDWIN B. CRAGIN, of New York City, said uterine inertia was of greater importance in the second stage of labor, especially if the membranes were ruptured and the pressure of the uterus came directly upon the child, than in the first stage, yet in several Cesarian sections performed during a prolonged first case the presence of meconium in the liquor amnii and the marked slowing of the fetal heart prior to the operation had convinced him of danger to the fetus from uterine inertia even during the first stage of labor.

Uterine inertia associated with fetal heart sounds indicating danger to fetal life was one of the first types of inertia indicating artificial delivery. His plea was for studied, skilled, artificial assistance in the delivery before the mother and child were exposed to these dangers.

There was one condition not usually classed as uterine inertia which the writer called attention to before closing his paper. It was the long delay which sometimes intervened between the rupture of the membranes and the uterine contractions of the first stage of labor. Patients sometimes presented themselves at the hospital with a history that their membranes had ruptured, three, four, or even five days before their labor began. An unfortunate experience several years ago in which the fetal heart ceased before the labor was completed, and a study of the temperature charts of a number of these cases convinced him that in many particulars they resembled cases of uterine inertia during actual labor; that there was fetal danger from interference with fetal circulation from prolonged pressure and that maternal morbidity was common from sapremia if not from bacteriemia. For these reasons he had made it a rule in recent years both at the Sloane Hospital and in his private practice to introduce an elastic bag into the cervix if uterine contractions had not started at the end of 24 hours from the time of the rupture of the membranes. The elastic bag as a rule not only brought on uterine contractions, but lessened the further escape of the liquor amnii and the results, both fetal and maternal, had seemed to justify the procedure.

DISCUSSION.

DR. EDWARD P. DAVIS, of Philadelphia, stated that from the accumulated experience of the profession, it seemed pituitrin came into practical competition with strychnia, opium and ergot, and Dr. Edgar had given a very valuable hint as to the danger of pituitrin. We all recognized the fact that in many cases opium to the point of lessening nervous excitability and securing rest was of the greatest value in bringing about the development of the physiology of labor, and we were all aware of

the very frequent experience of the unexpected and rapid delivery of multiparae to whom we had given opium to secure rest, and how frequently the woman surprised herself and us most of all when we were caught napping, but certain it was, opium in the general experience of the profession was the one sedative which was a stimulant to the ganglion which controlled the action of the uterus.

As regards strychnia in comparison with pituitrin it seemed to him the difference between the two might be stated in this way, that strychnia, given in moderate doses was a physiological stimulus to the ganglion supporting and maintaining uterine action, while pituitrin, and especially as indicated by Dr. Edgar, was a matter of more brief and more stormy result, and hence much more uncertain, and personally, he had not felt that he could substitute pituitrin for the use of strychnia as a physiological stimulant or aid in labor.

The use of ergot was a thing to be carried out with great caution, and he still adhered to the belief that ergot should be given upon the emptied uterus only, and in Cesarean section one might lay aside ergot entirely oftentimes with advantage.

As to contracting the dilating bag with the bougie as an inducer and promotor of labor in connection with strychnia or pituitrin, it was of advantage in that it decidedly stimulated the mucous secretion of the cervix and was less apt to alter the mechanism of labor.

Dr. John O. Polak, of Brooklyn, New York, stated that no discussion of pituitrin in this society should go out without sounding a word or two of warning. He had had within the last three weeks a case of rupture of the uterus from the use of pituitrin. He had also seen within a month a case that was thrown into such violent uterine contraction that anesthesia and morphia had to be used to control the spasm of the uterus; consequently from his experience which was comparatively limited, only 76 cases, he had drawn some conclusions that were only tentative, that pituitrin had little or no place in the first stage of labor; that it was dangerous so far as our experience was concerned unless there was absolute knowledge of the pelvis, particularly in outlet contractions and particularly in borderline contractions.

Furthermore, in order to get the best use from pituitrin we should have a dilated or at least a dilatable cervix, because injuries to the cervix had been just as Dr. Edgar had stated. He had found, furthermore, that it had no value, as far as his limited experience had gone, in establishing uterine contraction, in emptying the uterus in cases of incomplete abortion.

Another observation he had made was that where it was used in the third-stage labor, he had gotten secondary relaxation in a sufficient number of cases to warn him that when he used it in the third stage it should be combined with ergot.

Dr. Henry T. Byford, of Chicago, stated there was a mild form of inertia which in primipara meant a great deal perhaps in some cases, due to general exhaustion from muscular exercise of the prolonged first stage, or want of rest and exhaustion of the nervous system. He had seen many cases in which there was inertia of the cervix. The patient had an irritable condition of the parts and would have if the first stage of labor was unusual in its length. At one time, when investigating the function of the membranes in labor, with a view to preserving them, he got in the habit of using opium frequently, and in these cases the administration of opium would give rest, particularly as it acted in contrast to the advice so often given to women to get around and try to stimulate labor.

Dr. Robert L. Dickinson, of Brooklyn, said that between foreign and American obstetrics there was one great distinction. Dr. Kerr read a very able paper before this society on waiting or long delay in the second stage of labor. The German practice of delay in the use of the forceps or the infrequent use of the forceps as compared with the American was most striking. He submitted the particular type of American woman, neurotic, easily tired from vigorous muscular exercise and anxiety, was a type to which the pituitary extract particularly applied. It was most fortunate to have had so lucid an exposition of the exact therapy of pituitary extract as Dr. Edgar had given.

Dr. William E. Studdiford, of New York City, said one of the most important points in these three papers was that of calling attention to the dangers of pituitary extract. Enthusiastic reports sent around by the manufacturers led to the promiscuous use of pituitary extract with many unfavorable results. His own experience had been very much the same as that of Dr. Edgar. The pituitary extract was so uncertain in its action in the first stage of labor that it was apt to cause such bad results in the cervix that the cervix, it seemed to him, should either be fully dilated or dilatable, and was many times, but where the diagnosis was positive that there was no obstruction to rapid delivery, delivery could be brought about promptly. Therefore, the question of diagnosis was important in the management of these cases as well as the indication for treatment. An accurate diagnosis should be made before any line of treatment was followed out.

Dr. Charles M. Green, of Boston, stated that these radical papers were going out to influence practitioners, and in the subsequent discussion something ought to be said as to what should be done in the way of prevention of uterine inertia. The average woman who was going to have a baby, should be trained to go through the ordeal just as a good athletic trainer would teach men on a football team. We should train her for the condition, and if this was done in a large proportion of cases the inertia would disappear. Furthermore, there were a great many women who were benefited during the last two months of pregnancy by systematic treatment with iron, arsenic and strychnia. He gave strychnia in small doses to women in the last two months of pregnancy. If a woman was in pretty good shape physically, was not tired, if she had a fair nervous system, she would go through labor pretty well if she kept moving around.

Dr. J. Clarence Webster, of Chicago, said that in cases of uterine inertia associated with rigid, elongated, or hypertrophied cervix, he believed that the important measure of treatment was vaginal Cesarean section, and not abdominal Cesarean section unless there was contraction of the pelvic outlet.

As regards the use of pituitrin, he had been using it in the Presbyterian Hospital, Chicago, and his experience harmonized with that of Dr. Edgar, although he had not used it perhaps in as many cases as he had.

(To be continued.)

Book Reviews.

Walt Whitman's Anomaly. By W. C. RIVERS. London: George Allen and Company, Limited. 1913.

This is an attempt, and apparently a successful one, to demonstrate the abnormal sexuality of Walt Whitman. Whether it is worth while to exploit these matters is an open question; and we believe the author and publishers have done well to restrict its circulation to members of the legal and medical professions. The evidence brought is largely of an internal character, taken from Whitman's writings, and points certainly toward the homosexual character of the man. The brochure is published in paper covers, and the text fills seventy pages.

Studies from the Rockefeller Institute for Medical Research. Volume XVII. New York: The Rockefeller Institute for Medical Research. 1913.

This seventeenth volume of reprints of original articles by workers in the Rockefeller Institute is the first in which the papers have been grouped according to subject. Flexner presents his further work on experimental poliomyelitis in monkeys. Noguchi reports on the cultivation of *Treponema pallidum*, Carrel on cultures of cells; and Loeb on the fertilization of the eggs of invertebrates. Peabody, of Boston, has a clinical study on "The carbon dioxide content of the blood in pneumonia." The volume, which contains many tables, is a worthy continuation of previously published studies from this institute.

Massage, Its Principles and Technic. By MAX BÖHM, M.D., Berlin, Germany. Edited, with an Introduction, by Charles F. Painter, M.D., Boston. Illustrated. Philadelphia and London: W. B. Saunders Company. 1913.

This English translation of Dr. Böhm's admirable treatise on massage is intended particularly to diffuse among physicians in this country a knowledge of the principles and indications of this important therapeutic agent, and among physicians and nurses a familiarity with the technic of its application. The system which the author describes is essentially that of Hoffa's clinic, and its manipulations are well illustrated by 97 excellent figures in the text. The editor's graceful introduction points out the important bearing of massage on many of the problems of general practice. The book should also be of value to students of medical gymnastics in schools of physical culture.

Applied Bacteriology for Nurses. By CHARLES F. BOLDUAN, M.D., *and* MARY GRUND, M.D., Illustrated. Philadelphia and London: W. B. Saunders and Company. 1913.

This book aims not so much to present the technical and descriptive facts of bacteriology as to emphasize their immediate application to the work of nursing. The first part contains a general description of bacteria, their modes of cultivation, study and transmission, and their relation to disease, with a consideration of agents and methods of disinfection, antisepsis, asepsis, and sterilization. The second part describes in detail the special infectious diseases, particularly with relation to their bacteriologic etiology, diagnosis, treatment, and prophylaxis. At the close of many of the chapters are useful suggestions for practical demonstrations by a teacher to a class of pupils. There is also a valuable chapter on immunity. The work should be of great service to teachers of practical bacteriology in hospital or private training-schools.

The Teacher's Health. A Study in the Hygiene of an Occupation. By LEWIS M. TERMAN, Associate Professor of Education, Leland Stanford, Jr., University. Boston, New York, and Chicago: Houghton Mifflin Company. 1913.

This volume in the Riverside educational monograph series, on a medical subject, is not written by a physician. It therefore bears evidence of the slight element of neurosis almost inevitably present in any medical work by a layman. Apart from this intrinsic temperamental defect, however, the book is an excellent and valuable study. It is written primarily for women teachers, and aims to point out their particular professional risks and the means by which these may be avoided. In the main this is successfully accomplished, barring the inevitable shortcomings from the author's lack of professional medical knowledge. The book closes with an excellent bibliography of 66 selected titles.

Transactions of the Fifth International Sanitary Conference of the American Republics. Washington, D. C.: Pan American Union. 1913.

This belated report records the proceedings of the conference held in Santiago de Chile, Nov. 5 to 11, 1911, between delegates from Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominica, Ecuador, Cuba, Guatemala, Honduras, Nicaragua, Mexico, Panama, Paraguay, Salvador, United States, Uruguay and Venezuela. At the several sessions many topics of sanitation were presented and discussed. Montevideo was selected as the seat for the sixth conference. An

appendix to the report contains the 26 resolutions passed by the fifth conference, the reports of committees, and the special reports submitted by the various respective delegations. That of the United States, by Dr. G. M. Guiteras and Dr. J. C. Perry, is of particular interest.

A Reference Hand-Book of Gynecology for Nurses. By Catharine Macfarlane, M.D. Illustrated. Second edition. Thoroughly revised. Philadelphia and London: W. B. Saunders Company. 1913.

The first edition of this book, published in 1908, was developed from a series of lectures on gynecology given by the author to the nurses of the Woman's Hospital of Philadelphia. In this second edition, the sections on the preparation for and after-care of major gynecologic operations have been largely rewritten; additions to the text have been made on the subjects of cancer of the uterus, vaginal fixation, and acute gastric dilatation; three new illustrations have been added, making a total of 70; and various changes have been made in details of technic, such as the dry sterilization of gloves and the iodin preparation of the skin. The work should continue to maintain its usefulness as a manual for nurses in female genito-urinary diseases.

Insurance Medicine. By Henry H. Schroeder, M.D. Reprinted from the *Medical Record.* New York: William Wood and Company. 1913.

This volume represents the collective reprinting of a series of articles entitled "Suggestions to Medical Examiners," which, during the past eighteen months have been appearing in the *Medical Record.* Its aim is to present the subject of insurance examination in such a way as to coördinate the work of the medical examiner with that of the medical director. To this end the complete anamnesis and examination of a candidate is discussed in detail, every element of importance being presented and dispassionately weighed. The result is a very complete manual of method as developed by an expert, which should be of value as a guide to all physicians engaged in this important branch of work.

What Heart Patients Should Know and Do. By James Henry Honan, M.D. New York: Dodd, Mead and Company. 1913.

This book is written for the laity, for those persons particularly who know or suspect that they have cardiac disease. It is not intended to replace the physician, but to reinforce his treatment with suggestions to patients as to exercise and diet, and with advice as to the wise regulation of their lives. It is written neither in the spirit of the alarmist nor in that of the optimist, and aims to present the truth in such form as to be correctly intelligible to the non-professional mind. Despite the general inadvisability of books which tend to make patients think too much about their health, this work seems to deserve recommendation as one on the whole temperate, rational, and likely to make its readers take that thought for the morrow which will enable them to foresee its dangers and secure themselves prolonged power to discharge its duties.

Food and Feeding in Health and Disease. A Manual of Practical Dietetics. By Chalmers Watson, M.D., F.R.C.P.S. Second edition, revised. New York: William Wood and Company. 1913.

This second edition of a now well established practical textbook on dietetics aims, like the original, to provide a complete and practical epitome for the student. Less attention is, therefore, devoted to the chemical composition and heat values of foods than to their influence on the digestive and bacterial processes of the alimentary tract. The entire work has been revised, and there has been added an account of modern methods of bleaching flour and of other methods of preparation which are believed to impair the nutritive properties of foods. An appendix contains a record of the author's experimental observations on the effect of diet on the structure of tissues. These are illustrated with thirty text figures and a full-page colored plate.

Vaccine and Serum Therapy. By Edwin Henry Schorer, B.S., M.D., D.P.H. Second revised edition. St. Louis: C. V. Mosby Company. 1913.

In the first edition of this book, published in 1909, particular emphasis was laid on opsonins, then regarded as of crucial importance in any study of vaccine and serum therapy, and immunity. Since that time these subjects have become much better understood, indications and contraindications are more justly appreciated, and details have fallen into their proper perspective. In this second edition, which includes also a study of infections, theories of immunity, specific diagnosis and chemo-therapy, an entire new chapter has been added on the general principles of specific diagnosis of the etiologic factor of infections; and in the last chapter have been given differential diagnostic points for infection with each of the organisms for which specific therapy is discussed. A new appendix also discusses the specific diagnosis and chemo-therapy of syphilis and malaria. The book is illustrated by 18 figures in the text, three charts, one full-

page table, and one full-page colored plate, from Pottenger, representing the conjunctival, Von Pirquet, and Moro tuberculin reactions.

New Aspects of Diabetes Pathology and Treatment. By DR. CARL VON NOORDEN, Professor of the First Medical Clinic, Vienna. New York: E. B. Treat and Company. 1912.

This volume, consisting of the lectures delivered by the author in October, 1912, at the New York Post-Graduate School of Medicine, presents his latest views on a subject of which he is a recognized international authority. Since his previous series of lectures, given before the same school in 1905, his personal experience has included the treatment of over 2000 cases of diabetes in his clinic and sanatorium. This rich material affords data of remarkable value. The new aspects of diabetes upon which especial emphasis is laid, are the chemical knowledge of the sources of sugar within the body, the rise in caloric production and its causes, the control of sugar formation and its disturbances, the therapy of diabetes, particularly the so-called "oatmeal treatment," and the influence of acetonuria on the treatment of diabetes mellitus. Peculiarly interesting and suggestive is the author's theory of diabetes and his diagram illustrating the metabolic relationship and interaction of the organs constituting the sugar-forming apparatus. The book should be of great value to advanced as well as elementary students, as the latest contribution from the researches of an expert in this special subject.

A Laboratory Manual of Invertebrate Zoölogy. By GILMAN A. DREW, Ph.D., Assistant Director of the Marine Biological Laboratory, Woods Hole, Mass. With the aid of present and former members of the zoölogical staff of instructors at the Marine Biological Laboratory, Woods Hole, Mass. Second edition. 12mo of 213 pages. Philadelphia and London: W. B. Saunders Company. 1913.

The second edition of this small manual has been enlarged to include descriptions for the study of a few forms together with a literature list of certain important references. The primary object of the book is to offer a set of laboratory directions to meet the needs of classes in general zoology. Although published under the name of Gilman A. Drew, Ph.D., assistant director of the Marine Biological Laboratory at Woods Hole, Mass., many other members of the staff of that laboratory have assisted in the preparation of the text. The book was stimulated by the needs of students working at this well known and productive biological laboratory. The text offers suggestions for study rather than complete details and is distinctively a laboratory manual. There are no illustrations and the text is arranged under type animals in such a way as to form a succinct guide to the subject of invertebrate zoölogy. It is to be recommended to teachers and students concerned with this branch of scientific investigation.

Lectures on Diseases of Children. By ROBERT HUTCHISON, M.D., F.R.C.P., Physician to the London Hospital and Physician, with Charge of Out-Patients, to the Hospital for Sick Children, Great Ormond Street; author of "Food and the Principles of Dietetics" and "Applied Physiology"; Joint Author of "Clinical Methods." Third edition. New York: Longmans, Green and Company; London, Edward Arnold. 1913.

This little book, as the author states in the preface to the first edition, is not intended to be an exhaustive treatise on the diseases of childhood nor to compete with text-books on the subject. It is simply a compilation of a course of lectures, delivered from notes, and corrected from the stenographer's report. The work has been thoroughly revised in this edition and six new chapters added. The subject has been approached from the clinical standpoint and considerable attention paid to the details of treatment. The author's wide clinical experience is everywhere evident and renders the book especially valuable for the practitioner. No one can read it without picking up many useful points and profiting from the author's wide knowledge of disease in childhood. The illustrations are in most instances good and the index unusually complete.

A Reference Handbook of the Medical Sciences, Embracing the entire Range of Scientific and Practical Medicine and allied Science. By various writers. First and second editions, edited by Albert H. Buck, M.D. Third edition, completely revised and rewritten, edited by Thomas Lathrop Stedman, A.M., M.D. Complete in eight volumes. Vol. I illustrated by numerous chromolithographs and 611 fine half-tone and wood engravings. New York: William Wood and Company. 1913.

This reference handbook has long filled a somewhat unique place, in that it comprehends the entire field of medicine through the medium of brief articles. It may well be regarded as an encyclopedia of medicine rather than on the one hand, as a dictionary, or on the other, as a series of monographs. This first volume of the new third edition has been revised to meet the advances of the subjects of which it treats. Its articles reach only to bacteriuria, and this

material is included in a space of 928 pages. The volume is in general form similar to that of preceding editions. It is admirably printed in double column and is profusely illustrated in part with plates in color. We shall await the succeeding volumes with interest and have no doubt that under the editorship of Dr. Stedman the general standard of excellence will be maintained.

Outlines of Psychiatry. By William A. White, M.D., Superintendent Government Hospital for the Insane, Washington, D. C.; Professor of Nervous and Mental Diseases, Georgetown University, Washington, D. C., etc. Fourth edition, revised and enlarged, pp. 318. New York Journal Nervous and Mental Disease Publishing Company. 1913.

This book gives us much more than the "outlines" of psychiatry and is a thoroughly up to date and practical text-book which should be of great service for instruction. In fact it is not surpassed for this purpose by any English work on the subject. It is clinical, pathological and therapeutic in its scope and does not deal with the larger sociological and medico-legal questions bearing upon insanity. It is eminently a work of today and all of the more advanced theories and methods pertaining to the subject are given their proper value so far as that is possible in three hundred pages. This is evident in the parts on association-tests, character or "make-up" studies, schizophrenia, psycho-analysis, etc. The chapter on mental examination is exhaustive and supplemented by a routine "minimum" examination, giving only the essentials for use in institutions where large numbers of patients are treated. The work is further improved in this edition by many illustrative cases and a complete description of the Binet-Simon tests. Sero-diagnosis in the shape of the Wassermann and Noguchi tests, however, is hardly given the prominence in these pages which the growing use of the tests in mental cases would lead one to expect. The work is a great credit to American psychiatry.

The Labyrinth. An Aid to the Study of Inflammations of the Internal Ear. By Alfred Braun, M.D., and Isidore Friesner, M.D. (New York). Illustrated. New York: Rebman Company. 1913.

The labyrinth, as the authors say in their preface, now occupies the center of interest in the otological world. Every progressive otologist has been waiting for a book like this which would present the subject in a systematic, up-to-date and concise form. The very fundamentals of the subject, anatomy and physiology, are bravely attacked and are not slurred. They are hard reading, but every surgeon will welcome them, notwithstanding the fact that their mastery means a return to the plugging methods of student days.

Following the two opening chapters just mentioned, the remaining ones treat in turn of the methods of examining the functions of the labyrinth, the pathology of the labyrinth, the symptoms of labyrinthitis, and the treatment of such conditions. The book closes with a bibliography, a list of authors and an index.

There is so much new matter that the ordinary otologist would be helped if most of the chapters were summarized and their chief points put in tabular form. The paper and the printing are good. The half tone drawings are beautiful and useful, but the line drawings in the chapters on anatomy and physiology are inexcusably poor. This book, which is sure to become a reference work for English reading otologists, should be cleared at once of many nearly undecipherable diagrams.

Organic and Functional Nervous Diseases. A Text-book of Neurology. By M. Allen Starr, M.D., Ph.D., LL.D., Sc.D. Fourth edition, thoroughly revised. Illustrated with 323 engravings in the text and 30 plates in colors and monochrome. 8vo. pp. x, 970. New York and Philadelphia: Lea and Febiger. 1913.

Although the present volume contains about 60 more pages than the previous edition, by the use of thinner paper the bulk of the volume is considerably decreased. Chapters have been added on pellagra, headache, psychasthenia, disorders of sleep and arterio-sclerosis. Myatonia congenita, myasthenia gravis and family periodic paralysis have been treated much more fully than in the previous edition. Other chapters, especially those on tumor of the brain, poliomyelitis and neurasthenia have received considerable additions. In the chapter on hysteria the views of Babinski, Janet and Freud as to the pathogenesis of the disorder are well presented, and Freud's hypotheses meet with little favor. Although this new edition has been much more thoroughly revised than many new editions for which such a claim is made, and although additions to the subject matter are to be met with in a large number of pages, the revision has been far less thorough than is desirable. While wholly new chapters have been added on myatonia, myasthenia, etc., the former discussions of those affections in other chapters has not been cut out, a number of chapters which were never fully abreast of our present knowledge remain untouched, and many unwarranted statements still remain uncorrected. Nevertheless, the work contains much of value and many desirable additions, and this new edition has all the merits that have won favor for the former editions which are now so well known.

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INFANT WELFARE IN THE STATE OF NEW YORK.

AN important conference on infant welfare was held at the state capitol, Albany, in June, and the State Department of Health has just issued a special bulletin, under the auspices of the Division of Publicity and Education, which gives a full report of the interesting proceedings. After a welcome to the conference by the state commissioner of health, Governor Sulzer made an address, in the course of which he related an incident that occurred during a dinner at the White House, at which he was present. A distinguished foreign ambassador asked him what he considered the greatest thing in the world, and he promptly replied, "a baby." This struck the ambassador as rather peculiar, and he inquired why, upon which the governor asked him what he thought was the greatest thing. His reply was, "the Taj Mahal." Then the governor said, "The Taj Mahal is a beautiful mausoleum built in India by a Frenchman, and that Frenchman was once a baby." When the ambassador stated that this had given him a new idea of things Governor Sulzer went on to say: "Yes, and I will give you a greater idea, Mr. Ambassador. Remember that everything which we admire or respect or revere in the world, that God did not put there, is the work of a man or a woman, and that man or that woman was at one time a baby. So, after all, the greatest thing in the world is a baby."

In an address on "Infant Welfare and the State," Dr. H. L. K. Shaw, consulting pediatrician to the State Health Department, mentioned that the new health law provides for a division of child hygiene, and, so far as he knew, New York was the first state to have such a department.

Dr. L. R. Williams gave an account of the Caroline Rest Training School for Mothers, which is conducted by the New York Association for Improving the Condition of the Poor. Since the opening of its building, in May, 1909, the Rest has, with the exception of three months in 1910, been kept open continuously, as the managers felt that the convalescent care of mothers and the attempt to reduce infant mortality by the education of mothers was not a summer problem only, but an all-the-year-round problem.

A paper on "Stability and Co-operation in Prenatal Work" was read by Dr. Florence M. Laighton of the Division of Child Helping, Russell Sage Foundation, who said that there had scarcely been an undertaking in the whole field of work for the prevention of infant mortality that showed evidence of greater promise than prenatal instruction. In order to insure stability in this special work the first essential is that all the different agencies engaged in it—comprising the efforts of physicians, nurses and social workers—shall understand and supplement each other's work and methods. The second essential is uniformity in the use of what is valuable, whether in the keeping of records or in the use of methods. No one, the speaker said, had greater opportunity or greater power, individually, to lead in and set the example of broad, cooperative work than the health commissioner of a large city, and in this connection she quoted two statements made by Commissioner Lederle at a recent meeting at the New York Academy of Medicine which impressed her as both striking and very encouraging. These were, "Never before has New York started out with such a clean city," and "Never have more citizens been genuinely interested, nor has co-operation been better."

One of the most important communications to the conference was that by Dr. G. R. Pisek, medical director of the New York Milk Committee. He first gave some account of the work of this committee, which, he said, was primarily organized to improve the milk supply of the city, but soon recognized that, to be effective, it must

demonstrate through what fields of effort infant lives could be saved. Five cardinal lines of activity stood out in the committee's campaign: (1) Education of mothers in the care and feeding of their babies, demonstrated to be practical through centres of milk stations. (2) Clean milk at a low cost to the poor—a necessity—made possible by the committee's experiment in clean milk production. (3). Milk standards as to cleanliness and safety—essential for the guidance of producers, dealers, consumers and officials. (4) Co-operation between the public and private agencies promoting efficiency in giving the best results without waste of effort. (5) Campaign of prenatal supervision, in which the effort is directed to reduce the waste of infant lives by preventing stillbirths and reducing mortality during the first month of life by preventing premature birth, securing a stronger and healthier baby and making maternal nursing possible. There is still one large gap that must be filled (a problem offering great difficulties), namely, the deaths from congenital diseases. Dr. Pisek believes that the remarkable reduction in infant mortality in New York in 1911 and 1912 was markedly assisted by the promotion of milk stations. On account of the great expense entailed by the ready-prepared bottle, the committee was forced to try home modification, and, in spite of much opposition from the physicians and nurses, it succeeded and won the enthusiastic support of its former opponents. To his mind, this is the far better method, for it has behind it a great factor—education. The results of the joint milk station campaign were so striking that the municipal authorities felt justified in appropriating sufficient money to carry on public stations throughout the greater city. He therefore advised that the health officer shall from the outset so plan his work that an effective demonstration will practically compel its adoption by the authorities as a public work. His address was concluded with various practical suggestions as to how the health officer might profit by New York's experience, and especially in the matter of the Babies' Welfare Association, in which eighty different organizations co-operate.

"A Clean Milk Supply" was the topic of Mr. J. A. Foord, director of the division of farm administration at the Massachusetts Agricultural College, and in the course of his remarks he gave, as a concrete example of what can be done by improving the milk supply, the experience of the chairman of the Medical Milk Commission of Boston. "Four or five years ago, before we had certified milk," this gentleman said, "I used to have in my private practice about one hundred cases of sick babies in August; now I have two or three."

Dr. Josephine S. Baker, chief of the division of child hygiene, New York City Department of Health, in speaking on infant welfare in New York, said that in the future she thought it would be necessary to change our viewpoint a little as to the way in which we must prevent the deaths of infants. For years we have looked upon diarrheal diseases as the most important cause of the mortality, and have talked a great deal about milk stations and pure milk. The milk stations certainly have a large field of usefulness, but the establishment of these should not take the place of a clean milk supply for any city. The stations should serve as educational centres, and the mother should be able to buy clean milk for her baby at any place near her home. In the prevention of infant mortality, education stands for 80% and milk for 20%. Nearly all the reduction in the mortality has taken place in the diarrheal diseases, because these are the easiest to prevent. At present, however, in New York city at least, they do not rank first as a cause of infant mortality. The most important in this respect are the so-called congenital diseases, which are met with during the first month of life, and to which are due 35% of the total deaths under one year. Future work, therefore, must be more and more educational and more and more social, for the reduction of infant mortality is even more emphatically a social problem than it is a medical one.

Dr. T. W. Wood of Utica spoke on infant welfare work in small cities; Dr. F. E. Fronezak, health commissioner, of the work in Buffalo; and Dr. G. W. Goler, health officer, of the work in Rochester. In Rochester the death-rate in infants under one year is the lowest of any city in the state (97.7 per 1,000 births—1912), and Dr. Goler told how, in the face of great difficulties and with very small appropriations from the authorities, this happy result had been brought about. For the first four seasons the milk supplied at the public stations was pasteurized. Then they stopped pasteurizing, and endeavored to get clean milk from tuberculin tested cows. A system of thorough milk inspection was adopted, and at present all the

milk that comes into the city is tested by a milk tester. "We do not grade our milk in Rochester," said Dr. Goler, "nor do we give to some of our people pure water and to others sewage-infected water. There is no more reason why we should feed good milk to the children of rich mothers, and dirty pasteurized milk to the children of poor mothers."

ATHLETIC METHODS.

PROTEST has from time to time arisen against certain of our over-strenuous athletic contests. Within a few weeks a Canadian periodical has taken up the discussion and makes certain pertinent remarks regarding the present tendencies in athletics. It seems evident, whatever the ultimate reason may be, that England's prestige in athletic events of the more strenuous sort has suffered greatly during the past decade. Her showing in the last Olympic games was disappointing; she failed to regain the championship in polo and very recently she has again suffered defeat at the hands of our youthful tennis players. It is easy and likewise futile to give simple explanations for these manifest facts. Possibly the American system of training and coaching is responsible for recent successes or the increasing interest in athletic contests in this country may be a factor, or again, some peculiar element in American character may be held responsible. We are, however, inclined to think that no one cause is operative, but that a series of circumstances backed by a commendable determination has led to these results.

What the future is to bring forth is naturally of interest. In this connection it may be noted that the authorities in charge of athletics and physical training at the naval academy at Annapolis have decided against contests involving extreme expenditure of strength. It is stated, for example, that the four-mile rowing contest, established for many years as a proper distance for seasoned oarsmen, is to be reduced to between one and two miles. The reasons given for this action are: First, the increase in recent years in the death or enforced retirement of young officers due to physical disability, especially among those who had been athletes; and secondly the number of young officers formerly athletes at the Naval Academy who have developed physical defects after graduation.

Long distance running has also been placed under the ban so that in future one-fourth of a mile will be the longest track race allowed. If such restrictions are logically carried out it means that at this institution all of the more strenuous contests will be eliminated. The object naturally of such action is to develop men of more symmetrical physique who will be able to bear the strain of after life without premature collapse. It is generally acknowledged that the overdeveloped young man with the consequent accompaniment of a strained and hypertrophied heart has less chance for a long life and health than the man of average and more symmetrical development. The question naturally arises whether our present day athletics are tending toward the former type, in the overdevelopment of what may be termed athletic specialists. Possibly this is the viewpoint of our English rivals, and possibly also it may be regarded as a sign of growth rather than decay, that contests are lost rather than won. In this connection we cannot ignore the exhaustive investigation of Drs. Seaver and Anderson of Yale, and their conclusion that the students who were athletes lived longer than those who were not. On these matters we do not venture a definite opinion, but the fact remains that in athletic contests, as in other human activities, experience must be the final arbiter of the efficiency of methods.

A PHYSICIAN AS POET LAUREATE.

THE appointment of Dr. Robert Bridges, F.R.C.P., as Poet Laureate of England is a matter of special interest and gratification to our profession as well as to the general public, since it is the first time this post has been held by a physician.

Dr. Bridges was born on October 23, 1834, at Walmer in Kent. He was educated at Eton and at Oxford. He studied medicine, and was for a time physician to St. Bartholomew's Hospital and to the Great Ormonde Street Hospital for Children in London. In 1882, he retired from the active practice of medicine, and has since devoted himself to literary pursuits. He has received the honorary degrees of D. Litt. from Oxford, and LL.D. from St. Andrew's University.

Dr. Bridges is the author of eight dramas and of many shorter poems, most familiar among

the latter being "The Growth of Love" and "Prometheus the Firegiver." His most famous work is perhaps his masque "Demeter." Most noteworthy among his prose writings are his essays on Milton and on Keats.

Dr. Bridges is a ripened scholar, and his verse shows cultivation, beauty, and self-restraint. He has been justly termed the dean of living English poets, and his appointment as Laureate may be regarded as an honor to our profession as well as to that of letters.

MEDICAL NOTES.

A British Centenarian.—Miss Lemon, who died at Ilfracombe, Devonshire, England, on June 29, is said to have been born on Aug. 19, 1810, in Clifton, Gloucestershire.

A Living British Centenarian.—Mrs. Ann Brown, of Moretonhampstead, Devonshire, England, is said to have been born on July 6, 1813, and recently celebrated her supposed centennial anniversary.

London Death-Rates for June.—Statistics recently published show that the total death-rate of London in June, 1913, was only 11.1 per 1000 inhabitants living. Among the several districts and boroughs the highest rate was 17.4 in the old central city, and the lowest was 7.9 in Lewisham, a populous southern suburb.

Typhoid Fever from Beer.—An outbreak of typhoid fever is reported in Templin, Prussia, its dissemination being traced to the use of beer handled by an attendant who had recently been affected by the disease. The outbreak involved two hundred and thirty persons in a number of adjacent communities.

Twenty-seven Years in Bed.—The death of Thomas F. Lockhart occurred last week at Wellington, Mo. It is reported that Lockhart spent twenty-seven years in bed, in practically one position, his joints being so ossified that the only movements of the body he could make were a shrugging of the right shoulder and the bending of the middle joints of two fingers on the right hand.

Dr. Cushing Addresses Medical Congress.—Prof. Harvey Cushing of Harvard University gave the address on surgery before a large general meeting of the London medical congress last week, which, according to newspaper reports, was received with much enthusiasm.

An Exceptional Family.—It is stated that through investigations of the Pension Bureau at Washington the following facts regarding the family of a certain Dr. William Warren have come to light. Dr. Warren's father was reported to have had twenty-five children by three wives who were sisters. The first two wives were twins and the third wife also was one of twins. His own mother had triplets and no other children. All the children of the other wives were twins.

American Surgeons Honored.—The English Royal College of Surgeons has conferred the Hon. F.R.C.S. on the following four American surgeons, Dr. Harvey Cushing, Dr. George W. Crile, Dr. John B. Murphy and Dr. William J. Mayo.

BOSTON AND NEW ENGLAND.

Use of Thorndike Bequest.—It has been suggested that the George L. Thorndike fund, amounting to $200,000, be used for the erection of a new ward at the Boston City Hospital. It appears, however, that some doubt has been thrown upon the legality of spending the money in this way on account of a stipulation in the will that it should be used for a new hospital. The entire amount of money needed at the present time for necessary additions to the south department of the City Hospital is in the neighborhood of $300,000, of which it was hoped $200,000 might be derived from this fund. It is possible the matter may be taken to the courts for final settlement.

Massachusetts Association of Boards of Health.—The quarterly meeting of the Massachusetts Association of Boards of Health has recently been held at Gallup's Island, Boston Harbor. The director of the hygienic laboratory of the Public Health Service, Dr. John M. Anderson, read a paper on the "Organization, Powers and Duties of the United States Public Health Service." Dr. Arthur R. Perry of Washington gave the important results of his investigation in relation to the health and mortality statistics

among operatives in the cotton industry of Massachusetts. Prof. E. B. Phelps spoke on the necessity for specialization and coöperation in matters pertaining to public hygiene. Professor William T. Sedgwick of the Massachusetts Institute of Technology, presided over the meeting.

A SEIZURE OF MEDICINE.—On the basis that a medicine known as "Russell's White Drops" was claimed to be falsely labeled, a recent shipment has been stopped. It is stated that this is the first time in Massachusetts that such a seizure has been made on the basis of statements regarding the curative effect of medicine. Hitherto such seizures have been based on statements regarding ingredients. The information was filed by Assistant U. S. District Attorney Daniel A. Shea of the U. S. District Court.

INSTRUCTION AS TO CARE OF CHILDREN.—Through a committee composed of certain philanthropically disposed persons and several physicians a pamphlet of information has been sent out to nurses, social workers, and others in Boston and vicinity, giving instruction regarding hospitals and dispensaries, information where proper milk may be secured, and suggestions as to the proper disposition to be made of infants who need medical attention. This is evidently another commendable attempt to systematize medical treatment among the poor.

INFECTIOUS DISEASES.—Cases of infectious diseases reported to the Boston Board of Health for the week ending Aug. 5, 1913: Diphtheria, 20, of which 1 was non-resident; scarlatina, 12, of which 2 were non-resident; typhoid fever, 7; measles, 29, of which 1 was non-resident; tuberculosis, 65. The death-rate of the reported deaths for the week was 14.07.

NEW YORK.

AUTOMOBILE ACCIDENTS.—It was hoped that the new ordinance, regulating the speed of automobiles, which went into effect on June 1, would reduce the number of accidents and fatalities from these vehicles,—and such seemed to be the result during the month of June; but the National Highways Protective Association reports that in July there was a very material increase in automobile accidents in the boroughs of Manhattan, Queens, and the Bronx. The monthly report states also that reports of reckless driving in out-of-town districts are made daily to the society. In July, 26 persons were killed in New York, as against 21 in July, 1912. It is worthy of note, however, that no fatal accidents occurred in any of the avenues or streets of the city protected by the police traffic squad.

DANGER OF INDIAN SUITS.—Dr. Charles F. Pabst, coroner's physician in Brooklyn, has called public attention to the danger to children in the wearing of Indian and cowboy suits, now so popular. The source of danger is the fringes with which they are hung, which render them liable to take fire very readily. On Aug. 1 a little girl, five years old, died in the Long Island College Hospital from burns received the day before, while playing around a bonfire in one of these suits; and Dr. Pabst states that to his knowledge eleven other children have lost their lives in the same manner this summer.

SANITATION OF JERUSALEM.—Dr. Attilio Caccini of New York sailed recently for Europe in response to a request that he should report to the foreign office in Rome with a view to his representing Italy in the International Commission of the Six Powers, the object of which is to organize plans for the sanitation of the city of Jerusalem, particularly for the purpose of preventing the spread of epidemics from Asiatic Turkey. Dr. Caccini, who is now a naturalized American citizen, was graduated in Rome in 1900, and until 1904 assisted Professor Celli in his great work of ridding the Campagna of mosquitoes, and thus practically eradicating malarial disease in the city of Rome. He is an authority on tropical diseases, and two years ago prepared a report of great value on the etiology of pellagra at the request of the United States Government. At present he stands first on the eligible list for the position of chief of the medical department of the new General Hospital at Manila, and also for appointment to the chair of pathology and bacteriology in the University of Manila.

BEQUESTS TO HOSPITALS.—By the will of the late Anthony N. Brady, $25,000 each is left to four Albany hospitals; St. Peter's, the Albany Hospital, the Hospital for Incurables, and the Homeopathic Hospital. By the will of the late Jacob W. Mack of New York $10,000 is left to the Mount Sinai Hospital and $2500 each to a

number of other institutions, among which is the Montefiore Home and Hospital for Chronic Invalids. By the will of the late Mrs. Clarence C. Hardy of Newark, N. J., $5000 each is left to St. Barnabas Hospital, Newark, and the Home for Incurables, New York, for the endowment of beds, and after the payment of certain bequests the residue of the estate, the value of which is not given, is to be divided equally between the Hospital for Women and Children and the Home for Crippled Children, of Newark.

United Catholic Works.—An organization to be known as the United Catholic Works of New York has been incorporated. The petition for incorporation was signed by Cardinal Farley and thirty prominent priests and laymen in the Roman Catholic Church, who will also serve as directors for the first year. Among its objects are: "To promote and aid settlement and day nursery clubs, homes for boys and girls, employment bureaus, and hospitals for the sick and convalescent, and agencies to promote the general welfare of the poor, dependent and unfortunate, and to promote fresh-air accommodations and summer outings."

Cerebro-Spinal Meningitis.—The *Weekly Bulletin* of the City Health Department calls attention to the fact that there has been but little cerbro-spinal meningitis in New York during the last two years. Outbreaks of this disease show remarkable periodicity, occurring about once in every ten years. The last four were in 1872, 1881, 1893 and 1904, and all these years were characterized by hard winters with much snow. Since the introduction of lumbar puncture, bacterial diagnosis, and serum treatment the interim average of deaths has fallen below 1 per 10,000 of population, while from 1872 to 1904 the interim death-rate averaged 1.5 per 10,000. This fall has been due as much to the exclusion of cases due to tuberculosis and other causes as to the improvement in the results of treatment. The periodical outbreaks of the disease are regarded as partly due to the presence in the community of an accumulated number of susceptible individuals, as occurs in the case of poliomyelitis. Judging by the past, a sharp increase in the prevalence of cerebro-spinal meningitis may be expected during the next two or three years, especially if meteorological conditions favor its development.

Current Literature.

Medical Record.

July 26, 1913.

1. Palmer, F. A. *Is Appendicitis Ever Catarrhal?*
2. Rueck, G. A. *Bacteriological Study of a Case of Hemorrhagic Myelomalacia.*
3. Kendall, A. I. *The Relation of Bacterial Metabolism to Certain Foods.*
4. *Einhorn, M. *The Beneficial Effects of Duodenal Alimentation in Cirrhosis of the Liver.*
5. Pilcher, J. T. *The Diagnosis and Prognosis of Duodenal Ulcer.*
6. Phillips, W. C. *The Treatment of Persistent Otorrhea in Infants and Young Children by the Establishment of Postauricular Drainage. A Preliminary Report.*
7. Pedersen, W. C. *A Case of Exploded Urethroscopic Lamp: Removal of Fragments Without Operation or Subsequent Symptoms or Sequels.*
8. Lapham, M. E. *The Treatment of Progressive Cases of Pulmonary Tuberculosis.*

4. Einhorn reports the use of duodenal feeding in six cases of beginning hepatic cirrhosis. In all six the liver became markedly smaller and in four the result was lasting. The writer feels that duodenal alimentation contributes greatly toward diminution of the functional work of the liver. This rest treatment is of benefit whenever hepatic function is considerably impaired. The cirrhoses and other conditions accompanied by swelling of the liver form an excellent field for this procedure. [L. D. C.]

New York Medical Journal.

July 26, 1913.

1. Kaplan, D. M. *The Quantitative Amino (NH_2) Nitrogen Content of Syphilitic and Non-syphilitic Serums.*
2. Soresi, A. L. *Prevention of Death and Resuscitation.*
3. Illoway, H. *Chronic Appendicitis in Its Relation to Hyperacidity of the Gastric Juice.*
4. Bovaird, D., Jr. *Obesity and Emaciation.*
5. *Stevens, A. R. *On the Value of Cauterization by the High Frequency Current in Certain Cases of Prostatic Obstruction.*
6. Reed, A. C. *The Relation of Ellis Island to the Public Health.*
7. Eynon, W. G. *The Mental Measurement of Four Hundred Juvenile Delinquents by the Binet-Simon System.*
8. Roberts, S. R. *High Pressure Disease.*
9. Masland, H. C. *Antral Empyema with the Presentation of an Efficient Conservative Operation for Its Cure.*
10. Asserson, M. A. *Food for Babies.*
11. Holladay, G. G. *Wounds of the Pericardium and Heart.*
12. Lobsenz, J. M. *Acute Mercury Poisoning.*

5. Stevens reports two cases of prostatic obstruction which were relieved symptomatically and objectively by high frequency current cauterization of the obstructing portion. Residual urine in one case was reduced from 26 oz. to 1½ oz., in the other from 14 oz. to 1 oz. The patients experienced complete relief. This treatment is of value in those instances where obstruction is localized at the vesical neck, also for median bars or lobes, and single lobes projecting into the bladder or urethra from any other portion of the prostate. Repeated applications are

necessary, so that the method is feasible chiefly for patients tolerating the cystoscope well. [L. D. C.]

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

JULY 26, 1913.

1. GRINKER, J. *Tumor of the Hypophysis in a Case of Acromegaly.*
2. TALBOT, F. B. *Intestinal Sand. Report of a Case with Chemical Analysis of Sand.*
3. SUTTON, R. L. *The Histopathology of Pompholyx.*
4. JORDAN, W. H. *Congenital Stricture of the Prostatic Urethra with Bladder Hyperplasia, Urethral Dilatation and Multiple Abscesses of Both Kidneys.*
5. MURPHY, J. B. *Use of Palate Mucous Membrane Flaps in Ankylosis of the Jaw Due to Cicatricial Formations in the Cheek.*
6. RUDELL, G. L. *Creeping Eruption. Two Cases with Recovery of the Larvae.*
7. *CHEEVER, D. *Etiology and Significance of Pericolic Membranes.*
8. KAUFMANN, J. *The Part Played by Functional Disorders in the Pathology of the Stomach.*
9. *BILLINGS, F. *Internal Hemorrhages; Can We Control Them?*
10. RIGGS, C., AND HAMMES, E. A. *Two Cases of Circulatory Disturbance of the Brain.*
11. HALLOCK, H. M. *Some Aspects of Hydrotherapy in the United States.*
12. KARPAS, M. J. *Clinical Significance of the Cerebro-spinal Fluid in Nervous and Mental Diseases.*
13. RAVITCH, M. L. *Empiricism in Dermatologic Therapeutics.*
14. CHRISTIAN, H. A. *Diuretic Drugs in Acute Experimental Nephritis.*
15. *BERNHEIM, B. M. *Therapeutic Possibilities of Transfusion.*
16. GREENE, C. W., AND KRUSE, T. K. *The Bromid Question Experimentally Considered. 1. Response of the Heart to Bromid Perfusion.*
17. DAVIS, N. S., JR. *Non-Surgical Treatment of Cirrhosis of the Liver.*
18. WALKER, C. B. *Some New Perimetry Instruments.*

7. Cheever divides pericolic membranes into two classes, (1) congenital and (2) those due to peritoneal adhesions. The former are found only in the right side of the peritoneal cavity. He believes that the Jackson membrane is congenital in origin.

9. Billings believes that in the treatment of intestinal hemorrhages we depend too much on drugs, which, by the way, are of little real value, and not enough on absolute rest and quiet, which is brought about chiefly by the generous use of some form of opium.

15. Bernheim believes that many cases of gastric and intestinal ulcers would recover more rapidly and completely if transfusion were done. He believes we cannot expect an exsanguinated person to heal an old ulcer, even if gastro-enterostomy has relieved irritation. He also urges earlier employment of transfusion in the anemias and in many low grade but long standing infections. [E. H. R.]

ANNALS OF SURGERY.

JANUARY, 1913.

1. *ROVSING, T. *Gastrocoloptosis.*
2. LEWISOHN, R. *A New Principle in Esophagoscopy and Gastroscopy.*
3. *COTTON, F. J., AND BOOTHBY, W. M. *Intratracheal Insufflation Anesthesia.*
4. NOEL, H., AND SONTTAB, H. S. *The Anesthetic Effects of the Intravenous Injection of Paraldehyde.*
5. FAUNTLEROY, A. M. *Traumatic Rupture of the Spleen (Complete); Splenectomy.*
6. NOLAND, R., AND WATSON, F. C. *Spontaneous Rupture of the Malarial Spleen.*
7. BARTLETT, W. *The Use of a Murphy Button to Effect Duodenojejunostomy after Gastrojejunostomy.*
8. EUSTACE, A. B. *Ileus Due to Meckel's Diverticulum.*
9. WALTON, A. J. *Extrasaccular Hernia.*
10. LUSK, W. C. *An Instrument for Establishing Fecal Drainage, with a Report of Its Use on a Case, and a Consideration of the Site for Making a Fecal Fistula in Low-seated Intestinal Obstruction.*
11. LUCKETT, W. H. *Rupture of Sprain Fracture of the Ligamentum Patellae.*
12. BARTLETT, W. *A Method of Focusing Several Electric Lights on the Field of Operation.*

1. Rovsing's communication is based upon an experience of 400 cases, of which he has operated upon 163. He distinguishes a virginal and a maternal type of gastrocoloptosis. The pathogenesis of the former is as follows: The straightening of the lowest thorax aperture by corsets, the consequent descent of the liver and after it the stomach, transverse colon and kidneys. The symptoms are persistent constipation, weariness, headache, loathing of food, distress from quantity rather than quality of food, vomiting, emaciation, oppression in loins, pelvis and abdomen, clammy hands and feet, palpitation of heart, dysmenorrhea and scanty menstruation or amenorrhea. He explains the greater suffering of virgin ptosis cases than maternal ptosis cases from pains and vomiting after meals to the fact that the tight adominal wall and narrow adominal cavity prevent the free subsidence of the loosened organs. Difficulty with swallowing from traction on the esophagus may be a prominent symptom. Hematemesis in the absence of ulcer may occur in ptosis cases. He asserts that the pathogenesis of hour-glass stomach is to be sought for in the fixation of the creases of the prolapsed stomach caused by corsets and laces. In the maternal type coloptosis is generally primary. While the majority of cases of maternal ptosis may be helped by a rational abdominal belt, rarely is a virginal ptosis case benefited by this means. Rovsing's belt is constructed after the principle of the English double hernia truss; a large, abdominal pelotte connected with a sacral or two sacro-iliac pelottes by two strong adjustable springs. He has abandoned the operative procedures of Beyea and Coffey in favor of direct gastropexy. His operation consists in bringing the scarified anterior stomach wall in contact with the scarified peritoneum by means of three silk sutures, passed in and out through the serosa parallel with the lesser curvature and about 2 cm. apart. These are brought through the entire thickness of the abdominal wall and tied over a gauze-covered glass plate somewhat larger than the fixed area of the stomach. They are removed in four weeks. The pyloric portion is never included. His results have been much better in 123 cases in which the prepyloric region was included than in 69 cases in which it was not included. He has traced his 163 cases and 93 cases operated by other Scandinavian surgeons after his method. He finds 63.2% complete cures, 12.8% slight or no improvement, 4.6% dead and the remainder greatly or somewhat improved. The mortality with gastropexy proper was 1.17%. Seventy-six of his 163 cases were freed of constipation of many years' standing. In cases with much elongated gastrocolic ligaments he supplements the gastropexy with a plication of omentum and meso-colon by means of catgut sutures extending from the serosa of the colon to the greater

curvature. In cases in which the stomach cannot be brought into normal position owing to extreme narrowing of the lowest thoracic aperture, he doubles the width of the recti by longitudinal incision through the sheath into the substance of the muscle near the outer border and a second incision at right angles to this through the muscle toward the median line. A pedicle for the flap is preserved at the median line. The flaps are turned upwards and inwards and secured. If considerable hepatoptosis is present Rovsing performs a hepatopexy. In four cases he has resected hypertrophied left lobes of liver which have prevented replacement of the stomach. In ten cases a subsequent nephropexy was necessary. Gastro-enterostomy for simple gastroptosis is condemned.

3. After a careful historical review of devices and procedures for artificial respiration, the authors describe the method of Meltzer and Auer. Many practical details are given from a considerable experimental and clinical experience. Spasm of the glottis sufficient to obstruct all reflex of air has never been observed and is regarded as highly improbable. The authors insist on the use of a safety valve, by means of which the intrathoracic pressure cannot exceed 15 mm. mercury. They have no evidence that ether vapor, whether or not produced by bubbling a stream of air at room temperature through the ether or by passing it over the surface causes injury to the lungs in doses suitable for anesthetic purposes. They caution against too great heat in warming the ether. The use of a large bottle for ether gives large evaporating surface and the air in the bottle is capable of being kept warm by the room temperature. This ensures a percentage of ether sufficient to produce anesthesia of a depth to abolish laryngeal and pharyngeal reflexes. Chloroform with ether either together or in sequence is not necessary to sufficiently relax the patient. Its use is discouraged as unnecessary and unsafe. The CO_2 content in the blood is considered. If apnea occurs it is necessary to decrease the volume of air and prevent a reaccumulation of CO_2. Inasmuch as intratracheal insufflation respiration is the only artificial method which absolutely provides for a sufficient aëration of the lungs regardless of the respiratory movements of the patient, and inasmuch as properly administered and safeguarded it can be rendered devoid of intrinsic danger, it is indicated whenever the operation is to interfere in any way with the ability of the patient to voluntarily respire. [T. W. H.]

British Medical Journal.

June 28, 1913.

1. Pardey, C. *An Address on the Diagnosis and Treatment of Dysentery.*
2. *Llewellyn, T. L. *A Lecture on Miner's Nystagmus.*
3. *Short, A. R., and Bywaters, H. W. *Amino-acids and Sugars in Rectal Feeding.*
4. Rogers, B. M. H. *The Experiences of a Medical Adviser under the Insurance Act.*
5. Watkin, A. C. *The "Controlled" Use of New Tuberculin in the Treatment of Pulmonary Tuberculosis.*

2. Llewellyn discusses the symptoms, cause, physical signs, frequency, treatment and prevention of miners' nystagmus, based on a large number of cases.

3. Short and Bywaters conclude from an elaborate series of experiments that the best nutrient enema consists of milk, pancreatized for twenty-four hours with 5% pure glucose. Fat is not well absorbed. To prepare this enema ½ oz. of some reliable pancreatic fluid or four pancreatic tablets are added to 1½ pints of milk, which has been boiled and cooled. Keep in incubator 24 hours. Add 1½ oz. of pure dextrose. Give 5 oz. every four hours, or if the patient can retain it, 10 oz. every eight hours. [J. B. H.]

The Indian Medical Gazette.

June, 1913.

1. *Moses, O. St. J. *Review of a Year's Medico-Legal Work in the Calcutta Morgue,* 1912.
2. *Lane, C. *Agchylostoma Ceylanicum, a New Human Parasite.*
3. *Franklin, G. D. *A Mild Epidemic of Jaundice.*
4. Jukes, A. M. *Spirillar Fever in the Darjeeling District,* 1912.
5. Milne, C. *The Pituitary Gland and the Uses of Its Extract in Labor.*
6. Graham, G. F., and Smith, C. H. *Three Cases of Excision of the Thyroid Performed in Chitral.*
7. Hammond, F. A. L. *Malarial Gangrene.*

1. Moses presents tabulated statistics of 252 medico-legal post-mortems performed in 1912, with comparative figures for the triennium 1910-1912. In 1912 there were in Calcutta 158 deaths from violence, of which 57 were suicidal, and of these 36 were by poison. The total percentage of suicides, however, showed a considerable decrease over the preceding two years.

2. Lane describes and figures a new species of hookworm which he has found parasitic in dogs, civet cats, human beings, and lions.

3. Franklin describes an epidemic of 26 cases of jaundice among troops in a garrison at Gilget, apparently due to a cholengitis from unknown bacterial infection of drinking-water. [R. M. G.]

Münchener Medizinische Wochenschrift.

No. 27. July 8, 1913.

1. Hapke, F. *Experimental and Clinical Studies on Circulatory Diagnosis with the Energometer.*
2. Kleinschmidt, H. *Diphtheria of the Skin with Unusually Marked Antitoxin Formation.*
3. Mayer, A. *The Transmission of Colon Pyelitis.*
4. Faginol, A. *The Heat Precipitation Reaction in Tuberculosis.*
5. Lust, F. *The Influence of Alkalies on Spasmophilic Conditions.*
6. Erhardt, E. *Experimental Mouse Carcinoma.*
7. Sehrt, E. *The Extraction of Foreign Bodies from the Lungs of Children.*
8. Scheber, E. *Tuberculosis and Syphilis in German Southwest Africa.*
9. *Stümpke, G. *Iodostarin.*
10. Wertheimber. *The Treatment of Varicose Ulcers with Starch Bandages.*
11. Sprengel. *A Modified Plaster of Paris Bandage for the Treatment of Club-foot.*
12. *Hohlweg, H. *Further Experiences in the Treatment of Pyelitis by Douching of the Renal Pelvis.* (*Conclusion.*)
13. Schröder, H. *The Fresh-Air Treatment of Typhoid Fever a Century Ago, and Typhoid in General.*

9. Iodostarin, a new iodide preparation, has been made recently by the firm of Hoffman and LaRoche. Stümpke has used it with excellent results in cases of secondary and tertiary syphilis where mercury and salvarsan have not proved efficacious. By giving the drug in cases of tabes, he has received the impression that the course of the disease was milder. It is valuable as a preparatory treatment in syphilitic endarteritis of the base of the brain to prevent too marked a reaction from subsequent mercury and salvarsan.

Stümpke believes that iodostarin fulfils the purposes of any iodine salt; its advantages are that it is

easily taken and that toxic symptoms from its use are practically lacking. The dosage should begin at 2-3 tablets a day and should not exceed six to get complete therapeutic results.

12. Within only a short time has pyelitis been recognized as a definite disease. The methods of treatment so far advocated have attempted to flush the kidneys by an increased fluid intake, and to destroy bacteria by urinary disinfectants, by vaccines, or by a highly acid urine. None of these means have been entirely satisfactory.

Hohlweg during the past two years has douched the renal pelvis in cases of pyelitis, with antiseptic solutions. The subsequent course of the patients both clinically and bacteriologically has been followed. He has used silver nitrate in increasingly strong concentration, beginning with a one to two per thousand solution and working to a one-half per cent. to one per cent. solution. If silver nitrate is painful he has used collargol or five to ten per cent. argyrol solutions. Two to three treatments a week are given until recovery takes place.

Hohlweg reports seventeen cases. Fifteen of these were entirely relieved of clinical symptoms; no pus or bacteria were found in the urine. Two cases were unaffected by the treatment. One of these was an especially chronic case with relapses, the other was a case in which the colon infection of the pelvis had presumably led to a chronic inflammatory process throughout the entire kidney. Such cases Hohlweg considers, as well as cases of pyonephrosis and multiple kidney abscesses, should not be treated in this fashion.

On the whole, Hohlweg believes this method of treatment for pyelitis useful. To obtain the best results the diagnosis must be made as soon as possible and the treatment started early. [R. F.]

WIENER KLINISCHE WOCHENSCHRIFT.

No. 22. MAY 29, 1913.

1. JANUSCHKE, H. *Checking Inflammation.*
2. WELTMANN, O. *Clinical Significance of Cholesterin Findings in Blood-Serum.*
3. BRANDWEINER, AND HOCH, O. *Gonorrhea.*
4. JOLLGREN, J., AND TROELL, A. *A Case of Arthritis Paratyphosa Tarei.*
5. PRIBRAM, B. *Seasickness.*
6. REIS, V. *Ophthalmomyasia.*
7. *CLAIRMONT AND VON HABERER. *Is There a Peritonitis Due to Bile without Perforation of the Bile-Passages?*

7. The cases so far published show the following anatomical-pathological findings bearing on this question: (1) Cases having a perforation in the larger passages in the form of a slit; (2) cases which show on microscopic section a dehiscence of the wall through which bile passes; (3) cases showing a very small perforation in a small passage somewhat dilated by obstruction; (4) the case of the authors, *i.e.* no perforation even on section. There exists a diffuse permeability for the bile. [F. S. K.]

No. 23. JUNE 5, 1913.

1. v. ESELSBERG, A. *Fundamental Principles, and Suggestions Toward Uniformity in First Treatment of Wounds.*
2. *YAWORSKI, K., AND SZYMANOWSKI, Z. *Serum-Diagnosis of Pregnancy.*
3. LUITHLEN, F., AND MUNCHA, V. *Experimental and Clinical Analysis of "Salvarsan Fever."*
4. ULLMAN, K. *The Organotropic of Salvarsan Preparations.*
5. ALBRECHT, P. *Operative Treatment of Hypertropic Phimosis.*
6. KEY, E. *A Case: Operation for Embolus of the Femoral Artery.*

2. The observations of these authors show that: (1) The Abderhalden reaction is positive in the earliest months of pregnancy; (2) the reaction remains positive for fourteen days of the puerperium; (3) it is of great diagnostic value for or against ectopic gestation; (4) in eclampsia and hyperemesis the reaction is remarkably weak; (5) the serum of carcinoma patients does not split the placental albumin. [F. S. K.]

No. 24. JUNE 12, 1913.

1. SCHEER, H., AND PLASCHKES, S. *Indications for Treatment of Pneumothorax in Phthisis.*
2. V. EISLER, M., AND LAMB, M. *The Lipoid Content of the Food, Especially in Tuberculosis.*
3. FRANKFURTER, O. *Tuberculin Treatment of Bronchial Asthma.*
4. KLAUSNER, E. *A Clinically-Applicable Skin Reaction in Tertiary Syphilis.*
5. *SPIRTSCHKA, T. *My Experience with Salvarsan.*
6. TERKOWSKY, S., AND KRAZEWSKI, W. *The Use of Refractometers in Chemico-Physiological Investigations.*
7. ULLMAN, K. *Organotropie of Salvarsan Preparations.*

5. Observations permit the following deductions: (1) Salvarsan is the preferable anti-syphilitic treatment. (2) A single injection does not cure; under control of Wassermann reaction repeated doses are advisable. (3) Intravenous injection is best and is usually well borne. (4) A lasting injury to health due to salvarsan has not been noted. (5) Results are best when given early, in the primary stage, or as soon as syphilis can be diagnosed. (6) Excellent results are obtained in tertiary syphilis, even better than with iodine and mercury. (7) Salvarsan treatment is simpler than mercury treatment and saves time. [F. S. K.]

ARCHIV FÜR KLINISCHE CHIRURGIE.

VOL. 101. PART 2.

11. *KÜMMELL, H. *The Later History of the Nephrectomized.*
12. JENSEN, J. *Fracture of the Pelvis.*
13. MOLINEUS. *Multiple Brown Tumors in Osteomalacia.*
14. ORTH, O. *Historical and Experimental Observations on Rupture of the Liver and Biliary Ducts.*
15. GARRÈ, C. *Treatment of Bone and Joint Tuberculosis.*
16. MÜLLER, R. *Penetrating Wounds of the Knee Joint.*
17. *MIYATA, T. *Tumors of the Testis and the Relation of Trauma to Their Incidence.*
18. KÖRBL, H. *Continence after the Radical Operation for Cancer of the Rectum.*
19. KÜTTNER, H. *Duodenal Ulcer.*
20. SCHEPELMANN, E. *Free Periosteal Transplantation.*
21. TROELL, A. *Treatment of Fracture of the Radius.*
22. JEGER, E., AND JOSEPH, H. *Substitution of the Carotid Artery for a Section of Abdominal Aorta in the Same Animal.*
23. GUNDERMANN, W. *Experimental Formation of Gastric and Intestinal Ulcers.*

24. Köhler, A. *Köhler's Disease of the Os Naviculare Pedis in Children Not a Fracture!*
25. Schultze, E. O. P. *Rebuttal.*

11. Kümmell summarizes his experience with nephrectomized patients as follows:—

(1). A considerable proportion of those on whom nephrectomy is done, especially those with tuberculosis, tumor or severe pyonephrosis, die within a year. (Of 145 cases in whom tuberculosis was the reason for nephrectomy, 30 died within one year.)

(2). The cases of tuberculosis and tumor operated early, after two or three years, are probably cured, whereas during four years after operation a large proportion of cases die in whom the remaining kidney is tuberculous. Those operated on for tuberculosis or tumor who appear to be in good condition after four years, may be considered cured.

(3). Early removal of the more severely diseased of two kidneys offers the best chance for saving the other.

(4). In general, if nephrectomized patients are well for four years after operation their expectation of life is as good as that of anyone.

17. Miyata gives his own experience with 25 cases of tumor of the testicle, and quotes 38 more. He concludes that trauma frequently precedes this condition, and to support his belief in its importance, he calls attention to the fact that tumor of the testicle occurs most often in early adult life, chiefly among those who do hard labor. [G. G. S.]

Vol. 101. Part 3.

27. Salomon, A. *Pathology and Clinical Course of Cancer of the Breast.*
28. v. Haberer, H. *Radical Operation for Post-operative Peptic Jejunal Ulcer.*
29. *v. Schmieden, *Operative Treatment of Obstinate Constipation.*
30. Kopylow, N. W. *Splenectomy in Malarial Affections of the Spleen.*
31. Goldmann. *Experimental Research upon the Function of the Choroid Plexus and the Brain-membranes.*
32. Mühsam, R. *Brain, Spine and Nerve Injuries in the German Red-Cross Hospital in Belgrade.*
33. Streissler, E. *Curved Osteotomy.*
34. Riedel. *Congenital Urethral Defects.*
35. Perthes, G. *Osteochondritis Deformans Juvenilis.*
36. Wittek, A. *Operative Treatment of Pseudarthrosis of the Tibia.*
37. *Schumacher. *Operative Treatment of Pulmonary Embolus.*
38. Wrede, L. *Direct Massage of the Heart.*

29. Von Schmieden reports a case of intestinal stasis which he cured by anastomosing the apex of a very long loop of sigmoid to the transverse colon, and short-circuiting the two arms of the loop at its base. The point which he emphasizes is that by careful study of bismuth radiographs before operation, one will know how to properly drain all the portions where stasis exists at one sitting, instead of having to do so at repeated operations.

37. Schumacher adds to the nine reported cases of operation for pulmonary embolus, four from Sauerbruch's clinic. All died on the operating table. Trendelenburg's operation was done. The chest was opened by a T-shaped incision, the second rib resected, the third costal cartilage cut through, rib-spreaders inserted, the pulmonary artery clamped and opened, and the emboli pulled out. There are three causes of death from pulmonary embolus. Instantaneous death is due to shock; death in a few minutes is due to a complete plugging of all the arterioles, and death coming on only after some hours is due to cardiac insufficiency. In the second class of cases, operation is more or less indicated; in the third class, if the patient does not respond to stimulation, the operation is absolutely indicated. Speed is the greatest essential in the operation, and the operation should be done with the patient still in bed. Contra-indications to operation in any case are severe heart disease, chronic, incurable sickness, or general marasmus. [G. G. S.]

Revue de Médicine.

June, 1913.

1. *Lépine. *Progress in Our Knowledge of the Pathogenesis and Treatment of Diabetes Mellitus and Acetonemia.*
2. Amblard. *Pathogenesis of Opsiuria.*
3. Biscows and Ronzaud. *Variations in Cholestonemia in Hepatics, Subjected to the Treatment of Vichy.*
4. Cramor. *Linear Disfigurations of the Chest.*

1. Lépine gives an exhaustive résumé of the progress of our knowledge of diabetes mellitus. It is evident that the diminution of glycolysis is of considerable importance in the pathogenesis of this disease. The internal secretion of the pancreas has an important bearing in this function. The relation of the internal secretion of the thyroid is of some but rather less importance. The exaggeration of pituitary secretion has some bearing in producing a special form of diabetes. The actual relation of the adrenal glands is at present doubtful. The work is to be continued in the next copy of the magazine. [L. H. S.]

Revue de Chirurgie.

June, 1913.

1. *Estor, E., and Etienne, E. *Pseudo Spina Bifida.*
2. *Tourneux, J. P. *Sarcomata of the Tendon Sheaths.*
3. *Quénn, E., and Schwartz, A. *Creation of a Vagina.*

1. The authors report a case, and quote from the literature two others, of false spina bifida, which proved on histologic examination to be medullomata or medullo-embryomata. From a study of these cases they conclude that there may exist congenital nervous tumors of the spinal cord contained in a sack whose walls have a variable thickness. These tumors should be distinguished from spina bifida anatomically and clinically. They may be explained either as a pure disturbance of embryogenesis or by the existence of a second aborted embryo. In the first case the point of departure would be at the site of vestiges of the neural chest, or of a normal or supernumerary ganglionic enlargement. In the second case, the tumor would represent all that remains of the second embryo. The diagnosis of these tumors should be made with care, for extirpation, impossible in certain forms of spina bifida, becomes here the ideal method from which only good results are to be expected.

2. Tourneux collects from the literature 93 reported cases of sarcoma of the tendon-sheaths and studies them statistically.

3. The authors describe their technic of operation in a case of congenital absence of the vagina, in place of which they grafted an intestinal loop. They collect from the literature fifteen other cases in which this operation has been performed, in every instance with satisfactory functional result. There has been as yet no reported fatality. [R. M. G.]

Miscellany.

PASTEURIZATION OF MILK.

IN order to determine the best way of pasteurizing milk so as to kill the disease germs and yet not give the milk a cooked flavor or lessen its nutritive value, the U. S. Department of Agriculture, through its dairy division, has been conducting a series of experiments, treating milk at different temperatures and for different lengths of time. According to the report on these experiments in Bulletin 166 of the Bureau of Animal Industry, when milk is pasteurized at 145° F. for thirty minutes the chemical changes are so slight that it is unlikely that the protein (muscle building element) or the phosphates of lime and magnesia are rendered less digestible than they are in raw milk. Moreover, from a bacteriological standoint, pasteurizing at low temperatures is found to be more satisfactory than pasteurizing at high temperatures. According to Bulletins 126 and 161, where low temperatures are used the majority of bacteria that survive are lactic acid organisms which play an important part in the normal souring of milk. When milk is efficiently pasteurized at high temperatures, the bacteria which survive are largely of the putrefactive kinds, and milk so treated, if kept for any length of time, has a tendency to rot instead of sour. From the standpoint of economy, the technologist of the dairy division finds that pasteurizing at low temperatures calls for less heat. It is found that it takes about 23½ per cent. less heat to raise milk to the temperature of 145° F. than to a temperature of 165° F. A similar gain is a saving of the ice needed, because it will require 23½ per cent. more refrigeration to cool milk to the shipping point when it is pasteurized at the higher temperature. The department, therefore, recommends that "When market milk is pasteurized it should be heated to about 145° F. and held at that temperature for 30 minutes."

Correspondence.

LIVING CENTENARIANS.

PORTLAND, ME., Aug. 7, 1913.

Mr. Editor: I cannot resist the opportunity of informing you that we have in Maine three living centenarians *well authenticated* so that when they die there can be no doubt of their ages as over one hundred. One of them showed me a diary kept by her father from 1805 to his death in 1826 in which on Dec. 31, 1810, he writes in capitals "TODAY A DAUGHTER WAS BORN TO US." That daughter is alive and showed me the diary with her own hands. Another has a wedding record with the age on it and admission to a church with the age and date together with other documents proving one hundred years. A third has documents proving the age with no shadow of doubt. It is rare to have three centenarians in any state in the Union at one time.

Truly yours, JAMES A. SPAULDING, M.D.

RECENT DEATHS.

DR. HARRY DANIEL ABBOTT, a Fellow of The Massachusetts Medical Society, died at Danvers, July 16, 1913, aged 34 years.

DR. GEORGE WARREN JONES died at Boston, June 5, 1913, aged 64 years.

DR. WILLIAM BASILIO MACKIE, a retired Fellow of The Massachusetts Medical Society, and for fifty years a practitioner in Boston, died at Brookline, August 8, 1913, aged 79 years.

CHANGES IN THE MEDICAL CORPS, U. S. NAVY.

July 25, J. J. MCMULLIN, passed assistant surgeon. Commissioned passed assistant surgeon from March 28, 1913.

July 29, H. W. SMITH, passed assistant surgeon. Detached from *Montana* and ordered to the *Montgomery.*

July 29, C. B. CAMERER, assistant surgeon. Detached from temporary duty at Washington, D. C., and ordered home to wait orders.

August 6, E. U. REED, passed assistant surgeon. Ordered to Naval Hospital, Las Animas, Colorado.

M. A. STUART, passed assistant surgeon. Detached from Las Animas Hospital, and ordered to the *Galveston.*

August 7, B. F. JENNESS, passed assistant surgeon. Detached from *Washington* and ordered to the *Hancock.*

F. W. P. HOUGH, passed assistant surgeon. Detached from Canacao Hospital, and ordered to the Bureau of Navigation, Philippine Government, Manilla, P. I.

R. G. DAVIS, assistant surgeon. Ordered to the Naval Hospital, Olongapo, P. I.

BOOKS AND PAMPHLETS RECEIVED.

The Removal of Ureteral Stone by Cystoscopic Methods, by Bransford Lewis, B.S., M.D. Reprint.

Where Is the Fundus of the Bladder? by Bransford Lewis, B.Sc., M.D. Reprint.

Proceedings of the Royal Society of Medicine, June, 1913. London: Longmans, Green and Company.

WEEKLY RETURNS OF DEATHS

from diseases declared by the State Board of Health to be dangerous to the public health from cities and towns in Massachusetts of more than 10,000 population, for week ending Aug. 2, 1913:

Boston	29
Worcester	8
Lowell	6
Cambridge	4
New Bedford	5
Lynn	1
Springfield	1
Lawrence	1
Somerville	1
Holyoke	6
Salem	1
Newton	4
Fitchburg	1
Everett	1
Chelsea	1
Pittsfield	1
Waltham	1
Chicopee	1
North Adams	1
Northampton	1
Revere	1
Westfield	1
Clinton	1
Arlington	1

Address.

THE NEED OF REORGANIZATION IN THE METHODS AND TEACHING OF THERAPEUTICS.*

BY GEORGE BLUMER, M.D., NEW HAVEN, CONN.

The final aim of medicine is the prevention of disease. We are compassing this end but slowly and with a progression amoeboid in character. A pseudopod of the preventive protoplasm has partly enveloped the parasitic diseases, and without doubt time will see them entirely engulfed and digested, but meanwhile the main mass is almost stationary, and it will be many generations before prophylactic measures will overshadow curative ones in everyday importance for the practitioner of medicine. Like the poor, the question of treatment is always with us, and in the words of Grover Cleveland, "It is a condition which confronts us,—not a theory."

It is my object today to attempt to point out some of the defects in our present therapeutic methods both in practice and in teaching. To do this I must perforce play the somewhat thankless rôle of the critic, and I must of necessity traverse again the well-beaten path which the therapeutic skeptics of the profession have travelled from the time of the great master of Cos to the present day. At best I can but hope to change the form of the criticism, to clothe the subject in somewhat different garments, hoping to make these diaphanous enough to allow at least occasional glimpses of the naked truth.

Many of the fallacies of present-day, as of old-time therapeutics, are due to qualities inherent in physicians as men. While the laity has been ready enough at times to endow us with attributes of a divine nature, the fact remains, and it is a fact we sometimes forget, that the medical profession is composed of human beings. We are of the same clay as other men and women, and subject to the same fallacies, and while scientific education may to some extent modify, it seldom completely eradicates certain very human qualities which insist on coming to the surface, sometimes very inopportunely.

The human attributes most likely to affect adversely our therapeutic efforts are credulity and indolence. The credulity of medical men as regards business propositions is notorious. The so-called "sucker lists" of dubious stockbroking concerns are thickly spattered with their names. A critical glance through the advertising pages of a modern medical journal of the subsidized type gives the impression that their credulity on therapeutic matters is not surpassed by their lack of business acumen. One is tempted, indeed, to appropriate a Shavian expression and label them as supercredulous. The indolence of medical men has likewise been a subject of comment. Weir Mitchell remarks on it in one of his addresses on the conduct of the medical life, when he warns students that more diagnostic mistakes are made from indolence than from ignorance. The same is doubtless true of therapeutic errors. It is only fair to state that in some cases the indolence is that of over-work rather than an inherent laziness, but we must not blink the fact that even the busiest of practitioners has times of respite if he would but use them. He must learn, as Mitchell suggests, to take care of the minutes. If he does, the hours will take care of themselves.

Closely akin to credulity, and likewise allied to indolence, is a lack of critical faculty which is responsible for much of our erroneous therapeutics. It is a notorious fact that therapeutic publications from Missouri do not reflect the frame of mind popularly reputed to be characteristic of Missourians, a mental state so necessary to the scientific practitioner that we may well advise our students to cultivate it. In plain language this Missourian mentality is best described as a healthy skepticism; healthy, in that it is based on reasonable doubt, in contradistinction to an unhealthy skepticism based on unreasonable prejudice.

Another factor which undoubtedly plays a part in thoughtless therapy is revealed in connection with the many cases of incurable disease which we all see. How often in the face of such a situation does our impotence tempt us, often against our better judgment, to try anything in the vain hope that good may be accomplished! Such therapeutics does more honor to our hearts than to our heads, for too frequently measures are used which are far from being harmless.

It may, perhaps, seem uncalled for to quote chapter and verse in proof of the above mentioned "oft infirmities" of the profession. "The truth," an epigrammist has remarked, " is always unpleasant," and yet it must be faced if we are to remedy existing error. While as a profession we may be in some ways slow to change, we have so far not lacked the courage to reform ourselves when that has been necessary.

Our present therapeutic views are reflected in our prescriptions, and in our writings and it is plain to see from a study of these that our sins are both those of commission and omission.

Our therapeutic credulity still shows itself as of old in the continued use of medicaments whose potency is dubious, and whose reputation is founded on old wives' tales, tradition, or on unscientific, not to say ridiculous, methods of clinical research. You will note that I use the term *clinical* research—I do so purposely to emphasize the fact that there is a vast difference between pharmacology and clinical therapeutics.

When we study many of the articles on treatment written by practicing physicians at the

* An address delivered before the Alumni Association of the Medical Department of Syracuse University, June 9, 1913.

present day we find the same defects that have been pointed out so often in the past and apparently must still be pointed out. Many such articles show an entire disregard of the well-known principles which must underlie all scientific investigation. The motto which could most fittingly be inscribed on most of them is "post hoc ergo propter hoc." The estimation of the value of a particular therapeutic procedure in a particular disease is a much more complicated matter than the estimation of the results of a surgical procedure, such as the removal of a malignant tumor, yet one constantly finds articles in this twentieth century that disregard ascertained clinical facts.

Take, for example, articles on the value of drugs or other therapeutic procedures in the acute infectious diseases. How common it is to find that the author in drawing his conclusions entirely overlooks authenticated knowledge regarding the natural history of the disease. How many of the scores of physicians who have written articles lauding certain drugs as specific, or almost specific, in lobar pneumonia, take into account the great variation in mortality in different epidemics, the fact that under expectant treatment not infrequently from 76% to 80% of the patients recover, and the variation in the length of the attack? How many realize that in some epidemics of diphtheria and of cerebrospinal meningitis eighty per cent. have recovered without specific medication? How many know that the mortality from influenza may be as low as two per cent. and that under internal medication whole series of cases of acute appendicitis may show a mortality of only one per cent? If these figures mean anything they mean that in such diseases a large series of cases must be studied, in all kinds of circumstances, and in different years, if accurate therapeutic conclusions are to be attained. And yet how often do we find articles lauding some drug in an infectious disease based on five or six or a dozen cases, or based on results obtained in a single epidemic!

Again, in another class of diseases, those of the blood-forming organs, how common it is for therapeutic articles to totally ignore the well known fact that such diseases are prone to spontaneous remissions, often of long duration and quite independent of any treatment. How many drugs have been lauded to the skies as potent in leukemia and pernicious anemia, but who has cured a well authenticated case of either disease? Another disease in which we find a similar condition is gall stones. In the therapeutic index of a standard work there are references to five or six remedies reputed to dissolve biliary calculi, among others olive oil. "This treatment," says the work, "is based on rational principles, as gall stones placed in olive oil undergo solution, losing seventy per cent. of their weight in ten days." Is olive oil excreted unchanged into the gall bladder, and if so, will that accommodating organ retain it there for ten days? I wot not. Every one knows that patients may have gall stones for years without very obvious symptoms, and that even patients who have gall stone colic may have long periods of remission entirely independent of drugs or any other method of treatment; and yet we still find physicians dosing patients who suffer from this disease, and even believing that there are remedies which dissolve the stones.

Yet another type of therapeutic article based on fallacious methods is the article which concludes that some particular therapeutic measure is efficacious, yet fails completely to take note of important accessory factors plainly at work in the case. The mental attitude of the physicians who originate such articles is similar to that of the patient who went to his doctor the day after Thanksgiving complaining that the mince pie had disagreed with him. "What else did you have for dinner?" said the doctor; whereupon the patient recounted a long list of more or less indigestible substances, beginning with a cocktail, passing through large helpings of turkey with chestnut stuffing, and concluding with Camembert cheese. And yet the patient's conclusion regarding the mince pie was no more fallacious than many therapeutic conclusions which one meets with every day in articles urging the value of some particular drug. I could cite many instances of this form of therapeutic fallacy. A casual glance through some recent magazines showed several examples, one on the treatment of pulmonary tuberculosis by the inunction of oil of Eucalyptus, in which there was no statement whatever as to whether the patients were in bed or about, what diet they were on, whether they were in or out of doors, and other equally important factors. I have before me as I write an article on the treatment of constipation by psychotherapy in which the writer, who ascribes his cures to mental impression, also prescribes for his patients regularity in the general daily habits, taking a morning cold sponge bath, sipping a glass of water while dressing, and eating an abundant coarse diet including a variety of vegetables, fruit, brown bread and similar articles. You will recognize from this description the type of article to which I refer. It violates one of the fundamental principles in the scientific investigation of the action of any substance on the living body, *i.e.*, the elimination so far as possible of extraneous complicating conditions which may mask the action of the substance investigated, or may even produce the results claimed for that substance. The same criticism, of course, applies to articles in which polypharmacy is advocated, as the entire effect of a mixture may be due to a single active medicament.

Still another example of fallacious methods in arriving at therapeutic conclusions is the article based upon collections of cases made by different observers of varying intelligence and ability

under varying circumstances, and often reported with an entire lack of detail. The value of conclusions drawn from a group of cases of this sort is practically nil. The worst example of this kind of therapeutic fallacy with which I have recently met is the pamphlet on phylacogens published by Parke, Davis and Company.

Another familiar example of credulity among the profession, or to be more exact, credulity associated with a lack of critical faculty, is exhibited in the present status of American medical journalism. If the mass of the profession who subscribe to and support the large number of inferior medical journals which disgrace this country would follow the advice of the Book of Common Prayer and "Read, mark, learn, and inwardly digest" every therapeutic article which they now peruse so uncritically, how long do you suppose the United States would be inundated with medical journals of the class mentioned? Some day an essay will be written on the psychology of printers' ink, laying stress on its hypnotic influence. The motto of many readers seems to be, "If you see it in print, it's so." As Weir Mitchell puts it, "There are no bullies like books," and with books we must include magazines. The profession must learn "to turn on them the critical tap of their mental gastric juice" and " a little of the bitter cynical bile is not out of place." I deem it a privilege to have assisted in the elimination and decent burial of at least one unnecessary medical journal, and it would afford me great pleasure to be present at what the late Dauphin would have called the "funeral orgies" of a great many more. Their very multiplicity, with the constant struggle for existence which this involves makes many of them necessarily the tools of none too scrupulous pharmaceutical advertisers who use them for the mental debauchery of a too trusting and credulous profession. I recently went over the advertisements of a supposedly reputable therapeutic journal, and found that over forty per cent. of the drugs advertised therein were either inert, or had figured in the index expurgatorius of the Council on Pharmacy and Chemistry. The few good general and special journals we already possess, and not more than one good state journal in every state, supported by a united profession and edited by a therapeutic skeptic, would meet all our needs, and do away with a continuous flux of half-baked therapeutic misinformation.

Closely allied to the hypnotism of print is the hypnotism of catch words. I believe it was Robert Louis Stevenson who said that "man is a creature who does not live by bread alone but mainly by catch words." The pharmaceutical houses have taken full advantage of both these forms of hypnotism. They have naturally enough applied the methods of modern advertising to the exploitation of their products. What could be more simple than the catch word therapeutics of the modern drug house? If your patient is suffering from constipation you give aperitol or peristaltin or regulin, or better still, prunoids. If you wish to treat hemorrhoids you use anusol; if nervousness, you give neurosine or neurotone or neuronidia. In conjunctivitis palpebrine is indicated; in arteriosclerosis, antisclerosin; in Rigg's disease, pyorrhicide. I could multiply examples but I will spare you from a further painful exposition of the logographic ingenuity of the advertising agent and the suggestibility of the medical profession. There is a humorous side to the matter, but the humor is of the Sardonic variety.

What shall I say of the time which is wasted by the profession in listening to the personal representatives of unethical pharmaceutical houses. I should be the last to claim that there is not a legitimate place for the representatives of honest and reputable firms, but most of us have too often experienced the waste of time which is associated with the dulcet drivel of the detail man who represents dubious preparations. He himself is not to blame for the condition, for he is but the servant of a system which sends him forth saturated with specious pseudoscience which he pours into the uncritical ears of a trusting profession. Things have come to a sad pass when medical men tamely submit to be instructed (*sic*) in the principles of their profession by the lay representatives of corporations of laymen.

So far as the evidences of medical indolence are concerned, they are present to some extent in the examples already discussed under the general heading of credulity, for it is very difficult to separate the manifestations of these two characteristics. There is one place, however, where professional indolence is plainly shown, and that is in the prescriptions which the physician writes. Some years ago one of our Yale graduates, Dr. A. L. Hendricks, published a thesis bearing the title, "Investigations Regarding the Use of Nostrums and Proprietary Medicines in New Haven, Connecticut." I take the liberty of presenting some of the facts which this thesis brings out, with humble apologies to my New Haven confreres, feeling sure that they are no worse sinners than the practitioners of other places. Dr. Hendricks' study shows that an average of 20% of the prescriptions written by physicians call for proprietary medicines. In other words, the physician lets the pharmaceutical house do his thinking in 20% of his prescriptions. Probably this is not exactly what the figures mean, for it is shown that in some drug stores 60% of the prescriptions call for proprietaries. The fact is that some men are continual sinners in this direction, while others transgress little if at all. The danger of this kind of prescribing has been pointed out by Fussell and others. Very often these proprietary medicines contain one powerful drug concealed in a multitude of inert ones. There is

danger of introducing habit-forming drugs to your patients, who are perfectly capable of subsequently calling for the same proprietary without your prescription. There is danger of getting a patient into unhygienic habits, such as constant drugging for constipation. The greatest danger of all is to the physician himself, who, failing to use his brain, degenerates into a routine prescriber, and ultimately suffers from the well-known physiological atrophy that follows disuse. There is an ethical side to the prescribing of proprietary medicines to which Dr. Hendricks' thesis calls attention. Several of the druggists who were consulted suggested that some physicians use proprietaries because they are stockholders in the concerns which manufacture them. I do not know how widely prevalent among the profession the holding of stock of pharmaceutical houses is. There can be no ethical objection to being part owner of a legitimate concern, but many such companies are far from legitimate, and it would be wiser to avoid entangling alliances of this sort.

The empirical practice of therapeutics is not yet abolished. Theoretically one may conceive that it is still possible for valuable remedies to be discovered by the methods of empiricism; practically it is seldom that this is done. The serious danger at the present time lies not so much in attempting the empirical discovery of new drugs as in the empirical use of remedies requiring scientific application. Let us take as an example, serum and vaccine therapy. I have within the past few years seen a patient in a hospital treated by streptococcus vaccine without even the formality of making a cover slip from his infected arm, let alone a culture. He was suffering from a staphylococcus infection. I have seen practitioners treat patients with vaccines at a mere hazard, with no knowledge as to the infectious agent present in the case, if indeed there was an infectious agent. The recent lamentable action of a reputable drug house in putting on the market a mixture of toxic substances under the name of phylacogens, and widely heralding them as cures for the most diverse conditions, shows what therapeutic dangers a lack of understanding of the principles of serum and vaccine therapy can lead to, and initiates a condition that cannot fail to lead astray unthinking members of the profession. What could be more ridiculous, and one is tempted to use a harsher word, than to classify arthritis, neuritis, iritis, lumbago, sciatica, neuralgia, tonsillitis and chorea as rheumatic manifestations, and to present one sovereign remedy as a cure for all; and this at a day when we are not even certain of the organism which causes rheumatism. What is this but the old shot-gun prescription brought up to date in a much more dangerous form? The very essence of serum and vaccine therapy lies in its specificity, and the haphazard and indiscriminate use of sera and vaccines in improperly investigated cases, not only brings the whole subject into disrepute but actually endangers the lives of patients. Even a layman can see this. Let me suggest to you the reading of Bernard Shaw's play entitled "The Doctor's Dilemma." The preface on doctors is filled with baseless libels on the profession but also contains a good deal of truth; and the plot of the play itself is founded upon the use, or rather the abuse, of a powerful therapeutic agent in the hands of a physician who is perfectly willing to use the agent but who is too indolent to inform himself regarding the principles underlying its use. I might say more of the therapeutic sins of commission, but I think perhaps the more important have been noted.

Our more important errors of omission have to do mainly with the neglect, or to be more accurate, the insufficient systematization and use of dietetics, and the procedures that are generally classed under the head of physical therapy.

The neglect of rational dietetics is one of the reproaches of the medical profession at the present time. While we have still much to learn concerning the effects of different foods, especially their effect upon the organs of internal secretion, we know enough about the subject of diet to enable any intelligent physician to prescribe it almost as accurately as he prescribes medicine. That this is a desideratum has been pointed out for years. It is, however, only within a comparatively recent time that the matter has been put upon a work-a-day basis. The publications of Atwater, of the United States Government, of Arnold and Locke of Boston, to mention only a few of the more prominent exponents of systematic dietetics in this country, have made it possible to diet our patients scientifically. We know how many calories of food a healthy individual requires. We know a good deal about the effect of disease upon digestion and absorption; we are cognizant of the proportion of the different kinds of food that is needed to maintain the nutritive balance, and we have in the tables of Locke and Arnold the instruments necessary to put our knowledge to practical account. Great advances have been made in the dietetics of certain disorders of metabolism, such as diabetes, but even at the present day the accurate treatment of such diseases by the general practitioner is exceptional, and both in general practice and in hospitals the caloric system of feeding patients is commonly neglected. Most physicians do not seem to appreciate that by means of properly regulated diet we can influence the blood pressure, alter the general metabolism, put on or take off fat, change the composition of the blood, cause diuresis, and produce many other valuable therapeutic effects.

In the matter of physical therapy we have made some advances, but there is still much to be accomplished. At the present time American

hospitals which contain an adequate installation for the application of the various physical agencies used in medicine can be counted on the fingers. How many hospitals possess a thoroughly equipped hydrotherapeutic department, how many have a good Zander room, and in how many do we find adequate means of employing light, heat, massage, x-rays, and the different forms of electricity. There is an unfortunate tendency in certain quarters to regard physical therapeutics as a wonder-working mystery. This view has been fostered to some extent by the fact that, on account of their spectacular features, many of the methods of physical therapy have been appropriated by charlatans both within and without the profession. This has had the unfortunate effect of bringing the legitimate practitioners of physical therapy more or less under suspicion. While there is much we do not know about the principles underlying the therapeutic action of physical agents, there is sufficient evidence to convince an unprejudiced observer that they are of great value and worthy of much wider application than they receive at the present time.

The defects in the present day teaching of therapeutics are, in most medical schools, the defects that existed in the teaching of anatomy, or of internal medicine, twenty years ago. At that time the chief qualification of the professor of anatomy was that he should know "Gray" by heart, and should be able to repeat it phonographically, so to speak. A practice of the anatomy professor under whom I sat as a student throws some light on the effect of this system. He included in his repertoire not only Gray, but also a poem which was usually uttered in stentorian tones with an accusing index finger pointed at the culprit. All that I remember of the poem is the first two words, which were, "Oh sleep." At the present time therapeutics is usually taught in a similar manner, and I presume with similar effects. In other words, we have not yet applied to the teaching of therapeutics the principles which we applied some years ago to the teaching of the pre-clinical sciences and which we are now applying to medicine and surgery. These principles consist, as you well know, in the reduction of didactic teaching to a minimum and the replacement of the eliminated lectures by practical work. I wish to emphasize again in this connection that when I speak of therapeutics I refer to the treatment of disease in the living patient and not to pharmacology, which is the science on which the art of therapy is supposedly based. The teaching of pharmacology is now adequately conducted in most of the better medical schools.

The main faults, then, of therapeutic teaching at the present day, and we must include in any general consideration the teaching of pharmacology as a preliminary to therapeutics, are two-fold. In the first place pharmacology is too far removed from therapeutics, and in the second place therapeutics is too far removed from the living patient.

He is a poor critic who is destructive only and who makes no efforts at reconstruction. "It is a barren kind of criticism which tells you what a thing is not." What steps can we take to improve the methods and the teaching of therapeutics?

So far as the investigation of therapeutic measures under the actual conditions of disease is concerned, the rules have been adequately indicated by Boas in his well-known monograph on the fundamental principles of therapeutic method. These principles are of necessity the same as those underlying any scientific investigation. They involve the study of groups of patients under like conditions as to diet, rest and external surroundings. They necessitate the comparison of patients who are subjected to the treatment which is being studied with those who are not, *i.e.* the use of controls. They demand avoidance, so far as possible, of all extraneous factors which might influence the disease, such as other therapeutic measures. In a word, they call for the avoidance of all the different forms of fallacy which were discussed in the early part of this address. I think it must be clear, with these requirements in mind, that the general practitioner of medicine, unless he has a hospital appointment, will seldom be able to meet such rigorous conditions. It is possible that the requirements might be met amongst the two classes of patients who receive the best medical treatment, the very rich and the very poor. In the case of the former, the fact that the family is usually intelligent, and that the nursing is adequate makes it possible to control conditions. But after all, it will be mainly in hospital practice, that the requisite conditions will occur. Given the necessary hospital conditions, what sort of men will be required to advance the work of therapeutics? In the ordinary hospital can the attending physician do the work? In university hospitals can the professor of medicine and his assistants do the work? And if they can, should they be allowed to? Leaving out of consideration occasional exceptions, I think that in the best interests of therapeutics both of these questions must be answered in the negative. The great majority of the attending physicians attached to American hospitals at the present day are men who received their training fifteen or twenty years ago. Those of us who graduated at that time need no reminder of the fact that the teaching of the fundamental sciences was often sadly deficient. Furthermore, if the attending physician has the training and inclination, he seldom has the time to make accurate therapeutic studies. The kind of worker who is needed at the present time in therapeutics is a trained internist who is thoroughly conversant

with the methods of physiology. After all, the scientific therapeutist, like the pharmacologist, is merely a medicated physiologist. As to the second question, *i.e.* the possibility or desirability of having therapeutics taught in teaching hospitals by the department of internal medicine; this involves a continuation of therapeutics as a sort of appendix vermiformis to internal medicine. But surely therapeutics is more important than this. We are all agreed that for the present the treatment of disease is the end for which most of us are aiming. If the subject is as important as this, why must it not be placed on an equality with the other major subjects? I think it must.

I fear we cannot do much to bring about the reformation of the therapeutic habits of the existing generation of practitioners. It is hard to teach an old dog new tricks. Victor Hugo has remarked that to educate a man you must begin with his grandmother. Perhaps if we institute reforms now we will get results in the practitioners of the third generation. So that while there are certain things which we may do which will serve to educate the physicians of today, we must concentrate our attention on the education of future physicians. So far as the present generation is concerned, it seems to me that it would be well to increase the scope and the power of that very valuable body known as the Council on Pharmacy and Chemistry. They constitute now a sort of therapeutic central institute, and their influence in imparting to the profession accurate knowledge of the various therapeutic preparations which are placed upon the market is very great. If all reputable physicians were members of the American Medical Association, and all would agree never to use a remedy unless it had received the official sanction of the Council, a part of our problem would be greatly simplified.

So far as the teaching of therapeutics is concerned, several changes are desirable. The pharmacologist must be, so to speak, humanized. The pharmacological laboratory must be in closer contact with the hospital, so close that the pharmacologist can easily reach the wards, and the internist the laboratory. The pharmacologists themselves fully realize this, as is very evident from a perusal of Cushny's valuable article, "A Plea for the Study of Therapeutics." The pharmacologist needs the leavening power of the internist just as much as the internist needs the scientific stimulation of the pharmacologist. Further than this we need, in connection with our teaching hospitals, a new kind of therapeutist in charge of a full-fledged department of therapeutics which shall include hospital beds and a well-equipped institute of physical therapy, such as many of even the smaller German medical schools possess. He will not replace the laboratory pharmacologist, whose invaluable contributions are still needed; he will merely supplement him. The great advances that have been made in diagnosis in the past two decades have been due to the application of laboratory methods to clinical problems. The number of scientific discoveries that still await this application is very great, and for years to come the internist will be occupied in making these applications, and in keeping abreast in his own field. Even if he had the inclination and the required training he would not have the time to tackle therapeutic problems. The therapeutist of the future will be a clinician thoroughly grounded in pharmacology, just as the leading internists of the day are clinicians thoroughly grounded in chemistry or physiology, or some other basic science. At the present time this type of therapeutist has only just begun to materialize in this country. As the general medical education of the country advances, and it is advancing very rapidly, more and more therapeutists of this type will be developed. The future of therapeutics is in their hands, and in the hands of the laboratory pharmacologist whose discoveries they will test under actual conditions of practice. With their advent we may hope for substantial advances in the therapeutic art as a science. They will not bring the therapeutic millennium, but it is to be hoped that in time they will breed a race of medical men less credulous, more critical, more skeptical, and capable withal of steering their therapeutic bark between the Scylla of therapeutic nihilism and the Charybdis of therapeutic optimism.

I cannot conclude without expressing the hope that this address has not given you the impression that we are standing still in therapeutics. Great strides are being made. The older drugs are being carefully restudied by scientific methods. We are learning much about the use of sera and vaccines. Immunicological studies have given us a greater insight into the processes of self-repair, and we seem to be at the threshold of discoveries in the new science of chemotherapy. There are signs of awakening in dietetics, and in the intelligent application of physical methods. But while recognizing these things we must not overlook the fact that much is yet to be accomplished and that it will take time and thought.

PRESENTATION TO A MEDICAL LORD MAYOR.—On Tuesday afternoon, July 29, at the rooms of the Royal Society of Medicine, London, a presentation of a service of plate was made as a testimonial by his fellow-practitioners to Sir Thomas Boor Crosby, M.D., F.R.C.S., who at the age of 86 served last year as Lord Mayor, the first physician to hold that office. Dr. Crosby is in excellent health and has resumed the practise of his profession, which he began in 1852.

Original Articles.

VICHY, ROYAT, AIX-LES-BAINS. WHICH?*

BY KATE C. MEAD, M.D., MIDDLETOWN, CONN.

Many articles appear from time to time in the journals concerning the famous German water-cures, but very few about those of France, except the winter resorts on the Riviera. For this reason it is difficult for an American physician to know where to send patients who, because they can speak a little French and no German think they would like to go to France rather than to Germany to be treated for rheumatism or torpidity of the liver, or some auto-intoxication. Not that it is at all necessary to send a patient out of our own country to be treated for any disease, since nothing could be better than the general equipment of our water-cures at Saratoga or Richfield Springs or Clifton Spings, or at the Hot Springs of Virginia or Arkansas. But to go abroad for a cure seems more inspiring than to stay at home for treatment. And why is this? Is it the glamour of the ocean voyage, or the lure of foreign countries, or the restlessness of the nervous American? One can dress as much or as little and as often at Saratoga as at Vichy, can drink from just as many springs and hear as good music, can have as attractive drives and see better races at home than abroad. Our buildings are as costly, our baths are given in better tubs, our swimming pools are as clean as those in Europe. Moreover, our physicians are more careful, if possible, in diagnosis and treatment than are foreigners, and our electrical equipment is quite as modern and as well understood as any in France or Germany.

What then is the reason for preferring Nauheim, or Carlsbad, or Homburg, or Baden-Baden, or Levico, or Ischl to Vichy, Aix-les-Bains, or Royat, or to our own attractive resorts? As a matter of fact our own sanitariums and baths are fully as popular as those of Europe, but they are generally overcrowded in the season. Evidently, therefore, it is the "rest, residue, and remainder" which goes across the ocean for the sake of a change. A Continental "cure" taken in connection with a sight-seeing tour need not cost more than a prosaic "cure" at home. One can live very simply and comfortably at European health resorts and have all sorts of treatment at less expense, on the whole, than at sanitariums in America. Many patients in France and Germany receive free treatment at the large sanitariums; among those entitled to free baths, etc., are doctors and their families, apothecaries and their wives, and dentists from all over the world, besides natives of the town in which the baths are built, and certain individuals recommended by the government of the country in which the spring is located. These free patients would seem to be a fair proportion of all the visitors and if one is not too feeble to make a little exertion there is good board to be had at very low rates in the towns adjoining the health resorts. The money one spends, however, depends on his necessities. If luxuries are necessary, they must be paid for anywhere, and they cost money. Good clothes, long drives, constant attendance and costly amusements are expensive whether in Europe or America, and as one may have a choice, arbitrary possibly, for one American "cure" or another, so one is apt to prefer Vichy to Royat, or Aix-les-Bains to Nauheim, and with no very good reason.

It is quite natural that the fame of Schott and of Groedel should draw thousands of patients to Nauheim every season, for advertising pays well, but each of these doctors is urged to receive more patients than he can possibly attend to properly. In fact, the average patient at Nauheim sees the chief so seldom that mistakes in treatment are said to occur every season from the ignorance of the assistants, unless the patient is a prince or potentate, or endowed with an unusually interesting disease. The same is equally true in Carlsbad, where thousands of patients with gall stones, regular surgical cases, are allowed to spend weeks under treatment, drinking the waters with the expectation of dissolving their concretions, like a bromide tablet on a damp day, when in order to be made soluble the gall stones should first be removed by a surgeon and then placed in a mortar and pounded.

It is not easy to understand the advantages of different health resorts without seeing them, for advertisements all read alike. I have, therefore, taken some trouble to visit a good many foreign and home "Cures" in order to have some basis for comparison. One could easily forget why one went to Saratoga, there are so many non-therapeutic diversions there; and at Richford and Sharon Springs there is in reality nothing to do but dress and embroider and bathe and be bored. The scenery is moderately pretty, the daily papers interesting, the costumes fashionable, but the places themselves lack charm for anyone with a restless and imaginative spirit. And yet I cannot see that Vichy, for example, has more beautiful scenery than many places at home, and surely there is nothing especially delightful about the towns of Nauheim or Homburg or Aix-les-Bains. The situation of the sanitarium at Cromwell, in Connecticut, above the Connecticut river, for example, is much more charming than that of either of these famous places. Hills and water are generally needed to create attractive scenery. Vichy, however, is not on a hill but in a river valley among the hills. It is about three hundred and fifty

* Read at the meeting of the Middlesex County Medical Society, April 10, 1913.

miles south of Paris, in the heart of France, at an elevation of a thousand feet above sea level, on the banks of the Allier river. In the distance are old burnt-out volcanoes which look peaceful, despite the fact that the earth for miles around is full of springs boiling from some underground fires and pressure. Vichy, like the other health resorts of Europe, is built around its springs and it has become a beautiful park, where everything old has been destroyed or repaired, nothing is soiled or offensive to nose or eyes, and nobody seems afflicted with poverty, that most disagreeable of diseases and the hardest to cure. Even the railway station is part of the general scheme of architecture, and its formal garden walks lead to the great market, where rare and costly fruits and foods and flowers are arranged temptingly before the visitor. From the market a wide avenue takes the visitor to the parks and the bathing establishment, where covered arcades and promenades connect one kiosk with another, each one built over its own bubbling spring, and each attended by pretty Hebes in artistic costume. The water is free to drink or gargle, but the glasses must be personal property, that no germs may be transmitted from mouth to mouth through careless washing. All day long, from early morning to brilliant night, there is a steady procession of visitors at the fountains, some with prescriptions and some without, wrinkling their faces over the hot salt draught, which Madame de Sévigné, with an expressive pun, said was "as bad as purgatory."

The alcoves for gargling are "moving-picture-shows" of the most ludicrous kind. There is a continuous panorama of men and women who take their places before the marble basins, fill their mouths with the warm Vichy water, upturn their faces, emit gurgles and bubbles, and then suddenly and swiftly bend and eject their portion into the basins, only to begin the process anew. This gargling act seems to be more of a feature of Vichy than at other places of its kind, but on the whole one "hydro" establishment is very like another, differing in the minds of the public according to the taste of its waters, whether it is the deliciously cold Celestin at Vichy, the bitter-salt waters of Carlsbad, the rock-alum springs of Virginia, or the sulphur springs of Saratoga and Sharon Springs. The unique features at these water-cures consist in the therapeutic uses of the springs, whether for drinking, or gargling, or pulverizations, or bathing; and whether the bath is given in a tub or by sprays or by means of water-massage. This last process consists in hosing a patient with more or less water, under more or less pressure, at a higher or lower temperature, and for a longer or shorter time, according to the doctor's prescription. The patient is kneaded and rubbed by the attendants while the hose is playing on the body, and the composition of the water is very carefully adapted to each case. It is, of course, the composition of the spring and the method of employing it which determines its value to the individual patients.

There are, of course, in all these institutions the usual swimming pools, needle and spray baths, tubs for special baths, and rest rooms for recovery. No bather is allowed more than sixty-five minutes on one ticket. In each of these three French resorts there is a Zander Institute, near the bathhouse, where the patients can receive mechanical massage. There are also rooms in the bathhouses where bronchial and throat troubles are treated by inhalations of hot medicated steam, and electrical machines for giving x-rays and radium- and high-frequency treatments, besides arrangements for taking internal irrigations, both vaginal and colonic.

Vichy, with all its attractions, charmed me less than its rival Royat, sixty km. southwest, on a hillside in the suburbs of Clermont-Ferrand. The reputation of Royat and its cures among Americans has been due to the skill of Doctor Egerton Brandt. His kindness and attention to his patients and his success in the treatment of all diseases which can be benefited at a health resort, has placed him above the general level of institutional physicians. His patients are personalities and not "cases," so that along with a cure, there grows up a friendship which is a good asset for both patient and doctor.

The general equipment of Royat for a bath resort is much the same as at Vichy and Aix-les-Bains, but the tone of the place seems to me higher, and the patients more interested in hygiene and in excursions than in dress and shops. The scenery in the vicinity of Royat is particularly beautiful, not perhaps so charming as at Baden-Baden, or Ischel, not as wild as Gastein with its glaciers and waterfalls, but peculiarly weird and impressive, surrounded as it is by chains of high volcanoes rising to a center in the Puy de Dome, six thousand feet high. Through the village tumbles a mountain stream, which in one place seems to gush from a mossy grotto. Above the stream stands the old fortified church, built in the twelfth century; and in the enclosed church yard, protected from marauders, is the old village well. In the valley are the remains of the old Roman baths known very well to Julius Caesar and to his Roman followers for three hundred years, as they had been known and used by the Gauls from times immemorial.

The Romans were especially fond of baths, and wherever they found hot springs or mineral springs, in England or anywhere, they built bathhouses and altars to their gods, and frequented them as much as possible. There are no large Roman ruins as yet found at Vichy, but at Royat the Roman remains are carefully protected from depredations, and at Aix-les-Bains one of the first things one sees in the village near the baths is the old Roman arch, erected by a father to his family who had been cured at Aix. The niches for their urns are empty

now, but the arch, with its old yellowed-brown stones still stands, a silent witness of long ago.

From the close of those peaceful days in the first three centuries of our era to the end of the wars of religion in France very little was known of these hot springs and medicinal baths at Vichy or Royat. Madame de Sévigné in the 17th century spent a few days at Vichy and made the place popular by her writings; but the growth of these resorts is practically the work of the last fifty years, since the time of Napoleon III and his court.

Modern methods of transportation and the general diffusion of wealth have popularized their healing waters so extensively that there are now given from one thousand to four thousand baths a day at each of these three institutions. Vichy, with its four carbonated hot springs, at a temperature of 28°-43° C. often accommodates 4000 bathers in a day during the summer; Aix-les-Bains, with its two alum and sulphur springs at 46°-47° gives 2000 more; and Royat, with its four springs at 29°-35° containing chloride of iron and arsenic and various alkalies, thoroughly carbonated, cares for as many more. Owing to the differences in the waters at the different springs, there is naturally a difference in the patients treated at the institutions. One may find more women at Royat, more men at Vichy, more Royalty at Aix-les-Bains, or medically, more anemia, debility, arterio-sclerosis and cardio-vascular troubles at Royat; more gout and rheumatism and skin diseases at Aix-les-Bains, and more dyspeptics at Vichy for the soothing effects of its delicious cold Celestin springs and the hot Grande Grille. The sanitarium for any patient, however, cannot be too carefully chosen, taking his temperament, his past life, his pocketbook, as well as his disease into consideration, before sending him to any "cure."

To suit the temperament of a patient, a sanitarium should have not only a charming situation and material comforts, but for the student there must be some historical and literary interest. Few educated travellers can forget their struggles with "All Gaul is divided into three parts," and to them it is, therefore interesting to review Caesar's Commentaries in the country where so many of his wars or sieges took place. Vichy and Royat are in the territory of the Arverni, allies of the Aedueans; Aix-les-Bains is in the country of the Allobriges, names familiar to most first year students of Latin. These cities were Gaulish villages before Caesar's conquests, and they became strong, rich cities under Roman rule. In these new cities the Romans built temples to their gods, triumphal arches to their heroes, theatres, palaces, and elaborate bathing establishments wherever they found mineral springs. At Aix-les-Bains many remains of Roman baths and villas have been found, besides money, combs, jewelry, and pottery. At Vichy only small discoveries have been made, such as marbles and vases, but at Royat there have been unearthed the remains of two magnificent Roman bath-houses heated by flues, tiled and beautifully decorated. There are remains of the sweating rooms, the swimming baths, the massage rooms, and even the strygilae for scraping off perspiration and oil, and giving massage. The Romans were fond of the lake at Aix and they built good roads to it for their chariot races. And recently one of our modern Romans, Mr. J. Pierpont Morgan, built himself a road and a villa on the shores of the same lovely lake, for the sake of the baths. And the ex-Sultan of Morocco, Muhlai Hafid, with his entire harem and retinue left his African throne for a sojourn in the gay hotels at Vichy, with its Roman name and traditions, its theatre and race courses, the like of which made it so popular in Roman times. The hotels at all of these great resorts are quite equal to royal palaces, but it is doubtful if they are any more luxurious than the Roman villas of the time of Augustus. It was especially in the Auvergne country that Augustus showed his power and wealth, for it was in the region near Royat that Caesar's enemy Vercingetorix lived and gathered his best soldiers; and at the plateau town of Gergovie, the capital of Arverni, he defeated Caesar and the Roman army (a story familiar to every schoolboy who reads "De Bello Gallico," Book VII), the only defeat that the Romans suffered in Gaul when Caesar was present in person. These tales of Caesar's campaign in Gaul are stirring enough to divert the minds of gouty and anemic individuals from their ever-present campaign against disease to those great deeds of bygone days. One can sit on the hotel piazzas at Royat and watch the clouds drift over that old battle ground where, in the spring of B.C. 52, Caesar anxiously watched the manoeuvres of the two armies and skilfully withdrew his troops in time to save them from annihilation. Caesar's successors, in more peaceful times, erected the triumphal arches and temples to the gods. In Aix-les-Bains there have been found remains of temples to Diana and Venus, and doubtless beneath the soil of Vichy there will be found mosaic pavements and marble foundations of temples to other gods, for there must have been altars to Minerva and Esculapius, the gods of healing. With difficulty the Romans erected a temple to Mercury on top of the highest volcano in the region, the Puy de Dome. They built it of lava and covered the seats with marble from far-away quarries, evidently feeling that the messenger of the gods could best be reached from that wind-blown height. The view from this temple is most extraordinary. A score or more of old volcanoes and many broken craters can be counted in several directions. By almost imperceptible transitions the eye travels north to the hills of Royat with its palace hotels all in a green garden, or off over the cloud shad-

owed distant landscape where Vichy lies among its hills, while to the south the eyes rest on the great plain of Gergovie, conspicuous in the sunlight. Nearer by, at the edge of one of the serpentine turns of the carriage road on the mountain, one can look down into the grassy crater of another old volcano where flocks of sheep feed on the rich turf watched by their sleepy shepherds. Like rows of soldiers ready for battle, other volcanic cones are drawn up in two lines towards the setting sun and toward the south, like play mountains, arranged to be disarranged to suit the war game. Such a view at such an elevation to be had for almost no exertion except that of getting a seat in a car of the cog-wheel train, must have a curative effect on a patient whose malady is caused by introspection or auto-intoxication. How can it act otherwise than to show him himself like a mite and make a "blur of his own little world"?

The region around Aix-les-Bains is entirely different from that of Vichy. Its mountains are the granite foothills of the Alps, and its situation on a hillside, above a blue mountain lake, is quiet and picturesque. This resort has not been so thoroughly deserted during the past centuries as Vichy and Royat, for it has been on the road through France to Switzerland and Italy and was the capital of the powerful House of Savoy. Here it was that the lovely Yolande and her descendants built castles and monasteries, and adorned their princely mausoleum at the Abbey of Hautecombe, a short distance down the lake. One of the most attractive excursions from Aix-les-Bains is the drive from the center of the town through the long avenue to the lake, there to stop at a café by the water's edge for music or tea while watching the water sports. Or perhaps one takes a sail on the lake to the Abbey, for a pilgrimage to the most elaborate tombs that sculptors could make, where lace work in marble and stucco hangs from ceilings and cornices and arches, and decorations are crowded in every available spot to mark the last resting place of three hundred of the turbulent spirits who ruled Savoy for six hundred years. There are almost countless excursions from Aix by automobile-brake, or train, or trolley, or boat to interest the patient between his baths or amuse his travelling companions.

Thus, in conclusion, one may honestly say that visitors to France will find much to interest them, as in Germany. And most patients, if sent to Vichy or Royat or Aix-les-Bains, the selection being made intelligently according to the individual's infirmities, will derive as much benefit as if sent to any of the German resorts.

CHOLERA IN SERVIA.—Report from Bucharest on Aug. 4 states that Asiatic cholera is extensively epidemic in Sofia, whither the infection was brought by captive Bulgarian troops, paroled in Servia.

PROGNOSIS AND TREATMENT OF COMPOUND FRACTURE OF THE BASE OF THE SKULL.

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IN the text-books of surgery printed during the first half of the last century, and even in some published at a much later date, it was taught that compound fracture of the base of the skull was practically always fatal; and the fact of recovery after a head injury was considered proof positive of the absence of a compound basal fracture. Later it was recognized that a number of these cases recover, but it was felt that, from a therapeutic standpoint, little could be accomplished. Even with the advent of asepsis the percentage of mortality remained unaffected and notwithstanding appropriate therapeutic measures, many cases of undoubted fracture of the base that survive the immediate effects of the injury, still succumb to subsequent infection.

The mortality of basal fractures has consequently remained very high, and it is only during the last few years that advances have been made, which, it is hoped, will serve materially to reduce the death-rate in this important class of head injuries.

In 1906, Crandon and Wilson,[1] in an analysis of the fractures occurring at the Boston City Hospital for a period of over forty years, found that in a total of 35,816 fractures, 530, or about 1.5%, were fractures of the base. Of these, 395 were compound, 181, or 46%, dying either as a direct or indirect result of the compound fracture.

The reported percentage mortality of fracture of the base—including compound fractures—varies in the reports of different writers within wide limits. Thus, Frazier[2] reports a mortality of 59% at the Philadelphia Episcopal Hospital, while Kantorowicz collected 73 cases from the records of the Charité with a mortality of only 29.2%. Ransohoff[3] collected 190 cases, with a mortality of 65%. Of the fatal cases 78% died within the first 24 hours and only 12% lived after the second day. This last fact points to a reason for the variance in the different mortality reports. In some hospitals accident cases, received in a reception ward, often remain there for 24 hours or longer. A considerable number of patients as severely injured as is this class of patients succumb to their injuries either on the way to the hospital or in the reception ward. When such is the case their records are seldom complete and are not as a rule, available for study. In other hospitals patients are immediately taken to the wards, in which case the ward records would show a much higher mortality. Even in this latter case the records would still be lower than the true mortality percentage because many cases would never live to reach the hospital.

In the following paper the writer has analyzed 35 cases of compound fracture of the base of the skull admitted to the Presbyterian Hospital,* New York City, between June 1, 1908, and January 1, 1913. These cases all presented the classical picture of fracture of the base of the skull to which was added bleeding from the nose, mouth or ear. Cases which were surely basal fractures, but in which there was some doubt as to the diagnosis of compound fracture, were not included in this report.

Of these 35 cases 14 died and 21 recovered, a general mortality of about 40%. Six cases died during the first 48 hours, all in primary shock from the injury received. Eight patients died after the third, and before the fifteenth day, after having partially or wholly recovered from the shock of the injury. Of the eight patients, five died of meningitis. The causes of death and the day on which it occurred in the fatal cases are as follows:

5 patients died of meningitis on the 4th (2), 6th (2), and 13th day.
2 patients died of broncho-pneumonia on the 4th day.
1 patient died on the 10th day after secondary hemorrhage and operation.
8 Total

From the above figures it may be seen that, even in those patients who survive the primary shock following compound fracture of the base, there is still a high mortality—in this series 25.5%.

The extent of the injury in cases of this type is usually more or less problematical and in many cases the injury to the brain is so extensive that any form of treatment will, of necessity, be ineffectual. It is, however, the class of cases mentioned above, in which the resistance of the patient is sufficient to carry him through the period of shock following the injury, which is answerable for the greater number of the deaths following compound fracture of the base, and it is consequently this class against which our therapy must be directed and in which there is the greatest promise of success.

Ransohoff[4] has pointed out that in cases in which there is bleeding from the nose the mortality is greater than in cases in which there is a discharge of cerebro-spinal fluid from the ears alone. This is probably accounted for by the increased liability of infection through the nasal cavity. Phelps,[5] in an analysis of 1000 cases of head injury, has called attention to the prognostic importance of fever. In his series no case recovered in which the admission temperature was over 102°, or in which the temperature at any time reached 105°. Case No. 15 in this series had a rectal temperature which reached 105 on several occasions and ended in recovery. However, this must be very rare, for in every other case a temperature of 105° was an indication of a fatal termination.

In general it may be stated that a high leucocyte count is of bad prognostic significance. The highest counts were in Case No. 34, in which the leucocytes were from 26,000 to 29,000 with the polymorphonuclear cells averaging 95%. This represented the count of the complicating meningitis—pneumococcus in origin—and remained high until death on the thirteenth day. A high count during the first few days is not necessarily of bad significance, but in those cases in which the leucocyte count remained above 15,000 for several days the termination was practically always fatal. Conversely, those cases in which the early counts were moderately high (16,000 to 20,000) but which fell during the first week to 12,000 or below, all ended in recovery.

Meningitis. Of 29 cases living more than 48 hours, 9, or 31%, developed meningitis. The type of the meningitis and the termination of the disease are shown in the following table:—

Case Number	Type	Result.
1	Pure Streptococcus	Died 4th day.
2	Pure Streptococcus	Died 6th day.
34	Pneumococcus	Died 13th day.
15	Gram Positive Coccus	Recovered 53 days.
25	Meningococcus	Recovered 44 days.
13	No culture obtained	Died 6th day.
29	No culture obtained	Died 4th day.
21	No culture obtained	Recovered 20th day.
11	No culture obtained	Recovered 47th day.

It may be noted here that one case (No. 25) recovered under treatment with meningococcus serum.

Age. Compound fracture of the base of the skull is less fatal in early life than in middle and old age.

Of 11 cases occurring during the first ten years of life, only 1 died, while in 21 cases occurring in patients under 30 only 3 died, and in 14 cases occurring in patients over 30 there were only 3 recoveries.

Treatment. The treatment of compound fracture of the base of the skull may be divided into conservative and radical treatment. In the former the indications are to limit the hemorrhage and to combat shock. This is accomplished by rest in bed, usually with the head elevated, and by the employment of the ordinary measures to combat shock due to trauma.

If the heart is failing during the early stage stimulants may be given, but care should be taken not to cause over-stimulation with the consequent increased intracranial hemorrhage. An ice cap should be applied immediately to the skull and the patient should be kept strictly at rest by means of sedatives. Morphine and chloral are of value and should be used early for restless and irritable patients. It is further indicated to use measures for the prevention of infection. If there is bleeding from the ear the meatus should be carefully wiped out with iodine and a pledget of sterile cotton, or gauze,

* I wish to acknowledge my indebtedness to Dr. Ellsworth Eliot, Jr., for his counsel and advice in the preparation of this paper, and to him and the other members of the surgical attending staff for permission to report these cases.

should be loosely placed in the external auditory canal, care being taken to permit free discharge from the ear. If there is a hemorrhage from the nose and mouth these cavities may be swabbed with a weak solution of silver nitrate or with iodine in an oily media. They should never be irrigated, as septic material may be carried into the wound. In the prophylaxis against infection, and the treatment of meningitis, should it occur, hexamethylenamin deserves special mention. This drug was recommended, on purely theoretical grounds by Crowe,[6] in 1908, as specially indicated in the treatment of compound fracture of the skull. In 1909[7] he carried out some careful experiments on dogs given from 60 to 80 grains of hexamethylenamin daily. In these animals a culture of virulent streptococci was injected beneath the dura. One animal in each series did not receive the drug and was used as a control. In no case did the control animal survive the injection for more than 36 hours, while the animals receiving hexamethylenamin lived much longer, and those to whom hexamethylenamin was given in large doses, as a prophylactic measure before the injection, made a complete recovery. In an article written in 1912[8] Crowe reports 35 cases of compound fracture of the base of the skull in which hexamethylenamin was given as a routine measure without a single instance of a complicating meningitis. In contradistinction to this, there occurred, during the preceding period and the same number of patients, 9 cases of meningeal infection.

In the present series of cases, if we exclude those dying during the first 48 hours, there were 15 patients who received hexamethylenamin in varying dosage. Among these patients there were five deaths, a mortality of 33 1-3%. Seven cases receiving hexamethylenamin were complicated by meningitis and four of these cases died apparently as a direct result of the inflammatory process in the meninges. Three cases of undoubted cerebro-spinal infection recovered under treatment with hexamethylenamin. Two cases (Nos. 1 and 2) received hexamethylenamin in doses from 60 to 120 grains a day from the first day, in spite of which a streptococcus meningitis developed, ending fatally on the fourth and sixth days.

A few of the cases noted above did not come under observation for 24 hours or more after the injury, and consequently did not receive any treatment during the period immediately after the accident, allowing abundant opportunity for the development of a meningitis before treatment was begun. It is impossible to come to any conclusion as to the value of hexamethylenamin in meningeal infection from such a series of cases. It is recognized that hexamethylenamin, given in small doses and after a definite period of time has elapsed since the accident, will not prevent the development of meningitis.

Crowe has pointed out the fact that hexamethylenamin reaches its highest degree of efficiency when given as a prophylactic. To prevent meningitis it should be given at the earliest possible opportunity. As an etiological factor in nephritis hexamethylenamin plays a very small rôle. It has been frequently shown that from 30 to 60 grains may be given in a single dose without any signs of irritation, and that when hematuria does occur it is due to the action of the drug on the bladder and not on the kidneys.

In compound fracture of the base of the skull we have to deal with an injury, the death-rate of which is exceedingly high, and we are justified in pushing our medication to the point of beginning toxicity or even beyond that point if there is any hope that by so doing we may benefit our patients. Hexamethylenamin should, therefore, be given early and the initial dose should be a large one. If the patient is conscious and able to take fluids when first seen at least 30 grains should be given by mouth, the drug being well diluted—two grains of hexamethylenamin may be given in each ounce of fluid. In order to anticipate the vomiting, which often occurs, a similar dose dissolved in 15 oz. of ordinary water, should be given by rectum immediately. If both of these are retained the patient has received 60 grains, not an excessively large dose. Following this, 15 grains should be given in 8 oz. of fluid, either by mouth or rectum, every two hours until 4 doses have been taken, and then 10 grains, correspondingly diluted, every two hours, attempting to give at least 100 to 120 grains every 24 hours until danger of infection is past. Should there be any evidence of infection the initial doses should be larger.

Crowe reports a case of streptococcus meningitis secondary to a fractured skull received three days before coming under observation. At that time the temperature was 105, the symptoms were those of a well developed meningitis, and the spinal culture showed the infecting organism to be a streptococcus. This child, 7½ years old, received 291 grains of hexamethylenamin during the first 48 hours, with only a slight amount of vesical irritation. I have repeatedly, in desperate cases, given from 80 to 100 grains in one dose with only a transient hematuria resulting. Care should be taken to give the drug well diluted, approximately ½ oz. of fluid being given for every grain of hexamethylenamin administered. If the patient is unconscious when first seen, or the need urgent, the drug should be given subcutaneously or intravenously.

Gundrum[9] has reported the subcutaneous use of hexamethylenamin, and claims that there is only slight local reaction following its use. At the same time, for unconscious patients, the drug may be administered in full doses and well diluted, per rectum. It is apparent that we have in hexamethylenamin a remedy of great

promise in the prophylaxis and treatment of cerebro-spinal infections, but, if it is to fulfill our expectations, the dose must be much larger than that ordinarily given.

The operative treatment of fracture of the base is still in its infancy. In 1908 Cushing[10] reported 15 cases of fracture of the base, on whom a decompression operation was done as routine. In these 15 cases there were only 2 deaths. He advocates the subtemporal decompression operation through the squamous portion of the temporal bone as a routine procedure in all cases of fracture of the base.

Ransohoff, in 1910, reported 10 operative cases, with 7 recoveries and 3 deaths. In the present series 4 cases were operated on with 3 deaths. However, this procedure was not considered as a routine, but usually only when there were signs of markedly increased intracranial pressure. An early operation was performed in Case No. 24, which was one of the two cases in which recovery occurred in patients over forty years old. Spinal puncture was not used as a therapeutic measure, although a temporary improvement was often noted following the diagnostic lumbar puncture.

Quenu[11] reports 7 cases with 7 recoveries, which were treated by daily lumbar puncture. In one case, which he gives in detail, from 12 to 22c.c. of fluid were removed each day, and eight punctures in all were required. The only other treatment was rest and the surgical care of any wounds which might be present. It would seem that this procedure might give good results and especially where, for any reason, a decompression operation is not advisable.

The following is the list, arranged in tabular form, of the cases referred to in this paper:—

Case. No.	Age.	Complications.	Special Treatment.	Result.	Day.*	Remarks.
1	28	Meningitis Alcoholism	Hexameth. Mod. doses	Died	4	Spinal fluid shows pure culture of streptococci.
2	54	Meningitis Alcoholism	Hexameth. Mod. doses	Died	6	Spinal fluid shows pure culture of streptococci. Semi-comatose on admission.
3	9	None	None	Recov.	11	Slight fever for two days.
4	10	Fract. both femurs	None	Died	2	Died in shock.
5	9	None	None	Recov.	18	Purulent discharge from ear for six days, no fever.
6	50	Broncho-pneumonia	Hiss serum Hexameth.	Died	4	Edema of lungs. High fever.
7	30	None	Hexameth	Recov.	13	No fever.
8	56	None	None	Recov.	12	Bleeding from nose for 6 days.
9	40	None	None	Died	1	Died in shock.
10	4	None	None	Recov.	7	Never unconscious.
11	35	Fr. both bones of forearm Meningitis	None	Recov.	47	Fever 100 to 102 for 28 days. Leucos 17000, polys 88%, gradual decrease to 10000 and 75% in 9 days.
12	3½	Fract. tibia	Hexameth	Recov.	9	
13	40	Meningitis	Hexameth.	Died	6	Temp. 102. Died in convulsion. Spinal culture sterile.
14	75	None	None	Died	1	Died in shock.
15	9	Meningitis	Hexameth. Small doses	Recov.	53	Temp. 99 to 105 for 15 days Spinal fluid thick, purulent. Smears show Gram + cocci.
16	7	None	Hexameth.	Recov.	12	No fever.
17	45	None	Operation	Died	1	Died in shock.
18	19	None	Hexameth.	Recov.	14	Temp. 101, gradually to normal.
19	23	None	Hexameth.	Recov.	12	No fever.
20	20	None	Hexameth.	Recov.	12	No fever.
21	27	Meningitis	Hexameth.	Recov.	20	Temp. 101 to 104 for 16 days. Spinal fluid shows pus. Smears and culture do not show bacteria.
22	8	None	None	Recov.	14	Slight fever on admission.
23	5	None	None	Recov.	14	Temp. 100.5 on admission.
24	41	None	Operation	Recov.	27	Temp. never above 101.
25	18	Meningitis	Hexameth. Anti-meningococcus serum	Recov.	44	Temp. normal to 104 for 24 days. Spinal fluid shows miningococcus.
26	28	None	Hexameth.	Recov.	6	No fever.
27	33	Fract. femur	None	Died	1	Died in shock.
28	10	None	Hexameth.	Recov.	3	Never unconscious. No fever.
29	33	Meningitis	Hexameth.	Died	4	Temp, gradually rose to 106. Many convulsions.
30	42	Broncho-pneumonia (double)	Operation	Died	4	Died suddenly on 4th day. Hemorrhage?
31	51	None	Operation 9th day	Died	10	No fever. Convulsions on 9th day. Died after operation.
32	22	None	None	Recov.	15	Temp. 101 on admission.
33	9	None	None	Recov.	13	Temp. normal to 101 for 9 days.
34	12	Meningitis	None	Died	13	Pneumococcus in pure culture.
35	64	None	None	Died	1	Died in shock.

* Refers to day of death or day patient left hospital.

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CONCLUSIONS FROM AN EXPERIMENT IN TEACHING PHARMACOLOGY.

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IT is noteworthy that while those who are to teach in the secondary schools are required to take courses in the theories of pedagogy, most of us who teach in medical schools, which should be integral portions of the university, have had little or no such theoretical training, and consequently our courses may fail to be as effective as they otherwise might be. This may perhaps be interpreted by the supposition that teachers in medicine are selected for their reputation to do successful research work, and hence little or no attention is paid to their ability to present truths logically, and in a manner sufficiently attractive to interest students. This position does not seem altogether reasonable, since by far the larger portion of our medical students do not enter pure scientific medicine and on such students the influence of a research worker would be largely lost, unless such a teacher has an attractive method of presenting truths.

Under ideal conditions the head of the department should devote himself largely to the advancement of knowledge, to the encouragement of individual research workers, and to the executive control of his department, while most of the class teaching should be done by capable assistants. Few universities in this country, however, are able to support such elaborate departments.

Up to the present time we have had no uniform system of teaching pharmacology. Some instructors lay their emphasis on lectures, others lay their emphasis on demonstration, while others emphasize laboratory work. The courses recently organized are largely based on those already existing; hence experiences with such courses may be of value to those about to organize new ones and on this basis the following notes were written. Certainly something must be done with our teaching because if the field of medicine enlarges in the next ten years as it has in the last decade we shall be compelled to add a fifth year to the medical course, or do more efficient and concentrated teaching.

I have become convinced that pharmacology should, like physiology, be taught as a pure science, as much in connection with the universtiy as with the medical school, while the practical applications of pharmacology should be in the hands of scientifically trained clinicians who are specializing in therapeutics and who would be in closer touch with the medical work. Insofar as this point of view is concerned, the necessity for any separation of the department of pharmacology from the university seems unfortunate, as it would tend to lay too much emphasis on the attainment of immediate practical results, and by this separation many pure scientific workers would be lost to pharmacology. At Stanford we have had chemical students, who had no intention of studying medicine, take the work in pharmacology and some of these were, from a productive scientific point of view, the most hopeful students we have had. For economical reasons it is usually more expedient to have the department of pharmacology in connection with the medical school, but under ideal conditions all of the medical school should be in close relation with the rest of the university.

If we accept the view that pharmacology is a pure science and can be dissociated from clinical therapeutics and that it should be taught as such, then the question arises whether we shall not give the degree of doctor of philosophy in pharmacology. It would seem to me, if a man has had the cultural courses leading to the degree of bachelor of arts and has been thoroughly trained in physics, chemistry, and has taken the regular courses in physiology, bacteriology, and pathology, that a year, or a year and a half of good work in pharmacology should entitle him to such a degree. Of course all teachers in the medical school are better equipped if they have had the broad experience which should go with the degree of doctor of medicine. A better way to educate teachers in pharmacology would probably be to advise that such prospective teachers should first secure the degree of doctor of medicine and then devote one year to research work in pharmacology and, if such work prove satisfactory, bestow on them an advanced degree.

At present the tendency of teaching in pharmacology is to overload the students with facts, whereas the main purpose should be to teach him to think logically and judicially in this field. To do this we have adopted a course midway between the seminary and lecture method of teaching, that is, I go over the action of a drug and decide from experiment on what structures

it acts, then ask some student what is the physiological effect of such action; thus, after showing that atropin acts on the extreme vagus terminals the question is put, what would be the effects of paralysis of these terminals and whether he knew of any condition where such blocking of impulses would be desirable, so that with us pharmacology has been largely applied physiology and chemistry.

We have insisted that no conclusions as to the action of drugs be accepted, even from the instructor, unless experimental evidence in its support could be cited, and that our statements were only worth the reasons we could give for them, hence at all times students were encouraged to raise questions as to evidence. This method has served to vitalize the work both for the students and for the instructor, and made us all feel as if we were students working together, each anxious to attain the truth. I am not sure whether teachers in all medical schools could hold this democratic relation to their pupils, but certainly we have had no occasion to feel that this relation was abused.

It seems to me that emphasis should be laid on the laboratory teaching of pharmacology, and students have told me they could remember the laboratory work, while didactic lectures faded more quickly from their minds. Of course this may be partly due to the fact that in such work more time is spent on one subject, but perhaps the real explanation is that most of us visualize. However, laboratory work in pharmacology to be effective requires the constant presence of instructors and is expensive.

At times when we were trying to show a number of different experiments in a short period we have had one group of students demonstrate an experiment to other groups, and subject themselves to their questioning. This method would aid them in presenting their ideas clearly.

At present we devote, during one semester, three hours a week to laboratory work and besides this have tried to devote one hour a week to demonstrations, but this, as yet, has not been very successful, owing to the fact that we have had only student assistants.

Beside the laboratory and demonstration periods we have devoted two hours a week, for two semesters, to the mixed lecture and seminary teaching and one to a quiz or recitation. By carefully timing the work, we have thus been able to review each semester's work. This has been done with the idea of lessening the amount of work a student must do at night.

As the field of pharmacology has become so large it is impossible to do more than emphasize general principles and discuss in detail the drugs which are of clinical importance, or of especial scientific interest, hence practically all the details of materia medica have been omitted and only the doses of the important preparations have been required. Since so many important new branches have developed and demand time in our curriculum, I cannot help but believe that progressive medical schools will soon discard the old materia medica instruction and gradually remove this name from our catalogues. Later it may be necessary to separate pharmacology into two divisions, a chemical and a physiological.

Pharmacology has now become such a large field of knowledge that it hardly seems fair to expect one man to teach it along with another branch, such as clinical therapeutics, because the experience required to successfully teach clinical therapeutics is of a different kind from that required to teach pharmacology, and one is very apt to neglect one subject for the other. Many of our schools now recognize that there are two sides to modern therapeutics and to meet this are offering courses in experimental therapeutics. Such courses must be really an extension of the work in pharmacology, pathology and bacteriology.

Of course, after all, successful teaching in pharmacology depends upon the man, not upon the rules. It is essential that we have our subject so worked into our being that we unconsciously inspire enthusiasm for it.

DESCRIPTION OF AN ABDOMINAL, LUMBO-ILIO-SACRAL SUPPORT AND ITS USES, ADVANTAGES AND LIMITATIONS.

BY H. W. MARSHALL, M.D., BOSTON.

Orthopedic supports for foot defects are so familiar that causes which produce foot relaxations are now well understood. It is recognized that continuous standing or walking, which means continuous subjection of the feet to mechanical strains from motions of the body and from body weight, tends to produce flat foot; that obesity helps to cause it; that local traumata and exposure to external influences often subsequently are followed by changes in the feet; and that improper shoes very frequently act as important contributing causes.

Furthermore, it has been noticed that onset of foot weakness is associated very commonly with temporarily debilitated conditions or run-down states associated with chronic infectious processes; and that as long as individuals are vigorous they can stand or walk continuously, become very heavy, withstand considerable injury, and wear almost any kind of shoes without development of pathological changes.

Understanding of relaxations of the feet helps to make clear similar defects in the lower part of the spinal column which show results of action of similar underlying causes.

In the dorsal spine arrangements of ribs and sternum help to support weakened vertebral joints, while in the cervical region there are not as great mechanical strains and pressures as in lower parts.

The lumbar, lumbo-sacral and ilio-sacral joints with the several bones involved, support all heavy upper parts of the trunk, upper extremities, head, and abdominal viscera. And the anatomical arrangement of five lumbar vertebrae in a column permits considerable mobility of this region, with possibilities of changes in poise from variations in pull of the many opposed muscles, as the latter hold the upper parts of the body in proper relation to the pelvis and lower extremities. Strong back muscles,—erector spinae, quadratus lumborum, ilio-costalis, etc., have most to do with maintenance of position of the spine. Psoas muscles, too, are attached to the lumbar vertebrae and exert some influence upon the spine as they assist in moving the heavy lower extremities.

The great dependence of the lumbar and sacral regions upon integrity of muscles and ligaments makes these localities especially susceptible to influences which act harmfully upon muscles and ligaments.

It doesn't seem strange upon consideration of the facts of the situation that flat feet and weak backs should occur together frequently as clinical observations conclusively prove they do. Harmful quantities of substances circulating in debilitated states, which relax muscles and ligaments of the feet, do the same thing to muscles and ligaments of the back, to the abdominal musculature, to connective tissue supports and involuntary muscles of the abdominal organs.

Increase in weight, unusual mechanical strains, etc., act similarly in the two localities; and also there are rigid irritated conditions as well as relaxed ones both in the back and in the feet.

The abdomen should be thought of as a group of organs approximately of the same specific gravity, all enclosed under slight pressure in a muscular pouch, and hung upon one side of the spine as a single sac.

The weight of the abdomen pulls upon the lumbar vertebrae through attachments of abdominal muscles in the lumbar aponeurosis and through suspensions of viscera from the bodies of the vertebrae.

In the lower part of the back orthopedic supports have to perform frequently a triple service of splinting the weakened vertebral column; of strengthening the sacro-iliac joints, which depend so much upon strength of ligaments and so little upon strong bony arrangements; and, thirdly, of supporting relaxed abdominal viscera.

In passing it should be remembered in conceptions of visceral ptosis that there are not great individual differences in pull of gravity upon the different abdominal organs, so that changes in shape and position of stomach and intestines originate mainly from vascular causes in debilitated conditions. These causes act upon walls of the gastro-enteric tract to produce muscular relaxations and deteriorations. Then mechanical distensions and atonies from gas and food accumulations, or distensions, following partial obstructions from the outside to passage of contents of the digestive canal, act upon the weakened visceral walls of the stomach and intestines. They probably are equally as important as gravity among the elements producing ptosis.

Gravity sags relaxed dilated stomachs and intestines downward when upright postures are assumed, as it also does obese abdominal walls. Gravity is not the cause of obesity, however; and although it probably does assist in the sagging process of all viscera it should not be thought of as the main or primary cause for peculiarities seen in individual organs. Replacements of the viscera furthermore do not necessarily restore normal physiologic functions, as experience proves from applications of supports, and this strengthens belief in importance of other contributing causes besides gravity.

Conditions requiring abdominal-spinal appliances can be tabulated as follows:—

1. Relaxations of the lower spine and sacro-iliac joints from intestinal toxemias and in certain anemic conditions of adolescence. Clinically they are patients with hollow backs relaxed antero-posteriorly, with symptoms of back weakness, leg pains or sciaticas.

2. Mild inflammations of the same regions associated with toxemias due to chronic suppurations and pathogenic bacterial foci in distant parts. These are characterized often by muscular rigidities as well as by weakenings.

3. Obesity with excessive local deposits of fat in the omentum and abdominal walls.

4. Conditions following pregnancies and severe abdominal operations in which digestive functions and intestinal peristalsis are so weakened from flabby abdominal walls as to permit secondary developments of intestinal toxemias and general relaxations. Simple abdominal belts without back splints suffice at first in these cases to hold weakened muscular walls and sagging viscera before general toxemia relaxations supervene.

5. Conditions mentioned under 1, 2 and 3, of themselves of slight degree, but which have been rendered relatively important through lowering of local resistances in the back by unusually heavy lifting, traumata, exposure to climatic conditions, harmful occupational attitudes, etc.

6. Special pathological conditions, tumors, fluid accumulations, etc.

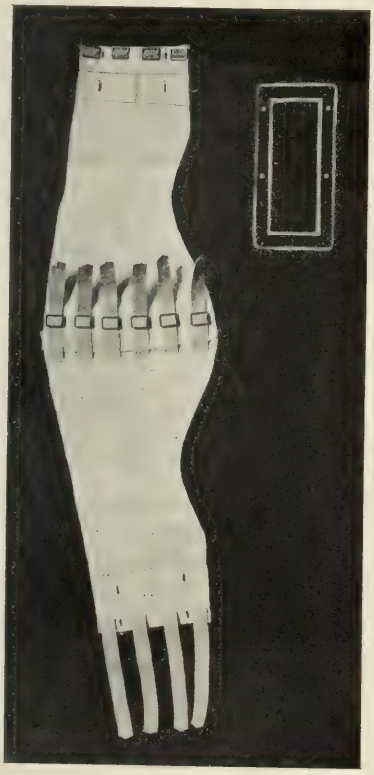
DESCRIPTION OF THE APPARATUS AND DETAILS OF ITS FITTING.

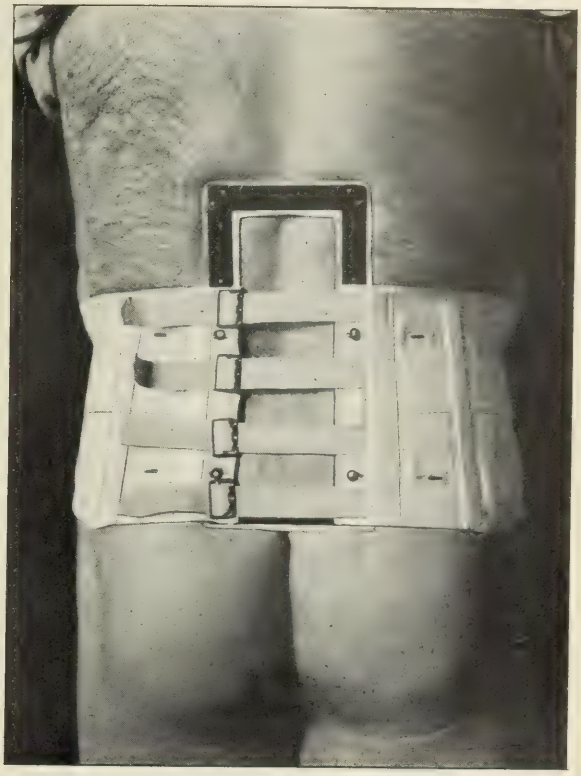
It consists of two upright steel straps, each fitted to the contour of the lumbo-sacral region, one placed on either side of the spine, overlapping the ribs above and extending below to the

in the belt and do not extend beyond its limits.

(4). It hasn't the defect of some abdominal supports, which hold up the viscera but press upon the crests of the ilia, increasing strains upon unsupported sacro-iliac joints below and occasionally initiating harmful symptoms in the latter.

ABDOMINAL LUMBO-ILIO-SACRAL SUPPORT.—MARSHALL.





Steel splint and belt of abdominal lumbo-ilio-sacral support shown separately, and united in correct position upon the patient

and can be used and discontinued easily, according to physiological requirements. This is one of its most important features.

(3). The belt can be used without the steel back brace. With the latter extending above the belt overlapping the ribs, a more efficient splinting of the lumbar back is accomplished than when steels are permanently incorporated

peutic measures to be used in a rational physiological way to correct conditions that always are dependent upon several physiological influences. Many failures in treatment are due to lack of appreciation of the importance of orthopedic appliances, while many other failures are due to lack of appreciation of internal medical measures, medical gymnastics, normal physiology, etc.)

In the dorsal spine arrangements of ribs and sternum help to support weakened vertebral joints, while in the cervical region there are not as great mechanical strains and pressures as in lower parts.

The lumbar, lumbo-sacral and ilio-sacral joints with the several bones involved, support all heavy upper parts of the trunk, upper extremities, head, and abdominal viscera. And the intestines originate mainly from vascular causes in debilitated conditions. These causes act upon walls of the gastro-enteric tract to produce muscular relaxations and deteriorations. Then mechanical distensions and atonies from gas and food accumulations, or distensions, following partial obstructions from the outside to passage of contents of the digestive canal, act upon the weakened visceral walls of the stomach and in-

[illegible] strengthening the sacro-iliac joints, which depend so much upon strength of ligaments and so little upon strong bony arrangements; and, thirdly, of supporting relaxed abdominal viscera.

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6. Special pathological conditions, tumors, fluid accumulations, etc.

DESCRIPTION OF THE APPARATUS AND DETAILS OF ITS FITTING.

It consists of two upright steel straps, each fitted to the contour of the lumbo-sacral region, one placed on either side of the spine, overlapping the ribs above and extending below to the lower limit of the sacro-iliac articulations. Cross bars of steel, slightly bent to make room for bony spinous processes, are riveted to the ends of the longitudinal ones, thus forming a single rectangular light steel splint. Metal buttons are riveted to each of the lower corners and upon each of the upright steels near the top, making four in all.

The belt consists of three or four strips of webbing, which are fitted snugly while the patient is in a standing posture. It encircles the abdomen, extends approximately from umbilicus to symphysis in front, passes just above the trochanters of the femora to extend low enough in back to include the sacro-iliac joints. Its upper limit in back is less important and is determined by the shape of the abdomen and by the level needed to hold the abdomen properly.

Adjustable straps and buckles are stitched in rows to the belt near the mid line in front, also in other rows near the mid line in back, after a three or four inch strip has been cut from the latter locality dividing the belt into halves. Additional tightening, if the webbing stretches, is made possible by this arrangement.

Flexible thin steels keep it from wrinkling, and eight buttonholes are made to fasten it to the steel splint as circumstances require. The belt is finished except the buttonholes, while the steel parts are riveted together without tempering. Then the belt is put on the patient, the steel splint bent to fit so it will take the pull off the back from the abdomen; buttonholes and buttons are located accurately; steel parts are tempered and padded; and the two portions are buttoned together to complete the apparatus.

ADVANTAGES AND LIMITATIONS OF THE SUPPORT.

(1). It is simple, effective, comfortable, cheap, easy to put on, accurately fitted, and does not interfere with ordinary clothing.

(2). It is independent of wearing apparel and can be used and discontinued easily, according to physiological requirements. This is one of its most important features.

(3). The belt can be used without the steel back brace. With the latter extending above the belt overlapping the ribs, a more efficient splinting of the lumbar back is accomplished than when steels are permanently incorporated in the belt and do not extend beyond its limits.

(4). It hasn't the defect of some abdominal supports, which hold up the viscera but press upon the crests of the ilia, increasing strains upon unsupported sacro-iliac joints below and occasionally initiating harmful symptoms in the latter.

(5). Its adjustable features permit physiological corrections of abdominal relaxations more accurately than many corsets intended for these conditions.

(Instead of attempting to secure the greatest possible upward displacements, pressures should be sought which approximate degrees exerted by normally developed abdominal musculatures. And the most efficient supports frequently show very few gross anatomical changes in position of the viscera. They relieve a part of the dragging weight, however, and afford more favorable conditions for weakened viscera or backs to regain their normal physiological states. In very relaxed, flabby conditions, too, it seems that corrections should be made gradually rather than all at one time. Harmful squeezings downward of the abdominal organs have prevailed in the past, and perhaps the future has in store harmful upward displacements from too vigorous attempts at correction of downward variations.)

(6). This orthopedic appliance prevents or relieves harmful mechanical strains simply, and may not influence other important primary causes for defects for which it is used. Limitations consist in non-fulfillment of all requirements of treatments.

(It is true that belts and foot supports are sufficient in themselves to relieve pathological symptoms often without attention being paid to other causes, but recovery would be quicker if all factors were properly dealt with. Inattention to all underlying causes of weaknesses is the cause of many failures in treatment, and also for undue prolongations in other instances.

In debilitated conditions, which form a very large proportion of all cases, there should be as careful study of causes for vascular defects as of mechanical elements in production of the troubles. Regulation of diets and eliminative functions of kidneys and bowels should be very carefully attended to. The latter details, however, cannot be discussed in this paper.

But there should be clear understanding that mechanical supports are only one of the therapeutic measures to be used in a rational physiological way to correct conditions that always are dependent upon several physiological influences. Many failures in treatment are due to lack of appreciation of the importance of orthopedic appliances, while many other failures are due to lack of appreciation of internal medical measures, medical gymnastics, normal physiology, etc.)

The general public is puzzled now to understand the status of abdominal supports, because fifteen or twenty years ago physicians were emphasizing harmful effects of tightly laced corsets that constricted the waist, pointing out that visceral displacements and interference with normal physiological functions resulted from this fashion. All corsets in consequence fell into disrepute among many persons.

Now doctors are recommending the wearing of corsets to prevent, or correct, downward visceral displacements; and many persons are confused by the sanction of the medical profession for the same articles that formerly were frowned upon. Therefore it is necessary sometimes to explain that constrictions at the waist still are considered injurious, that types recommended at present are different from those formerly condemned, and that corsets include a variety of appliances enclosing the thorax and abdomen.

With enterprising corset-makers taking advantage of present medical tendencies and putting upon the market a great variety of new modifications, it is well to call attention to the fact how very simple appliances can be that will meet all the various requirements satisfactorily. The natural error is made by some persons of assuming that great simplicity in design of supports indicates corresponding simplicity among anatomical peculiarities of the lower part of the spine and abdomen, and also among the really very complicated physiological defects which these braces are used to correct.

Hence improper uses of these simple supports are seen so commonly in applications carried on for too long times, unwise combinations with wearing apparel, confusion of anatomical and physiological defects that result in improper use of braces, etc., etc.

Extremely simple straps applied at the right level around the pelvis may be sufficient to strengthen weakened sacro-iliac joints when only they are relaxed. Abdominal belts without back supports suffice to hold weakened relaxed abdominal walls. Combined supports like the one figured here accomplish both of these purposes as well as that of splinting the spine, and are indicated especially when vascular defects are conspicuous elements in the situation, as in debilitated states and mild chronic infections. They also are used in excessive obesity and in unusual pathological conditions of the abdomen. For severe osteo-arthritis, tuberculosis of the spine, and severe infectious processes higher reaching jackets and braces are needed.

Undoubtedly corsets should be made in hygienic forms, as is done with orthopedic shoes; but wearing apparel, which is worn continually, should be kept as independent as possible of medical appliances which are employed only temporarily. The use of the latter should be governed by entirely different reasons from those controlling wearing of clothing.

Clinical Department.

REPORT OF A CASE OF PHLEGMON STARTING AS A PERITONSILLAR ABSCESS AND EXTENDING DOWNWARD AS FAR AS THE SECOND RING OF THE TRACHEA.*

BY GEORGE L. RICHARDS, M.D., FALL RIVER, MASS.,

Otologist and Laryngologist Union and St. Anne's Hospitals, Fall River.

THE following case is an example of a severe case of pharyngeal phlegmon having its origin primarily in a peritonsillar abscess, and secondarily in a diseased tonsil. The patient was a large, well-nourished man, forty-two years of age, of English parentage. The family history was negative. The previous history was that he had suffered from occasional quinsy sore throat for the past three years, having had two or three attacks. Otherwise he had been well. The patient presented himself at the Union Hospital in my service on the afternoon of August 20, 1909, with a history of a sore throat of several days' duration, followed by difficulty in breathing and swelling of the entire left side of the face and neck. The left tonsil had been lanced once the previous day, and again on the morning of admission, but without relief, and the abscess had been continually increasing in size. At the time he presented himself he was breathing with great difficulty, and with occasional paroxysms of dyspnea and coughing. The entire left side of the face and neck clear down to the collarbone was swollen and edematous. On examination of the throat, which was made with some difficulty, the tonsil and lateral wall and the supratonsillar area were intensely swollen, and largely filled the available area in the throat. The patient was nearly cyanotic, with a pulse of 124. The skin of the neck was very tense, but I did not feel any definite fluctuation. I hazarded that I had to do with a large peritonsillar abscess, and sent him at once to the operating room. He was seated in a chair, a knife gotten ready, the tongue depressed, and an incision made in the supratonsillar fossa. This brought pus, and also a paroxysm of coughing. As the first opening had been more in the nature of a diagnosis as to the seat of the pus, and was only a small one the patient was quieted, and then an attempt made to enlarge the opening. With the first enlargement of the opening there was a gush of pus, at the same moment an inspiratory spasm, a quick cry, and cessation of breathing. He was immediately placed on the operating-table, but by this time respiration had ceased. Unfortunately, nothing was ready for a trache-

* Presented before the thirty-fifth annual meeting of the American Laryngological Association, held in Washington, D. C., May, 1913.

otomy, and in the sudden shifting from the chair to the table the knife had been dropped on the floor and momentarily lost. A hurry call for a knife brought me first a thin nasal chisel, which the interne in his hurry had mistaken for a knife, and a delay of several seconds occurred before a knife was obtained. The head was placed somewhat over the edge of the table, the neck on the stretch, and a quick incision made at the supposed site of the first and second rings. Much to my surprise, I entered not the trachea but an abscess cavity, and found that the abscess from above had burrowed downward, producing a phlegmonous inflammation of the tissues of the neck, and had pushed the entire trachea and thyroid area well over toward the right, and itself extended down to a little below the second ring of the trachea. The lower abscess being opened, and while still flowing pus, I was able with the finger to orient the trachea, which was then quickly opened. The patient by this time was apparently lifeless, but the pulse was still beating. Artificial respiration brought inspiration after a few seconds, and in a short time breathing was re-established, and a tracheotomy tube inserted. The abscess cavity in the tonsil was then widely opened with the aid of the finger as well as the abscess cavity at the site of the trachea. The two were found to communicate. The patient was placed in bed with the feet about a foot higher than the head, and kept in this position for the next three or four days, a wick being inserted around the tracheotomy tube. The after history was uneventful, the temperature, which was 101½ on admission, slowly going down. There was an abundant pus discharge from both the mouth and at the side of the tracheotomy tube for the first few days. The tracheotomy tube was removed on the eighth day, and he was discharged from the hospital cured on the 17th day, the neck at this time being nearly healed. The drainage tube was continued until complete closure of the skin wound. He was advised to have the tonsils removed, but never came back to have it done. I have recently looked up the case, and find that he has been perfectly well for the last three years.

This case illustrates the possibility of danger in a case of peritonsillar abscess, and the absolute necessity of the evacuation of such an abscess; also the danger in allowing such an abscess to go on to the point where it discharges itself. It is sometimes stated that such an abscess will eventually discharge itself just about as well as when assisted. This does not seem to me to be the case. While it is sometimes true that they will find exit from the peritonsillar fossa at the junction of the anterior and posterior pillars, it is never safe to wait for this. While cases such as I have described are probably relatively seldom, the possibility of the extension of a purulent process down the neck must be borne in mind. The course of the pus probably corresponds to the course of the bucco pharyngeal fascia, which invests the constrictor muscles of the pharynx, and is given off from the prevertebral fascia, this latter fascia forming its posterior limit. The superior constrictor muscle, which is in close contact with the tonsil, is in relation externally with the prevertebral fascia. In this case the pus probably forced its way through the fibres of the superior constrictor muscle, thus gaining access to the prevertebral fascia, thence following down the neck along the line of this fascia, thus coming in contact with the larynx, and trachea, since this fascia forms the posterior limit of a fibrous compartment which contains the larynx, trachea, thyroid gland, pharynx and esophagus.

An error which I made here should also be avoided, namely, the attempt to open any such extensive phlegmonous collection of pus without being prepared for a tracheotomy. Again, so extensive an abscess should have been opened in the first place with the individual on the back. Pressure on the pneumogastric probably accounted for the severe dyspnea. As to exactly why the inspiration of the pus should have caused cessation of respiration rather than a paroxysm of coughing I am unable to state, unless relief of pressure on the pneumogastric produced for the moment some temporary paralysis or disturbance in function. I believe it is true that sometimes sudden cessation of pressure may produce some such effect on the respiratory centre.

Medical Progress.

THIRD REPORT IN ORTHOPEDIC SURGERY.

BY ROBERT B. OSGOOD, M.D., ROBERT SOUTTER, M.D., HERMANN BUCHOLZ, M.D., MURRAY S. DANFORTH, M.D.

TUBERCULOSIS.

The possible importance of determining whether a given tubercular infection is of the bovine or human type is obvious. Fraser[1] has been attempting to discover a method by which this differentiation might be made. He considers that the most reliable test is the inoculation of animals, especially the rabbit, with tuberculous material obtained from the patient. The best location for the injection into the rabbit he believes to be the synovial cavity of the knee. If the infection is of the human type there may be expected little local or general reaction and only gradual giving-up of weight-bearing. Three or four months later there will be found to be rarely any osseous involvement and only chronic synovial tubercle. If the material injected is of the bovine type rapid joint changes may be ex-

pected. In about ten days the animal becomes crippled and there is rapid loss of weight. The articular cartilage becomes eroded and the joint is filled with caseous material. Foci in the neighboring bones and in the lungs, spleen and kidneys are often found. If the injection results in the rapid dissemination and speedy death of the animal we may infer a bovine infection.

In an attempt to ascertain the relative prevalence of the bovine and human types of the infection in children Fraser[2] has investigated seventy cases of bone and joint tuberculosis in children of twelve years or under. The material was obtained at operation. Thirty-nine of the cases were joint tuberculosis, thirty-one were bone. Of these seventy cases, forty-one were of the bovine type and twenty-six were human, while three showed both. He considers the milk supply responsible for the bovine.

A valuable résumé of the results of major operations for tuberculous disease of the joints has been published by Dr. Stiles of Edinburgh.[3] He has practised excision of the various joints for tuberculous disease in children, and the article is a discussion of his end results. He reports sixty-three excisions of the knee. In forty of these the disease was apparently primarily synovial and twenty-three showed bone disease as well. Of these sixty-three, fifty-three healed by first intention, twelve required subsequent amputation, and nine of these twelve were under five years of age. Of thirty recently traced and examined, twenty-nine were absolutely ankylosed. There were fifty-nine excisions of the hip, fifty-three of these showed osseous disease and the majority were so far advanced that it was impossible to say whether the disease was primarily synovial or osseus. Out of the forty cases traced there were twelve deaths (30%), nineteen were said to have excellent results, that is, no ankylosis, no sinuses, and only moderate adduction, flexion, or shortening. Of the fifty-four excisions of the elbow, over one-half were done in children under four years. In fourteen of these the disease was primarily synovial. Thirty-four cases were traced, and of these six died subsequently and six had local recurrences, which were, however, relieved by subsequent trivial operations. He reports twenty-nine cases of ankle joint disease, six of which were believed to be primarily synovial. Twenty-one of these twenty-nine were performed between the ages of one and four. Twenty-five were traced, and of these there were three deaths and six amputations later. (Ed. note.) Such a straightforward report of results not altogether favorable we believe to be of great value. We might have wished for more precise statement as to the effect on growth of these early excisions, and although we believe that Mr. Stiles considers that in his hands the retardation of growth is slight, the results of other operators, especially after excisions of the hip joint, should give us pause in adopting this procedure. We are inclined to believe also that the results of conservative treatment give better results than these radical and skillful operative procedures. The occurrence of so large a proportion of apparently primary synovial disease is interesting.

Fraser,[4] from a study of one hundred and fifty cases has attempted to determine the situation of the lesions in osseous tubercle. His findings do not entirely agree with Lexer's,[5] who thought that the location was determined by the blood supply, *i.e.*, that it was an embolic infection. Lexer's investigations seemed to show that the area of bone on the diaphyseal side of the epiphysis, which he called the metaphysis, was richest in blood supply, and that the commonest site of osseous tubercle was here. Fraser finds the commonest seat in hip lesions is in the metaphysis, but at the under surface of the neck. In the knee joint, on the other hand, he finds the commonest location to be at the outer side of the epiphysis near the joint line. Ninety per cent. of the ankle joint cases he found to be in the neck of the astragalus. In the shoulder joint the disease clinically is oftenest primary in the synovia and extends to the contiguous bone. In the elbow joint the metaphysis is again the commonest seat and it thence extends upwards into the diaphysis of the humerus. In the wrist joint he believes the disease to be usually primarily synovial, the lower end of the radius being an occasional seat of a bone lesion. Fraser believes that the infection is carried by the arteries of the limb to the cirus vasculosus at the reflection of the synovial membrane and that there the original infection develops. This may spread to the synovia, and a general synovial tubercle result. It may infect the contiguous bone or may start a bone focus, metaphyseal or epiphyseal, depending upon the presence of vessels passing from this synovial reflection into the bone.

Jackson[6] has called attention to the somewhat rare, but frequently important and unrecognized, rupture of a coxitic sinus into the anus or rectum. An intra-anal rupture may be treated by excision of the external sphincter, thus making the sinus discharge externally. An intra-rectal opening is obviously difficult to treat. It would seem as if the danger of secondary infection must be great. (Ed. note.) In a case of intra-rectal opening in which external sinuses existed as well, the writers have observed apparently complete closure under simple rest and an out-of-door régime. There was no evidence of a fecal fistula.

Hayashi and Matsuoki[7] have made an interesting statistical study of tuberculous spondylitis, finding seven hundred cases of tuberculosis of the spine among 5378 orthopedic cases seen by them in four years. The greatest number of cases occurred in the third decade of life and

the next greatest number in the first decade. Fifty-five per cent. were of the male sex. In 43% the thoracic vertebrae were involved, the lumbar in 29%, and the cervical in 28%. They consider that the infection occurs through the blood from a primary focus that is usually in the lungs or the bronchial lymph glands. Abscesses occurred in about 32%. Pressure on the spinal cord produced motor disturbances in 24% and sensor in 3%.

Serum Therapy in Tuberculosis.—Eversole and Lowman[8] report results from the use of Spengler's I. K. (Immune Körper) serum, which appear very favorable and suggest the wisdom of a wider trial of this method. (Vide also reports of Porter and Quinn.[9]) They report nineteen cases of bone and joint tuberculosis, several with lung involvement and several with multiple foci in the bones. All the cases except one, which had extensive lung involvement and had had previous osteopathic treatment, gained steadily, and their general resistance seemed raised. The discharge from the sinuses lessened; there was uniform reduction in the temperature and pulse rate. They departed somewhat from the technic of Spengler in these orthopedic cases, beginning with 0.2 c.c. of the tenth millionth dilution of the original and increased the strength of the dilution very rapidly. By watching the patients very carefully they were able to inject every three to seven days from two to four c.c. of the 10-10,000 times stronger dilution without any reactionary effect.

Fraser and McGowan[10] believe that while the artificially prepared tuberculin may contain many of the toxic substances responsible for the pathologic changes present in a tuberculous focus, they would be more completely included in a vaccine prepared from human tuberculous material. They have, therefore, used wherever possible, an autogenous vaccine, but where it was impossible to obtain this, they have used a vaccine prepared from human tuberculous gland material for gland cases and human tuberculous bone material for tuberculous bone cases. They report ten cases, most of which had failed to improve under other methods of treatment. They consider that there was a very striking change for the better in the general condition.

Lyons[11] has prepared a new form of tuberculin (T. F.), which he hopes will be of greater diagnostic and therapeutic value. He believes that the skin reaction following the use of this preparation more positively indicates the presence of tuberculosis. Of 270 tested cases, 191 were known to be tuberculous, and the reactions were positive in 186. The five cases showing a negative reaction were in the last stages of a pulmonary tuberculosis. In all the other cases in which a negative reaction was obtained all other forms of examination failed to discover tuberculous disease.

Rosenbach[12] also reports his favorable experiences with his "Tuberculin Rosenbach" in surgical tuberculosis. He makes his injections in closed cases directly into the focus, and believes he obtains thus most distinct effect. In the sinus cases he injects into the walls of the sinus or focus.

Foerster[13] speaks favorably of the use of tuberculin in surgical tuberculosis, and believes that the secret of his success is in the very small doses which he employs. He starts with one or one-half millionth of a milligram. The children are kept in bed and the dose is not increased until there ceases to be any reaction at the point of injection. In case a reaction then occurs another dose is not injected until all signs have disappeared, and then half the preceding dose is given. He has observed the best results to occur in those cases in which there had been the liveliest reaction to von Pirquet's test.

Silver,[14] after careful observation of fifty cases, believes that it is difficult to form a satisfactory estimate of the value of tuberculin in the treatment of tuberculous bone and joint disease. The dosage in his cases was regulated "clinically," but he observed no harm in any case. He thinks it exerted no influence on the eventual mobility of the joints and noticed no striking decrease in the duration of the treatment demanded. He thinks, however, that the cases receiving the tuberculin as a rule improve more rapidly and increase more rapidly in weight. He sums up his belief by saying that he considers it a remedy of some value in bone and joint tuberculosis, but not a remedy for the busy practitioner.

Hastings[15] has written a valuable and complete article discussing the general question of tuberculin therapy in surgical tuberculosis. There is a generous bibliography and the report of many cases. His conclusion is that the results of tuberculin in surgical tuberculosis is much the same with all anatomic types. The one modifying factor, aside from the individual's response, is that of secondary infection. "Closed cases do well." In surgical cases the secondary invasions always call for some other than tuberculin treatment. He considers that we should never despair of a seemingly hopeless case until specific therapy has been tried. (Ed. note.) The writers' personal experiences have been limited to the therapeutic use of Koch's new tuberculin. We have observed no favorable results which we believe could be surely attributed to this form of therapy. In spite of this fact and of the unfavorable reports of Ridlon and the negative findings of Painter, the weight of evidence seems to be on the side of benefit attributable to some form of vaccine therapy in surgical tuberculosis. At least, there is little or no evidence of harm done, and it would seem that orthopedic surgeons should investigate this subject further, reporting results and, so far as possible, using control cases of apparent equal severity in which all conditions of apparatus and

fresh air treatment had been the same, and the tuberculin therapy had represented the only variation in methods of treatment.

ARTHRITIS.

Ely[16] believes that the only sound basis for the classification of joint disease is to be found in a study of the two essential joint structures, the synovia and the bone marrow. Two main classes seem to him to be fairly definite: (1) One is characterized by the proliferation of the synovia or the lymphoid marrow or both. As a result of the proliferation of these two tissues, viz. the parenchyma of the joint, the cartilage, *i.e.* the stroma, atrophies. (2) The second class is characterized by a degeneration of the synovia and of the lymphoid marrow. As a result of this, the bone and cartilage show a distinct tendency to hypertrophy and growth of new bone dominates the picture. It is to be noted that this division corresponds closely to the atrophic and hypertrophic types of Goldthwait, and the proliferative or ankylosing, and the degenerative or non-ankylosing, types of Nichols and Richardson.

Eugen Nathan[17] believes that the classification of chronic arthritis commonly used by the German writers is incorrect and misleading. That classification (Hoffa) divides chronic arthrits into chronic progressive polyarticular rheumatism and arthritis deformans. He points out the fact that arthritis deformans is not a consistently descriptive term for a special type, since nearly every chronic arthritis leads to deforming processes in joints. Nathan then proceeds to adopt the term Arthritis hypertrophicans, using it in nearly the sense as it is used by Goldthwait and others. He considers its most striking characteristics are: (1) its frequent monarticular occurrence; (2) its predilection for large joints (Ed. note.—This is not true of the Heberden's nodes, which would seem to fall into this class); (3) its lack of progressive joint involvement; (4) its greater prevalence in men; (5) palpable proliferations of free bodies; (6) the absence of tendency to bony ankylosis; (7) the absence of trophic disturbances; (8) the maintenance of good general health; (9) the characteristic Roentgen ray appearance of bony proliferation. He emphasizes the importance of trauma as an etiological factor and recognizes its frequent occurrence in comparatively young people. His conception of the disease is much like that of Strangeway's and many of the American writers, and seems to indicate the more general acceptance of this conception.

Investigations by Goddu[18] as to the presence of arteriosclerosis and an increase of the blood pressure in osteo arthritis or hypertrophic arthritis do not seem to be in accord with the theory of Wollenberg that trauma, senility, and infection operate to produce an arteriosclerosis which is primary to the joint changes, especially in the hypertrophic or degenerative type of arthritis. This is the so-called vascular theory. Goddu has studied the records of some one hundred cases showing marked hypertrophic changes, but in only thirty of these under fifty years of age was there any evidence of an arteriosclerosis. In a majority of cases there was no elevation of the blood pressure, which clinically seems to be considered an important sign in the diagnosis of early arteriosclerotic changes.

Preiser[19] has made a suggestive and interesting study of the relation of certain static conditions to the etiology of arthritis deformans of the hypertrophic type. He shows, for example, the coincidence of the so-called "rachitic" and the "stand" pelvis, which are opposite types of common departure from the normal, with static strains referred to the sacro iliac or low lumbar joints. He believes that these departures from the normal bear a causal relation to these symptoms, and urges with much point attention to these demonstrable, and as he believes, definite causes of static strain. He considers pronation and valgus to be other possible causes. The prevalence of these etiologic factors he emphasizes by saying that in about nine years he has demonstrated about four thousand of these cases, confused all too frequently with rheumatism, gout, and other chronic affections of the joints, and yielding quickly to properly applied orthopedic treatment. The more is this confusion likely to arise since so many of these cases show the presence of hypertrophic growths which he believes are but the expression of these static strains, nature making the attempt to furnish "bearings" for opposing joint surfaces which are out of normal alignment. This so-called incongruence he believes to be the cause of many of the osteophytic overgrowths, which in turn may themselves give rise to symptoms.

Woodwark and Wallis[20] have noted in nine cases of the so-called "rheumatoid arthritis" (*a*) a diminution in the amount of free hydrochloric acid, (*b*) an excess of mineral chlorides, (c) a comparatively low ratio between the active hydrochloric acid and the mineral chlorides. These findings are confirmatory of the findings reported several years ago by Dr. Helen Baldwin[21] from Herter's laboratory, who noted the lessened HCl in the gastric juice. Dr. Katherine Clark[22] found an almost constant association of gastro-intestinal derangements with these chronic joint cases.

Mr. Frederick Parker,[23] studying his own case, reached the conclusion that his vicious circle started with faulty alimentation, this introducing vaso-motor disturbances and a lessened resistance in his naso-pharyngeal mucosa, with the production of a chronic catarrh. The constant swallowing of this infected mucus still further disturbing his digestion and assimilation and rendering his intestinal canal more septic.

Pemberton's work[24] is in harmony with these suggestive findings. He reports careful work and the succesful treatment of a few cases of chronic polyarthritis of the toxemic type. His investigations would suggest that the carbohydrates are of largely unsuspected importance in the causation of symptoms, again in consonance with the conclusions reached by Mr. Parker. *(To be continued.)*

Reports of Societies.

THE AMERICAN GYNECOLOGICAL SOCIETY.

Thirty-eighth Annual Meeting, Held at Washington, D. C., May 6, 7 and 8, 1913.

(Continued from page 245.)

DEMONSTRATION OF THE INFANT PULMOTOR WITH REMARKS ON ITS USE IN THE TREATMENT OF ASPHYXIA NEONATORUM.

Dr. Henry D. Fry, of Washington, said the introduction of the infant pulmotor into obstetric practice was so recent that he had not been able to collect any statistics of the value of the apparatus. Certainly, it was vastly superior for resuscitation to the ordinary methods of artificial respiration. He had had no opportunity to test it in a serious form of asphyxia, the so-called asphyxia pallida, but in the livid form it had acted promptly and resuscitated the infant in about five minutes. Edgar said he had used the apparatus six or seven times in both asphyxia pallida and livida. The results were good, much better than he had anticipated because, at first, he was doubtful of the value of the apparatus. Communication from Rochester reported the use of the pulmotor in five cases. In Case 2 it was unsuccessful. There was no heart action detected when the infant was born. In Case 4, it was likewise unsuccessful, but there was no mention of the heart action. In Case 1, the infant was born with marked asphyxia, but cardiac pulsations were detected. The labor had been prolonged but was terminated by mid-forceps application. The ordinary methods of resuscitation were employed for 10 minutes without results. The pulmotor restored life in 10 minutes and the infant lived. Case 3. Pronounced asphyxia of the infant with heart action. After failure to resuscitate the infant breathed after three or four minutes of the application of the apparatus. Case 5. A labor of 36 or 40 hours' duration was terminated by a difficult, high-forceps application. The infant had deformities of the extremities and had been born 30 minutes before the use of the pulmotor. The heart action was slow, 80 to 90 per minute. After 40 to 60 minutes' use of the pulmotor, the infant breathed but died two hours afterward. The condition of the infant suggested strongly the existence of intracranial pressure.

Efforts to resuscitate the infant should not be abandoned as long as there is any heart action.

DISCUSSION.

Dr. James C. Edgar, of New York City, stated that he believed he had the first infant Draeger pulmotor that came into this country. It was more than a year ago. At first, he looked upon the machine with more or less skepticism, thinking it was more of a plaything than anything else, but having used it for some time he found there was some value to it. They had one at the Manhattan Maternity which was ready for use in every operative case. They had had several cases which illustrated the value of the machine, but a Dr. Fry had said the inspiratory force should not be run up to 25. He thought 10 or 12 centimeters of force was sufficiently high. Although he had made no autopsies to prove it, he believed there was some likelihood of rupture of vessels when they ran the inspiratory force up to more than 10 or 12 centimeters.

Dr. John O. Polak, of Brooklyn, stated that he would like to ask Dr. Fry if the pulmotor could be attached to the ordinary oxygen tank in case of emergency.

Dr. Fry said they had an extra attachment so that it could be put on an ordinary oxygen tank.

FACTORS IN THE FORMATION OF SKIN STRIATIONS DURING PREGNANCY.

Dr. Frederick J. Taussig, of St. Louis, said only 13 out of 60 primiparae were free of skin striations. Skin striations occurred most frequently at several points and usually made their first appearance about the sixth or seventh gestation. In girls under 20 years of age, they were decidedly more pronounced and more frequently found than in older women. Obesity, particularly rapid increase in weight during pregnancy, predisposed to the formation of striae, especially those about the breast and thighs. Lack of abdominal support during pregnancy, as in those who wear no corsets, favored the formation of abdominal striae. On the other hand, the tense and inelastic skin in which such striae were found was to some extent a factor in subsequent abdominal relaxation. At any rate, abdominal muscular relaxation and abdominal skin striation went hand in hand. Perineal tears had apparently no relationship to skin striation. Finally, the persistent employment of proper skin massage would, in the great majority of cases, prevent the formation of the slightest skin striations.

UTERINE CARCINOMA; ANOTHER HYPOTHESIS AS TO ITS CAUSE AND PREVENTION.

Dr. A. F. A. King, of Washington, D. C., spoke first, of having converted the somatic epithelial cells into reproductive cells by abnormally rapid cell proliferation produced by continued irritation. Second, he referred to the fertilization of these transformed cells by spermatozoa. Third, of the pseudoembryonic structures of cancer produced by segmentation of these fertilized epithelial cells. Four, clinical facts and observations were advanced in support of the hypothesis. Speaking of prevention he said that there should be an avoidance of contact of the sperm with irritated, senescent tissue. Finally, he considered the question of whether we should amputate the cervix before cancer and whether or not we should advise against marriage after the menopause.

THE MENACE OF CANCER.

MR. FREDERICK HOFFMAN, Statistician of the Prudential Insurance Company of America, gave an address on this subject in which he summarized the results of his investigation as follows: On the basis of trustworthy official data, it was safe to estimate the annual mortality from cancer in the United States as 75,000 and in the civilized world at half a million. The cancer death-rate in the United States was increasing at the rate of 2½ per cent. per annum and a corresponding increase was taking place practically throughout the civilized world. The average age of death cancer in all forms was 59 years, or respectively 60.4 years for males and 58.2 for females. Cancer was largely a disease of adult life and the total mortality from cancer 90.7 per cent. were deaths of ages of 40 and over. The male cancer death-rate in the United States, ages 25 and over, had increased 29 per cent. during the last decade and the female cancer death-rate had increased 23 per cent. On the basis of past experience, the distribution of cancer deaths in the United States during 1913 would be about as follows: Cancer of the stomach and liver 30,105; cancer of the female generative organs 11,235; cancer of the rectum, intestines and peritoneum, 9,608; cancer of the breast, 6,817; cancer of the mouth, tongue, etc., 2,880; cancer of the skin, 2,670; and cancers of other organs and parts, 11,685.

These statistics fully sustained the conclusion that cancer was a more serious menace to the American people and that the tendency was towards an increase in the mortality, regardless of the cancer deaths prevented by early surgical operation. The cancer death-rate of large American cities had increased from 37.2 per 100,000 population during the five years ending with 1876 to 80.5 during the five years ending with 1911. The cancer death-rate of the City of New York had increased from 37.5 per 100,000 of population during the three years ending with 1872, to 81.4 during the five years ending with 1912. The corresponding increase in the cancer death-rate of Philadelphia during the same period of time had been from 41.3 to 86.3. At ages 60 and over in the State of Massachusetts, the mortality from cancer of the external organs for males had increased from a rate of 65.1 during the five years ending with 1910. The corresponding increase for females, ages 60 and over, had been from 85.6 to 122.3. Aside from the observed increase in the mortality from cancer, there had been an increase in the mortality from biliary calculi in the registration area of the United States from 1.5 per 100,000 of population in 1900 to 3.0 in 1911. All the facts available for the different sections of the country and the principal cities throughout the world sustained the conclusion without qualification, that the menace of cancer was much more serious at the present time than it had been in the past. Since, as far as known, the disease was invariably fatal unless the cancer was removed in its entirety in the very early stages of the disease by qualified operative treatment, it was obviously of the utmost importance that the elementary facts concerning cancer should be better known and understood than they were at the present time.

The only hope for the patient lay in the early possible recognition of the symptoms of cancer, when operative treatment was a comparatively easy matter, with a practical certainty of success. Neglect, on the other hand, was absolutely certain to result in death from one of the most awful conceivable afflictions, summed up in the following descriptive statement by one of America's foremost surgeons, who himself had saved a large number of valuable lives by early operative treatment. "To relieve the horrible sufferings of prolonged nausea, the intolerable distress of continuous vomiting, the excruciating pain, the keen distress of abdominal tension, the indescribable torture of protracted insomnia, the unparalled agony of a living death, are all worthy of consideration."

The cancer problem, as thus stated, emphatically suggested the intelligent coördination of all possible agencies for the control of what had properly been called a national scourge and the deliberate reduction of the death-rate of what was stated to be a preventable disease when subjected to early operative treatment. There was, therefore, urgent need for a national society for the study and prevention of cancer, and it was a gratifying fact that such a society was in course of formation. Looking back over the results which had been achieved through the nation-wide movement in the prevention of tuberculosis, there were strong reasons for believing that equally satisfactory results would, in the course of time, be secured in the prevention of cancer.

PRESIDENT'S ADDRESS: PATHOLOGY THE BASIS OF GYNECOLOGY.

DR. HENRY C. COE, of New York City, said our knowledge of tubal disease had made rapid strides through the aid of bacteriology. The etiology and treatment of pelvic suppuration, so familiar to every medical student, had been long obscured by the famous pair—pelvic cellulitis and peritonitis. But, however crude may have been the old pathology, we should not forget that the treatment was sound—to incise and drain a pelvic abscess through the vagina. When, with increasing boldness, they began to open the abdomen in acute inflammatory affections, they paid for their experience at a fearful cost. Even the general practice of drainage did not avail, and in fact they now knew that probably the majority of the patients who recovered did so in spite of it. The necessary association of pain, of a so-called lancinating character, with internal malignant disease was an idea so firmly established, that it was difficult to eradicate it from the minds of the profession as well as of the laity. How many women with cancer had been allowed to reach the inoperable stage because of the absence of this symptom, they dared not to conceive.

We were still in the dark as regards the etiology of various pelvic pains, when an opportunity was not afforded by exploratory section to verify doubtful diagnosis of localized adhesions, twists of pedicles, minor degrees of cystic and other changes in the ovary.

More intelligent study of the parametria had shown that many cases were rejected as unfavorable when the disease was really confined to the uterus, inflammatory exudate being mistaken for cancerous nodules. The limits of the radical operation had been greatly extended by Wertheim, whose experience and technical skill enables him to deal with cases formerly regarded as inoperable.

We could not be indifferent to the earnest efforts of pathologists to discover the ultimate cause of cancer, and by careful experimentation to find a

cure, either a serum or some metallic compound analogous to salvarsan. It could not be possible that the efforts of the many devoted workers in the laboratory would not eventually be crowned with success. While we pinned our faith at present to surgery, so far from any antagonism existing between the laboratory and the operating room was concerned, we were essentially inter-dependent.

FURTHER REPORT OF CASES OF DYSMENORRHEA RELIEVED BY NASAL TREATMENT.

DR. JOSEPH BRETTAUER, of New York City, said after an experience of two and one-half years with the nasal treatment of dysmenorrhea, the final results showed that in about one-half the number of cases so treated, the results were favorable. In some cases the benefit was temporary, requiring another course of nasal treatment. In other instances the relief was prompt and permanent after three or four caustic applications to the nasal spots during a menstrual interval.

In his papers he reported 66 cases so treated.

DISCUSSION.

DR. EMIL MAYER, of New York City, stated that it had been his privilege to see these cases reported by Dr. Brettauer, and also quite a number of others which he had not seen fit to include in his report, because he was not aware of some of the conditions presented. Some of these cases were patients of his own. In following out the treatment of these cases occasionally a young woman would come to his office with intra-nasal difficulty, and naturally being interested in the question of painful menstruation, he elicited from some of them that they had suffered a great deal, and following treatment of the nasal conditions he was able to benefit them, so that his own statistics which he hoped to publish later would be more favorable than those of Dr. Brettauer, although it must be said that he put his patients through a very severe test and did not accept his conclusions until he had seen the patients themselves.

As to amenorrhea, he had had several young girls who had not menstruated at all for three or four months, but after applications to the nose, menstruation became established.

DR. E. C. DUDLEY, of Chicago, said he would like to ask if he understood the author of the paper to say that this cauterization treatment of the nose should be used in all cases in which there was neither pelvic nor nasal lesions? In other words, if examination of the pelvic and of the nasal passages was found negative, would he then empirically cauterize?

DR. HENRY T. BYFORD, of Chicago, stated one of the chief objections he had to this method was the indefiniteness in regard to the kind of dysmenorrhea and the condition of the nose. As he understood, there had been no study of the kind of dysmenorrhea to be helped. There were no lesions of the nose except during the menstrual period, or when congestions appeared during the menstrual period, and they were usually regarded as a result, and not as a cause of something, and when women had pain in their breasts every month, we did not treat the breasts, thinking we would cure any disturbance in the pelvis. There were a good many kinds of dysmenorrhea one of which had not been described, namely, nervous dysmenorrhea. He was willing to concede that the treatment outlined by Dr. Brettauer would help patients who had this form of dysmenorrhea.

DR. ROBERT C. MYLES, of New York City, said he found many cases of serious local irritation in the nose, where the central nervous system seemed to be in a state of aggravation or irritation as a result, with phenomena in other parts of the body being created, and when that irritation in the nose was relieved the other symptoms or phenomena disappeared.

DR. W. GILL WYLIE, of New York City, stated after a long study of this subject he had come to the conclusion that in many of these cases the underlying cause was imperfect development of the lining membrane of the uterus. A peculiar case came under his observation not long since. A mother brought her child to him. He asked her what was the trouble. She said that about the time of menstruation, or when it was approaching, her daughter could not appear in company, especially if there were gentlemen about, because suddenly her lips became so large and her face so red that she felt very uncomfortable and uneasy. He studied the case and told the mother he thought he could make a diagnosis. The girl was put on the table, with the mother and nurse present, and on examination he found little or no abnormal changes in the vulva except the girl was not fully developed. He did not detect any gross disease, but he noticed the secretions about the vulva became very profuse. He found when examining women, if there was a neurotic feeling that developed or arose, if he examined the cervix uteri or the condition of the uterus, there would be found marked changes in the erectile tissue.

DR. BRETTAUER, in closing said, in answer to Dr. Dudley's question, he would say by all means touch the nose in the absence of any pathologic condition in the nose and the pelvis. He would do so as an experiment, as it could do no harm.

THE CONDUCT OF GYNECOLOGICAL AND OBSTETRICAL OPERATIONS IN THE PRESENCE OF ACUTE CHRONIC ENDOCARDITIS.

DR. JOHN OSBORN POLAK, Brooklyn, New York, said to summarize his experience in gynecological operations, he would conclude: 1. That pelvic conditions necessitating operation may be done after proper cardiac preparation. 2. That the cardiac symptoms, blood pressure and the functional activity of the liver and kidneys were the only indices of when it was time to operate. 3. That these cases should always be seen and treated in conjunction with a competent internist. 4. The operation should be rapid, bloodless, and done under combined local and general anesthesia, morphine, novocain, ether and oxygen. 5. That the Trendelenburg posture should be used only until such time as the field might be properly isolated, when the patient might be gently lowered out of it. 6. That phlebotomy should be done promptly on signs of right heart engorgement. 7. That post-operative distension must be avoided. 8. That morphia was the mainstay in therapeutics.

(To be continued.)

Book Reviews.

Seventh Report of the Henry Phipps Institute. For the Study, Treatment, and Prevention of Tuberculosis. Philadelphia: Henry Phipps Institute. 1913.

This publication consists of a series of 17 original papers by members of the staff of the institute. It is of notable interest to those concerned with all aspects of the study of tuberculosis.

Manual of Medicine for Nurses and Housemothers. By GEORGE HOWARD HOXIE, A.M., M.D., and PEARL L. LAPTOD, Second edition. Rewritten and enlarged. Philadelphia and London: W. B. Saunders Company. 1913.

The first edition of this book, published in 1908, under the title of "Practice of Medicine for Nurses," was reviewed in the issue of the JOURNAL for May 28 of that year (Vol. clviii, p. 839). In this second edition, as is indicated by the change of title, an attempt has been made to modify the character of the work in accordance with certain points of criticism then taken. To fit it better for service among mothers of families, technical phraseology has been avoided or carefully explained. Its purpose remains "to provide for those who must carry out a doctor's orders a discussion of the principles of treating disease which should make such orders intelligible." The first part consists of general considerations of the causation, treatment and cure of disease. To this section the second author contributes an excellent chapter on the care of the patient and the sick room. The second part is a study of the more important diseases and their management. The third consists of a study of emergencies and a glossary of abbreviations.

Medical and Surgical Report of the Presbyterian Hospital in the City of New York. Volume IX. July, 1912. Edited by John S. Thacher, M.D., and George Woolsey, M.D., New York: Corlies Macy and Company. 1913.

This bulky volume consists of 33 articles by members of the hospital staff. Some of these papers have previously been published elsewhere. Particularly to be noted among them are those on "Transfusion of Blood in Pernicious Anemia," by Dr. David Boviard, Jr.; on "The Operative Treatment of Fractures," by Dr. Joseph A. Blake; on "Paratyphoid Cholecystitis," by Dr. Russell L. Cecil, and on "The Surgical Treatment of Spinal Cord Tumors," by Dr. George Woolsey. The volume concludes with a statement of the conditions of award of the Briddon medal, given for 1911-12 to Dr. Eugene F. DuBois, for an essay, reprinted in this volume, on "The Absorption of Food in Typhoid Fever."

A Manual of Surgical Treatment. By SIR W. WATSON CHEYNE, Bart, C.B., D.Sc., LL.D., F.R.C.S., F.R.S., and F. F. BURGHARD, M.S. (Lond.), F.R.C.S. New edition, entirely revised and largely rewritten, with the assistance of T. P. Legg, M.S. (Lond.), F.R.C.S., and Arthur Edmunds, M.S. (Lond.), F.R.C.S. In five volumes. Vol. IV. Philadelphia and New York: Lea and Febiger. 1913.

The first two volumes of this new, revised edition were reviewed in the issue of the JOURNAL for July 25, 1912 (Vol. clxvii, p. 130), and the third in the issue for April 10, 1913 (Vol. clxviii, p. 547). This fourth volume, which deals with "the treatment of the surgical affections of the jaws, tongue, and alimentary canal," is well illustrated with 208 diagrams and plates. The chapter on tumors of the jaws suggests comparison with Scudder's recent monograph on that subject. The latter, as a special work, is of course much more complete, and includes in addition consideration of tumors of the palate, leontiasis ossea, and prosthesis. Cheyne and Burghard's work, however, is throughout thorough and comprehensive, and merits much praise for its combined adequacy and compactness.

Diet Lists of the Presbyterian Hospital, New York City. Compiled, with notes, by HERBERT S. CARTER, A.M., M.D. Philadelphia and London: W B. Saunders and Company. 1913.

This volume contains the diet lists prepared primarily for the Presbyterian Hospital, New York, with comments by the compiler on the indications for their use. It does not aim to contribute anything new to the science of dietetics, but to codify accurately a successful method of dietetic therapeutics. It closes with a table of average weights for men and women; a table, by Atwater and Bryant, of the average chemical composition of American foods; a table of standard portions, by Professor Irving Fisher, of Yale; and an appendix describing the Karell treatment for anasarca, and Lockwood's modification of the Von Leube treatment for peptic ulcer. It should prove a work of great convenience and usefulness to nurses and others concerned with the dietetic care of persons in disease or health.

THE BOSTON
Medical and Surgical Journal

THURSDAY, AUGUST 21, 1913.

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THE SEX PROBLEM.

Within recent years the public mind has shown signs of awakening to the practical importance of sex problems. This movement is not confined to one country nor to one class, although naturally different phases of it interest different people. This arousing of public interest has been hastened by several influences. The recent disclosures of the extent of the exploitation of young girls; the increased spread of information concerning venereal disease, stimulated by the discovery of salvarsan; the theories of Freud, which have thrown open the unexplored regions of subconscious sexuality—these bring the problems of sex before the public in every newspaper and magazine.

The subject has launched itself upon the public consciousness at what seems to be the psychological moment. We are living in a period of unrest, when many of the ideals of the last century have been abandoned and new ones have not yet taken their place. The time is ripe, therefore, to review and revise sexual relationships and all that pertains thereto, so that when new standards are set up they may be based, insofar as they are concerned with sexual matters upon foundations stronger and more scientifically laid than were those of preceding years.

It is clear that society is far from having settled in a manner at all satisfactory the problems arising from misdirected sexual activity. The injustice done to illegitimate children (perhaps to their mothers), the strength and prosperity of that institution which handles women with less respect than if she were a domestic animal, the indiscriminate distribution of venereal disease, which, unchecked by any public measure, includes even our children, are too familiar examples. Of these menaces to the public welfare, two in particular stand out in clear relief,—forced prostitution and the spread of venereal disease. It is not our purpose at this time to attempt to draw a plan of campaign. Already, skirmishers have been thrown out, intrenchments begun. Our point is this. In the field and in the recruiting-station, none can render greater service than men of the medical profession. They should know the actual conditions; they must furnish technical means for combatting venereal disease. Their opinions upon such matters are the court of last appeal in the majority of homes.

Between ourselves, we wonder whether the medical profession is sufficiently prepared to occupy this position. What percentage of physicians know when syphilis is cured, or gonorrhea? There are not a few who discharge their syphilitic patients as cured without having had resort to the Wassermann test. No small proportion of the wives innocently infected by the gonococcus owe their misfortune to the inefficiency of their husband's medical advisers.

Relatively few doctors have considered with any degree of thoughtfulness the arguments for and against the enlightenment of children in matters relative to procreation. Others, however, not only have thought about these problems; they are acting upon their conclusions; but the fact remains that the proportion of those who are at all well equipped to face these imminent questions is far too small.

The opportunity of the medical profession is clearly at hand, but it must be met with firmness and courage, backed by careful study, hard thinking and sound judgment.

PUBLIC HEALTH.

In England, as in this country, there is an active movement on foot for the completer recognition by the government of medicine and its allied sciences. The feeling has grown to such proportions that presumably the time is not far distant when the state will so far feel its responsibility toward its citizens that it will provide for them a central department of health. In this country pressure is more and more being brought to bear upon the authorities in Washington to make such provision through the es-

tablishment of a separate department with a cabinet officer at its head. No doubt progress is being made toward this desirable end, but the consummation has by no means as yet been attained. The agitation in England is perhaps even more active than in this country. A large number of the leading physicians of England, among whom may be mentioned Sir Thomas Barlow, Clifford Allbutt, Sir William Osler, Victor Horsley and F. W. Mott have recently published an admirable letter in the *London Morning Post* which should bring clearly before the public the crying need of a systematic approach to the great questions of public health, and particularly to that of venereal disease. After alluding to the rapid increase in medical knowledge during the past sixty years and the part taken by the state in providing for the care of its dependents and in its other work regarding infectious disease, purity of food and similar matters of public concern, the letter draws attention to the question of venereal disease in the following words:—

"In all this organized effort there is one noteworthy omission. There has always been a conspiracy of silence as regards venereal diseases. The time, however, has come when it is a national duty to face the facts and to bring them prominently to the notice of the public. When the subject was discussed last year at the Royal Society of Medicine it was stated without contradiction that in London alone there are forty thousand new cases of the gravest form of the disease every year, and in the United Kingdom as a whole a hundred and thirty thousand such cases. The worst form of venereal disease is highly contagious and dire in its effects. It claims its victims not only from those who have themselves to blame for contracting it. It is one of those diseases that may be transmitted from parent to child, so that the offspring of a sufferer is born with the virus actually in its tissues, to cause, it may be, hideous deformity, or blindness, or deafness, or idiocy, ending often in premature though not untimely death. Innocent members of the public, wives, children, doctors, dentists, students and nurses, are among those who during the routine of their ordinary daily life are often accidentally called upon to pay a tragic penalty for the wilful blindness that ignores its existence. There is a great volume of evidence that locomotor ataxy and general paralysis are its belated manifestations.

"Organized effort among the civilian population is impracticable until the public conscience has been aroused, and can only be attempted after a full and authoritative investigation. We appeal therefore to the public through your columns to demand the appointment of a Royal Commission—its members to include a substantial majority of medical men—to investigate the facts and to recommend what steps, prophylactic and therapeutic, should be taken to cope with these diseases."

It may be said without fear of contradiction that the magnitude of the problem involved demands the most complete machinery for its investigation. As suggested in our preceding editorial, this must be instigated by those who have knowledge of the matters at issue and these are naturally the physicians. To accomplish results, however, all the agencies of government and society must be brought into co-operation, and this England seems in a fair way to accomplish earlier than we in this country.

A NEW CHAIR OF BACTERIOLOGY AT EDINBURGH.

IT is announced that a new chair of bacteriology has recently been founded at Edinburgh University under a bequest from the late Mr. Robert Irvine, of Royston, Granton. The circumstances which led to this foundation are of peculiar interest.

During the researches of the famous *Challenger* expedition, Sir John Murray discovered in the Indian Ocean an uninhabited island containing valuable phosphatic deposits.

"Man had never lived on Christmas Island (as it was named on discovery), nor would it be a pleasant residence; but Sir John Murray urged the annexation of this island by the British Government, and this was brought about in 1888 through the influence of his friend, the late Duke of Argyll. Sir John Murray obtained a lease of the island, and a small company was formed to develop its resources. In this company the late Robert Irvine, who was a Fellow of the Chemical Society, held 230 shares of £10 each, and at his death he bequeathed his interest in the company for the purpose of establishing a chair of bacteriology in Edinburgh University when the interest from these shares should reach the sum of £25,000 or £30,000, as the trustees might determine. So lucrative did the undertaking prove that at the present time—eleven years after the donor's death—the accumulated dividends on the £2,300 worth of shares stand at over £30,000."

It will thus be possible not only to establish and endow the professorship, but to provide laboratory and class-room equipment; and there

will be a considerable remaining sum which is to be divided equally between the Edinburgh Royal Infirmary, the Royal Edinburgh Hospital for Incurables, and the Dunlop Cancer Research Fund.

MEDICAL NOTES.

Tobacco a Germ Destroyer.—A report comes from Paris that tobacco is efficacious in the killing of mouth bacteria. Tobacco smoke, according to certain French investigators, is reputed to render the saliva and mouth cavity practically sterile. We cannot vouch for the correctness of the foregoing statement but it should prove a certain sólace to a considerable portion of the community.

Medical Reform.—George Bernard Shaw in a recent characteristic address in Brighton, England, takes issue with the present state of private medical practice in his country on the ground that practitioners have a vested interest in disease. He advised a centralized department, the officials of which should watch vital statistics and determine the efficiency of medical practitioners in proportion to their capacity to keep down the death rate. These views are not unfamiliar to readers of "The Doctor's Dilemma."

Public Health.—Sir Ronald Ross, Nobel prize winner in medicine in 1902 and professor of tropical medicine at the University of Liverpool, has recently urged the formation of a separate state department to deal with the health of the community. This recommendation is in line with efforts being made both in this country and in England toward the same end.

The Poet Laureate.—If public opinion were to determine the choice of a poet laureate it is evident that Dr. Robert Bridges would not have been successful. The British press has taken the appointment rather ungracefully. One weekly claims to have made a canvass among its readers with the result that Kipling received over 22,000 votes to Bridges' less than 1000. Seven men received more votes than Bridges.

Decrease in Use of Alcohol.—Sir Thomas Barlow in a recent speech delivered in London before the National Temperance League maintained that there was a remarkable spread of temperance in all ranks of society throughout Great Britain. He spoke especially of the improvement in the army and navy and appealed to the physicians present to check the consumption of certain wines used for medicinal purposes which he regarded as mischievous.

Prevention of Hookworm Disease.—It is reported that Commissioner General of Immigration Camminetti is taking definite steps to prevent the importation of Chinese afflicted with hookworm through Pacific Coast ports.

French Honors.—In connection with the twenty-fifth anniversary of the foundation of the Pasteur Institute in Paris special honors were granted to the following men: Dr. Pierre Roux, director of the Pasteur Institute, promoted to the rank of grand officer; Professor Metchnikoff, sub-director; and Professor Yersan to the rank of commanders. Professor Wickman, an authority on radium, is made a chevalier.

BOSTON AND NEW ENGLAND.

West End Milk Station.—It is proposed to open a milk station of the Milk and Baby Hygiene Association in South Margin Street, near Bowdoin Square, for the benefit of infants and mothers of the West End. This station has been rendered possible through the coöperation of the Elizabeth Peabody House Settlement. The station presumably will care especially for Italian families.

Infectious Diseases.—Cases of infectious diseases reported to the Boston Board of Health for the week ending August 12, 1913: Diphtheria, 24; scarlatina, 7; typhoid fever, 5, of which 2 were non-resident; measles, 19, of which 3 were non-resident; tuberculosis, 48, of which 3 were non-resident.

The death-rate of the reported deaths for the week was 13.47.

Additions to Long Island Hospital.—It is stated that the mayor of Boston has directed the chairman of the board of infirmary trustees to begin work on the proposed addition to the Long Island Hospital, Boston Harbor, at once. The city council has recently passed an appropriation for $30,000 for the building of this necessary addition to the hospital, but the finance commisson, to whom the matter was re-

ferred, while approving of the general project, is said to have suggested that the work be postponed.

SEIZURE OF OPIUM.—It is reported that opium valued at about $7,000 has been seized in the Chinese quarter of Providence, R. I. Three recent raids, of which this is the last, have resulted in the taking of opium valued at about $20,000.

REPORT OF BROCKTON, MASS., HOSPITAL.—The cost of maintaining this hospital for the year 1912, covered by the report, was $34,960.55, including the Emergency Station, which cost $1,856.62. Total receipts of the Emergency Station were $759.55. Total receipts show that the income from all sources was about $31,695.09. Number of patients treated at the Emergency Station was 410. Number of treatments, 701. Number of weeks' treatment at the Brockton Hospital was 2,157. Of this, 851 weeks and two days, or about 38%, were free. The collections for the year were only slightly in excess of last year. The endowment of this hospital stands at $109,800, but a larger fund is needed.

NEW YORK.

A NOVEL CHARITABLE INSTITUTION.—It is announced that Mrs. Robert H. Sayre purposes to establish near Babylon, on the south shore of Long Island, a novel charitable institution, one where expectant mothers may be cared for during the later months of pregnancy. Plans have been arranged for five buildings, and accommodations will be provided for one hundred women. The site selected is a tract of land between the Great South Bay and the ocean, and it is possessed of ideal health conditions. Mrs. Sayre, who has for some time been especially interested in the subject of infant welfare, is apparently acting for another in the matter, as it is intimated that the funds for the establishment and support of the home are to be supplied by a wealthy woman whose name will be made public later.

MORTALITY STATISTICS.—The death-rate in the city in the month of July was considerably below the excellent showing made in July of last year, and was the lowest ever recorded for this month. The rate was 12.32, as against 12.82 in June, and 13.56 in July, 1912. A death-rate actually lower in July than in June is a thing previously unheard of. Among the diseases in which there was a decreased fatality were the following: The weekly average of deaths from measles declined from 20.25 in June to 9.25 in July; the weekly average from scarlet fever, from 12.75 to 2.5; from diphtheria and croup, from 31.5 to 16.75; from pulmonary tuberculosis, from 155.5 to 152.75; from acute bronchitis, from 10.5 to 8.75; from pneumonia, from 77.25 to 43.75; from broncho-pneumonia, from 86.5 to 68.75; from cancer, from 79.25 to 75.75; from apoplexy and softening of the brain, from 16.5 to 15.75; from organic heart diseases, from 178.75 to 145.5; from appendicitis and typhilitis, from 16.5 to 13.75; from hernia and intestinal obstruction, from 11.5 to 8.25; from Bright's disease and acute nephritis, from 95.5 to 80.5; and from puerperal diseases, from 11.75 to 10.75. Among the few diseases in which there was an augmented mortality were the following: The weekly average of deaths from typhoid fever increased from 3.25 to 6.25; from whooping-cough, from 9.75 to 12.5; and from diarrheal diseases under five years, from 45 to 147.75. In the week ending July 31, for the first time in many years, no death was reported from scarlet fever. It is to be noted that the deaths from broncho-pneumonia exceeded those from lobar pneumonia by about one-third and that the decrease in the former from June was much less than in the latter; facts which are explained by the not uncommon occurrence of broncho-pneumonia in connection with the gastro-intestinal affections of infants and young children.

FREE DISTRIBUTION OF DIPHTHERIA ANTITOXIN.—Commissioner Lederle is sending the following notice to physicians in the borough of Manhattan:—

"It is the firm conviction and belief of the Department of Health that, if every case of diphtheria in New York City received five thousand units of antitoxin on the first day of the disease, the number of deaths from this cause—now entirely too high—would be markedly diminished.

"To further this end, the Department of Health of the City of New York announces that, beginning Sept. 1, 1913, it will, whenever necessary, between the hours of 9 a. m. and 3 p. m. deliver promptly and free of charge, to any address in Manhattan, antitoxin for the treatment of diphtheria, provided that,

"1. Request be made to the Department of Health.

"2. The person receiving the antitoxin signs a receipt therefor, containing a statement that the patient (or legal guadian) is unable to pay for same.

"The above offer is for a limited period only. If physicians avail themselves of it in sufficient numbers, the procedure will be extended to all boroughs and made permanent.

"The antitoxin will be furnished in syringe containers, ready for immediate use. The empty or unused syringes will be collected by the Department of Health the following day."

Current Literature.

The Journal of the American Medical Association.

August 2, 1913.

1. Hewlett, A. W. *Clinical Effects of Natural and Synthetic Sodium Salicylate.*
2. Carman, R. D. *The Technic of Roentgen Ray Examination of the Gastro-intestinal Tract and the Interpretations of Screen and Plate Findings.*
3. Frazer, C. H. *Intracranial Division of the Auditory Nerve for Persistent Tenuitis.*
4. Fox, H. *Mycosis Fungoids Following Psoriasis.*
5. *McGlannan, A. *An Absorbable Plate for Use in the Open Treatment of Fractures.*
6. Becket, P. E. *A Case of Lymphangioma Circumscriptum.*
7. Markley, A. J. *Primary Sarcoma of the Lower Lip.*
8. *Brill, A. A. *The Conception of Homosexuality.*
9. Hirschfelder, A. D. *Diuretics in Cardiac Disease.*
10. Wilson, J. G. *The Significance of Plasma Cells in the Tonsils.*

1. Hewlett finds that the natural and synthetic sodium salicylate preparations are indistinguishable so far as their therapeutic and toxic effects on patients are concerned.

5. McGlannan uses an absorbable plate of animal bone, sterilized by boiling, in open fracture work. He has only used it once, but believes it is efficient.

8. Brill's article is a very dignified statement of this condition and gives new light on a much misunderstood subject. [E. H. R.]

The Lancet.

July 5, 1913.

1. *Moynihan, B. *The Cavendish Lecture on the Surgery of the Large Intestine.*
2. *Crile, G. W. *The Kinetic Theory of Shock and Its Prevention Through Anoci-Association (Shockless Operation.)*
3. Back, I. *Note on a Case of Incarceration of the Cecum and Ascending Colon in Lesser Sac of Peritoneum; Operation; Recovery.*
4. Morgan, W. P. *On the Possibility of Achieving by Partial Pneumothorax the Advantages of Complete Pneumothorax in the Treatment of Pulmonary Tuberculosis.*
5. O'Malley, J. F. *The Difficulties of Tonsillectomy and How to Deal with Them.*

1. In this article Moynihan describes diverticulitis and the conditions under which this is found; the rest of the paper is devoted to the pathological anatomy and surgery of cancer of the large intestine.

2. In a long article Crile presents his views, already well known in this country, on shock, its causation and prevention. He discusses in great detail this question and others related to it, such as anesthesia, fear, insomnia, vital depression and other possible causes of shock. Under treatment he devotes much space to anoci-association, which in plain language means the exclusion of all harmful associations or stimuli from the brain. [J. B. H.]

July 12, 1913.

1. Routh, A. *Observations on the Toxemias of Pregnancy and on Eugenics from the Obstetric Standpoint.*
2. Milligan, W. *Esophagoscopy, Laryngoscopy and Bronchoscopy as an Aid to the Detection of Disease and Removal of Foreign Bodies Impacted in the Food and Air Passages.*
3. Goldmann, E. E. *The Process of Digestion Illustrated by the Action of Stains on the Living Tissues.*
4. Feiling, A. *The Blood and the Cerebro-spinal Fluid in Mumps.*
5. Mummery, P. L. *Operation and After-treatment of Fistula in Ano.*
6. Sutherland, G. A. *Graphic Records of Respiration Paralysis.*
7. Pickin, F. H. *A Routine Method of Examination in Gonorrhea in the Male as a Guide to Treatment.*
8. Shenton, E. W. H. *Elimination of Errors in the X-ray Diagnosis of Urinary Calculus.*

[J. B. H.]

British Medical Journal.

July 5, 1913.

PELLAGRA IN ENGLAND.

1. *Box, C. R. *Fatal Pellagra in Two English Boys.*
2. *Mott, F. W. *The Histological Changes in the Nervous System in Dr. Box's Second Case Compared with the Changes in an Egyptian Case.*
3. *Sambon, L. W. *The Natural History of Pellagra with an Account of Two New Cases in England.*
4. Hammond, J. A. B. *A Case of Pellagra in England.*
5. Forsyth, D. *On Psycho-Analysis.*
6. Routh, A. *Observations on the Toxemias of Pregnancy and on Eugenics from the Obstetric Standpoint.*

1 and 2. This number of the journal is devoted to pellagra in England. The first article is an account of four recent cases, in which the onset, nervous, digestive and skin lesions and symptoms are discussed in detail. There is an elaborate colored plate and numerous excellent micro photographs illustrating the various pathological changes.

3. Sambon describes the natural history of the disease, the previous investigations on this subject and its spread by various forms of insect life. He suggests a protozoal organism and an insect carrier as is the case in malaria, as important factors in the etiology of this disease. [J. B. H.]

Edinburgh Medical Journal.

July, 1913.

1. *Thomson, A., and Graham, J. M. *Fibromatosis of the Stomach and Its Relationships to Cancer.*

2. *BRAMWELL, E., AND ADDIS, W. R. *Myotonia Atrophica.*
3. CRESWELL, C. H. *The Surgeons and Barbers of Edinburgh: Their Separation in* 1722.

1. In a lengthy article, profusely illustrated with most excellent plates, the writers describe fibromatosis of the stomach, a condition long known, but little described and most frequently taken for cancer. In some cases this condition is distinctly of innocent character, in others it is associated with cancer. It may be localized or diffuse. In the localized form it is found usually near the pylorus, changing this into a rigid, funnel-shaped tube, the lumen of which is greatly contracted. The hypertrophy is largely in the submucous layer. The writers describe in detail the macro- and microscopical appearances, and discuss at length, without reaching any definite conclusions, the pathogenesis of this condition. While they believe that it is not cancer and occurs apart from cancer, it is also often associated with it and may develop into cancer. They do not discuss the diffuse forms of fibromatosis.

2. This long article reports in great detail four cases of myotonia atrophica, with numerous photographs and an exhaustive bibliography. The writers discuss the etiology, symptoms, mode of onset, prognosis and treatment, and relation to other allied diseases. [J. B. H.]

DEUTSCHE MEDIZINISCHE WOCHENSCHRIFT.

JUNE 12, 1913.

1. BAEMISTER. *The Route of Invasion of the Pulmonary Apices by the Tubercle Bacillus; Is It Erogenous or Hemotogenous?*
2. *GÖBEL, F. *Tubercle Bacilli in the Blood Stream.*
3. *BRAND AND MAU. *Tubercle Bacilli in the Blood Stream in Cases of Surgical Tuberculosis.*
4. CASPER, L. *The Diagnosis of Bilateral Renal Tuberculosis.*
5. OSZACKI, A. *The Value of the Urinal Test for Uric Acid in the Blood.*
6. FRANKE, F. *Trachelotomia Lateralis.*
7. PERS, A. *Gastric Resection.*
8. FIORI, P. *Connective Tissue Cysts of the Vas Deferens.*
9. ZYPKIN. *Aneurysm of the Abdominal Aorta with Perforation into the Stomach.*
10. JMAI, K. *Aneurysm of the Innominate Artery Cured by Extirpation.*

2 and 3. These articles add to the discussion as to whether tubercle bacilli can be demonstrated in the circulation.

Göbel, in his paper, states that by means of the Stäubli-Schnitter method of staining he demonstrated, in the blood of dogs and other laboratory animals, bodies identical with those called tubercle bacilli when found in human blood. Though he does not identify these bodies, he declares that they are neither tubercle bacilli or deposits of stain.

In the following article, Brandes and Mau claim to have demonstrated tubercle bacilli in the blood of 45% of a series of 40 patients with surgical tuberculosis. They used the technic employed by Göbel. [C. H. L.]

JUNE 19, 1913.

1. HILLER, A. *The Nature and Treatment of Heat Stroke.*
2. BETTMANN. *Skin Diseases of the Diabetic.*
3. ROTHSCHILD, D. *Chemotherapeutic Measures in the Treatment of Tuberculosis.*
4. ELSÄSSER, F. A. *Tuberculin Rosenbach.*
5. *WOLFF, S. *Salvarsan-treated Mothers and Their Children.*
6. KRIENITZ, W. *Nourishment in Cases of Carcinoma of the Esophagus.*
7. WELZ, A. *Renal Syphilis.*
8. BAUMM. *Animal Bladders as Uterine Dilators.*
9. WAGNER, A. *Injuries to the Bones from Nailing.*
10. SPIEGEL, A. *Nail Extension.*
11. v. GYERGYAI, A. *A New Method of Direct Enlargement of the Eustachian Tube.*

5. The author quotes at length a case reported by Holth, and cites one of his own in which the mother had been early and persistently treated with salvarsan during her pregnancy. The children showed no signs of lues at birth, but both died later of undoubted syphilis. The author concludes that nothing is known of the effect of salvarsan on the child under such circumstances, and that the failure to show signs of the disease at birth, or during several months thereafter is no surety that it may not later appear in severe form. [C. H. L.]

MÜNCHENER MEDIZINISCHE WOCHENSCHRIFT.

No 28. JULY 15, 1913.

1. *LEWIN, L. *The Photodynamic Effect on Man of Substances Contained in Coal Tar.*
2. *HEILNER, E., AND PETRI, T. *The Artificial and Natural Production of Abderhalden's Reaction and Its Significance.*
3. LAMPÉ, A. E., AND PAPAZOLU, L. *Serological Studies in Health and Disease by Abderhalden's Dialysis Method. Studies in the Specificity of Ferments. Second Communication.*
4. STEISING, Z. *The Nature of the Ferment Producing Abderhalden's Reaction.*
5. MORPURGO, B., AND SATTA, G. *The Interchange of Foods in Parabiotic Rats.*
6. BAERMANN, G., AND HEINEMANN, H. *The Intracutaneous Reaction in Syphilis and Frambesia.*
7. WEINERT, A. *Rectal Temperature Variations.*
8. CHRISTEN, T. *Treatment by Extension of Fractures of the Upper Arm.*
9. BRENNER. *The Use of Fibrolysin in Chronic Penumonia.*
10. REUTER. *A New Lamp for Endoscopy.*
11. MÜLLER, R. *A Tin Cover with a Layer of Plaster of Paris for Petri Dishes.*
12. HAMBURGER, F., AND ABDERHALDEN, E. *The Diagnostic Importance of Ferments Produced by Substances Abnormal to Blood.*
13. BAUER. *The Treatment of Granulating Wounds.*
14. MEYER, W. *The Results of Treatment by the Thermocautery in the Bleeding of Hemophilia.*
15. LIFSCHUTZ, V. *Do Cholesterin Fats React to Liebmann's Cholestol Reaction?*
16. V. SEYDEL. *Surgeon-general Anton V. Vogl.*

1. It has been shown that various fluorescent bodies are capable of producing functional disturbances under the influence of light in infusoria and certain higher organisms. In the cable works of the General Electric Company coal tar is used. The complaints of workmen handling this substance are numerous, especially when the raw material is concerned. The common symptoms are itching and burning of the skin on exposed surfaces with erythema and, sometimes, an inflammatory reaction. That the lesions are produced by a photodynamic agent is shown by the fact that of the patients affected, 85% were exposed to light and 86% were light colored. Lewin suggests that such symptoms originate from fluorescent substances contained in the coal tar.

2. Heilner and Petri produced subcutaneous blood clots in rabbits after the resorption of which they found tissue splitting ferments in the circulating blood. These observations were confirmed on a patient with a hematoma. Heilner and Petri believe that such ferments were induced by the presence of a foreign albumin and were analogous to ferments in the blood found after intravenous injections of serum from the same species or individual. This hypothesis

was substantiated by the facts that in starvation at the time when pre-mortal nitrogen destruction took place, and in various febrile cases, tissue splitting ferments appeared in the blood. In all their studies, Abderhalden's technic was followed carefully, using muscle, placenta, liver and serum-albumin extracts In no case was there evidence of any specific organ reaction.

From this Heilner and Petri conclude that Abderhalden's reaction is due to the presence in the blood of an autogenous albumin still preserving its chemical individuality. The pregnancy test is merely a physiological variation of this phenomenon and is not necessarily specific. [R. F.]

No. 29. July 22, 1913.

1. Stuber, B., and Rütten, F. *A Simple Method for Estimating Phagocytic Index, and Its Clinical Value.*
2. Baer, G. *Extrapleural Pneumolysis with Immediate Compression in Pulmonary Tuberculosis.*
3. Jessen, F. *Pneumolysis.*
4. *Conradi, E. *The Recognition of Tuberculosis in Animals by Means of Pirquet's Reaction.*
5. Frank, E., Rosenthal, F., and Biberstein, H. *Experimental Studies on the Specificity of Proteolytic Protective Ferments. (Second communication.)*
6. Grassman, K. *Fifteen Cases of Paroxysmal Tachycardia.*
7. Goebell, R. *Toe Joints as Substitutes for Finger Joints.*
8. Kaefer, N. *The Treatment of Collar Bone Fractures.*
9. *Schnaudigel, O. *Corneal Lesions after Narcosis.*
10. Alexandrescu-Dersca, C. *A New Method for Intravenous Neosalvarsan Injection.*
11. Barladean, A. G. *Methods of Distilling Water.*
12. Henius, M. *A New Fermentation Saccharometer.*
13. Levinger. *A Paper Face Mask.*
14. Daser, P. *Sir Jonathan Hutchinson.*
15. Denker, A. *Is the German General Practitioner Sufficiently Trained in Oto-Rhino-Laryngology?*
16. Holzknecht, G. *The New Radiological Institute in the Imperial General Hospital in Vienna, and a Few Technical Novelties.*

4. Various means to shorten the time necessary for demonstrating tuberculosis in laboratory animals infected with suspected tuberculous material has been suggested. Conradi uses the following method? A guinea-pig is injected as usual. Nine days later and every following day until positive, an intracutaneous test for tuberculosis is made with undiluted old tuberculin. In this way Conradi has obtained positive reactions within ten days, confirmed by subsequent autopsy. He has observed no doubtful reactions. He reports eleven cases. He advocates this procedure for the early positive diagnosis of tuberculosis.

9. Erosions of the corneal epithelium are produced commonly by a blunt injury and are characterized by pain, photophobia and swelling of the lids. Corneal ulcerations tend to relapse, or may become infected. Thus they are not without danger. To emphasize the mistake of handling the cornea Schnaudigel reports two cases of ulcer resulting from the anesthetists's finger. To avoid this complication he believes that the anesthetist should be forbidden to test the corneal reflex as a measure of narcosis. If it is necessary, the lids should be separated, and the conjunctiva at the angle of the lids on the temporal side of the eye lightly touched. The central portion of the cornea should never be used for this purpose. [R. F.]

Wiener Klinische Wochenschrift.

No. 25. June 19, 1913.

1. Freund, E., and Kaminer, G. *The Origin of the Serum Constituents That Influence Carcinoma Cells.*
2. Hofer, G. *The Etiological Significance of the Bacillus Perez in Ozena.*
3. Hatschek, H. *Psychotherapy.*
4. v. Friedlander, F. *Coxalgia in Childhood.*
5. Miller, H. *The Chemical Constitution of Eosinophilic Granules.*
6. *Bondi, T. *The Weight of the Newborn in Relation to the Mother's Nutrition.*
7. Rind, O. *Therapeutic Experiments with Acid-Silver Arsenate.*

6. The author concludes that clinical investigation indicates that fetal growth and development are independent of the mother's nutritional condition and that the fetus thrives in the host as a malignant tumor. Clinical experiments in feeding pregnant women show that the fetus cannot be influenced by dieting the mother. Reducing the diet of the pregnant woman is dangerous to the patient on account of the added strain of disturbed nutrition and possible intoxication. [F. S. K.]

No. 26. June 26, 1913.

1. Schutz, E. *Early Diagnosis of Carcinoma of the Digestive Tract.*
2. *Maresch, M. *Gangrene of the Extremities and Its Treatment.*
3. Kiralyfi, G. *Further Contribution to the Therapeutic Uses of Benzol.*
4. v. Wiczkowski, J. *Primary Pulmonary Carcinoma.*
5. Scherber, G. *Further Contributions on the Clinical Aspect and Etiology of Pseudo-Tubercular Ulcers of the Female Genitals.*
6. Bondi, T. *Recognition of Ovarian Melano-Sarcoma.*
7. Wittek, A. *Sunlight Treatment of Surgical Tuberculosis.*

2. The author lays down the following rules:—

In all uncomplicated forms of gangrene not due to diffuse or progressive arterial sclerosis, it is well to wait for the line of demarcation before amputating, and the amputation should be done through healthy tissue.

In arterial sclerosis wait for spontaneous amputation. Exarticulation of the foot is not advisable owing to temporary results. When no line of demarcation forms, in a progressive process, infection, or when there are unbearable pains the indication is, if the case be senile, for amputation above the knee. Good results are obtained in presenile cases by amputation below the knee, if the extent of the process gives no contraindication and the pulse is definitely perceptible, at least in the popliteal artery, and the stump bleeds freely at operation.

In diabetics, amputate lower extremities only above knee. [F. S. K.]

Deutsches Archiv für Klinische Medizin.

May 16, 1913.

1. *Gaisböck, F. *Essay on Hemolytic Anemia with Lowered Osmotic Erythrocyte Resistance.*
2. *Voorhoeve, N. *The Study of Calcium Metabolism.*
3. Gruber, G. B. *The Present Status of Gastric and Duodenal Ulcers.*
4. Foster, N. B. *How High is the Dextrose-Nitrogen Quotient in Severest Diabetes?*
5. Gaisböck, F. *Clinical Investigation on the Intermittent Pulse on Deep Breathing and Forced Muscular Activity.*
6. Hymans, A. A., Berg, D., and Snapper, J. *The Coloring Matter in Blood Serum.*
7. Mahlo, A. *The Effect of Opium upon the Human Gastro-intestinal Tract.*
8. Cavina, G. *Investigation of Metabolism in Lymphatic Leukemia During Roentgen Ray Treatment.*

1. Gaisböck takes up at length the subject of hemolytic jaundice and reports three cases which came under his personal observation. The cases are very well worked up and he reports them in detail. Following the report of his cases he takes up a theoretical discussion of the causes of the condition and the different symptoms which may be produced. The points which his work emphasizes are that this hemolytic anemia may run an acute course or may run the course of an acute leukemia. Other complications which may exist are hyperplasia of the vascular system and hyperplasia of the lymphatic system.

2. Voorhoeve has made a study of calcium metabolism, especially from the point of view of an increased intake. He shows that in normal men an increased intake, even after calcium balance has been established shows a steady retention of calcium and increase of it in the body. This will continue for over a period of weeks. After the intake of extra calcium ceases the heaped up calcium is gradually eliminated until a balance is again reached. Cases which are healthy except for tuberculosis also show a retention of calcium on excess of intake. [C. F., Jr.]

Revue de Médicine.

July, 1913.

1. Pierret. *The Pathology of Epilepsy.*
2. *Weill and Gardère. *Infectious Erythemata in Measles.*
3. Jannin. "*Sensibilisation de l'organisme par un Champignon du Poumon.*"

2. Eight cases of erythema have been collected by Weill and Gardêre in connection with measles. These may be of a simple type or the "morbilliform" variety. The prognosis in the latter instance is far less favorable. The most severe form is the scarlitiniform variety, in which the spreading of the process is rapid and the result generally unfavorable. In all instances this condition seems due to a secondary infection, generally the streptococcus. The treatment is symptomatic. Such conditiosn are preventable, hence the proper treatment is prophylactic. [L. H. S.]

Miscellany.

STATE APPROPRIATIONS FOR TUBERCULOSIS.

Out of 41 state legislatures in session during the season of 1913, laws dealing with tuberculosis were enacted in 30 states, while in 34 states consideration was given to bills dealing with the prevention of this disease. This is a summary of the legislative campaign for 1913, issued by The National Association for the Study and Prevention of Tuberculosis.

Appropriations to the amount of over $5,000,000 have been set aside for the treatment and prevention of tuberculosis by the various state legislatures in session this year. Most of this money is for the maintenance of state sanatoria. There are at the present time 39 such institutions in 31 different states, Connecticut, Massachusetts and Pennsylvania each having more than one sanatorium. Delaware is the only state which has made provision for a state sanatorium for tuberculous negroes. In addition to the amounts appropriated by the various state governments, Congress will be obliged to set aside nearly $1,000,000 for the maintenance of the United States Public Health, the Army and the Navy sanatoria, and the tuberculosis hospital of the District of Columbia.

Among the notable advances in the legislative enactments of this year, are the tuberculosis registration law of Colorado; laws providing for subsidies to local hospitals in Minnesota and Wisconsin, an act providing for the establishment of county hospitals in Indiana, and the establishment of state bureaus for the prevention of tuberculosis in Ohio and California. A complete analysis of the tuberculosis legislation considered and enacted in 1913, is being prepared by the national association.

A MEDIEVAL SCOTTISH LEECH AND HIS LANDS.

In a recent publication (Vol I Part VII) of the Viking Society for Northern Research, are recorded some interesting data about Dr. Farquhar, a Scottish leech, who was court physician to King Robert II of Scotland, grandson of Robert the Bruce. It appears that Alexander, the king's younger son, gave to Farquhar a large tract of land in Sutherlandshire; and in a royal charter, dated at Perth, Sept. 4, 1377, Robert confirmed this grant in the following terms:—

"Robert by the grace of God King of Scots, and all good men of his whole realm, greeting. Knowye that we have approved and ratified and by this our present charter have confirmed that gift and grant which our beloved son, Alexander Stewart, Knight, Lord of Badenoch, made to and conferred upon Farquhar, our physician of the lands of Melness, and the two parts of the Hope with their pertinents: To be held and possessed by the said Farquhar with all and sundry liberties, commodities and easements and their just pertinents whatsoever belonging to the aforesaid lands with their pertinents or which by any manner of way may justly be held to belong thereto in time coming, as freely and quietly, fully, entirely and honourably in all and by all as is more fully contained and set forth in ths charter granted by our said son to the said physician thereupon, saving our service."

Subsequently, Farquhar treated the king so successfully for a chronic conjunctivitis or iritis that the latter in his gratitude gave the physician a further grant of land by a charter dated at Edinburgh, Dec. 31, 1386.

"Robert, by the grace of God King of Scots, to all good men of his whole realm, cleric and laic, greeting. Knowye that we have given and granted, and by this our present charter, have confirmed, to our beloved and faithful Farquhar Leech, for his service rendered and to be rendered to us, the islands of Jura, Calva, Sanda, also Ellangowan, Ellanwillighe, Eileau Roan,

Ellanhaga, Ellenwhoera, Ellanegelye, Ellanyofo, and all our islands between Rhu Stoer in Assynt and Rhu Armadale, within the Sheriffdom of Inverness: To be held and possessed by the said Farquhar and his heirs of us and our heirs in fee and heritage by all their right meiths and marches, with all and sundry liberties, commodities, easements, and just pertinents whatsoever belonging to the said islands or which may belong thereto in time coming, freely, quietly, fully, entirely and honourably, well and in peace; Rendering to us and our heirs the services of old, used and customary, therefrom."

Farquhar was a member of Clan Mackay, and according to a recent statement in the *British Medical Journal*, these lands were held by his descendants until the seventeenth century and still belong to another branch of the same clan.

Correspondence.

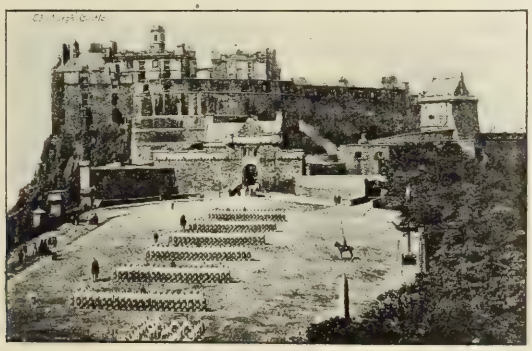
EDINBURGH AND THE BORDERLAND.

(From Our Foreign Correspondent.)

EDINBURGH, July 19, 1913.

Mr. Editor: Of the large cities we have seen, none is so distinctively individual as Edinburgh. London and Dublin remind one of Boston; Paris and Berlin are like New York; but Edinburgh is unique in situation, character, and associations, and seems eminently to deserve its title as "the most romantic capital in Europe."

Edinburgh castle, which is the most striking single feature of the city, was begun in the eleventh century by Malcolm III; and successive kings have added series upon series of towers, battlements, batteries, and bastions, down to the barracks of modern times in which the garrison is lodged. From whatever point of view you look up at it, the castle seems absolutely inaccessible and inexpugnable, indeed it has never been captured except by surprise or treachery. It is approachable, as a matter of fact, only from the east, where a broad esplanade has been built up to its principal portal. One of the finest sights to be seen in Edinburgh is that of a highland regiment parading down this esplanade in the full glory of kilts and tartans, with a score of pipers ahead playing the pibroch.



EDINBURGH CASTLE.

The slope of the north bank, from Princes street to the bottom of the ravine, once marshy and unsightly, has been reclaimed and laid out as a beautiful garden and public recreation ground. Here are many statues of Scotland's famous sons, statesmen, soldiers, poets, philosophers, philanthropists, men of science. Conspicuous among them is one of Sir James Young Simpson, celebrated as a gynecologist and obstetrician, and as the first demonstrator of the possibility of using chloroform as a surgical anesthetic. The house in which Dr. Simpson made this discovery was his residence at 52 Queen street, which runs just north of Princes street and parallel to it. Close by, at 53, was the residence of Professor John Wilson, "Christopher North," the original author of *Noctes Ambrosianae*, the account of evening gatherings at the Ambrose Tavern on Princes street. This entire region north of Princes street has been laid out in wide, rectangularly intersecting streets as the residential district of the new city, the Back Bay of Edinburgh.

Among the stately old mansions in this district, however, none is of such momentous interest as 39 Castle street, the small house where Walter Scott lived during his important working years. He was born at Edinburgh in a little house still standing on College Wynd in the old city, and his early life was spent partly in Edinburgh, partly in Carlisle and the borderland. But it was at 39 that he settled, not long after his marriage, and here were produced the great works of his genius from "The Lay of the Last Minstrel" to "Woodstock." Finally, as Sir Walter, he went to Abbotsford to die, after the heroic and successful struggle against adversity which, like that of our own Mark Twain, stands more to his honor as a man than even his fame as an author.

The literary personality of Scott dominates Edinburgh as that of Swift does Dublin. He is beloved of the highlanders as Burns is in the lowlands, and the height of their affection for him, as a portrayor of their people and their history, is in some measure evidenced by his monument, the finest in Edinburgh. It stands in the Princes Street Garden, and consists of a lofty, splendid Gothic canopy, richly carved and adorned with figures representing personages from his works, under which is a seated statue of Scott, in simple dress, with his favorite dog by his side. It is perhaps the noblest seat to which any writer by sheer genius has raised himself from obscurity, and perhaps the truest tribute to his character is that his humble dog should thus remain with him to share his glory.

Perhaps, in a way, the greatness of Edinburgh, like that of so many cities is rather a thing of the past than of the present yet that past still sheds over the town a lustre of romance which hardly can ever fade. The modern city has far outgrown in every direction the limits of the district on either bank of the great ravine. Northward it extends in pleasant suburbs to the shores of the Firth of Forth; and southward the business and manufacturing part of the town spreads far over the borderland plain. In this region are the splendid buildings of Edinburgh University and Medical School, and of the Royal Infirmary, largest and most famous of Scottish hospitals. The infirmary occupies an immense group of buildings, similar in style to those of Glasgow Infirmary, and capable of accommodating over 1000 patients. Nearby is the Edinburgh Maternity with about fifty beds, erected as a memorial to Sir James Young Simpson. There are of course many other hospitals in Edinburgh, but none had for us the same interest as these.

Not far from this infirmary and university district, near the West Port, a former city gate, is a house in Tanner's Close darkly associated with an unfortunate episode in the history of medical education. Here, a century ago, lived William Burke and William Hare, who not only robbed graves to provide subjects for dissection, but, finding the supply not equal to the demand, lured into their secluded house men, women, and children, whom they drugged, killed, and sold the

bodies for the same purpose. No questions were asked by the authorities as to the source of these subjects, and the horrible business went on for some time, until the disappearance of "Daft Jamie," a half-witted local character, aroused popular suspicion. Investigation followed; Hare, to save his own neck, turned king's evidence; and the whole nefarious traffic was made public in the courts. Burke was hanged, and his skeleton is now in the museum of the medical school. He would now be forgotten, save for this and for having given his name to body-snatching and to seduction and murder for anatomic purposes. After this infamous affair, "burking" was made a capital crime, and strict laws were passed about the obtainment of material for dissection, happily since imitated in all civilized countries.

It is not with episodes such as this, however, that we should wish to associate Edinburgh, but with the brighter pages that illuminate its history. The past of every old city like that of nations, is part written in blood; but the portion so written fades, while the better lives for our delight and enduring profit.

Farther south of Edinburgh, the sunlit borderland which stretches away to Cheviot Hills and the English frontier is watered by the river Tweed and its tributaries Yarrow, Ettrick, and Teviot, names all famous and familiar in border song and story. It seems not unfitting that Bruce's heart should have got no further, on its intended journey to Palestine, than to Melrose, where by the banks of Tweed it was buried before the high altar in Melrose Abbey. There were fresh flowers laid on the spot when we visited it; for it is a place of pilgrimage for loyal Scotsmen, by whom the memory of Bruce is treasured almost more than that of the patriot Wallace. Few men are thus remembered for centuries after they are dust.

Melrose was chief of the four great abbeys of Tweeddale. Of Kelso only a few gloomy fragments remain. Jedburgh is well-preserved, but austere and not so attractive in its suroundings as Dryburgh, almost the paragon of abbeys in its sweet solitude of decay. At Dryburgh is buried Sir Walter Scott, in the tomb of his father's, and in the heart of the borderland he loved so well. But the dead associations of Dryburgh are not half so potent as the immortal magic with which the Last Minstrel has invested Melrose, and the Eildon Hills cleft in three by the sorcery of Michael Scott. Whether you view it by moonlight or sunshine, the fascination of Melrose is always the same. Not far from Bruce's remains are the monument and grave of Michael Scott, with the identical stone which William of Deloraine and the monk pried up on that portentous night. Even the eye of imagination can see no unholy light shining about it now; but whatever the story may tell, surely Sir Walter inherited the book of magic taken from his wizard namesake.

The history and romance of Edinburgh and its borderland are one, whether you read them in the pages of time or of leters; and Scott is the arch-magician who has conjured them into perennial life. With the spell of his verse you may recreate the past at your pleasure; and as you take farewell of Tweeddale and see the Pentland hills sink to the horizon, you can reanimate the gathering clans of Domiel Dhu, and hear his pibroch from the wooded glens echoing:

"March, march, Ettrick and Teviotdale,
All the blue bonnets are over the border."

PEREGRINUS NOVUS.

APPOINTMENTS.

DR. ARTHUR D. HIRSCHFELDER of Johns Hopkins Medical School, has been appointed professor of pharmacy and director of the pharmaceutical department in the University of Minnesota.

DR. J. M. SLEMONS, associate professor of obstetrics at Johns Hopkins Medical School has been appointed chief of the department of obstetrics and gynecology and director of the woman's clinic, in the University of California.

BOOKS AND PAMPHLETS RECEIVED.

Aids to Practical Pharmacy for Medical Students by A. Campbell Stark. William Wood & Co., 1913.

Aids to the Diagnosis and Treatment of Diseases of Children by John McCaw. William Wood & Co., 1913.

Aids to Gynecology by S. Jervois Aarons. William Wood & Co., 1913.

A Practical Manual of Venereal and Generative Diseases by Gerald Dalton. William Wood & Co., 1913.

Diseases of the Skin by David Walsh. William Wood & Co., 1913.

Labyrinth Papers by George W. MacKenzie. Philadelphia, Pa. 1913.

An Investigation of the Prevalence of Trachoma in the State of Minnesota by Taliferro Clark. Reprint No. 134 from Public Health Reports. Washington.

The Rat, a Sanitary Menace and an Economic Burden, by R. H. Creel. Reprint No. 135 from Public Health Reports. Washington.

The Cock's-Comb Test for the Activity of Ergot Preparations, by Albert C. Crawford, M.D., and James P. Crawford, A.B. Reprint.

High Blood Pressure and Hardened Arteries, by Beverly Robinson, M.D. New York. Reprint.

The Failure of Dr. R. S. Cummings to Protect Guinea-pigs Against Tuberculous Infection with the Vaccine of Dr. Karl von Ruck. Reprint.

Use and Limitation of Law in Dealing with Prostitution, or the Social Evil, by G. Shearman Peterkin, M.D. Reprint.

WEEKLY RETURNS OF DEATHS

from diseases declared by the State Board of Health to be dangerous to the public health from cities and towns in Massachusetts of more than 10,000 population, for week ending Aug. 9, 1913:

Boston	37
Worcester	5
Lowell	4
Cambridge	1
New Bedford	5
Springfield	3
Lawrence	3
Holyoke	4
Brockton	4
Haverhill	1
Newton	2
Fitchburg	1
Taunton	3
Chelsea	1
Pittsfield	2
Brookline	1
Chicopee	1
Northampton	1
Revere	1
Westfield	1
Peabody	1
Melrose	1
Newburyport	1
Clinton	1
Framingham	1
Arlington	2

Original Articles.

IMMIGRATION AND THE PREVENTION OF INSANITY.*

BY THOMAS W. SALMON, M.D., NEW YORK,

Passed Assistant Surgeon, U. S. Public Health Service; Director of Special Studies, National Committee for Mental Hygiene.

A MEETING devoted to mental hygiene would be strikingly incomplete without some reference to immigration. As Dr. Lewellys F. Barker has said, the object of the campaign for mental hygiene is to "secure human brains so naturally endowed and so nurtured that people will think better, feel better, and act better than they do now." In such a movement, the brains which come into this country in the possession of immigrants have quite as much interest for us as those which are brought to these shores by native-born babies.

No other country in the world is being as profoundly influenced by immigration as our own. There has been no human migration in history like that which has brought 24,000,000 persons to this country from Europe, Asia and Africa since the close of the Civil War. This vast movement of population is influenced by many causes, and these causes are rooted in the economic and political history of Europe. The potato famine in Ireland, the revolutionary movements in Germany, the rise of modern militarism, the "pograms" in Russia, Turkish misrule in Albania,—all have been reflected very faithfully in the volume and in the composition of immigration to America.

Few people realize what an enormous source of population immigration constitutes at the present time. Last year 216,141 babies were born in New York, while 239,275 immigrants destined to that state arrived at Ellis Island. In several other states the increment to population from immigration is greater than that from births. This is the direct contribution of immigration to population; indirectly it contributes even more largely. It was shown some years ago by Walter F. Wilcox that twice as many children are born to foreign mothers in the United States as to native-born mothers. Thus the replacement of the native-born population of the United States by the foreign-born can hardly be estimated by the increment through immigration alone.

What means of protection have we against the admission of insane and mentally defective immigrants and those of inferior mental constitution? It is obvious that all measures of protection against any of the dangers of immigration must fall under one of three principal heads. We may arbitrarily stop immigration altogether, we may restrict large general groups of immigrants, or we may select immigrants in accordance with various tests and standards of individual fitness. The first means of protection only needs mention. It is abandonment of the immigration question, not its solution. The second, the restriction of immigration, has been seriously considered at many sessions of Congress. The favorite method suggested has been the imposition of an educational test. Some other means suggested have been to limit the number of immigrants received from each country in a given period, to raise the "head tax" to a prohibitive amount and to prescribe yearly the number of "vacancies" in different occupations, admitting first-comers until such vacancies are filled, and then closing the doors. There may be economic or social reasons for such arbitrary restrictive measures as these, but to adopt them solely as a means of excluding insane and mentally defective immigrants would be hardly fair to the resources of modern psychiatry. An analogous situation exists in modern conceptions of quarantine. As Dr. J. H. White has said, "Modern quarantine is a sieve, not a dam." The former idea of quarantine was to prohibit commerce absolutely. This the President has the right to do under the quarantine laws of the United States, but all physicians are proud of the fact that such a drastic procedure has not been employed in more than twenty years. Probably it will never be employed again. A year ago many ships bringing cholera arrived at the port of New York, yet after medical officers of the Public Health Service were assigned to assist in guarding the port not one case of cholera secured admission. At the same time commerce was but slightly interfered with and the importation of passengers and baggage from infected provinces of Italy was not at any time prohibited. It is believed that an efficient mental examination of immigrants, with adequate facilities, would be competent to detect a very large proportion of cases of mental disease and defect; so arbitrary restrictive measures cannot be advocated by physicians solely upon the grounds that they are needed to exclude insane and mentally defective immigrants. It cannot be denied, of course, that any restrictive measure which greatly diminished the tide of immigration would necessarily diminish the number of insane and mentally defective immigrants. There are fewer people in Maine than in Massachusetts, consequently there are fewer insane people. The third method is the imposition of various tests of individual fitness. This is the method which has been utilized up to this time. All immigration legislation thus far has aimed at the perfection of methods of individual selection.

There is a widespread belief that the exclusion of insane and mentally defective immigrants is not as successful under the present im-

* Read at Mental Hygiene Conference, under auspices of Massachusetts Society for Mental Hygiene, Tremont Temple, Boston, April 2, 1913.

migration law as it might be. Before discussing any changes in the immigration law, it may be worth while to consider for a moment the existing provisions which may be utilized for the exclusion of insane and mentally defective immigrants. The Immigration Law of 1907 provides that the following persons shall be excluded from the United States: "All idiots, imbeciles, insane persons, and persons who have been insane within five years, persons who have had two or more attacks of insanity at any time previously. . . " The law is sufficiently definite, but immigrants cannot be selected by legislation. It is nearly as futile to attempt to exclude insane and mentally defective immigrants without providing by law for facilities for the detention and careful mental examination of those in whom these conditions are suspected as it would be to attempt to control burglary by legislating against it and failing to provide a police force with definite powers, or to attempt to suppress small-pox by sanitary laws at the same time neglecting vaccination.

The Immigration Law provides (Section 17) that the physical and mental examination of all arriving aliens shall be made by medical officers of the United States Public Health Service. The medical examination of immigrants used to be made by civil physicians, but this duty was transferred to the Marine Hospital Service (as it was then known) more than twenty years ago. It would be difficult to find a body of physicians better fitted for this duty than the medical officers of this corps. They serve in all infected ports of the world and are familiar, through personal observation, with the strange diseases of strange lands. Their quarantine experience gives them special knowledge of ships and ship-sanitation, and the scientific work in which the Public Health Service is engaged fits its officers for the pathological examination which forms so important a part of the work at some ports of entry. They are commissioned officers of the Government and quite outside the influence of politics.

This provision is an excellent one, but, unfortunately, the law fails to define the scope of the medical examination, to provide especially for a mental examination, or to provide that there shall be proper facilities including the services of interpreters. All these matters are left to the discretion of the officials who administer the Immigration Law. They are necessarily determined by the funds available, the importance attached to them by lay officials, and the general interest which seems to be taken by the public in this part of the examination of arriving aliens. There is always to be reckoned with the insistent demand of steamship companies for the shortest detention possible. It is very doubtful if the framers of the Immigration Law intended that ample facilities for such examination should rest upon such precarious footing. It is certain that those who are familiar with the great problems of the care of the insane and mentally defective and the prevention of mental disorders desire that careful and thorough mental examination of *all* immigrants and the provision of ample facilities for such examination should be *definitely required by law*. It should be explained that the detention of passengers does not involve any interference whatever with commerce. At all immigration stations the steerage passengers are removed from ships as soon as they arrive and are taken to the place of examination; at the port of New York, as everybody knows, this place is Ellis Island, at other ports it is usually quite near the steamship piers.

There would be several advantages if the examination of immigrants could take place at points nearer their homes than American ports of entry. The exclusion of an immigrant at a seaport in his own country would involve far less hardship than his exclusion after he has crossed the ocean and presented himself at one of our ports. If medical examination at the principal ports of embarkation were authorized it would be practicable for an intending immigrant to present himself or any members of his family at an American Consulate, and to be informed there whether he is likely to be accepted, before he has sold or mortgaged his property or raised money by other means for his passage to this country. For reasons of humanity, then, if not for greater efficiency, it is very desirable that a mental examination should be made by American medical officers at ports of foreign embarkation. The principal obstacle thus far has been the refusal of foreign governments to grant the necessary permission. If the immigration law provided that immigrants would not be admitted without such an examination, these governments would very speedily recede from their position, for immigration means great profits to steamship companies, and the relation of steamship profits to the attitude of certain governments is a very close one.

Another means of detecting excludable conditions in immigrants before their arrival in this country would be to detail American medical officers upon vessels bringing immigrants to the United States. After the revelation of steerage conditions by investigators employed by the Immigration Commission in 1910, a bill providing for just such an inspection service was introduced by Senator Dillingham, a member of that commission. Such a provision was in the immigration bill recently passed by Congress but vetoed by President Taft. Every ship, of whatever nationality, which carries a certain number of Italian immigrants must have on board a Royal Italian Commissioner who, almost invariably, is a medical officer of the Italian Navy. These Royal Commissioners exercise remarkable powers, the penalty for disobeying their instructions being revocation of the license granted by the Italian Government to sell steamship tickets in Italy. They supervise the food, accommodations, hospital facilities, medical care and, in short, any conditions which affect the comfort or

safety of Italian immigrants, efficiently enforcing the Italian Navigation Act. This government has ample authority to place medical officers of the United States Public Health Service upon ships bringing immigrants to this country. If we have power to enact a "passenger act," we should have means to enforce it.

It can be seen that such physicians, in their intimate contact with passengers, would have an exceptional opportunity to pick out those with enough evidences of mental defect or disease to warrant detention and careful examination upon their arrival at Ellis Island. The effect which such a provision would have upon problems of quarantine and ship-sanitation would be far-reaching. It is believed that it would lead to the practical abolishment of detention for observation at United States quarantine stations in the case of passenger ships arriving from ports free from quarantinable diseases.

Another means which has been suggested to lessen the number of insane and mentally defective immigrants admitted is that certificates of health be required from responsible governmental authorities in Europe stating that the immigrants in question had never been in an institution for the insane. The principal objection to such a plan is that it would place a very powerful weapon of oppression in the hands of foreign officials. There is no doubt of the great value to this country of immigrants of the type of Carl Schurz, for instance, but the chances that Carl Schurz would have obtained a favorable certificate of any kind from representatives of the German Government when he came to America are very remote. It seems, therefore, that the slight advantages of this plan would be offset by the danger that it might be used to oppress intending immigrants. Another disadvantage is that it would be of little avail in the detection of the mentally defective, very few of whom ever have institutional care in this country and a much smaller proportion in most countries in Europe.

Mr. C. B. Davenport has proposed that social field workers be stationed in various countries in Europe to conduct studies in heredity, and that only those immigrants should be admitted who possess certificates that their family history had been examined by such field workers and found satisfactory. The objections which might be raised to this procedure are so numerous that it cannot be considered as a very practical suggestion. Our knowledge of the effect of heredity upon the production of mental disease is hardly definite enough to base such an arbitrary administrative measure upon.

The cost of a thorough mental examination of all immigrants such as that which is needed would be large, but it would be insignificant compared with the great sums spent for the support of the alien insane and mentally defective in this country. Many of the states which bear this heavy burden would very gladly pay much more than the most efficient mental examination would cost to be relieved of the expense of caring for the insane and mentally defective immigrants who now enter the country. The responsibility rests with the federal government, however, as every attempt of the states to regulate immigration has been declared unconstitutional. The cost of the examination takes on a new aspect when it is learned that the immigrants themselves pay for the enforcement of the Immigration Law, including their medical examination. The "head-tax" of four dollars apiece, which was collected from the 828,773 immigrants admitted during the year ending June 30, 1911, was $3,315,086. After deducting the amount appropriated for the enforcement of the Immigration Law, a balance of approximately $1,000,000 was turned into the national treasury. Of the amount appropriated in 1911, $151,659.27, or *16 cents for each immigrant examined,* was for the medical examination.

The pay and allowance of twenty additional medical officers of the Public Health Service, with especial training in psychiatry, for duty at American ports would be about eight cents for each immigrant examined. If to this were added the pay and allowance of ten such officers stationed at foreign ports and thirty detailed from time to time upon vessels carrying immigrants to this country, the total additional cost of providing an adequate and effective mental examination of immigrants would be less than $225,000 per year, or about 25 cents for each immigrant examined—one-sixteenth of the present "head-tax." Surely this is a small sum for the federal government to deduct from the proceeds of a tax which was never intended for general revenue. It about equals the cost of maintaining, for their hospital lives, *one hundred of the 1750 insane aliens who are admitted to New York State Hospitals each year.* It is a small price to pay for the exclusion of the insane and mentally defective among those who are to become the parents of future generations of Americans. It may be thought difficult to secure a sufficient number of young physicians with training in psychiatry, but it would be very easy to secure such training for a sufficient number of commissioned medical officers already in the corps. The Government Hospital for the Insane and many of our best state hospitals would cooperate very effectively if requested to.

The suggestions outlined have been presented frequently to Congress. They have been supported by alienists and others interested in the care of the insane from all parts of the United States. They have been approved by such organizations as the National Committee for Mental Hygiene, the American Medico-Psychological Association, the New York Psychiatrical Society, the Boston Society for Neurology and Psychiatry, and the Eugenics Section of the American Breeders' Association. What can be the source of opposition to them? Who are opposed to humane but scientifically effective means of selecting the sound in mind

and body from the million immigrants who present themselves for admission to this country every year? The cost of caring for our insane is the chief item in the budget of any state which provides adequately for its insane. Even in such states there are many unprovided for, and overcrowding is a general evil. Who desire to see this great burden, which is taxing the resources of all the states, made still heavier through the admission of the insane and mentally defective of other lands? Who profit so greatly through immigration that they are indifferent to these considerations? There are two sources from which oppositions to such measures might be expected to come—the seekers of cheap labor who must have an unimpeded flow of workers from Europe, and the steamship companies which bring these workers here. It is true that, on every hand, we see the greed of some employers responsible for child labor, insufficient housing, unsanitary working conditions, and many other social and economic evils, but insane and mentally defective immigrants do not make profitable workmen; opposition to measures for the better selection of immigrants come from a different source. The most active and powerful factor in defeating efforts to secure better examination of immigrants is the influence of foreign steamship companies. To the foreign steamship companies, immigration means simply an immensely profitable business. Millions of dollars are invested in the business of bringing immigrants to this country; the tonnage of one of the great immigrant-carrying lines, according to its advertising circulars, exceeds the tonnage of the navy of France. This is the source of the opposition which outweighs the warnings of those who are devoting their lives to the study of mental diseases. This opposition will continue to be effective until people generally realize that there is at least one phase of the immigration question with which they must deal themselves. As Professor R. DeC. Ward has put it, the question is whether the parents of future generations of Americans are to be selected by foreign steamship companies in the interests of their dividends or by American officials in the interests of their race.

The old immigration was a more natural process than the new. Natives of Germany, Ireland and Scandinavia found political, social or economic conditions at home unendurable and they came to this country with their families, determined to lead their lives in the new world. The importunities of steamship companies would have had little effect in the formation of this great decision. With the purely industrial factors which govern by far the larger part of the new immigration, however, glowing accounts of high wages, unfailing work and other advantages have a very marked effect. For many, immigration does not mean relinquishment of citizenship, transplantation of the home, or severance of ties. The Immigration Commission found that, contrary to the general belief in this country, emigration is by no means an economic necessity at the present time in most countries in Europe. This commission, as a result of studies undertaken in Europe, concluded that "with comparatively few exceptions the emigrant of today is essentially a seller of labor seeking a more favorable market." Under such conditions the part of the steamship company in promoting immigration is a very powerful one. When steamship companies are taxed with making false statements as to labor conditions in this country or other matters, the reply is usually made that if this is done it must be by entirely unauthorized sub-agents in the villages of Eastern and Southeastern Europe. It was stated to the Immigration Commission that two steamship companies had "five or six thousand ticket agents in Gallicia alone" and it was the opinion of that commission that the provision of the United States Immigration Law prohibiting such false representations is "persistently and continuously violated."

At every stage of the immigrant's journey to this country, precautions for his health and welfare are neglected by many of the steamship companies. It required the imposition of a fine of $100 for each offense to deter them from bringing in the open steerage cases of dangerous contagious diseases, the existence of which "could have been detected by a competent medical examination at the ports of embarkation," and even this procedure has been only partially successful. During the year ending June 30, 1912, $18,600 in fines was collected from steamship companies for bringing 186 cases of dangerous contagious diseases which could have been detected by a competent medical examination at port of embarkation. It is the rule for cases of scarlet fever, measles and other contagious diseases at childhood to be permitted to mingle on steamships or to be segregated in a single compartment. A great number of cases of mixed infections, with a very high mortality, is the usual result. Even the provisions of our "passenger act" of thirty years ago, which are recognized to be inadequate and far below the requirements of modern naval hygiene, are persistently violated by the steamship companies. Every attempt to better the conditions of steerage passengers is vigorously resisted, and every attempt to secure more effective legislation for the protection of the health of immigrants or for the exclusion of the mentally or physically diseased has met with their opposition.

It seems necessary to describe the position taken by steamship companies, for I earnestly believe that their attitude has the greatest influence upon immigration, especially in its relations to the public health, and that this aspect of the question has not been fully realized by the public generally. In any measures which may be undertaken in the future for the control of unfavorable or dangerous immigration, the immigrant-carrying steamship lines will be found the

most powerful factor to be reckoned with and it is well worth while to recognize the fact. That some steamship companies do not engage in these practices only shows that they could be abandoned by all.

The exclusion of insane and mentally defective immigrants is a question of public health. It is not a political question, it is only incidentally an economic question, but it affects the welfare of coming generations of Americans as deeply as any question before the people of this country today. The interests of the capital invested in foreign steamship companies should have just as much weight with Congress in the solution of this question as the interests of the capital invested in the manufacture of fire arms should have in the protection of song birds.

If this important question is to be dealt with in accordance with the requirements of a broad humanity, something more than efficiency in methods of examination must be sought. I believe that the exclusion of insane and mentally defective immigrants is an absolutely necessary task, but it should be performed humanely and kindly and, at every step, the safety and comfort of a particularly helpless class of immigrants should be carefully considered. This involves examination as near the immigrants' homes as possible, provision for attendance to the final destination for those whom it is found necessary to deport, provision of detention quarters at our ports which shall be comfortable, sanitary and safe, and rigid supervision over the care which insane and mentally defective immigrants receive on shipboard, during the voyage to this country and during the homeward voyage after their rejection. For the accomplishment of these purposes it is essential, it seems to me, that medical control shall be adequate at all times. We have in the United States Public Health Service a responsible body of medical men, highly trained in sanitation and in the care of the sick, and I think that there could be no better trend in the immigration legislation of the future than to place such matters more and more in the control of these medical officers. In securing the legislation needed, the recommendation of those who are engaged in the work of this society will, I feel certain, carry much weight, and I urge you, if you agree with me as to the measures needed, to use your influence to secure the enactment of an immigration law which will efficiently and humanely accomplish the purposes which I have outlined.

On July 18th a party of ten nurses left Edinburgh for Athens in response to a request from Her Majesty the Queen of Greece for nurses for service among the sick and wounded in the war. Two of the ten are sisters from the Royal Infirmary, and seven others have been trained in that institution.—*British Medical Journal.*

COOKED GREEN VEGETABLES IN THE TREATMENT OF ACUTE AND CHRONIC DIARRHEAS.

BY CUNNINGHAM WILSON, M.D., BIRMINGHAM, ALA.

Since 1904 I have been treating all chronic diarrheas, and the acute diarrheas and dysenteries that resisted the ordinary treatment, with opium, bowel irrigation, etc., with a diet of spinach, turnip greens and mustard tops with the most gratifying results.

The treatment is so simple that there can be no possible risk in it, and patients are so soon convinced of relief that they are willing to continue it as directed.

I believe I have saved many lives by this treatment, and know that I have made patients comfortable who could not be relieved of pain by the use of opium.

It has been my custom to begin by giving a tablespoonful or more of spinach, turnip greens or mustard four times a day, continuing from one to two weeks; no other food being allowed unless patients become very anxious for it, when I allow a little dry toast or common corn bread as it is prepared in the South.

The first few stools after beginning the diet will show the undigested food, but immediately following this the movements become normal in consistency, and usually after the second day an enema will be required to move the bowels, Where there has been distension of the bowels, the flatulence disappears, and when there is tenesmus the relief is most remarkable.

My first experience with this diet was confined to chronic conditions, but later I found the same good could be accomplished in the acute dysenteries of early spring which failed to respond to the ordinary dose of salts or oil with a little opium in some form. In these acute conditions I have rarely found it necessary to give a dose of opium after beginning treatment.

Spinach is prepared in the usual way, insisting on a little more thorough cooking. Turnip greens and mustard, a diet largely used in the rural districts of the South, have given the best results, but when these cannot be had, spinach answers well and is better borne by delicate stomachs.

I usually insist on patients continuing the use of the diet with lunch and dinner for some weeks after getting on regular diet. In two patients suffering with pellagra, the diarrhea has been entirely relieved on this diet, but others have not seemed to be benefited by it.

Amebic dysentery is improved, but the cure is rarely permanent. In the 9th of March, 1907, issue of the *Journal of the American Medical Association*, the late Dr. H. E. Pressly and I reported our first experience with this treatment. It is now no longer an experiment, but its value is little known among the profession.

In the preparation of mustard and turnip greens, the young tender tops are used, requiring special and rather careful cooking. Our first patient cured himself by eating the well cooked tender tops of phytolacca, a diet common in the rural districts of the South. In trying to find a substitute for the phytolacca, we found that spinach, mustard and turnip tops were just as effectual.

SECOND NOTE ON THE GEOGRAPHICAL DISTRIBUTION OF MENTAL DISEASE IN MASSACHUSETTS, 1901-1910: THE INSANITY-RATES OF THE SMALLER CITIES.*

BY E. E. SOUTHARD, M.D., BOSTON,

Pathologist to the Board of Insanity, Massachusetts; Director of the Psychopathic Hospital, Boston; Bullard Professor of Neuropathology, Harvard Medical School.

IT is probably safe to say that there is a focal distribution of mental disease in Massachusetts. At least there are towns and groups of towns which have sent no new patients to the state institutions over a stretch of ten years, whereas there are other towns and groups of towns which approach the astonishing commitment rate of 2% of the population over a ten year stretch, or 1 to 500 in a single year. To be sure there are only a few towns (12 in point of fact) that commit no patients, and very few with the towering rates just mentioned; and we may give ourselves leave to suspect that special conditions prevail at the ends of the commitment-curve.

The greatest range in the production of new cases is rural, and we ought soon to investigate intensively the special conditions which affect that range in the various towns, and more particularly the reasons for a surprising difference in the ten-year rates in our two island counties, as well as the problem of the Worcester County high-rate zone.

Yet the high-rate and low-rate zone problems after all affect small blocks of the population only. The gigantic problem numerically is urban. The rural problems yield attractive vistas for the study of constructive and restrictive eugenics and suggest the operation of hereditary forces, as it were, in pure culture. Yet no constructive eugenist dreams of a zero-rate for insanity; and, if ever conditions were to prevail to take one of every 500 souls out of society every year for insanity alone, we should hardly have time to solve our problem while it yet existed.

As I write, the 1911 report of the Massachusetts Board of Insanity appears, showing that, in the year subsequent to the ten-year period which my general statistics cover (1901-1910), "one insane person came under care for the first time from every 1,339 of the estimated population of the state." Thus the problem of new commitments is really not so bad for the state at large by some 168% as it has been for a certain town which shall for the present be nameless.

But, on account of the bulk of the urban problems and the modern concentration of social service agencies in the cities, we must confront the major aspects of the distribution-problem among cities. And first we should consider the smaller cities, because their populations, histories, and environments differ markedly enough to throw further light on the zone problem. Should certain smaller cities prove foci or zones of insanity-production worse than others, we would be tempted to pursue with still greater vigor the environmental factors of our problem; for in these cities we should find the greatest variation in the conditions of life, of rank, of play, of the sexes, and of national standards of living, to say nothing of local ordinances, standards of law-enforcement, public opinion, organization of charity and social service, religion, morals and philosophy.

Despite the misfortunes of certain towns, the cities, after all, are not only absolutely but relatively worse off than the towns in their commitment-rates. The cities as a whole are committing at the rate of 7.2 per 1000 in ten years; the towns as a whole, at 5.3. Also as the table (Table 1) following will show, the non metropolitan cities also outstrip the towns (6.4 as against 5.3). Boston, with a rate of 9.3 is itself not quite the leader of the cites, as it is equalled by Taunton (9.3) and beaten by Chelsea (9.8). Chelsea is economically in large measure a part of the metropolis, whose cities as a whole commit at the rate of 8 per 1000 in ten years. Chelsea thus offers a hint of the geographical variation which we shall doubtless find in Boston itself, if ever the data can be digested. However interesting the urban range, it does not quantitatively approach the rural range of variation. Conditions are stabler in the cities, commitment methods are more constant, transportation simpler, publicity greater, and so on. Yet behind the flatter curve of the urban rates we can still perceive, with our rural figures in mind, the effects of a variety of differentiating conditions. The threads in hand, we could possibly get in more effective motion the wheel of organized "social uplift." Table I incidentally shows the apparent advantage enjoyed by the towns of the metropolitan district, which com-

* Read before the Demographic Section of the Fifteenth Congress of Hygiene and Demography, Washington, D. C., September, 1912 (to be published also as part of the Transactions of the Congress). The work is a sequel of work on *The Insanity-Rates of Massachusetts Towns*, read before The Eugenics Section of the American Breeders' Association at its Eighth Annual Meeting, Washington, D. C., December, 1911, and published as "Note on the Geographical Distribution of Insanity in Massachusetts, 1901-1910," BOSTON MEDICAL AND SURGICAL JOURNAL, March 28, 1912.

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mit at the rate of 4.6 only. As these metropolitan towns are surely better off than the non-metropolitan towns in respect to knowledge of the world and what to do in emergencies leading to commitment, we may pause to wonder whether *rus in urbe* is not a good factor, and whether the metropolitanizing of greater suburban areas will not prove a slight damper on commitment-production.

Before tabulating the statistics for the cities separately, I will throw into

TABLE I

COMPARATVE COMMITMENT-RATES UNDER METROPOLITAN, URBAN, SUBURBAN, AND RURAL CONDITIONS IN MASSACHUSETTS.

	Population 1910	First Commitments 1901-1910	Number per 1000
Commonwealth	3,366,416	22,389	6.6
Cities	2,295,889	16,700	7.2
Boston	670,585	6,278	9.3
Cities minus Boston	625,304	10,422	6.4
Metropolitan District	1,378,435	10,554	7.6
Cities of Metropolitan District	1,206,791	9,748	8.0
Cities of Metropolitan District minus Boston	536,206	3,470	6.4
Towns	1,070,527	5,689	5.3
Towns of Metropolitan District	171,644	806	4.6
Towns outside Metropolitan District	898,883	4,883	5.4

Without concealing that special factors (such as national difference in the habit of "putting-away" relatives and temperamental or logical differences in the commitment habits of different judges) govern some of the different rates mentioned, I will nevertheless throw into

TABLE II.

HYPOTHETICAL COMMITMENT-NUMBERS FOR MASSACHUSETTS (POP. 3,366,416 IN 1910) IN CASE THE COMMONWEALTH WERE COMMITTING AS A WHOLE AT THE RATE OF CERTAIN UNITS.

Actual number of first commitments at rate	6.6	22,389
Hypothetical numbers at—	Number per 1000	
lowest town-rate	0	0
highest town-rate considered	16.4	55,209
rate of towns outside Metropolitan District	5.4	18,179
rate of towns of Metropolitan District	4.6	15,484
rate of towns in general	5.3	17,842
rate of all cities	7.2	24,238
rate of lowest city found	3.5	11,782
rate of highest city found	9.8	32,991
Boston rate	9.3	31,308
rate of Metropolitan District	7.6	25,585
rate of Metropolitan cities	8.0	26,931
rate of Metropolitan District cities minus Boston	6.4	21,545

When confronting such comparisons, it is worth while to bear strongly in mind what is to a certain extent misleading throughout this work. Of course these figures are to a certain extent misleading. We must not leap to the conclusion that cities are actually producing insanity at a greater rate than the towns; the figures show only that 1.9 more commitments per 1000 have *become necessary* in the cities than in the towns. For aught the statistician can tell from these figures alone, *the towns may be producing relatively more but committing fewer cases of insanity.* However, from the standpoint of the state treasury, there can be no doubt that the rapid urbanization of Massachusetts means the expenditure of relatively, as well as absolutely, more money upon the care of the insane, even if their natural proportion of development remains the same. "In 1875," remarks Gettemy "632,671 persons in Massachusetts, or 38.3% of the total population of the State, dwelt in places of 30,000 and over. According to the census of 1910, the number of persons dwelling in places of 30,000 or over has risen to 2,074,455, or 61.6% of the total."

Two factors may alleviate the burden: the riches of the Commonwealth may rise out of proportion to the population and permit the expenditure of large sums with an easier conscience; and, secondly, it is the hope of various eugenists that the segregation of the insane (like that of the feeble-minded) may lower their marriage-rate and the production of children likely to become insane. Both these factors are somewhat problematic in operation.

Let us begin the investigation of the degree of validity of such contentions by examining figures for the smaller cities. The names of these cities I propose to publish in connection with their insanity rates, feeling that no social indelicacy should attach where the stigma, so much of it as still persists, is so widely distributed, and, moreover, that more statistical validity obtains for the larger figures involved than for those of the towns. The names of the "cacogenic" towns formerly studied were intentionally omitted, because local conditions in a decade might well have influenced the numbers for that decade and would unfortunately blacken a town's name on the score of but transient reasons.

For convenience of inspection I place in Table III the figures concerning first commitments of the insane in the cities, alphabetically arranged:

TABLE III.

	Population 1910	First Commitments 1901-1910	Rate per 1000
Beverly,	18,650	103	5.5
Boston,	670,585	6,278	9.3
Brockton,	56,878	266	4.6
Cambridge,	104,839	641	6.1
Chelsea,	32,452	321	9.8
Chicopee,	25,401	89	3.5
Everett,	33,484	155	4.6
Fall River,	112,295	827	7.3
Fitchburg,	37,826	245	6.4
Gloucester,	24,398	202	8.2
Haverhill,	44,115	291	6.5
Holyoke,	57,730	309	5.3
Lawrence,	85,892	574	6.6
Lowell,	106,294	581	5.4
Lynn,	89,336	631	7.0
Malden,	44,404	293	6.5
Marlborough,	14,579	128	8.7
Medford,	23,150	142	6.1
Melrose,	15,715	96	6.1
New Bedford	96,652	447	4.6
Newburyport,	14,949	97	6.4
Newton,	39,806	279	7.0
North Adams	22,019	173	7.8
Northampton,	19,431	159	8.1
Pittsfield,	32,121	115	3.5
Quincy,	32,642	170	5.2
Salem,	43,697	318	7.2
Somerville,	77,236	443	5.7
Springfield,	88,926	444	4.9
Taunton,	34,259	322	9.3
Waltham,	27,834	185	6.6
Woburn,	15,308	114	7.4
Worcester,	145,986	1,262	8.6
Total,	2,288,889	16,700	7.2

Let us first arrange the cities in groups according to their percentage-incidence of insanity. The Commonwealth is committing at the rate of 6.6 per 1000 inhabitants, and we find two cities committing at the same rate:—

	Population	Number	Number per 1000
Lawrence,	85,892	574	6.6
Waltham,	27,834	185	6.6
	113,726	759	6.6

We find, leaving out Boston, twelve cities committing at higher rates than the Commonwealth rate:—

	Population	Number	Number per 1000
Chelsea,	32,452	321	9.8
Taunton,	34,259	322	9.3
Marlborough,	14,579	128	8.7
Worcester,	145,986	1,262	8.6
Gloucester,	24,398	202	8.2
Northampton,	19,431	159	8.1
North Adams,	22,019	173	7.8
Woburn,	15,308	114	7.4
Fall River,	119,295	827	7.3
Salem,	43,697	318	7.2
Lynn.	89,336	631	7.0
Newton,	39,806	279	7.0
Total,	600,566	4,736	7.8

We find eighteen cities committing at lower rates:—

	Population	Number	Number per 1000
Haverhill,	44,115	291	6.5
Malden,	44,404	293	6.5
Fitchburg,	37,826	245	6.4
Newburyport,	14,949	97	6.4
Cambridge,	104,839	641	6.1
Medford,	23,150	142	6.1
Melrose,	15,715	96	6.1
Somerville	77,236	443	5.7
Beverly,	18,650	103	5.5
Lowell,	106,294	581	5.4
Holyoke,	57,730	309	5.3
Quincy,	32,642	170	5.2
Springfield,	88,926	444	4.9
Brockton,	56,878	266	4.6
Everett,	33,484	155	4.6
New Bedford,	96,652	447	4.6
Chicopee,	25,401	89	3.5
Pittsfield,	32,121	115	3.5
Totals,	911,012	4,927	5.4

We find that Salem is committing at the rate of all the cities combined:—

	Population	Number	Number per 1000
Salem,	43,697	318	7.2

and that nine cities (with Boston a tenth) are committing at higher rates than all the cities combined. The totals for these nine are as follows:—

Population	Number	Number per 1000
427,727	3,508	8.2

We find that Holyoke is committing at the rate of all the towns combined:—

	Population	Number	Number per 1000
Holyoke,	57,730	309	5.3

and that seven cities are committing at lower rates than the general town-rate:—

	Population	Number	Number per 1000
Quincy,	37,642	170	5.2
Springfield,	88,926	444	4.9
Brockton,	56,878	266	4.6
Everett,	33,484	155	4.6
New Bedford,	96,652	447	4.6
Chicopee,	25,401	89	3.5
Pittsfield,	32,121	115	3.5
Total,	366,104	1,686	4.6

Of special interest from the point of view of percentages alone are Chelsea, a metropolitan district city, with the highest percentage found, Taunton with a percentage identical with that of Boston, Chicopee and Pittsfield with the lowest percentages found, Lawrence and Waltham with rates identical with the general Commonwealth rate, Salem committing at the rate of all the cities, and Holyoke committing at the rate of all the towns.

Of special interest from the point of view of geography is a contrast in seaport cities:—

	Population	Number	Number per 1000
Chelsea,	32,442	321	9.8
Gloucester,	24,398	202	8.2
Fall River,	119,295	827	7.3
Salem,	43,697	318	7.2
Newburyport,	14,949	97	6.4
New Bedford,	96,652	447	4.6
Totals,	331,533	2,212	6.6

Let us now compare the insane-commitment-rates of the various cities and city groups mentioned above with the rates for the crime-pauperism complex and for physical disease, as found by the census enumerators May 1, 1905:—

	Population 1910	Number Insane	No. per 1000	Soc. Def.	No. per 1000	Phy. Def.	No. per 1000
Lawrence	85,892	574	6.6	525	6.1	762	8.8
Waltham	27,834	185	6.6	54	1.9	467	16.7
Twelve high rate cities totals	600,566	4736	7.8	2199	3.6	7,902	13.1
Eighteen lower rate cities totals	911,012	4927	5.4	3458	3.7	11,130	12.2
Salem	43,697	318	7.2	286	6.5	897	20.5
Holyoke	57,730	309	5.3	358	6.2	587	10.1
Seven cities below town-rate totals	366,104	1686	4.6	1181	3.2	4,103	11.2
Chelsea	32,452	321	9.8	45	1.3	526	16.2
Taunton	34,259	322	9.3	891	26.0	306	8.9
Chicopee	25,401	389	3.5	43	1.6	157	6.1
Pittsfield	32,121	115	3.5	123	3.8	443	13.7

SEAPORT CITIES AS FOLLOWS:

Chelsea	32,542	321	9.8	45	1.3	526	16.2
Gloucester	24,398	202	8.2	53	2.1	438	17.9
Fall River	119,295	827	7.3	577	4.8	922	7.7
Salem	43,697	318	7.2	286	6.5	897	20.5
Newburyport	14,949	97	6.4	67	4.4	320	21.4
New Bedford	96,652	447	4.6	467	4.8	780	8.0
Totals	331,443	2212	6.6	1495	4.5	3883	11.7

If Lawrence is a fair sample of the Commonwealth in respect to the commitment of insanity, how does it stand with respect to the social defectives. The percentages correspond well: Commonwealth 5.8, Lawrence 6.1. But the Commonwealth percentage of physical defectives, 15, does not correspond with Lawrence's, viz., 8.8. Examination of the figures yields many more instances of such lack of correlation. Waltham itself also having the Commonwealth average rate of insane commitments has a much lower rate of social defectives, 1.9, than Lawrence, but a slightly higher rate of physical defectives, 16.7, than the Commonwealth rate. The low rate of social defectives might possibly be due to the readier drainage of such cases into the local school for the feeble-minded.

The three ratios, insane, asocial, diseased, for the cities minus Boston, are 6.4:3.8:12.4 and represent findings in over 1,500,000 inhabitants. It is evident that cities of the size of Lawrence (over 85,000) may vary greatly from the general city standards (6.6:6.1:8.8) and that a small city like Waltham shows variations of great magnitude (6.6:1.9:16.7).

6.4:3.8:12.4 (Commonwealth, 1,366,416).
7.8:3.6:13.1 (twelve cities, 600,566).
5.4:3.7:12.2 (eighteen cities, 911,012).

This comparison shows the insanity-rates varying with the disease-rate rather than with the asocial rate.

7.2:6.5:20.5 (Salem, 43,697).
7.2:5.1:12.6 (Cities, 2,295,889).

This comparison shows an extreme example of high disease-rate combined with high asocial rate.

5.3:6.2:10.1 (Holyoke, 57,730).
5.3:7.4:20.3 (Towns, 1,070,527).

This comparison shows that the asocial and disease-rates are higher in the towns than in Holyoke, a city with the town-rate of insanity. This suggests at once a generalization of the problem:—

7.2:5.1:12.6 (Cities, 2,295,889).
5.3:7.4:20.3 (Towns, 1,070,527).

This comparison seems to show that Holyoke is a fair example of that state of affairs which discovers relatively more asocials and diseased persons in the towns than in the cities, but permits relatively more insane commitments from the cities than from the towns.

5.3 : 7.4 : 20.3 (Towns, 1,070,527).
4.6 : 3.2 : 11.2 (7 Cities, 366,104).

Dealing with comparatively large numbers in the above table, perhaps we may trust the triple correlation between all three ratios for the towns and those of the seven favored cities.

Concerning the commitment-rate of insanity in the smaller cities of Massachusetts we may draw the following tentative

CONCLUSIONS.

1. As from the towns, so also from the cities is there a marked variation in the number of insane contributed to the state institutions.

2. The range of variation is far smaller for the cities (3.5 for Chicopee and Pittsfield to 9.8 from Chelsea per 1000 inhabitants in a period of ten years) than for the towns (0 in the case of 12 towns to 16.4 or higher in other towns).

3. The treasury of the Commonwealth would be favorably or unfavorably affected by political geography as follows: Most favorable to the treasury would be: (1), certain rural conditions where the apparent Utopia of no commitments prevails; next (2), the conditions of certain cities (*e.g.* Chicopee and Pittsfield) would be apparently most favorable, unless it can be demonstrated that special commitment-habits there prevail, favorable to the purse directly, but indirectly unfortunate for the community; (3) more likely to approach the community's ideal are the conditions of the suburbs of Boston, which seem to produce even less insane than (4) the towns in general, which are exceeded a little by (5) the non-metropolitan towns of the state at large; (6) the cities of the metropolitan district outside Boston are less productive of commitments than (7) the average for the Commonwealth as a whole or; (8), that for all cities; (9), the metropolitan district as a whole; (10), the metropolitan cities, including Boston; (11), Boston; (12), Chelsea; (13), certain rural conditions.

4. Accordingly, it is safe to say that "rural degeneracy" is focal, but not universal, in Massachusetts, and that on the whole the towns are better off than the cities as commitment-producers.

5. Certain cities can be picked out as proper subjects for intensive study: (*a*) low-rate cities, Chicopee and Pittsfield, must be compared, as well as (*b*) Lawrence and Waltham, yielding the Commonwealth's average rate; (*c*), all seven cities having a rate lower than the general town-rate should be studied; (*d*), Salem might be of interest as having the average rate of all cities; (*e*), Holyoke, that of all towns; (*f*), there are surprising contrasts in the output of various seaports.

6. The attempt to utilize the census enumerations of (*a*) social defectives and (*b*) physical defectives as correlative with the official commitment-rates is fairly successful and yields a degree of confidence in the census enumerators (1905) which is comforting.

7. The number of physical defectives found living May 1, 1905, used as exemplifying conditions in the decade, is found to vary up and down with the insanity-rate in the different groups of cities; the number of social defectives appears to remain more nearly constant.

8. Comparison of the towns with the cities seems to show that, while cities are committing more insane than towns, they harbor fewer social and physical defectives than the towns This may perhaps mean that cities have more effective means than towns of getting rid of all sorts of defectives. If this be the case, then we may permit ourselves renewed confidence in the census statistics.

9. Another suggestive correlation is that between the towns in general and the seven low-rate cities. The seven cities distinguished by low commitment-rates are also distinguished by low rates of surviving social and physical defectives, and the latter rates are lower than those of cities in general.

THE REMOVAL OF ADENOIDS AND TONSILS IN CHILDREN.*

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AND

F. E. GARLAND, M.D., BOSTON.

DURING the past winter we have been trying to systematize or standardize the diagnosis and treatment of patients, especially children, who came to the clinic of the Massachusetts General Hospital with the question of the removal of adenoids and tonsils. The number has increased since the appointment of school physicians, who in a city of the size of Boston find thousands of such cases each year among the children in the schools. It is obviously desirable that all children who would be better without these structures should be operated upon, but also that all unnecessary operations should be avoided In deciding whether to operate in doubtful cases the question whether remote symptoms are due to the tonsils or adenoids

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must often be offset by the question of the value of the tonsillar ring in childhood. No one wants to leave in the throat a source of danger, nor, on the other hand, to take away a useful organ without good reason for doing so. The point of view of the general practitioner and the laryngologist is necessarily somewhat different, but it is of course desirable that their ultimate conclusions on the question of operation should be the same. In order to bring this about and in order to avoid as much as possible illogical conclusions, whether conservative or radical, it is important that a general understanding of the fundamental questions should be reached by study and discussion.

The nomenclature of the subject is unsatisfactory. At times the word "adenoids" is used for a normal pharyngeal tonsil, at other times it seems to imply a pathological condition or disease. The principal offense of the tonsils is generally supposed to be an enlargement or hypertrophy, and a diagnosis of enlarged tonsils is often made in cases where to another observer or after operation they appear of normal size.

In order to study this latter point the tonsils removed in our clinic during the past six months have been weighed and the cases, about two hundred in number, have been tabulated. We have here embodied a preliminary survey of this work with our conclusions, which although they differ in some instances with those of the text-books, are, we believe, those of our colleagues in the department. The more important ones are as follows:—

We assume that the tonsillar ring in childhood has a function, although we cannot prove it, and we believe that its presence is to be respected until there is reason to suspect that it is either pathological or obstructive. If the larger tonsillar masses are removed early in life, the outlying parts of the ring appear to be stimulated to growth, suggesting a vicarious enlargement. As the age of the child advances, this tendency diminishes and disappears. This suggests that the younger the child, the more important to him is this lymphoid tissue.

In childhood well developed pharyngeal and faucial tonsils are the rule. The great majority of normal children have more adenoid tissue and larger faucial tonsils than appears to be generally supposed. In our series of children between two and twelve years of age practically no tonsils weighed less than thirty grains and very few more than fifty grains, the average being between forty and fifty grains. In a still larger series of children examined and not operated upon, by careful examination we were convinced that the tonsils were of about the same size.

The pharyngeal tonsil or adenoid is a normal structure and its presence should not in itself be considered pathological. We have not in our own cases seen a child under twelve ears of age who did not have it, except when it had been previously removed. It may be large if the post nasal space is large, without producing any symptoms.

Adenoids should be removed if they obstruct nasal breathing or if other serious symptoms can be attributed to them. The good results of the operation, especially in cases of marked nasal obstruction, are so striking, and any bad results so rare, that it is often justifiable to advise it for remote symptoms. But it should be borne in mind that in the absence of obstruction, such symptoms as asthma, neuresis, dyspepsia, anemia, mental dullness, impediment in speech, and poor facial development are relieved in only a comparatively small proportion of cases.

The practice of putting a finger into a child's vault without an anesthetic for diagnosis is to be condemned. If the child is a normal one he has something there, and whether it should be removed or not can be better judged in other ways. Also it may cause a serious nervous or psychical shock to the child. Let anyone who is tempted to do it, first try it on himself. If a diagnosis cannot be made by inspection, and if the symptoms point toward adenoids it is proper to give gas or primary ether for diagnosis, being prepared to remove the adenoid at the same time. If the tonsils are to be removed, the diagnosis of adenoids may be left until the child is under ether.

It is better to remove the adenoid whenever the tonsils are removed, but normal tonsils should not be removed as part of an adenoid operation. Because the diseases of the tonsil which require operation generally include also the adenoid, but when the symptoms point to adenoids alone they alone should be removed. The argument that the child may have to undergo another operation does not warrant the removal of unoffending tonsils. Tonsillectomy is a severe operation, whereas the removal of adenoids is an entirely different matter.

The apparent size and gross appearance of the faucial tonsils are of less importance than other factors in determining the question of operation The position of the tonsil in relation to the palate makes it appear very differently in different cases. If it projects beyond the pillars into the faucial cavity it looks large, if it is buried in the soft palate it may look small or even appear to be absent. When the fauces are roughly examined the pillars and tonsils are forced together, giving a misleading appearance of large tonsils. An apparently large tonsil is no more and often less likely to cause trouble than one that is hidden in the palate. In our series the majority of tonsils removed for chronic tonsillitis did not project markedly beyond the pillars. Those tonsils which had previously been diagnosed as large by different examiners averaged thirty-seven and one-half grains in weight, whereas the average weight of all tonsils removed was between forty and fifty grains. Those tonsils which were entirely hidden and diagnosed as

small or absent but were removed on account of tonsillitis averaged thirty-five grains. The average weight of tonsils which were removed for remote conditions, such as chorea, arthritis, endocarditis, and nephritis, and in which there was no apparent tonsillar trouble, was forty grains.

It is often not possible to distinguish between a normal and a pathological tonsil by its appearance. A so-called ragged appearance is not necessarily abnormal. The presence of cheesy material is too common to be in itself pathological. Considerable detritus or recurring exudate in the crypts is to be looked upon with suspicion.

Acute tonsillitis is a disease for which the tonsils may not be responsible. It may be simply the local eruption of an infection which has entered through the nose or the digestive tract. It occurs not infrequently in the rest of the lymphoid tissue after the tonsils have been removed. Although it is better to remove the tonsils if the attacks are frequent or severe, or if serious infections appear to be connected with them, the operation does not always insure against further attacks.

Tonsils should be removed if serious symptoms can be logically attributed to them. The more serious the symptoms and the more direct the connection, the more imperative is the operation.

They should be removed for recurring peritonsillar abscess.

They should be removed for recurring and persistent cervical adenitis that cannot be accounted for by a focus in the teeth, vestibule, scalp, nose, naso-pharynx or ears.

They should be removed for recurring subacute tonsillitis. This does not include those acute infections of the mucous membrane of the upper respiratory tract often accompanied by sore throat, which do not start in and only incidentally involve the tonsillar ring.

They should be removed if it is believed or even seriously suspected that they are the entering point of constitutional infection. While few would dispute this, its practical application in individual cases must be often influenced by different opinions. The tonsils are only one of several avenues through which infection may enter. As it is often the easiest one to close, an experimental operation in serious cases may be justifiable. It is perhaps better to sacrifice many innocent tonsils, rather than to allow one guilty one to escape, but it is also true that every unnecessary operation does a little harm to medical science. It is unfortunate that we can never be sure by its appearance that a tonsil is innocent, and not very often that it is guilty.

Very large tonsils should be removed, as experience proves that persons are better off without them. But we have found that in children the number of cases in which the tonsils are markedly larger than normal and need removal on that account is small. In our series there were thirteen such cases with an average weight of fifty-one grains.

Tonsils which are wholly exposed may be obstructive and require removal on that account, irrespective of size. The average weight of these tonsils in our cases was forty-five grains, which is about the average weight of all tonsils in children.

The frequent assertion that projecting tonsils should be removed because if the child ever gets scarlet fever or other infection they will be a serious source of danger is often made in cases where the tonsils are of normal size. We doubt whether this is ever a valid reason for operating.

If the tonsils should be removed they should be completely removed with the capsule. This is really another form of the statement that the actual size of a tonsil is comparatively unimportant. It is generally the deeper portion that it is the more important to remove.

Tonsils should not be removed for trivial symptoms. Tonsillectomy is not justifiable simply because the tonsils protrude in front of the pillars, nor because they look ragged, nor for occasional sore throat, nor because they contain plugs, nor because the patient is under ether for adenoids, nor for any remote symptoms not of a serious nature, nor to protect the child from indefinite infection, nor for an occasional attack of simple acute tonsillitis.

Tonsillectomy should be looked upon as a serious operation, and therefore is not by any to be entered into unadvisedly or lightly, but reverently, discreetly, advisedly and soberly. As in the majority of cases children undergo the operation with little disturbance, and the results are apparently all to the good, the removal of the tonsils is not infrequently advised with the feeling that the operation is insignificant and that the tonsils are in themselves a disease. Complications may occur in tonsillectomy, and the convalescence may be very slow.

Although the function of the tonsillar ring is not known, it is commonly supposed to aid the child in some way against different infections which threaten him through the open portals of the nose and mouth. It may aid in elaborating acquired immunities to the organisms which it receives into its crypts. Although this view is an argument for conservatism, it is not an argument against removing parts of the ring which are in the way or diseased.

According to *Science*, the trustees of the Beit memorial fellowships, on the advice of the advisory board, have decided to assist further research as to the nature of the virus of sand-fly fever, a disease which is the cause of much sickness in the ships of the Mediterranean Squadron and among the troops stationed at Malta and in certain parts of India and elsewhere.

CONGENITAL HYPERTROPHIC STENOSIS OF THE PYLORUS. WITH X-RAY PLATES.*

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Although this condition was fully described by Hirshsprung in 1888 the medical profession has been slow to recognize its importance in the explanation of certain of the gastro-intestinal disturbances of infancy. This is due to the difficulties in the differential diagnosis and the failure on the part of the general practitioner to grasp the fact that here they were dealing, not with a functional disturbance but with an organic condition with a definite pathological lesion. Of late years the diagnosis is steadily being made with greater frequency, but the resort to surgical intervention is often still too long delayed.

Three factors are chiefly responsible: First, the feeling that young children and infants do not withstand severe surgical procedure well. Second, that the stenosis is a temporary condition which will right itself if the infant can be kept alive for a few months under medical treatment. Third, that following a gastro-enterostomy in infancy should the baby survive, he would develop into a sickly delicate child. If it is understood that there is present in this condition a permanent pathological lesion which no amount of medical or dietetic measures can cure, and the end results of surgical procedure can be shown to be good so far as the development of the child and the function of the gastro-intestinal tract is concerned, then it is evident that we have to deal with a surgical condition; and further, if we can show that the results of operations have been good in those cases where the condition has been early recognized and surgical intervention sought before the infant has reached the extreme stage of exhaustion and starvation, when operation has been selected as a forlorn hope, then we may expect that the medical profession and the parents will consent to operation at that early period of this disease which is most favorable to withstand operative shock, and which they have come to accept in the surgery of adults.

The pathology of this condition is simple. In gross there is found at autopsy a smooth, hard mass about the size of a pecan nut, free from adhesions occupying the pyloric end of the stomach. The mucous membrane is thickened and thrown into folds in the pars pylorica. The lumen may be completely occluded in severe types, though the degree of occlusion varies. Microscopical section shows an hyperplasia of the circular muscle fibres and a certain amount of connective tissue increase.

The symptoms are those of pyloric obstruction and appear immediately after birth or within a few weeks. Most frequently the disease manifests itself during the first week or ten days, although the onset has been reported as late as the forty-first day. Male infants are more prone to this condition than females, the ratio being given as about eight to one. Of the ten cases at the Children's Hospital which have been proved by operation or at autopsy all were males. Vomiting is the primary and salient feature. Typically it is projectile, though occasionally there are periods of regurgitation or rarely the expulsive character may be wholly lacking. It occurs during or soon after nursing, generally within an hour, rarely two or three times in the twenty-four hours, when the obstruction is of a less degree. Water is vomited as readily as milk or other infant foods.

Visible peristalsis is marked, several waves occasionally being apparent at the same time, crossing the epigastrium from left to right. It is most noticeable with the stomach distended, but even then may only appear at intervals, if the stenosis is but partial, due possibly to a superimposed spasm. In general there is fullness across the epigastrium, particularly noticeable during peristaltic contraction and the abdomen below the umbilicus is retracted.

A constant hard movable tumor in the right hypochondrium near the median line the size of a pecan, combined with vomiting and peristalsis makes the diagnosis conclusive. Too much stress, however, has been laid heretofore on the presence of a palpable tumor, for often it is indefinite—due to its deep-seated position, and the liver may overlie it and render it impalpable. Not infrequently it is only to be felt with the aid of a general anesthetic and sometimes it cannot be demonstrated except by exploration. The absence of a pyloric tumor on palpation is never of itself sufficient to rule out hypertrophic stenosis.

The stools are usually green and slimy, containing mucus, and may resemble meconium. At other times they may approach the normal, depending on the amount of food that passes the pylorus. Constipation is the rule, though there may be frequent small dejections, of a green slimy nature. The baby nurses well, even greedily, and may cry constantly from hunger. The vomitus consists of the milk unchanged, or curdled and sour, depending on the length of time it has remained in the stomach, and may be greater in amount than the last previous feeding. There is progressive loss of weight and emaciation.

The diagnosis is difficult. Gastro-intestinal indigestion and pylorospasm are the chief confusing causes. In the first, peristalsis is absent or of very rare occurrence and the vomiting is not explosive. A proper modification of the

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milk will cure the infant. In pylorospasm the obstruction is not constant, certain of the feedings may be well borne so that several consecutive nursings or even those given for several days may be retained, and then vomiting returns and the feedings are regurgitated. The vomiting is not markedly explosive and peristalsis is absent. The amount of vomiting is not quickly influenced by substituting a proper milk formula, as in gastro-intestinal indigestion, but enough food passes through the pylorus to permit of a gradual improvement and slow gain in weight, the improvement becoming more rapid as the child grows older. There is no pyloric tumor. The vomiting finally ceases and the child develops normally.

The bismuth x-ray throws much light in those cases in which the diagnosis is difficult. In chronic gastro-intestinal indigestion, the picture is like that of the normal infantile stomach. The plate taken immediately after the feeding is given by stomach tube, shows the mass well filling the stomach and tapering down to a more or less pointed end at the pylorus with some of the bismuth already beginning to show in the small intestine. Occasionally peristaltic contractions may be observed, but they are not so well marked as in the normal adult stomach. The bismuth progresses relatively slowly from the stomach to the small intestine—in two hours about one-half of the bismuth will have left the stomach, and in four to five hours the stomach will be practically empty, which corresponds with the time required in the normal infant. There is nothing characteristic to be shown by x-ray in this condition.

In pylorospasm and stenosis, there is shown by radiogram a wide departure from the normal. There is no sharp differentiation between the two conditions, but the picture produced by pyloric obstruction, whether functional or organic, is typical. Immediately after ingestion the stomach is shown distended, the bismuth evenly distributed, and the pyloric end of the bismuth mass outlined in a characteristic prow-like rounded mass. Later bismuth will begin to appear in minute masses in the small intestine, the amount passing the pylorus depending on the degree of obstruction. The mass of bismuth which at first filled the stomach, the pyloric end being well to the right of the median line, gradually assumes a dense ball-like mass at the most dependent position of the greater curvature near the median line, though usually slightly to the left (the rapidity with which the shape is assumed depending appparently to some extent on the activity of the peristalsis). The stomach is still distended, its outline being marked by the particles of bismuth clinging to the mucous membrane, and between it and the dense central mass is a wide air space, except where the bismuth lies in contact with the greater curvature. The pyloric end maintains its rounded prow-like appearance. This condition will remain unchanged for hours, with the exception of a slight increase in the amount of bismuth in the small intestine, where the obstruction is incomplete.

The difference between the radiograph of true stenosis and that of cases which are classed as pylorospasm, is relatively minor. The plates taken immediately after the bismuth meal are identical. Later, however, when the bismuth becomes balled, the exaggerated type of peristalsis is marked in stenosis, while it is absent in spasm. The amount of bismuth passing into the small intestine depends on the degree of the obstruction, and this leads to the question, is there a distinct line drawn between these two classes of cases, each being a diagnostic entity, or do they merge from the one to the other? We know that the degree of stenosis in the organic type varies, and may we not be dealing at least in some of the cases classed as spasm, in which there is a gradual diminution in the vomiting and slow gain in weight, with a mild degree of organic stenosis, in which the passage of small amounts of food through the pylorus at first, will slowly dilate the stricture to a degree compatible with normal development. Spasm should not be excluded, but may it not be secondary to a relatively small degree of hypertrophy of the muscular fibres and stenosis of the pylorus?

Whatever the cause of the obstruction, in all those cases where dietetic measures have failed and the radiograph shows a degree of obstruction sufficient to account for a progressive loss of weight, even if the clinical picture resembles what is classed as pylorospasm, I believe that operation should be advised. For if there is obstruction and progressive emaciation under medical treatment the outcome is obvious unless the obstruction is relieved. I have been able to study four cases with the bismuth x-ray after operation.

CASE 1. No. 3516, Medical Records, Children's Hospital. Admitted March 28, 1910. W. B., male, 3½ weeks.

History. Instrumental delivery. Weight, 10 pounds. Bottle feedings. Vomiting began one week after birth. Explosive, five or six times a day. Occasionally more than at last feeding.

Examination. Well developed and fairly nourished. No palpable mass. No peristalsis. Three days later a questionable tumor was made out in the region of the pylorus.

Bismuth x-rays showed retention in the stomach, although a small amount had passed through into the small intestine 2½ hours after the meal was given.

Course. Remained in medical wards for one week, during which time various formulas were tried, but the vomiting persisted and there was a progressive loss in weight. Transferred to the Massachusetts Infants' Asylum and was given breast milk for one week without improvement. Operation by Dr. J. S. Stone revealed the usual

hard fibrous pylorus—a posterior gastro-enterostomy was done. There was very little vomiting after operation and improvement was rapid. After discharge there was some vomiting that subsided when proper milk modification was given.

Reports for observation Feb. 25, 1913. Three years old; weighs 39¾ pounds. Has been a very healthy child and has gained steadily, is being given a very liberal diet. Very occasionally has an upset from over-eating. No cathartics are required. There is no diarrhea.

Examination. Abdomen full, not distended. Scar firm, no masses or resistance felt in right upper quadrant. X-rays show the bismuth leaving the stomach with great rapidity through the gastro-enterostomy stoma, none passing through the pylorus.

Case 2. Medical Record, Children's Hospital. Admitted June, 1912. A. G., male, five weeks.

History. Normal and well for ten days. Then vomiting began usually immediately after feedings; expulsive. Progressive loss of weight.

Examination. Emaciated. Hard mass, size of end of thumb in right upper quadrant. Peristalsis from left to right across epigastrium. X-rays show no bismuth passing through the pylorus. Transferred to surgical service.

Course. Operation, Dr. C. G. Mixter, June 22, 1912. A firm fibrous mass at the pylorus was found 5-8 inch in diameter. No opening could be detected. A posterior gastro-enterostomy was done. Vomited only twice during convalescence. A series of x-rays were taken six days after operation, showing all the bismuth passing rapidly out of the stomach by way of the enterostomy stoma.

Reports, Feb. 25, 1913. Child perfectly healthy and gaining steadily. No vomiting, bowels normal.

Examination. Scar firm, no mass or resistance in right upper quadrant. X-rays show all the bismuth leaving the stomach rapidly through the stoma.

Several attempts to pass a duodenal tube made on March 1, 1913, and controlled by x-ray show the tube passing down to the pylorus and then stopping, or in one case coiling upon itself in the stomach and then passing through the stoma.

Case 3. Medical O. P. D. Records, No. 24,083, Children's Hospital. Seen March 19, 1912. A. D., male, six weeks.

History. Normal delivery; breast three days, then modified milk. Persistent vomiting since birth. Progressive loss of weight, visible peristalsis after nursing. No tumor palpable.

Owing to a lack of surgical beds in the hospital, the patient was referred to the Infants' Hospital.

Course. Operation, Dr. Beth Vincent, April 12, 1912. Posterior gastro-enterostomy.

Admitted to medical service, Children's Hospital, June 3, 1912.

Child healthy and gaining rapidly in weight. X-rays taken at the time show the stomach emptying rapidly through the stoma and no food passing through the pylorus.

The child continued to do well until the next winter, when during the cold weather he contracted double otitis media and later died when about eleven months old.

Case 4. No. 4901. Medical Records, Children's Hospital. Admitted Aug. 28, 1912. A. B., male, six weeks.

History. Normal delivery, eight pounds. Breast fed; weight at end of third week, 11¼ pounds. Vomiting began at fourth week. Expulsive, during or immediately after every feeding.

Examination. Well developed and fairly nourished. Visible peristalsis, left to right after nursing. Hard, movable mass palpable at pylorus. No x-ray taken. Transferred to surgical.

Course. Operation, Dr. J. S. Stone. Posterior gastro-enterostomy. Good convalescence, very little vomiting. Rapid gain in weight. Reports for observation, April 4, 1913. Healthy, bright, lively child. Is being given a little beef juice, crackers, etc., as well as milk. No cathartics necessary. No vomiting, no intestinal disturbances.

Examination. Well developed and nourished child, scar solid, no tenderness or mass palpable.

X-ray shows an obstructed pylorus, with a rounded end to the bismuth mass and all the bismuth passing with moderate rapidity out of the stomach through the gastro-enterostomy opening.

One other case I have been able to follow, from the records of the Children's Hospital, after gastro-enterostomy, though the parents have refused to bring the child in for x-ray study. The infant has developed normally and is considered by the parents to be a healthy boy for his age, two years.

The x-ray study of cases of pyloric stenosis following posterior gastro-enterostomy is interesting. The stomach, distended before operation, soon resumes its normal size, plates taken on the sixth day following operation showing it to be within normal limits and the peristaltic contractions to be of normal intensity. In all four cases, the first plate, taken immediately after the introduction of the bismuth by stomach tube, shows the bismuth passing out into the small intestine through the stoma with marvellous rapidity. In twenty minutes the stomach is more than half empty, and in three quarters to one hour the condition is practically the same as seen in the normal stomach in four to five hours.

And naturally the query will present itself, does this condition persist, and if so will the children develop normally. The x-rays of Case 1, taken nearly three years after operation, show that the stomach empties at tremendous speed and yet the child is in all respects an unusually healthy child. In all five cases followed, the infants have developed normally and were in no wise prone to intestinal upset.

Radiographs of cases taken at varying times after operation up to three years, show that the condition remains unchanged, the pylorus remaining closed and all the bismuth passing rapidly into the small intestine through the artificial opening with the exception of what appears to be a minute amount issuing from the pylorus as it did before operation, where the obstruction was incomplete.

It is conclusive proof of the permanent character of the obstruction and further demonstrates that the rôle played by spasm in these cases of true stenosis is of minor significance

In view of the facts demonstrated by the x-ray study of post-operative cases, the treatment of congenital pyloric stenosis is obvious. Medical treatment is clearly futile in effecting a cure, and the idea formerly held that if the infant could be tided over the first few months, the pylorus would later become patent, is also erroneous. For it has been shown, that in cases of gastro-enterostomy in the presence of a patent pylorus all the food passes into the intestine by the latter avenue and not by way of the open stoma. In this series of cases the bismuth meal entered the small intestine through the artificial opening. In an attempt to pass a duodenal catheter, the tube traversed the greater curvature of the stomach, passed the stoma to the obstructed pylorus, where it was deflected upward and made a complete circuit of the viscus and finally entered the small intestine through the gastro-enterostomy opening.

Surgery offers the only curative measure and should be resorted to at the very earliest moment the diagnosis can be made. The bismuth x-ray is a conclusive means of determining the presence of obstruction at an early period and where the diagnosis is in doubt. The Loreta pyloroplasty and gastro-enterostomy are the operations applicable to this condition, and the latter is generally conceded the procedure of choice, as it is the most rapid and simple, and there are no untoward remote after-effects.

CONCLUSIONS.

In conclusion I would like to emphasize the following points:—

1. An early diagnosis is the most essential factor in lowering the mortality from this disease.

2. The bismuth x-ray will conclusively demonstrate the presence of pyloric obstruction.

3. In any case in which careful medical treatment has been unable to check the vomiting and progressive loss of weight, and where a pyloric obstruction can be demonstrated by x-ray, even if the differential diagnosis cannot be definitely made between hypertrophic stenosis and pylorospasm, exploration should be advised.

4. X-rays, taken at varying intervals after operation, show the pyloric obstruction to be a permanent condition.

5. In the cases studied, spasm was of no importance as a factor in the obstruction.

6. In true stenosis, therefore, surgery offers the only hope of cure.

7. The infant develops normally after posterior gastro-enterostomy.

I wish to express my thanks to the medical staff for their kindness in permitting me to have access to their records; to Dr. Maynard Ladd for the photographs of gastro-intestinal indigestion and pylorospasm, by whose kind permission they are published, and to the x-ray department for their coöperation in obtaining the radiograms.

LEGENDS FOR X-RAY PLATES.

Series 1. Gastro-Intestinal Indigestion. Plate 1. Immediately after bismuth meal. Stomach of normal size—pyloric end of bismuth mass is not rounded. Small amount of bismuth in small intestine.

Series 1. Plate 2. Two hours after bismuth meal. Stomach more than one-half emptied—bismuth in considerable quantity in small intestine—no "balling" of bismuth in stomach.

Series 2. Pylorospasm. Plate 1. Immediately after bismuth meal. Stomach distended—rounded end of bismuth mass—none in small intestine.

Series 2. Plate 2. Two hours after meal. Balling of bismuth in dependent portion of stomach. Air space between wall of stomach and mass—small amount in intestine. Absence of peristalsis in stomach.

Series 2. Plate 3. Three and one-half hours after bismuth. Immediately after next regular feeding, stomach distended above bismuth mass. No peristalsis. Small amount of bismuth in intestine.

Series 3. Hypertrophic pyloric stenosis. Before operation—A. G. Plate 1. Immediately after bismuth meal. Stomach distended—typical prow-like end of bismuth mass at pylorus. Well-marked peristaltic contractions—no bismuth in intestine.

Series 3. Plate 2. Ten minutes after bismuth meal. Rounded pyloric end of stomach—marked peristalsis—as yet no balling. No bismuth in intestine.

Series 3. Plate 3. Two hours after bismuth. Some balling of bismuth. Large air-space. Small amount of bismuth in intestine.

Series 3. Plate 4. One-half hour after bismuth. A. M. Rounded pyloric end. Beginning balling. Peristalic contractions. Bismuth in median line.

Series 4. Hypertrophic pyloric stenosis—before operation, J. McK. Plate 2. One hour and ten minutes after meal. Strong peristaltic contractions Bismuth to left of median line.

Series 4. Plate 3. Three hours and thirty minutes after meal. Outline of stomach shown by bismuth clinging to mucous membrane.

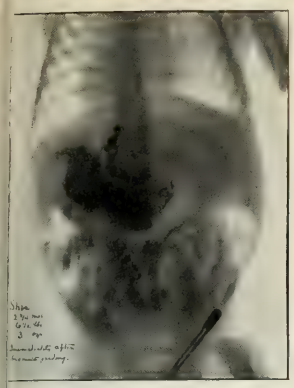
Series 4. Plate 4. Five hours after meal. Marked balling—large air-space—no bismuth in intestine.

Series 5. Hypertrophic pyloric stenosis—after operation—6 days. A. G. Plate 1. Ten minutes after bismuth. Stomach normal in size. Rounded pyloric end of bismuth. Bismuth passing rapidly into intestine through stoma.

Series 5. Plate 2. Twenty minutes after bismuth. Large amount of bismuth in the intestine—stomach contracting well and at least one-half empty. Slight amount of bismuth apparently passing through pylorus.

Series 5. Plate 3. Three quarters of an hour after bismuth. Stomach emptying rapidly and contracting well. Fine line of bismuth passing through pylorus.

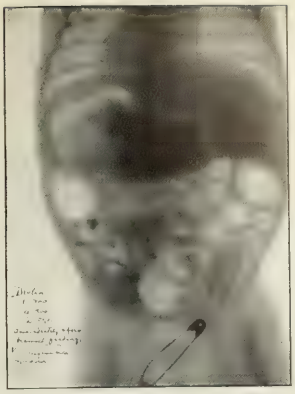
Series 6. Hypertrophic pyloric stenosis. After operation, 6 months. A. G. Plate 1. Immediately after bismuth. Stomach emptying rapidly through stoma.



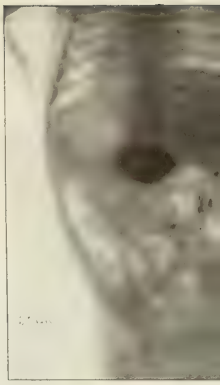
SERIES 1. PLATE 1.



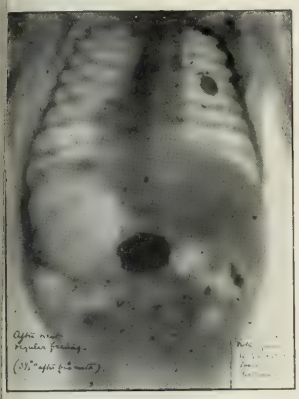
SERIES 1. PLATE 2.



SERIES 2. PLATE 1.



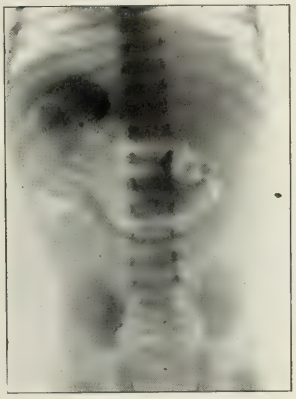
SERIES 2. PLATE



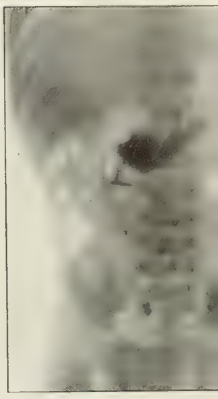
SERIES 2. PLATE 3.



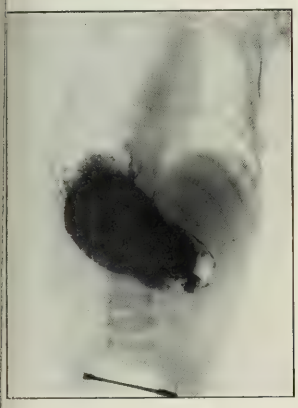
SERIES 3. PLATE 1.



SERIES 3. PLATE 2.



SERIES 3. PLATE



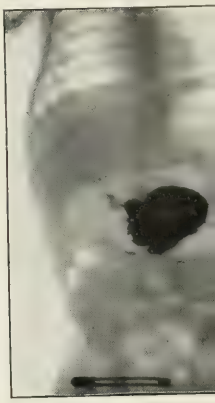
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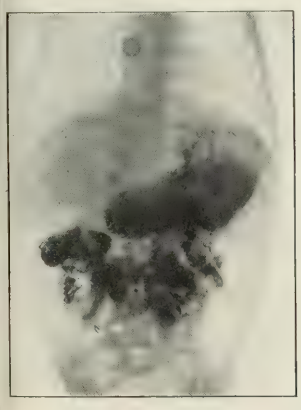
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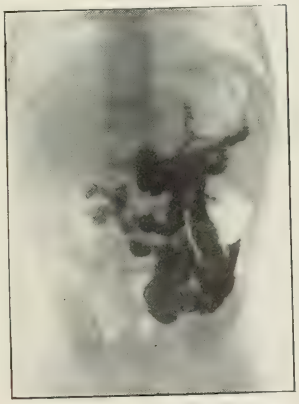
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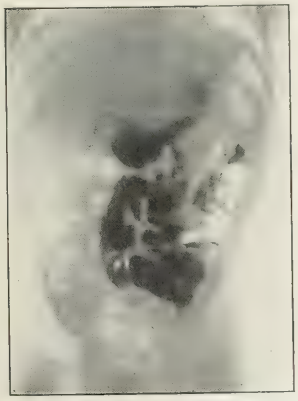
SERIES 4. PLATE



SERIES 5. PLATE 1.



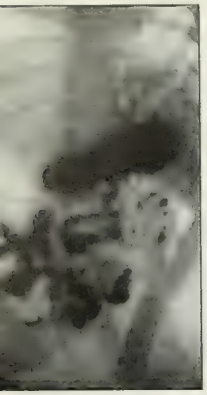
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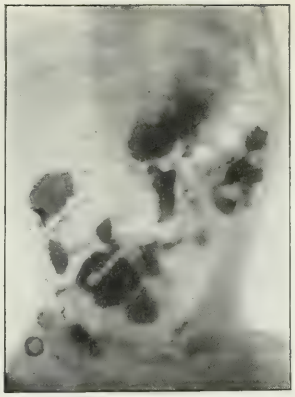
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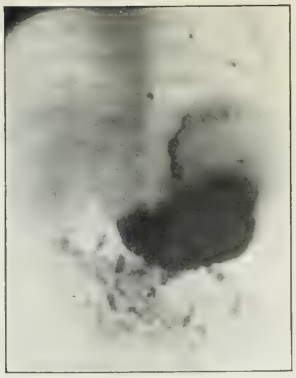
SERIES 6. PLATE



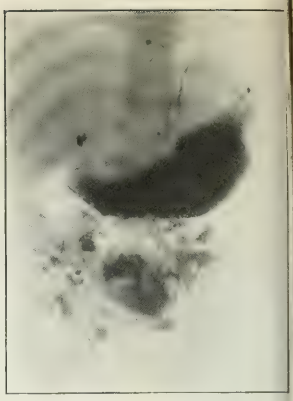
IES 6. PLATE 2.



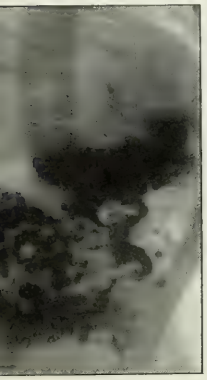
SERIES 6. PLATE 3.



SERIES 7. PLATE 1.



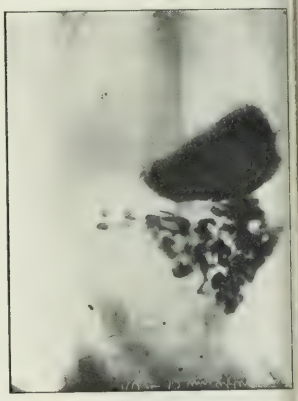
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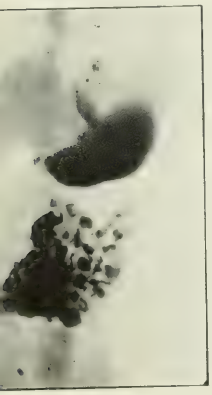
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SERIES 8. PLATE 1.



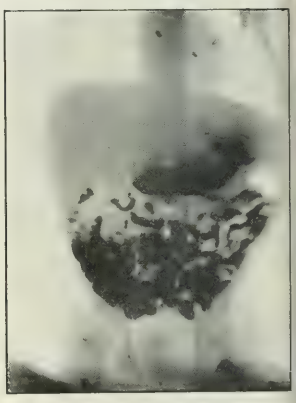
SERIES 8. PLATE 2.



RIES 8. PLATE 3.



SERIES 8. PLATE 4.



SERIES 8. PLATE 5.



RIES 9. PLATE 1.



SERIES 9. PLATE 2.



SERIES 9. PLATE 3.

Series 6. Plate 2. One-half hour after feeding. Rounded end of bismuth mass at pylorus.

Series 6. Plate 3. Stomach contracting and discharging contents through stoma. None passing through pylorus.

Series 7. Hypertrophic pyloric stenosis. After operation—nine months—A. G. Plate 1. Immediately after feeding. Condition the same as in previous series.

Series 7. Plate 2. Fifteen minutes after bismuth. No bismuth passing through pylorus.

Series 7. Plate 3. One hour after bismuth. Stomach emptying through gastro-enterostomy opening.

Series 8. Hypertrophic pyloric stenosis. After operation—seven and one-half months. Plate 1. Immediately after feeding. Stomach emptying rapidly—pylorus rounded.

Series 8. Plate 2. Fifteen minutes after feeding. Condition the same—more bismuth in intestine.

Series 8. Plate 3. One hour after bismuth. Probably one-half bismuth in intestine.

Series 8. Plate 4. One and one-half hours after bismuth.

Series 8. Plate 5. Two hours and fifteen minutes after bismuth. Stomach perhaps three-fourths empty—and contracted.

Series 9. Hypertrophic pyloric stenosis. Plate 1. A McJ. Two months after operation. Twenty minutes after bismuth. Rounded pylorus—bismuth passing through stoma.

Series 9. Plate 2. W. B., 3 years after operation—15 minutes after feeding. Child allowed to drink bismuth instead of using stomach tube. Empties with extreme rapidity.

Series 9. Plate 3. A. G., nine months after operation. Duodenal catheter has passed to the closed pylorus where it has been deflected up to the cardia and then down and finally out through the gastro-enterostomy opening.

Clinical Department.

REPORT OF THREE CASES OF ACUTE ANGULATION OF THE TERMINAL ILEUM CAUSING INTESTINAL OBSTRUCTION, FOLLOWING OPERATION FOR AND DRAINAGE OF ACUTE SUPPURATIVE APPENDICITIS.

BY C. A. ROEDER, M.D., GRAND ISLAND, NEBRASKA,

Surgeon to St. Francis Hospital.

PROMPTED by Cheever's article on the above subject (BOSTON MEDICAL AND SURGICAL JOURNAL, May 15, 1913), I am led to report three cases similar to his. It must be a relatively frequent complication following operations for the pus appendix, and since Cheever has called our attention to it, I am sure, directly or indirectly, we shall hear a great deal more of it. I have three cases to report, of two of whom a history and record have been kept. The remaining one I have only a mental record of, which, however, will serve the purpose. All three cases occurred in men; all had pus and were drained, two with drains extending to the bottom of the pelvis, and all recovered. In each case at the second operation the terminal ileum, varying from six to ten inches, was bound down to the pelvic floor.

We hesitate to attack surgically an acute area such as will be found in these cases four weeks or more after the operation. This led me to short circuit the ileo-cecal region by an ileo-sigmoidostomy, working in a clean field and draining the obstructed ileal contents into the sigmoid, a portion of the intestine capable of very little absorption and whose contents are easily evacuated.

Whether or not the pus, the drainage tube, the distention, the ascending position of the terminal ileum, or the Fowler position may cause this acute obstructive angulation near the end of the small bowel, we know it occurs and must be treated promptly and judiciously, because it is at this time that any procedure determines the fate of the patient.

In all three of our cases we opened the abdomen as soon as the obstruction was evidently not yielding to medicinal measures such as lavage, purgatives hypodermatically, enemata, and hot applications, not allowing more than twelve hours to pass from the beginning of the first symptom before performing celiotomy. We used the Kamerer incision through the left rectus, the ileum approaching the obstruction was joined to the sigmoid as low as possible with a medium-sized Murphy button, and the abdomen quickly closed. This gives immediate drainage, as shown by one patient evacuating the contents of the obstructed ileum before being removed from the operating table. The time consumed is short, about ten to fifteen minutes, the patient lightly under ether or gas and protected by nerve block. In our experience it has not been necessary to operate later to relieve the restricted ileum. In one case a cecal fistula, which had stopped draining owing to the ileal kink, opened up four days following the anastomosis.

CASE 1. Male, age 17. Was seen at home in the country on Jan. 15, 1913, complaining of general abdominal pain, more marked in the right lower quadrant. Had been sick for three days with symptoms of acute appendicitis and presented a typical picture of peritonitis following such a condition. Abdomen opened through Kamerer incision, free sero-purulent dark brown pus flowed out. Appendix deeply buried, and owing to great distention cecum tapped with a No. 24 catheter sewed in similar to a Senn gastrostomy. Tube placed at bottom of the abscess cavity where appendix lay, which was left in place two weeks. The temperature gradually dropped to normal and remained so until the twenty-ninth day, when septic temperature curve started. Brought to hospital, abdomen opened and pocket of pus behind cecum evacuated and drained. Temperature normal in ten days with wound draining. Started a septic curve again on seventeenth day following last operation. Abdomen opened, attempted to remove appendix, which was impossible, closed fecal fistula and placed drain to bottom of pelvis. Fistula remained closed, but temperature above normal in the evening for four weeks. Abdomen again opened and remaining stump of appendix removed, drain placed in cavity occupied by stump of appendix.

Temperature remained normal for seven days then ran more or less of a febrile course and drained pus for eight weeks, when symptoms of intestinal obstruction developed pointing toward the ileocecal region. Abdomen opened through left rectus muscle, Kamerer incision, finding eight inches of the terminal ileum bound to the pelvic floor. The ileum, as close to the kink as possible, was joined to the sigmoid as low as possible with a medium size Murphy button. After returning patient to room a rectal tube drew off about one quart of foul-smelling ileal contents. Rallied promptly from this operation and at this date, June 23, 1913, although running a moderate febrile course due to a mild metastatic lung involvement, seems gradually getting well.

CASE 2. Young man, age 25, farmer. Entered hospital with a severe case of peritonitis following his first attack of appendicitis ten days previously. Abdomen opened through Kamerer incision in right rectus. About one quart of dark brown pus evacuated, appendix removed and rubber drain placed to the bottom of the appendix cavity, which was above the pelvic brim, and one to bottom of pelvis. Thirty-six hours later profuse hemorrhage from wound, bright arterial blood flowing through drainage tubes. Patient too weak for opening abdomen, so strips of gauze were packed around tubes. Twenty-four hours later, immediately after transfusion, abdomen opened and cecum exposed. A general oozing of blood from the meso-appendix above ligature was discovered, which was tied off and packed with gauze. The packing was removed in forty-eight hours, but a fecal fistula developed on sixth day. Three weeks later symptoms of obstruction developed, fecal fistula stopped draining. Probing through the fistula was of no avail, so twelve hours later abdomen opened through left rectus, finding about six inches of the terminal ileum bound to pelvic floor in a Z-shaped curve. Ileum joined to sigmoid, as in previous operation. While starting to lift patient off the table bowels moved, showing ample drainage. Four days later fecal fistula opened and drained freely. Two weeks following this last operation, fistula consisting of two openings in cecum and one in ileum, closed, and excepting for a pyelitis developing three weeks later and lasting acutely two weeks, the patient gradually improved and left the hospital June 10, 1913, feeling quite well.

CASE 3. I have only a mental record of this old man, age 68, whom I operated on for an acute pus appendix. The drain, I remember distinctly, was placed in a pocket containing the appendix which I had just removed. This pocket lay above the pelvic brim. Three days later I was called back to his home in a small country town and found him with an obstructed ileum. This being my first case of obstruction following the acute appendix, and having no assistance and without a convenient operating room, I naturally hesitated to attack this acute area. As a temporary procedure, I decided to join the ileum to the sigmoid in a clear field, which proved so successful that it led me to use it in the following cases.

All these cases lived, which may or may not be due to the procedure adopted.

Medical Progress.

THIRD REPORT IN ORTHOPEDIC SURGERY.

BY ROBERT B. OSGOOD, M.D., ROBERT SOUTTER, M.D., HERMANN BUCHOLZ, M.D., MURRAY S. DANFORTH, M.D.

(*Continued from page 283.*)

POLIOMYELITIS.

An excellent and widely useful article on muscle training in the treatment of infantile paralysis has been written by Miss Wilhelmine G. Wright.[25]. The theory of the exercises and the principles of muscle enervation are explained simply and then appropriate exercises for nearly all the important muscles and groups of muscles are described in detail. The actions of the different muscles are given so that it does not require great knowledge of anatomy to determine in a given case the group or groups requiring special attention. For parents, and indeed for most physicians, the directions will be found of great practical value in the treatment of poliomyelitis after the acute stage has passed.

Investigations by Howard and Clark[26] have shown that the common house fly (musca domestica) may carry about on the surface of its body an active virus of poliomyelitis for several days and that it may retain its activity in the gastro-intestinal tract of flies for several hours. No mosquitoes of the Culex Pipens, Sollicitans or Cantator types have been known to take up the virus from preparations of the spinal cord of monkeys infected with poliomyelitis, nor have lice (P. cap. and P. vest.) apparently obtained or retained the virus from the blood of monkeys in a living state. The bed bug, on the other hand, has obtained the virus from the blood of infected monkeys and kept it in a living state within its body for a period of seven days.

Lucas and Osgood[27] have reported an unusual, but possibly suggestive, finding in one of the rare cases in which an apparent second attack of poliomyelitis has occurred. A boy of six, a patient of Dr. Rockwell of Amherst, Mass., had an attack of poliomyelitis two years previous to being seen. This left residual paralysis of the right lower leg, and during and subsequent to the acute attack the boy had a rather persistent nasal discharge. A second apparently typical attack occurred two years after the first, involving the deltoid. About this time his little sister came down with a typical poliomyelitis. Lucas and Osgood otained in a test tube collections of this mucoid nasal discharge without washings and just as the secretion would have been naturally disseminated. This nasal discharge was passed through a Berkfeld filter or shaken with ½% carbolic until it was culturally sterile. It was then injected intra-

cerebrally into monkeys. The first three collections gave negative results, but the fourth, obtained two months after the last acute attack and over two years after the initial attack, produced a fairly typical poliomyelitis in a Rhesus monkey, from which monkey a second was inoculated, with an absolutely typical attack, death, and microscopic findings. Here was at least one human carrier persisting approximately two years. In light of this finding of an active human virus so long after the acute stage was over and of the previous findings of Kling, Weinstedt, and Petterson, of Flexner and others the destruction of all nasal or naso-pharyngeal discharges in poliomyelitis cases is, to say the least, a wise measure. With the transmission by means of the stable fly (stomoxys calcitrans) practically proved by Rosenau, links are being gradually added to the chain of etiology.

CONGENITAL DEFORMITIES.

Club Foot. Lamy[28] has devised a method of correcting club feet in which satisfactory position cannot be obtained by manipulation alone. The foot is incised over the astragalus, and the periosteum of the bone is retracted. Sufficient cancellous tissue is then curetted out to allow an easy over-correction by manipulation.

A similar method has before been advocated. We believe extensive bone operations in children should be avoided whenever possible. The correction of position obtained by them is often excellent both at the time of operation and for many years. We have observed, however, that in a considerable number of cases in which these bone operations have been done early in life, the growth of the foot has been so seriously affected as to condition its usefulness, and in unilateral cases make the difficulty of obtaining shoes considerable.

Ehrenfried[29] has made a statistical study of 232 cases of club foot seen in the out-patient department of the Children's Hospital in Boston in five years. They represented 5% of all cases coming to the out-patient department. Eighty per cent. of these 232 were equino varus, 20% calcaneo varus; 70% were male, 30% female. Fifty-five per cent. were bilateral; 45% unilateral. Thirty-three per cent. of the cases were in the first born. In twins and triplets Ehrenfried states that it is four times as frequent as in single pregnancies. In 12% the club foot was accompanied by other congenital deformities.

FOOT CONDITIONS.

Watkins[30] has devised an ingenious operation for "claw foot." He first renders the foot flexible by one or two wrenchings, at the final one of which he lengthens the tendo achilles and tenotomizes the plantar fascia. When the skin is in good condition he makes two incisions, one on the outer and one on the inner side of the foot, and through these he drills transversely the heads of all the metatarsal bones. The foot is now held in maximum dorsal flexion and the sheaths of the extensor tendons are opened. Silk is now passed through the drilled heads of the metatarsals, stitched through the tendons, and tied. The foot is put up in slightly exaggerated dorsal flexion with the toes plantar flexed. The cast is removed in six weeks. Weight-bearing is allowed in eight weeks. Night splints are worn to maintain the correction. The end result of a successful case is reported.

Brown,[31] in an article showing careful study of the muscular mechanism in relation to foot strain, points out the fact that the action of the muscles is very different with and without weight-bearing. Without weight-bearing the force of contraction is applied mostly at the insertion of the muscles, and the foot is consequently moved. With weight-bearing the foot cannot move, and so the force is applied not so much at the insertion of the muscles as by their tendons at those points where motion is most easily possible. Thus with weight-bearing, the tendon of the tibialis posticus and flexor longus digitorum protect the calcaneo astragaloid and astragalo scaphoid joint by rotating forward the internal malleolus, while the tendon of the flexor longus hallucis exerts a direct pull upwards, running beneath the sustentaculum tali. The importance of these forces in overcoming pronation is evident. He believes that in weak and relaxed feet, pronation may be most easily corrected by ensuring the proper position of the calcaneo astragaloid joint. He accomplishes this at first by means of a plate with the heel portion tilted up, and later by means of carefully carried out exercises to develop the protective mechanism.

Brandenstein[32] reports three cases of Dysbasia arteriosclerotica associated with flat foot, the faulty weight-bearing apparently aggravating the circulatory disturbance. When this latter was relieved by baking, heart tonics, etc., the symptoms were speedily bettered. (Ed. note.) The writers have frequently seen these circulatory disturbances, sometimes associated with faulty weight-bearing lines, and sometimes existing quite apart from any evidence of foot-strain. We believe the so-called Erythromelalgia is frequently overlooked, and that Brandenstein's advice to always bear in mind vascular affections in treating cases of possible foot strain in later life is worthy of being followed.

In this connection Moleen[33] reports a case of Erythromelalgia in which the use of suprarenal extract in five grain tablet form has been apparently of definite benefit. He believes the direct cause of the affection is a vaso constrictor paralysis. He has used in addition to the suprarenal extract a rubber bandage which, by the relief of pain, has allowed his patient to be on his feet more or less of the time.

(To be continued.)

Reports of Societies.

NEW ENGLAND PEDIATRIC SOCIETY.

FRITZ B. TALBOT, M.D., Secretary and Treasurer.

The 27th Meeting was held at the Boston Medical Library, April 25, 1913. DR. JAMES S. STONE in the chair. The following papers were read:

ONE HUNDRED AND SEVENTEEN CASES OF INFANTILE DIARRHEA TREATED BY INTESTINAL IMPLANTATION OF THE BACILLUS LACTIS BULGARICUS AT THE BABIES' HOSPITAL OF NEW YORK.

DR. RALPH OAKLEY CLOCK read this paper, in which he presented the results obtained in the Out-Patient Department of The Babies' Hospital of New York, during the summer months of 1912. The babies varied in age from six weeks to two-and-a-half years. The recoveries were permanent, since all the cases were followed up after the treatment was completed. The intestinal conditions included four cases of enterocolitis and 113 cases of gastro-enteritis; the average duration of the conditions being one week. 16 patients were breast-fed, and 101 were bottle-fed; 12 different diets were used in the bottle-fed cases. The treatment consisted of the administration of a pure culture of the true *Bacillus lactis bulgaricus* in tablet form: 2 or 3 tablets were given every two or three hours. The majority of the patients were kept on their respective milk diets, while some were placed on a starvation diet of barley water. The patients who were continued on some form of milk diet gained rapidly in weight; and, while the majority of those on a starvation diet gained steadily but slightly in weight, some of them showed initial losses followed by slow gains. A diagram, showing the comparative, relative average gains in weight on the two forms of diet, was projected on the screen. The diagram showed that the average gain in weight in the first 24 hours of the patients who were on a milk diet almost equaled the gain made in the entire first week by those patients who were placed on a starvation diet; and that the average gain in weight of all the cases treated was 4 ounces in the first week. The writer was of the opinion that the intestinal conditions were of bacterial etiology, and that the diet was not the source of trouble. A case of gastro-enteritis was cited in which dietetic treatment was of no avail, but which made rapid and complete recovery under lactic acid bacterial therapy. The writer concluded that the most impressive facts brought out as the result of this method of treatment were:

The gain in weight, in spite of the number of stools. Rapid change in color of the stools to yellow. Rapid subsidence of fever. Absence of mucus and blood from the stools at the end of 48 hours. The hygienic surroundings of the patients and the degree of intelligence of the mothers had no influence on the results. A starvation diet, accompanied by purgation, is productive of loss of weight and strength, and serves to prolong the course of the disease; and further, such a procedure can no longer be advanced as a rational method of treating infantile diarrhea. The digestive powers in infantile intestinal conditions, even when associated with fever, are not so impaired as to prevent the digestion and assimilation of a milk diet. This fact is corroborated in typhoid fever, where the high calory diet—in contrast to the starvation diet—has reduced the mortality to a remarkable degree. Moreover, the reported cases prove the value and rationale of continuing a milk diet in infantile intestinal conditions—as illustrated and emphasized in the diagram of the weights. In severe cases, best results are obtained by administering a large number of the tablets during the first two or three days of the treatment. As many as 42 tablets in 24 hours have been given to very young babies without untoward effects. The implantation method of treatment has progressed beyond the experimental stage, and the results of its use can no longer be questioned or disputed. This treatment has been proven of practical, clinical, and scientific value; and its simplicity should appeal to every practitioner. In order to secure the best results in using the implantation treatment, a pure culture of the true *B. lactis bulgaricus* must be employed; otherwise, disappointment will follow. Bacteriologists recognize the fact that the same organism, isolated from different sources, varies in its virulence and in certain other characteristics; and the *B. lactis bulgaricus* is no exception to this rule. While similar organisms have been isolated from the soured milks of several eastern countries—namely, Russia, Egypt, Armenia, Syria, etc.,—yet the bacillus isolated from Bulgarian soured milk has been proven to possess the greatest antagonism to putrefactive bacteria. Moreover, in using a culture of this organism for implantation treatment, it is essential that the culture show only viable organisms and that these be present in sufficiently large numbers. Without doubt, it has been the lack of a pure, active culture of this bacillus in viable form that has been the cause of the indifferent results obtained in previous years with lactic acid bacterial therapy.

DISCUSSION.

DR. C. H. DUNN: I am very glad to hear this paper of Dr. Clock's and to find that there is finally someone else who has got as good results in therapy with the lactic acid bacillus as I obtained when I began some years ago. My results, also, have been received by some of my colleagues with a great deal of scepticism, and I think that as Dr. Clock explains, a good deal of the reason for that is the carrying out of the method of treatment in different ways. My idea of these diarrheal diseases is that the majority of the acute cases occurring in the summer are of bacterial origin, and while we have been able to separate off one or two definite infections, as that with the gas bacillus and with the dysentery organism, I still think that a great many remain which are known to be due to bacteria, but there is a tendency not to regard them as bacterial simply because the bacteriologists have not been able to tell so definitely what organism causes them as in the well recognized conditions, and those are the ones in which I have had the most striking results with lactic acid therapy and they agree in almost every way with the results of Dr. Clock. I was also glad to hear about the starvation treatment of these acute diar-

rheal diseases. For several years I have been instituting a sort of investigation in the Out-patient Department of the Infants' Hospital, which is not yet finished, trying to determine the effect on mortality and weight and rapidity of recovery with various periods of starvation or barley water treatment as compared to the usual milk feeding, and the results up to now are very much the same as he has reported. Leaving out the use of lactic acid bacillus treatment, under the prolonged starvation the mortality has been lower but the loss of weight, on the other hand, has been greater and the gain of weight less. Under the usual treatment the mortality has been higher, the loss of weight less, but with lactic acid combined with a food of sufficient caloric value, we have obtained the lowest mortality and the greatest gain in weight, and that perhaps in 1000 or 2000 cases, as this investigation was begun a number of years ago.

Dr. I. L. Morse: This is an extremely difficult paper to discuss, because, not having seen the cases, it is very difficult to know exactly what they were. It is hard for me to understand, however, how any one method of treatment can produce such uniformly favorable results. It is only this winter that I heard at a meeting of the New York Academy of Medicine, Dr. Wilcox, of New York, report a large series of cases from one of the hospitals there, treated with Finkelstein's milk, in which he had, as I remember, almost as uniformly good results as Dr. Clock has had. I said at that time that I couldn't understand why this should be so, and I have to say now that I can't understand Dr. Clock's results. I do not doubt them, of course, but I can't understand them. The reason that I don't understand them is that I believe that the diarrheas which we see in babies in the summer are due to different causes, some of them to improper food, some of them to the effect of heat, others, perhaps most of them, to the action of bacteria. We have been led to believe, moreover, by Dr. Kendall and his co-workers at the floating Hospital that the bacteria that cause these diseases are different and that they therefore need different sorts of treatment. So, as I say, I can't understand how one method of treatment can suit all the cases. I have seen some very striking results from the use of lactic acid bacteria. I have seen other cases in which the results were equally bad, not only in my own cases, but in cases treated by other pediatricians in Boston. I think that all pediatrists are now working away from starvation in the treatment of these cases, certainly away from prolonged starvation. It seems to me that we are now in the position regarding the treatment of these cases that we are regarding a good many other things connected with the diseases of the gastroenteric tract in children, that is, we are beginning to find out a good many things, but we have not yet got on to any firm ground.

Dr. R. M. Smith: There is just one thing which occurs to me in this connection, following out the thought Dr. Morse suggested, that the acute diarrheas in infants are due to a variety of organisms. On the Floating Hospital during the last two or three years it has been demonstated that a certain type of organism is likely to predominate during a single season. Last year in Boston the gas bacillus predominated. It is possible that the same organism was prevalent in New York. We know that diarrhea caused by the gas bacillus, or organisms of that group much benefited, responds quickly to the form of treatment described by Dr. Clock. It seems to me that the gas bacillus may have been the etiological organism in the majority of these cases. If this is a fact it is easy to understand why the infants did badly on barley water, because the gas bacillus develops particularly well on a carbohydrate diet.

Dr. Clock: in closing. I have only one thought to add, and this was suggested by the remarks of Dr. Morse and Dr. Smith, and that is that these conditions may, of course, be due to a variety of organisms, and it was a source of much regret to us that we did not have the opportunity and facility for making a bacteriologic study of these cases. However, in view of the results that we obtained, I believe that the predominating organism would be found, perhaps, as Dr. Smith suggested, to be the gas bacillus.

Dr. Charles G. Mixter read a paper entitled:

CONGENITAL HYPERTROPHIC STENOSIS OF THE PYLORUS WITH X-RAY PLATES.*

DISCUSSION.

Dr. C. L. Scudder: I think this paper is a very valuable one because of the new material in it, namely, the x-ray records. There have been very few of them made, I think, in this country following gastroenterostomy in infants, and they are only beginning to be commonly made following gastroenterostomy in adults. I think that one of the conclusions which Dr. Mixter has brought out cannot be too emphatically stated, namely, that the obstruction in the true tumor cases is permanent and the evidence seems to point that way and I think it is of some importance in considering the attitude which certain foreign pediatricians take in regard to these cases. Heubner believes, or did believe not long ago, that he had never seen a case of true tumor stenosis requiring operation, I think he is probably right, and I think that his cases which have recovered have been cases of spasm, or cases which have been nearly or partially obstructed, that were not recognized as true stenosis and were curable for a time, at least, by medical treatment. The use of the x-ray after operation, then, is good evidence, as Dr. Mixter has stated, that the tumor is permanent, and in these cases it places the treatment upon a firm surgical basis. I would like to call attention in this connection to the work done by me and published upon the permanence of the pyloric tumor in cases of conjenital pyloric stenosis.—See *Surgery, Gynecology* and *Obstetrics,* Sept., 1910.—But there is one bit of evidence which ought to be cited here which goes further to prove the permanency of the tumor. Dr. Morse made, some years ago, the diagnosis of permanent pyloric stenosis in an infant a few weeks old, and Dr. Fred H. Murphy operated on the case, doing a posterior gastroenterostomy and finding at operation a tumor characteristic of the true tumor cases. The case lived six or seven months and thrived—did well. The baby died of some difficulty not connected with the gastroenteric tract, and a complete autopsy, made by Dr. Wolbach, revealed the fact to Dr. Murphy, who was

* See Journal, page 309.

present at the autopsy and who saw the stomach after it was removed, that the tumor appeared exactly as it had appeared to him when he operated six or seven months previously. This is the only case, I believe, on record that proves that a tumor persists seven months after operation. Now, these x-rays go to prove that the obstruction persisted some years after operation, and we have a few cases in which they have persisted some five or six years after operation, so that all of the evidence goes to show that the obstruction is a true obstruction due to tumor, due to swelling. Then the question also comes up, which seems to me also important, of how much value is the x-ray as a diagnostic aid previous to operative treatment—while the operation is being contemplated. I think that it is of a good deal of assistance in these doubtful cases, for it is in the very doubtful cases that we need all the help we can get, and I think that Dr. Mixter's calling attention to the shades of difference in time of the passage of food from the stomach into the duodenum is of importance. Those shades of difference from the normal are, I think, and will be, a great help in these doubtful cases.

DR. J. W. KEEFE, Providence, R. I.: Dr. Mixter's paper has been unusually interesting to me as I have had a little to do with pyloric stenosis in infancy and my surgical experience has led me to adopt a different method of operating than that of gastroenterostomy which is practised to a greater extent I think in this country than in any other.

Loreta opened the stomach and enlarged the opening with his finger, forceps or bougie, but this is not always practicable, because in some of these cases the opening is so small that it is impossible to introduce the finger. When the forceps is used the procedure is not justifiable, as there must be laceration of the mucous membrane which in these parts is a serious matter. Yet the majority of Loreta's cases recovered. In his later cases he did a pyloroplasty, making the opening into the lumen of the pylorus and sewing up this opening in the opposite direction. This is a very simple thing to do.

The course which I followed in operating upon three cases is to my mind an ideal operation. (Drew figure on board to illustrate his procedure.) A vertical right rectus incision is made into the abdominal cavity which exposes the pyloric tumor. An opening about 2 c.m long is then made through the wall of the stomach about 4 c.m. from the pylorus. Through this opening a small sized Hanks dilator is passed into the lumen of the pylorus and retained there.

The serous and muscular coats forming the pyloric tumor are divided with a knife down to the mucosa. This incision is parallel to the long axis of the bowel. The hypertrophied muscle on either side of the incision is now separated from the peritoneum and mucosa laterally over half the circumference of the pylorus and this portion of the muscle is removed. The procedure permits the subsequent easy passage of larger sized smooth dilators until the lumen of the pylorus is sufficiently patulous. The longitudinal folds of mucous membrane are smoothed out without injury and we can now accurately approximate the wound in a transverse direction. The line of union of the peritoneal and muscular coats of the pylorus is now at a right angle to the long axis of the bowel.

The result is that the pylorus is wider at this point than it was before the operation. The wound in the stomach is closed with two rows of sutures. No clamps are used either on the stomach or duodenum as both are practically empty.

The mortality following gastrojejunostomy for pyloric stenosis in infants in large collections of cases has been from 50 to 56%, Dr. Scudder however, I believe has a mortality of only 7%, but a large number of operators have a mortality of about 50%, so that if the operation I refer to can lower this mortality it means a great deal, and besides that, following gastrojejunostomy patients have died of intestinal obstruction and although some patients have lived and seem to be well nourished, most of us would prefer to go about without a gastroenterostomy. The bile and pancreatic juice should pass into the jejunum in a normal manner rather than into the stomach and then into the jejunum. Jejunumal ulcers may also be a remote result of gastroenterostomy.

I have done this operation in three instances, all boys, the last one operated upon was on January 20th, 1913. One patient is now seven years and ten months old, another one year and a half old and the other four months old. Dr. Morse saw the last child during the winter the day previous to the operation. These are the only three cases in which I have done the pyloroplasty and all of them have recovered. Now I feel that this operation is worth trying, and to my mind is a much simpler operation than that of gastroenterostomy. I believe that more children would be living in this country today if this operation was adopted rather than that of gastroenterostomy.

DR. CHARLES G. MIXTER: I wish to make an amendment to my paper and say there were no "remote" bad effects following gastroenterostomy, because after this procedure there is no chance to get a vicious circle. The pylorus remains closed.

DR. C. L. SCUDDER: Dr. Keefe's brilliant results speak for themselves, but I think he misrepresents the operation of gastroenterostomy. The mortality is not 50%, but the reason the mortality is as high as it is is because the medical men do not get the cases around to the surgeon until so late that the baby has no margin of strength for operative procedure. It is not an operation that kills the child. It is not due to the operation that the child dies. Moreover, I think the sentimental reasons advanced by Dr. Keefe are no argument in its favor. A patient does not care whether the food goes one way or the other. But gastroenterostomy has proved beyond a peradventure of a doubt that it causes no harm. This operation of pyloroplasty is a good operation and was suggested in these cases and is used largely by Nicol of Glasgow.

DR. A. COOLIDGE and DR. F. E. GARLAND read a paper entitled:

THE REMOVAL OF ADENOIDS AND TONSILS IN CHILDREN.*

DISCUSSION.

DR. F. L. JACK: I appreciate very much Dr. Coolidge's conservative views as regards the removal of the tonsils. I was also much interested

* See JOURNAL, page 306.

in their ingenious comparison by weight and position of the normal and hypertrophied ones.

We see the tonsils in our work at the Infirmary in connection with middle ear inflammations and I hoped Dr. Coolidge would say something about the operation in this connection. Personally I think it is a good rule—in connection with the adenoid operation—to remove the tonsils if they protrude beyond the pillars, as well as the possibly large imbedded ones. This is especially true of cases seen with middle ear disease. When Dr. Franklin Hooper introduced the operation for adenoids, I had the opportunity of assisting him. In many cases he left the tonsils in, even when they were quite large, stating that in his opinion the tonsils would shrink, in consequence of the removal of the adenoids. Later he changed his views. Dr. Coolidge's reference to the finger examination for adenoids is quite timely. In many cases the diagnosis can be made without this disagreeable feature, and if a child has large tonsils, the adenoids (if there are any) can be removed under ether at the operation, and the preliminary examination avoided.

DR. D. C. GREENE: Dr. Coolidge's and Dr. Garland's paper. I think the most striking point which has been brought out in this interesting paper is the fact that tonsils, as a rule, average up to a certain size at a given age. This is something which has never been mentioned before in public. It is a development of the more recent knowledge of the anatomy of the tonsil, which has come about during the last ten years, surely. Since the recent work in tonsil anatomy and the technique of tonsillectomy, we have learned to remove tonsils altogether. In some cases the tonsils which seemed small were very large, and *vice versa*. The investigations which have been reported tonight have brought out this fact very definitely, and it seems to me one that is bound to have its effect on the advisability of operation. It emphasizes the importance of the symptoms produced by the tonsils as being the important matter rather than the size of the tonsils. You cannot tell by looking at tonsils once whether they ought to come out or not except in exceptional cases. That is the reason why the family doctor, the general practitioner, is usually the one who is best qualified to decide whether they ought to be removed, rather than the specialist who sees them only at one examination. We often find tonsils which look innocent at the time of the examination and remove them, to find them quite large and often containing a good deal of detritus, in some cases so foul and excessive as to be certainly detrimental to the patient.

DR. I. L. MORSE: I do not believe that either a pediatrician or a throat specialist can be certain from looking at a child, that he has not adenoids, although in many cases it is very evident that he has them. I have examined many cases for adenoids with my finger. The children have invariably gone away happy and have been willing to return. I dislike, however, to see any child to whom I have had to give ether. It is very important, however, to be sure that the finger is clean before it is introduced, as it is possible to infect the nasopharynx with a dirty finger.

DR. E. H. RISLEY: Regarding the examination for adenoids with the finger, I have noticed at the Infants' Hospital that when children were examined in this way they took their ether very poorly at the time of the operation, and in order to see what the effect would be, I stopped examining with the finger and found that the children took their ether much better than those who had been previously disturbed by digital examination.

DR. GARLAND: I would like to say that in our cases we have not used ether in removing the adenoids. We have used simply nitrous oxide, and the children would sit down, the adenoids would be removed, and the child would then get up and walk to his bed.

DR. G. H. WRIGHT: Regarding the examination with the finger for adenoids I would like to say that if you examine a child with the finger and find no adenoids you will be pretty sure later on, when you make another examination, to find some very large adenoids, because in young children it is difficult to feel around in the nasopharynx without incurring considerable irritation and frequently inducing bleeding through trauma. Under such conditions the lymphoid tissue comprising Waldeyer's ring becomes infected at times by the force employed with the finger in trying to determine the presence of enlarged adenoids.

Therefore from my point of view, if it is impracticable to determine by symptoms or use of mirror as to whether there is an adenoid obstruction or not, it is far better to wait until a little anaesthetic can be administered. Nitrous oxide would be sufficient both for examination and removal, if found necessary.

I advise this procedure because I am well aware of the moral effect upon the child and what an impression it makes upon the mind in after years to remember the awful struggles endured when forced to submit to such examinations not only in the hands of the physician but also in the hands of the dentist, who tries to assure the patient that "it is nothing."

I have been working this winter with Dr. Garland, and I wish to add this one point—that where children have dirty mouths, abscessed teethroots, diseased teeth, and peridental sacs liberating pus toxins, that the toxins absorbed are a prolific source of adenoid and tonsillar enlargement and that the diseased teeth and the eruption of teeth I believe to be an exciting factor in the enlargement of the tonsils. In fact any mild toxemia is a sufficient cause for a lymphoid enlargement in any part of the human body.

DR. W. B. SWIFT: There is one side of this matter of the removal of tonsils and adenoids which has not been mentioned, and that is the after-treatment, of the patients with speech defect and feeblemindedness, resulting from the adenoids and enlarged tonsils. I have one case under treatment at present which quite well represents the class that I have in mind, where enlarged tonsils and adenoids lasted so long that a condition of feeblemindedness came on from lack of intellectual use to such a degree that the child was three or four years behind in the schools and had a marked speech defect. It seems to me that here is quite a large field for after treatment that is not usually reached by our usual procedures. Such patients come after operation—formerly with promises of cure thereby—but of late these promises have been judiciously modified. Often the speech defect and

the mental backwardness remain unchanged by the operation and still remain so until specific measures are initiated. The treatment deserves a long paper and can not be adequately presented here. Any who would like to see this treatment in progress may visit the Voice Clinic on Saturday at three. The treatment is a tedious performance and takes 2 to 3 months often—but clear articulation and promotion in school result.

DR. F. B. TALBOT: We have been in the habit of recommending the removal of the tonsils in such diseases as chorea, acute endocarditis and arthritis, on the basis that the origin of some of these diseases may be through the tonsils. Our results so far have not been worked up very thoroughly, but our impression is that it shortens the course of the disease.

DR. I. S. STONE: Not very long ago, if I am not mistaken, in some clinics the children in whom adenoids and tonsils had been found were assigned for operation several weeks ahead. When these children returned for operation totally different conditions were found from those noticed at the first examination.

I would like to ask Dr. Coolidge if he can tell us as to the relation, if there is any, between the eruption of the second teeth and the size of the tonsils?

DR. COOLIDGE: in closing. There is so much which might be said about the tonsils, that we have in this paper been obliged to omit many things. We have limited ourselves to the period from two to twelve years of age. In infancy the conditions are in many respects different. Also after about twelve years of age much of what we have said about the size of the adenoids and tonsils is no longer true. There is normally in the next few years a rapid involution of the adenoid, whereas the faucial tonsils behave very differently in different persons, they sometimes become large, sometimes small. The point which we have emphasized is the uniformity in size of these structures in children during their growing years. Not only do our textbooks insist on hypertrophied tonsils in children but our experience is that many of our colleagues not infrequently make a diagnosis of large tonsils in cases which average less than the normal weight for a child of that age. With a mistaken diagnosis mistaken treatment is easy. I do not wish to be so conservative as to advise against operation if the symptoms can be logically attributed to the tonsils, but to warn against making a useful operation discredited by claiming too much for it. In regard to the influence of adenoids and tonsils on the ears, we concluded that the subject is too intricate for us to take up here. Concerning the examining for adenoids with the finger, one great advantage of anaesthesia is that the treatment is finished at the same time, whereas if done without, the child is, to say the least, no better off than he was before. I have seen many children who had been profoundly impressed by an examination with the finger for adenoids. In the majority of children the adenoid can be easily seen either in the mirror or directly through the nose.

The city authorities of Berlin propose to appropriate $250,000 for the erection of the Rudolf Virchow House for the Berlin Medical Society.—*Science.*

THE AMERICAN GYNECOLOGICAL SOCIETY.

THIRTY-EIGHTH ANNUAL MEETING, HELD AT WASHINGTON, D. C., MAY 6, 7 AND 8, 1913.

(Concluded from page 285.)

THE INFLUENCE OF ECTOPIC PREGNANCY ON THE BLOOD SUPPLY OF THE UTERUS WITH SPECIAL REFERENCE TO UTERINE BLEEDING: BASED ON THE STUDY OF 25 INJECTED UTERI ASSOCIATED WITH ECTOPIC PREGNANCY.

DR. JOHN A. SAMPSON, of Albany, stated that as a result of ectopic pregnancy the uterus was enlarged, due mainly to hyperemia and a thickening of the endometrium. The changes in the latter were similar to those found in the decidua vera of early uterine pregnancy and apparently due to its arterial invasion from the terminal branches of the radial artery. The venous spaces of the endometrium were dilated and this dilatation was most marked in the superficial portion of the compact layer and at its junction with the spongy layer. The termination of the pregnancy was followed by involution of the uterus.

The first step in the involution of the endometrium was seen in the greater dilatation of the venous spaces, probably due to regressive changes in the stroma and apparently dependent upon a diminished supply of arterial blood. The arteries were less evident during involution of the uterus. The dilatation of the venous spaces was followed by the escape of venous blood in the tissues of the endometrium. If the superficial venous stasis of the compact layer gave way, the blood would escape into the uterine cavity, without the formation of a decidual cast. On the other hand, if the venous spaces at the junction of the compact and spongy layer gave way, the extravasation of blood would occur mainly between these two layers and the compact layer would be expelled as a dicidual cast. In time the regressive changes ceased and were followed by a reparative process which was apparently dependent upon the respiration of the arterial supply of the endometrium. The involution following the termination of tubal pregnancy was very similar to that following uterine pregnancy, differing only in degree.

In the vast majority of cases of ectopic pregnancy the complete termination of the pregnancy was a gradual process often taking several days or weeks, four weeks or more in 17 of the 25 cases studied. When operated upon the uterus had been and might still receive stimuli from two distinct antagonistic sources, namely, pregnancy and involution. The condition present in any case depended upon which of these sources predominated and to what extent it had been and was influenced by the other.

The uterine bleeding was of venous origin from the venous plexus of the endometrium due to regressive changes in the latter, apparently dependent upon a diminished arterial supply. Muscular insufficiency might also contribute to this. The bleeding continued as long as the pregnancy (products of conception) interfered with the process of involution. It was probably analogous to the bleeding in subinvolution of the uterus due to an incomplete uterine abortion.

DISCUSSION.

Dr. Philander A. Harris, of Paterson, said to one who had performed a good many operations for ectopic gestation, to be specific 228, it was interesting to have this unquestionable demonstration of the changes which occurred in the uterus. It would not have been possible for him to have exhibited uteri from the cases on which he had operated for ectopic gestation, excepting those uteri that were also the seat of some neoplasm or fibroid or something of that kind. This brought up the question of what practical use was the uterus after operating upon a patient for a single gestation? Dr. Smith of the Society collected a good deal of valuable information along this line, and he hoped he might be pardoned for saying he had not had time to find out how many women in the 228 operations for ectopic gestation really gave birth to children, but according to Dr. Smith and others the number was exceedingly small. There had been only four or five women who, after being operated for ectopic gastation, gave birth to children. Possibly, there were four out of the 228 on which he operated. In 13 of these the ectopic gestation was recurrent. The only point which came to his mind now was whether, in order to secure only four or five offsprings in possibly 228 cases, we should save the uterus, not sacrificing menstruation, for the little interest in future offsprings.

Dr. Hiram N. Vineberg, of New York City, said he would like to ask Dr. Sampson how he would explain those cases of uterine hemorrhage, so far as symptoms go, that had occurred probably before the termination of pregnancy? The first symptom might be uterine hemorrhage. Perhaps a day or two later the woman might have an abdominal cramp showing that tubal gestation had taken place. Probably it was digressing from the purpose of the paper in discussing the necessity of removing the uterus in such a large number of ectopic pregnancies, and it would not be in the trend of conservatism which we were trying to follow so as to retain menstruation and the ovaries in as many cases as we possibly could. In a large number of cases he could only recall two instances in which he felt the condition was such that surgically it was necessary to remove the uterus. In the other cases the uterus was retained. He could recall at least six cases of normal pregnancy following previous ectopic pregnancies.

Dr. Sampson, in closing the discussion said in 11 cases of the series the uterus was retained when the opposite tube was examined, because the women wished to have children. In every case he talked over the possibility of children before operating. He had followed the future history of these 11 cases; five of them had not become pregnant, although in two of them only a few months had elapsed since the operation. Two had borne children, one two and the other one, and the one who had one child subsequently had tubal pregnancy in the opposite side. Three had had miscarriages, although they claimed they desired to have children. One had three miscarriages and the other two had one each. Another, the sixth one, had tubal pregnancy in the opposite side, making two cases of repeated tubal pregnancy in the 11 cases in which at the time of operation the tube, which was the seat of the second ectopic gestation, was apparently normal, and which was retained with the hope that the woman would have a child subsequently. He had encountered two other cases of repeated ectopic pregnancy in which the first operation was done by another operator, so that he did not know the condition of the tube at that time. He was perfectly willing to preserve the tube and the possibility of future conception in every patient who desired to have children. On the other hand, if he found the opposite tube was diseased, and especially if a number of these women were fairly well advanced in years, that is 35 or 40, and had had their share of children, he thought we should in every way make these patients just as well as we possibly could for the rest of their lives, and save them all future trouble. He could see very little use in leaving behind a uterus which might have been the seat of inflammatory trouble or adhesions about it as the result of operation if it was only going to cause trouble.

In regard to bleeding without pain, all but one of these patients gave a history of uterine bleeding at some time during the illness. In one case the bleeding preceded the pain for 3 or 4 weeks, and he could not account for it except probably there was the beginning of the termination of pregnancy in which the bleeding between the gestation sac and wall of the tube was not sufficient to give rise to any serious symptoms.

In regard to preserving the ovaries, in nearly every instance one ovary was preserved.

OPERATION FOR THE CURE OF RECTOCELE AND RESTORATION OF THE FUNCTION OF THE PELVIC FLOOR.

Dr. George Gray Ward, Jr., of New York City said the operation was especially applicable to cases of large rectocele. The conditions present in a rectocele were the same as in a cystocele. There was a true hernia or prolapsus of the rectum just as in the bladder. Likewise the bowel had been enlarged and pouched by distension, so that there existed an actual increase in size of the gut similar to the condition at the base of the bladder in cystocele. The same principle was applied in this operation to cure the rectocele as was employed in the modern radical operations for the cure of cystocele, the rectum was completely separated from the entire posterior wall of the vagina and was placed higher up in the pelvis.

The author described the operation and gave the technic used by him in perineorrhaphy.

THE RELATION BETWEEN THE BLOOD PRESSURE AND THE PROGNOSIS IN ABDOMINAL OPERATIONS.

Dr. George W. Crile of Cleveland, Ohio, stated that the relation between the blood pressure and the prognosis in abdominal operation was based upon two extremes, namely an extremely low pressure and an extremely high blood pressure. Providing the heart was normal, they could now control the low pressure phase by transfusion of blood, by mechanical means or by saline infusion. The high blood pressure was far more difficut to control because it was difficult to control the factors that produced this condition. If there was cardiovascular disease due to infection or to lues, nitroglycerin might exert little control, although there was a type of cardiovascular disease that was

controlled by nitroglycerin. It was not wise to reduce the blood pressure by bleeding, and aside from nitroglycerin and hygienic measures, there were no other remedies. Therfore, as a matter of fact, the high blood pressure was likely to be a more dangerous factor than was low blood pressure. Whether the blood pressure be abnormally high or abnormally low the patient was more apt to have complications such as thrombosis, emboli, pneu,-monia, nephritis, bronchitis, indeed, the abnormal pressure played into the hands of the usual dangers and complication of abdominal operations.

If operation be so performed that the nervous system remained uninjured, the blood pressure unaltered, then the maximum degree of safety would be reached. This he had found could be done on the principle of anoci-association.

STUDIES IN BLOOD PRESSURE, BEFORE, DURING, AND AFTER OPERATIONS UNDER LOCAL AND GENERAL ANESTHESIA.

DR. JOSEPH C. BLOODGOOD, of Baltimore, Maryland, said even today, with better anesthesia, with better technic, we had a mortality. The mortality was not from simple appendectomy and from other simple operations, but it was from the graver operations, such as resection of the stomach, resection of the colon, the more extensive operation for cancer of the uterus, and the more difficult operation of myoma of the uterus. There was a mortality and if there was an autopsy on such a patient we would find no infection of the wound, no break in the technic of the intestinal suture, no hemorrhage from the pelvic operation, but still the patient died. Carefully followed, they died as a rule within 48 hours or 3 days with a gradual lowering of blood pressure, with a gradually increasing pulse, with little or no fever or they died of complications, which in the healthy individual were not serious. Patients died from complications of the kidney, and anuria, complications of the heart, complications of the stomach, such as dilatation. There was this mortality in surgery today which had no relation to infection and no relation to faults in technic in the sense of hemorrhage, in the sense of faulty suture of intestine where there would be peritonitis, in the sense of incorrectness which would produce intestinal obstruction, but in the sense of death and shock or death from complications that were due to shock of the operation. These complications were chiefly dilatation of the heart, dilatation of the stomach, and faulty kidney function. He was trying to give in a practical way how they were being forced to investigate and to adopt the method of Dr. Crile.

In the last four or five years due to the investigation of the literature on the subject, and stimulated by Dr. Crile's work in the laboratory and clinic, he had attempted to follow his technic, and he thought the most practical thing he could say to them was to follow his technic in every case. We must remember, however, that to accomplish something that was difficult, something that was more than ordinary we must practise. From my experience now covering three years, if we wished to develop the technic of anesthesia and operation and to give these handicapped patients with an extraordinary operation the best opportunities for recovery, we must practise this newer technic in every case until we had gotten it fully developed.

THE DIAGNOSTIC VALUE OF THE ELECTROCARDIOGRAPH BEFORE GYNECOLOGICAL AND OBSTETRIC OPERATIONS.

DR. HUGO H. FREUND, of Detroit, Michigan, gave a short description of this instrument and described the various waves. He spoke of the application of the electrocardiograph to hospital cases, especially those in which the patient's cardiac condition was in doubt. He showed lantern slides demonstrating the various forms of cardiac irregularities as recorded with the electrocardiograph. The advantage of this form of graphic work over that of clinincal bedside examination and over certains forms of sphygmographic tracings was discussed. Some stress was laid upon the type of electrocardiogram that called for operative interference in pregnant women.

THE CONDUCT OF GYNECOLOGICAL OPERATIONS ALSO OF PREGNANCY AND LABOR IN ACUTE AND CHRONIC AFFECTIONS OF THE HEART.

DR. J. CLARENCE WEBSTER of Chicago, said operations should be avoided in active or recent valvular diseases, dilatation or myocardial degeneration, except in conditions of extreme emergency. General anesthesia might greatly increase the risk by causing coughing, straining, vomiting, respiratory embarrassment. Slow administration with free admission of air or oxygen was necessary. Local anesthesia was important in such cases. In slight or well compensated affections, regular methods of anesthesia should be employed.

As regards pregnancy, women with heart disease should not become pregnant. If pregnancy occurred it was on the side of safety to advise early abortion, especially if there was recent acute disease of any variety, old or mitral disease or old lesion with failure in compensation.

With reference to labor, if the patient's condition was good, the first stage, as in normal cases, all strain and excitement should be avoided. It was advisable to avoid straining in the secondary stage by artificial delivery, forceps or turning under anesthesia. In the third stage, it was best to separate the placenta manually allowing some loss of blood. A woman at term with failure in compensation or embarrassed circulation probably had the best chance if delivered by vaginal or abdominal Cesarean section.

THE SIGNIFICANCE OF ANEMIA AS AN OPERATIVE RISK.

DR. HENRY T. BYFORD of Chicago, stated that for surgical purpose we might divide anemia into two groups, namely those with compensation, and those without. The former class were good operative risks, the latter poor ones. He pointed out the characteristics of the former, likewise the characteristics and complications of the latter, and cited illustrative cases.

TREATMENT OF PUERPERAL THROMBOPHLEBITIS.

DR. PALMER FINDLEY, of Omada, Nebraska reported 10 cases, reviewed the literature on the subject and said: "With this review of my recent personal experience with puerperal thrombophlebitis, together with the expressions of opinions of many of our workers in the field of obstetrics, I submit

the following for consideration: 1. The Trendelenberg operation is surgically correct in theory, but as a practical proposition it is a questionable procedure. 2. The difficulties involved in the making of an accurate diagnosis before opening the abdomen are as yet insurmountable; furthermore, it is not possible to judge with accuracy the extent of the infection within the veins or elsewhere after the abdomen is opened. We cannot rely upon the sense of touch to locate with certainty the limits of a thrombus nor can we judge with certainty the presence or absence of pus within the veins. Failure to find bacteria in the general circulation gives no absolute assurance of the localized character of the infection, nor can a physical examination of the lungs and other viscera exclude the possible presence of metastatic foci. 3. It is in direct violence to our rules of practice to traumatize tissues in the immediate neighborhood of a virulent infection.

In reviewing the reports of cases I have been seriously impressed with the boldness with which some operators violate this time-honored principle of surgery. If the infected veins are not dissected out, have we not locked the thief in the stable when we do no more than ligate above the zone of the infection and if we do dissect out the infected veins do we not incur serious hazards in the way of disseminating the infection? Futhermore, the risk of dislodging a thrombus in exploring the pelvic veins should be reckoned with. 4. It is a physical impossibility to ligate all the veins leading from the genital organs and unless all channels are blocked there can be no assurance of checkmating the infection. Among the ardent supporters of the operation are those who would ligate the lower end of the vena cava and both spermatic veins, claiming that the collateral circulation can be depended upon to re-establish the return circulation. Is this not an argument in favor of the contention that the venous channels leading from the infected uterus cannot be wholly controlled by ligatures? 5. The physical resistance of all cases of puerperal infection is far below par, a fact which makes us cautious in adding further to their burdens. We might well rob them of the little resistance they possess. 6. Little dependence can be placed upon serum and vaccines in these cases. 7. Whatever may be our views on the question of ligation of veins or upon the administration of serum and vaccines, we are all agreed that the body resistance may be supported by fresh air and nourishing food."

THE CALCIUM CONTENT OF THE BLOOD DURING PREGNANCY, LABOR, AND THE PUERPERIUM.

DR. W. H. MORLEY, of Detroit, stated that calcium was a normal constituent of the blood. Its function in promoting clotting of the blood was explained. The determination of the amount of calcium in the blood was usually done by the volumetric or by the gravimetric methods. Either of the two mentioned methods required a large amount of blood in order to lessen the percentage of error. The author described a simple yet accurate method of determining the amount of calcium in the blood. He presented a short report of cases in which this method had been applied, and stated what it had accomplished and what the knowledge of the calcium metabolism might show in physiology and pathology of pregnancy, labor and the puerperium.

WHAT ARE THE BEST METHODS OF EDUCATING AMERICAN WOMEN CONCERNING CANCER?

DR. FREDERICK J. TAUSSIG, of St. Louis, Missouri, stated it was almost impossible to have printed in a lay periodical intended for general distribution any article upon so distasteful a subject as cancer of the uterus. The only way it could be done was to incorporate it in a general article on cancer and couched in special paragraphs referring to uterine cancer in such words as not to give offense. In spite of the wide circulation thus obtained through some of our women's magazines, he did not specially favor this method as its lack of directness tended to diminishing its effectiveness. He suggested an occasional article in the journals of nursing, besides the distribution of special leaflets giving concise information as to early symptoms. Such leaflet had better be given in person by the doctor, the nurse, or the social worker to the laity.

Leaflets that supplied the necessary information were more apt to be read if presented personally than they were if sent by mail. Much could also be accomplished in his opinion through the agency of women's clubs in the distribution of literature and pamphlets.

There was a directness in knowledge acquired by word of mouth that ordinarily made it better retained. Hence he believed much could be accomplished by lectures and personal conversation that mere printed matter failed to bring about. The lectures might be given either directly to the laity, before women's clubs, or social settlement organizations, or they might be given before groups of such persons as would be most frequently called upon for advice, such as nurses, midwives, teachers, social workers, ministers or druggists. He recommended that special stress be laid upon the early symptoms of breast and uterine cancer in the curriculum of all nurses' training schools and all colleges of midwifery.

REPORT OF THE COMMITTEE ON WAYS AND MEANS IN THE MATTER OF IMPRESSING PHYSICIANS AND EDUCATING THE PUBLIC IN THE NECESSITY OF EARLY DIAGNOSIS AND OPERATION IN CANCER.

This committee consisted of Drs. Howard C. Taylor, Frederick J. Taussig and Leroy Broun, who reported that to accomplish these ends they were convinced that little could be done of lasting value excepting through an organized body, the sole purpose of which would be to conduct the needed campaign of education, of scientific assistance and collection of data. They further believed that such a society should be of national scope, embracing all interested societies and organizations together with lay people throughout America. The work of this society should be carried on by a competent paid executive secretary and his office corps under the guidance of a central committee of surgeons to be appointed by its Board of Directors. The need of such an organization and the possible good to be accomplished through its labors were presented to certain public spirited women of New York City. Through their efforts and the hearty cooperation of the members of the American Gynecological Society together with prominent surgeons and lay people, a meeting was held in New York City. At this meeting the present needs and status of the

cancer problem were presented in full before them.

At a later meeting of a committee on organization consisting of lay men appointed by this body the sum of $5000 was guaranteed towards the expense of such a society for the first year. The committee was authorized not only to make a statement to the American Gynecological Society of this guarantee, but also to present the following resolution:

Resolved, That we request the American Gynecological Society to present the matter to each of the branches of the said Congress interested in the subject and ask each of them to appoint a committee of two or more members to cooperate with them in forming a national organization for educational and publicity work with the recognition and treatment of cancer, and that they meet in such committees as soon as possible after the meeting of said Congress of Physicians and Surgeons to be held during the week beginning May 4, 1913.

The committee recommended the endorsement and the enthusiastic cooperation of the society in the formation of such a national body. The committee further recommended that the American Gynecological Society appoint committees of two each to present this resolution to such component societies of the Congress as they might deem interested in this matter, with a request for their cooperation.

The resolution was adopted and the committee was appointed.

OFFICERS.

The following officers were elected for the ensuing year: President, Dr. J. Whitridge Williams, Baltimore, Maryland; Vice-Presidents, Dr. Thomas J. Watkins, Chicago, Illinois, and Dr. Howard C. Taylor, New York City; Secretary, Dr. Leroy Broun, New York City, re-elected; Treasurer, Dr. J. Wesley Bovee, Washington, D. C., re-elected.

Place of meeting, Boston, Massachusetts.

Book Reviews.

Report of the State Board of Health of the State of Connecticut. Hartford, Conn.: Published by the State. 1913.

This thirty-second (third biennial) report of the Connecticut State Board of Health records the activities of that body for the two years ended Sept. 30, 1912. The general report deals chiefly with legislation, the abolition of the common drinking-cup the free distribution of antitoxins, the pollution of inland and tidal waters, supervision over oysters and other shellfish, medical inspection of schools, smallpox, and health administration. The death-rate of Connecticut in 1911 was 15.4 per thousand of population; in 1912 it was 14.9. The remainder of the volume consists largely of routine reports by local health officers.

The School Dentists' Society. Second edition. Watford, England: W. Michael and Son. 1913.

This yearly manual, in addition to recording membership, constitution, objects and aims of the School Dentists' Society in England, contains a succinct statement of the status of school dentistry in other countries, and a considerable amount of educational material relative to oral sepsis, dental hygiene, and the prevention of caries and other disease. It is illustrated by reproductions of three excellent useful colored charts issued by the society.

Household Bacteriology. For Students in Domestic Science. By ESTELLE D. BUCHANAN, M.S., and ROBERT EARLE BUCHANAN, Ph.D. New York: The Macmillan Company. 1913.

This volume represents a revision of lectures given by the authors during the past eight years to students in home economics at the Iowa State College of Agriculture and Mechanic Arts. It deals particularly with bacteriology in its relations to the domestic sciences, and includes a consideration not only of the true bacteria, but also of the yeasts, the molds, and the pathogenic protozoa. After a brief historic introduction, the text is divided into five sections, dealing respectively with morphology and classification, cultivation and observation, physiology, fermentation, and the relations of microörganisms to health, especially in the preparation and preservation of foods, in household sanitation, and in personal hygiene. The volume is admirably illustrated with 219 figures in the text, and closes with a valuable, original, pictorial key to the families and genera of the commoner molds, including 141 further illustrations. It should meet with prompt appreciation by students and teachers in schools of domestic science, and should prove of peculiar value also to nurses.

The Modern Treatment of Nervous and Mental Diseases. By American and British authors. Edited by William A. White, M.D., and Smith Ely Jelliffe, A.M., M.D., Ph.D. Vol. I. pp. 867. 8vo., with 24 plates and 52 illustrations in the text. Philadelphia: Lea and Febiger. 1913.

"The present work lays emphasis upon the psychical side of life and sets forth doctrines of nervous and mental hygiene, reconstructive factors in social organization as applied to human ills, and endeavors to present a broad front to pessimistic nihilism in therapeutics." The result, so far as this first volume goes, fulfils this

intention to a considerable degree. Like all composite works, the various chapters are of very uneven merit and some of them present distinctly one-sided aspects of the question under discussion, a few are inadequate or commonplace, but some subjects are dealt with which usually receive no consideration in the ordinary text-books and some of the chapters are of very great value. Certain chapters, however, are somewhat too obscure and are beyond the grasp of the average practitioner, and a few are so written that the beginner, without further aid, would be unable to carry out the methods of treatment which the writer endeavors to expound. The first chapter, by Dr. White, on eugenics and heredity, is an excellent presentation of the recent doctrines, based on Mendel's law, of Rosanoff, Davenport and others. Dr. White, however, has adopted the extreme views of these investigators, without consideration of the questions of blastophthoria, of the thoroughness of their investigations, or of the immense amount of negative evidence which might be brought forward against some of their teaching. Prof. S. S. Colvin contributes a thoughtful chapter on education. Havelock Ellis's chapter on sexual problems is outspoken and critical, setting forth frankly opinions which are familiar to students of his earlier work, but which are at variance with the old-fashioned prudish manner of dealing with the subject—when it was dealt with at all. It deals with the sexual problem fairly and sanely and should serve as an excellent corrective to much of the mawkish talk which is now current. H. H. Goddard's chapter on the educational treatment of the feeble-minded is an admirable exposition of the principles of such education by one whose own work has done so much to establish the methods of such training. Dr. William Healy's article on delinquency and crime is based very largely upon his own researches. He gives a very full account, not so much of the typical forms of insanity which often come under the observation of the criminologist, but rather of the borderland types, differing from the more familiar disease types, which he has so often had to deal with in the juvenile court, and which have seldom been described. His chapter is one of the most valuable in the book. Dr. T. W. Salmon's chapter on immigration is an excellent historical summary and a clear consideration of present problems. Dr. H. W. Mitchell's chapter on alcoholism and the alcoholic psychoses is the fruit of long study and is an admirable presentation of the subject, clear and sound. Dr. Ernest Jones contributes the longest chapter in the book on the treatment of the neuroses and psychoneuroses. It was to be expected that the writer would deal with the subject from the extreme Freudian standpoint, as he does, and it is perhaps too much to expect a true Freudian to admit any other gods, but the other side of the question certainly deserves some consideration in a work like this. The worst of the matter is, however, that not only can the student find little to help him in dealing with the treatment of the neuroses in any other way than by the methods of Freud, but, unless he seek other help, he will certainly find it a difficult task to carry out those methods solely by the aid of this chapter. The eminently sane and judicial chapter by Dr. J. J. Thomas on the treatment of the traumatic and occupation neuroses helps in part to supplement the preceding chapter, but it necessarily is limited to a special division of the subject. Dr. H. W. Cotton gives a good recapitulation of modern ideas as to the treatment of disorders of internal secretions and of sympathetic disorders, but he has little to say of the various methods of serum treatment. Dr. E. E. Southard's chapter on the treatment of mental diseases of somatic origin is obscure and inadequate and distinctly below the average of the book. Dr. C. B. Farrar gives an admirable chapter on the whole management of the manic-depressive (*sic*) psychoses, which is a thoughtful discussion of the whole nature of the affection, with sage counsel on the methods of treatment requisite in the various stages of the disorder. Dr. C. M. Campbell gives a rather obscure article on the treatment of dementia precox, based almost wholly upon the hypotheses of Freud and Jung as to the psychogenesis of the disease, ignoring the evidence in favor of structural changes in the brain as a cause of the condition. Dr. Adolf Meyer's chapter on the treatment of the paranoiac state, while learned and thoughtful, lacks somewhat in practical value. Dr. Bernard Glueck has a very valuable chapter on prison psychoses,—a topic seldom discussed in the ordinary works,—and pleads strongly for psychiatric annexes to our prisons. Dr. A. M. Barrett's previous work on arteriosclerosis and senile psychoses gave promise that his contribution to the present volume on this subject would be of great value, and that promise has been thoroughly fulfilled. Mr. F. A. Fenning writes on the application of legal measures, which is a useful guide to the general principles to be borne in mind in meeting the legal requirements which are so often involved in the management of nervous and mental patients. Dr. R. L. Richards contributes a very valuable and suggestive chapter on a subject on which little has appeared in this country, but which is beginning to assume great importance,—the military relations of nervous and mental disorders. The final chapter, by Dr. J. V. May, on the functions of the hospital, is commonplace, but it gives a fair recapitulation of the more important points. This first volume, then, contains much that is unusual and new in works of this sort, much careful work, and some that is mediocre, and, although somewhat too diffuse and containing considerable beyond the mere questions of treatment, will, if the second volume maintains the same standard, prove of much help to the psychiatrist and neurologist.

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THE CONTROL OF VENEREAL DISEASE.

MUCH has been said, lately, of the serious and far-reaching effects of venereal disease. Although the statistics of some investigators may exaggerate the prevalence of maladies of this type, there can be no doubt of their tremendous cost to the nation. The expense of caring for those incapacitated by the more remote effects of syphilis and gonorrhea, the loss in time and efficiency sustained by those afflicted and their employers, the burden of defective children and criminals would, if summed up, make a sad total. Everyone in some way or another bears part of the cost. The tax-payer and the charitably inclined supporter of hospitals and relief work pay in money; those unfortunates who are innocently infected, in a coin of far greater value.

To physicians no proof is needed in support of the statement that venereal disease is a menace of the most forbidding kind, insidious and impartial, creeping into the very heart of domestic life. Against this scourge the chief defense is that offered by the individual physician, but his hands are securely tied by his inability to enforce the sanitary measures which he may advise. An increasing number of states are requiring applicants for marriage licenses to declare themselves free from transmissible disease before granting them permission to marry Indiana, Pennsylvania, North Dakota, Michigan, etc.).[1] If the applicant has taken the trouble to have his prostatic secretion examined for the detection of the gonococcus, or his blood tested for the presence of syphilis, his declaration will be of some value. Otherwise, the mere absence of symptoms may cause him to declare himself well, thereby creating a sense of security which is entirely unwarranted. One is justified in saying that there exists no adequate public obstacle to the marriage of those afflicted with venereal disease, although the law regards the infection of wife by husband, and vice versa, as an offense.

The percentage of young men who contract gonorrhea has been variously estimated at from 35 to 80 or even 90%. Very few, we believe, infect their wives while in an acutely infectious condition. Yet from 4.5% (Erb[2]) to 8% (Morrow[3]) of married women are infected with gonorrhea alone. The great majority of these infections we believe to be due to the carelessness or ignorance of the husband, who disregards the possibility of infection from his latent gonorrhea.

We need a tribunal, accessible to all, to which the question of infectiousness, whether from syphilis or gonorrhea, may be presented. The existence and advertisement of such an institution would not only create a moral obligation which would force suspects to undergo examination; it would also be a factor of no small power in opening the eyes of men to the possibility that despite apparent health, they may still be dangerous. Such a tribunal we can easily supply. We refer to the performance, in laboratories conducted by local or state boards of health, of the complement-fixation tests for syphilis and gonorrhea. It is true that in deciding whether a cure has been effected in either of these diseases, the bloood-test should not be the only criterion. Neither test is infallible. These facts should be plainly stated. On the contrary, if all men in a state of infectiousness which had existed for more than a month were submitted to these tests, very few would remain undetected.

The Wassermann test for syphilis has an established place in the management of that disease. The complement-fixation test for gonorrhea, which can be carried out in the same laboratory by the same technic, is rapidly reaching a similar position. This test, which has been under observation for about two years, has been described very favorably by Keyes of New York, Schmidt of Chicago, O'Neil of Boston,

[1] Norris: Gonorrhea in Women, 1913, p. 171.

[2] Erb: Münch. Med. Woch., 1907, No. 31.

[3] Morrow: Maryland Med. Jour. 1908, p. 260.

and a number of others. Both these tests are now done by the Department of Public Health in New York City. We see no reason why the matter cannot be managed in the same general way as the examination of blood for typhoid. The establishment and maintenance of perhaps five laboratories for this purpose, placed in centrally located cities of Massachusetts, would surely cost under $50,000 a year.

We spend millions for a bridge, a canal, a battleship. Yet for the prevention of the spread of venereal disease, the only official steps which have been taken in this state are the distribution of silver preparations for the prevention of ophthalmia neonatorum and the treatment in public hospitals of such cases of venereal disease as care to apply. This "laissez faire" policy should stop, and the first step in the assumption of a definite policy should be, in our opinion, the free examination of blood for the detection of infectious cases of syphilis and gonorrhea.

THE WATER SUPPLY OF WEST POINT.

It is gratifying to learn from the reports of a recent investigation, especially as this is a matter in which the whole country has a concern, that the water supply of the United States Military Academy reservation at West Point is of a most satisfactory character. It appears that the water furnished the post is, in its raw state, much above the average for the state of New York in sanitary qualities, and the opinion is expressed that the passing of such water through a modern filter, if the works are always efficiently operated, should offer a most effective barrier to accidental pollution of the raw water from any cause. The filtering works, being within the reservation, are, of course, directly under government control, but the sources of supply, which now include a very considerable territory, are in the jurisdiction of New York state.

The history of the water supply at West Point shows a development from the original works, supplying but a small quantity of water by gravity from springs and mountain brooks upon the reservation, in the immediate vicinity of the post, to the present works, bringing water from the mountains several miles to the southwest to a large reservoir and purification plant located within the boundaries of the reservation. A larger supply than formerly is required, as the present population of the post is now about 2500, comprising the corps of cadets, the instructing staff of the academy, detachments of United States troops, and a few civilians. The supply is obtained largely from two streams, Popolopen creek and one of its main tributaries, Queensboro brook, and a relatively small amount from Round pond, a small body of water lying in a depression in the mountains. The area of the watershed of Popolopen creek above the intake is about thirty square miles, and that of Queensboro brook about ten square miles.

An assistant engineer of the New York State Department of Health, in company with Lieut. Col. F. R. Keefer, Medical Corps, U. S. A., sanitary officer of the post, and Capt. G. A. Youngberg, Corps of Engineers, U. S. A., in charge of the water supply, recently visited the intake and made an inspection of the two main branches of Popolopen creek above the intake and of the conditions at the Forest of Dean mine, and collected samples of water for analysis from the two main streams and from the body of the creek at the intake and at a short distance below the point at which the mine drainage enters the stream. The inspection also included the more important points of the watershed, as well as the reservoir and filtering plant on the reservation. The Forest of Dean mine is situated at the foot of Mine lake, which is a storage pond on the creek, about two and a half miles above the intake, and the dwellings of the miners constitute a small settlement nearby. While the drainage from the mine shaft, which is subject to pollution from the miners in the workings and contains considerable oil coming, apparently, from the excess oil dropping from the pumps and possibly other machinery, is probably absorbed by the ground in the low, swampy area upon which it is discharged, at times of high water from heavy rains it would seem likely that some of this contaminated water will be washed more or less directly into the stream. At the northern end of Mine lake is a hotel, the premises of which are directly on the right bank of Popolopen creek, and at the time of inspection these premises were in an unsanitary condition. At other points in the watershed were found two labor camps in connection with the construction of a new state road. One of these was not yet in operation, but about the other were several features constituting violations of the rules and regulations of the state

health department. No other nuisances or abuses were apparently found in the inspection, the correction of which is not provided for by legal enactment.

The results of the samples from the stream and the reservoir, being the water before filtration, indicate in general a soft water relatively free from turbidity and organic pollution. The samples were all low in organic nitrogen—especially organic nitrogen as free ammonia, and the organic nitrogen as albuminoid was relatively low for waters from streams and ponds. The results of the bacteriological analyses were also satisfactory, but, of course, as in the case of the chemical analyses, apply only to the condition of the water at the time of sampling. It is regarded as probable, however, in view of the general good sanitary condition of the watershed found, that the results are reasonably representative of the supply under ordinary conditions of stream flow. The total counts of bacteria for these raw waters appear to be about 100 to 300 per c.c., which is moderate for a supply of this character. Fecal organisms of the colon bacillus type were found to be present only occasionally in as large test volumes as 10 c.c., and the occasional occurrence of such in as large volumes of water as this, and not in smaller volumes, is usually, as is stated in the report, considered to have little if any sanitary significance in connection with surface-collected water supplies. The physical indications of the superiority of the sanitary quality of the Queensboro brook supply appears to be sustained by the entire absence of *B. coli* in this supply. The West Point filter is of the slow sand type, and the efficiency of the filtration, as far as can be judged by the analytical results at hand, is marked. There is a substantial reduction in color, and also removal of organic matters from the raw water, while the total count of ten bacteria is exceptionally low for a filter effluent which has not been subjected to a finishing process such as "chlorination." The colon bacillus type was absent in all the volumes of the filtered water tested.

As a result of this investigation the New York State Health Department has recommended that during the construction of state roads through the watersheds the military authorities should maintain a daily inspection of all camps housing laborers and of all points near streams or pools where careless and accidental pollution might occur; and, further, that these authorities should apply to the department for a revision of the rules and regulations enacted in 1907 which shall include, among other changes, clauses relating to the location and maintenance of labor camps.

TWO IMPORTANT AMERICAN MEDICAL CONGRESSES.

DURING the current month of August, two important medical meetings were held in America.

The Sixth Pan American Congress convened in Lima, Peru, the first week in August (3rd to 10th), 1913, in connection with the Latin American Medical Congress and the Congress of Hygiene, under the patronage of His Excellency the President of the Republic of Peru and of the Minister of Foreign Relations, of Instruction and of Fomentation. The congress met in eight sections, dealing respectively with anatomy, bacteriology, medicine, surgery, hygiene, physics, veterinary medicine, and odontology.

Persons attending the congress went from New York or New Orleans directly to Panama; others by way of Mexico and Central America to Panama and down the coast to Peru. From Peru a number took the trip to Chile and from there by the trans-Andes railroad through the tunnel to Buenos Ayres and back by the same route. Others continued up the east coast to Brazil and from Rio Janiero to Lisbon, returning by way of Seville, Madrid, Barcelona, Paris, London and New York.

The Fourth International Congress on School Hygiene, as previously announced in these columns, was held from Aug. 25 to 30 at Buffalo, N. Y. The congress was divided into three sections, of which the first dealt with the hygiene of school buildings, grounds, material equipment, and up-keep; the second with the hygiene of school administration, curriculum, and schedule; and the third with medical, hygienic, and sanitary supervision in schools. At the sessions of these sections there were altogether some 250 papers presented, in addition to which there were the following general discussions on special topics, arranged by various organizations or individuals:—

School Feeding—Arranged by the committee on school feeding of the American Home Economic Society.

Oral Hygiene—Arranged by the National Mouth Hygiene Association.

Sex Hygiene—Arranged by the American Federation of Sex Hygiene.

Mental Hygiene—Arranged by the national committee on mental hygiene.

Conservation of Vision in School Children—Arranged by the Society for the Prevention of Blindness.

Health Supervision of University Students—Arranged by Dr. Mazyck P. Ravanel, University of Wisconsin.

School Illumination—Aranged by the Society of Illuminating Engineers.

Relation Between Physical Education and School Hygiene—Arranged by the American Physical Education Association.

Tuberculosis Among School Children—Arranged by the Society for the Prevention of Tuberculosis.

Physical Education and College Hygiene—Aranged by the Society of Directors of Physical Education in Colleges.

The Binet-Simon Test—Arranged by Professor Lewis Madison Terman, Stanford University.

The Mentally Defective Child—Arranged by Dr. Henry H. Goddard, Vineland, N. J.

The expectation was fulfilled that both these congresses would be largely attended by distinguished delegates from medical and scientific institutions in America and abroad.

MEDICAL NOTES.

Birth-Rates and Infant Mortality in Edinburgh.—Like all large modern cities, Edinburgh has a steadily declining birth-rate. In 1903 it was 25.49 per 1000; in 1906, 23.96; in 1909, 23.13; and in 1912 only 20.81. Simultaneously, however, the total rate of infant mortality has fallen from 140 per 1000 in 1903 to 110 per 1000 in 1912.

The Perfect Woman.—A report comes from Philadelphia that an open-air model school is to be established in Bryn Mawr College this fall, at which thirty students as nearly physically normal as may be found, will be especially trained for a period of seven years with a view to accomplishing their completest mental and physical perfection. The life, winter and summer, is to be largely in the open air and the strictest attention is to be given to the hygiene of dress and other matters pertaining to health. We shall await the result with interest and some skepticism.

BOSTON AND NEW ENGLAND.

Work of Society for Prevention of Cruelty to Animals.—The beneficent work of the Massachusetts Society for the Prevention of Cruelty to Animals is shown by one of its recent reports. About a month ago a free dispensary was opened for the treatment of horses and other animals. During the first three weeks three hundred and forty cases were treated, in general with excellent results. During the month of July over three thousand animals were examined and a large number painlessly killed. The society has recently received a number of gifts, chiefly of money.

Fined for Sale of Heroin.—It is reported that a clerk in a Boston drug store has recently been fined for selling heroin without a doctor's prescription. The question arose as to the legality of refilling a prescription. The ruling of the judge was that a sale had been completed when the original prescription was filled and that it was illegal to continue to supply the drug without a further prescription. The judge further held that this ruling applied to poisonous drugs and not necessarily to prescriptions containing perfectly harmless ingredients.

Poliomyelitis in Providence.—It is reported from Providence, R. I., that a dozen or more cases of poliomyelitis have appeared in widely different sections of the city. Most of the cases up to this time are of children under twelve, but two adult cases have also been reported. The health department is issuing circulars of warning to parents in the hope that by this means and by prompt isolation the spread of the disease may be limited. It is regrettable that in spite of much progress made in knowledge of infantile paralysis, we stand very much as we did five years ago in relation to its prevention.

Infectious Diseases.—Cases of infectious diseases reported to the Boston Board of Health for the week ending August 19, 1913: Diphtheria 40, of which 1 was non-resident; scarlatina, 13; typhoid fever, 15, of which 2 were non-resident; measles, 12, of which 1 was non-resident; tuberculosis, 70, of which 2 were non-resident.

The death-rate of the reported deaths for the week was 14.75.

NEW YORK.

DELEGATION TO CONGRESS ON SCHOOL HYGIENE.—Dr. Louis Dufestel, medical inspector of the Paris schools, and Dr. Felix Martel, inspector general of public instruction in France, arrived in New York on August 15. Both are official delegates to the fourth international congress on School Hygiene, in Buffalo; one representing the city of Paris, and the other the French government. Another arrival of note among the delegates to the congress is that of Dr. Franz Krusius, professor of ophthalmology in the University of Berlin, who represents the German government. For some time past Dr. Krusius has been making comparative ophthalmological studies in various countries, visiting Russia, Bulgaria, Turkey and India, and last year making a medical exploring trip to Central Africa especially to investigate conditions among the Massai, a tribe of so-called Semitic negroes presenting many points of scientific interest.

BEQUESTS.—By the will of the late Mrs. Julia Lorillard Butterfield, of New York and Cold Spring, on the Hudson, widow of Gen. Daniel Butterfield, $2,316,000, the greater part of her estate, is left to the International Committee of the Young Men's Christian Association, to be administered by the women's auxiliary of that organization for the benefit of the army and navy. More than $350,000 is also left to other benevolent and charitable objects, and among the bequests are $150,000 for the erection of a hospital at Cold Spring, to be called by her name, $10,000 to the Association for the Aid of Crippled Children, and $5,000 to the Association of New York Day Nurseries.

Current Literature.

NEW YORK MEDICAL JOURNAL.

AUGUST 2, 1913.

1. PHILLIPS, W. C., FOWLER, E. P., KOPETZKY, S. J., AND SHARP, J. C. *Report of Twenty Cases of Inflammatory Affections of the Labyrinth.*
2. SHOEMAKER, H. *Pellagra Surgery, and Colloids and Strong Drugs, also Introducing a Possible New Etiological Factor.*
3. BOSTON, L. W. *The New Pocket Clinical Sphygmomanometer.*
4. CORNELL, W. B. *The Mental Symptoms of Renal Insufficiency.*
5. CHAPMAN, W. L., MORRIS, H. A., AND SIMRELL, G. W. *Surgical Aphasia.*
6. ILLOWAY, H. *Chronic Appendicitis in Its Relation to Hyperacidity of the Gastric Juice.*
7. ALEXANDER, V. H., AND MONTAGUE, H. *Acute Retropharyngeal Abscess.*
8. ROEHR, C. G. *Immunity by Scientific Bacterination versus Natural Immunization in Self-Limiting Diseases of Bacterial Origin.*
9. *BRAUR, I. *Gelatin and Olive Oil in the Liberal Diet of Typhoid Fever.*
10. BROUN, S. H. *Efficiency and Health.*

9. Braur lauds the liberal diet in typhoid fever. He thinks so highly of gelatin as a food and as a prophylactic and remedy for intestinal hemorrhage that he considers its use almost imperative in this disease. Pure gelatin should be employed. It should be made from government-inspected calves' feet, treated with boiling water, and then flavored slightly with pure light wine or lemon. Olive oil, too, has a broad field of usefulness in typhoid fever and should be employed throughout the course of the disease. Its food value is considerable and as a laxative it has no equal in this disease. [L. D. C.]

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

AUGUST 9, 1913.

1. ZEISLER, J. *Our Tendency to Fads.*
2. *PERCY, J. F. *Thyroid Extract in Nephritis. A Preliminary Statement of a New and Effective Method of Treatment.*
3. WERMUTH, W. S. *Necessity of Consent to Operations.*
4. WADHAMS, S. H., AND HILL, E. C. *Three Cases of Amebic Dysentery Treated with Salvarsan.*
5. HATCHER, R. A. *The Elimination of the Digitalis Bodies.*
6. CAPPS, J. A., AND MATTHEWS, S. A. *Venous Blood-Pressure as Influenced by the Drugs Employed in Cardio Vascular Therapy.*
7. BALDWIN, J. F. *Two Unusual Cases of Ectopic Pregnancy. One a Triplet.*
8. WOOD, H. B. *Lactic-Acid Bacillus Spray for Diphtheria.*
9. DAVIS, C. M. *Tonsillitis Following Use of Staphylococcus Spray.*
10. HAZEN, H. H. *An Anomalous Case of White-Spot Disease.*
11. IRVINE, H. G. *Idiopathic Atrophy of the Skin, with Report of Case.*
12. MCWHORTER, J. E., AND PRIME, JR., F. *Adaptation of the Cinematograph to the Study of Embryology and Tissue-Growth.*
13. HEIDINGSFELD, M. L. *Neuroma Cutis (Dolorosum).*
14. CHIPMAN, E. D. *The Newer Cutaneous Mycoses.*
15. BLACKWOOD, J. D. *Turpentine Poisoning Producing a Scarlatinoid Rash.*
16. BULKLEY, K. *Unusual Bullet Wound of Frontal Sinus.*
17. MENVILLE, L. J. *Erythema Scarlatinoides*

2. Percy again emphasizes the value of his thyroid extract treatment of nephritis. It is claimed to be of especial value in getting a patient ready for some necessary surgical procedure, such as the repair of a troublesome hernia. The author gives six ten-grain tablets of the dried extract a day for the first week, they increase to 10 a day for the remainder of the treatment which lasts till the maximum of improvement is shown. [E. H. R.]

BULLETIN OF THE JOHNS HOPKINS HOSPITAL.

JULY, 1913.

1. FINNEY, J. M. T. *Surgical Judgment.*
2. *WHIPPLE, G. H., MASON, V. R., AND PEIGHTOL, T.

C. *Tests for Hepatic Function and Disease under Experimental Conditions.*
3. *Boggs, T. R. *Multiple Congenital Osteochondromata with Degeneration of Cranial Nerves and Masculur Dystrophy.—Report of a Case.*
4. *Winternitz, M. C. *The Pathology of Syphilitic Aortitis with a Contribution to the Formation of Aneurysms.*
5. *Stevenson, H. N. *Aortic Aneurysm Rupturing Into the Pulmonary Artery, with a Report of Three Cases.*
6. *Baldwin, E. R. *Allergy and Re-infection in Tuberculosis.*

2. The writers describe the details of their test of the hepatic function by means of phenoltetrachlorphthalein and other re-agents. While these investigations are based on animal experiments only, they are of the opinion that they may be of value in humans to define more accurately the anatomical functional abnormalities of the liver.

3. This is an interesting description and discussion of this rare condition. There are some excellent plates.

4. Winternitz does not believe that the fibrosis of the media occurring in aortitis is the source of the aneurysms found in this condition, but is of the opinion that the process starts in the adventitia. Aneurysms may thus form in the active stage of syphilis.

5. This is a detailed report of three cases of aortic aneurysm rupturing into the pulmonary artery.

6. Baldwin discusses the nature of the tuberculin reaction, the terms "super" and "re"-infection and the general subject of hyper-sensitiveness in tuberculosis. To workers in this field the paper will be of value and interest. [J. B. H.]

British Medical Journal.

July 12, 1913.

1. *White, S. *A Lecture on Cancer of the Colon.*
2. *Willau, R. J. *Carcinoma of the Prostate Gland: A Study of 33 Cases.*
3. Gill, A. W. *Acute Endocarditis Following Gonorrhea.*
4. Bentall, W. C. *Spontaneous Reduction of a Dislocation of the Cervical Vertebrae.*
5. Souttar, H. S. *A Note on Local Anesthesia.*
6. Lewis, T. H. *On Dilatation of the Fallopian Tubes for Sterility.*
7. Broun, R. C. *Surgical Milestones.*
8. Stanger, W. *The Defects of the Insurance Act and Their Remedy.*

1. In this article White considers cancer of the colon as to age incidence, frequency and distribution, pathological changes, symptoms, diagnosis and, especially, operative treatment. He discusses at some length colostomy vs. colectomy. He cites a few cases in detail.

2. Willau bases his remarks on a study of 33 cases of carcinoma of the prostate. The average age was 61, average duration of symptoms before seeing a surgeon, 14½ months. Frequency was the initial symptom in 40%, obstruction in 30%, while at one time or another 72% had complete retention; 82% had no bleeding. The average duration was 28 months. [J. B. H.]

The Practitioner.

July, 1913.

1. Duckworth, D. *Phlebitis.*
2. *Evans, J. H. *Cancer of the Breast.*
3. *Upcott, H. *Cystic Mammary Tumors.*
4. *Warden, A. A. *Inoperable Cancer and Radium.*
5. *Williamson, O. K.. *Arterial Spasm.*
6. *Porer-Parkinson, J. *Difficulties in Diagnosis in Disease in Children.*
7. Ashby, H. T. *Cyclic Vomiting in Children.*
8. *Day, H. B. *The Treatment of Infantile Diarrhea in Saline Injections.*
9. Barrett, J. H. P. B. *Some Surgical Diseases of the Abdomen in Children.*
10. *Maclennon, A. *On "Tunnell" and "Caterpillar" Skin-grafting.*
11. Hewlett, R. T., and Rodman, G. H. *A Case of Rat-bite Disease.*
12. Tubby, A. H. *Orthopedic Surgery.*
13. Savill, A. *The Picric Acid and Camphor Treatment of Ring-Worm.*
14. Ross, A. *Vaccine Treatment in Acute and Chronic Infective Disease.*
15. Ash, E. L. *Combined Psycho-Electrical Treatment of Neurasthenia.*
16. Dimond, L. *Colloids in Medicine and Physiology.*
17. Oliver, J. *The Importaance to Life of the Mineral Substances in Our Food-stuffs.*
18. Burt, L. A. P. *Case with Comments. An Atypical Case of Pneumonia.*

2. Evans discusses cancer of the breast with special reference to the early diagnosis. There are five remarkable colored plates.

3. Upcott in a short paper describes the various forms of cystic breast tumors.

4. Warden presents the details of 5 inoperable cases of cancer in which radium treatment was of value in alleviating symptoms and prolonging life.

5. Williamson describes cases of spasm of the middle cerebral artery causing symptoms resembling those resulting of hemorrhage, embolism or thrombosis. He gives the details of six cases and reviews previously reported cases and other work done on this subject.

6. In this paper Parkinson discusses the technic of lumbar puncture in children; the various causes of fever without physical signs; the difficulties in diagnosing certain cases of broncho-pneumonia and pleuretic effusion and particularly, the difficulties in detecting pericarditis and pericardial adhesions.

8. Day, basing his belief on a study of 144 children with diarrhea treated by saline injections has come to the conclusion that saline injections alone, without drugs are capable of curing most cases of infantile diarrhea; that Quinton's marine plasma has no definite superiority over artificial saline of the same strength but that in the whole administration of medicine is preferable to injections of saline as a routine. Disregard of dietary instructions is the commonest cause of failure of out-patient treatment.

10. This is a detailed description of a new method of skin-grafting devised by the writer which he thinks will be of value in certain obstinate cases. There are some excellent plates. [J. B. H.]

Deutsche Medizinische Wochenschrift.

No. 26. June 26, 1913.

1. Krönig and Gauss. *The Treatment of Carcinoma with X-ray and Mesothorium.*
2. *Forster and Tomasczewski, E. *Detection of Living Spirochetae in the Brain of Paralytics.*
3. v. Drigalski and Bierast. *Improved Bile Media for the Detection of Diphtheria Bacilli.*
4. Lüdin, M. *The Influence of the Period between Meals on the Gastric Motility.*
5 Drowatzky, K., and Rosenberg, E. *Tuberculin Rosenbach.*
6. Jessen, F. *Air Embolism and the Technic for Pneumothorax.*
7. Jelke, R. *Serum from Convalescents in Pneumonia.*
8. Töben, M. *Motor Aphasia as the Only Indirect Result of Trauma to the Skull.*

9. PRYM, P. *Complete Recovery from Carcinoma Uteri Following Diagnostic Curettage.*
10. LILIENTHAL, L. *Varicella in Adults.*
11. *STERN, C. *Alleged Reinfection with Syphilis After Salvarsan Treatment.*
12. MERKENS, W. *Criticism of Our Methods of Disinfection, and Suggestion for Their Simplification.*
13. ENGEL. *Infant Feeding.*
14. KIRCHBACH. *Uterus Bicornis Unicollis; Coincident Pregnancy in Each Horn, Subsequent Birth of Living and Viable Foeti.*

2. The authors report finding living spirochetae in the brain substance of two patients suffering from paralysis. The material was obtained during life by brain puncture according to the technic of Neisser and Pollak, and was examined by the dark-stage method.

11. Stern remarks that the literature has lately contained many reports of cases of syphilis which, after treatment with salvarsan, have shown what the writers believe to be signs of reinfection. Such cases have been reported as bona fide cases of reinfection, and have led to the conclusion that a case of syphilis which is quickly cured may suffer reinfection. Such a conclusion is a grave objection to the new treatment of the disease.

Most of these reports of "reinfection," says Stern, show that their authors are unfamiliar with the literature, especially with Neisser's article giving the experimental and clinical evidence on the question. On the basis of this article and his own work, Stern states that the cases reported are not reinfections, but "superinfections."

"From work on animals it is plain that an animal infected with syphilis is susceptible of a second infection during the so-called "period of first latence." In such cases one infection appears after the other, and the author has seen cases of congenital syphilis showing primary and tertiary lesions at the same time, showing that the same rule holds good for man.

These periods of latence are evidenced by the negative Wassermann reaction which is seen in cases hitherto showing positive tests, the change taking place in the absence of all treatment. During such periods the individual is liable to a second infection, the results of which, appearing later, are erroneously regarded as reinfections.

Stern has searched the literature and has been unable to find a case of so-called reinfection that was other than superinfection; that is that the individual was not cured when the second infection took place. He believes that all cases of "reinfection" should be regarded sceptically, and that it should be remembered that a negative Wassermann reaction does not mean a cured patient.

[C. H. L.]

No. 27. JULY 3, 1913.

1. BIRK, W. *The Use of Purgatives and Anastaltics in Children.*
2. EWALD, C. A., AND FRIEDBERGER, E. *The Pathogenesis of Pernicious Anemia.*
3. v. BERGMANN, G., AND KATSCH, G. *Intestinal Motion and Form.*
4. KRUSIUS, F. F. *Refractive Errors in Older Schoolchildren in the Levant and East Indies.*
5. JESPERSEN, K. *A Case of Leukemia Treated with Benzol with Peculiar Results.*
6. STERN, H. *The Diagnosis of Atony of the Cecum.*
7. SALAGHI, S. *The Effect of Gymnastics on the Circulation.*
8. STEIN, A. E. *Treatment of Joint Disease.*
9. SEELIGMANN, L. *Chemo- and Radio-Therapy in the Treatment of Joint Disease.*

[C. H. L.]

MÜNCHENER MEDIZINISCHE WOCHENSCHRIFT.

No. 30. JULY 29, 1913.

1. *ABDERHALDEN, E., AND ANDRYEWSKY, P. *The Value of the Optical and Dialysis Methods in Infectious Diseases. Studies on Tuberculosis in Cattle.*
2. KOLB, K. *Can Abderhalden's Ferment Reaction Determine the Presence of a Persistent or Hyperplastic Thymus?*
3. v. GAMBAROFF. *The Diagnosis of Malignant Tumors and Pregnancy by Abderhalden's Method.*
4. WIEGELS, W. *Ileus and Appendicitis.*
5. FISCHER, J. *Sea-sickness and Vagotony.*
6. *WULFF, A. *The Treatment of Burns by Rovsing's Method.*
7. KIRCHBERG, F. *Compression and Suction as Methods of Treatment.*
8. CUNTZ, W. *Unfavorable Results from the Use of Hexamethylentetramine. (Urotropin.)*
9. WITTEK, A. *The Treatment of Granulating Wounds.*
10. VOLLERT, R. *The Treatment of Herdeolum and Blepharitis with Histopin (an Extract of Staphylococcus and a Dilute Solution of Gelatin).*
11. GOLDSTEIN, M. *Chronic Hereditary Chorea.*
12. EWALD, P. *A Typical Injury to the Medial Condyle of the Femur.*
13. WEICKSEL, J. *Syphilitic Pernicious Anemia.*
14. ROTHMANN, M. *"Negative" Pressure in the Long Bones of the Dog.*

1. It is conceivable that in infectious diseases, the causative organism itself may produce protective ferments in the blood, or cause such cell changes in specific organs that foreign material invades the plasma and so establishes ferments.

Abderhalden and Andryewsky have made the following experiments with the optical and dialysis methods. An extract was made from glanders bacilli, which was split by serum from glandered horses only. A limited series of cases were studied. More complete observations were made in tuberculosis. Organisms were extracted with tetrachlorcarbon and the insoluble residue washed with distilled water until the filtrate failed to react with ninhydrin. This bacillary peptone solution was used according to the usual technic. Rabbits and dogs were taken. In every case, animals infected with a suspension of dead organism, with the peptone or with living organism, showed protective ferments in the blood. Slaughtered cattle were then studied. Certain animals even with tubercular organs showed no ferment reaction. This was explained by positive results when an extract of the bovine type of organism was used. An interesting feature was that the reaction was only obtained when a generalized process was present. In 50 cases of localized tuberculosis, ferment action occurred only 10 times.

This observation lead to the following experiments. Pieces of caseous lung were extracted and a peptone solution made. This was split only by animals with pulmonary tuberculosis. No ferment reaction occurred when miliary tuberculosis was found at autopsy.

From these results it seemed that these methods might be of value in the diagnosis of infectious disease and also in recognizing what organs were involved. They further demonstrated that protective ferments have an action in infectious diseases. Abderhalden and Andryewsky conclude that more detailed studies along such lines should be made. Positive conclusions as to the value of these methods in the study of infectious diseases is left to clinicians.

6. Wulff reports 60 cases of burns treated by Helsted and Rovsing's method. After the patients entered the hospital the skin around the burned area and the burn itself were cleansed carefully with soap, water and corrosive alcohol. The cleaned area was

covered with sterile gutta percha in which numerous small holes were made. On this was placed a thick layer of antiseptic gauze and over the whole a sterile non-absorbent pad. Such local treatment was supported by narcotics, stimulants or saline infusion as seemed necessary.

The advantage of this treatment is that the dressing is antiseptic, can be changed without discomfort, there is the least possible infection and necrotic areas are quickly cast off, giving opportunity for epithelium to form. As a result rapid healing occurs without contracture formation.

Of the 60 cases so treated 43 recovered. The greatest mortality occurred among children and adults with third degree burns. Of 46 cases of second degree burns, 37 recovered while only five of 13 third degree burns. Wulff believes that these figures speak for the efficacy of this form of treatment. [R. F.]

Wiener Klinische Wochenschrift.

No. 27. July 3, 1913.

1. Bauer, R., and Habetin, P. *Further Experience in Luetic and Post-Luetic Affections of the Kidney.*
2. Bauer, F. (Second report.) *Demonstration of Tissue-Destructive Ferments in the Serum by Means of the Abderhalden Dialysis Reaction.*
3. Beach, P., and Weltman, O. *The Inhibitory Reaction of the Spleen in Sarcoma in Rats.*
4. Kelling, G. *Comparative Studies of Extracts of Various Yolks and Human Carcinoma Serum, in Regard to Their Power to Give a Positive Meisostigmine Reaction.*
5. Dostal, H., and Ender, F. *Differentiation of Acid Fast Bacteria.*
6. *Sophir, R. *On the Technic of Intravenous Injections.*

6. The author presents a new intravenous needle for which he claims the following advantages:

(1) It is slightly concave so that the injection end can be comfortably handled without lying closely to the arm.

(2) It has a collar which permits firm application to the arm and prevents displacement.

(3) Fixation of the needle is easily accomplished with the left hand leaving the right free for the injection.

[F. S. K.]

No. 28. July 10, 1913.

1. Hope, E., and Rihl, J. *Experimental Investigation of Delayed Pulse.*
3. Exner, A., and Karplus, J. *Extraction of a Projectile from Third Ventricle.*
3. Vogel, R. *Gall-Peritonitis.*
4. Elfe, J. *Study of the Islands of Langerhans in the Pancreas.*
5. Franke, M. *Alimentary Levuloseurea in Chronic Nephritis and the Relationship of Disturbed Function of the Kidney and Liver.*
6. *Januschke, H. *The Action of Subcutaneous Adrenalin in Reducing Inflammation.*
7 Bergengruen, P. *Reminiscences from the Russo-Japanese War.*

6. The author experimenting on a rabbit showed that the various analgesics and adrenalin produced an inhibition of the exudate produced in the eye by mustard oil. This led to the belief that these substances should be used clinically in arthritis, and he notes a case of arthritis resistant to analgesics in which the swelling subsided under adrenalin injections.

[F. S. K.]

Revue de Chirurgie.

July, 1913.

1. *Albe, F. V. *Graft of a Part of the Tibia Into the Dorsal Spine in the Treatment of Pott's Disease.*
2. *Nimier, H., and Nimier, A. *Treatment of Fractures of the Petrous Bone.*
3. *Couteaud, M. *Metastatic Abscesses of the Brain in Connection with Hepato-Pulmonary Suppurations.*
4. *Marquis, E. *Corrosive Sublimate in Surgery.*
5. *Guibal, P. *Unilateral Resection of the Internal Jugular and of the Pneumogastric.*

1. Albee of New York reports his work on bone-grafting in the treatment of Pott's disease. He has now done 55 of these operations, of which 34 were in the thoracic region, 19 in the lumbar, and 2 in the cervical. The results were all excellent. He describes his technic and considers the treatment ideal, particularly in acute cases.

2. The authors review from the literature a number of cases of petrous fracture and report one from their own experience. They believe that such cases should be treated not by simple decompression, but by craniectomy so adapted as to relieve pressure, evacuate clot, and afford adequate drainage to the site of injury.

3. Couteaud reports five cases of his own and selects from the literature three emphasizing the close etiologic association often existing between cerebral abscess and pulmonary infections.

4. Marquis, from an elaborate experimental study, concludes that of all the common surgical disinfectants, corrosive sublimate is the least penetrating and, in spite of its strong antiseptic power, the least bactericidal.

5. As a contribution to the surgery of the neck, Guibal discusses the question of the harmlessness of unilateral resection of the vagus and internal jugular in the extirpation of malignant cervical tumors. He concludes that the procedure is not free from danger; that it should be practised only in case of absolute necessity; and that, when possible, bilateral ligature, or suture, or venous graft is preferable. [R. M. G.]

Obituary.

JOHN B. SWIFT, M.D.

Dr. John Baker Swift of Boston died July 29th, in his sixtieth year, after an illness extending over about three years. He was born in Brooklyn, N. Y., and his father, who was also a physician, served in the war of 1812 in the capacity of surgeon. Dr. Swift was graduated from Amherst College in 1873 and studied medicine at the Harvard Medical School, receiving his degree from that institution in 1877. He was later appointed house pupil at the Massachusetts General Hospital and had a similar service at the Carney Hospital. After completing his hospital training he became port physician for nearly a year, and for a short time was resident physician at the Massachusetts General Hospital. When he began private practice he quickly became known as a specialist of distinction in his chosen field, obstetrics and the diseases of women. During this period of his

life he served on the staff of the Free Hospital for Women and was also officially connected with the Carney Hospital. He resigned from both of these positions of responsibility a number of years ago. Dr. Swift was a member of many societies, and he maintained up to the time of his last illness a vital interest in his profession. His friends, of whom he numbered many, will long recall his kindly face and friendly manner. He was a skilful physician, trusted and beloved by his patients, and must have taken much satisfaction in the knowledge that he had earned and deserved their lasting friendship. To his brother physicians and fellow members of the Obstetrical Society who were closely associated with him for twenty or thirty years, the loss of his companionship will be keenly felt. His life and deeds will leave many pleasant memories. His wife and two sons survive him, one of whom, Dr. John Baker Swift, is carrying on the medical traditions of the family.

Miscellany.

THE STABLE FLY AND POLIOMYELITIS.

IN an article published in the *Journal of the American Medical Association* for Aug. 16, Dr. W. A. Sawyer, director of the hygienic laboratory of the California State Board of Health, and Dr. W. B. Herms, assistant professor of parasitology in the University of California, reach the following conclusions in regard to the question of the transmission of poliomyelitis by means of the stable fly:—

"1. In a series of seven experiments in which the conditions were varied, we were unable to transmit poliomyelitis from monkey to monkey through the agency of the stable fly.

"2. Further experimentation may reveal conditions under which the stable fly can readily transfer poliomyelitis, but the negative results of our work and of the second set of experiments of Anderson and Frost[1] lead us to doubt that the fly is the usual agent in spreading the disease in nature.

"3. On the basis of the evidence now at hand we should continue to isolate persons sick with poliomyelitis or convalescent, and we should attempt to limit the formation of human carriers and to detect and control them. Screening of sick rooms against the stable fly and other flying insects is a precaution which should be added to those directed against contact infection, but not substituted for them.

"4. The measures used in suppressing the house fly are not applicable to the control of the stable fly owing to its different breeding habits and food supply. Methods should be devised for diminishing the numbers of stable flies as they are a great annoyance to cattle and, in all probability, are capable of transferring and inoculating a number of the diseases of animals."

It will be remembered that Professor M. J. Rosenau was able to show that the virus of poliomyelitis might be transmitted through the agency of the stable fly, a conclusion which was apparently confirmed by the earlier experiments of Drs. John F. Anderson and W. H. Frost. The question evidently demands and should receive further investigation to determine positively how large a rôle, if any, the stable fly plays in the spread of the disease.

[1] Anderson, John F., and Frost, W. H.: Poliomyelitis: Further Attempts to Transmit the Disease through the Agency of the Stable-Fly (*Stomoxys calcitrans*), Pub. Health Rep., Washington, May 2, 1913, vol. xxviii, p. 833.

Correspondence.

BRIGHTON AND THE BRITISH MEDICAL ASSOCIATION.

(*From Our Foreign Correspondent.*)

BRIGHTON, ENGLAND, July 26, 1913.

Mr. Editor: The meeting of the British Medical Association, just concluded in this city, has proved after all much like similar occasions in our own country, though perhaps taken somewhat more seriously by the participants. It was attended largely by the general practitioners of the kingdom, with an interspersion of specialists and men of eminence from the great cities. Naturally the topic foremost in everyone's mind and conversation, if not in his official utterance, was National Insurance, the political measure that is alleged to have caused a wide breach in the British medical profession. Already, be it said, the term "panel doctor" is becoming one of ridicule in the comic press, and the working of the act appears to be nearly as unpopular with the public as with the majority of physicians.

So far as the Association was concerned, its formal consideration was confined to the representative assembly; and as most of the deliberations of this body were conducted in secret session, its exact attitude on the question is somewhat difficult to determine. According to public reports given out, the meeting approved an amendment to the proposed amending bill of the Insurance Act, under which insuring persons should be allowed to make their own arrangements. "The meeting then considered the report of the Council on the provision of medical attendance and treatment of persons to whom the Act does not apply. The following principles were laid down: 1, Payment for uninsured persons should be equivalent to that paid in respect to insured persons. 2, The income limit shall be £104 per annum. 3, Free choice of doctor. In a discussion on the adoption of a trade union policy, it was urged that a union registered under the Trade Union Acts would enjoy immunity for its funds, and would have greater disciplinary powers over its members than a voluntary organizataion registered under the Companies Act as is the British Medical Association. It was objected that it was possible to achieve the object desired, under the existing constitution of the Association. The debate was closed, and a vote was taken with the result that the adoption of the trade union principle was rejected by 11,556

to 5,262." To an American at least it is gratifying that the British medical profession is not yet ready to organize itself into a trade union. It would seem that its dignity can afford to adopt other methods than those of coercion of its own members by an arbitrary authority.

Of the individual papers presented before the society perhaps the most interesting from a general point of view were the respective addresses in medicine and in surgery. For his address in medicine Dr. George R. Murray chose a subject "Some Aspects of Internal Secretion in Disease." He reviewed briefly the functions of the ductless glands, considered their interrelationships, and their bearing on certain pathologic conditions. In conclusion he said: "This brief survey of some of the results which follow any abnormal ebb and flow of the internal secretions in disease indicates how important are the functions of the ductless glands. As yet we are able to recognize with certainty only the maladies which are due to well marked changes in the structure and function of these organs. It is probable that some less definite forms of ill-health may also be due to variations in the activity of one or more glands, the significance of which we shall be better able to appreciate when our knowledge of their functions becomes more exact.

"What, however, we most desire is to find satisfactory means by which we can supplement deficient secretion on the one hand and control harmful overactivity on the other. We have seen how far these objects have been attained in some cases. It is dangerous to attempt to forecast future possibilities, but it is not unreasonable to hope that in the light of further knowledge it may be possible adequately to supplement suprarenal insufficiency and so relieve the symptoms of Addison's disease. The treatment of Graves's disease and acromegaly will become more satisfactory as we acquire more adequate methods of checking the abnormal flow of secretion, when it is to be hoped that surgical measures will become unnecessary. Pancreatic diabetes may also prove to be more amenable to treatment by methods at present beyond our reach. Clinical medicine has already gained enormously from results obtained by experimental pathology, and we may look to the future with confidence for still further advances which will place more simple and efficient methods of treatment within our reach."

Surely the possibilities of opotherapy have not yet been fully explored, and important results may be expected from their further study in the future.

In his address in surgery, Sir Berkeley Moynihan reviewed some of the "Gifts of Surgery to Medicine," especially ether anesthesia, antisepsis and anoci-association, and considered their particular application to the treatment of peptic ulcer, gall-stones, and pancreatic disease. He said in conclusion, by way of summary: "Medicine in its quest of knowledge may rightly levy a tribute from every other science with which it comes into contact. Its doctrines and its practice are tested, may receive support, or be refuted by work accomplished in other fields. Surgery in recent years has proved a powerful helpmeet not only in the elucidation of those problems of internal medicine to which I have briefly referred, but also by reason of the light it has brought to bear upon the functions of many of the organs in the body. The experimental method, as a mode of inquiry, is not excelled in value by any other, and no experiments, I hold, can claim an equal rank with those which are a part of almost all surgical procedures. The chief glory of the surgeon comes from the dedication of his powers to the service of an individual; but there is a cause also to be served. In every operation something may be learnt, not only of those disorders which call urgently for relief, but of other associated, or it may be separate, conditions which chance at the same moment to be present. The researches so carried out upon a human patient are performed with a sterner sense of responsibility and with a graver ritual, and are impressed by more relevant influences than attach to any other form of inquiry. Their results are accordingly of far higher value. Clinical research when seduously conducted and illuminated by the disclosures made upon the operation table, affords the most accurate of all methods of investigation into the diseases by which man is attacked. The succor of an individual should mean also the taking of a step forward in the solution or the better understanding of the manifold and perplexing problems of disease."

Sir Berkeley's humanizing attitude towards clinical research is refreshing at a time when laboratory investigation seems liable to over-emphasis as a means of medical progress.

At the general session on July 22, it was voted that the Association should meet next year at Aberdeen; and Sir Alexander Ogston, surgeon to the Aberdeen Royal Infirmary and Emeritus Regius Professor of Surgery in the University of Aberdeen, was elected the new president.

Of the individual papers presented at subsequent section meetings, it seems hardly desirable to speak, since the most important of them will be hereafter reviewed in the Current Literature department of the Journal as they appear in the *British Medical Journal* and in the *Lancet*.

It is perhaps needless to say that we found much of interest in Brighton besides the Association meetings. The history of the town, which was made the subject of Dr. Hollis's presidential address, presents not a few points of medical importance, especially since its rise into prominence as a watering-place and health-resort.

Brighton, or Brighthelmstone as it was originally called, belonged before the Norman Conquest to Earl Godwin, father of Harold, the last of the Saxon kings, who was killed at the battle of Hastings, or Senlac, in 1066. The conqueror granted the village to one of his liegemen, William de Warrenne, afterwards Earl of Surrey, to whom Domesday Book in 1086 records that the inhabitants paid an annual rental of 4000 herrings, fishing being their chief industry. Throughout the Middle Ages, however, Brighton remained inconspicuous. It frequently suffered from incursions by the French and that it never attained any commercial importance is evidenced by the fact that it was not included among the Cinque Ports or their subsidiary towns.

The real beginning of Brighton's modern greatness was due to a physician, Dr. Richard Russell, son of a London bookseller. In 1750 Dr. Russell published his famous "Dissertatio de Tabe Glandulari et de usu aquae Marinae in Moebis Glandularum." He was the original exponent of internal and external sea-water therapy which he employed for "all kinds of tuberculous affections, in scurvy, constipation, flux of the belly, ozena, skin eruptions, renal calculus, scirrhus," and a host of other conditions. In 1753 he settled at Brighton to pursue there his special methods of treatment, and thither his fame and success began to attract people of wealth and fashion who came to be his patients and remained to make Brighton a thriving resort.

Russell died in 1759, and was buried with this appropriate epitaph:

"Clara per omne arvum Russelli fama manebit,
Dum retinet vires unda marina suas."

His practise was taken by Dr. Anthony Relham, who in 1761 published "A Short History of Brighthelmstone," in which he still further exalted the therapeutic virtues of the town and its waters. After Relham's death, Dr. John Awsiter continued the medical promotion of Brighton, and to this trilogy of physicians the town owes the establishment of its reputation. Awsiter was most inclusive in his claims for the efficacy of sea-water treatment. He writes:

"Sea water is a noble remedy for all diseases of the skin, old ulcers, and diseases of the glands. Even hereditary complaints have yielded to it, and it is a

present cure for the bite of a mad dog. Hence by a proper use of sea-water, obstinate breakings-out, old and inveterate sores on any part of the body, diseases of the glands, the evil, and even cancers (if the parts are not too much injured) may be remedied. Sea-water bathing is serviceable also in rheumatism, painful contractions of the limbs, palsies, and epilepsies. Respecting cancers it may not be amiss to observe that by keeping them constantly wet with cloths dipt in some of our English mineral waters, the malignity of them has been destroyed and cures performed. But I am inclined to think sea-water more effectual. Sea-water is serviceable also in some female complaints and one in particular: in cases of barrenness I look upon sea-water to stand before all other remedies."

After the doctors had "discovered" Brighton, many persons of social and other distinction flocked thither to enjoy its supposed miraculous advantages. In the latter comprehensive category should be mentioned notably Samuel Johnson, Boswell, the Thrales, and Fanny Burney, a coterie whose experiences there are amply recorded by the inimitable biographer. But the great social prestige of Brighton begun in 1782 when George IV first came there as Prince of Wales. His genial soul was fascinated by the town and its opportunities for pleasure, and there he later built his gorgeous pavilion and as king spent much of his time in riotous living. Thackeray has given us an abundant account of these debaucheries in the "Four Georges." Indeed, Thackeray is the literary, as George IV was the social, genius of "kind, cheerful, merry Doctor Brighton." Particularly in "The Newcomes" does he expatiate on the delights and charms of this "city by the sea," and on the wonders of its great chain pier where "for the sum of two-pence you can go out to sea and pace this vast deck without need of a steward with a basin."

Modern Brighton, it must be confessed, has lost some of its attractiveness as it has become larger and more respectable, as it has ceased to be the resort of distinction and has become that of the "ignobly decent multitudes." Its water-front is now a glorified Revere Beach and its background serried rows of uninspiring cottages packed in herring-bone pattern on the slopes of little, low, uniform hills. Nevertheless it is really a vastly better place than it used to be, and contains all the needful provisions for human welfare that were lacking in its days of greater splendor. It has many hospitals, the Royal Sussex County, the Royal Alexander for Sick Children, the Sussex Eye Hospital, a Throat and Ear Hospital, a Women's Hospital, a Dental Hospital, a Dispensary, and several smaller institutions. George's "pleasure-dome" has been converted into a great assembly-hall, and that



BRIGHTON PAVILION.

former scene of royal orgies was used this week for the meetings of the British Medical Association. This change is typical of those which have transformed the town. Brighton today is a city of 173,000 inhabitants, a city largely of pleasure-seekers, it is true, but a city of quietness and good repute, well deserving still its title as "the Queen of English watering-places."

There is much more that might be written, not only about Brighton but of all the fair country of Sussex that lies about it,—of Chichester, of Pevensey and Hastings, with their Roman and Norman relics and traditions, of Bodiam, with its moated castle brooding in domestic seclusion, of the breezy South Downs and all the romantic story of the Cinque Ports. But "*niter doctores litterae sileant.*" Sussex has well been called "the garden of England," and after a week in its chosen precincts one can easily agree with Kipling's

"Each to his choice, and I rejoice
The lot has fallen to me
In a fair ground—a goodly ground—
Yea, Sussex by the sea!"

PEREGRINUS NOVUS.

RECENT DEATHS.

DR. LOUIS PEISER, of New York died at Carlsbad, Germany, on August 5. He was a native of Germany, and was graduated at Erlangen in 1886. At the time of his death he was attending physician to the German Hospital and chief of the internist department of the German Dispensary.

DR. HENRY CUSHMAN TURNER of Brooklyn died from Bright's disease at Washington, Conn., on Aug. 16. He was 68 years old, and was graduated from the College of Physicians and Surgeons, New York, in 1867. At the time of his death Dr. Turner was consulting physician to the Norwegian Hospital, Brooklyn.

DR. EMERSON P. MCGEORGE of Woodstown, Salem County, N. J., a son of Dr. Walter McGeorge of Camden, committed suicide by shooting on August 13. He was 42 years old, and was graduated from the Jefferson Medical College, Philadelphia, in 1894.

DR. WILLIAM HENRY MCCARTHY, a Fellow of The Massachusetts Medical Society since 1897, and a prominent physician of Brockton, died at the Brockton Hospital August 22, 1913, following an operation for appendicitis, aged forty-six years.

APPOINTMENTS.

Dr. Francis P. Denny has been appointed agent of the Brookline Board of Health to take the place of Dr. H. Lincoln Chase who has resigned after a service of twenty-two years. Dr. Denny has already served his town as director and chief bacteriologist of its laboratory. *Dr. Robert H. Hastings* has been appointed medical superintendent of the Brookline Board of Health Hospital.

BOOKS AND PAMPHLETS RECEIVED.

Manual of Obstetrics, by John Osborn Polak, M.D., D. Appleton & Co. 1913.

Gout, by James Lindsay. Oxford University Press. 1913.

Skin Diseases in General Practice, by Haldin David. Oxford Medical Press. 1913.

Industrial Poisoning, by Dr. J. Rambousek. Longmans Green & Co. 1913.

A Clinical Manual of Mental Diseases, by Francis X. Dercum, M.D. W. B. Saunders Co. 1913.

Original Articles.

THE MODE OF TRANSMISSION OF POLIOMYELITIS.*

BY M. J. ROSENAU, M.D., BROOKLINE, MASS.

From a practical standpoint the mode of transmission is the most useful single factor in combating a disease. The health officer would prefer to know the precise mode or modes of transmission of any disease rather than its cause, or pathologic anatomy, or even its treatment. Hence a large amount of work has been done to determine how the virus of poliomyelitis leaves the body, how it enters its victim, and the route it takes from one person to the next. Despite all the thought and work that has been focused upon this problem, the mode of transmission of poliomyelitis remains an open chapter, and although much light has been thrown upon the subject, the present state of our knowledge does not permit of dogmatic, much less final statements.

There are two avenues of approach to a problem of this sort; one, through epidemiological field studies, and the other through laboratory research work. Both these trails have been blazed. Much of the epidemiological work has given conflicting results, and much of the laboratory work has likewise been confusing. The evidence obtained from the field and that from the laboratory, however, do not have an equal standing before the court. The fallibility of epidemiological evidence has long been recognized. Sanitarians who have had a long experience know full well that it has always been necessary to revise the chapter on the epidemiology of a disease as soon as its mode of transference is discovered. All those who have collected field data are fully aware of the pitfalls. Errors are unavoidable from the very nature of the circumstances; the personal equation and also the limitations of the investigator often warp or dwarf the important facts. In any event, the enormous mass of data collected by careful investigators in the field is perplexing and difficult to analyze. Even if the epidemiologist has the detective instinct of a Sherlock Holmes, and the statistical genius of a Karl Pearson, he may be wholly carried off the track by the missed cases, and by the carriers, or by an incomplete knowledge of unusual forms of the disease, or by unknown factors in its etiology. On the other hand, the exact observations from the laboratory often throw a flood of light upon our field work, and when the two are correlated we have real and useful additions to our knowledge.

There are many theories to account for the spread of poliomyelitis. The chief ones may be summarized under four headings: (1) that it is a "contagious" disease, communicated directly from person to person through the secretions from the mouth and nose; (2) that it is an insect-borne disease; (3) that it is conveyed through dust; (4) that it is an alimentary infection, the virus being taken in with food and drink and absorbed from the digestive tube. There is evidence from the field and from the laboratory to support each one of these theories. These four theories, however, do not include all the views brought forward to explain the mode of transmission of infantile paralysis. For example, the hypothesis has been expressed that the disease is transmitted to man from lower animals, particularly domesticated animals, but there has been no convincing demonstration that the infection occurs naturally in any other animal than man.

In view of the uncertainty concerning the mode of transmission of poliomyelitis it is worth while to take stock of our knowledge of this subject. I have, therefore, briefly summarized the evidence, pro and con.

That anterior poliomyelitis may be a contagious disease was first announced by Wickman of Sweden, whose epidemiological investigations upon the subject are now classic. Wickman formulated a new symptomatology; his greatest contribution to the subject was perhaps the discovery that abortive cases of the disease occur. These mild, and hitherto unrecognized clinical forms, shed an entirely different light upon the epidemiology. Wickman brought forward strong evidence in support of the view that the disease was transmitted directly from person to person, especially through the abortive or missed cases, as well as through suspected carriers.

The theory that infantile paralysis is a "contagious" disease was the first, and is the most natural, explanation to account for its spread. In many respects infantile paralysis resembles epidemic cerebrospinal meningitis, with which disease it is, in fact, sometimes confused. Flexner has emphasized the resemblance between the two infections, and has been an able and valiant champion of the view that the virus in both these diseases leaves the body in the secretion from the mouth and nose and enters the victim through the same channel. Corroboration of this view has come especially through the work of the Swedish investigators, Kling, Petterson and Wernstedt, who claim to have demonstrated the virus in the secretions from the nose and throat, not only in cases during the acute stage, but during various stages of convalescence, and even in healthy carriers. Futhermore, Osgood and Lucas demonstrated the virus in the mucous membrane of a monkey 5½ months after recovery from the experimental disease and recently they recovered it from a chronic carrier in man. Kling claims to have found the virus in the nasopharynx up to

* Read before The Massachusetts Medical Society, June 11, 1913.

seven months in a few human cases. Finally, it is possible to infect monkeys simply by placing the virus upon the uninjured mucous membrane of the nose and throat. The evidence, therefore, that we are dealing with an infection that leaves the body in the secretions from the nose and throat, and enters by the same channel, is strong, both from epidemiological studies and from laboratory investigations. That this evidence, however, is not conclusive, may be gleaned by a little closer consideration of the facts.

It is important first of all to remember that we have no clear-cut criterion by which to judge what is and what is not anterior poliomyelitis. When the symptoms are characteristic and the lesions typical we are justified in making a definite diagnosis. In any critical case, however, further corroboration must be had by transferring the virus from monkey to monkey in order to demonstrate that we are, in fact, dealing with a communicable infection capable of reproducing itself. When we apply this criterion to some of the work that has been reported, to support the view that infantile paralysis is a "contagious" disease, we find the evidence not so strong as the conclusions of the experimenters would lead us to suspect. The mere fact that an animal has an acute paralytic affection, associated with perivascular infiltrations, degeneration of the neurons, and occasional hemorrhages into the cord, is not enough, in the present state of our knowledge, to justify us in labeling it poliomyelitis. The criterion in critical cases must be the power of the virus to reproduce itself and repeat the symptoms and lesions of the infection through succeeding generations.

There has been a long series of negative results in attempts to demonstrate the presence of the virus in the secretions from the mouth and nose. Strauss, Rosenau, Sheppard and Amoss, Flexner, and also Anderson, and others, have all reported failures in this regard. These negative results have a certain degree of positive significance, for if the usual means of transmission of the disease is through the secretions from the mouth and nose we should not have great difficulty in demonstrating its presence in these secretions. Only Kling,* Petterson and Wernstedt have found it comparatively easy to make this demonstration. These investigators believe that they have established the important fact that carriers occur, and are several times more numerous than the frank and abortive cases of poliomyelitis combined. Yet Flexner, Clark and Frazer report only one positive result out of numerous trials. They succeeded in demonstrating the virus of poliomyelitis in the washings from the nasopharynges of the parents of a child suffering with poliomyelitis. The parents, however, showed no symptoms of illness.

The virus of anterior poliomyelitis is widely diffused throughout the body. It has been found in greatest virulence and concentration in the spinal cord of infected persons and animals. The virus is also quite constantly present in the brain and other organs and tissues as, for instance, the mucous membrane of the nose and pharynx, the mesenteric glands, the axillary and inguinal lymph nodes, and even in the blood and the cerebrospinal fluid. Recently the virus have been demonstrated in the mucosa of the intestinal tract, and finally in the feces. It is, therefore, no surprise that a virus with such a wide distribution and so generally diffused throughout the body may occasionally be found in the secretions from the nose and throat. These facts make us hesitate to conclude that infantile paralysis must be a contagious disease, simply because it has been demonstrated experimentally that the virus may be found occasionally in the secretions from the nose and throat; it would be just as logical to conclude that the disease in its spread resembles typhoid fever because the virus has been demonstrated in the mucous membrane of the digestive tube and has also been found in discharges from the intestines.

There are other difficulties which must be met with before we can accept as a proved fact that infantile paralysis is a contagious disease. Careful and masterly epidemiological investigations of poliomyelitis have been conducted by the Massachusetts State Board of Health extending over a period of five years. The results of these studies were summarized by Dr. Mark W. Richardson, who plainly brought out the fact that the disease, as observed in Massachusetts, does not have the earmarks of a contagious disease. The disease prevails in rural rather than under urban conditions. In fact it shows little tendency to invade cities, and when it does enter the city it does not strike the crowded, congested portions of the city. In all other contagious diseases spread through the secretions from the mouth and nose, epidemic outbreaks have been observed in crowded sections of cities, in asylums, hospitals, jails, on shipboard, and similar places where the spread of infection by contact is favored. This is the case with scarlet fever, diphtheria, measles, mumps, whooping cough, influenza, common colds, pneumonia, and finally cerebrospinal meningitis. Cases of infantile paralysis in all stages of the disease have been taken into the hospitals, orphan asylums, children's homes, reformatory schools, and other institutions in the Commonwealth, but in no instance during the

* Kling found it comparatively easy to demonstrate the presence of the virus in the washings from the mucous membranes. Thus he found that 78 per cent. of the monkeys contracted the disease after inoculation with water in which the mucous membranes of poliomyelitis cadavers had been rinsed. The virus was also found almost constantly in the secretions from the nose and throat of acute poliomyelitis patients. These results are so much at variance with the results obtained by American investigators that the question has arisen whether we are dealing with the same virus in America as that found in Sweden, or whether the virus has marked differences in virulence, or whether there is some experimental error or more likely, an incorrect interpretation of results.

five years in which the disease has been studied has it ever spread under these circumstances.

The seasonal prevalence, furthermore, of infantile paralysis does not suggest the seasonal prevalence of the diseases spread by contact through secretions from the mouth and nose. Almost all the diseases, including cerebrospinal meningitis, occur more particularly during the cold months of the year, whereas the prevalence of infantile paralysis is more marked during the summer months.

The curve of seasonal prevalence of infantile paralysis corresponds more closely with that of typhoid fever and diarrheal diseases than it does with the group of infections spread through the secretions from the mouth and nose. Typhoid fever has its season of maximum prevalence during the warm weather. Water-borne epidemics are apt to occur in the colder months of the year, and milk outbreaks may take place at any time. Normal or residual typhoid fever is a warm weather disease and corresponds in this regard with cholera, dysentery, and the infantile diarrheas, and other intestinal infections. The only other group of diseases which prevail especially during the warm weather are those which are insect-borne. Yellow fever stops with the frost. The most pernicious form of malaria (aestivo-autumnal) extends into the autumn, but the autumn of tropical regions is warm, rainy, and favorable to mosquito life. The season of maximum prevalence of the insect-borne diseases corresponds, of course, to the season of maximum prevalence of insect life, viz., the summer time.

It has long been evident to the student of epidemiology that the group of "contagious" diseases spread through the secretions from the mouth and nose occur throughout the entire year, but prevail especially during the colder months. On the other hand, there are two groups of diseases having their maximum seasonal prevalence during the warm weather, viz., the intestinal infections and the insect-borne diseases. Of these two groups of summer diseases the insect-borne group disappears almost to the vanishing point in temperate latitudes with wintry climates, whereas the intestinal diseases continue to smoulder all winter long, with occasional exacerbations, and sometimes even with outbreaks of epidemic proportions. These are generalizations and may not be applicable to a specific case. When we study the seasonal prevalence of infantile paralysis in all parts of the world, however, we find a summer prevalence sometimes extending into the fall, but dying down almost out of sight during the winter and spring. So far as we may judge, then, from the seasonal prevalence of this infection, it corresponds more closely with that of the insect-borne type than any other group of diseases.

If poliomyelitis is a contagious disease, then we must construct secondary theories to fit certain known facts in its distribution, seasonal prevalence and age predilection: facts which are at variance with this theory. The bulk of the cases of poliomyelitis may be very mild, and only those cases perhaps are recognized that reach the threshold of clinical observation. A similar situation would be presented if we knew diphtheria only by the cases of post-diphtheritic paralysis. Each case of poliomyelitis, in accordance with the assumption that it is spread by contacts would be surrounded by a number of healthy carriers, but serious epidemics do not occur because the infected persons are not very susceptible. Why epidemic outbreaks should occur in rural conditions and not in the congested parts of cities is, however, not explained by this assumption. The assumed barrier of resisting individuals apparently isolates the case, but, in fact, favors the spread of the infection. It seems to be a general rule that a region where the disease had been epidemic is spared further outbreaks later. This phenomenon may be explained by assuming that a large part of the population has become immunized by having had the disease in an attenuated and unrecognized form. It is further assumed that in rural districts there is not the same opportunity perhaps to acquire immunity, and when an epidemic occurs it is liable to run an exceptionally severe course. The loopholes in these conceptions are evident to students of the disease, but it is an interesting speculation that deserves careful consideration and further study.

That infantile paralysis may be an intestinal infection has not been given the consideration that it deserves. In addition to a suggestive seasonal prevalence, there is the age incidence and gastro-intestinal symptoms which often usher in an attack; furthermore, we have the fact that monkeys may be infected by feeding, and the further important fact that the virus has been demonstrated in the intestinal mucosa, and even in the discharges from the bowels. No convincing outbreak of infantile paralysis has ever been associated with water, milk, meat, or other article of diet. Furthermore, we would expect a somewhat different epidemiology if food were a medium in transmitting the virus. The inherent unreliability of epidemiological data, especially of a disease such as infantile paralysis, has already been noted, and the possibility of the virus entering by the digestive tube should be borne in mind by investigators. It took a long time to learn that milk may convey scarlet fever and other infections, and that pork may be responsible for trichinosis.

There has been a suspicion that man contracts infantile paralysis from the lower animals. Hill incriminates horses. Thus, colts in Minnesota have suffered with a disease clinically like poliomyelitis, and the hypothesis has been proposed that the virus is spread through the intestinal discharges of horses which, drying, fly about as dust. A number of other students have associated it in one way or another with horses.

Joest has described in detail the lesions of a disease of horses known as Bornasche's Krankheit, which has a similarity to poliomyelitis. Langhorst considers a possible relationship with the dog and cites two cases, in one of which the patient was bitten by a dog; the other patient was licked by a dog, and at the same time had a few scratches on his hand. In both cases the diagnosis of rabies was not excluded. In fact, there are many striking resemblances between rabies and poliomyelitis. All laboratory investigators who have worked with these two diseases have been struck with this resemblance. Both diseases are acute paralytic infections. The virus in both diseases is found in its greatest concentration and virulence in the central nervous system, but is also widely diffused throughout the body. The virus of both infections is filterable, and in both affections the brunt of the lesions falls upon the neurons of the central nervous system. There are other similarities between the two diseases which should be borne in mind, especially when studying the possible relationship between poliomyelitis and dogs.

Many observations have been made in Massachusetts and elsewhere of paralytic diseases of domestic animals occurring about the same time as poliomyelitis in man. Such paralytic diseases are common among pigs and also chickens, as well as horses, dogs, cats, etc. P. Roemer reported a paralytic disease in guinea-pigs which occurred among animals in his laboratory. The guinea-pigs died of paralysis which had some resemblance to infantile paralysis. The infection is transmissible from guinea-pig to guinea-pig by inoculation; the virus is found to be non-bacterial and filterable; the incubation period is from 9 to 12 days; the symptoms are flaccid paralysis, usually of the hind legs, with involvement of the bladder. Microscopically there is also a resemblance in the lesions of these guinea-pigs and those of poliomyelitis in man and monkeys. Roemer, however, does not claim, and there is nothing to indicate, that this paralytic disease of guinea-pigs is identical with poliomyelitis. Neustadter has recently noted a paralytic affection of guinea-pigs that were kept in a cage under some monkeys with experimental poliomyelitis. The evidence that any of these paralytic diseases were genuine instances of true infantile paralysis is far from convincing.

Animals suffer with many paralytic diseases, the etiology of a few of which is known, but most of which is a pathological puzzle. The mere fact that an animal has an acute paralytic infection, with perhaps suggestive lesions in the cord, is not sufficient basis for concluding that we are dealing with poliomyelitis. All attempts to transmit the virus of infantile paralysis to all lower animals, except the monkey, have failed. Theobald Smith, Flexner and others have made numerous attempts to carry on the paralytic diseases of pigs, chickens and other animals without success. Therefore, while it is fairly possible that some of the lower animals may suffer with poliomyelitis, perhaps in a clinically unrecognized form, and while it is possible that man may contract the infection from lower animals, the possibility is only an assumption and lacks evidence.

Another theory to account for the spread of infantile paralysis is that it is dust-borne. Hill's observations of dust and its relation to the disease in Minnesota have already been referred to. The Massachusetts State Board of Health during the five years of its epidemiological studies also considered the possibility of dust as a medium of conveying the virus, without, however, discovering any particular relationship between dust and the disease. The most suggestive evidence comes from Neustadter and Thro, who claim to have induced the disease in monkeys by inoculating them with the dust found in sick rooms. If the virus leaves the body in any considerable amount in the secretions from the mouth and nose, it is quite conceivable that the dust of the sick room may contain the virus, for we know under certain circumstanees, it retains its viability for months. Poliomyelitis does not have the characteristics of a dust-borne disease, or even of an air-borne infection, and this hypothesis has therefore been given scant credence.

The possibility that poliomyelitis may be a wound infection has been kept in mind in the investigations made by the Massachusetts State Board of Health. No particular relationship between wounds and the disease has been made out. The resemblance between infantile paralysis and rabies has already been discussed, and the fact is plain that monkeys may be inoculated through wounds; in fact, it is possible to cause the disease in the monkeys in the greatest possible varieties of ways.

Some of the reasons for considering poliomyelitis an insect-borne disease have been published in some detail in another publication, and need not now be recounted. The epidemiological evidence collected by Brues and Sheppard, and summarized by Richardson, pointed toward the stable fly, *Stomoxys calcitrans*. The successful experiments of Rosenau and Brues, soon corroborated by Anderson and Frost, incriminate the stable fly as a factor in the transfer of the virus. The seasonal prevalence, the rural distribution and other facts concerning the disease are explained on this theory. On the other hand, the experimental facts lack further corroboration, and, moreover, these experiments have not been repeated with monkeys, and we are not justified in doing so until further studies, which are now being made, are available. Schuberg and Kuhn have recently demonstrated that a number and variety of infections may be transmitted by means of the stable fly. In their experimental work they obtained positive results with relapsing fever, anthrax, South-west African horse sickness (Pferdesterbe) and epithelioma of fowls (Hühnepocken).

Howard and Clark conducted a series of experiments on insect transmission with the virus of poliomyelitis, at the Rockefeller Institute, with very interesting results. It was found that the domestic fly (*Musca domestica*) can carry the virus of poliomyelitis in an active state for several days on the surface of the body, and for several hours within the gastro-intestinal tract. These experiments were made by permitting the flies to feed upon the virus, then killing the insects, grinding up their bodies, filtering, and injecting the filtrate into monkeys. Howard and Clark found that mosquitoes (*Culex pipiens, C. sollicitans,* and *C. cantator*) did not take up and maintain in a living state the virus from the spinal cords of monkeys. Negative results were also obtained with lice (*Pediculus capitis* and *P. vestamenti*). The experiments with lice were designed to stimulate natural conditions, but it was found that these insects did not take the virus of the blood of monkeys or maintain it in a living state. The bedbug (*Cimex lectularius*), however, gave positive results in that it was found in one experiment to have taken the virus with the blood from infected monkeys and maintained it in a living state within the body for a period of seven days. When we consider that the virus exists in the blood of monkeys in a very dilute state, for it requires a number of cubic centimeters of blood to infect another monkey, we are almost driven to the conclusion that the virus must have become concentrated (grown?) in the body of the bedbug. The results of Howard and Clark may, therefore, assume an enlarged significance.

If infantile paralysis is transmitted in nature largely or mainly through the agency of the stable fly, this fact would render the suppression of the disease comparatively easy, whereas if the infection is spread largely from person to person through the intervention of carriers and missed cases, the difficulties of the problem will be multiplied manyfold. In the case of cerebrospinal fever, it has been shown that carriers are ten times as numerous as the cases; if the conditions are analogous in infantile paralysis, the suppression of the disease will probably have to wait upon specific therapy, either of a preventive or curative nature.

The health officer impatiently asks: "Is poliomyelitis a contagious disease?" "Is it an insect-borne disease?" "Is it dust-borne?" "Is it contracted from lower animals?" "Is it an alimentary infection?" or, "Is it possibly like typhoid fever, spread by several or all of these various methods of conveyance?"

In the present state of our knowledge a definite answer cannot be made to these important queries, and we must await further work before the health officer can direct his measures to combat infantile paralysis with any assurance of success. Meanwhile, the public must be given the benefit of the doubt, and the infection fought along all probable lines.

CONTRIBUTIONS TO THE NEUROLOGY OF THE CHILD. III. FURTHER OBSERVATIONS UPON NERVOUS AND MENTAL SEQUELAE OF ENCEPHALITIS IN CHILDREN.

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AND

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The outcome of a previous communication, dealing with convulsive tendencies during and after encephalitis, has given us added stimulus, not only to follow up a larger series of cases, but also to keep in touch with the living ones previously studied.* We drew attention at that time in our conclusions to the fact that many of the children (5) showed some motor or mental sequelae. We felt from this investigation that neither medicine in any narrow sense nor social service in any direction whatever could afford to neglect any condition which apparently leaves such a high percentage of nervous and mental symptoms in its train. We have tried to find out what changes have occurred in two years among the nine surviving cases which were examined in our first study, and have followed the subsequent history of later cases (17 in number), which have since been treated at the hospital or have been brought to our notice by more careful examination of older hospital records. We have tried to do this in such a way that our readers might be able to gain a better idea of the class of cases studied. For this reason we have outlined the history of each case. These descriptions are meant merely to illuminate the subsequent course, rather than the strictly hospital and immediate diagnostic or therapeutic aspects of encephalitis. We are at present interested in their subsequent medical and social development. We have accordingly in no case given a complete history, but have merely picked out points which would best picture each case to any one interested in following with us their subsequent medicosocial course, which resolves itself so often into a study of the mental outcome. Our charts follow the outline made in our first contribution.

The protocols of all the cases, old and new, follow:—

* The previous study first published in February, 1912, was made in 1910 and presented by one of us (E. E. S.) before the American Neurological Association meeting in Washington.

SUBSEQUENT PROTOCOL OF OLD CASES.*

No.	Subsequent Course.	Present Condition.
1.	Steady improvement.	Internal strabismus.
2.	Died later.	No autopsy.
3.	Felt effects of illness 10½ years afterward both nervously and physically.	Perfectly normal boy.
4.	Effects of illness marked for two yrs. afterward.	Still drags right foot. Backward in school; much more nervous than before.
5.	It took 6 mos. to learn to walk short distance. Very forgetful—growing worse. Bad headaches twice a month.	Mentally deficient. Very nervous and excitable.
6.	Has not been able to control rectum since illness. Forgetful and nervous.	Asymmetry of face. Falls frequently and drops things. Mother thinks him behind other children.
7.	Went to Baldwinville soon after leaving hospital. Record of convulsions for last two years shows deterioration.	Epilepsy and mental deficiency.
8.	Epileptiform attacks began 7 months later. Has been admitted to Monson State Hospital (for epileptics).	Epilepsy and mental deficiency.
9.	Diag. poliomyelo encephalitis. Dragged one foot for a few days after going home.	Perfectly normal mentally and physically.
10.	Died.	No autopsy.
11.	Died.	Autopsy reported.
12.	Lost sight of.	
13.	Convulsions daily for 2 years. Since then attacks of crying daily (2 years). Has never walked or talked. 5 2-3 years old.	Spastic diplegic epilepsy. Mental deficiency.
14.	Died—no autopsy.	
15.	Uneventful.	Much more nervous than before illness.
16.	Has worn glasses for 1½ years. Strabismus has improved.	Internal strabismus.
17.	Talked in 2½ months after leaving hospital. Able to walk in three months.	Much more nervous than before illness. Speaks much more slowly. Arms are weak still. Twitches when angry.
18.	Uneventful.	Apparently normal child. School doctor says vision is defective.
19.	Uneventful.	Perfectly normal child.
20.	Since leaving hospital, 3 years ago has learned to walk, but falls frequently. Is 6 years old and says but a few words.	Feeble-minded. Epilepsy?
21.	Able to walk in 2 months after leaving hospital. Not able to run for 1½ years. Now runs awkwardly.	Gets tired easily—otherwise normal.
22.	Uneventful.	Perfectly normal boy.
23.	Uneventful.	Normal boy.
24.	Ever since leaving hospital has been nervous and irritable and gets tired easily.	Still nervous—gets tired easily.
25.	Died—no autopsy.	
26.	Died—autopsy U. 11-15.	
27.	Died—autopsy H. 11-672.	
28.	In 2 weeks could talk and could control rectum. Walked in 1 month. Twitched when excited for two months.	Very nervous. Difficult to manage in school. Candidate for a special class.
29.	Died—no autopsy.	

* For complete protocol, see original article in BOSTON MEDICAL AND SURGICAL JOURNAL, Vol. clxviii, No. 9, p. 278.

No.	Spinal Fluid.	Duration of Acute Attack.	Complications.	Condition when Discharged.
13.	30 cc. clear. No cells or organisms.	39 days	Otitis media.	Both ears discharging—Flaccid—much improved.
14.	Clear, not under pressure.	4 days	None.	Died—no autopsy.
15.	Clear, 5 cells per c.m.m.	8 days	None.	Perfectly well mentally and physically.
16.	1 c.c. no pressure—cell 40; 50 per c.m.m.. More monos than polos.	9 days	Lobar pneumonia. Otitis media.	Mental condition about normal. Some difficulty in articulation.
17	Not done.	2 weeks	None.	Can count to 10 and say single words, unable to walk well; is still ataxic.
18.	25 c.c. cloudy, moderate pressure, 720 cells; mononuclears 96%. Glob. neg. No organisms.	9 days	None.	Walks well. P. E. negative. No sequellae noted.
19.	30 c.c. Clear under pressure, no clot; cells 120. No organisms. Poly's equal to mon's.	15 days	Double otitis media.	Very weak, but bright mentally.

No.	Spinal Fluid.	Duration of Acute Attack.	Complications.	Condition when Discharged.
20.	Clear, 20 cells per c.m.m. Half lympho's, half poly's.	21 days	None.	Nystagmus marked; internal strabismus; irritable and nervous. No rigidity.
21.	30 c.c. sl. increased pressure; 4000 cells (blood?). Lympo' only seen.	5 days	None.	Still uses right arm awkwardly; normal mentally. Sl. Kernig on left.
22.	Under pressure clear—480-3000 cells; no organisms; mono's 90%.	7 days	None.	Sl. weakness of right arm. Suggestion of neck sign.
23.	20-15 c.c. No pressure. Cell count 50; mono's 100%; glob. neg; no growth.	3 days	Pharyngitis. Tonsillitis.	Perfectly well mentally. Technical Kernig's on both sides.
24.	35 c.c. under pressure clear-cells 350—100% lymphocytes.	5 days	None.	General condition good. O.K. mentally.
25.	Clear, no clots; cells 120; noguelic glob. positive. Ross-Jones glob. positive; 80% monos.	14 days	Broncho-pneumonia.	Died—no autopsy.
26.	Few c.c. fluid under no pressure. Cells 65 per c.m.m.	24 hours	None.	Died. Diag., acute toxic encephalitis and septicemia. See autopsy.
27.	50 c.c. clear under pressure. No cell count. Neg. test positive (blog.).	4 days	None.	Died—see autopsy.
28.	2 c.c clear fluid obtained; cell count 10; no bacteria.	28 days	Peri-tonsillar abscess.	Unable to control bladder or rectum; could neither walk nor talk.
29.	20 c.c. clear fluid under high pressure; cell 10; 1 lymphocytes seen; no clot; no bact.; glob.	24 hours	None.	Died. No autopsy.

No.	Rigidity of Neck.	Cerebration.	Motor Involvements.	Reflexes.
13.	Yes.	Conscious but much prostrated.	Left arm in tetany. Apisthotonis.	K. J.'s present. Double Kernig, right Babinski.
14.	Not noted.	Moribund.	Complete right facial paralysis.	Not noted.
15.	No.	Conscious but very dull.	Ptosis of right lid.	K. J.'s obtained. No Kernig, Babinski, or clonus.
16.	No.	Delirium followed by apathy.	Ptosis of right lid. Difficulty in swallowing.	K. J.'s not obtained; sometimes slightly Kernig on left, sometimes suggestion of double Kernig.
17.	Yes.	Unconscious and "hysterical" alternately.	Spasticity and incoordination in voluntary movements.	K. J.'s exaggerated. No Kernig, no Babinski. Ankle clonus obtained but not sustained.
18.	Yes.	Conscious, irritable at first, fol. by lethargy.	Arms rather spastic. Incontinent and has difficulty in swallowing.	K. J.'s not obtained; no clonus, Babinski or Kernig.
19.	Yes.	Stupor.	None.	K. J.'s present. No Kernig. Babinski, or clonus.
20.	Slight.	Semi-comatose.	Slight ext. strabismus of right eye. Irregular twitchings.	K. J.'s active. Suggestion of neck sign. Kernig on left; no clonus; Babinski on right one.
21.	Yes.	Comatose.	Symmetrical twitching of both hands. Downward twitching of eye-ball.	K. J.'s lively; neck sign present, slightly Kernig on left, no clonus.
22.	Slight.	Restless, irrational, and noisy.	None.	K. J.'s equal and lively. No Kernig, or clonus, or Babinski.
23.	Very slight.	Drowsy but answers questions.	None.	K. J.'s normal. Kernig on left. No clonus or Babinski.
24.	Yes.	Comatose.	Rigidity of arms and legs. Incontinence of urine.	K. J.'s not obtained. No clonus or Babinki.

No.	Rigidity of Neck.	Cerebration.	Motor Involvements.	Reflexes.
25.	No.	Normal.	Strabismus and nystagmus. Twitching of right arm and leg.	K. J.'s on right. Absent on left. No neck sign, Kernig, Babinski, or clonus.
26.	No.	Semi-conscious. - Cyanotic.	Partial opisthotonos.	Right K. J. left. Double Babinki; no Kernig; no neck sign.
27.	No.	Normal until convulsions began.	Twitching of right of face and body. Right leg flaccid. No movement on left.	K. J.'s not obtained while in convulsion. Normal on entrance.
28.	Yes.	Slight delirious but conscious.	None.	K. J.'s not obtained. Babinski present. No Kernig.
29.	No.	Does not notice.	Convulsive movements of left side of face, arms and legs.	K. J.'s absent. No Kernig, clonus, or Babinski.

No.	Age.	Sex.	Temp.	Onset.	Convulsions.	Vomiting.	White Blood Count.
13.	11 mos. 23 days	F.	97-106	Acute	Yes	No	Not made
14.	2 wks. 3 days	M.	107	Acute	Yes	Yes	Not made
15.	6 yrs. 6 mos.	M.	104-98	Acute	No	Yes	12,200 8,800
16.	5 yrs. 11 mos. 14 days	M.	99-103	Acute	Twitching of mouth	Yes	16,800
17.	4 yrs. 2 mos. 26 days	F.	99-100	Acute	Yes	Not noted	11,800
18.	6 yrs. 5 mos. 7 days	F.	102-99	Acute	No	Yes	21,000 19,000 9,000
19.	3 yrs. 1 mo. 19 days	F.	99-105	Acute	No	Yes	14,400
20.	4 yrs. 7 days	M.	99-104	Gradual	Twitching	No	Not made
21.	2 yrs. 6 days	M.	99-103	Gradual	Twitching	No	12,100
22.	2 yrs. 9 mos. 15 days	M.	102-99	Acute	No	Yes	10,100
23.	7 yrs. 8 days	M.	98-101	Acute	No	Yes	22,000
24.	7 yrs. 2 mos.	F.	99-101	Acute	Yes	Yes	1,000
25.	16 mos. 5 days	F.	101-104	Acute	Yes	Yes	40,000
26.	3 yrs. 3 mos. 8 days	M.	100	Acute	Yes	Not noted	Not made
27.	2 yrs. 3 mos.	F.	98-101	Acute	Yes	Yes	Not made
28.	7 yrs. 3 mos.	F.	98-101	Acute	No	Yes	26,000
29.	1 yr. 5 mos. 5 days	M.	105	Acute	Yes	Yes	42,000 Not made

RESULTS.

The facts elicited are surely striking, and are significant in the following ways:—

1. They illustrate the importance of what might be called sequence studies.

2. A further study has brought to light one more case of epilepsy, making 10% of our present total, a figure not inconsistent with general statistical expectation.

3. On the same general statistical grounds, we might have predicted that our number of mentally backward children would increase as the number investigated grew. In this group, we now have five children, two of whom are feeble-minded without any signs of epilepsy and three are cases of marked mental retardation or backwardness. (Not reaching the grade of feeble-mindedness—imbecility of English writers). This gives 28.5% of the living children who show marked mental defects.

4. There are four (or 15%) of these cases that show less marked residual effects from their encephalitis, (*a*) either by excessive "nervousness" or (*b*) because they show a much shorter reaction period to fatigue.

5. Two (or 7.1%) still show motor sequelae (strabismus).

6. 28.5% have died.

7. Only six (or 21.5%) of the children show no signs of their previous attack and are apparently normal in every way.

8. Tabulation of these results is as follows:—

Epilepsy Nos. 7, 8, 13, or 10.7%, or 7.1% not counting 13.
Feeble-minded, Nos. 5, 20, or 7.1%.
Backward, Nos. 6, 4, 28, or 10.7%.
Nervous or easily tired, Nos. 15, 17, 21, 24, or 14.6%.
Strabismus, Nos. 1, 16, or 7.1%.
Normal, Nos. 9, 3, 18, 19, 22, 23, or 21.5%.
Dead, Nos. 2, 10, 11, 14, 25, 26, 27, 29, or 28.5%, or 25% without No. 2.
28.5% show marked mental defect.
50% show some stigmata.
21.5% are normal.
28% died.

9. These results impel further investigation of these cases and of any other ones we may

have occasion to follow from time to time. Our first endeavor has been to learn the dimensions of this problem (compare Lucas' work on sequelae of syphilis*) rather than to study any portion of it intensively. We now plan to make intensive studies on the cases we have so far followed and to individualize these more general conclusions.

* Contributions to the Neurology of the Child. II. Note on the Mortality, and the Proportion of Backward Children, in a Series of Congenital Syphilis Followed Subsequent to Hospital Treatment; from the Out-Patient Department of the Children's Hospital and the Department of Pediatrics, Harvard Medical School, by William Palmer Lucas, M.D.

CESAREAN SECTION; ITS INDICATIONS. WITH REPORT OF TWENTY CASES.*

BY FREDERICK L. GOOD, M.D., BOSTON.

The indications for Cesarean section may be either absolute or relative. By an absolute indication it is understood that no other operative procedure but Cesarean section presents itself; by a relative indication that certain other operative procedures may be considered but that after due deliberation Cesarean section is deemed the operation of choice.

A conjugate diameter of less than two and three-fourths inches must always be considered as an absolute indication. Many authors consider an indication absolute only when it is impossible to deliver either a living or dead child through the bony pelvis—in other words, that if after embryotomy or craniotomy it is possible to deliver the fetus the indication is no longer absolute. My sentiments, however, are those of Edgar, who says that "the operation of embryotomy on a living child at or near term is the most revolting thing that an obstetrician can be called upon to do," and in the discussion of my paper I shall consider an indication absolute when it is impossible to deliver a living child, regardless of what may have been the case had the fetus been dead. Tumors of the uterus (notably carcinoma of the cervix) and atresia of the vagina may in certain cases be absolute indications.

A conjugate diameter varying from two and three-fourths to three and three-fourths inches may be considered as a relative indication. (Two and three-fourths to three and one-fourth for flat pelves, two and three-fourths to three and three-fourths for justo-minor pelves.) Whether or not to perform a Cesarean section when the conjugate diameter is three to three and three-fourths inches will depend on circumstances other than the pelvic deformity, for example, the size of the fetus and the presentation and position of same. That is to say, one primipara may have a conjugate of three and three-fourths inches and a fetus so small that it could be delivered by forceps, while another with a conjugate of the same diameter might present a fetus so large that Cesarean section would be considered the more advisable procedure. We may consider also as relative indications some tumors of the uterus, mild atresias of the vagina, certain cases of complete placenta previa and ante-partum hemorrhage from other causes, certain cases of eclampsia, certain cases of prolapsed cord in primiparae, certain primiparous transverse and breech presentations, certain primiparous occiput presentations other than O. D. P's., certain primiparous O. D. P's., certain cases of twin pregnancy, and lastly, certain cases of primiparous labor where the age of the patient is such that it is improbable that she will again become pregnant.

In my series of twenty cases I have performed the operation for the following relative indications:—

Intra-mural fibroid of uterus in a primipara	1
Primiparous placenta previa	1
Primiparous ante-partum hemorrhage	1
Threatened eclampsia in a primipara	1
Primiparous prolapsed cord	1
Primiparous transverse presentation	2
Primiparous breech	2
Arm presenting in front of head in primipara	1
Primiparous O. D. P	1
Twin pregnancy	1
Old primiparae	1
Labor complicated by previous ventral suspension	1
	14

The six remaining cases were five multiparae each of whom had been delivered of a still-born baby following either a hard forceps or version delivery, two of whom had a conjugate diameter of two and three-fourths inches (an absolute indication) and three a conjugate of from three to three and one-half inches (a relative indication). One of these patients has had a second Cesarean operation ..... 6—20

Of the twenty cases two were for a strictly absolute indication and eighteen for a relative indication. Of the eighteen relative cases, sixteen had varying degrees of justo-minor pelves and two had flat pelves.

Case 1. Primipara, age 24. I. conjugate diameter three and one-fourth inches. In lower uterine segment there was an intra-mural fibroid about the size of an egg, which protruded into the uterine cavity sufficiently to make it questionable whether or not the head could engage. Because of this condition, associated with a justo-minor pelvis and fairly large child, I advised Cesarean section and operated the day of expected delivery and before onset of labor.

Case 2. Primipara, age 23. I. C. three and one-fourth inches. At beginning of ninth month patient was taken with sudden and severe hemor-

* Read before Brockton Medical Society, April, 1913; Lawrence Medical Society, May, 1913.

rhage, the flow being estimated at one quart. Examination showed the cervix to be rigid, the os to admit a finger, and directly over it was felt the placenta. Patient was still bleeding; pulse 116 and fair. Because of the rigid cervix and probable difficulty in dilating (with the consequent loss of considerable blood) performed Cesarean section in interests of both mother and baby.

CASE 3. Primipara, age 22. I. C. three and one-fourth inches. Saw patient four hours after falling in labor. With onset of pains patient started to flow and was still flowing; had saturated several napkins. Cervix dilated one inch, head high, placenta could not be felt. Baby estimated to be of large size. Because of justo-minor pelvis, premature detachment of placenta, high head and large baby, performed Cesarean section.

CASE 4. Primipara, age 37. I. C. three inches. First saw this patient at about full term, at which time she complained of frontal headache, dimness of vision and epigastric pain. She had vomited for the past 24 hours. There was some edema of face, hands and ankles and one-quarter of one per cent. albumin in urine. Baby was estimated to be of fairly large size. Considering the threatened eclampsia, the small pelvis, rigid soft parts and patient's age, decided upon Cesarean. The albumin cleared up in four days. No subjective symptoms after 48 hours.

CASE 5. Primipara, age 22. I. C. three and one-fourth inches. Physician in attendance visited this patient at 1 o'clock p. m. and found her dilated, size of a 25-cent piece, and could not make out presenting part. He left her and returned at five p. m., at which time he found the cord prolapsed and pulsating. I saw patient at seven p. m., cord pulsating strongly, baby presenting transversely, os three-fourths dilated. A fair-sized baby. At 8.15 p. m., three hours and fifteen minutes after cord was found prolapsed, did Cesarean operation.

CASE 6. Primipara, 21 years old. I. C. three and one-fourth inches. Saw this patient in consultation eight hours after the onset of labor, at which time she was fully dilated with transverse presentation and prolapsed arm. Membranes had ruptured five hours previously. Advised Cesarean and patient consented.

CASE 7. Primipara, age 23. I. C. three and a half inches. History similar to No. 6.

CASE 8. Primipara, age 24. I. C. three and one-fourth inches. Had been in hard labor about twelve hours, at the end of which time breech had not engaged and os admitted but a finger. Baby estimated to be of large size. Because of justo-minor pelvis, breech presentation (with no progress) and large baby, performed Cesarean operation.

CASE 9. Primipara, age 28. I. C. three and three-fourths inches. History similar to No. 8.

CASE 10. Primipara, age 24. I. C. three and one-fourth inches. Saw patient seven hours after onset of labor and found os dilated one and a half inches, head high and attempting to engage, but could not do so because of arm presenting in front of it. Being unable to push back arm and because of small pelvis and large baby, performed Cesarean section.

CASE 11. Primipara, age 24. I. C. three and one-fourth inches. First saw patient in early afternoon; found head high, position O. D. P., dilatation one inch. Patient in labor since ten p. m. previous evening. Pains strong and frequent and patient in good condition. Advised waiting and saw her again at 7 p. m. Head still high and not engaged. Cervix dilated size of 50-cent piece. Membranes had been ruptured two hours. Etherized patient and rotated head anteriorly; made good application of forceps, but was unable to bring head through superior strait. Performed Cesarean section.

CASE 12. Multipara, second labor. I. C. three and three fourths inches. Had made diagnosis of twins before onset of labor. Was called by patient four hours after the beginning of pains, found os dilated one and a half inches, membranes ruptured, presenting fetus in transverse position with arm prolapsed. Realizing the danger to both babies if internal podalic version were attempted, I performed Cesarean section.

CASE 13. Primipara, 43 years old. Position O. D. P. I. C., three and one-half inches. Rigid soft parts; baby estimated to be of large size. Because of age and position and realizing probability of patient not again becoming pregnant, performed Cesarean section.

CASE 14. Primipara, 23 years old. I. C. three and one-half inches. At 19 years of age I dilated and curetted this patient for dysmenorrhea, at which time I found an infantile uterus. Patient had relief for five months, when pain with periods returned. Since uterus was in position of retroversion, suggested a laparotomy and suspension. (Found infantile uterus about the size of English walnut.) Suspended uterus to abdominal wall. About a year later patient married and became pregnant. Regardless of infantile uterus, patient went to full term, but when fell in labor head was directed towards promontory with every pain. Because of impending danger, advised Cesarean section.

Cases 15, 16, 17, 18, 19 and 20. Multiparae. I. C's. two and three-fourths, two and three-fourths, three, three and one-fourth and three and one-half. All had been previously delivered of one dead baby following a hard, operative delivery. One of these patients has had a second Cesarian operation.

Before discussing my paper further I wish to say that the nineteen patients were all very desirous of having living children.

Primiparous Breech and Transverse Presentations. No one will deny but that a primiparous version or breech extraction is a difficult operation even with a pelvis of normal proportions; and that as the conjugate diameter diminishes the danger from these operations increases. It was because of this difficulty,

with the probability of inflicting severe cervical and perineal lacerations, and withal, losing the baby, that I performed the Cesarean operation on the cases of transverse and breech presentations. I would not do so, however, with a normal-sized pelvis and certainly never in a multipara.

As to Case 1 (fibroid complicating labor) it was extremely dubious as to whether or not the head would have been able to pass the obstruction. The I. C. of three and one-fourth inches with a large baby could be considered a sufficient indication, to say nothing of the intramural fibroid.

In Case 3 (ante-partum hemorrhage from premature detachment of placenta) the extreme likelihood of delivering a still-born baby and the more than slight possibility of a disastrous outcome for the mother made the choice of Cesarean advisable. With a conjugate of three and one-fourth, head not engaged (although labor had been hard) and hemorrhage constantly increasing, a forceps or version extraction would have been hazardous.

Placenta Previa. Under no conditions would I advise the performance of Cesarean section in a multipara with placenta previa and in primiparae, only after considering every other factor. If, following the Cesarean section, there is much hemorrhage from the placental site, there is no chance of packing the uterus, and this must not be overlooked. In this case, however, with a justo-minor pelvis and a cervix rigid (and consequently hard to dilate without a considerable loss of blood) I feel that the outcome would have been most dangerous had I not resorted to Cesarean section.

Eclampsia. As to eclampsia, every case must be decided on its own merits. If the patient were a primipara with premonitory signs or having had but a few convulsions, and with a relatively small pelvis, I would prefer doing a Cesarean section rather than a forceps or version. If a multipara, or a primipara with a normal sized pelvis, my operation of choice would be either forceps or version. It must be remembered that the after-treatment of eclampsia consists mainly of getting rid of toxic excretions and that performing a Cesarean section prevents the kidneys and bowels from functionating as well as they might after forceps or version; so what we gain by the rapid delivery may be more than offset by our inability to have these organs respond to treatment. If a patient has had more than a few convulsions I would consider it poor judgment to open the abdomen.

Prolapsed Cord. I would advise Cesarean section in cases of a primiparous prolapsed cord associated with a justo-minor pelvis, if the patient were in good condition and the cord pulsating strongly. I realize that it would be folly to attempt the Cesarean operation when the cord is pulsating either feebly or irregularly, or when there is any suspicion of infection. (In such cases, *i.e.* prolapsed cords, the operation would always be for the benefit of the baby.)

Arm Presenting in Front of Head. This complication is by no means a rare one, and in cases similar to the one described above (with a justo-minor pelvis and a prolapsed arm or hand that cannot be replaced), I would always perform the Cesarean operation.

Primiparous O. D. P's. With a small pelvis and a high O. D. P. that cannot be rotated, or which when rotated will not allow of an application of forceps to the sides of the head (in contra-distinction to the sides of the pelvis) I would prefer Cesarean section to either forceps or version.

Twin Pregnancy. With the presenting twin in a transverse position (whether the patient be a primipara or multipara) I feel that it is good judgment to deliver by Cesarean section. I should first try, however, to change the presentation from a transverse to a vertex, which maneuver would be doubly difficult with membranes ruptured. (This should be attempted abdominally, not vaginally.)

Old Primiparae. There is always a great probability that a primipara 42 years of age may not again become pregnant. If the position is an O. D. P., the baby of fair size, or the pelvis even fairly small, I would be inclined to do a Cesarean section, rather than possibly lose the baby by forceps.

As stated above a relative indication is one which allows us to consider other procedures. The procedures most often considered are: (1) Induction of labor, which in certain conditions occupies a very important position, but which is not always feasible, and is out of the question in emergency cases; (2) symphiseotomy, which is attended with a far higher morbidity, leaving a patient in some instances an invalid for the remainder of her life, because of either faulty union of the symphisis, sacroiliac disease or lacerations of the bladder; (3) vaginal Cesarean section, which is attended with a higher morbidity and which does not offer the chance to the baby that an abdominal Cesarean does; (4) high forceps; (5) internal podalic version.

In conclusion it may be well to mention, but not in detail, the contra-indications to Cesarean section. The operation should never be performed when it is thought that the baby is dead or that there is any possibility of sepsis. Acute febrile diseases and some chronic diseases are distinct contra-indications.

Of the twenty cases above reported, all were done in private practice, fourteen of the twenty in my own practice, and six in consultation. Ten of the patients were operated before the onset of labor and ten were emergency cases.

The maternal and infantile mortality were both zero. The placenta previa baby died from anemia fifteen hours after birth and one baby died in twelve hours from an open foramen

ovale. (The placenta previa baby would have doubtless been still born after either forceps or version, and the death from open foramen ovale cannot be charged to the Cesarean section.)

The technic was the same in all cases—the uterus was delivered outside the abdominal wall, the uterine incision was closed with interrupted kangaroo tendon, deep and superficial, and the abdominal incision was closed in layers.

The health of the twenty patients is today better than it would be even after a normal forceps delivery. They will not need at some future time operations for lacerations of the cervix and perineum, for metrorrhagia and menorrhagia, or for prolapsus and retroversion. They were performing their household duties from four to six weeks after their discharge from the hospital;—this condition could not and would not be had they been delivered by either high forceps or version. Some will of necessity have future sections; others, for example, those with breech and transverse presentations, will be allowed to have normal deliveries (if no other complication presents itself), it having been demonstrated that one Cesarean does not necessitate others. I believe that the Cesarean cicatrix is no more susceptible to rupture than is normal uterine muscle, and that in future pregnancies the Cesarean uterus is as capable of withstanding strain as is the uterus of a normal labor.

THE TREATMENT OF DIABETES MELLITUS.*

BY ELLIOTT P. JOSLIN, M.D., BOSTON.

THE treatment of diabetes today closely resembles that described by Professor Naunyn some fifteen years ago. In going over the literature one is struck by the general tendency to revert to the Naunyn methods. On account of the introduction of the various carbohydrate cures attention was diverted for a long time from the basis of treatment which Naunyn prescribed.

The principles which are at the foundation of Naunyn's treatment are two—that the tendency of the disease if neglected is to progress, and that its course can be arrested for a greater or shorter length of time if the urine of the patient is kept free from sugar. If this is done a tolerance for carbohydrates may be built up. An illustration of the progressive character of the disease is shown by Case 8 in my series, a woman who developed symptoms of diabetes at the age of sixty, and showed 5.6 per cent. sugar in the urine. She became sugar-free within four days, but eleven years later, when the disease was more established, three days of strict dieting failed to remove even 2 per cent. of sugar from the urine. Von Noorden gives a striking example of the loss of tolerance. One of his patients showed 45 grams of sugar upon a diet containing 130 grams carbohydrate. Without change in the diet one month later the sugar in the urine had increased to 85 grams. Examples of gain in tolerance which result when the patient is made sugar-free are easy to find. A girl of thirteen did not become sugar-free until the carbohydrates in the diet were reduced to 10 grams, yet eleven months later she was able to tolerate 90 grams of starch without the appearance of sugar in the urine.

Various methods were recommended by Naunyn in order to render the patient sugar-free. The simplest of these consisted in merely a reduction of the total quantity of food. Many of you I am sure have seen fat diabetics whose urine would become sugar-free when the total quantity of the diet was limited sufficiently to prevent gain in weight or to produce a slight loss.

Most cases of diabetes are of mild character, in fact one is tempted to state that nearly all cases of diabetes are mild at the onset of the disease. I have shown that 25 per cent. of my own cases live ten years or more. In such individuals a moderate restriction of carbohydrates suffices to render the urine sugar-free, and a tolerance for an increased quantity of carbohydrates can almost always be acquired.

The severer cases of diabetes usually become sugar-free if a very low quantity of carbohydrate is prescribed for a long time. Such an amount of carbohydrates may be 30 grams. It is surprising how often persistence in such a restricted diet leads to satisfactory results. Over and over again I have discovered that patients have become sugar-free when at the start I never expected that such a state would be reached. Coincidently with the reduction of carbohydrate should go an increase in the fat of the diet.

It is very rare that other measures are required in the ordinary types which come for treatment. But if the patient has faithfully lived upon a restricted diet for several weeks, and yet sugar remains in the urine, several procedures may be employed. The simplest expedient is to give the patient a diet without any protein, and with the carbohydrate at a minimum, in other words, what is often called a vegetable day. As a rule this results in a marked diminution or disappearance of the sugar. The secret of the good of a vegetable day is not the vegetables, but the absence of protein as well as of carbohydrate. The lowering of protein was considered of great advantage by Naunyn, and its ready acceptance by the profession was made easy through von Noorden's excellent plan of allowing vegetables and fat to avoid a day of actual starvation. If the vegetable day fails the starvation day must succeed. Naunyn strongly favored it, and

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called attention to the fact that with the patient resting in bed for the 24 hours, it was not a hardship, and that within the subsequent one or two days the former weight was usually regained. I have noted with interest that Professor von Noorden has recently pointed out the advantages of the starvatioin day. I can testify that it works well, and that the urine upon it becomes sugar-free when other measures have failed.

Such are the standard measures which in my opinion lead to the best results in the treatment of diabetes. I am convinced of their efficacy. It is true that occasionally a patient or a doctor refers to cases which have apparently done well without following the rules laid down above. Upon investigation I think it will invariably be found that such cases were mild or that the individuals were unusually intelligent, and that their diet actually was a diet containing a low quantity of carbohydrate and an excess of fat with little meat.

Diabetes is a chronic disease, and in any chronic disease one must have clearly in mind definite principles of treatment, and confidence in them, or else in the course of weeks, months or years one will be tempted to work a little along this line of treatment and a little along that and in the end no definite conclusions will be attained.

Persistence in the treatment of diabetes is essential. I have no hesitation in saying that the great majority of diabetic cases which do poorly can be explained by neglect on the part of the patient or physician in carrying out treatment. The treatment of diabetes does not demand unusual skill, but faithfulness is a *sine qua non.*

The simplicity of the treatment of diabetes deserves emphasis. It is common to hear physicians say that the diet is too complicated and that they know little about it. This is a great mistake, and physicians and patients suffer equally thereby. Most of the trouble arises because the physician does not have his records in accessible form. Few data are required, in fact the essential data are simply the total quantity of carbohydrate in the diet, and the total quantity of sugar in the urine, but it is essential that these data be in such a form that progress of the case can be watched from visit to visit. One can learn in fifteen minutes to calculate the carbohydrate in the diabetic diet and the fermentation test for sugar is accurate and easily performed. One must know whether the patient assimilates a portion of the carbohydrate in the diet, that it shows a positive carbohydrate balance, or whether the patient excretes more sugar in the urine than was contained in the carbohydrates given, that it shows a negative carbohydrate balance; in other words whether the patient excretes not only all the sugar and starch he has eaten, but also a portion of the carbohydrate which has been formed out of protein. To render advice about treatment easy I make use of diabetic charts by which I can see at a glance the progress of the case.

Oatmeal is the most satisfactory of the carbohydrates which one can give to a diabetic patient. This is partly due to its physical form, thus a tablespoonful of cooked oatmeal contains only 6 grams of carbohydrate, yet with it one can give a large quantity of cream, or if desired of butter, and thus supply the patient with fat in a most agreeable form. Far more fat can be easily introduced into the diet by the use of oatmeal than in almost any other way. Furthermore, one or two tablespoonfuls of oatmeal at breakfast solves the diabetic breakfast problem, because the balance of the meal can easily be made up of coffee, bacon and eggs. It is a great advantage for a diabetic patient to have a meal concerning which there need be no thought. His attention is sufficiently directed toward planning the diet by the remaining meals.

The mystery about von Noorden's oatmeal cure in the treatment of diabetes is still unsolved. Attempts have been made to explain it; first, by some specific body in the oatmeal which might act upon the liver or the general sugar metabolism; second, by the effect of the oatmeal upon the kidneys in rendering them less pervious to carbohydrate and it is true that there is more to be said in favor of this explanation than of the former. Although the kidneys are apparently less pervious to carbohydrate when oatmeal is given in large quantities, this does not explain why the oatmeal is oxidized or why the oatmeal cure occasionally fails. The third explanation, that of Klotz and Rosenfeld that the carbohydrate of oatmeal is so quickly fermented in the intestine that it is not absorbed as sugar but rather as decomposition products of sugar, is an attractive theory, but this is not yet upon a satisfactory basis. But this fact is true about the peculiar working of the oatmeal diet. The oatmeal diet contains a very small quantity of protein, and all the recent work has tended to confirm the early ideas of Cantani and Naunyn that an excess of protein is disadvantageous to the diabetic patient. As proof of this I would cite the work of Klemperer, who showed that one of his patients, living upon a diet containing 10 grams of protein, could take 150 grams of grape-sugar and yet excrete only 31 grams of sugar in the urine. When the quantity of protein was raised to 60 grams, the quantity of sugar in the urine rose to 37 grams, and as soon as the protein was raised to 110 grams daily, the quantity of sugar in the urine rose to 56 grams. That the protein is of vegetable rather than of animal origin is also of significance. Another explanation lies in the fact that both before and following the oatmeal period the patient is upon a vegetable day, a day in which he is not

only on a diet without protein, but without carbohydrate as well and still further is in a state of undernutrition. As has been said above, starvation tends to rid the organism of excess of sugar and apparently favors the oxidation of the excess of sugar there is in the body. It is thus easy to see that any carbohydrate would be better tolerated following a period of starvation than at any other time. Undoubtedly there is more of a riddle in the oatmeal day than the above explanations suggest. In the work at the nutrition laboratory of the Carnegie Institution the question has forced itself upon me—is the carbohydrate of the oatmeal actually oxidized? This can only be definitely proven by experiments with the respiratory apparatus. From examinations of the urine upon oatmeal days it would appear that the oatmeal is oxidized, but from respiratory experiments conducted by Dr. Benedict and myself, we have rarely, if ever, been able to show this by a rise in the respiratory quotient.

Oatmeal days are occasionally advantageous in the treatment of severe diabetes, and though it is true that other forms of carbohydrate act somewhat similarly, I believe that if one wishes to try carbohydrate days at all, it is better to use oatmeal. As you are aware, von Noorden showed that if a patient had two or three vegetable days he could then take large quantities of oatmeal, 250 grams, together with an equal quantity of butter for two or three days, and yet in the favorable cases the carbohydrate of the oatmeal would apparently be retained in the body and burned. Following the oatmeal period two or three vegetable days were prescribed. All of us have seen the advantage of such days. But we now know that it is not necessary to give so much oatmeal, and indeed, in the severer cases it is often desirable to give less. It has also been shown that protein can be given with the oatmeal in the form of vegetable albumen without harm to the patient, and that in some cases egg albumen would be tolerated. All agree, however, that animal albumen—meat—must be excluded.

The effects of the oatmeal are sometimes magical. Whereas the patient has had large quantities of sugar in the urine, and under systematic diet has not become sugar-free, with the oatmeal cure of two vegetable days, two oatmeal days and two vegetable days the urine becomes free from sugar. On the other hand not infrequently this happy result fails to occur. It is true that a repetition of an oatmeal period after an interval of a week or more may bring the good result desired, but occasionally it does not. The disadvantage of an oatmeal day in my opinion lies not so much in the possible indigestion which may result or in the dislike which the patient may acquire for oatmeal and butter, but rather in the fact that the patient is taken off of his beaten path of treatment, and is allowed a large quantity of carbohydrate which he has been told is harmful. He often fails to see why, if a large quantity of carbohydrate at one time can be taken with impunity, it will do harm at another. His faith in the strict diabetic diet is unsettled. Furthermore I am doubtful of the desirability of using the oatmeal cure except rarely, because it necessitates very close observation of the patient and his attention is too much turned in upon himself, This is contrary to my idea of the treatment of diabetes. My aim is to place the patient upon a diet upon which he can live without loss of weight or strength, attend to his daily occupation, restricted though it may be, and yet not be confined to a hospital, or depend upon frequent visits to his physician. I believe thoroughly in the use of occasional oatmeal days in the very severe cases of diabetes, but I am always glad to get along without them.

A word about hospital treatment. Hospital treatment is most advantageous in the treatment of diabetes, provided the cases are either moderate or severe in type. The patients learn the diet quickly, they are reassured by the gain in weight which usually results, and are given time to accommodate themselves to their new régime. On the other hand treatment for over two weeks in a hospital is seldom necessary. We all expect our patients to live five, ten or more years. They do not wish to pass this time in an institution. It is for the physician to train his patients to live upon their diet in their homes.

Acid poisoning always frightens the doctor and often needlessly. It is a pretty safe statement that if the urine is sugar-free or if the sugar in the urine is less than that of the diet, one need not worry about acid poisoning, and it is also an equally safe statement that the appearance of the patient is as good an index of the presence of acid poisoning as the reaction of the urine. I always ask the nurses of my patients to bear in mind the possibility of acid poisoning. Experienced nurses invariably warn me of its development. They are requested to instantly report anything unusual in the patient, such as loss of appetite, nausea, vomiting, listlessness, excitement, restlessness, unusual fatigue, vertigo, headache, drowsiness or discomfort. One who has seen many cases of diabetic coma learns to detect its onset by changes in the respiration. An irregular, slow, deep or painful breathing at once attracts a physician's attention, but these changes in the respiration though they occur very early, are too subtle to impress themselves upon most nurses. Of course these indications of the onset of acidosis though satisfactory are not sufficient for the careful doctor. He should determine whether the urine shows a Burgundy red color with an aqueous solution of ferric chloride, Gerhardt's test. When it does, provided the patient is not taking preparations of salicylic acid, the first step to be taken is to keep the patient under observation until one determines that no

sudden change in his condition is taking place. A telephone conversation with the patient often relieves the doctor. In the second place it is always safe to give from three to four teaspoonfuls of sodium bicarbonate or sodium citrate daily, or more until the urine is alkaline. In the third place it is most important that the diabetic régime be not relaxed and the fight for a tolerance of carbohydrate be abandoned, unless the patient's physical condition compels it.

Severe acid poisoning, or for the purpose of treatment diabetic coma, appears when the body ceases to have carbohydrates to burn or is unable to burn them. In all of us there are approximately 400 grams of carbohydrate, distributed between the glycogen in the liver and that of the muscles. If we starve or live upon a diet without carbohydrates, this is soon reduced and all of us will develop acid poisoning which can be accentuated to a degree nearly equal to that of the severest diabetic, if we simultaneously take of a great quantity of fat. The diabetic has less glycogen in the body, consequently when he is subjected to starvation he develops acid poisoning much more readily than a healthy individual. It is important to bear in mind that carbohydrate starvation in a diabetic may result from his inability to take any food, such as a gastro-intestinal upset due to an improper diet, due to seasickness, or due to lack of food as the result of surgical operations or to unusual exertion which has consumed the little carbohydrate which his organism contains. Forewarned, forearmed! Prevent starvation and one may usually prevent coma. Of course in the severest cases of diabetes, we cannot prevent starvation, for though we feed the patient large quantities of food, he fails to assimilate it, and so oxidation of carbohydrate does not occur.

As soon as the presence of severe acid poisoning appears, watch the patient carefully from day to day. If in doubt, increase the alkali to 30 grams, but seldom to more for disturbance of digestion may result. Should the patient exhibit any premonitory signs of coma, the diet may be best relaxed by the addition of oatmeal, or if haste is needed, by giving milk with a teaspoon. Temporarily the alkali may be increased to large quantities, even a teaspoonful every hour for two or three hours, and then every hour and a half and then every two hours, not more frequently because the stomach may be upset. Not only an extra quantity of carbohydrate and alkali should be given, but pains should be taken to furnish adequate liquid with which the body can excrete the excess of acid. To prevent dilatation of the stomach it is well to give part of the liquid in the form of salt solution by the rectum. A patient with beginning coma must usually secrete at least 5 quarts of urine daily in order to come out of the same. Such a large secretion of liquid is necessary because the β-oxybutyric acid can only be removed from the body in dilute solution. Unless water is given freely the patient draws upon the fluid in the tissues to an alarming extent. The fall in weight in such cases is extremely rapid.

The treatment of actual coma is unsatisfactory. First of all one must furnish adequate fluid for the patient, second alkali is advisable. Now that we are so accustomed to the intravenous technique we may have rather better results from the introduction of a 3 per cent. solution of sodium bicarbonate or even sodium carbonate, but even the best men advocate the administration of only comparatively small amounts in this way, for example 30 grams. If given promptly it will often be efficacious. Treatment of diabetic coma is its prophylaxis, and I consider it an error in treatment to allow a patient to go into coma unless the patient has been kept out of the same by the use of diet and alkalies for many months.

Surgery in diabetes is a most interesting problem. Today it is not generally felt that the sugar *per se* is especially dangerous. Danger, however, does arise from the possibility of the patient going into the coma. This occurs often as a result of carbohydrate starvation following the operation. My rule is that the patient shall be operated upon as soon as the surgeon thinks safe after a meal and that the patient shall be supplied with food as soon as possible after the operation. It is conservative for a few days preceding an operation to give alkalies in moderate doses, for example 20 grams sodium bicarbonate. If an emergency does not exist, by all means get the patient into the best possible condition by rendering him sugar-free before the operation. If the patient, however, is a severe case, I would suggest the following procedure. In a preliminary period test his ability to live upon a vegetable and oatmeal day and its effect upon his metabolism. If the result is satisfactory, a week later, upon the two days preceding operation, give the patient a vegetable day, and immediately preceding the operation an oatmeal day. Sufficient carbohydrate will thus accumulate in the body to tide him over the 24 to 48 hours after the operation when eating is difficult. I have recently had a patient, who had been in diabetic coma and had recovered from the same, go through a laparotomy successfully under such a plan of treatment.

DIRECTIONS FOR NURSES IN CHARGE OF DIABETIC PATIENTS.

1. *Collection of Urine.* Collect all urine and preserve in a bottle large enough to hold the 24-hour quantity. The urine should be voided at 7 o'clock each morning, and the 24-hour quantity measured at that time. Save at least 120 c.c. (4 oz.) as a specimen. Record and date

quantity on the specimen bottle and upon the chart the quantity in cubic centimeters (c.c.) *e.g.*—November 16-17, 1620 c.c.—1 ounce may be considered 30 c. c. (actually 29.5 c.c.). Caution patients to save the urine while at stool. Preserve the urine during collection in a cool place.

2. *Weight.* Weigh patient daily at 7 A.M. after the urine has been voided, note weight of clothes which should always be the same. Record total weight and weight of clothes.

3. *Diet.* (*a*) Record all food eaten and also record any carbohydrate food which is served and yet not eaten.

(*b*) Record quantity of all food taken except that included under strict diet and vegetables in the 5 per cent., 6 per cent. and 10 per cent. groups.

(*c*) The quantity of cream allowed should be measured out before breakfast and kept in one receptacle until used.

(*d*) One-half ounce of butter should be served with each meal, and the patient encouraged to take it all. All vegetables should be served containing much butter, though the butter should be made as little obvious as possible.

(*e*) One tablespoonful of olive oil should be used daily, either on salad or taken straight.

(*f*) The water in which vegetables are cooked should be changed one or more times during cooking to remove carbohydrates. Vegetables should be served in large portions rather than in small portions of many vegetables.

(*g*) Meals are generally arranged best as follows:

Breakfast. Coffee, cream, bacon and eggs make a standard breakfast. If fruit is allowed a portion of the 24-hour quantity can be taken then. If no fruit, a single vegetable.

Dinner. Clear soup, meat or fish, selecting a portion rich in fat, vegetables (large portions), salad, cheese.

Supper. Tea or cracked cocoa, one vegetable salad. Meat or fish, such as a thin slice of cold ham or cold corned beef or sardines, but never serve cold meat without some hot food.

Supper is the hardest meal to arrange, consequently a considerable portion of the carbohydrate allowed should be saved up for that meal, or fruit.

8. *Vegetable Day.* Vegetables in 5 per cent.

(*h*) Substitutes for bread, such as Akoll biscuits, Alpha biscuits and Barker's gluten flour (Herman Barker, 433 Broadway, Somerville) can be taken while the patient is upon a strict diet, and should always be served when the diet contains only 50 grams carbohydrate.

(*i*) The quantity of carbohydrate in the diet usually prescribed can be calculated from the diet chart, but the amount of carbohydrate in the foods most commonly used is as follows:

Food.		Weight of Carbohydrate, Grams.
Cream—½ pint	240 c.c.	6
Oatmeal—one gill, dry	36 g.	24
One small orange or grape fruit		10
One small apple		15
Potatoes—two ounces	60 g.	12
Bread—one ounce	30 g.	18
Vegetables from 5 per cent., 6 per cent. and 10 per cent. groups eaten during 24 hours contain approximately		10

4. *Bowels.* The bowels should move daily using an enema if necessary. No carthartics should be given unless prescribed for the particular case.

5. *Exercise.* Exercise should be moderate. Caution patients not to get over-tired.

6. *Diversion.* Diversion should be furnished. for patients, for instance reading or games.

7. *Diabetic Coma.* Diabetic coma should always be kept in mind. Therefore, instantly report loss of appetite, nausea, vomiting, restlessness, excitement, unusual fatigue, vertigo, headache, drowsiness, listlessness, discomfort, painful, irregular or deep breathing, because such symptoms often precede its appearance.

8. *Vegetable Day.* Vegetables in 5 per cent. and 6 per cent. groups are allowed as well as coffee, tea, cracked cocoa, clear soups and broths, bacon. Much pains should be taken to introduce much butter into the vegetables.

Breakfast. Coffee and two teaspoonfuls of cream, bacon, string beans, radishes.

Lunch. Whiskey or brandy one-half ounce or sugar-free wine 3 oz. (not always desirable), 1 Akoll biscuit or 1 cake made from Barker's gluten flour.

Noon Meal. Chicken broth, cabbage, lettuce, olives, cracked cocoa (cocoa nibs).

Lunch. Same as first lunch.

Evening meal. Bouillon, bacon, spinach, celery, tea and two teaspoonfuls of cream.

Lunch. Same as first lunch.

9. *Oatmeal Day.* Four to eight ounces of oatmeal should be cooked for three hours with from three to six pints of water and from one and one-half to three teaspoonfuls of salt. Divide into from four to eight portions, and serve every two to three hours. To each portion shortly before serving add one ounce of butter, and cook it into that portion, being careful not to overheat. Use only one-half ounce of butter if the oatmeal is to be served as gruel. Care should be taken to serve the oatmeal in an appetizing form, as the butter easily rises to the top. Coffee, cracked cocoa, tea and bacon are also allowed, but nothing else unless prescribed.

If the oatmeal cure is thoroughly carried out it is preceded by three days of strict diet, including vegetables in 5 per cent., 6 per cent. and 10 per cent. groups and by two vegetable days, and followed by the same in reverse order.

Strict Diet. Meat, poultry, game, fish, clear

soups, gelatine, eggs, butter, olive oil, coffee and tea,—and for variety, tongue, sweetbreads, tripe, kidneys, pig's feet, brains, bone marrow, anchovies, caviar, lobster, crabs, sardines, shrimps, bologna sausage, smoked or pickled meat, or fish.

PER CENT. OF CARBOHYDRATES IN

5 per cent. or less.		10 per cent. ±	15 per cent. ±	20 per cent. ±
Lettuce	Cauliflower	Onions	Green peas	Potatoes
Spinach	Tomatoes	Squash	Artichokes	Shell beans
Sauerkraut	Rhubarb	Turnip	Parsnips	Baked beans
String beans	Egg plant	Carrots	Canned lima beans	Green corn
Celery	Leeks	Okra	Apples	Boiled rice
Asparagus	Beet greens	Beets	Pears	Boiled macaroni
Cucumbers	Watercress	Mushrooms	Apricots	
Brussels sprouts			Cherries	Plums
Sorrelo	Butternuts	Lemons	Currants	Bananas
Endive		Oranges	Raspberries	
Unsweetened and unspiced pickle		Cranberries	Huckleberries	Almonds
Ripe olives	Clams	Strawberries		
Grape fruit	Scallops	Blackberries	Pecans	
	Fish roe	Gooseberries	Filberts	
		Peaches	Walnuts	
6 per cent. or less.		Pineapple	Pistachios	
Cabbage	Oysters	Watermelon	Beechnuts	
Radishes	Liver	Musk melon		
Pumpkin				
Kohl-rabi		Brazil nuts		

Food. 100 Grams.	Protein.	Fat.	Carbohydrates.	Calories. Approximate.
Beef, mutton, fowl, fish (uncooked)	20	5-10		125–170
Ham	20	25		300
Bacon	12	50		500
1 egg—about 50 grams, without shell	6.5	5		75
Milk	3	24	5	70
Cream, good	3	30	3	200
Cream, very thick	3	40	3	400
Butter	1	85		800
Cheese	25	33	2	400
Bread	9	1	60	275
Wheat flour	12		75	350
Rice	8		80	350
Oatmeal	16	7	66	375
Potato	2		20	90

Vegetables lose carbohydrates in the cooking, especially if the water is changed twice. It is approximately correct to consider a mixture of those in the 5 per cent. to 6 per cent. groups as containing 3 per cent. carbohydrates or 1 gram to the ounce. Meat loses 25 per cent. water in the cooking.

Starch is better assimilated than sugar in glycosuric patients.

Potatoes and eggs of similar size weigh about the same.

One egg and 25 g. cooked (1 oz. uncooked) meat contain equal amounts of albumen or approximately 1 g. nitrogen. 6.25 g. albumen contain 1 g. nitrogen.

One gill (3 tablespoonfuls) oatmeal weighs 36 g. (containing 1 g. nitrogen and 24 g. carbohydrate) and this if cooked amounts to (4 tablespoonsful) 250 g.

Approximately 80 g. glucose may be formed from 100 g. albumen.

One gram albumen contains 4 calories.

One gram carbohydrate contains 4 calories.

One gram fat contains 9 calories.

One gram alcohol contains 7 calories.

One kilogram = 2.2 pounds. Thirty grams (g.) or cubic centimeters (c.c.) = 1 ounce.

A patient "at rest" requires 30 calories per kilogram body weight per day.

Consult the Chemical Composition of American Food Materials, Bulletin No. 28, furnished upon request to U. S. Dept. Agriculture, Office of Experiment Stations, Washington.

THE COMPLEMENT FIXATION TEST IN DIAGNOSIS.*

BY JAMES HOMER WRIGHT, M.D., BOSTON.

THE complement fixation test, or reaction, depends upon the principle that when fresh blood serum or complement is allowed to react with a mixture of serum from an infected man or animal and an extract of the invading bacterium, it, the complement, loses or undergoes a weakening of its power to dissolve or hemolize sensitized red blood corpuscles. This was first demonstrated by Paul Bordet. The bacterial extract or antigen must be from the same species or from species closely related to the species of bacterium which infects the man or animal, and the reaction is generally regarded as specific. By means of this reaction it is possible to determine with considerable accuracy whether or not a specimen of blood serum comes from a man or animal infected with a

* Read before The Massachusetts Medical Society, June 11, 1913.

given bacterium. This has been demonstrated for a considerable number of pathogenic bacteria and bacterial infectious diseases. Wassermann and his pupils applied the test to the diagnosis of syphilis, using as the nearest approximate to an extract of the microörganism to syphilis an extract of a congenital syphilitic liver as the antigen. It was soon shown, however, and now seems generally admitted that an extract of syphilitic liver is not essential, but that extracts from various known syphilitic organs could act as antigen in the test for syphilis. Thus the antigen in the complement fixation test for syphilis is of an entirely different character from the bacterial antigens, but notwithstanding this, it seems to be quite as specific in its action. The test has also been used with success in the diagnosis of echinococcus infection, using as antigen an extract of the parasite.

Although the complement fixation test theoretically is adaptable to a wide application in the diagnosis of infections with various bacteria, it has proven of practical value only in the last mentioned disease and in infections with the glanders bacillus, with the gonococcus and the treponema pallidum. This is due in part to the great technical difficulties of carrying out the test, and in part to the fact that easier methods of diagnosis in other bacterial infectious diseases are available. In the diagnosis of glanders it has proved of great value. I have had no experience with the test in this disease, however.

The fixation test in gonococcus infections has been extensively developed and utilized by McNeil and Schwartz. In the pathological laboratory of the Massachusetts General Hospital nearly 1000 tests have been performed. In this work I have been assisted by Dr. H. C. Marble. Our conclusions from these tests may be summed up as follows: A strongly positive reaction means an active infection with the gonococcus. Such reactions are usually found in gonorrheal prostatitis, active salpingitis and gonorrheal rheumatism. Weak positive reactions are common in chronic prostatitis and chronic inactive urethritis. Weak positive reactions may frequently occur in individuals who are clinically cured. They may persist for several months or more. Whether they eventually disappear in all cases after cures are effected, I have not yet determined. Certainly many individuals who are apparently cured give negative reactions. As far as our present knowledge goes, I do not think an individual should be regarded as infection-free as long as he shows a weak positive reaction. With gonorrheal vaginitis and allied forms of gonococcus infections our experience has not been very extensive, but so far as it goes, it is in agreement with our experience in the cases of urethritis and prostatitis in the male.

Our results with the fixation test in syphilis and other diseases at the Massachusetts General Hospital may be summarized as follows:—

Negative blood and negative clinically. (Cases exclusive of the special groups named below)	1451
Positive blood and positive clinically	261
	1712
Syphilitic aortitis and aneurysm:	
Blood positive	35
negative	39
	74
Congenital syphilis: ..	
Blood positive	9
negative	4
	13

Tabes,—81 cases in all:	Pos.	Neg.
Blood and spinal fluid, or both	41	39
Cases with both blood and spinal fluid:	—	—
Blood	11	22
Spinal fluid	24	9

Syphilis of central nervous system including general paralysis and exclusive of tabes,— 70 cases in all.

	Pos.	Neg.
Positive either in blood or spinal fluid, or both	35	35
Cases with blood and spinal fluid examined: Blood	10	13

Medical Progress.

THIRD REPORT IN ORTHOPEDIC SURGERY.

BY ROBERT B. OSGOOD, M.D., ROBERT SOUTTER, M.D., HERMANN BUCHOLZ, M.D., MURRAY S. DANFORTH, M.D.

(*Continued from page 315.*)

CHONDRODYSTROPHIA, RICKETS, COXA VARA, OSTEOMALACIA, OSTEITIS FIBROSA, ETC.

Chondrodystrophy. Abels[34] has been led to believe from the study of the literature and a personal case that in chondrodystrophy there is a disturance of the internal secretions, most commonly those of the thyroid and sexual glands. He believes there is a common association between an enlarged thyroid in the mother and enlarged genitalia in the child.

Under the heading of chondrodystrophia adolescentium, Schorr [35] reports a case with the apperance of late rickets. The pathological process, however, was found to be located in the zone of the enchondral ossification, as in fetal chondrodystrophy. Three of this patient's sisters had the same abnormality, not developing in any of them until puberty.

Adolescent Rickets and Coxa Vara.—(Ed. note.) In the last Report of Progress in Orthopedic Surgery[36] we mentioned the conviction of Gangolphe,[37] with which we agree, that the so-called epiphyseal fractures or separations of the hip in adolescents were usually the expression of an underlying pathologic condition of the bones, rather than the result of trauma alone. In this connection it is interesting to note that, Braeunig[38] in a Roentgenological study of genu valgum in adolescents has frequently found such apparently unnoticed separations of the upper epiphysis of the femur and describes the type of obese individual with poorly developen genitalia in which these commonly occur. He has discovered in many joints, changes in the epiphyseal line, irregularity in its course, and inequalty in its width. In these patients, of even twenty and twenty-one years, wide epiphyseal lines may be seen, indicating that some general disturbance is at the basis of the faulty ossification.

Dencks[39] also reports two cases of fourteen and eighteen years with separation of the epiphysis without any trauma. He also is of the opinion that in such cases a pathologic softening of the bones must be supposed, and he emphasizes, therefore, the importance of early conservative treatment. Unless this underlying condition, whatever it may be, is recognized, the Roentgen ray diagnosis, as Savariaud[40] has pointed out, may be very misleading, and if considered alone would lead to the adoption of radical surgical procedures.

Both Drehmann[41] and Sprengel[42] report excellent results in these adolescent coxa varas from redressement and traction, the former in nine cases having employed the following technic. The adductors are stretched from a position of right angle flexion. The neck is "modelled" in the extended position by marked abduction and inward rotation. A plaster cast is then applied for two months in abduction and inward rotation with a slightly flexed knee, and a removable cast worn for three months more.

In old cases with arthritic changes an osteotomy is recommended. He believes resection of the head of a bad operation because of the adduction contraction which usually follows.

Sprengel also brings the leg into abduction and inward rotation, but has given up plaster casts in after treatment. He now uses a nail extension, the nail being passed through the femoral condyles, and a traction of about twenty pounds applied in a semi-flexed position of hip and knee. He reports three cases.

Osteomalacia.—Jaboulay[43] believes that osteomalacia should be classed among the bony tumors. He considers that its extension in the bony system is by myxospores and sarcospores, and he shows by analogy the likeness between the histology of neoplasms and of osteomalacia.

De Etienne[44] states that he has been able in animals by the administration of small doses of calcium chloride or a combination of calcium chloride and adrenalin to produce a condition of osteomalacia experimentally. These drugs caused a diminution in the percentage of calcium in the bones until it reached as low as 15%. The elimination of calcium is effected by the kidneys and the intestines, the lost calcium being found in the urine and the feces. In this experimental osteomalacia, however, the affected bones did not lose their power of fixing lime salts when the administration of the drugs was discontinued.

Osteitis Fibrosa and Bone Cysts. Elmslie[45] calls attention to the importance of the conservative treatment of bone cysts and fibrous osteitis. He reports five cases. In bone cysts he simply curettes and crushes the cyst wall. If resection is ever wise it should be done subperiosteally. In fibrous osteitis his experience seems to show that the forcible correction of the deformity or the removal of a bone wedge is followed by no untoward results. In one of his cases an apparent arrest of the disease followed.

Jenckel[46] believes that the bone cysts and "myelogenous shelled sarcomata" (giant celled sarcomata) are nothing but a kind of osteitis fibrosa curable by incision and curetting, and sometimes even healing spontaneously. He thinks these tumors are usually of traumatic origin, and should not be considered as genuine neoplasms, but as a stage of metaplasia of the bone marrow.

Jacoby and Schrott[47] report the case of a forty-nine year old woman who for four years suffered from an osteitis fibrosa in many portions of her skeleton. She was unable to stand or walk and had sustained a spontaneous fracture of the right humerus which did not show any tendency to unite. The urinary examination showed a marked increase in the excretion of lime salts. Remembering that Chiari and Januschke had demonstrated that calcium lactium diminishes the abnormal permeability of the kidney, they gave this drug in regular doses. A distinct formation of callus was seen at the point of fracture, which healed in a short time, and the patient learned to stand and walk again. The abnormal excretion of lime salts in the urine was distinctly reduced. The x-ray picture alone remained the same.

BONE TRANSPLANTATION.

Chiari[48] has transplanted small pieces of bone marrow into the spleen of a rabbit. The bone marrow retained its vitality and was found to have increased materially in size when the animal was killed five months later.

De Quervain[49] has treated two cases of total dislocation of the cervical vertebrae by a bone transplant, using a technic much like that of Albee in cases of tuberculosis of the spine, except that he took his graft from the spine of the scapula.

McWilliams,[50] being confronted with the problem of obtaining a bone transplant to fill the gap caused by the removal of the inferior maxilla, excised the curve of the seventh rib subperiosteally and successfully inserted this bone. He obtained an excellent cosmetic result.

Jokoy[51] has been studying the effect of periosteum emulsion as an aid to bone production. His experiments have been carried out in rabbits and dogs. His conclusions are: (1) that autoplastic implantations of an emulsion of small pieces of periosteum causes new formation of bone tissue in most experiments; (2) that mechanical conditions play a great rôle. Thus his negative cases were those in which the periosteum was shrunken or rolled up. (3) In one case examined seventy days after the injection there were no signs of resorption of the new formed bone, but rather a tendency to further growth. (4) The homoplastic cases were positive but did not show such a marked formation of new bone as the autoplastic. (5) The heteroplastic cases did not show any formation of new bone. (6) Fresh blood injected with the periosteum did not seem to have any favorable influence on the formation of new bone. (7) Fibrin favors the formation of new bone. (8) Any small pieces of bone by chance injected with the periosteum will be absorbed.

TENDONS.

Kimura,[52] working in Wilm's clinic in Heidelberg, conducted many experiments on fore-arm tendons taken from fresh cadavers in order to test the value of the various methods of tendon suture. He concludes that Wilm's method is the most reliable. Under traction of 2000 grams tendons sutured by this method stretched only 2.5 mm., while with most other methods the stretching was from 11-19 mm. Silk was used in all experiments.

Lexer[53] has transplanted successfully free portions of tendon to make good various defects in other tendons and ligaments, such as the lateral ligament of the knee, the deltoid ligament at the ankle, etc. The bony insertion is made by opening the periosteum, making a small trough in the bone, fastening the tendon with a U-shaped staple, and suturing the periosteum over the insertion. He obtains the tendons from fresh amputation material.

JOINT SURGERY.

Arthroplasty.—Sumita,[54] in Payr's clinic in Leipsic, has made an experimental study in twenty dogs of the methods of operative mobilization of ankylosed joints. His conclusions are that the most suitable tissues to use for interposition are pedunculated flaps of fascia. In no case did total necrosis of the flap occur. The interposed tissue shows early a fibrous transformation into a kind of bursa and a hyperplasia due to the pressing and straining caused by the joint motions. Hemorrhage within the flap, partial necrosis, liquefaction of the necrotic tissue and subsequent differentiation of the new formed cavity within the flap result in the formation of a closed cavity containing a mucoid fluid. The formation of such bursa-like tissue may be compared to the formation of ganglia. The inner wall of the new formed bursa is smooth, whitish, and fibrous, but shows no endothelial lining. Histologically it is much like normal synovia, however. About the joint, in place of the excised capsule, a capsule-like differentiation of the connective tissue is seen. Where the mechanical stress and strain is greatest a marked thickening takes place, substituting to some extent for the removed ligaments. Regeneration of cartilage does not take place. In the contrary, rests of cartilage show fibrous transformation by the ingrowth of vessels.

Payr[55] himself has written an extensive and valuable article on the operative treatment of ankylosis of the knee joint. He goes much into detail as to the indications and importance of careful examination and study before the operation is attempted. His technique has been elaborated since his earlier articles and does not permit of abstract. His after-treatment he still considers of utmost importance. He reports twelve cases, eight osteal ankylosis, four fibrous, the duration of the ankylosis varying from six months to twelve years. He considers the result favorable in eight cases, in five the mobility being 80-90 degrees and more. He emphasized especially the importance of the pedunculated flap, feeling sure clinically that the formation of fibrous tissue is least extensive with this method. Payr's discussion of the problem of arthroplasty is perhaps the most valuable up to the present writing and his results in this the most important and the most difficult joint seem to compare favorably with those of any other surgeon.

Roberts[56] reports one case of several months duration and four other cases too early to report of the transplantation of the head and a portion of the neck of the astragalus onto the neck of the femur to make good a defect caused by the excision of the head of the femur for disease or ankylosis. The new bone is retained by an ivory peg.

Semilunar Cartilages. Martin[57] has had an unusual experience, 449 cases in derangements of the knee joint resulting from slippings or tears of the semilunar cartilages. Eighty per cent. occurred in either miners or foot ball players. He considers that the injury is brought about by the foot being held firmly while the knee, slightly flexed, is rotated. In 92% the internal semilunar was the one injured. In

53.3% it occurred in the right knee and in 46.7% in the left. There was nearly constantly a typical history of a locking, effusion, localized tenderness, and swelling, and frequently a repetition of symptoms. Martin believes that if the subject is a laborer or an athlete operation is advisable and that if a permanent inability to fully entend the knee is present the operation should be performed at once. There were no cases of infection in 449 cases, and no later instability of the joint. (Ed. note.) In the last report of Progress in Orthopedic Surgery we commented on Short's[58] report of the end results of forty-one operations for internal derangements of the knee joint. His conclusions and the opinions which we then expressed would seem to be given added weight by this large series of favorable cases.

Habitual Dislocation of the Patella.—Pauwels[59] reports a new operation for habitual luxation of the patella, the aim of which is to change the planes of the lower end of the femur and so prevent the patella slipping (usually outward). Two screws are driven into the lower end of the femur, one into the condyles and one six c.m. above. Between the screws an osteotomy is performed and the lower fragment rotated inward about 40 degrees and slightly adducted. The free ends of the screws enable the rotation and adduction to be easily accomplished and ensure perfect fixation in the subsequent plaster. The screws are removed in three weeks.

Brackett[60] has successfully performed in two cases an operation having much the same end in view. A linear incision is made over the outer condyle and with an osteotome an incision into the condyle is carried inwards to the articular bone near the medium line. Then the whole condyle is pried up, and a wedge shaped graft obtained from the tibia is driven into the space, and thus a greater resistance is offered to the outward excursion of the patella. It is believed to be wise in most cases to change the insertion of the patellar tendon farther to the inner side as well. This latter operation, devised many years ago by Goldthwait, is usually completely successful and has the merit of much greater simplicity.

Ely[61] has written a remarkably concise, sound, and helpful paper calling attention to the rôles which the various bone and joint tissues play in the different bone and joint diseases and their significance in relation to treatment. "Knowledge based on the proper appreciation of pathological changes is of more value than impressions from clinical experience." We believe that orthopedic surgery peculiarly demands at least a working knowledge of the pathology of bone and joint disease and the histology of bone and joint tissue. This article, therefore, seems to us of special value.

(To be continued.)

Reports of Societies.

TWENTY-SEVENTH ANNUAL MEETING OF THE AMERICAN ORTHOPEDIC ASSOCIATION.

Held in the Red Parlor of the New Willard Hotel, Washington, D. C., May 6, 7, 8, 1913.

Symposium on Scoliosis.

An introduction to the symposium on lateral curvature. Illustrated with lantern slides.

Dr. Ansel G. Cook, Hartford: I will show you here a plaster of Paris corset for the correction of lateral curvature. This corset is very simple in its construction, and the buckle is so arranged that the patient can stand before a mirror and adjust it. There is a strap over the higher shoulder and one over the convex side of the chest. On the concave side of the chest there is a window. There are no straps buckling around the legs. An additional strap may, however, be placed on the convex side of the lower curve.

Review of the history of the treatment of lateral curvature.

Dr. Robert W. Lovett, Boston: The term scoliosis dates back much further than the recognition of the affection itself, and was first used by Hippocrates, who lived four centuries before the beginning of the Christian era. Up to 1741 the only real contributions to lateral curvature were made by Paul of Aegina, and Ambroise Paré. André was the inventor of the term 'ortho', and he wrote more fully of the spinal curve than any of his predecessors. At the time of the American Revolution a very distinct step was made along this line by Percival Pott; but no further work—worth mentioning—was done on scoliosis for about a hundred years.

It is difficult to trace the origin of gymnastic treatment of scoliosis, for it existed from a very early time; and at the beginning of the nineteenth century this treatment began to crowd out apparatus treatment and to absorb most of the attention previously given to mechanical methods. Gymnastic treatment increased in popularity until it constituted the bulk of the treatment in America. Personally, I believe that this is wrong and that gymnastics are not suited to the treatment of moderate and severe cases of structural scoliosis. In 1902 Wullstein published the results from his method; but that method has been considerably modified. The methods of treating scoliosis today differ widely; some men advocate one method, and some another.

The normal positions of the spine and their relation to lateral curvature.

Dr. E. G. Abbott, Portland, Me.: The normal spine may be flexed in almost any position. In childhood, the vertebral column is very flexible. The adult spine has no such free motion, so that the

changes from one direction to another are not so noticeable in it. It is easy to place the normal spine in any position or combination of positions. In the scoliotic spine, on the contrary, it is often necessary to use considerable force in order to accomplish this in certain directions. A normal spine may be held in a wrong position until typical changes of scoliosis take place and the deformity becomes fixed. The position, which at first is actively assumed through the muscular effort, soon becomes habitual; and habitual assumption of it seems to develop a typical scoliosis. In these last experiments for proving the effect of muscular action upon the spine all methods of arriving at final conclusions have not been exhausted, and the subject still demands further consideration before absolute statements should be made.

PROGNOSIS IN THE TREATMENT OF LATERAL CURVATURE.

DR. EUGENE FULLER, Chicago: Thre are some genearl facts which have a bearing upon prognosis which should be considered: (1) The cause of the deformity. (2) Age at onset. (3) Age of the patient. (4) Type of deformity. (5) The patient. (6) Incidental benefit of treatment. I think we have all found our greatest success between the ages of twelve and twenty years, and in cases not due to congenital bone defects. We all know what a help it is to deal with an optimistic, alert, interested patient who is anxious to help. Low general health, disposition, etc., often improve with improvement of the scoliosis.

CORRECTIVE JACKETS IN LATERAL CURVATURE WITH REFERENCE TO MENSURATION AND RECORD.

DR. A. H. FREIBERG, Cincinnati: In all cases reported in this paper the jacket has been allowed to remain not less than four months after full correction has been obtained. In two cases it was possible to secure an unusually good over-correction of the figure in the jacket and to maintain this for five months, without influencing the abnormal deviation of the spine to any marked degree. I have come to the following conclusions: It is possible to secure the reversal of the element of deformity in some of the cases of structural deformity by Abbott's method. In some cases our means of correction cannot be exhausted in one jacket. This method of applying corrective jackets constitutes a great advance, and the correction we secure is greater than we obtained by former methods. I shall continue to use this method in the hope that I may become increasingly successful in its application.

A CONSIDERATION OF THE CORRECTION OF THE FIXED TYPES OF LATERAL CURVATURE, COMPLICATED BY VISCERAL DERANGEMENTS, ESPECIALLY THOSE OF THE CARDIAC VARIETY, WITH A SLIGHT MODIFICATION OF ABBOTT'S TECHNIQUE.

DR. ROLAND O. MEISENBACH, Buffalo: A new era has been established as regards the treatment of the several types of lateral curvature with rotation and distortion; most of this is due to Dr. Abbott's torsion work. It is a well-known fact that most of the cases of lateral curvature necessarily have secondary changes in other parts of the body. We should not attempt to build the patient up by medication and thereby lose time, but after the spine is corrected other measures may be undertaken with better results. Cardiac lesions, especiallly functional, due to pressure, improve after correction, and are not increased. In cases of the severest type with greatest deformity of the spine and derangement of the viscera, treatment should be undertaken cautiously, with a view to improving the general condition of the patient.

THE ROTATION TREATMENT OF LATERAL CURVATURE.

DR. A. MACKENZIE FORBES, Montreal, Can.: In spite of the fact that I am presenting today one form of treatment of scoliosis, I do not think that all the forms can be combatted by that one form of treatment. The rational treatment of scoliosis is to place the parts in a position as far removed from deformity, as possible, and to retain them in this new position until they shall have become changed by Wolff's Law. In the past our results in treating scoliosis have not been brilliant; this is because it is not a deformity of the spine alone, but also of the trunk and thorax. We have assumed that the spinal deformity was the cause of the other two, and our treatment has been directed wholly against this. The usual form of treatment was by side-bending, but I prefer rotation, because I can get as much correction as possible by rotation, and because the position of rotation is well borne. Rotation can be secured without any apparatus at all, but I use more or less complicated apparatus and am constantly changing it. The accepted form of treatment is the production of physiological scoliosis by rotation on the opposite side to the pathological scoliosis.

TREATMENT OF LATERAL CURVATURE OF THE SPINE BY THE FORBES METHOD.

Z. B. ADAMS, Boston: In this diagram you will see that the curve representing the course traveled by the vertebrae lies in a plain perpendicular to the bow string formed by a line connecting the extremity of the thoracic curve in scoliosis. The ribs are the elements which act upon the vertebrae. The points where the pressure is made determines the action of the vertebrae. I want to show this section which represents a boy on the frame, the lower part of the jacket being applied when the boy was straight; then he rotated himself by his arms, and in doing so bent to the side. These are pads which are intended to change the shape of the floor of the plaster thus giving the body a chance to come out over the areas where the plaster is cut out over the pads.

DISCUSSION ON THE SYMPOSIUM ON SCOLIOSIS.

DR. WALTER TRUSLOW, Brooklyn: The papers on scoliosis have shown a very great change in the attitude of most of us toward its treatment. Dr. Abbott has presented a decided advance in the treatment in giving us the flexed position. I wish to emphasize the importance of a third plane of space in which this deformity lies: the antero-posterior plane. This picture shows the three planes in which the deformity exists. If we extend the patient forward, we overcome the body lean backward. I believe the correction that Dr. Freiburg thought we were tending toward is the final thing.

If we get the right final method, it will be a two-stage process. We shall overcome these secondary conditions first; and then the main trouble, the rotation, afterwards.

Dr. Z. B. Adams, Boston: The difference between Dr. Forbes' and Dr. Abbott's method is that Dr. Abbott puts his patient in flexion, then he puts a circular strap around the thorax and pulls down. That increases the rotation.

Dr. A. H. Freiberg, Cincinnati: Dr. Cook takes the most convenient situation for the correction of his crook—about the middle of the dorsal region; there the deformity is most amenable to any mechanical control; but it is evident that his method would be inefficient for any other portion of the spine. His statement that if you correct the dorsal curve, the lumbar curve will take care of itself, is not well taken. On the contrary, I think that if we confine our efforts to the dorsal curve when there is a well-marked lumbar curve, it will increase the latter—simply from the action of gravity. We always find torsion and lateral deviation together, and the torsion element of the deformity is the more difficult to dispose of.

Dr. C. F. Painter, Boston: Scoliosis is very prominently before the public now, and that is because we are making a strenuous effort to solve successfully a problem that has been before us all our lives.

Dr. Kleinberg, New York: Out of fifty odd cases which I have treated by the Abbott method, seven have been over-corrected, twenty-two have been markedly improved, and twenty-one have not improved at all; while two have been made worse. It is impossible to say in advance where improvement is going to appear. As Dr. Whitman has said, we have to depend a great deal on the posture. The breathing has a great deal to do with the cure also. It seems impossible to influence the high cervico-dorsal deformity, and even with severe lumbar curves I have had but little success.

Dr. Michael Hoke, Atlanta: Some methods named after the men who devised them seem to fail to give satisfaction in the hands of others. This is because you cannot apply these methods universally to a given number of cases, without carefully differentiating between the details of the given cases. In many instances where failures occur, it is the fault of the operator and not of the method. It seems to me a good thing to advocate the rotation, the breathing, the fixation and lateral pressure treatment in scoliosis; for all these elements come in. You have to apply different forces to different parts. Don't attack the method, but utilize the good in each method, and where there is failure we should criticise our way of applying the method.

Dr. John Dane, Boston: Dr. Meisenbach has done a wise thing in drawing our attention away from the side of the spinal deformity and toward the side of the deformity of the trunk and thorax in scoliosis. I believe it is impossible to have any irritation around the dorsal branch without having a reflex sent to the anterior branch. Bronchial, stomach, intestinal and all sorts of functional troubles come from scoliosis.

Dr. G. G. Davis, Philadelphia: We have three different methods, already published, for obtaining correction in lateral curvature:—the Abbott frame, the Forbes frame and the Adams. Dr. Elmer, in my clinic, is trying to accomplish the same object with the patient in a sitting position, using two uprights with a seat, to which the patient is strapped.

Dr. S. M. Cone, Baltimore: I had a case which illustrated Dr. Porter's paper on Prognosis in the Treatment of Lateral Curvature; my case being influenced by the etiology. This case of scoliosis had been produced by chronic appendicitis, with a fecal impactation of the colon, and disappeared entirely with the removal of the cause.

Dr. Compton Reilly, Baltimore: I am of the opinion which I held ten years ago; and that is, that the starting point of the scoliosis is in the pelvis. I think it starts with a twist. I have been using the same apparatus to correct this deformity that I use for the spine in Pott's disease. The time is coming when we shall use no apparatus for the application of the jackets in lateral curvature, but shall simply prop up the foot, which is apparently short, have the patient bend forward, and apply the jacket in that position without any forcible apparatus.

Dr. David Silver, Pittsburg: A great deal of improvement has come from the Abbott method. In stiff cases I have been having the patient remove the jacket morning and evening and take exercise. It has proven a good thing. In cases of paralytic curvature we must concomitantly use the exercises and movements to increase spinal flexibility.

Dr. Kleinberg, New York: There is a question as to whether the lumbar curve is associated with any pelvic deformation. In a series of twelve cases there were three or four in which there was a difference between the measurements on the two sides from the posterior superior to the anterior superior spine of the ilium.

Dr. S. J. Hunkin, San Francisco: In cases of great rigidity we find that by having the assistant stand on a platform two feet above the floor, his back against the wall, he is able to produce side bending and flexion until the deformity disappears. Then the jacket is put on. No force is applied to the patient, and the rotation is easy.

Dr. H. Augustus Wilson, Philadelphia: We are at present without a standard to judge our results by. We cannot rely upon radiography as a means of recording conditions before and after treatment. The patients will judge our results by their personal feelings, and the parents by their children's capabilities. We should try to know accurately the conditions before, during and after treatment, the real changes that take place—not in function or in appearance, but in measurement.

Dr. E. G. Abbott, Portland, Me.: It makes no difference what kind of apparatus a man uses so long as he can place his patient in the proper position by means of it. The position desired is that of flexion and lateral bending, with elevation of one shoulder and depression of the other. If you have a lumbar curve it is necessary to put on an additional strap to make your traction and rotation there. When the curve is in the lumbar spine you must be careful, in correcting it, that you do not develop a curve in the dorsal region—which should be held in a strap and prevented from bending or becoming crooked.

Dr. John Ridlon, Chicago: I think we know very little more about treating lateral curvature than we did in the past. My advice is treat the cases as they seem to demand. It is absurd to undertake to treat them all one way.

Dr. B. E. Mackenzie, Toronto, Can.: In treating these cases one should bear in mind the fact that he is dealing with an individual, and not simply with a deformity. In treating postural deformities I should exclude mechanical means, such as a brace,

jacket, etc. We are using the Abbott jacket, and I am satisfied that in difficult structural cases it is of great benefit.

DR. JAMES K. YOUNG, Philadelphia: We are using the Abbott method and are much pleased with the results obtained from it, but the cases must be carefully selected. The age of the patient is important. A patient of twenty-two years does much better than one of fourteen.

DR. D. D. ASHLEY, New York: I believe there is a great deal better technique for every one of us to learn. I have secured better results with my growing patients. I have found girls of sixteen or eighteen years, very small and thin-ribbed, whom it has been impossible for me to correct. Their ribs are elastic and will bend into apparent correction, but when we put the x-ray on such cases we find but little modification of our scoliosis.

DR. H. P. GALLOWAY, Manitoba, Can.: We have all met with those difficult cases in children whose deformity is due to poliomyelitis, and watched them grow worse, year after year, and felt the difficulty of controlling them. I have thought of trying the experiment of bone-grafts in producing a fixation of the spine in such cases. I do not think we should be doing a great deal of harm by fixing or solidifying the vertebrae in the corrected position. I hope that someone will try that method of treatment.

DR. ROBERT SOUTTER, Boston: Dr. Sever's work at the Children's Hospital at Boston with these difficult structural cases has been so wonderfully successful that I think we should record it at this time. He used a method of traction on the head and corrective gymnastics.

In using the Abbott method I often find that in putting on a second or third jacket I get a correction that I could not get in the first or second.

DR. JOSEPH E. ROOT, Hartford, Conn.: If you will give a proportionate amount of time to the older and stiffer cases, I think you will get the same results. I put all my cases in the hospital now. The patients can be examined every day. Those in which the curves are hard, I have put in the Abbott frame every day and stretched. The breathing method is also helpful. Change the jacket every week, if necessary, and put the patients through exercises with the jacket on and off. By constant attention in the hospital, I have accomplished in one month what I have worked for two or three years to get. This kind of treatment means hard work, but in all these cases you can get fine results by such means. Do not apply the jacket and then not see the patient for a week or two. The improvement is not the result of any particular method, nor is any particular method at fault where there is poor result. It is up to us.

DR. J. E. SEVER, Boston: I have had more experience in treating lateral curvature with the head suspension; although I think that the flexion is mechanically better. The simpler the apparatus the easier it is to put on and the better the result you get.

(To be continued.)

Book Reviews.

Studies Concerning Glycosuria and Diabetes. By FREDERICK M. ALLEN, A.B., M.D. Boston: W. M. Leonard, Publisher. 1913.

This is a monumental work. The writer states in the preface that it represents three years of research, but it is remarkable that he could have accomplished so much in this relatively short space of time. The investigation was conducted in the laboratory of preventive medicine and hygiene of Harvard University. The spirit of the work, he tells us, is that of a journal article, but from an examination of the volume the reviewer estimates that there is enough original material presented to fill fifty or more journal articles of average length.

There is more than a thousand pages of text with many tables and protocols, and a bibliography of about 1500 articles. Dr. Allen says that he did not attempt to compile a complete bibliography. The references given are those actually used in connection with the research. Admirable reviews of the literature dealing with many sides of the diabetes problem are included. In the preparation and study of several thousand histological specimens of the pancreas and other organs, the author was assisted by Professor Mallory. The titles of some of the chapters indicate the varied aspects of the subject that have been investigated: Glycemia, glycosuria, and glucose tolerance; administration of carbohydrates other than dextrose; parenteral feeding; effects of sugar in young animals; the amboceptor hypothesis and levulosuria; the oat cure; operative diabetes; diabetes insipidus; classification of glycosurias; alimentary glycosuria and diabetes; acidosis; phloridzin; adrenalin; the nervous system in relation to glycosuria and diabetes; miscellaneous attempts at diabetic therapy; the polyglandular doctrine; the liver and diabetes; anatomy of the islets of Langerhans in health and disease; relations of internal and external pancreatic secretion. In the concluding chapter the results of the investigation are clearly summarized. The writer has made an important discovery which seems to throw light on the nature of diabetes. He has found that dextrose is an anti-diuretic, in non-diabetic animals, when given orally, subcutaneously, or in any way except directly into the circulation. In diabetes, as has already been recognized, dextrose acts as a diuretic. In other words, dextrose in diabetes has the diuretic action of a cystalloid, but in non-diabetic conditions dextrose behaves like a colloid except when given intravenously. On the basis of this diuretic test diabetes is clearly distinguished from various forms of glycosuria. Allen formulates what he calls the paradoxical law. "Briefly, this law is that the more sugar is given, the more is utilized. Limits of tolerance in non-diabetic animals are

all apparent, not real; there is no real limit of the power of utilization of sugar, except death." In diabetes dextrose does not obey this law. The limits of tolerance in diabetic animals are real and not apparent. By means of this tolerance test the glycosuria of diabetes is sharply separated from other forms of glycosuria. These two tests of Allen's, if confirmed, will cause the polyglandular theory of the Vienna School to fall as Minkowski predicted, "like a house of cards built high in the air." They also prove that diabetes is not due to the over-production of sugar, as claimed by von Noorden. Space does not permit the statement of other results obtained by Allen, although his work on the production and modification of diabetes is of high order and contains much that is new. Doubtless he will be accused by some of indulging too freely in speculation. He believes that the pancreas has several internal secretions. One of these is an amboceptor which combines free sugar with the cells of the body, and he defines diabetes as a lack of this amboceptor. Facts are marshalled to support these theories in masterly fashion. The application of this theory of diabetes to human diabetes will doubtless arouse vigorous opposition and stimulate clinical research. If his conclusions are verified, the problem presented by diabetes becomes much simplified.

This is a book that will be helpful to every student of diabetes and contains many suggestions for future investigations. Dr. Allen's clear and logical way of putting things has enabled him to present his great and intimate knowledge of diabetes in a simple and interesting way. There are new diagnostic and therapeutic suggestions that may be of value to the surgeon and practising physician.

An Atlas of the Differential Diagnosis of the Diseases of the Nervous System. Analytical and Semeiological Neurological Charts. By Henry Hun, M.D. Quarto. pp. vi, 290. With 33 illustrations. Troy, N. Y.: The Southworth Company. 1913.

The author of this volume has performed a rather unusual task. Recognizing, as he says, that "the diagnosis of nervous diseases lends itself better than that of the diseases of most of the other organs to exact pathological analysis," he has attempted to present the crystallization of this analytical method of teaching into the tabular form. In no other work on neurological diagnosis has the subject been treated in this way, so far as we know, although in some works the symptoms of a number of different diseases have been contrasted in a somewhat similar fashion; but, as the author says, he has had no model to follow for a work so extensive as this, yet he has accomplished his difficult task in a fashion worthy of high praise. The first table deals with the methods of case-taking and examination. Here the book naturally comes into comparison with the more elaborate text-books on diagnostic methods, not wholly to its advantage. The essential points to be investigated are clearly explained, but the account of the methods is much condensed, so that this table is rather an index than a guide for the beginner, and needs to be supplemented by more elaborate works. The subsequent tables of the first part, dealing with the subjective symptoms, the diagnostic bearings of age, sex, race, occupation and the like, the semeiology of disordered motor, sensory, reflex and mental activity, electrical examination, examination of the cerebro-spinal fluid, special syndromes and anatomical terms, are somewhat more complete. The second section, devoted to the diagnosis of disease, is much more original and valuable. The most important symptoms of disease of the nervous system are taken up in succession,—paralysis, convulsion, spasm, ataxia, tremor, aphasia, anesthesia, pain, etc,—and are carefully analyzed, so as to show what diseases may give rise to each, and what are the distinguishing variations of the individual symptoms in the different diseases. Thus, under paralysis, the author first considers whether the paralysis be continuous or intermittent. Then, if it be continuous, whether it be flaccid or spastic, then whether there be atrophy, whether the reflexes be affected, the various local distributions, an abstract of other symptoms, until finally the choice is limited to one or two diseases. This part of the work has been admirably done. It is full, complete and accurate. Whether you begin with the one general symptom, common to scores of diseases, such as paralysis, and work forwards, or start with some rare affection, such as myatonia congenita, and work backwards, or select some uncommon symptom and trace its occurrence,—an easy matter owing to the excellent index,—the result can be readily obtained. The third section takes up the different parts of the nervous system, and shows the symptoms which may arise from a lesion in any given region. This section is, in a way, supplementary to the preceding, but is clear and concise, and a useful addition. The various tables also deal with the symptoms occurring in the so-called mental diseases, although the title-page does not indicate that fact. Nevertheless the various mental symptoms are quite fully considered, and the existence of other symptoms, such as paralysis, mutism, anesthesia and the like in the so-called mental diseases, is duly recognized. Errors in the work are so few as to have escaped any special notice. Omissions occur, especially in the sections on mental disturbances,—Ganser's syndrome, verbigeration, logorrhea, and the like. Some subjects are not very adequately treated, such as conjugate ocular paralyses. The table dealing with the various forms of insanity is perhaps adequate, yet is not wholly in accord

with our present methods of considering the subject. A few more diagrams, for example, showing the optic tracts and their relation to the various forms of hemianopsia, or the anatomical bases of the crossed paralyses, would be desirable. These, however, are minor defects. The book itself, be it remembered, does not pretend to be a complete and independent treatise on neurology. It must be supplemented by works on nervous anatomy and on diagnostic methods on the one side, and by the formal treatises on nervous and mental diseases on the other. But as an index and guide to diagnosis it is unique. It is a clear and trustworthy guide, not only for the tyro but also for the neurologist, and as such we give it a hearty and well-merited welcome.

Report on Certain Outbreaks of Yellow Fever in 1910 *and* 1911 *in West Africa.* London: Waterlow and Sons. 1913.

This report by Dr. A. E. Horn and Dr. T. F. G. Mayer, based on various reports from colonial governments and issued by the crown agents for the British colonies, chronicles the data of various apparently sporadic outbreaks of yellow fever in Sierra Leone, Gold Coast, Southern Nigeria, and Gambia, involving a total of 64 cases. These cases are recorded in full, with clinical charts and a synopsis of post-mortem examinations. A series of eight appendices contains further data bearing on these outbreaks; and six illustrative maps represent the distribution of cases, and the hitherto known distribution of *Stegomyia fasciata* in West Africa. The work is a valuable official contribution to the epidemiologic literature of yellow fever.

Prevention and Control of Disease. By FRANCIS RAMALEY, Ph.D., and CLAY E. GIFFIN, B.A., M.D., Boulder, Colorado: University of Colorado. 1913.

This book, according to the statement of the author's preface, is not written for medical students, practising physicians, or biologists, but is intended for the general public and for use as a text in college classes. Its avowed aim is "to bring before the intelligent citizen such facts as are necessary to make him sympathetic with the efforts of health officers and charitable organizations in their campaigns for the stamping-out and control of disease." To this end the subjects of disease, hygiene, infection, disinfection, susceptibility, resistance and immunity are discussed and explained in popular but scientific manner, followed by a special consideration of some of the specific preventable diseases, chiefly infectious. Poliomyelitis, meningitis, adenoids, neurasthenia and insanity, owing to lack of space, are not included. The chapters on cancer and other diseases of the second half of life are by Dr. Giffin, the remainder of the work by Professor Ramaley. The book is of an unusual but desirable type, and should do much good if it can be made to reach those classes in the community which most need its instruction.

Ophthalmology for Veterinarians. By WALTER N. SHARP, M.D., Professor of Ophthalmology in the Indiana Veterinary College. pp. 210. 12mo. illustrated. Philadelphia and London: W. B. Saunders Company. 1913.

This manual for veterinarians we think will prove valuable to those practising on the domestic animals. The author describes many eye diseases occurring in man, and the similarities and differences of the same diseases in various common animals and also the diseases and parasites peculiar to the animals. The book is well illustrated and has one colored plate of the dog's fundus. Methods of examination and use of the ophthalmoscope are explained. Treatment, medicinal and operative, is not neglected. One effective method of stopping the progress of a contagious membranous conjunctivitis is not open to ophthalmologists generally, *i.e.* "Cut off the head and bury it."

Diseases of the Stomach and Upper Alimentary Tract. By ANTHONY BASSLER, M.D., Professor of Clinical Medicine, New York Polyclinic Medical School and Hospital, etc., etc. Second edition. Revised and enlarged. Illustrated. pp. 870. Philadelphia: F. A. Davis Company. 1913.

This work is an extremely complete description of the most advanced methods of dealing with digestive disorders both for diagnosis and in treatment. In diagnosis much attention is devoted to examination by means of the stomach tube, Roentgen rays, and the gastroscope, and to laboratory tests of gastric contents and feces. Under therapeutics are discussed in addition to diet and internal medication, many such measures as massage and vibration, electric therapy, radium therapy, mechanical supports and gymnastic exercises, as well as lavage in various forms. While the conservative physician can hardly escape the impression that many of the methods described are too cumbrous to be practically applicable, and that their worth has not yet been proved to justify the difficulty of their performance, it is still of interest to observe how far it has been possible to obtain objective evidence as to the conditions studied and with what ingenuity all possible influences have been applied to their treatment.

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THE AMERICAN HOSPITAL ASSOCIATION.

The fifteenth annual conference of the American Hospital Association, which has for its chief function the promotion of economy and efficiency in hospital management, was held in Boston last week, with a large attendance from various parts of the country. It is evident to the most casual observer that the hospital in its various forms is coming to occupy a place in the life of the community which it has never before held. Prejudice has been slow in dying, but the time has come, with the possible exception of hospitals for the insane, when persons of ordinary intelligence are willing and glad to accept the services of a hospital both in the surgical and medical care of the diseases which they may have acquired. With this increasing confidence on the part of the public there has been a natural growth toward improving and standardizing hospital methods. The American Hospital Association is an expression of this tendency, and to it we may well look for progress not only in the management, but also in the medical treatment of our hospitals. In fact the suggestion was made at this last meeting that the efficiency of the association would be very greatly increased were physicians connected with the staffs of the hospitals eligible for membership, to the end that the professional and administrative sides of the questions at issue might be freely discussed. This is certainly an advisable step to take provided always that the main object of the society be not lost.

In his presidential address, Dr. Frederick A. Washburn, administrator of the Massachusetts General Hospital, clearly pointed out certain definite needs of the future in the problems of hospital management. He advocated, as suggested above, a broader membership and discussed without mincing words the evils inherent in certain of the smaller hospitals which were inclined to attempt more than the knowledge of their staffs rendered desirable or safe. The matter, however, to which Dr. Washburn drew particular attention was the question of the public inspection of hospitals, by properly equipped and unprejudiced persons. At the last meeting of the association a committee composed of Dr. H. M. Hurd, Dr. John A. Hornsby, and Dr. F. A. Washburn was appointed to investigate the subject of such inspection. In 1910 Dr. Herbert B. Howard, then president of the society, called attention to the desirability of a system of inspection in order that hospitals might be kept upon a high level of efficiency. In this matter Dr. Howard had had long experience through the policy of inspection of state hospitals instituted by the Massachusetts State Board of Insanity, of which he was for many years a member. It is Dr. Washburn's belief that such inspection of general hospitals should be effected not by states, as suggested by Dr. Howard, but rather through a broader national plan.

Unfortunate as it may be, it is none the less true that inspection in general is essential to the best development of institutions of whatsoever sort. Criticism and comparison rendered possible by such inspection are necessary if an institution is to avoid the fault of self-sufficiency. The Carnegie Foundation through its agent, Dr. Abraham Flexner, has unquestionably done much toward the raising of standards of medical education through its searching criticism of existing medical schools, their methods and resources. It should be possible, were its importance sufficiently emphasized, for this foundation to undertake a similar criticism of hospitals which in the broader sense are likewise centers of teaching, and at least point the way toward a systematic hospital inspection, as suggested by Dr. Washburn in his recent address. On this matter Dr. Washburn spoke as follows: "To me this scheme of inspection, if it can be worked out under auspices in which we have confidence, promises a most important step in advance. From the statistics gathered we

should eventually learn the essentials of a model hospital of each class. Hospitals would soon learn that a low per capita cost is not the first requisite; that high grade modern work needs first rate personnel in all departments, a complete system of records, all modern contrivances for scientific research, and a spirit of investigation and teaching. How better can this be brought out than by comparison of hospitals trying to do a similar grade of work? It is, of course essential that this should be done by a person with the requisite hospital knowledge, and in a spirit of the utmost fairness. Hospital trustees would welcome friendly criticism and suggestion, and the information that their institution is not in all particulars the acme of perfection would do them no harm.''*

Many of the papers and discussions at the various meetings were of technical character and naturally were concerned with the details of hospital administration, the nursing problem and allied questions. Others, however, related to more general problems and served to demonstrate the very close relationship between the administration and the medical work of the hospital. Following a paper by Dr. J. A. Hornsby on the inspection and standardization of hospitals, Dr. Ernest A. Codman of Boston, chairman of the committee on standardization of hospitals, Clinical Congress of Surgeons, discussed the question from an original standpoint. An evening session was given up to the matter of social service, which has evidently become an integral part of the work of hospitals and dispensaries. In general the meetings served to bring together a body of men and women vitally interested in various phases of the same general problem; it is not for a moment to be questioned that such gatherings are useful in more ways than appear on the surface.

PRESENT DAY DANGERS.

In a somewhat pessimistic address, Dr. Charles W. Eliot, president emeritus of Harvard University and president of the Congress on School Hygiene which has recently met at Buffalo, N. Y., calls attention to the detrimental effect on health of the progressive civilization of the last hundred years. Evidence of this is seen in the lowered vitality of city dwellers, in the diminishing size of families, in the increasing incapacity of many women to bear and nurse children and in the increase of the insane, the defective and the criminal. That civilization is preparing its own destruction is shown by the conditions existing in the great centers of population, where defect, disease and crime are seen in their most alarming and destructive form. Mr. Eliot insisted upon the necessity of segregation, thereby taking an important step toward the eventual disappearance of defective stock, although he admitted that the question of good breeding and the means by which it may be obtained is not easy of solution. This, however, should not prevent the recognition of the effects of bad breeding. In general he felt that the outcome of such a gathering as that over which he presided should be to enlighten society regarding the means of protecting civilization against its inherent tendencies toward decay and dissolution and to strengthen by every possible means the social consciousness toward putting into execution all available means of defense which ethics and the science of medicine recommend. It is perhaps not to be expected that very much may be done with those who have reached adult life under present conditions. The hope in this, as in other educational matters, lies with the children and herein is the importance of a training, particularly in the schools, which will render possible a saner and more wholesome hygiene both of body and mind.

It is not to be doubted that conditions of life, both in our large cities and in a different, though possibly not in less degree in rural communities, show many tendencies toward decadence. We should not, however, too readily assume that the situation is greatly different from what it has been at various other epochs of productive civilization. That changes and readjustments are inevitable no one will be inclined to deny, but that the world and its people as a whole are degenerating we should not be too ready to admit. For example, in the matter of the supposed increase of insanity and defect in general, conclusions should be drawn with much conservatism. Not only through improved hospital care are such persons made to live very much longer than heretofore, but it is also true that the increased interest and attention being given to these matters has placed a somewhat false emphasis, certainly in the popular mind, upon their extent. It may even be doubted whether

* Dr. Washburn's complete address will be published in a forthcoming issue of the JOURNAL.

insanity is greatly on the increase, and in fact certain statistics seem to contradict this view. The interest, however, which people at large, both lay and medical, are taking in these matters is evident on every hand, and in the midst of all the excitement and discussion it is peculiarly desirable to maintain a judicial attitude and view the problems now so prominent in the public mind with calmness and optimism. If civilization is to blame, the solution of existing evils must lie deep down in the social fabric, and it would be well in much of the existing superficial discussion to bear this fundamental fact in mind. To effect cures of the various social evils we must be sure that we have found the causes.

DEATHS OF AVIATORS.

Statistics compiled up to August 7 of this year show that three hundred and forty-two aviators have been killed since 1908, when the first man lost his life. Since this compilation a dozen more have met a similar fate. In spite of this appalling fatality, we believe that the cost in human life has been more than repaid by the advance of knowledge and by the possibilities which the new science and art of flying offers for the future. It should also be considered that the number of persons engaged either seriously or in a spirit of sport in this newest occupation is constantly increasing and that the proportion of persons dying through mishaps is presumably not greater now than several years ago. No doubt the spirit which prompts men to undertake a trial of the air differs widely in persons of varying temperament, but the fact of importance is that flight by human agency is possible, and therefore there will unquestionably always be found men of courage to undertake its further development until it is either put on a plane of comparative safety or is proved impracticable for the larger purposes of pleasure or traffic or war. There are certain persons who have regarded the attainment of the north or the south pole as a foolhardy and useless adventure. Such persons overlook the wider significance of such attempts which lies in the determination of man to overcome obstacles, however seemingly impossible. This we believe is the underlying spirit of aviation, and is surely an attribute to be encouraged rather than decried.

MEDICAL NOTES.

A British Centenarian. — Mr. William Hoathey, of Southover, Lewes, Sussex, England, who is said to have been born there on Aug. 3, 1812, celebrated his supposed one hundred and first anniversary recently with his three aged children, who like himself ascribe their good health to lifelong habits of temperance.

Three Continental Medical Congresses.— A Congress against the Adulteration and Deterioration of Foodstuffs was held from Aug. 1 to 3 at Ghent, Belgium; the Third International Conference on Cancer met at Bruxelles from Aug. 1 to 5; and during the last week in August is to be, also at Ghent, the Third International Conference on Neurology and Psychiatry.

Pure Olive Oil.—Owing to certain statements said to have been circulated in America regarding the importation of Italian oil into the United States, action has been taken by the Royal Italian Ministry of Agriculture and Commerce stating the strict Italian law that oil other than olive shall be accompanied by a declaration of its exact nature. This law is said to be enforced rigorously in Italy.

American Federation for Sex Hygiene.— The American Federation for Sex Hygiene, which held a symposium on Aug. 27 at the International Congress on School Hygiene, has elected the following officers: President, Dr. Charles W. Eliot; vice-presidents, Dr. David Starr Jordan, Leland Stanford University; William T. Foster, Portland, Ore.; Felix Warburg, New York; and W. T. Sumner, Chicago; secretary, Dr. Donald R. Hooker, Baltimore; treasurer, Henry L. Higginson, Boston.

Heredity in Deaf Mutes.—A study of heredity of deaf mutism has been made in Washington on the basis of 4471 marriages of deaf mutes. In a considerable number of the cases no information was obtainable in regard to the marriages, and in others the marriages had taken place too recently to be of service in the investigation. Of 3078 marriages of a year's standing or more, about 17 per cent. were childless; of 2342 marriages, the resulting children were not deaf mutes; and in only 300 cases deaf offspring were also produced. In such statistics

a matter of chief importance is the determination of the cause of deafness in the parents. If acquired through disease after birth, there is naturally no reason why the deafness should be transmitted. If, on the other hand, the deafness were congenital in character, there would be more reason to expect a like condition in the offspring. Such figures, no doubt, are an argument in favor of the non-heredity of acquired characters.

A NEW ORTHOPEDIC ASSOCIATION.—The following representative committee was formed during the recent meeting of the International Medical Congress, authorized to found the international Association to further the progress of orthopedic surgery, to correlate the literature of the various countries, and to arrange for the holding of international meetings: Mr. Robert Jones, of Liverpool, Great Britain; Professor Murk Jansen, of Leiden, Holland; Professor Putti, of Bologna, Italy; Professor Kirmisson, of Paris, France; Professor Lovett, of Boston, United States; Professor Vulpius, of Heidelberg, Germany; Professor Dollinger, of Budapest, Hungary; Professor Clarence Starr, of Toronto, Canada; Professor Turner, of St. Petersburg, Russia; and Professor Spitzy, of Vienna, Austria, secretary.

BOSTON AND NEW ENGLAND.

MEETING OF ESSEX SOUTH MEDICAL SOCIETY.—A special meeting of the Essex South Medical Society was held Aug. 29 at the Danvers State Hospital. Dr. A. M. Barrett, director of the Psychopathic Hospital at Ann Arbor, Mich., formerly pathologist of the Danvers Hospital, the guest of Dr. Kline, superintendent of the hospital, gave a talk and clinic for general practitioners on mental disease.

MORTALITY RECORD.—The State Board of Health reports deaths in Massachusetts cities and towns of more than ten thousand population, for week ending Aug. 16, from pulmonary tuberculosis: Boston, 16; Fall River, 4; Springfield, 3; Worcester, Lowell, New Bedford, Somerville, 2 each; Cambridge, Holyoke, Haverhill, Everett, Pittsfield, Brookline, Revere, Westfield, Newburyport, Framingham, 1 each. From diarrheal diseases: Fall River, 12; Milford, 2; Greenfield, 1. From typhoid fever: Boston, 2; New Bedford and Somerville, 1 each. From scarlet fever: Chicopee, 2. From whooping cough: Boston, 2; Cambridge and Gloucester, 1 each. Deaths under five years: Fall River, 13; Greenfield, 3; Milford, 2; Newburyport, Clinton, Adams, Arlington, 1 each.

TYPHOID FEVER.—As was expected, a certain increase in the number of cases of typhoid fever has been reported in Boston owing to the return of vacationists. This has happened in spite of precautions and advice given earlier in the summer that persons contemplating vacations should be inoculated against the disease.

MILK DEALERS FINED.—Eight milk dealers recently arraigned in the Boston Municipal Court have been fined for violating the milk regulations. The fines in all amounted to $250.

RETURN OF SOUTH AMERICAN EXPEDITION.—Dr. Richard P. Strong, professor of tropical diseases at the Harvard medical school; Dr. Ernest E. Tyzzer, assistant professor of pathology and director of cancer research at the Harvard medical school; and Dr. C. P. Brues, of the Bussey Institute, have returned from South America, where they have been since April, studying certain tropical diseases under the auspices of the department of tropical medicine of the medical school. Three weeks were spent in Guayaquil, Ecuador, and most of the remainder of the time in Peru. Certain of their results have already been stated in these columns, and a full report will be awaited with interest. Discoveries of importance were made.

BEQUESTS.—Through the will of the late Amos Cotting of Boston the following bequests to Boston institutions are made: Industrial School for Crippled and Deformed Children, $30,000; Children's Hospital, $10,000; District Nursing Association, Nursery for Blind Babies, Boston Dispensary, and Boston Home for Incurables, $5,000 each.

INFECTIOUS DISEASES.—Cases of infectious diseases reported to the Boston Board of Health for the week ending Aug. 26, 1913: Diphtheria, 28, of which 3 were non-residents; scarlatina, 12; typhoid fever, 27, of which 1 was non-resident; measles, 8; tuberculosis, 65, of which 5 were non-residents.

The death-rate of the reported deaths for the week was 12.55.

NEW YORK.

Appointment at the Rockefeller Institute.—It is announced that Dr. Louise Pearce of the Johns Hopkins Hospital staff has been appointed an assistant to Dr. Simon Flexner at the Rockefeller Institute, New York. Dr. Pearce gave up a position on the staff of the Phipps Psychiatric Clinic to accept this appointment.

Pharmaceutical Conference.—An important pharmaceutical conference, in connection with an exhibition showing the latest improvements in drug preparation, etc., is to be held at the new Grand Central Palace from Oct. 2 to Oct. 9. It has the indorsement of the American Pharmaceutical Association, the New York State Pharmaceutical Association, the New York County Pharmaceutical Society, and other organizations of repute.

Surveillance of Infectious Diseases.—The City Department of Health has just issued a circular describing the present procedure in the surveillance of diphtheria, scarlet fever and measles. The most noteworthy changes in procedure indicated in the new circular are the following: 1. Insusceptible persons (those who have had diphtheria, scarlet fever, or measles) will not be excluded from school while a case of infectious disease still exists at home, provided isolation is being satisfactorily carried out. 2. Cases of measles will be terminated five days after the appearance of the rash, provided such a course is warranted by the clinical condition of the case.

Current Literature.

Medical Record.

August 2, 1913.

1. Clark, L. P. *Newer Aspects of the Treatment of Epilepsy.*
2. Eccles, I. R. G. *Disease and Genetics.*
3. *Hubbard, S. D. *Differentiation of the Erythema of Scarlet Fever and That of German Measles.*
4. Cornwall, E. E. *Observations and Suggestions Regarding Lobar Pneumonia.*
5. Robinson, B. *Obsessions in Medicine.*
6. Legiardi-Laura, C. *Tumor of Omentum with Twist of Pedicle, Giving Symptoms of Acute Appendicitis.*

3. Hubbard emphasizes the extreme difficulty and importance of differentiating early between scarlet fever and German measles. He discusses at length the considerations which help to establish the correct diagnosis. In scarlet fever, he says, the constitutional symptoms are more severe and their severity is in direct proportion to the intensity of the rash, while in German measles it is in indirect proportion. The scarlatinal eruption appears first on the neck and about the clavicles, whereas the rash of German measles appears first about the nose and lips. "Mouth pallor" points strongly toward scarlet fever. The tongue, which is characteristic in scarlatina, is negative in German measles. Desquamation begins three days after onset in German measles, twelve to twenty-four days in scarlet fever; it is squamous in the latter disease, furfuraceous in the former. In both conditions there is glandular swelling, but in German measles the swelling appears earlier and the glands are not tender. The posterior cervical chain is especially noticeable. German measles very seldom begins with vomiting, which is the rule at the onset of scarlet fever. [L. D. C.]

The Journal of the American Medical Association.

August 16, 1913.

1. *Flexner, S. *The Local Specific Therapy of Infections. 1 The Biologic Basis.*
2. Robinson, G. W. *Overresponse to Affective Stimuli from Stationary Cortical Lesions. With Report of a Case.*
3. Bell, E. T. *Cloudy Swelling.*
4. *Grover, A. L. *Experimental Cirrhosis of the Liver.*
5. *Sawyer, W. A., and Herms, W. B. *Attempts to Transmit Poliomyelitis by Means of the Stable-Fly (Stomoxys Calcitrans).*
6. *Flinn, J. W. *Rest and Repair In Pulmonary Tuberculosis.*
7. Eckels, L. S. *Epididymotomy. The Radical Operative Treatment of Epididymitis.*
8. Bridgman, O. *Mental Deficiency and Delinquency.*
9. Breed, L. M. *Further Observations with a Saccharomyces.*
10. Mettler, L. H. *Symptomatology of Multiple Sclerosis.*
11. McCrae, T. *The Remote Effects of Lesions of the Prostate and Deep Urethra.*
12. Riggs, C. E. *Some Nervous Symptoms of Pernicious Anemia.*
13. Schwartz, H. *The Sero-diagnosis of Pregnancy.*
14. Lescohier, A. W. *Duration of Immunity Following Smallpox Vaccination.*
15. Landon, L. H. *A Simplified Method of Direct Blood Transfusion with Self-retaining Tubes.*
16. Keller, E. V. *An Adjustable Bed-frame.*
17. Kiehle, F. A. *Illuminated Ear Speculum.*
18. Gilbert, J. R. *A Coin-catcher for Removing Coins from the Esophagus.*

1. Flexner's learned exposition of the nature and therapy of infections is not amenable to brief review, but is well worth reading.

4. Grover believes he has produced a typical alcoholic cirrhosis of the liver in rabbits by the daily feeding of 15 c.c. of 34 per cent. alcohol before feeding time each morning. Histologically these livers coincide with the human type of this disease.

5. Sawyer and Herms in seven experiments were unable to confirm Rosenau's work and were unable to transmit poliomyelitis by means of the bite of the stable fly from one monkey to another. They, therefore, doubt that the fly is the usual agent in spreading this disease in nature.

6. Flinn gives credit to all forms of recognized treatment of tuberculosis of the lungs, but places rest as the one of greatest importance. [E. H. R.]

THE JOURNAL OF EXPERIMENTAL MEDICINE.

JULY 1, 1913.

1. *PEABODY, F. W. *The Oxygen Content of the Blood in Rabbits Infected with Pneumococcus.*
2. *PEABODY, F. W. *The Oxygen Content of the Blood in Lobar Pneumonia.*
3. KOLMER, J. A. *Concerning Agglutinins for Treponema Pallidum.*
4. BUNTING, C. H., AND JONES, A. P. *Intestinal Obstruction in the Rabbit.*
5. GHOREYEB, A. A. *A Study of the Mechanical Obstruction to the Circulation of the Kidney Produced by Experimental Acute Toxic Nephropathy.*
6. *KLINE, B. S., AND WINTERNITZ, M. C. *Studies upon Experimental Pneumonia in Rabbits. V. The Rôle of the Leucocyte in Experimental Pneumonia. The Relation of the Number of Organisms Injected to the Mortality.*
7. KLINE, B. S., AND WINTERNITZ, M. C. *Studies upon Experimental Pneumonia in Rabbits. VI. Studies in Immunity.*
8. *WALKER, I. C., AND SWIFT, H. F. *A Study of the Addition of Cholesterin to the Alcoholic Extracts of Tissues Used for Antigens in the Wassermann Reaction.*
9. BROWN, W. H. *Malarial Pigment (Hematin) as an Active Factor in the Production of the Blood Picture of Malaria.*
10. BROWN, W. H., AND LOEVENHART, A. S. *The Effect of Hematin on the Circulation and Respiration.*

1. Peabody found a progressive fall in the oxygen-combining power of the blood of rabbits with a severe pneumococcus bacteriemia. Coincident with this there is a marked fall in the oxygen content of the arterial blood. Analogous changes are observed when the pneumococcus is grown on blood in vitro. The cause is the conversion of the hemoglobin to methemoglobin.

2. Peabody studied the oxygen contents of the venous blood in twenty-five cases of lobar pneumonia. In the uncomplicated cases the oxygen content of the blood was within normal limits. In the terminal stage of the fatal cases of pneumonia there is usually a progressive fall in the oxygen content of the blood.

6. Kline and Winternitz found that animals treated with benzol, which causes a leucopenia, rapidly succumb to experimental pneumonia. They conclude that the leucocytes have a definite protective influence in experimental pneumonia. They were also able to show that the fatality of the disease depended somewhat upon the number of bacteria injected.

8. Walker and Swift describe a very satisfactory antigen for use in the Wassermann reaction.

[R. I. L.]

AUGUST 1, 1913.

1. STEWART, G. N. *Studies on the Circulation in Man. VI. Observations on the Blood Flow in the Hands (Mainly) in Cases of Anemia.*
2. HARTWELL, J. A. *Intestinal Obstruction.*
3. PEARCE, R. M. *An Experimental Study of the Late Glomerular Lesions Caused by Crotalus Venom.*
4. CARREL, A. *Concerning Visceral Organisms.*
5. *ELLIS, A. W. M., AND SWIFT, H. F. *The Cerebrospinal Fluid in Syphilis.*
6. ROUS, P. *The Growth of Tissue in Acid Media.*
7. CHURCHMAN, J. W. *The Selective Bactericidal Action of Methylene Blue.*
8. KLEINER, I. S., AND MELTZER, S. J. *The Relation of the Rate of Absorption of Adrenalin to Its Glycosuric and Diuretic Effects.*
9. AUER, J., AND VAN SLYKE, D. D. *A Contribution to the Relation between Proteid Cleavage Products and Anaphylaxis.*

5. Ellis and Swift report the results of the examination of the cerebro-spinal fluids of 113 cases of syphilis in all stages of the disease, from the secondary eruption to general paresis. They studied the pressure, the cell count, the presence of globulin, and the Wassermann reaction. Their evidence goes to show that no patient who has been infected with syphilis can conscientiously be discharged as cured until the spinal fluid has been examined and found normal, even though the patient remains free from signs and symptoms of syphilis and has a persistently negative Wassermann reaction in the blood. [R. I. L.]

JOURNAL OF MEDICAL RESEARCH.

JULY, 1913.

1. LOEB AND SWEEK. *Histogenesis of Multiple Carcinoma of the Skin.*
2. *WEIL. *Studies in Anaphylaxis.*
3. ORDWAY AND KILLERT. *The Complement Content of the Blood in Malignant Disease.*
4. ORDWAY AND MORIN. *The Protein Metabolism in Certain Tumor-bearing Rats.*
5. TYZZER. *Factors in the Production and Growth of Tumor Metastases.*
6. *FROTHINGHAM AND O'TOOLE. *Notes on Complement Fixation in Glanders.*
7. *KOLMER, WILLIAMS AND LANBAUGH. *A Study of Complement Fixation in Syphilis with Treponema Antigens.*
8. KOLMER AND CASSELMAN. *Concerning the Wassermann Reaction with Normal Rabbit Serum.*
9. KARSNER AND AUB. *An Investigation of the Origin of Immune Serum Necrosis of the Liver.*
10. HISS. *The Control of Infectious Diseases by Protective Inoculation.*

2. Weil gives a detailed study of the various phases of anaphylaxis. He shows that animals actively sensitized against horse serum cannot be desensitized by repeated injections of sheep serum. Such sensitization results from frequent small injections, as well as from single large ones. This is in reality a process of immunization. The injection of sheep or guinea-pig serum has failed to prevent passive sensitization by homologous immune serum. This point indicates that the so-called phenomena of "saturation" or "displacement" is due to immunization against introduced heterologous anti-bodies.

6. Frothingham and O'Toole have modified with success the laborious and long process of complement fixation in glanders, previously in vogue. Complement, as well as hemolytic amboceptor, may be drawn from the guinea-pig and rabbit heart respectively, at regular intervals. Amboceptor and antigen preserve the original litre when kept in the ice-box for several months. The test is shortened by placing tubes in a water bath at 40° instead of the thermostat. Natural hemolysis in a serum is detected by the use of the hemolytic control. The results of this modification have been most satisfacory in every respect.

7. Treponema antigen yields a much lower percentage of positive results in known syphilitic cases than are found with the lipoid extracts. Aqueous extracts of the organism are preferable in this work, since alcoholic extracts are far less active. [L. H. S.]

SURGERY, GYNECOLOGY AND OBSTETRICS.

AUGUST, 1913.

1. *ABBOTT, E. G. *Lateral Curvature.*
2. WHITMAN, R. *The Treatment of Lateral Curvature of the Spine.*
3. JELLETT, H. *The Surgical Treatment of Pelvic Thrombosis of Septic Origin.*
4. *DEAVER, J. B. *Prostatectomy.*

5. *Haas, S. L. *Regeneration of Bone from Periosteum.*
6. *Outland, J. H., Skinner, E. H., and Chadening, L. *A Study of the Mechanism of the Stomach after Gastro-Enterostomy by Means of the X-Ray.*
7. Wade, H. *Intussusception of the Stomach and Duodenum Due to a Gastric Polypus.*
8. Allen, L. W. *Ileo-Appendicular Hernia of the Appendix.*
9. Peterson, R. *The Indications for Abdominal Cesarian Section.*
10. Fleisher, M. S., and Scot, L. *Transplantation of Tumors in Animals with Spontaneously Developed Tumors.*
11. Royster, H. G. *Sigmoid Adhesion.*
12. Butler, C. J. *Acute Invagination of the Ileum Secondary to Sarcoma of the Small Intestine.*
13. *Cabot, H. *Suprapubic Prostatectomy.*
14. Eisendrath, D. N. *Bilateral Urinary Calculi.*
15. *Thompson, W. M. *The Influence of the Thyroid Glands on Pregnancy and Lactation.*

1. Abbott describes the reasons for his method of overcorrecting lateral curvature and his procedure. The article is well illustrated with descriptive plates.

4. Deaver emphatically states that perineal prostatectomy has no foundation as a routine procedure for relief of benign prostatic hypertrophy. He describes in detail the technic and also means of stopping hemorrhage in the suprapubic operation.

5. Haas from experimental evidence states definitely that periosteum, especially in the presence of blood-clot, has the power to regenerate bone. The regeneration of bone, however, is not solely dependent upon the presence of pre-existing bone. Regeneration of bone has never been found except when periosteum was present.

6. Outland and his associates have demonstrated experimentally and clinically that gastro-enterostomy, when properly done, is a drainage operation, and if the stoma is at the lowest part of the stomach in the erect position, food leaves the stomach almost exclusively by the gastro-enterostomy opening, and under these conditions the stomach is emptied with great rapidity. This is contrary to the original findings of Cannon and Blake. The authors believe that gastro-enterostomy should be done only in the presence of pyloric stenosis or spasm due to ulcer. The opening should be large and as close to the pylorus as possible.

13. Cabot states that prostatic hypertrophy is not hypertrophy in the common sense of the term, but rather the formation of new adenomatous tissue. He also shows that the perineal operation as described by Young is neither a safe nor a satisfactory procedure, but has every chance to fail of accomplishing its object, *i.e.* the complete and permanent relief of the obstruction.

15. Thompson from experimental work finds abundant evidence in support of the theory that what is termed a physiologic hyperactivity of the thyroid is a valuable safeguard against the toxemia of pregnancy. His work was done with pregnant dogs, in which portions or all of the thyroid were removed early in pregnancy. [E. H. R.]

Deutsche Medizinische Wochenschrift.

No. 28. July 10, 1913.

1. Grawitz. *Migratory Cells in the Cornea.*
2. Weber, L. W. *The Etiology of Acute Psychoses.*
3. Raecke. *Salvarsan Treatment of Progressive Paralysis.*
4. Weintraud, W. *Intravenous Administration of Camphor.*
5. Pekanovich. S. *Chemotherapeutic Researches in Pulmonary Tuberculosis.*
6. Schern, L., and Citron, H. *Laevulosuria and Liver Function in Trypanosomiasis.*
7. Oppenheimer. *A Case of Increased Glycuronic Acid Excretion in Scarlet Fever.*
8. *Broberg, R. *The Hemorenal Index as an Indication of Renal Function.*
9. Krebs, W. *Syphilis and Neurasthenia.*
10. Bäumer, E. *Iodostarin in the Treatment of Syphilis.*
11. Vogt.—*The Importance of Status Hypoplasticis in Obstetrics.*
12. Gaus, F. *Asepsis in Obstetrics and the Manual Extraction of the Placenta.*
13. Wagner, A. *Methods of Extracting Foreign Bodies from the Esophagus.*
14. Weinberg, W. *Children of the Tuberculous.*
15. Näcke, P. *Procreation and Alcoholism.*
16. Hamm. *Diathermic Treatment of Deafness Following Middle Ear Disease.*

8. Bromberg's hemorenal index is the arithmetical expression of the relation between the concentration of the inorganic salts in the blood and in the urine. The author describes his instrument and technic, which he believes to be simpler than any other method of estimating kidney function. His results, which he states are reliable because of the simplicity with which they are obtained, show that the normal hemorenal index is 2. In pathological conditions such as nephritis, tumors, nephrolithiasis, pyelitis and prostatic disease, the index is diminished. A result below 1.8 shows definite damage to the kidney, while a result below 1.5 contraindicates surgical treatment. [C. H. L.]

No. 29. July 17, 1913.

1. Fürbringer. *Bilateral Tuberculous Epididymitis and Potentia Generandi.*
2. Lippman and Plesch. *Studies on Aleucocytic Animals.*
3. Reckzeh, P. *The Blood after Total and Partial Removal of the Thyroid.*
4. Schultz, J. H. *Methods of Blood Examination Useful in Psychiatry.*
5. *Ohly, R. *The Gastric Acidity in Gall-stone Disease.*
6. Einhorn, M. *Indications for Duodenal Feeding.*
7. Rupp. *The Intracranial Route in Extirpation of Hypophyseal Tumors.*
8. Schereschewsky, J. *Simplified Method of Obtaining Spirocheta Pallida in Pure Culture.*
9. Borruttan, H. *Mercury Absorption Following Inunction.*
10. Dannehl. *Pathology and Therapy of Arthritis in the Army.*

5. Ohly tested the gastric acidity in 43 cases of gall bladder disease, by means of the Ewald test meal. Twenty-four cases showed acidity, 12 showed subacidity, and 7 hyperacidity. All but one of the cases showing hyperacidity were of short duration, while the subacid and anacid cases showed evidence of long standing, either by cystic degeneration of the gall bladder, loss of substance in the mucous membrane, or shrinkage. From these findings, the author concludes that the gall bladder disease was primary, the changes in gastric function secondary. It is not yet clear to him how the former produces the latter. He emphasizes the value of his findings in the differential diagnosis of gall bladder disease and peptic ulcer, and calls attention to the treatment of the gastric symptoms of cholecystitis on the basis of his results. [C. H. L.]

Wiener Klinische Wochenschrift.

No. 29. July 17, 1913.

1. Kaufman, R., and Donath, H. *Inverse Atropine Action.*
2. Exner, A. *Radium Therapy in Malignant Tumors.*

3. KROKIEWICZ, A. *Case Histories of Multiple Malignant Tumors.*
4. v. SZILY, P. *The Physio-chemistry of Cell-Staining.*
5. v. LUMBUSCH, L. *Unsuccessful Use of Salvarsan in Lyssa.*
6. POLLAK, E. *A Case of Congenital Unilateral Paralysis of the Sympathetic Nerves of the Neck.*
7. MAYSHOFER, B. *Trephining of the Jaw for Abscess of Tooth. Death Due to Sepsis Following Extraction of Tooth.*
8. *JERUSALEM, M. *Sun-Treatment of Surgical Tuberculosis.*

8. The author concludes that heliotherapy is of great value in surgical tuberculosis. He warns, however, that in removal to a sanitarium of markedly different climate or elevation from the previous habitat of the patient, that gradual acclimatization is an important step in treatment. This applies to a patient going from as well as going to a sanitarium. [F. S. K.]

IL POLICLINICO.

JULY, 1913.

MEDICAL SECTION.

1. MAGNINI, M. *A Clinical Contribution to Rhizomelic Spondylosis.*
2. *DE SANDRO, D. *A Contribution to the Study of Pneumonic Enterorrhagia. Ulcerative Hemorrhagic Pneumococcic Enteritis.*
3. PIANTONI, G. *Clinical Observations on the Study of the Pancreatic Juice in the Intestines.*
4. DARETTI, N. *The Behavior of the Nitrogenous Compounds in the Urine in Certain Febrile Diseases.*

2. De Sandro reports a case of croupous pneumonia with severe abdominal symptoms simulating typhoid fever and aggravated by repeated copious hemorrhages. In other respects the case was not remarkable—chill, high fever, polynuclear leucocytosis, pneumococci only in both sputum and blood, serum test for all other organisms negative. The writer thus gives ample evidence in support of his diagnosis of pure pneumococcus enteritis. Convalescence was slow but recovery complete. [L. D. C.]

JULY, 1913.

SURGICAL SECTION.

1. PEREZ, G. *So-Called Bone Cysts (Conclusion).*
2. *PURPURA, F. *The Toxins of the Streptothrices.*
3. *CANTILENA, A., AND STRETTI, G. *Voluminous Foreign Body in the Air-Passages.*
4. *MAZZANTINI, G. *The Antigens for the Demonstration of Complement-Binding in Echinococcosis.*
5. LEOTTA, N. *Wounds of the Heart. (To be continued.)*

2. From a series of 20 experimental inoculations of guinea-pigs with the toxins of *Streptothrix violacea*, Purpura finds that the latter produce intense hyperemia, grave alterations of the vessel-walls with hemorrhages, and grave degenerative and necrobiotic processes in the cells of the higher organs. The nucleoproteid of these toxins is fatal in a dose of 2 mg. per 100 grams of body weight.

3. The authors report a case in which a piece of wood 15 x 10 mm. was removed by tracheotomy from the bronchus of an infant a month after it had been inhaled. The patient recovered.

4. Mazzantini finds experimentally that in applying the complement-binding test in echinococcus disease it is necessary to employ fresh and perfectly clear cystic liquid from sheep, cattle, or man. Tyrosin has no antigenic property, and that of leucin is inconstant and fallacious. [R. M. G.]

Miscellany.

SCHOOL FOR HEALTH OFFICERS, CONDUCTED BY HARVARD UNIVERSITY AND THE MASSACHUSETTS INSTITUTE OF TECHNOLOGY.*

BEGINNING this fall, Harvard University and the Massachusetts Institute of Technology are to maintain in coöperation a school for public health officers. The facilities of both institutions are to be available to students in the school and the certificate of public health (C. P. H.) is to be signed by both President Lowell and President Maclaurin.

The object of this school is to prepare young men for public health work, especially to fit them to occupy administrative and executive positions, such as health officers or members of boards of health, as well as secretaries, agents, and inspectors of health organizations.

It is recognized that the requirements for public health service are broad and complicated, and that the country needs leaders in every community, fitted to guide and instruct the people on all questions relating to the public health. To this end, the instruction of the new school will be on the broadest lines. It will be given by lectures, laboratory work, and other forms of instruction offered by both institutions, and also by special instructors from national, state and local health agencies.

The requirements for admission are such that graduates of colleges, or technical and scientific schools, who have received adequate instruction in physics, chemistry, biology, and French or German, may be admitted to the school. The medical degree is not in any way a prerequisite for admission, although the administrative board strongly urges men who intend to specialize in public health work to take the degree of M.D. before they become members of the school for health officers.

The administrative board which will conduct the new school is composed of Professor William T. Sedgwick, of the Massachusetts Institute of Technology; Professor Milton J. Rosenau, of Harvard; and Professor George C. Whipple, of Harvard. Professor Rosenau of Harvard has the title of director, and the work of the school will be under his immediate supervision.

* See Editorial, July 3, 1913.

Correspondence.

THE MEDICAL CONGRESSES AT LONDON.

(From Our Foreign Correspondent.)

London, 13 August, 1913.

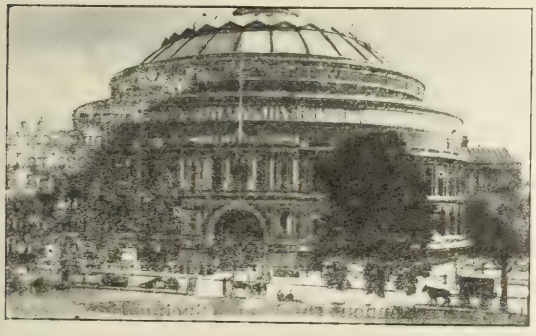
Mr. Editor:—

London has been for us the past ten days a city of congresses. Our stay here began on Aug. 4 with the English-speaking conference on Infant Mortality, held at Caxton Hall, Westminster, of which some preliminary account was given editorially in the issue of the Journal for July 17. This conference was under the auspices of the National Association for the Prevention of Infant Mortality and for the Welfare of Infancy, and its business was transacted in two sections, administrative and medical. At the initial general meeting Mr. John Burns, president of the local government board, in his presidential address, emphasized the importance of regarding infant mortality as a public health question.

At the subsequent sessions of the respective sections, before audiences composed largely of women, a total of 37 papers were presented by physicians from English-speaking communities. Boston was represented by two papers, one by Dr. F. B. Talbot on "The Wet Nurse Problem," and one by Dr. J. L. Huntington on "The Relation of the Hospital to the Hygiene of Pregnancy." Both were well received and discussed with approval.

Perhaps the most interestingly original and profitable suggestion was made by Dr. J. M. Munro Kerr, of Glasgow, who strongly advocated establishing compulsory notification of pregnancy, as of infectious diseases, to the end that all pregnant women might be under official surveillance of health authorities, who should see that the rules of hygiene for the prevention of pregnancy toxemia were duly observed. In private practice this would mean merely the confidence of the board of health in the attending physician; among the hospital classes, and those patients attended by midwives, it would mean compulsory periodic examination of the urine at municipal laboratories, with investigation by health inspectors of all cases showing albuminuria.

At the closing general session of the conference, various resolutions were passed, among them one urging the appointment of a Parliamentary Commission on venereal diseases, and another advocating that payment of maternity benefit under the British National Insurance Act be made to the mother rather than to the father who is liable to expend it in purposes other than those for which it is designed.



THE ROYAL ALBERT HALL.

On Wednesday, Aug. 6, next day after the close of the Infant Mortality Conference began the great Seventeenth International Congress of Medicine, an immense assemblage of over 8000 physicians from all the civilized countries of the world. The proceedings were opened at a general meeting in Albert Hall, Kensington, with an address of welcome by Prince Arthur of Connaught on behalf of King George, the patron of the congress.

Sir Edward Grey, Minister of Foreign Affairs, welcomed the foreign delegates in behalf of the British government.

Sir Thomas Barlow, president of the Royal College of Physicians and of the Congress, next delivered his presidential address. He dwelt particularly on the portentous advances made by medical science during the thirty years since the international congress last met in London, summarizing them in his remarks.

Following this address, the delegates representing foreign governments were introduced and made brief remarks, the honor of first place being given to the United States representative, Dr. William S. Thayer, who was greeted enthusiastically. He spoke of the international fellowship of science as being one of the strongest unifying elements at work in the evolution of modern civilization.

Naturally, interest in the congress centered largely around the five great general addresses, one each day, on medicine, surgery, pathology, heredity, and public health. Each of these proved a masterpiece in its own domain.

For his address in medicine, which was delivered in French on the opening day of the congress, Professor Chauffard of Paris chose as title "Medical prognosis, its methods, evolutions, and limitations."

Dr. Harvey Cushing's address in surgery, delivered on Aug. 7, and entitled "Realignments in greater medicine, their effect upon surgery and the influence of surgery upon them," deserves special attention, not merely for its local interest to us, but for its lucid analysis of present evolutionary movements in medicine and its cogent statement of the case for animal experimentation.

In recognition of this address and of his contributions to surgery, an honorary fellowship in the Royal College of Surgeons was conferred on Dr. Cushing on the occasion of the congress. The same honor was also given to Dr. Crile, of Cleveland, Dr. W. J. Mayo, of Rochester, Minn., and Dr. J. B. Murphy, of Chicago.

One of the most notable figures at the congress was that of Dr. Ehrlich, who selected as the subject of his address in German on pathology "Recent progress in chemotherapy," illustrating his discussion particularly by the history of salvarsan. His remarks were largely technical, and the general interest in them was chiefly that of his fame and personality.

Dr. Bateson's address on "Heredity" was especially appropriate on account of the great popular prominence given in England at present to eugenics. He began with a sketch of the work of Mendel. Dr. Bateson's remarks on the possible limitations and fallacies of eugenics appear particularly pertinent. As a matter of fact this new science seems hardly likely to gain a sufficiently widespread practical application to do either much good or much harm.

Mr. John Burns's closing address on "The State and Public Health" was essentially a repetition and amplification of his remarks before the Conference on Infant Mortality, to which reference has already been made.

Of the work of the twenty-three sections into which the congress was divided, it is impossible to speak in detail. The proceedings of each will fill a volume which would require a year to read and digest. Next to the stimulative effect of personal contact between workers in various branches of medical science, the chief value of such a congress perhaps is that it causes the production of a large mass of material which can be stored in libraries for future use.

At the section on the history of medicine the poor ghost of Napoleon Bonaparte was again resurrected,

with the conclusion that in the flesh he had not only cancer of the stomach and chronic malaria, but that the clinical picture of the former was masked in life and its cachexia prevented by hypopituitarism, which was made to account also for the polyuria, frequency of micturition, headaches, vomiting and epileptiform seizures to which the Little Corporal was subject. It must be confessed that the proceedings of this section were the most interesting in the congress; but unfortunately the most interesting things in life are seldom the most profitable.

In connection with the congress two museums were organized, one a medical museum, arranged in sections to correspond with those of the congress, the other a museum of the history of medicine, established by Mr. H. S. Wellcome, to which reference has been made in several notes in previous issues of the JOURNAL during the past spring. In conjunction with the former, several meetings were held of the International Association of Medical Museums. The British Museum also exhibited at the King's Library a series of early manuscripts and books illustrating the history of medicine. One of the most interesting of these was a volume entitled "A Passing Gode Lityll Boke Necessarye and Behonefull agenst the Pestilence." There was also the manuscript of a contract between Nicholas Alcok, a barber surgeon of London, in the reign of Henry VIII, and Robert Morton of High Holborn, wherein the doctor agrees to treat Morton for the bite of a mad dog, in consideration of a fee of five pounds sterling. The preoperative contract was evidently not unknown in those days, even among reputable practitioners.

At the closing general session of the congress, the following resolutions were passed:—

"(*A*) That, sensible of the ravages wrought by syphilis in the health of the community, and deploring the inadequacy of existing facilities for checking its dissemination, the International Medical Congress calls upon the governments of all the countries here represented—

"(1) To institute a system of confidential notification of the disease to a sanitary authority, wherever such notification does not already obtain.

"(2) To make systematic provision for the diagnosis and treatment of all cases of syphilis not otherwise provided for. (Submitted by the combined Sections of Dermatology and Syphilography and of Forensic Medicine.)

"(*B*) (*a*) That the section is of opinion that beri-beri among natives who live principally on rice is brought about by the continuous and too exclusive use of rice submitted to a too complete milling, which removes the cortical and sub-cortical layers of the grain.

"(b) The section urges all authorities charged with the health of native communities to restrain by every means in their power the use of this rice in the dietary of coolies.

"(*c*) In view of the proved non-infectiousness of beri-beri the section suggests that all port and sanitary authorities should abolish foreign quarantine and other restrictive measures against this disease.

"(*d*) The section resolves that the malady known hitherto under the name of Malta fever shall in future be named 'undulant fever.' (Submitted by the section of Tropical Medicine and Hygiene.)

"(*C*) That this Congress records its conviction that experiments on living animals have proved of the utmost service to medicine in the past, and are indispensable to its future progress. That, accordingly, while strongly deprecating the infliction of unnecessary pain, it is of opinion alike in the interests of man and of animals that it is not desirable to restrict competent persons in the performance of such experiments. (Submitted by various sections.)"

At this session also were announced the awards of the three great prizes of the congress: the Moscow prize to Professor Charles Richet, of Paris, for his work on anaphylaxis; the Paris prize to Professor von Wassermann, of Berlin, for his work on experimental therapy and on immunity; and the Hungary prize to Professor Almroth E. Wright, of London, for his work on anaphylaxis.

Dr. Freidrich von Müller, of München, was elected president of the next (eighteenth) congress, which will hold its sessions in that city in 1917.

And so the Seventeenth International Congress of Medicine came to an end. It was eminently successful and profitable, and afforded occasion for the production of a large amount of valuable material, to which our American doctors contributed their full share. After all, in retrospect, behind any such gathering, lies not only the personality of the men who compose it, but of the time and place where it passes. London, as an imperial world-capital, perhaps does not form so appropriately scientific a background as might some smaller, more tranquil academic town. It serves rather to emphasize the humanistic side of medical progress and its relation to the welfare of seething multitudes in their valley of decision. Under whatever aspects one sees London, whether as background or foreground, one cannot help loving it the more with each revisiting for this very intensity of its expression of human potentiality. And when one must leave its fascination 'tis always with the same regret as that of Pope's

"Farewell, dear, damn'd distracting town, farewell!"

PEREGRINUS NOVUS.

RECENT DEATHS.

DR. THEODORE S. VAN RIEMPST of New York was accidentally drowned on August 22, while fishing on Upper Saranac Lake, in the Adirondacks. He was graduated at Ghent, Belgium, in 1900, and was physician to the West Side Clinic.

DR. DANIEL ALOYSIUS SHAY of Brooklyn, N. Y., died on August 22 at Marlborough, on the Hudson. He was 37 years old, and was graduated from the medical department of the University of Maryland, Baltimore, in 1901.

DR. JAMES E. M. LORDLY of New York died at his country home at Chester, Nova Scotia, on August 20, at the age of 67 years. He was graduated from the College of Physicians and Surgeons, New York, in 1868, and afterwards served as interne at Bellevue and the Maternity Hospitals.

LIBRARY OF RADIOGRAPHS.

An attempt is being made to establish, at the Army Medical Museum, Washington, D. C., an extensive library of lantern and stereoscopic slides of radiographs, representing the work of radiographers who have done paticularly notable work along certain lines. Enough slides have already been received to make the collection of value for reference and for teaching purposes at the Army Medical School.

Those who have already contributed to the collection are Dr. Lewis Gregory Cole, New York City, slides of stomach, lungs and kidneys; Dr. Wm. H. Dieffenbach, New York City, slides of diseases of bones; Dr. Kennon Dunham, Cincinnati, O., stereoscopic slides of the lungs; Dr. Walter C. Hill, Cleveland, O., slides of diseases of bone; and Dr. James T. Case, Battle Creek, Mich., slides of the alimentary tract.

Others have promised to send slides, and it is the intention to add to the collection from time to time as important work is done.

The collection is available for study by any civilian practitioner on application to the Curator, Army Medical Museum, Washington, D. C.

Original Articles.

GONOCOCCUS VACCINES AND GLYCERINE EXTRACTS OF THE GONOCOCCUS IN THE DIAGNOSIS OF GONORRHEAL INFECTIONS.*

BY GEORGE CHEEVER SHATTUCK, M.D., BOSTON,

AND

W. STEWART WHITTEMORE, M.D., CAMBRIDGE.

INTRODUCTION.

The experiments described below were undertaken with the hope of finding a reliable method of diagnosis for gonorrhea by means of a specific reaction. The theoretical grounds for believing this to be possible have been discussed by earlier writers referred to below, and need not be detailed here. At this point it suffices merely to mention that changes have been shown to exist in the blood serum of patients suffering from various infectious diseases; that supposed anaphylactic reactions, like that to tuberculin, are believed to depend on changes in the serum; and that several investigators have found in the serum of patients suffering from gonorrheal infection, evidence of changes which they considered specific for gonorrhea ([11] and [12]).

As in tuberculosis, so in gonorrhea, three types of reaction have been observed after subcutaneous injection of vaccine: (*a*) the *local reaction* at the point of injection; (*b*) the *focal reaction* at the seat of the lesion; and (*c*) the *general reaction,* fever, malaise, etc.

Whereas previous attempts at diagnosis by means of subcutaneous injection of gonococcus vaccine have not yielded very satisfactory results, we thought it worth while to try the effects of a vaccine far more concentrated than any used heretofore, and to administer it intradermically instead of subcutaneously.

In another series of cases inoculations of vaccine were made by the method devised by v. Pirquet for the skin tuberculin test; and, in a third group, glycerine extracts were employed in like manner.

Part I: Series 1 and 2.

METHOD, DOSAGE, MATERIAL.

The vaccine was prepared from nine strains of gonococci, which had been under artificial cultivation for varying lengths of time. The organisms were suspended in normal salt solution, standardized by count to 500 million per 0.1 c.c., and mixed with ½ per cent. of lysol. The first injections were given several days after the preparation of the vaccine when it had been shown by culture to be sterile. Heat was not used to kill the bacteria as they die quickly under the above conditions. Subsequent cultures showed that the vaccines remained sterile while in use.

Normal salt solution containing ½ per cent. of lysol was used as a control solution.

Before administering the vaccine or control, the skin of the back of each arm was carefully cleaned. The vaccine was introduced intradermically; *i.e.,* beneath the superficial layer of the skin in the same way in which cocaine is used for local anesthesia. The control solution was given similarly in the other arm.

The dose in the first, and in nearly all subsequent cases, was 500 million gonococci, or 0.1 c.c. of the vaccine. One patient, having fever, was given 300 million to begin with, but received 500 million when convalescent. Another received 150 million, and a third 100 million. There were no other exceptions.

The clinical material came partly from the out-patient department of the Massachusetts General Hospital, but chiefly from the hospital wards. Thirty-two patients were studied, of whom fourteen showed evidence of active gonorrheal infection in some form; thirteen had unrelated diseases; and five were healthy. "Table No. I" shows more definitely the distribution of material.

FIRST SERIES: RESULTS.

The local reactions generally began in about six hours, were fully developed after twenty-four hours and disappeared gradually in the course of two or three days. They consisted of redness, swelling and tenderness over a zone several centimeters in diameter, surrounding a central area which was more deeply injected and sometimes elevated. Severe reactions showed larger zones and were somewhat painful.

The injections of the control solution left behind only the mark of the needle puncture. Table I shows that local reactions occurred in all the gonorrheal cases and in all but three of the non-gonorrheal or control cases; that most of the reactions were marked; and that the proportion of marked reactions was nearly as great in the control as in the gonorrheal cases.

Closer analysis shows that the first test was made on a case of chronic prostatitis, and that a severe local reaction developed. The three following tests were made on control cases, and they did not react at all. Their respective diagnoses were abscess following typhoid, fistula in ano, and carcinoma of the breast. The fifth case had acute anterior urethritis, and gave a marked reaction. These five tests were made within the first week after the preparation of the vaccine, and their outcome was distinctively encouraging.

* Read at the annual meeting of The Massachusetts Medical Society, June 11, 1913.

All subsequent injections of vaccine, however, gave positive local reactions; and although tests were made over a period of 109 days after the first use of this vaccine, no other striking change in its effect was seen.

These results led us to believe that the vaccine, which had seemed to act specifically during the first week, had subsequently developed irritating properties of a nonspecific nature. Acting on this hypothesis, we made a second series of tests with a fresh vaccine. The results are shown in Table II.

TABLE I.

LOCAL REACTIONS: FIRST SERIES.

Gonorrheal Cases: 14.

Diagnosis.	No reaction.	Slight Reaction.	Marked Reaction.	Severe Reaction.	Number of Cases
Acute urethritis	—	—	3	—	3
Chronic urethritis or prostatitis	—	—	3	1	4
Salpingitis	—	1	1	1	3
Arthritis of gonorrheal type	—	—	3	1	4

Control Cases: 18.

Normal persons	—	1	3	1	5
Various diseases	3	5	4	1	13
Totals of reactions	3	7	17	5	32

TABLE II.

LOCAL REACTIONS: SECOND SERIES.

Gonorrheal Cases: 3.

Diagnosis.	Slight Reaction.	Marked Reaction.	Number of Cases.
Acute urethritis with arthritis	1	—	1
Chronic gonorrheal infection	—	2	2

Control Cases: 11.

Normal persons	—	2	2
Various diseases	4	5	9

SECOND SERIES.

All cases inoculated with the second vaccine showed reactions, although the tests were made within a week of its preparation.

The two vaccines used were prepared in the same way by the same person; both were standardized by count to 500 million per 0.1 c.c. and both were administered in the same way and in the same dose. Nevertheless, the vaccines were not identical. The first was made from several strains which had been kept for some time in the laboratory and to these were added several freshly isolated cultures. The second vaccine was made from a new set of fresh cultures. Such differences of origin might, perhaps, cause a difference of toxicity or of irritating properties in two vaccines. Irons[3] points out that the degree of reaction depends not only on the number of gonococci inoculated, but also on the source and age of the cultures from which the vaccine is prepared. He found that cultures isolated within three months furnished a vaccine ten times as strong as a culture which had been grown in the laboratory for two years.

We are inclined to believe that our vaccines possessed irritating properties of a non-specific nature, and that if there was any specific reaction, it was masked by the response to the irritant.

If the hypothesis be advanced that better results might have been obtained with smaller dosage, it may be replied that our dosage was not larger than that frequently used by Irons for diagnostic tests; and that general and focal reactions in our series were neither many nor well-marked; also, this hypothesis does not explain the three negative tests. There seems little reason to suppose that the outcome of the local reactions would have been essentially different had injections been given subcutaneously instead of intradermically.

A focal reaction was observed in only one case of the entire number, 46 in all. The reaction consisted of increase of pain in the affected joints of a patient supposed to have gonorrheal arthritis. Three other cases of arthritis, probably gonorrheal, and four salpingitis cases gave no such reaction.

Symptoms attributable to a general reaction were carefully looked for, and four hourly charts were kept for 32 ward-patients. Eight of these, including two control patients, showed slight elevations of temperature appearing some hours after the injection. One of the controls had had variations of temperature before the test, and after it his temperature rose from 97 degrees to 100.3 degrees, the greatest increase noted.

In the gonorrheal cases the temperature rise ranged from ½ degree to 1.2 degrees. The patients who had been running slightly elevated temperatures before the test showed increase of fever. Elevations of temperature occurred in three of the four cases of arthritis, and in two of the four salpingitis cases. None of those who responded with fever complained of malaise, but one of them showed the focal reaction mentioned above.

Malaise was noted, however, in two other gonorrheal and in two control cases.

Stated briefly, the results from injection of vaccine in 46 cases show that local reactions appeared in all gonorrheal and in nearly all non-gonorrheal cases; that there were signs suggesting a general reaction in eight gonorrheal cases and in two non-gonorrheal cases; and that a focal reaction was observed in one case only, the diagnosis in this case being gonorrheal arthritis.

LITERATURE.

The local reaction is generally conceded to be unreliable for diagnosis. Although the most common of the three reactions, local manifestations have been observed repeatedly when it was believed that active and prexisting gonorrhea could be excluded. Such reactions may closely resemble those of gonorrheal cases; and, according to Guggisberg[8], indifferent subcutaneous injections may cause painful efflorescence in sensitive persons. The local reaction in gonorrhea is generally more marked and of longer duration than that which may appear in normal individuals, but these reactions have not yet been sharply differentiated.

General reactions consisting of fever, rapid pulse, headache, lassitude and leucocytosis, or of any of these symptoms, have been observed in a comparatively small number of cases. According to Guggisberg the general reaction occurs most often in fresh infections when acute inflammation has existed recently. Irons[1] says that the fever may be so slight as easily to escape notice, but Fromme and Collmann[7] think that a rise of temperature following the injection of the vaccine may perhaps help in differentiating extrauterine pregnancy from salpingitis. This hypothesis lacks confirmation. Apparently, no general reaction has been recorded in a non-gonorrheal case.

The focal reaction merits closer analysis. Pain and swelling were observed by Irons[1] in a considerable number of cases of gonorrheal arthritis, and he attributed to these signs, plus fever, a certain value for distinguishing gonorrheal from other forms of arthritis. He says that a positive reaction can generally be obtained at will in gonorrheal arthritis by means of graduated doses. In a case of post-operative periurethral abscess without secondary infection or retention of pus he saw a "marked increase of redness and tenderness about the wound." He says, further, that ocular reactions are sometimes observed in cases in which iritis has previously been present, and that increased inflammation or effusions into the eye are not infrequent after therapeutic inoculations of vaccine in active gonorrheal iritis.

In women having gonorrheal salpingitis or allied diseases, increase of pain and of localized tenderness, increase of discharge, and hemorrhages or premature menstruation have been observed repeatedly. Some of these symptoms have been noted in a considerable proportion of cases of this kind by Reiter[5], Köhler[6], Fromme and Collmann[7] and by Guggisberg[8]. The latter has twice found gonococci in the discharge after injection, having failed to find them previously.

Fromme and Collmann, on the other hand, saw marked focal reactions in three cases thought not to be infected with gonorrhea and emphasized the occurrence of a focal reaction in a virgin who had a myoma. Guggisberg recorded a marked positive reaction in one case of septic infection.

Of fundamental importance to those interested in vaccine diagnosis, and in treatment as well, is the work of E. C. Rosenow[9] on autolysis of bacteria. He showed that the gonococcus and some other organisms undergo rapid autolysis in normal salt solution; that at a certain period of autolysis the mixture becomes extremely toxic; and that the time the acutely toxic substance appears in solution is directly proportional to the activity of the autolytic ferment and the rate of disintegration of the organisms. Suspensions of the gonococcus in salt solution when incubated at 37° C. became toxic to guinea-pigs after 10 minutes, more so after one hour, and were non-toxic again after 20 hours. With the staphylococcus aureus, little or no proteolysis occurred under similar conditions.

DISCUSSION.

Although irritating properties manifested by injection into human beings and toxicity in guinea-pigs are not the same, there seems to be an analogy between the development of toxic products by autolysis in Rosenow's experiments and the appearance of irritating properties in our vaccines; moreover, it is the experience of Dr. Albert E. Steele, Assistant in Clinical Bacteriology at the Massachusetts General Hospital, that gonococcus vaccine autolyses within a few days, even when prepared with lysol and kept in an ice-chest. If autolysis of bacterial suspensions be delayed by lysol and by cold, it follows that the lysol must be added promptly to suspensions of gonococci, and the suspensions must be placed as soon as practicable in an ice-chest if the formation in them of toxic substances is to be delayed.

If the same line of reasoning be applied hypothetically to the supposed formation in gonococcus vaccine of substances irritating to human beings it becomes apparent that two vaccines similarly prepared might be different in action provided that, in the first instance, the lysol were added to the suspension immediately and the mixture placed at once in an ice-chest and, in the second instance, the lysol were added some hours later, the suspension having stood meanwhile at room temperature. Another important discovery of Rosenow is the fact that recently isolated cultures of the gonococcus autolyse more rapidly than do older cultures.[10]

Whether or not any such factors may have caused the difference in action of our two vaccines, one of which appeared to have been non-irritating during the first week, and the other irritating from the start, is a question which suggests itself to the writers, but which they are unable to answer from information at hand.

Returning to the facts that suspensions of gonococci become quickly toxic to guinea-pigs

and later again non-toxic, and that this change corresponds to the rate of autolysis, it may be asked what influence this autolysis has on the immunizing properties of a vaccine, and whether or not these properties may be destroyed by autolysis.

Some light may perhaps be thrown on the question by comparing the clinical value of gonococcus vaccine with that of staphylococcus vaccine, which Rosenow showed did not autolyse to any extent in normal salt solution. Staphylococcus vaccine has to a high degree the power of influencing favorably localized foci of staphylococcus infection; whereas, gonococcus vaccine is generally conceded to be one of the less efficacious of the vaccines similarly used.

When a vaccine has undergone autolysis to an unknown degree, when changes in it may still be taking place, and when the peculiar proteins of the original organism may perhaps have been destroyed or modified, the results of diagnostic tests and of treatment with such a vaccine may well prove unreliable; and, did a specific reaction occur, it might be masked by the effects of irritating or non-specific toxic products of disintegration of the bacteria.

These considerations indicate that more knowledge is needed of the changes which take place in gonococcus vaccine, and raise the hope that more satisfactory results may follow improved methods of preparing vaccine.

PART II: INOCULATION OF VACCINE BY THE VON PIRQUET METHOD.

While the second series of injections was being conducted in the wards, a group of outpatients was tested with the same vaccine, inoculated by the method devised by v. Pirquet for the tuberculin test. Inoculations of the vaccine were always made in two places with a control scarification between them, and, in every instance, a control solution was used in like manner.

The cases, 15 in number, ranged from acute anterior urethritis to chronic posterior urethritis and prostatitis. One of the patients was seen again on the day following the inoculation, 10 were seen on the second day, and 4 not until the third day.

There resulted, as a rule, only a minute scab at every scarification point, but occasionally there was found a slight redness a few millimeters in diameter. No swelling and no papule was observed in any of these cases on the days subsequent to the inoculation; but sometimes a small wheal formed quickly at all scarifications. In consideration of the dirtiness of many of the patients and the fact that the redness was seen nearly as often at control-scarifications as at the points of inoculation of the vaccine, slight redness was attributed to superficial infection. It is conceded that very slight or evanescent specific reactions may have been overlooked because close observation of results was impossible under the circumstances.

DISCUSSION AND SUMMARY.

The von Pirquet technic of inoculation was first used by Köhler[6], who tested, in this way, several gonococcus vaccines. He says that during the first hour after inoculation a slight swelling appeared, and that it continued to increase for four or five hours until it reached about the size of a lentil. After from 18 to 24 hours it began to fade, and on the second day it was scarcely recognizable. The swelling was often surrounded by a red areola. Köhler observed this phenomenon in many gonorrheal cases, and likened it to the von Pirquet tuberculin reaction, but he says that it was never so definite as is a positive reaction to tuberculin. Control inoculations showed a similar slight swelling after one hour. It decreased after 4 or 5 hours, and, as a rule, it was entirely gone in from 8 to 12 hours.

Although their vaccine was, probably, much more concentrated than any used by Köhler, the writers obtained no results comparable with his. They failed to observe anything resembling a positive tuberculin test in 15 cases of gonorrheal infection, which included all stages of the disease from the acute to the most chronic types of genitourinary infection in the male.

PART III: GLYCERINE EXTRACTS.

PREPARATION AND TECHNIC.

Three extracts were prepared. For each of them the gonococci in 12 culture tubes of human blood agar were washed off with a small amount of distilled water, 0.5 per cent. of carbolic acid added, and the mixture placed in the incubator 37° C. "Extract I" was incubated for 24 hours, and then heated at 60° C. for 2 hours. "Extract No. II" was incubated for 48 hours, and heated at 60 degrees for 2 hours, and "Extract III" was not incubated but was heated immediately at 60 degrees for 2 hours. To each of these extracts 2 c.c. of glycerine were added after the heating, and, finally, all was evaporated in an air blast to a small volume. The resulting extracts were viscid and cloudy.

The control solution was made similarly, but from sterile culture tubes.

The extracts were kept in bottles covered with rubber nipples and they remained in an ice-chest except when taken out to withdraw material for the tests. This was done aseptically by means of a hypodermic syringe and enough of the vaccine was taken out each time to suffice for the work of the day.

Inoculations were made by the von Pirquet method; a control scarification without any inoculation was made first, and then the vaccine was inoculated on either side of it. The control

solution was inoculated in the same way at two other points with a scarification between.

Cultures on blood serum and on plain agar showed the extracts to be sterile before they were used, and again after completion of the tests.

WORK AND RESULTS WITH "EXTRACT I."

Twelve of the seventeen patients in this series had gonorrhea, in three other cases its presence was suspected, and two were believed to be free from it. Seven of the patients, including four gonorrheal cases and one in which gonorrhea was suspected, were seen at 24 and 48 hours after the inoculation. The remaining ten, being out-patients, were not seen until the third day. There were among them eight cases of acute or chronic gonorrhea and two of arthritis due, presumably, to gonorrhea.

Very slight redness was noted once at a control mark and once where the gonococcus extract had been inoculated.

Nothing resembling a specific reaction was observed in this series.

WORK AND RESULTS WITH "EXTRACT II."

In the series of 15 patients 12 had gonorrhea, and in the remaining three its presence was suspected. Acute and chronic urethritis, acute exacerbation of chronic urethritis, epididymitis and salpingitis were included in the series. Seven ward-patients were revisited after 24 hours, 48 hours, and 4 days. Five out-patients were seen on the second day, and three on the third day.

Seven cases, two of them in the wards, showed no reaction at all.

Five cases, three of which were in the wards, showed slight redness at both points of inoculation of the vaccine. These reactions were considered of questionable significance.

Three cases, two of them in the wards, showed a small area of redness with central swelling at both points of vaccine inoculation. These reactions were classed as positive.

Slight redness without swelling occurred at one control mark in two patients, and at two control marks in one patient. It was attributed to infection.

The result with "Extract II" was no reaction in seven cases, a questionable reaction in five cases, and a positive reaction in three cases.

WORK AND RESULTS WITH "EXTRACT III."

There were 15 patients in the series of whom 11 had chronic urethritis or prostatitis, 2 subacute urethritis, and 2 arthritis, supposedly of gonorrheal origin. Six ward patients were seen daily after the inoculation as long as any reaction was visible, and of the 9 out-patients 5 were seen on the second, 3 on the third day, and one which reacted returned on the second and third days.

Six out-patients and 3 ward-patients showed no change, 2 ward cases and one out-patient case gave questionable reactions, and 3 gave positive reactions. The control marks in two cases of doubtful reaction showed slight redness. The outcome of reactions was judged by the same criteria as for "Extract II."

SUMMARY OF WORK WITH EXTRACTS I, II AND III.

The total number of tests with these extracts was 48, and the number made with each extract was about the same.

Extract I gave nothing resembling a specific reaction.

Of 30 tests with Extracts II and III 16 were negative, 8 were doubtful, and 6 gave reactions resembling those seen in positive skin-tests made with tuberculin by the v. Pirquet technic. The papules, however, were decidedly smaller than those of a well-marked tuberculin test. It is worthy of note that all positive tests occurred in patients having a definitely active gonorrhea, and that the outcome of the tests in the more chronic and the latent cases was uniformly negative.

DISCUSSION: EXTRACTS.

The technic followed by Dr. Steele in preparing our extracts was outlined by Dr. E. E. Irons of Chicago in a letter to Steele, and the latter followed the directions with the greatest care. Owing to Dr. Steele's experience in the preparation of vaccines, we believe that errors of technic can be excluded.

The extracts and also the control solution were cloudy and contained a brownish sediment due apparently to blood elements washed from the media with the bacteria. The sediments were amorphous as seen under an oil-immersion lens. They showed no signs of recognizable bacterial elements.

Iron does not state in figures the proportion of gonorrheal cases in which he observed well-marked reactions with gonococcin, but his paper leaves with us the impression that the reactions occurred in a considerable proportion of the gonorrheal cases. Fairly marked reactions were seen by him in adults occasionally, and in children more frequently when previous gonococcal infection could be ruled out; and reactions were obtained with gonococcin in epidemic meningitis and with meningococcus extracts in gonorrhea. Believing that infections with the micrococcus catarrhalis and other allied organisms might give a like response to gonococcin, Irons points out that such infections must be excluded before a positive reaction can be attributed to gonorrhea. He suggests also that the reaction may be characteristic of a group of infections rather than of a single disease, and says that

a positive reaction should be regarded merely as confirmatory evidence of gonorrhea.

The comparatively small number of tests made by us does not admit of detailed deductions. We infer from them, however, that our proportion of definitely positive reactions was probably less than that of Irons and that doubtful results were relatively numerous. We are inclined to believe that the papules seen in the "positive" cases indicate a specific or a group reaction; and that redness without papule formation should be regarded as due, probably to infection or to other accidental causes.

In a letter received recently from Dr. Irons, he attributes the cloudiness of our extracts to blood particles washed from the media, and advises the use of ascites agar or of blood agar in which the blood has been mixed with the agar before it hardens. He says, further, that some extracts are not nearly so satisfactory as others, and suggests that this may be due to differences in the degree of autolysis of the bacterial protein.

CONCLUSION.

A. FROM PUBLISHED WORK OF OTHERS REFERRED TO ABOVE:

1. Reactions thus far observed after injections of gonococcus vaccine have not been clearly specific for gonorrheal infection.

2. The reactions seem to show a selective action in some types of gonorrheal disease.

3. Local reactions after injections are common in non-gonorrheal cases. They are not valuable for the diagnosis of gonorrhea or for demonstration of its cure.

4. Focal reactions are seen frequently in active gonorrheal arthritis and salpingitis; but, whereas they have been observed in cases showing no other evidence of gonorrhea, their diagnostic value is small.

5. A general reaction is seldom noticeable, and it may be easily simulated by slight symptoms due to other causes. It has, *per se*, no diagnostic value.

6. Gonococcus vaccine autolyses rapidly, and thus undergoes changes little known.

B. FROM WRITERS' WORK:

1. The concentrated vaccine used by the writers showed no superiority for diagnostic tests.

2. It produced in gonorrheal and in control cases a local lesion like that of a chemical irritant. We think that autolysis may have been a factor in producing the supposedly irritating properties of our vaccine; that the changes in the vaccine may have prevented it from producing a specific reaction; and that the unsatisfactory therapeutic effects of gonococcus vaccine may, perhaps, be traceable to autolysis.

4. Glycerine extracts of the gonococcus inoculated by the method of von Pirquet caused, in a few cases, the formation of peculiar papules which may have represented a specific reaction. Most of the cases showed no definite reaction.

5. Although our tests were negative in the main, and although the work of others using similar methods has yielded unsatisfactory results for diagnosis we desire to emphasize our belief that failures serve as guideposts to progress, and that present knowledge justifies the hope that a valuable diagnostic test for gonorrheal infection may yet be devised through improved methods of preparing vaccines or extracts of the gonococcus.

It is with great pleasure that we express our thanks and obligation to Dr. Albert E. Steele for preparing the vaccines and the extracts which we used, and to Dr. Hugh Cabot, as well as to many other members of the Staff of the Massachusetts General Hospital, for the opportunity to study their patients.

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THE PATHOLOGICAL LESION OF WHOOPING COUGH.*

BY F. B. MALLORY, M.D., BROOKLINE, MASS.

THE whooping cough bacillus was discovered by Bordet and Gengou in 1900, but was not obtained by them in pure culture until 1906. They found it in large numbers in the sputum of all early cases of the disease examined. The organism is a minute ovoid, Gram-negative coccobacillus which stains lightly by the ordinary methods. It is about the size of the influenza bacillus. They were able to start cultures only on a potato-blood-agar medium which they devised. They were also able to obtain a complement fixation test by using an emulsion of the organism and serum from a patient's blood. This test showed fairly conclusively that the patient produced an antibody for the organism, and that reaction has been the basis of the proof since that date that the organism causes the disease. Still, in spite of the fact that the bacillus has been generally accepted by bacteriologists as the cause of whooping cough, it has not been accepted to any extent by the medical profession because the organism has never been dem-

* Read at the Annual Meeting of The Massachusetts Medical Society, July 11, 1913.

onstrated in connection with any lesion, only in connection with the disease.

In 1908 Klimenko repeated the work of Bordet and Gengou and confirmed their results. He also inoculated a number of monkeys and puppies with pure cultures of the bacillus. Most of the puppies died in the course of a few weeks. They coughed and sneezed, but never whooped. After the animals died or were killed he was able to obtain the pertussis bacillus again from them in pure culture.

Our work on whooping cough at the Boston City Hospital started from a chance observation. In going over the sections from an acute case of whooping cough microscopically with one of the pathological internes, I noticed what seemed to be minute organisms packed in large numbers between the cilia of the epithelial cells lining the trachea. Better sections and stains showed the organisms to be minute bacilli. They were present in great numbers, dozens to a hundred or more, over the surface of each cell. Sections from the trachea of another case where the disease had lasted six weeks shows similar bacilli present, but only in small numbers.

Lung tissue from three other cases was obtained and showed similar organisms between the cilia of the cells lining the bronchi. The bacilli were also found free in the bronchial secretion and enclosed in polymorphonuclear leucocytes, but they were never found within the alveoli. The broncho-pneumonia which so often complicates whooping cough, seems to be due entirely to other contaminating organisms.

The action of the bacillus pertussis seems to be largely mechanical. It interferes with the normal movements of the cilia and therefore furnishes a continual irritation which excites the coughing.

The organism also secretes a mild toxin as is shown in three ways by a slight inflammatory exudation, by a lymphocytosis and by the production of a specific antibody.

The finding of this particular lesion naturally suggested experimental work. We first obtained sputum from acute cases of whooping cough and inoculated it into the trachea of a puppy and of a rabbit. Later the animals were killed and the respiratory tract studied microscopically. Organisms identical in every way with those found in whooping cough were present between the cilia in the trachea and bronchi of both animals.

Attempts were next made to obtain pure cultures and after considerable effort we succeeded in getting three different strains. These were inoculated into a number of puppies and rabbits which were killed after a varying number of days. In many of them we found bacilli often in large numbers between the cilia of the cells lining the nares, trachea and bronchi, and obtained them again, as we believed, in pure culture.

The lesions of whooping cough as found in man have been controlled by the examination of trachea and bronchi from hundreds of other diseases. No similar lesion has been found in any of them. The experimental work on animals is open to a certain amount of doubt, owing to a recent observation made by Dr. L. J. Rhea and here appended.

"While reading Dr. Mallory's first contribution on the pathology of whooping cough I was impressed with the general similarity between this disease and canine distemper, a disease common among dogs, and thought it might be worth while to study the pathology of this disease, using the technique employed by Dr. Mallory in his work on whooping cough. A number of dogs have been examined. Some of these were normal, the others had distemper. The normal dogs showed no lesions referable to distemper, but in the others a pathological lesion was found which was very similar to that found in whooping cough. This lesion consists of a rather superficial inflammatory reaction, especially in the trachea and bronchi.

Besides this inflammatory reaction there are in the cilia of the epithelial cells of the respiratory tract very many small organisms which I have been unable to distinguish morphologically from the Bordet-Gengou bacillus. These organisms are in the cilia of the epithelial cells attached to the respiratory tract and in the desquamated epithelial cells as well. The similarity in the histological lesions and the exciting organism in whooping cough and canine distemper is of some interest from the view-point of comparative pathology and I believe of real importance in experimental work with whooping cough. If one is to use in the study of whooping cough laboratory animals that are subject to a disease produced by an organism which is found in the same anatomical situation and is so similar morphologically to the organism producing whooping cough, the interpretation of results is made with difficulty. Such work must be controlled by means other than histological. But the observations referred to above do not in any way detract from experimental work along these lines. On the contrary, it suggests an interesting relationship between the two leading organisms; the bacillus of Bordet-Gengou, the cause of whooping cough, and the bacillus bronchisepticus, the cause of canine distemper.

"I might add that an organism similar in its morphology and anatomical situation has been found in rabbits suffering from snuffles, and what has been said in regard to canine distemper can be said in regard to snuffles in rabbits.

"Besides the general medical interest in the work Dr. Mallory has just reported, this work illustrates the importance of the proper application of histological technique to problems in pathology. But it takes a Dr. Mallory to show us how to apply this technique.

In conclusion I should like to add that Dr. L. W. Gorham has recently repeated some of the experimental work, starting with a new culture of the whooping cough bacillus obtained from an acute case of the disease. He used six young rabbits from one litter. Two were inoculated daily for a week with a suspension of the whooping cough bacillus. They lost weight and died at the end of ten days. Two others were inoculated in the same way with the influenza bacillus, one with the pyocyaneus, and one with normal salt solution. These four were killed at the end of ten days. Sections of the nares, trachea and bronchi from the two animals inoculated with the whooping cough bacillus showed great numbers of minute bacilli between the cilia. Pure cultures were obtained from one of the animals; but it was the bacillus bronchisepticus, not the bacillus pertussis. Cultures from the other rabbit were badly contaminated. Cultures and sections from the four other animals from the same litter were entirely negative so far as the bacillus bronchisepticus was concerned.

Further experimental work is evidently needed in order to clear up the subject. The two organisms closely resemble each other morphologically and in cultures on potato-blood-agar, but can be distinguished by their differences in motility and their alkali production in litmus milk.

NOTE ON ADDUCTOR RESPONSE TO HOMOLATERAL AND CONTRALATERAL STIMULATION.*

BY A. MYERSON, M.D., BOSTON,

Assistant Physician, Psychopathic Department of the Boston State Hospital.

CASE WITH CONTRALATERAL ADDUCTOR RESPONSES.

Summary of Case. Male 46 years of age with history of syphilis at 22, presenting as evidence of general paresis: delusions of a religious nature, Argyll-Robertson pupils, Nonne's four reactions in blood and spinal fluid positive; in addition yielded some remarkable reflex findings —with all other reflexes lively and with ankle clonus, percussion of the left patellar tendon elicited no knee jerk but did elicit a lively contralateral (right) adductor response; other adductor responses of an interesting nature were present.

Case History. Family history of patient not important. No noteworthy facts in early life. Was married at the age of 34. Had one child five years after marriage; there were no other pregnancies. wife is said to be well.

He acquired syphilis at the age of 24; had usual secondaries, as well as "open sores" on leg.

For the past five years he had been unable to retain any position long or to do continuous work of any kind. For the last three years had suffered exceedingly from inability to withstand ordinary cold weather. For some time had had shifting pains, especially in left leg. Had difficulty in starting urine. One and one-half years ago had a sudden weakness in the left arm and left leg, from which he quickly recovered. At the hospital in which he was at that time it is stated that he had Argyll-Robertson pupils and a strongly positive Wassermann reaction.

Within the last year he had changed very much mentally. He had been irritable, unstable and had become profoundly religious, — a decided change from his past frame of mind; and of late had become convinced that he has a mission. No concern at the welfare of his family.

Admitted to the Psychopathic Hospital January 14, 1913.

Mental Examination Summarized. Orientation good. Memory,—for educational facts poor—good for his own past and recent history. No hallucinations, but he believes he has had direct manifestations from God and his mission is to give these out to the world. Apathetic—changed in feeling tone toward his wife and son. No insight.

Physical Examination. Except for rather hard arteries and old scars on legs, the main changes lie in the nervous system. Pupils, right greater than left—irregular—no reaction to light—good to distance. Fundi negative. Movement of eyeballs, face and tongue normal.

Reflexes,—of the arms are equal—much increased—ulnar periosteals very lively. Legs, right knee jerk lively—left knee jerk absent; left ankle jerk lively—right ankle jerk lively and equal to left. No Babinski, Gordon or Oppenheim. Double front tap contraction. Cremasters and abdominals normal. Clonus elicited on right side at times—occasionally on left—patellar clonus occasionally.

Adductor responses:—From left patellar tendon (side of the absent knee jerk) a right or contralateral response is obtained—very lively; from right patellar tendon no adductor is elicited on left. From left internal condyle, left tibia, left internal and external malleoli and left anterior superior spine,—right or contralateral adductor responses are obtained—no homolateral adductors. From the right corresponding points, no contralateral adductors are obtained but the homolateral responses are very active. In other words, from the right leg where the knee jerk is present, only homolateral adductors are obtained,—while from the left where the knee jerk is absent, only contralateral adductors are obtained.

Lumbar puncture shows a globulin increase to Nonne's amm. sulphate, Noguchi's butyric acid tests— 30 lymphocytes present. Wassermann positive in spinal fluid and blood; that is, all "four" reactions positive.

The history of slow mental changes, the hemiplegia, the Argyll-Robertson pupils, the general increase of reflexes, with positive laboratory findings, point to general paresis,—

* Being Contributions of the Psychopathic Hospital, Boston, Massachusetts, (1913. 4). The previous contribution (1913. 16), "Note on a Case of Hysteria with Fever and Genuine Ankle Clonus," by A. Myerson, M.D., was published in the BOSTON MED. AND SURG. JOUR., Vol. clxix, No. 6, p. 194, August 7, 1913.

especially in the absence of any focal cerebral signs or evidence of tumor. The absent knee jerk indicates a cord change, probably the beginning of tabes, so that the diagnosis of taboparesis ought perhaps to be substituted for that of general paresis.

The adductor responses are very interesting and merit further consideration. In the preliminary paper I have described some of the phenomena here mentioned and have sketched the history of these reflexes. Without recapitulating here, it is necessary to state that only two of these adductor responses have received attention—the contralateral from the knee (Strümpell, Prévost and Waller, Marie and Ganault, Hinsdale and Taylor, Risien-Russell, Marinesco, Huismans, Lewandowski) and contralateral from the sole (Hirschberg, Bertolotti and Valobra, Noica and Strominger, Keller, etc.) Some of the others have received sporadic attention by some of the authors mentioned, as well as by Erb, but first received systematic consideration in the paper above mentioned.

It has been shown by some of the authors that the contralateral adductor may be present with the knee jerk absent on the side stimulated, as in the case here cited. It has also been stated that the homolateral might be present with the ankle jerk absent if the knee jerk were present. In my paper I stated as to the physiology of these reflexes among other facts the following named relations:

First,—they are related in a general way to the tendon reflexes. Usually when these are lively the adductors, especially the homolaterals, are present and lively; when the former are equal, the adductor responses are equal, and the like.

Secondly,—they have no relationship to the ankle jerk. In several cases with knee jerks lively and ankle jerks absent, tapping the Achilles tendon elicited very lively homo- and contralateral adductors. These reflexes are sometimes present when the Achilles reflex is also present, but they may occur from the Achilles tendon and other points without it.

This case gives material for further conclusions, borne out by other evidence to be cited in detail in the future.

First,—the adductor reflexes, whether homolateral or contralateral, are more independent of the site of stimulation than any of the tendon reflexes. Occasionally a knee jerk can be obtained from the sole of the foot (Cohn) or upper partitions adjacent to the patella. The ankle jerk can also at times be elicited from the sole of the foot, a phenomenon first observed, so far as I know, by Graves of St. Louis; but, as in this case, both the contralateral and homolateral adductors can be obtained from the anterior superior spine (D XII and LI), from the patella tendon (L III and IV), internal condyle (L III), the sole of the foot (S I and II), Achilles tendon (S I), etc.

Secondly,— the homolateral adductors either depend for their elicitation upon or are intimately related with the existence of the knee jerk on that side. The knee jerk may be present without these reflexes and often is so present, but the reverse does not obtain. In this case, with the left ankle jerk absent, all the left adductors were absent.

Thirdly,—in the same way the contralateral adductors are intimately related with the existence of the knee jerk *opposite to* the side of stimulation, but are in no way dependent on the knee jerk *of* the side of stimulation. That is, using the case recorded as an illustration, with the left knee jerk absent and the right lively, left-sided stimulation brought about a response on the opposite side or side of present knee jerk; whereas, right-sided stimulation brought about no left-sided response whatever, since the knee jerk on the left side was absent. On this case these results were evident, no matter what was stimulated, patella tendon, Achilles tendon, sole of foot, condyle, malleoli, etc.

Whether or not the adductor responses are true reflexes or whether they are dependent upon the jarring of the pelvis for their elicitation, as some authors maintain, are not questions to be discussed here; they are phenomena of interest and importance worthy of close study and deserving of a place in a routine neurological examination.

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FIBROMA OF THE OVARY WEIGHING THIRTY-FIVE POUNDS. OPERATION. RECOVERY.

BY R. S. TITUS, M.D., BOSTON.

Fibromas of the ovary have always attracted considerable attention because of the infrequency with which they are met. Reports of isolated cases are found here and there throughout medical literature, most of them recording small growths the size of a walnut, but none so small as not to be of interest. Doubt exists as to the exact histological nature of the tumor in the early cases, and I have tried to be certain of the accuracy of the microscopical examinations of those I have drawn reference from in this paper.

There is some variation among different writers in regard to the frequency of ovarian fibromas, but about 2% of all ovarian growths is the figure given general acceptance, and the limits vary from 1.7% to 4% in the individual clinics. The real rarity of fibroma of the ovary is better shown by those who have searched the literature from time to time in an attempt to collect all the cases.

Peterson[1] of Ann Arbor was one of these, and in 1902 he collected 82 cases and reported two of his own, and writing again[2] in 1908 stated that in the interval he had seen 15-20 more. Kelly[3] of Johns Hopkins made the statement in 1902 that out of 9400 gynecological admissions at Johns Hopkins, he had seen only 10 ovarian fibromas. An interesting paper is that by Mapes[4], who reviewed the literature from 1840 to 1909 and was able to collect only 71 fibromas of unquestioned histological nature. It was Briggs[5] of England who estimated 4% as a fairer one—drawing his conclusion from a series of 488 ovarian tumors in his own practice.

The fibroma of the ovary is histologically of connective tissue origin and occurs in three distinct types.

(*a*) The first type, the one most commonly met with, shows a dense growth of connective tissue fibres,—a true hyperplasia of the ovarian stroma which obliterates the ovarian tissue entirely. It may attain considerable size and is free and not encapsulated.

(*b*) The second type,—quite analogous to subperitoneal uterine fibroids,—leaves some ovarian tissue which is usually flattened out and extends for two and a half to three inches along the surface of the tumor. This type has a definite capsule.

(*c*) The third type is the pedunculated fibroma with the pedicle arising from the ovary itself, and is very rare.

The existence of the second and third types has not been generally recognized. Most monographs describe the tumor as one which leaves no ovarian tissue at all; but Fairbairn[6] of England, writing in 1902, collected from the literature sixteen cases falling under the second type and reported five additional cases of his own,—and in the same article made definite reference to cases of the third type.

The central portions of these fibromas either remain firm and dense of a white suety character, or become cystic, and they may undergo malignant degeneration from the very nature of their origin. Meriel[7] says that the possible malignancy of these tumors is not recognized and that the acceptance of their nature as entirely benign is a result either of poor observation or of ignorance.

The pedicle of fibromas of the ovary falling under (*a*) and (*b*) may be either short and broad or thin and long. The latter is the type which sometimes causes sudden acute symptoms from torsion.

Occurrence. Fibromas occur at all ages of life, rarely in children, most frequently between twenty and forty, and rarely after fifty. A few isolated instances of the tumor occurring after sixty have been recorded. No difference can be stated in regard to occurrence in nulliparae and in multiparae, or in one ovary rather than in the other, and there are numerous instances of fibromata occurring in both ovaries. It is interesting to note in passing that Kiwisch says the ovarian fibroma is of puerperal origin, but the literature fails to bear this out.

Size and Growth. These tumors are of slow growth which may attain a considerable size. The largest I have been able to find are cases reported by Spiegelberg[8] in 1866, which weighed sixty pounds and was obtained at autopsy, by Cruveiller[9] in 1856, which weighed forty-six pounds, also obtained at autopsy, and by Simpson, which weighed fifty-six pounds. The report of the Spiegelberg case contains a microscopical examination. Cruveiller's case had no microscopical report, and I was not successful after a long search in finding Simpson's original article. Olshausen[10] in his exhaustive work on the ovaries casts doubt upon the nature of these three tumors, believing them to be sarcoma rather than fibroma, and so does Winckel.[11] The tumor in the case herein reported weighed thirty-five pounds and the pathological report from Dr. Mallory is appended. Of other large ones I have found two of twenty pounds and several of fifteen pounds, and so on down to wee little ones, not larger than the ovary itself.

Dr. Peterson mentions one of twenty pounds and two each of fifteen, twelve and eight pounds. The largest in Mapes' series weighed twenty pounds, a case of Senn's. No weights are given in Briggs' monograph, but the dimension 11 x 7 x 8 inches would insure nothing remarkable.

Symptomatology. The symptoms of ovarian fibroma are variable, depending much upon the size of the tumor and in no way diagnostic.

Pelvic pain is by no means always met with. Where there has been an accompanying salpingitis or pelvic inflammation, adhesions are found which cause intermittent pain and partial intestinal obstruction. Dysmenorrhea is a symptom noted usually in cases falling under the second group, where some ovarian tissue still exists. Sharp acute pain may mean torsion of the pedicle. Fever is usually the result of some infection, and not truly due to the tumor itself. Pressure symptoms along with dyspnea, orthopnea, constipation and emaciation are due to the size of the large tumors, or to the ascites which is an accompaniment of about one-half of the cases. This ascites when it occurs is very troublesome indeed, and in the old days required frequent tappings. There is no blood change characteristic of these tumors. An increased white count occurs in inflammatory processes and an anemia goes along with emaciation and

malnutrition. The menstrual history is unaffected—except for the above mentioned dysmenorrhea,—and there is no unusual flowing of any kind.

Frequency of urination is quite often seen in cases where the tumor reaches a size sufficient to press upon the bladder.

Diagnosis. Inasmuch as ovarian fibromas have no individual symptomatology the diagnosis must of necessity be one of elimination. The ever present possibility of fibroma of the ovary must be remembered in all cases of pelvic tumors. If the growth be dense and firm, and if it can be distinctly separated from the fundus uteri the possibility becomes a probability.

Conditions most likely to be misconstrued are uterine fibroids, other types of new growth of the ovaries or of the broad ligaments, pelvic exudates and pelvic enchondromata. In differentiation from uterine fibroids a history of bleeding is of much value. Uterine fibroids usually have some irregularity in flow and ovarian fibromas never do.

The diagnosis between sarcoma, fibroma of ovary and hard tumor of the broad ligament is made certain only by operation. From cystic growth the density of the fibroma is the essential point. It is conceivable that dense pelvic exudates might be mistaken for fibroma of the ovary, but the history of pain, fever, and etiology of infection ought to be sufficient to determine. From enchondromata arising from the pelvis, a condition even more unusual than ovarian fibroma, x-ray is diagnostic. Ascites, since it occurs only in half the cases, does not help in establishing a diagnosis, one way or the other. So the diagnosis depends upon remembering that fibromas of the ovary do exist, and that when the bimanual examination reveals a hard, dense growth in the adnexa, distinct from the uterus, in a patient who complains of few or no symptoms, the existence of an ovarian fibroma is quite likely.

Treatment. Operation is always indicated provided the patient is in good general condition. If there be torsion of the pedicle, immediate operation is imperative. Abdominal section is the route of choice. Some men advocate vaginal ovariotomy and in case of small growths the operation is satisfactory. It can readily be seen that the larger growths can be removed only by laparotomy. The question of removing the other ovary—if it be normal—because of the possibility of the occurrence of a fibroma in it at a later date is quite alive in some communities. That is a matter of personal choice. The case reported in this paper shows no recurrence after twenty-six months.

Prognosis. The growth of ovarian fibromas is slow,—torsion of the pedicle possible and dangerous, and malignant degeneration a reality. Operation offers positive cure and carries with it no more risk than any laparotomy. The operation is usually easy since more often than not the tumor is not adherent and requires merely the clamping of the pedicle and its excision.

The following is the history of a case of fibroma weighing thirty-five pounds removed at operation:—

B.M., 47 years old. Married 19 years. No children. Born in Ireland. Entered the Boston City Hospital, gynecological service of Dr. F. S. Newell, May 16, 1911.

Past History. Patient states that she has always been well. Her periods, beginning at the age of 14, were quite regular until 1903, when they occurred at intervals of six to eight weeks for one year. In 1904, a four-weeks' interval was re-established and continued until 1907, since when there has been no flow of any sort.

Present Illness. For twelve years patient states that she has noticed a growth in the abdomen, which has gradually increased in size, but which has given her no trouble until three weeks ago, when she first complained of pressure under the ribs, with some discomfort, but no actual pain. She has done her household duties constantly, having laid a carpet the day before entering the hospital. There has been no digestive disturbance, no interference with urination or defecation.

Physical Examination. Patient is well developed and of fair color. Does not look sick but appears to have lost some weight. Tongue clean. Radial pulses equal and regular; of fair volume and tension. Lungs, slight dulness in right and left apex. On right dullness extends to the second rib in front and back, where there is increased vocal and tactile fremitus. Heart negative. Abdominal examination shows a round hard tumor rising from the pelvis, filling the abdominal cavity and extending to the ribs; there is a suggestion of fluid wave. Entire abdomen is flat on percussion. Vaginal examination shows the pelvis filled with a hard tumor mass, apparently part of the tumor felt in the abdomen. The cervix lies to the left and back. There is no pelvic tenderness. A sound passed into the uterus reached only one and a half inches. Hemoglobin, 85%. Leucocytes, 10,000. Blood pressure, 132. Urine, slight trace albumen, no sugar, 1.033. Sediment: epithelial detritis, occasional round bladder cell and occasional pus cell. Rx. iron, arsenic and strychnia three times a day. Tr. digitalis 5 m. t.i.d.

Operation, May 23, 1911, by Dr. F. S. Newell, assisted by Dr. E. B. Young and Dr. R. S. Titus.

Ether, open method. An incision extending from symphisis to ensiform revealed a hard, white, rounded tumor, smooth on surface, free from adhesions with peritoneum or viscera and entirely filling the pelvis and abdominal cavity. The tumor was lifted out of the abdominal cavity with considerable difficulty and found to arise from right ovary on a broad and short pedicle. Uterus was small and pushed back and to the left. Pedicle clamped and cut. Tumor removed; pedicle tied off with No. 2 chromic catgut. No bleeding. Other organs were palpated and found normal. Abdomen closed in layers. Pulse at the end of operation 90, did not rise above 100 at any time. No shock. Convalescence quite uneventful. No vomiting and no distension. Bowels moved daily by enemata. Slight rise of temperature on fifth day to 100 not ac-

counted for. Stitches removed on the eighth day. Wound healed by first intention. Up on the seventeenth day. Discharged well June 12, 1911.

Discharge Note. Abdominal wound firmly healed Uterus freely movable. No exudate. General condition much improved.

Pathological Report. Specimen consists of a large tumor, weight 35 pounds. Its surface is smooth and in general it is somewhat nodular. Color is purplish and its surface bears numerous petechial hemorrhages. Moderately large blood vessels are visible on the surface. In shape it is roughly spherical; its lower surface is divided into three large nodular divisions, about 12 cm. in width, separated by a deep groove. In one of these grooves there is attached a deep and broad ligament. A round strand of pinkish white tissue is also attached to the mass in one of these grooves. At one side the mass bears several cysts, the largest about .5 cm. in diameter. On section the tissue is firm, pinkish in color and more or less lobulated throughout, having the appearance of a leiomyoma. An area about 6 cm. in diameter filled with soft material apparently clotted with blood is situated in the substance of this tumor about 6 cm. below the surface. The diameter of cross section is 30 cm. Microscopic examination. *Fibroma.*—F. B. Mallory.

Mrs. M. as seen on Sept. 27, 1912. She stated that her weight two weeks after leaving the hospital was 109, and that it now is 124 pounds, a gain of fifteen pounds. She feels finely and complains only of a pain in the right back, below the shoulder blade, the site of a fall in December before the operation. Questioning brought out the fact that periods, quite normal in every way, just as they were when she was twenty, began in July, 1911, and have occurred regularly every month since and last three to four days. Examination shows a nine-inch median incision with moderate separation of recti in lower third. Vaginal examination shows stretched intact introitus. Cervix small. Uterus in partial descensus. Fundus anterior and small. No tenderness or thickening in either vault.

On July 15, 1913, she reported again in perfect health, having periods at monthly intervals as before.

There are several interesting points about this case which have made it worth reporting. First and foremost is the size of this true fibroma. There is every reason to doubt the histological nature of the Spiegelberg, Simpson and Curveiller tumors. They were obtained when exact pathological knowledge was quite incomplete and in all references to them I have found a doubt in the mind of the writer as to their nature. But even though we grant them to have been fibromas, this case is unique in that the tumor was successfully removed at operation.

The second point of interest is that such a tumor could have been carried around with so little discomfort and lack of symptoms before operation. The patient complained only of a feeling of pressure under her ribs and of some difficulty in locomotion due to the excessive size of the tumor. None of her functions were disturbed: she had no orthopnea, no dyspnea, no urinary or bowel inconvenience. She had no menstrual disorders, and what we had supposed to be menopause had come easily and naturally five years before operation. In fact, she had been able to do her ordinary day's work up to the time of hospital entrance.

The fourth point of interest is the cessation of menstruation for three years previous to operation, with the re-establishment of absolutely regular periods after operation which have continued up to the time this is written.

I wish to thank Dr. Newell for his kindness in allowing me to report this case.

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TESTS FOR RENAL FUNCTION BASED UPON THE SELECTIVE EXCRETORY ACTIVITIES OF THE KIDNEY.*

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THE association between clinical and post-mortem findings in nephritis has never been clearly defined. In 1905 Friedrich Müller suggested trying to correlate the signs of abnormal renal function as shown by various tests, with the different types of nephritis found during life and at autopsy. Since that time much work on the more exact study of renal function has been done, originating mainly from Schlayer and his co-workers.

Tests have been devised to study individual functions of the renal tubules and of the vessels of the glomeruli, based on the assumption that different portions of the renal structure have selective excretory activities. It must be emphasized that such are tests for renal function alone and cannot be made to prove the presence of constant anatomical lesions. By their use, however, renal physiology under pathological conditions can be studied more accurately than by usual clinical observations. It is the purpose of this paper to describe the technic of such tests and to state how information obtained by their use may be of value in the diagnosis, prognosis, and treatment of nephritis.

* Read at the annual meeting of The Massachusetts Medical Society, June 10, 1913.

While under observation the patient is ordered a constant diet containing known amounts of fluids and salt. The total amount of fluid and sodium chloride excreted is followed from day to day. Experiments have shown that water and lactose when injected intravenously are put out mainly through the action of the glomerular vessels, while sodium chloride and potassium iodide come to the urine through the tubules. On different days an intravenous injection of lactose is given, or ten additional grams of sodium chloride by mouth, or one-half a gram of potassium iodide by mouth. The manner of excretion of these substances is observed.

Two and one-half grams of pure lactose are dissolved in twenty-five cubic centimeters of freshly distilled water, placed in small cotton stoppered Erlenmeyer flasks and pasteurized for four hours daily on four successive days at a temperature between 75 to 80° C. By this method the dose used is slightly over 2 grams of the sugar in twenty cubic centimeters of water. A fresh solution is used for each injection. Unless the lactose solution is so carefully prepared and sterilized, severe chills and other constitutional symptoms may follow its administration. After injection all the urine is collected at the end of four hours and every hour or two thereafter to twelve hours. Each specimen is tested for the presence of sugar with Nylander's reagent, using constant amounts of urine, solution, and a constant length of time for boiling. In this way excretion time is determined. Polarimetric readings must also be made to quantitate the total amount of sugar excreted. Normally sixty per cent. or more of the dose injected is regained in from four to six hours. Abnormality in excretion, both as for time and amount, affords an index to the degree of glomerular functional disturbance.

In health, water is excreted in amounts of about two-thirds of the fluid intake. When the glomerular function is abnormal, water excretion, as a rule, is markedly increased or diminished for long periods of time. The polyuria is considered to be due to a hypersensitive condition of the glomerular vessels by which they respond continuously to the small amounts of diuretic substances contained in food. The oliguria, on the other hand, is due to a torpid condition of these vessels as a result of which they are unable to excrete the usual amount of fluid. Which of these conditions exists is determined by the ratio of fluid output to intake. Further proof is found in the kidney's response to the diuretic stimulation of sodium chloride.

The excretion of salt is accomplished chiefly by the concentrative powers of the tubules. Normally in large amounts it is put out by one of two methods. If the sodium chloride is given without extra water it is excreted almost completely within twenty-four hours by increased concentration in the urine; if given with additional water it is excreted partially by increased concentration and partially by an increased amount of urine. In severe tubular injury with normal vessels added salt is retained in the body since the tubules are impermeable. Their functional capacity is determined by following in the urine, variations in the concentration curve of sodium chloride after it is ingested in large amounts without extra water. Salt is, however, under certain conditions a diuretic. In that type of glomerular injury characterized by hypersensitive vessels the added chloride produces an increased urinary outflow. Then it is excreted mainly in the excess of water, its concentration in the urine being increased or not depending on the condition of the tubular function.

Thus there are two distinct types of abnormal salt reaction. In the first added salt is not put out because the tubules are unable to concentrate it sufficiently and because the glomeruli are not hypersensitive. In the second, added salt is excreted promptly, mainly by diuresis, in part by increased concentration in the urine, because the glomeruli are hypersensitive, and the added salt acts as a diuretic. Between these two extreme types of salt excretion are variations depending upon differences in tubular function on the one hand, and glomerular function on the other.

Potassium iodide is excreted by the tubules. For the dose given the normal elimination time is sixty hours or less. The urine is tested for the presence of the drug at the end of forty-eight hours and every six hours later until the reaction for it is negative. Iodide in the urine is determined conveniently by Sandow's test. Two cubic centimeters of 2% sodium nitrate solution, 2 c.c. of 10% H_2SO_4 and 30 c.c. of urine are mixed. To this is added a few cubic centimeters of chloroform. The whole is shaken. Purple or violet color appears in the chloroform if iodine is present. Theoretically, the more marked the degree of tubular disturbance, the more marked the delay in iodide excretion. Various observers, however, have found this test of little practical value in the determination of the renal function.

On the whole, by using these tests in the fashion outlined, it is possible to discover abnormalities in function on the part of the tubules and glomerular blood vessels of the kidney. Abnormal tubular function is shown by the inability of the kidney to increase the concentration of salt in the urine when an excess of salt is added to the diet and by a delay in the excretion time of potassium iodide. Abnormal glomerular function is shown by the inability of the kidney to excrete lactose in the usual time and quantity. Furthermore, abnormal glomerular function is of two types. The vessels are either hypersensitive, as shown by a constant polyuria increasing in response to the vascular stimulus of salt, or hyposensitive, as shown by a constant oliguria. The tests are of considerable quantitative value. In general, the

severity of functional derangement shown by them corresponds with the clinical and anatomical severity of the disease. Cases studied by these methods can be grouped functionally into glomerular nephritides, tubular nephritides and a mixed form which shows functional derangement of both systems. The last group contains the majority of cases which are observed clinically.

The practical value of these tests lies in the ability afforded by them for more accurate diagnosis, prognosis and treatment of nephritis than can be attained by clinical observation alone. In many cases by their use it is possible to acquire positive evidence of a severe derangement of renal function before any clinical manifestations develop. Thus the tests are of value for the early diagnosis of nephritis. By repeating them at intervals over a long period of time it is possible to follow the progression of the disease through various stages of functional change. In this way, whether the renal function is returning to normal, remaining stationary or becoming worse can be determined. Thus the tests give valuable prognostic information. Finally, to some extent, the results of these tests offer a rational basis for treatment. It has been shown that the hypersensitive type of vascular lesion associated with polyuria is less severe than the oliguric type. Certain cases of the latter group can be stimulated into reactivity by small doses of caffein or digitalis derivatives given over a long period of time. The beneficial effect of a salt and water poor diet on renal patients unable to excrete salt or water has been recognized previously.

In conclusion it must be emphasized again that the lactose, water, salt and iodide tests study renal function without regard for the specific anatomical lesion producing the effects. By the use of these tests it is possible to follow certain phases of pathological renal physiology. Information obtained in this way is of greatest value in the early diagnosis of abnormal renal function. It may also be of value in prognosis and treatment.

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Clinical Department.

A CASE OF ANTHRAX.

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Miss K., a brush worker, 25 years of age, entered the hospital Nov. 27, 1912, with the history of having first noticed a "pimple" on her left eyebrow four days previously when her fellow workers called her attention to it. The "pimple" was a small, painless, red papule with no surrounding reaction, which rapidly increased in size. With the increase in size came swelling about it until in forty-eight hours the eye was closed and the forehead involved. About this time small blebs appeared on the eyelid, one of these being opened by the family physician, who reported obtaining clear serous fluid. The only other treatment consisted in poultices of boric acid solution and catharsis. There was no systemic disturbance except the day before entrance when the patient vomited an egg drink.

The family history contained one interesting fact: three years ago the patient's sister, a brush worker in the same factory, "had a pimple on her cheek; blood poisoning set in and she died in four days." No further information of this could be obtained.

The general physical examination revealed nothing of note, the temperature 101.6; pulse 124, regular. There was some apprehension due to memory of her sister's fate.

The local examination showed the face and head distorted by a red swelling whose centre was the left eye, extending on the left over the forehead into the scalp as far back as the hair margin behind, and over the cheek into the neck below the ear; while on the right, it involved the nose, eyelids and forehead. Both eyes were closed by the edema. The margin of swelling extended about an inch beyond that of redness, and both were irregular and indefinite. The skin over the area was dull red, glossy, a little hot and slightly tender. The eyelid, remarkably swollen, was a deeper red than the surrounding region, and here also were several large blebs, flat and containing clear serous fluid. The base of the central of these which had been opened was blue-red and oozing a little serum. There was nowhere any fluctuation.

A smear from the fluid of one of the blebs showed gram-staining bacilli morphologically like anthracis. Cultures from the same later showed a pure growth of anthrax bacilli on several different culture media. Blood cultures taken at this time proved sterile.

The patient was isolated and five per cent. phenol was injected into the skin at different points in the red margin of the area, eighty minims being used in all. Warm poultices of corrosive sublimate (1-5000) were applied locally and changed frequently. Brandy and the tincture of digitalis were given regularly, and catharsis maintained with calomel and salines.

The temperature and pulse fell rapidly, reaching normal the third day in the hospital, that is, one week after the first appearance of the local lesion. In the same time there was a marked diminution in the reaction about the eye, while the lid itself became a darker red, violet, then blue-black, with no pus at any time. By the end of the first week in the hospital there remained only an area two inches in diameter about the eye. An eschar had formed where the blebs had been, this including the whole lid. The patient at this time ate, felt and slept well, her only complaint a smarting sensation locally, thought to be due to the irritation of bichloride dressings, which were now omitted, a mixture of hydrogen peroxide and boric acid solution (an ounce of the former to a pint of the saturated solution of the latter) being substituted. This apparently helped the separation of the slough, which soon loosened about the edges. Stimulation was gradually withdrawn, and by the end of the second week the patient was receiving nothing internally other than laxatives as needed.

The crust separated and fell away about the end of the third week, leaving a shallow ulcer with jagged, slightly undermined edges. Except for the palpebral margin where the lashes were intact, this ulceration involved the whole lid, extending into the outer canthus in a quarter-inch tongue-like projection. The slough did not affect the tarsal plate; the lid being raised revealed marked edema of the conjunctiva with no injury to the eye itself.

Under wet dressings and frequent cleansings with peroxide the slough rapidly cleaned up and the lid was soon filled with red granulations, the edema persisting. Balsam of Peru was then used on the granulations. As the area healed in there took place a gradual eversion of the lid, probably due to the contraction of the base of the granulations. No steps were taken to prevent this through fear of re-infection, though at this time there were no anthrax bacilli demonstrable in smears.

Eight weeks after entrance the lid was completely healed, though there remained some edema of the lower lid and of the conjunctiva. There was total eversion of the lid, the lashes coming off at the lower margin of the eyebrow. The patient was sent home at this time, it being thought advisable to give her a short vacation from hospital environment before operation for repair of the lid. A protective covering of sterile vaseline was used during the stay at home. Three weeks later she returned.

Operation. (Ether anesthesia). A transverse incision was made just above the lashes through the scar down to the tarsal plate, the full width of the lid. Above and below this incision the skin was dissected from the tarsal plate far enough to allow the lid to be pulled down over the eyeball to cover it. The apposing edges of the two lids were freshened to promote adhesions between them and then the lids were sewed together with fine silk. A piece of skin the shape of the lid, and a little bigger than it, was taken from the inner aspect of the upper arm, the full thickness of the skin, after removal of the subcutaneous fat, being used. This was fitted into the uncovered area on the upper lid and held there with six fine silk sutures, the whole being kept wet with saline during the operation. A saline dressing was applied to the eye. The wound in the arm was closed with a subcuticular stitch of catgut.

The eye dressings were kept wet with saline for ten days. There was no sloughing whatsoever and the graft held perfectly. Two of the sutures holding the lids together had pulled through, allowing some separation between the lids in the outer half. All sutures were removed and a dry dressing applied. The tissues bleached out rapidly and motion returned to the lid. Slight contraction occurred under the graft and there developed a very slight ectroption, so that on discharge the lid completely healed, could be raised and lowered freely to cover all but about an eighth of an inch margin of the sclera in the outer half of the eye. The cornea was in perfect condition.

The patient was seen recently, that is, about seven months after the outset of the disease. The eyelid is practically normal, freely movable, covers the eye completely, can be fully raised, and in appearance is like the opposite, except on close examination, when it can be seen to be thicker and less pliable.

As to the source of the infection, the patient worked with bristles imported from Japan, China, Siberia, Russia, Turkey and Mexico, and with grasses from Mexico. It was learned that all bristles handled by the patient are "cured" before coming to the factory by a process that includes prolonged boiling or steaming to remove the fat. There are no crude animal fibres in the factory. There are, however, reeds and grasses used which are simply dried, that is, not subjected to any operation that would kill spores. These crude materials come from Mexico, from the region around Tampico. Efforts were made to learn whether there was probability of anthrax spores coming in on these grasses. The only definite information obtainable was received from the United States consul at Tampico, who writes that anthrax is not known in that region.

Officials at the factory state that they have never known of any similar case among their workers, and they were slow to believe that the infection was probably traceable to their factory. Although there are at least three shops of similar character in this city, two of which handle crude materials, this is the first recognized case of anthrax in Worcester of which any account can be found.

Medical Progress.

THIRD REPORT IN ORTHOPEDIC SURGERY.

BY ROBERT B. OSGOOD, M.D., ROBERT SOUTTER, M.D., HERMANN BUCHOLZ, M.D., MURRAY S. DANFORTH, M.D.

(*Concluded from page 357.*)

FRACTURES.

The Report of the Special Committee appointed in Great Britain[62] to inquire into the end results of the treatment of simple fractures is an important contribution to the subject. In children the end results from non-operative

treatment are almost as good as from operative, perhaps even better when one considers the risk sepsis would entail in a very large number of cases operated upon by a large number of surgeons whose technique may not always be blameless. 90.5% of the results of non-operative treatment in children, 1017 cases having been studied, were considered good. 93.6% of the operative results were considered good, sixty-four cases have been studied. After the age of fifteen the non-operative results are less satisfactory and there seems to be a progressively less favorable result as age advances. The percentage of good results is better in the cases operated upon early, the early adult age groups showing a more favorable percentage than the non-operative. Of the operative methods those which secure the most perfect anatomical reposition and which accomplish the most absolute fixation are the most successful. Operation should be done only by skilled hands, should be done only under perfect asepsis, and should be done early. The results of poor technique and sepsis are serious, and by no means the same percentage of good results follow fractures operated upon to correct a poor result from non-operative treatment as follow those operated upon soon after the injury. The conclusions of this committee are that unless a physician is able to avail himself of the necessary skill and technique the safer method of treating simple fractures, even in adults, is by non-operative reduction.

The splendid results which may be obtained by the employment of special skill in operative treatment of even simple fractures and in children are evidenced in the report of Sampson,[63] using Mr. Lane's technique. Of forty-two cases treated by open operation, 88% showed a subsequent perfect anatomical result and 97% a perfect functional result. As regards the use of the Lane plate, Sampson states that in thirty-one "recent" cases there were twenty-seven perfect anatomical results, three perfect functional results, and one slightly imperfect functional result. In all cases except one in which the plate was fixed by catgut instead of screws, the few plates later removed were found firmly fixed, and it was necessary to unscrew the screws. When for some reason the plates were removed after a considerable lapse of time they were found firmly imbedded in bone. (Ed. note.) We believe such results as these may only be expected after much experience and from an almost perfect technique.

Cotton,[64] whose book on Joint Fractures has been so favorably received, has written a concise and valuable article saying much in small compass. He takes up the consideration of special fractures, and while he does not believe that these fractures belong exclusively to the orthopedic surgeon, he admits that the general surgeon must borrow his methods in the way of free bone cutting, the use of much force if necessary in correction, and the skillful manipulation of corrective plasters for the best results. He considers that lack of motion may be the result of poor reduction, but is more often the result of failure to early mobilize. Practically no exuberant callus forms within a joint. He considers that the reason for the frequent non-union of the patella and intra-capsular hip fractures is the presence of synovial fluid. If the joint is opened and contact secured between the bone ends union may be expected.

Phemister[65] has employed Kocher's posterior exposure of the shoulder joint in cases of old and irreducible fracture of the greater tuberosity of the humerus. An angular incision is made starting from the tip of the acromion and running backward over the entire length of the spine of the scapula and thence downward along the posterior border of the deltoid. An osteoplastic resection of the origin of the deltoid is made and then the musculo-cutaneous flap is turned forward. This gives a complete exposure of the seat of fracture and of the muscles attached to the greater tuberosity. There is no danger of interfering with the nerve supply of the deltoid. He wires or nails the freed fragment of the greater tuberosity in place.

It is interesting to remark the favorable impression which the so-called Maxwell method of treating intracapsular fractures of the hip joint makes upon those surgeons who employ it. G. G. Davis[66] considers that on the whole this method of longitudinal and lateral traction advised by the Phillips and later by Maxwell and Ruth is the best. Its ease of application is one of its greatest advantages. Davis also reports good results in children from the abduction method of Whitman.

Ross and Stewart,[67] from their clinical examination and animal experiments, have become convinced that practically all dislocations are permitted only by a primary strain of tendons and ligaments followed by a partial or complete avulsion of the tendons and the occurrence of a so-called sprain fracture or gross fracture. At the seat of these sprain fractures and avulsion osteoblasts issue and callous formation is often excessive if the fracture is not sought and found by x-ray and irritative movements avoided.

(Ed. note.) While it is true that the recognition of these sprain fractures is important and that special movements which might provoke exuberant callus should be avoided, we feel that there is a tendency to maintain complete fixation too long. It is possible after making a careful diagnosis to begin certain movements very cautiously, but also very early. The number of stiff joints following comparatively simple dislocations indicates that these movements are not instituted early enough or with sufficient care in many cases.

Darrach's[68] conclusions as to the operative treatment of fractures are valuable, based as they are on an analysis of 2100 fractures treated at the Emergency Ward of the Roosevelt Hospital. Of these 2100, 104, or about 5%, were operated upon. This Darrach believes to be about the right proportion of suitable cases. He concludes that most fractures are best treated by the closed method, but that if the decision to operate is made the operation should be performed before the eighteenth day and earlier if possible.

In Bartlett's[69] experimental work with Lane plates in dogs he had several cases in which in spite of sepsis the screws remained tight and the fracture united. He has also had three human cases in which he has applied a plate in a suppurating wound and union has occurred, in one of the cases there being complete healing in three months with the plate still in. He concludes that infection, undesirable as it surely is, does not always mean a complete failure. (Ed. note.) We have had one case also which has completely healed, the plate being applied in the presence of mild infection. We can report one case in which two plates were applied extending from the fourth and fifth lumbar spinous process to the posterior superior spines to fix a rapidly increasing spondylolisthesis in a young subject. A severe streptococcus infection occurred and a sinus persisted for six months. This sinus, however, finally closed and for over two years the wound has been solidly healed with the plates in place as shown by the x-ray.

While these experiences should not make us relax our aseptic technique they may lead us in the presence of unfortunate sepsis to hesitate before we remove plates which are holding well and whose presence is likely to bring about the return of good function.

Robert Jones's[70] article in the *British Medical Journal* on the Present Position of the Treatment of Fractures is not only helpful in detail, but tinctured with the strong mechanical sense of the author. This mechanical sense is made the more valuable since essential common sense is not obscured by it.

Russell[71] has collected 208 cases of traumatic separation of the lower epiphysis of the femur, including the cases of Poland and Hilgenreiner. He calls attention to the fact that this is the first epiphysis to appear and the last to unite (21 years). The accident is generally due to indirect violence through the leverage of the leg or thigh, one or the other being fixed. The femoral epiphysis is firmly attached to the tibia and fibula by dense ligamentous structures and separates under forced hyperextension, flexion, abduction, or adduction, combined with traction and twisting. The commonest direct cause is entanglements in the wheels of wagons. A direct cause by no means negligible is a separation during orthopedic manipulations for deformities of the lower extremities. The most frequent displacement is the epiphysis forward and the diaphysis backward. The exact opposite of this is the next most common position. In the separation the conjugal cartilage usually remains with the epiphysis. Many of the simple cases can be easily reduced by flexion with traction and manipulation. Sometimes an open operation and mechanical fixation is necessary, but one should avoid resection of the diaphysis or excision of the epiphysis, remembering the statement of Ollier that twice as much growth takes place from the lower epiphysis of the femur as from the upper.

Coues[72] reports what is apparently the second reported case of pure separation of the lower epiphysis of the first metacarpal bone. In a private communication he reports subsequent observations of two more cases and has heard of a fourth through the courtesy of Dr. Stanton Heck of Salem, Ohio. The constant epiphysis of this bone is situated at the proximal end in contradistinction to the epiphyses of the other metacarpal bones. It is united with the shaft at twenty years. Coues calls attention to the necessity of not confusing this somewhat rare but evidently seldom recognized injury in children and young adults with Bennett's stave fracture of the first metacarpal.

Soubeyran[73] discusses the somewhat rare injury of dislocation between the first metacarpal bone and the trapezium. He finds only about thirty cases reported. The lesion is easy of reduction by traction and pressure and has been accomplished even after three years. It is difficult to maintain the correction, however.

An ingenious method of separating overriding fracture ends has been suggested by Gerster[74]. A Lowman clamp is first applied to each bone fragment and then a turn buckle whose ends fit loosely over each clamp shaft is applied, and by screwing out the turn buckle the fragments originally out of line are separated and brought into alignment.

Primrose[76] reports the use of a dowel of ivory in a fracture of a phalanx following an enchondroma. The enchondroma was removed by a curette, the dowel inserted, and a perfect result followed primary healing. (Ed. note.) Magnusson has demonstrated that the ivory introduced into bone gradually becomes absorbed without undesirable reaction of the tissue. Our own experience with its use as a pin in pegging fractures is very satisfactory. In one case a peg was driven into a displaced humeral condyle and left protruding through the skin, expecting to withdraw it when union was firm. In four weeks time this was attempted, but the peg on a slight twist separated at the level of the bone and an examination of the inner end showed it to be softened, infiltrated, and partially absorbed.

NERVE SURGERY.

Foerster[77] gives the end results of fifty-nine cases of spastic paraplegia treated by his method of resection of the posterior spinal nerve roots. Forty-six were benefited, five were unbenefited, and eight died as the result of the operation, giving a mortality of somewhat over thirteen per cent. and an unfavorable result per cent. of twenty-two. He believes that the operation can do no good unless the disturbance is of central origin, excluding thus athetosis, chorea, convulsive tics, motor spasms, etc. The affection also must be stationary or only very slowly progressive. Careful oversight and after training are considered to be of such importance that he advises against the use of the method unless these indispensable aids can be employed. He advises cutting a sufficient number of nerves, but to surely spare the third and fourth lumbar roots as they have to do with the extensor reflex of the knee. (Ed. note.) The end results of myectomies, tenotomies, and careful after treatment are so good that it seems to us that this serious operation should be attempted only in special cases.

Foerster's operation has been performed on forty-four cases of tabetic crisis. In some it was not extensive enough and recurrence followed, and in some the crises developed in other nerve regions. There was a mortality of eleven per cent. He considers that in certain cases the vagus is responsible for the crises.

Frazier and Mills[78] have succeeded in anastomosing by end to end suture the first lumbar to the third and fourth sacral nerves by the intradural route. The first lumbar was identified by an electrode, cut at its exit, pulled back through a slit in the dura and united with No. 1 Chinese silk to the third and fourth sacral nerves after their identification. The operation was performed in a man of twenty-seven who had had a fracture of the right half of the first lumbar vertebra and suffered from incontinence. There had been definite improvement in the incontinence eight months after the operation. Frazier and Mills discuss other possible anastomoses and their application to the many problems of paralysis following poliomyelitis.

Pollock and Jewell[79] have employed the Schwab-Allison[80] method of alcoholic injection into the nerve sheaths for spasticities and athetoses, or the so-called muscle group isolation, in six cases. In a case of spasticity of the forearm and wrist the spasticity disappeared immediately, reappearing eleven months later, but the motor function did not return. In one case of adductor spasm the spasm disappeared at once, but returned in ten months. In one case there was no disappearance of the spasm and in two cases there was little apparent change. They conclude that there is some danger of the non return of motor function and the athetosis with motion is better than no athetosis and no function. They believe the method is chiefly applicable to the spasticity of the adductors in children, where because of the cross legged deformity they are unable to walk.

SCIATICA.

In 1906 Boehm,[81] in investigating the causes of scoliosis noted the great frequency of variations from the normal in the lumbar and sacral vertebrae and the existence of many transitional forms.

In 1910 Adams[82] in treating a functional scoliosis associated with great sciatic pain in a young girl, discovered an abnormally shaped transverse process on one side of the fifth lumbar vertebra. The removal of most of this transverse process relieved both the scoliosis and the pain. It has remained for Goldthwait,[83] however, to call attention to the great commonness of these transitional forms in other than scoliotics, and by an examination of many specimens and cadavera to demonstrate the frequent existence of an actual joint, (named by the late Prof. Dwight the Sacro transversalis), or bursa between the enlarged transverse processess of the fifth lumbar and the top of the sacrum, or sometimes the crest of the ilium. He is convinced that these conditions and the susceptibility to strain of the lumbo sacral and the sacro iliac joints which accompanies them, explain many cases of back pain and sciatica formerly hard to understand. Protection of these regions by means of apparatus designed to relieve the strain produced by the individual lesion, and in some cases the operative removal of the impinging process, has resulted in relief of the symptoms.

Kleinschmidt,[84] in a case of very severe sciatica where every conservative treatment had failed, found one of these abnormal wing-shaped processes on the fifth lumbar, four c.m. long and two to three c.m. wide. The resection of this process gave definite relief.

PTOSIS AND INTESTINAL STASIS.

Orthopedic surgeons must apparently investigate, at least in the arthritic conditions, the position of the viscera and the passage of the food through the intestines. Evidence presented by Lane,[85] Goldthwait,[86] and many others of the intimate relation as a causative factor of intestinal stasis and various joint conditions, makes the study of these visceral ptoses and the interference with normal assimilation and the production of intestinal toxines of great importance.

Stone[87] has demonstrated the extreme toxicity of the secretions of a tied off jejunum and clinical evidence is everywhere at the hand of the poisonous effects of constipation and stasis.

The Roentgen ray now gives us a more definite and accurate method of determining the

position of the viscera and the progress of the food mass. In children, where the normal length of passage should be about 24 hours, we frequently find it to be fifty or even one hundred and sixty hours, and usually the delay is near the cecum.

Barrington-Ward[88] reports several cases where arthritic conditions, including tuberculosis, associated with proved intestinal stasis, were speedily relieved by surgical measures which divided bands, released kinks, and short circuited the bowel. He believes, as has indeed been before suggested, that tuberculosis of the joints is often another end result of intestinal stasis, and that the bowel is the common route of infection in this disease. This latter view is, as far as we are aware, not as yet wholly proved.

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Reports of Societies.

TWENTY-SEVENTH ANNUAL MEETING OF THE AMERICAN ORTHOPEDIC ASSOCIATION.

HELD IN THE RED PARLOR OF THE NEW WILLARD HOTEL, WASHINGTON, D. C., MAY 6, 7, 8, 1913.

(*Concluded from page 360.*)

REMARKS ON THE IMPORTANCE OF POSITIVE SUPPORT IN THE CURATIVE TREATMENT OF WEAK FEET, AND A COMPARISON OF THE MEANS EMPLOYED TO SECURE IT.

DR. ROYAL WHITMAN, New York City: In 1890 there were 97 cases of flat-foot mentioned in the report of the Hospital for Ruptured and Crippled, in 1906 there were 1219, and in the last report there were 2109. Flat-foot is an acquired weakness and is understood to be preventable and curable. The lowered arch is the secondary, and not the primary deformity. Palliation is often mistaken for cure. I have a brace which I have used for several years with success. A brace that will not only prevent deformity, but the predisposition to it, and will enforce a proper attitude in walking, may be regarded as a most important measure in curative treatment. The most satisfactory material for this brace is thin polished steel, galvanized. The essential accompaniment of positive support is a proper shoe, inclined somewhat outward by thickening the inner part of the heel and sole. The aim of treatment should be to cure, rather than to relieve flat-foot.

A RAPID AND ACCURATE METHOD OF TAKING CASTS OF THE FEET.

DR. MICHAEL HOKE, Atlanta: This procedure has done away with the disadvantages of the older methods. I take plaster bandages and soak them in water, flattening them out on the table, thus making a square plaster splint four inches wider than

the foot, and two inches longer. Then with a pair of scissors I cut the edges, lay the splint on the foot, and hold the foot with my hand in the position in which I wish it to be. I then wind an ordinary gauze bandage around the plaster and the foot, to hold the plaster while it is hardening. After it is hardened the foot is taken out of the cast.

DISCUSSION ON THE PAPERS OF DRS. WHITMAN AND HOKE.

DR. ROBERT B. OSGOOD, Boston: We can all agree with the principles enunciated by Dr. Whitman, but the question of the practicability of the method must be faced by us all. If we cannot make a permanent brace, we must use Dr. Whitman's appliance, but I feel, whenever possible, we should relieve our patients from the burden of steel.

DR. W. E. BLODGETT, Detroit: My experience has been that the best pain-relieving plate is one that is arbitrary. The plate I make is in no sense a curative plate, but one to relieve pain. The point as to whether the Whitman plate is a curative one must be decided either practically or theoretically. From the practical standpoint I cannot speak. Theoretically, however, arguments can be urged against the assumption that it is curative. I cannot see that this plate can be expected to strengthen the muscles. If it is not curative, why should we permit its use?

DR. H. AUGUSTUS WILSON, Philadelphia: I have endeavored to establish a standard of what is natural in an unclothed foot. Upon examining the feet of a number of savages, I found that they all stood flat-footed, with the feet pronated in the position I had believed necessitated mechanical support, yet they had superb musculature and capabilities beyond conception. It seems we are considering a theoretical foot when we apply therapeutic measures. If we can get in our minds a standard natural foot, we shall have something to build a superstructure on. The Japanese have fine feet. They walk without heels, and the result is that the flexors are strong and powerful. They walk with their toes in and have wonderful foot capabilities, and yet, when standing, they are apparently flat-footed. What we are after is not the physical resemblance of a foot, but a physiological action.

DR. PHILIP HOFFMAN, St. Louis: The question is whether the relationship between the shape or form, and the function of the foot is a definite one. I have made observations on four hundred primitive bare-footed and sandal-wearers, and I found the same lack of relationship between the form and the function of their feet, in which the arches were very low. We are taught that this low arch should predispose to weakness, yet in not one of these natives had any symptoms of weakness ever been present. Then I tried about two hundred white men, shoe-wearers, who had never had foot symptoms, and I found about the same percentage of low arches in these symptomless feet. Then I examined a number of symptomless negro feet, with the same result. I was therefore convinced that there is no definite relationship between the shape of the foot and the function of that foot.

DR. CHARLETON WALLACE, New York City: I classify the types of feet that happen to come into my office. The first class,—mild cases that show no symptoms of pain,—can easily wear the Whitman brace with more or less pain. The brace, the shoe and the exercise give one perfectly satisfactory results. The second class,—cases in which the peroneal spasm is rather strong,—must be treated to overcome the spasm before the Whitman brace can be used. The third class,—the rigid, stiff feet,—must be made flaccid before the brace can be worn. We do not expect the Whitman brace to cure the foot, but it aids toward that end. Our whole aim is to cure the foot by stretching the muscles, giving the foot a crutch, as it were, to walk on while being corrected.

DR. JOHN RIDLON, Chicago: The number of cases of flat-foot that we are treating, and the many times that number that are wearing foot-plates, is appalling. More than half the adult population of the country are being treated for flat-foot. Now is it a fact that flat-foot has increased to such an enormous extent? If it has, there is something decidedly wrong. I want you to give this subject your attention for the next year or two.

DR. E. H. ARNOLD, New Haven: Within the experience of all of us, the American sidewalk has changed from a soft to a hard one. In a soft walk, the foot shapes the ground, but with an unyielding one, the sidewalk shapes the foot. You will find that the Indian, the colored man, or the Japanese will go to pieces on our sidewalks and contract flat-foot. Walking on hard ground is one of the etiological factors in flat-foot, and goes far to explain the great increase in this condition. The question is how far any plate will cure flat-foot in these conditions. People ought to be born with rubber-tired wheels under them.

DR. ARTHUR H. CILLEY, New York City: I believe that the results obtained from treating flat-foot do not depend upon the form of treatment, but upon the ability of the man to do the work with it. If the patients will use the muscles, they will get well. If the Whitman plate is properly applied, they cannot help using these muscles.

DR. ROYAL WHITMAN, New York City: The principle of the treatment contained in my paper was that the line of the leg should be in the line of the foot, in order that one taught to walk properly shall have the weight thrown to the outer side. I said that the brace was an important factor in the cure of weak feet. It is unimportant to have the patient do exercises. The postures must be habitual, and exercise must be taken in the posture of overcorrection.

DR. MICHAEL HOKE, Atlanta: A great many of these feet are painful on account of rheumatism associated with flat-foot, and I often decline for this reason to apply a foot-plate.

HELIOTHERAPY (OF ROLLIER) AS AN ADJUNCT IN THE TREATMENT OF BONE DISEASE.

DR. ROLAND B. HAMMOND, Providence: Heliotherapy of sinuses has been practised for many years. Rollier's method of exposing the entire body is comparatively new. Experiences differ in a high and dry climate, and in a low, foggy land. I believe that heliotherapy is of marked value in the treatment of bone disease by stimulating the recuperative powers of these parts and shortening the course of the disease. It can be used at the seashore, as well as in a high altitude. Sinuses tend to close more quickly with its use than without treatment. Combined with sea bathing and outdoor life, it is a most valuable addition to our treatment.

DISCUSSION.

Dr. B. E. McKenzie, Toronto, Can.: I have had a large experience along this line of outdoor treatment. We do not expose our patients to the sun for so long a time, nor do we expose the entire body. It would probably be better if we did. I believe that the time of treatment essential for the cure of tuberculous joint disease is reduced fifty per cent. by the method we follow. The number of abscesses are reduced also.

Dr. Roland B. Hammond, Providence: For many years we have been treating the sinuses by exposing parts of the body, but according to Rollier's theory, we must expose the whole body. We have done this, and consider it a distinct advantage.

THE USE OF OIL INJECTIONS INTO THE KNEE-JOINT BY THE METHOD OF OPEN INCISION.

Dr. E. G. Brackett, Boston: The injection should be made by open incision, and not by puncture. The fluid is always left in the joint under tension. Any adhesions existing should be broken up before the joint is filled with oil and the capsule closed. No handling should be permitted, particularly of tubercular joints. Fixation in plaster or by splint immediately afterwards should never be employed. It is doubtful whether the final results in a disease so insidious can be given until a very long time has elapsed. An apparent cure, however, has resulted in three cases which have stood the test for a year and a half to two and a half years. The procedure is of use only in cases in which the abnormal condition is confined to the synovial membrane.

DISCUSSION.

Dr. E. W. Ryerson, Chicago: I use white vaseline only in dealing with dry joints, as some patients have a painful idiosyncrasy toward yellow vaseline. I have used it in cases of gonorrheal inflammation of the knee joints in which the capsule was beginning to contract down.

Dr. R. O. Meisenbach, Buffalo: I had occasion some time ago to use vapor of wax. I prefer it to vaseline. It has a higher melting point and remains in the joint much longer. If you make an incision and take an excision you will get a hemorrhage.

Dr. L. W. Ely, Denver: The absence of fluid in ankylosed joints is not the cause of the disease, and I think it is receiving more attention than it should. There is no way by which to tell a tuberculous joint, except by demonstrating the tubercle bacillus; and even then, there are sometimes mistakes made. You cannot cure these stiff joints by injecting an oily substance into them.

Dr. E. W. Ryerson, Chicago: Nothing has been said about curing the joints with vaseline; but the injection relieves them so much that, by increased motion, the natural synovial secretion returns.

Dr. J. T. Rught, Philadelphia: For cases of distinct infection, in which the germ can be recovered from the joint cavity, I want to mention the formalin-glycerin solution of Murphy, which has distinct value in these cases.

Dr. E. G. Bracket, Boston: One of the most difficult things is to distinguish between mild tuberculous infections and other forms of arthritis. Many times I have found my diagnosis reversed after operation. We should imitate nature, so far as possible, in treating this disease. In making these injections we imitate her.

A METHOD OF OSTEOTOMY OF THE LOWER END OF THE FEMUR IN CASES OF PERMANENT FLEXION OF THE KNEE JOINT.

Dr. Robert B. Osgood, Boston: In hard fracture of the knee joint a cuneiform osteotomy of the lower end of the femur, as near the joint surface as possible, would seem to be the operation of choice. Unless a wedge of bone is removed the tension on the vessels and nerves is often too great to allow complete straightening, even if the ham strings are divided. I have devised an apparatus to overcome the difficult features. I use an ordinary jig saw Paper patterns are made in order to determine the proper dimensions of the wedge of bone to be extracted. When the posterior cortex has been partially sawed through, the arms of the saw are removed, leaving the saw blade in as a mark for orientation. Then a second saw with blade, teeth downward, is used to make a cut on a straight line down to the position of the first saw and both blades are removed. Thus a quadrilateral portion of bone is freed and pushed out. In our cases union has apparently been formed in from four to six weeks.

DISCUSSION.

Dr. W. S. Baer, Baltimore: I have used Dr. Osgood's method in one case, and have had extremely satisfactory results. There are certain things in regard to the technique of an arthroplastic operation which should be followed. The membrane wants to be sewed in very carefully around the joint. The passive motion after-treatment does not want to be started too early. Three or four weeks of absolute rest with fixation in plaster should be given.

Dr. J. P. Lord, Omaha: Dr. Osgood has greatly refined an operation which I have been doing for four or five years. My operations were done to prevent the patients from having bent knees from contracture deformity, the result of infantile paralysis.

Dr. A. H. Freiberg, Cincinnati: There are two distinct propositions to consider in these cases. The first is the amount of bone that has to be removed; and the second, the character of the joint. In the knee, we have a joint whose mechanical control is ligamentous. If we get a pseudoarthrosis, it is uncontrolable, if there is considerable motion.

CHARCOT'S JOINT, WITH SPECIAL REFERENCE TO THE PATHOLOGY. PRELIMINARY STUDY OF TWO CASES.

Dr. L. W. Ely, Denver: Three views are still strongly held in regard to the nature of this lesion, after years of clinical study. From the study of different specimens we can obtain a fair understanding of the clinical phenomenon of the disease. The destruction of portions of the articulating bone-ends is responsible for the change in the architecture of the joint, and causes the distortion, the subluxation and the well-known laxity. Many of these joint lesions lose their mystery when we put the specimens under the microscope.

DISCUSSION.

DR. ROBERT B. OSGOOD, Boston: I should like to ask whether the extra amount of bone seen in the joint in these cases, is old bone thrown off, or whether it has to do with a new growth of bone.

DR. L. W. ELY, Denver: The consensus of opinion is that in one of the bones of the articulation there is a marked productive osteitis; while in the other bone there is a destructive osteitis. One is impressed by the destructive nature of the entire process, without evidences of any effort at repair.

FOERSTRE OPERATION.

DR. S. J. HUNKIN, San Francisco: In all, we have had eighteen operations on fifteen patients. In our entire series there were but two deaths. Therefore, we may say that the results of our treatment of spastic paralyses by Foerstre's operation have been fairly good. While they have not been so entirely satisfactory in all respects as I have been led to expect, yet all my patients showed greater improvement than I formerly attained with other procedures.

DISCUSSION.

DR. J. K. YOUNG, Philadelphia: Two of these cases came under my observation; one was a cervical, the other, a lumbar case. Neither was operated on by me. The operation on the first was unsuccessful, and the second patient was made worse by it.

DR. G. G. DAVIS, Philadelphia: I might mention a third operation done by the same surgeon who operated on the two referred to by Dr. Young. The patient was a boy of fourteen years, and his condition was markedly improved. He is still alive today.

DR. R. B. OSGOOD, Boston: So far as I can discover, the results achieved in the shortest time of which we know, is that of Dr. Hunkin.

DR. S. J. HUNKIN, San Francisco: The shock in this operation is in proportion to the time taken to perform it. After our first attempt, we have never been over forty minutes, and I believe it can be done in thirty.

OSTEOMYELITIS OF THE SACRO-ILIAC JOINT WITH GAS-BACILLUS INFECTION.

DR. SYDNEY M. CONE, Baltimore: I wish to further report on a case which I mentioned in discussion last year. The patient died a month after the meeting; and an autopsy was held with the following results: There was a teasing of the medulla of all the bones. Gas-bacilli were in the medulla. I would suggest that in the future anaerobic blood cultures be made in these cases.

DISCUSSION.

DR. L. W. ELY, Denver: I also had a case of gas-bacillus infection; but I did not discover it until after the patient was dead. It was a great surprise to me. In that case there was crepitus in the wound. The gas was around the wound, and this led us to suspect its origin.

WHAT IS THE RELATION OF TRAUMA TO BONE TUBERCULOSIS?

DR. H. AUGUSTUS WILSON, Philadelphia: The greatest confusion exists as to trauma causing bone tuberculosis. It is important that the conflicting statements should be analyzed. If severe injuries do not cause bone tuberculosis, why do trivial ones? What is trivial trauma? Formerly, sprains were considered trivial; now the radiograph has proven that in many instances sprains are, in reality, fractures. Trauma is not considered a cause of tuberculosis in other structures than the bone.

DISCUSSION.

DR. JAMES K. YOUNG, Philadelphia: Coming from such eminent authority, the statement that trauma has nothing to do with bone tuberculosis may be misleading. Most authorities believe that trauma has something to do with the production of tuberculosis in the joint.

FURTHER REPORT OF BONE-GRAFT IN ORTHOPEDIC SURGERY.

DR. FRED H. ALBEE, New York: This paper is a continuation of my report of last year on bone-grafting in the treatment of club-foot, pseudoarthrosis and Pott's disease. I will show some slides demonstrating the satisfactory results with this treatment.

DISCUSSION.

DR. H. P. GALLOWAY, Manitoba: I have had very satisfactory results with Dr. Albee's operation, and have used it in eight cases. I use it as a routine measure in cases of ununited fracture of the spine. We have adopted much less elaborate means of fixation than Dr. Albee employs, and have had no difficulty in getting satisfactory union.

DR. WALTER TRUSLOW, Brooklyn: I had one case of bone-graft in the hospital, which got out of my hands, and I was unable to follow it up. Later, another hospital found this patient with all the old symptoms present, and upon taking a careful x-ray picture, they reported that they could find no sign of the graft remaining. I think that that graft could not have been taken thick enough.

NEGLECTED INFANTILE PARALYSIS.

DR. WALLACE BLANCHARD, Chicago: Paralytic club-foot is the most frequent deformity. Its prevention gives far better ultimate results than can be possibly obtained by any of the operative and mechanical treatments. The large number of paralytic club-feet seen in every large clinic emphasizes the vast amount of neglect in these cases.

DISCUSSION.

DR. C. L. STARR, Toronto: My colleague, Dr. Gallie, is largely responsible for the splendid work we are doing along this line. Take a case of talipes, for instance, instead of putting the silk in and attaching the tendo Achilles to the heel, we flex the foot to a right angle and split the periosteum at the tibia sufficiently to place the tendo Achilles in it.

Fastening it in there pulls the foot absolutely into the position of straight-foot and does the business. This method is adapted to almost any type of paralytic condition.

Dr. Walter Truslow, Brooklyn: I should like to state that the use of a long plaster-of-Paris dressing from the upper third of the spine to the toes acts automatically in overcoming these contractions of the hip flexors and abductors.

Dr. E. G. Abbott, Portland: I have made muscle transplantations in many hundreds of cases, and in the majority I have had success, particularly in connection with the foot. I have never had any trouble in getting proper alignment of the bone.

Dr. R. E. Soule, New York: I have lately developed, what I believe to be a very advantageous procedure for the treatment of the joint in acquired valgus of the foot. We can restore the foot almost absolutely by anchoring it to the astralagus. I have been able by this method, to remove all supports or correcting apparatus, and the patients have had only a slightly perceptible limp.

Dr. B. E. McKenzie, Toronto: I tried the method spoken of by Dr. Truslow and without success, on a case a few months ago; so later I made an extensive section of the muscles in the front by open incision, keeping the child recumbent with the lordosis fully corrected in plaster until the healing had occurred. Since then I have followed that practice exclusively, and have had good results.

Dr. A. H. Freiburg, Cincinnati: I believe we are much too precipitate in our determination to operate in neglected cases of this disease. I do not decide on a tendon transplantation, particularly in the lower extremity, until four to six months of mechanical and massage treatment have been gone through with.

Dr. Wallace Blanchard, Chicago: The orthopedic surgeon should be called early in cases of infantile paralysis, and the prevention of these deformities will be a matter that will be accomplished.

The following officers were elected for the ensuing year: President, G. G. Davis, Philadelphia; First Vice President, Dr. T. L. Starr, Toronto; Second Vice President, Dr. L. W. Ely, Denver; Secretary, Ralph R. Fitch, Rochester, N. Y.; Treasurer, Dr. John L. Porter, Chicago. The place of meeting next year is to be Philadelphia, Pa.

Book Reviews.

Studies in Small-Pox and Vaccination. By William Hanna, M.A., M.D., D.P.H., Assistant Medical Officer of Health for the Port of Liverpool. New York: William Wood and Company. 1913.

This admirable British work is a valuable contribution to the literature of variola and vaccinia. The author's position as visiting physician to the Isolation Hospital at the Port of Liverpool, England, has given him rich opportunity to study small-pox among the many aliens who pass through that great shipping centre. The first part of his work is "a statistical study of 1163 cases of small-pox, with special reference to vaccination in modifying the disease"; the second is "an analysis of 943 cases of small-pox (with primary vaccination) in relation to scar-area and severity of disease"; the third treats of the interaction of concurrent small-pox and vaccination, a very interesting and important subject. The conclusions are succinctly stated under eight headings. The book is beautifully illustrated by three diagrams in the text, four tables, five charts, and twenty-five full-page plates representing actual cases of small-pox in various stages of the disease. The latter should prove not only of great value to practitioners, but also eloquent arguments, like the statistics of the text, for use with anti-vaccinationists, parents, and other conscientious or ignorant objectors.

Gonorrhea in Women. Its Pathology, Symptomatology, Diagnosis, and Treatment: By Charles C. Norris, M.D., Instructor in Gynecology at the University of Pennsylvania. Octavo of 521 pages, illustrated. Philadelphia and London: W. B. Saunders Company. 1913.

The importance of gonorrhea is not widely recognized, and this book does a valuable service in calling attention to and emphasizing the fact that gonorrheal infection is a serious menace to society and constitutes a grave economic burden, the cost of which it is difficult to estimate. Since the means of transmission of the disease and its indefinite spread are chiefly illicit sexual intercourse, eradication seems impossible. But the control of a disease caused by a specific germ may prove less difficult than the legislative enforcement of morality.

The subject is dealt with from every point of view in this valuable treatise which presents a summary of the most important literature. The wealth of bibliographical references, from which judicious selection has been made, indicates a thorough study of these sources of information. The opening historical chapter is very entertaining and is followed by comprehensive chapters on bacteriology, the pathological changes produced by the gonococcus in the female genitalia and the pathogenesis of the disease. The next group of chapters treats of the sociological aspect, discussing especially prostitution and the moot question of prophylaxis. Detailed description of the disease in the various parts of the female genital system, the clinical course and treatment are comprised in several following chapters and then the more unusual manifestations and remote complications are taken up. The book deserves a large circulation and wide use as a work of reference.

A word of protest may not be out of place as to some literary aspects of the book. It does not become a teacher in a university to use such expressions as "skenitis," "bartholinitis" and "nature has been allowed to cure as much of the

pathology as possible'' (page 282). Science exacts precision and accuracy and demands that a distinction be made between disease and knowledge of disease.

Pericardial Effusions. By DR. GERMAIN BLECHMANN. Paris: J. B. Baillière and Son. 1913.

This volume is an exhaustive clinical and therapeutic study of pericardial effusions by a young French internist and pediatrician. It is divided into five parts, the first being the report of a fatal case of pneumococcic pericarditis with purulent effusion, which gave occasion to the work. The second part deals with etiology; the third with functional symptoms, physical and general signs; the fourth with clinical forms, diagnosis, complications, and prognosis; the fifth with treatment. In this fifth part, the author describes, and advocates as the most rational, simple, and sure mode of pericardial puncture, the sub-xiphoid, epigastric method practised by Marfau at the Hospital for Sick Children, Paris. In summarizing the therapeutic indications, he believes that exploratory diagnostic puncture is always indicated, that puncture alone is indicated in all serous and hemorrhagic pericardial effusions, puncture or pericardotomy without drainage in tuberculous effusions, and pericardotomy with drainage in purulent effusions. In an appendix he reports seventeen experimental epigastric pericardial punctures on cadavera, and 39 additional illustrative cases from the literature. The book concludes with a complete alphabetic bibliography of 472 titles. The work, which is illustrated by four tables and 40 figures in the text, is a model of Gallic lucidity and scientific thoroughness and should be valuable to practitioners as a compendium of information on this important and grave condition.

Sex, Its Origin and Determination. A Study of the Metabolic Cycle and Its Influence in the Origin and Determination of Sex, the Course of Acute Disease, Parturition, etc. By THOMAS E. REED, M.D., Middletown, Ohio, U. S. A. New York: Rebman Company, Herald Square Building, 141-145 West 36th Street.

The author's thesis is that sex is determined at fertilization, by the phase of metabolic activity of the germ plasm. He recognizes an active or catabolic, and a passive or anabolic phase. If fertilization takes place in the former, the male sex results; if in the latter, the female. This hypothesis meets the two tests by which he overthrows every theory of sex determination with which he is familiar. It explains why the sexes are approximately equal in number, and how single and double ovum twins occur. Single ovum twins are always of one sex, while double ovum twins may be of different sexes. The latter condition arises as the result of two fertilizations which may occur in one metabolic phase, giving twins of one sex, or in consecutive phases, giving twins of different sexes.

The active and passive phases correspond to the flow and ebb of the lunar tides, which have, however, now no causal relationship, but which formerly, long ago, when in the progress of evolution, man's ancestors were emerging from aquatic to amphibious life, were of vast importance for then the tidal changes were the determining environment of their existence. This rhythmic succession of active and passive phases is present in all animal life.

The book contains much biological information, and is the result of over forty years of observation, reading and study. The arguments presented by the author to support his views cannot be discussed at length here. Though interesting, they suggest many obvious questions and do not bring conviction. The opening words of Chapter IX, page 178, suggest the character of the logic: ''We are now in a position where it may be assumed as proved that'' and so forth. In addition to the author's views, the book gives an interesting summary of the chief theories of sex-determination and references to the literature.

The Practice of Urology. A Surgical Treatise on Genito-Urinary Diseases Including Syphilis. By CHARLES H. CHETWOOD, M.D., LL.D. New York: William Wood and Company. 1913.

The author states in his preface that the object of his work is to propagate what he considers to be orthodox teaching upon the subjects treated in the volume. He further states that the characteristic features embodied in the work which give to it a modern status are: the present local treatment of gonorrhea, the application of serum diagnosis and serum therapy, advancement in cystoscopic and functional renal diagnosis and the latest on salvarsan therapy.

The work begins with diagnosis and general technic, which subjects are followed by abnormalities and diseases of different anatomical regions, the operative surgery being subdivided in similar manner, the book being concluded by a treatise on syphilis, to which one hundred pages of the total seven hundred and ninety-five are devoted, the last thirty dealing with the modern treatment of the disease.

It is impossible, of course, to include in thoroughly detailed form every subject connected with the surgery of the genito-urinary organs and syphilis in a volume of seven hundred and ninety-five pages. In some special chapters of the work the author has compressed his subjects into very small space, such at appears in that dealing with

tumors of the testicle and epididymis to which but little more than two pages are devoted, and again to tumors of the kidney and ureter which is dealt with in eleven short pages, while the subject of tumors of the bladder receives but seven or eight pages. Yet it is remarkable how much information of an essential sort is contained in the small space given to these particular themes, and we are glad to note on the other hand the most thorough manner in which certain other subjects are discussed. Examples of this are seen in the chapters on the subjects of gonorrhea, hypertrophy of the prostate, and above all in the chapters dealing with bacterial infections of the kidney, which seem to us to be perhaps the best in the whole work, especially that part of the subject which is included under the heading of unilateral septic renal infarcts.

The salvarsan method of treatment is admirably presented at the end of the volume. The author is a believer in repeated doses at weekly intervals to the number of three or four and a second course of the same number, if required by a continued positive Wassermann test, or the occurrence of symptoms. He also favors the additional use of intensive mercurial treatment following the salvarsan administration.

In the first part of the work the diagnostic measures, including cystoscopy, ureteral catheterization, radiography and serum diagnosis, as well as the instrumental armamentarium of the genito-urinary specialist are thoroughly described.

Taken as a whole we must say that this volume of Chetwood is certainly as good as any extant work relating to its special field of surgery. It has our hearty commendation.

Preventive Medicine and Hygiene. By Milton J. Rosenau, Professor of Preventive Medicine and Hygiene, Harvard; formerly Director of the Hygienic Laboratory, U. S. Public Health Service. One hundred and fifty-seven illustrations. pp. 1,034. New York and London: D. Appleton and Company. 1913.

Professor Rosenau's wide experience as quarantine officer, as an investigator during the prevalence of unusual outbreaks of disease and as an administrator in the suppression of such outbreaks, and his well-known accomplishments in public health laboratories, at home, on the continent, and in the tropics, qualify him as a high authority on all subjects that he discusses. His arrangement of material and selection of illustrations deserve special commendation, while his easy and pleasing style of writing compels attention. Interesting and important historical facts are included without wearying the reader, and give a breadth of view that should appeal to all.

The physician who continues the old custom of scarification or "cross scratching" for the introduction of vaccine virus, a custom prohibited in Germany for sixteen years, will scarcely appreciate the author's reference to a typical vaccine scar as a "sanitary dimple," and he may even be surprised to learn that most of the cases of tetanus complicating vaccination occur in persons in which scarification is used; but he cannot read the thirty odd pages on small-pox and vaccination without realizing his own ignorance of the subject.

The physician who is not sure that he knows how to make the diagnosis of rabies, how to treat the wounds properly, what the Pasteur prophylactic treatment really is, and when to give it, will, if he familiarizes himself with the subject as it is presented, feel that the book has already paid for itself. The prophylaxis of venereal diseases and sex hygiene is ably and sensibly discussed.

Among the kinds of "preventable blindness" is considered ophthalmia neonatorum, a disease which physicians still in many instances look upon lightly. The author's definition of this disease should be of great assistance in clarifying the minds of those physicians and health officials who have doubts as to what the disease is and when it should be reported

Typhoid fever, cholera, dysentery, and hookworm disease represent by the author's classification those diseases which are spread through the intestinal discharges. The diagnosis and methods of the spread of typhoid fever and cholera, the immunity from these diseases produced by protective inoculations, and all the measures necessary to prevent the spread of infection, are clearly and thoroughly dealt with. The necessity of including dysentery among the notifiable diseases is pointed out, and boards of health are urged to furnish physicians with laboratory aid to assist diagnosis. Tuberculosis, diphtheria, measles, scarlet fever, whooping cough, mumps, lobar pneumonia, influenza, common colds, and cerebro-spinal fever are considered, in the order mentioned, as diseases that are spread largely through discharges from the nose and mouth.

The chapter on insect-borne diseases and that on miscellaneous diseases, including infantile paralysis, complete the first section of the first part of the book. This section is followed by a thorough discussion of the problems relating to immunity, heredity and eugenics, all of which deal with the person (hygiene) as contrasted with the environment (sanitation). The second part of the book deals entirely with the essentials of sanitation or practical hygiene.

The list of references to articles and books on various subjects is not so complete as one might desire,—particularly is this true of ventilating and heating and of industrial hygiene and diseases of occupation, subjects which are demanding constantly increasing attention on the part of physicians, health officials and the public.

It should be said for the benefit of those engaged in sanitary engineering that Professor George C. Whipple of Harvard University has furnished most instructive and useful chapters on sewage and refuse disposal. Other contributors to the volume are Dr. Charles Wardwell Stiles on the relation of parasites to soil, Dr. Cressy L. Wilbur on vital statistics, and Dr. Thomas W. Salmon on mental diseases.

Consumption in General Practice. By H. HYSLOP THOMSON, M.D., D. P. H., Medical Superintendent Liverpool Sanatorium. Oxford University Press, 1912.

Die ambulante Therapie der Lungentuberkulose und ihre haufigsten Komplikationen. By DR KARL BLÜMEL, Spezialarzt für Lungen und Halskrankheiten in Halle a. S. Berlin: Urban and Schwarzenberg. 1913.

One would naturally infer from the title of Dr. Thomson's book that it dealt with the treatment of tuberculosis in private practice, in other words, with home treatment. As a matter of fact it describes the methods carried on by the writer in a large sanatorium. Near the end of the volume is a page devoted to the care of the patient's sleeping-room and a paragraph to home treatment. The author instructs that "the patient should spend as much time as possible in the open air at rest in the garden, or if there is no garden, in an adjoining park or field, when not at rest, walking exercise or some form of out-door recreation should be undertaken." The result of following such vague indefinite advice has in the reviewer's experience repeatedly led to disaster that might have been averted if the patients had been kept in bed out of doors. The importance of sleeping in the open air is not mentioned.

Thomson's work is divided into three sections. The first deals with diagnosis, the second with prognosis, and the third with treatment.

In the chapters on diagnosis there is much that can be justly criticized. A serious error is the statement that 0.1 c.c. of old tuberculin or tuberculin T. R. may be used as an initial dose in making the subcutaneous test. This is 1000 times the dose of old tuberculin recommended by Koch and ten times the maximum amount used for diagnostic purposes.

Throughout the work the writer shows a lack of critical judgment and a lack of knowledge of the literature of his subject. His discussion of the tuberculo-opsonic index, for example, shows both of these defects. The tubercle-opsonic index is of great value, he says, in confirming the diagnosis of tuberculosis. "From the practical standpoint the most important of Wright's conclusions is that a departure from the normal health index of 0.8 to 1.2 indicates the presence of tuberculosis." Very important if true, and a discovery that might be of great aid in the diagnosis of doubtful cases, but the observations of Bulloch, Birkett, Simon, Cole, Potter, Ross, Thomas and others have shown that a departure from the normal opsonic index does not necessarily indicate the presence of tuberculosis.

The author devotes nearly a page to animal inoculation with sputum as a means of diagnosis, but he does not describe the antiformin method of examining sputum. The albumin reaction of the sputum in tuberculosis, to which so much attention has been paid during the past two years, is not mentioned.

Very little emphasis is placed on the rest treatment. If there is a persistent evening rise to 99° "or a little higher" uninfluenced by prolonged rest, graduated walking exercise is advised. He accepts without question the theory of auto-inoculation and this forms the basis of an important part of the treatment he advocates. According to this theory patients without fever by exercise inoculate themselves with small doses of tuberculin. This raises the opsonic index and is supposed to have a curative action. Patients begin with "short" walks and if the temperature is not elevated and no untoward symptoms develop, the length of the walks is gradually increased. Later manual labor is prescribed.

The author is a warm supporter of the tuberculin treatment. The reviewer has been interested in comparing the treatise by the German physician Blümel with that of the English physician Thomson.

Blümel has had extensive experience in the treatment of pulmonary tuberculosis in private practice as well as in the Göbersdorf sanatorium. The book fulfils its claim to be written "*aus der Praxis für die Praxis.*"

Blümel makes it clear in the first sentence of the first chapter that the ambulatory treatment of consumption is indicated only in afebrile cases, but the book will be found to contain much that is helpful to all physicians engaged in the treatment of pulmonary tuberculosis. None of the defects mentioned in Thomson's work are found in this German manual. Blümel exhibits in his work critical ability and scholarly familiarity with the recent literature of tuberculosis. It presents the latest knowledge of the subject clearly and systematically. The practical value of the book is enhanced by the results of the author's own clinical observations in the form of case records and temperature charts. Clear detailed directions are given for carrying out the hygienic dietetic treatment. The importance of rest is recognized. Only a few lines are devoted to auto-inoculation by exercise and the danger associated with this form of treatment is pointed out. Treatment by artificial pneumothorax and extra-pleural thoracoplasty are considered in a short section. Much space is devoted to tuberculin therapy and the subject is well presented.

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HEREDITY IN THE HALL OF FAME.

There are forty-six men honored by tablets in the Hall of Fame. Hitherto the lives and antecedents of these men have afforded material for those moralists and advisers of youth who proudly assert that in this land of equal opportunity the gateway to fame is open to all alike. Now the calm critical eye of the eugenist has viewed the family histories of all those duly elected *Famous,* and the impressions which he has received serve to convince him that heredity rather than equality of opportunity has been the factor which has determined their unusual success in life. In the May issue of the *Popular Science Monthly* Frederick Adams Woods tabulates the results of his investigation of the antecedents of the immortal forty-six.[1] By using the 3500 Americans who are afforded separate biographical sketches in Jameson's "Dictionary of United States History," and Lippincott's "Biographical Dictionary of the World" as standards of eminence Dr. Woods has ascertained that twenty-six of the occupants of the Hall of Fame average more than two relations apiece who are mentioned in this prominent manner. According to this test the following great men all show without exception the presence of a superior germ plasm which was shared by eminent relatives. This is the list: George Washington, Thomas Jefferson, John Marshall, Abraham Lincoln, Daniel Webster, Benjamin Franklin, Alexander Hamilton, Washington Irving, Louis Agassiz, Jonathan Edwards, S. F. B. Morse, Henry Clay, Peter Cooper, Oliver Wendell Holmes, Robert E. Lee, James Kent, Henry Ward Beecher, Joseph Story, John Adams, John Quincy Adams, James Fenimore Cooper, James Russell Lowell, William Cullen Bryant, William Ellery Channing, William Tecumseh Sherman and George Bancroft. In total eminent relationships these men tally fifty-seven, which is, according to Woods, from five hundred to one thousand times what random expectation calls for. He claims that this proportion exists the world over. For ordinary mortals about one in five hundred claim relationship with an "eminent" man, but for men of the highest caliber one in two or better show relationship with other distinguished individuals. An investigation of the personalities and pedigrees of some three thousand members of the royal families of Europe has further confirmed him in the belief that at least more than half of all great names are closely associated by blood with those of a similar stamp. In the words of the author this means that "the vast horde (say ninety-nine per cent. of the whole) is no more likely to produce a man of genius than is the one per cent. (or less than one per cent.) which, from the standpoint of eugenics, we rightly call the *creme de la creme.*"

In connection with the increasing tendency to relegate free will and environment to the background in the formation of character and genius it is well to remember that somehow and in some way these great strains of genius must have had a start.

In the words of Tredgold "the environment of today is the heredity of tomorrow."[2] This remark is made by him with special reference to the manner in which feeble-minded strains are started. He explains how a bad manner of life, bad habits, alcoholism, syphilis, and tuberculosis and other great depressing influences may so affect the general metabolism that the germ cells are themselves seriously damaged. This results not in the birth of a profoundly mentally deficient offspring in the first instance, but rather in one of a simple nervous instability. Should the neuropath who has thus been created *de novo,* as it were, marry another of like kind, the probability of the offspring being still more unstable would be increased and thus gradually the feeble-minded or insane stock would be firmly established. This is a common sense view to take of the subject of the heredity of mental defects.

[1] Frederick Adams Woods, Heredity in the Hall of Fame, Pop. Science Monthly, May, 1913.

[2] A. F. Tredgold, Mental Deficiency, p. 36.

It is in keeping with the every-day experience of practising physicians that the mental and bodily vigor of the offspring of alcoholic and phthisical parents is decidedly inferior to that of children of healthy parentage. Thus in the matter of feeble-mindedness there is no doubt among practical men that environment is an important factor in the establishment of a bad heredity. If this be true for the low grades of intellect it would seem at first thought reasonable to suppose that it would follow as a natural corollary for the higher. Comforting and desirable as such an explanation would be, the biological evidence in its favor is lacking. But even though there be not a single argument to show that ideal surroundings are in themselves capable of initiating genius there is a great deal to be said in favor of the view that they are very important factors in its complete manifestation. Thus it is held by Professor Patton that while the inheritance of positive characters follow inflexible biological laws, the release of these characters can only take place under the stimulus of a suitable environment.[3] Therefore, while equal opportunities will never suffice to make men equal it is nevertheless true that the best opportunities are absolutely essential for the best efforts of the best men. Close analysis, therefore, only tends to strengthen the view that the long demonstrated practical value of a good environment is after all found to rest upon a sound scientific basis. In the case of bad blood strains it lessens the danger of still further injury to the already impoverished germ plasm and decreases the opportunities for the manifestation of the evil genius. In the good strains it not only preserves the germ plasm from injury and thus insures its transmission to future generations, but it affords opportunity for the exercise of that genius in the immediate present.

Ambition would be killed by a too strict interpretation of the theories of the eugenists. For if it is all a matter of heredity any way, one might well be pardoned for assuming the attitude of the fatalist. If one has no great or remarkable relatives why should he try himself to amount to anything? If it is not in the blood how can he hope to put it there? These are questions which common sense will solve in a hopeful manner. In the first place how is one to know that the elements of greatness are really not in one's blood? Men may have a better ancestry than they think. In the second place, and this is of far greater importance, conscious efforts to improve conditions will surely better the race in the long run, for improved conditions mean increased opportunities for latent genius to become manifest and thus increase the sum total of good strains in action.

Thus, when interpreted in its broader aspects, the dictum of Tredgold that "the environment of today is the heredity of tomorrow" will be no less true of the good than of the bad.

[3] S. N. Patton, Popular Science Monthly, August, 1913.

BATTLESHIPS AS TUBERCULOSIS SANATORIA.

IN another column of the JOURNAL we print resolutions passed at the recent Congress on School Hygiene concerning the utilization of discarded battleships as sanatoria for the tuberculous. It is increasingly evident that more facilities for this purpose are needed if the demands for the care of tuberculous persons are to be met. Dr. Knopf has suggested that battleships, no longer of value for the purpose for which they were constructed, might be used for the more peaceful object of providing sanatoria for the sick as has been done by the Italian government. It may be forthwith admitted that a discarded battleship is of relatively little value and if it may be used for any distinct purpose it would seem reasonable that the matter should be taken under very serious consideration. No one, however, would be inclined to maintain that a vessel built primarily for purposes of war is an ideal hospital ship. In fact a battleship would perhaps be the last variety of vessel to choose for such a purpose since it would naturally be necessary either to remodel it in order to provide the requisite fresh air and commodiousness obviously lacking in vessels of this type. This objection has been raised on the ground of expense but it is Dr. Knopf's opinion that the cost would be very much less than to provide adequate sanatoria on land. Furthermore the use of ships for this purpose would obviate the common prejudice against the establishment of institutions for the tuberculous in the neighborhood of cities or towns. While, therefore, it may be regretted that other vessels are not available for this purpose we can see much to recommend in the proposition made by Dr. Knopf. Should the plan go into effect and prove feasible we can easily see that it might well be the beginning of

a more extended use of floating hospitals for tuberculosis. There are, no doubt, many other vessels no longer properly available for traffic which might well be utilized and, furthermore, owners might be willing to dispose of suitable vessels for such a humanitarian purpose while still in a seaworthy condition and perhaps sooner than they would do were they simply to be destroyed. The change which has come over our attitude toward the treatment of the tuberculous within the past few years is admirably exemplified by this proposal of an expert in the treatment of tuberculosis. As pointed out by Dr. Vincent Y. Bowditch and others some years ago the location of a sanatorium is of less importance than free access to fresh air and an abundance of suitable food, but that residence actually on the water is now advised is a step of much significance as indicating the broader view now being taken of rational treatment. The opinion of the congress was unanimous in favor of Dr. Knopf's idea and we certainly see no reason why the experiment, if experiment it may be called, should not be tried. That ships of war should in their old age be devoted to such a purpose will appeal to many on sentimental grounds.

TWO NEW JOURNALS.

Within two months two new journals relating to medicine have begun publication. The first of these, *The American Journal of Tropical Diseases and Preventive Medicine*, being the official organ of the American Society of Tropical Medicine is edited by Dr. Creighton Wellman. As its name implies the journal will devote its attention to the increasingly important subject of tropical diseases and the means of their prevention and importation into nontropical countries. We predict for it a future of constantly increasing usefulness.

The second journal, of which the first number has appeared this month is entitled *"The Modern Hospital,"* and concerns itself essentially with the building, equipment, and administration of sanatoriums, hospitals and allied institutions and to the problems of medical and surgical nursing. That there is need of such a journal is evidence of the increasing attention which is being paid to hospital problems and to the effort toward standardizing the work in various institutions. The following figures taken from the initial editorial of the first number is suggestive of the place which the new hospital holds in the life of the community.

"There are in the United States 6665 institutions of record for the care of the sick, with a total capacity of more than 600,000 beds. By a modest estimate, these huge figures represent a money investment in land, buildings, and equipment of not less than $1,500,000,000, and an annual outlay for maintenance approaching $250,000,000. On the human side, there are more than 100,000 trustees of hosiptals, and more than 65,000 physicians on hospital medical staffs. About 10,000,000 men and women contribute annually to hospital funds, and approximately 9,000,000 men, women, and children are patients in the hospitals in the course of each year."

Such a work as this should be done in the best possible way and we have no doubt that this new journal will materially help toward this end.

MEDICAL NOTES.

A Much-Operated-Upon Man.—A man of twenty-five living in Yuma, Mich., is reported to have undergone his twenty-fourth surgical operation in a period of ten years. During that period he has lost one arm and one leg, one eye and has also had appendicitis.

Trip to Panama.—In connection with the forthcoming thirty-ninth annual meeting of the Mississippi Valley Medical Association at New Orleans a special trip to Panama has been arranged. For this purpose a steamer of the United Fruit Company has been chartered, leaving New Orleans on October 25th immediately after the close of the scientific meeting.

Lane Medical Lectures.—The fourteenth course of Lane Medical Lectures was delivered at the Medical Department, Leland Stanford, Jr., University, San Francisco, by Sir Edward A. Schäfer, professor of physiology in the University of Edinburgh, last week, as follows: On internal secretion in general; On the thyro-parathyroid glands; On the adrenal glandular apparatus; On the pituitary body, and The influence of internal on other secretions.

This course of lectures was founded in 1896 by the late Dr. Levi Cooper Lane and consist in

"a free course of lectures on medical subjects by men distinguished at home or abroad for their work in either medicine or surgery and are intended for medical students and the medical profession at large." Previous lecturers have been Sir William Macewen, Christopher Heath, F.R.C.S., Sir Thomas Clifford Allbutt, Dr. Nicholas Senn, Sir Michael Foster, Sir Malcolm Morris, Sir Charles B. Ball, Dr. Oscar H. Ellis, Dr. William H. Welch, Sir Patrick Manson, Dr. John C. McVail, Dr. Reginald H. Fitz and Dr. Ernest Fuchs.

PERMANENT COMMISSION OF EIGHTEENTH INTERNATIONAL CONGRESS OF MEDICINE.—The following men have been elected the permanent commission for the International Medical Congress which is to be held in Munich in 1917. President, Friedrich von Müller of Munich; vice-presidents, M. Calman Müller of Budapest and Sir Thomas Barlow, president of the recent seventeenth congress; secretary general, M. H. Berger of Amsterdam; assistant secretary, D. Ph. van der Haer of The Hague; member, M. L. Dejace of Liège who is president of the International Association of the Medical Press.

BOSTON AND NEW ENGLAND.

MILK AND BABY HYGIENE ASSOCIATION.—The director of the Boston Milk and Baby Hygiene Association has reported that the month of August established a new record for the care of infants in the tenement districts. The number helped was 1669, being 30 per cent. more than in August, 1912. An average of ten new patients was treated each day.

INFECTIOUS DISEASES.—Cases of infectious diseases reported to the Boston Board of Health for the week ending August 26, 1913: Diphtheria 37, of which 5 were non-resident; scarlatina 10; typhoid fever 9, of which 2 were non-resident; measles, 13; tuberculosis 36, of which 2 were non-resident.

The death-rate of the reported deaths for the week was 16.38.

MORTALITY RECORD.—The State Board of Health reports deaths in Massachusetts cities and towns of more than ten thousand population, for week ending Aug. 23, from pulmonary tuberculosis: Boston, 14; Fall River, 6; Cambridge, Haverhill, Everett and Attleboro, 2 each; Worcester, Lowell, Springfield, Malden, Fitchburg, Leominster, Westfield and Peabody, 1 each. From diphtheria: Boston and Springfield, 2 each; Worcester and Somerville, 1 each. From typhoid fever: Springfield, 3; Lynn and Pittsfield, 1 each. From whooping cough: Fall River, 2; Boston, Brockton and Chelsea, 1 each. Death under five years: Fall River, 25; Lynn, 7; Adams and Southbridge, 2 each; Clinton, 1.

NEW YORK.

MEETING OF AMERICAN VETERINARY ASSOCIATION.—The American Veterinary Medical Association has this week been celebrating its fiftieth anniversary and holding its annual meeting at the Hotel Astor. It was organized on June 9, 1863, at the old Astor House, on lower Broadway, which is now about to be torn down, and only one of the founders is living, Dr. Alexander Liautard, who was long at the head of his profession in New York and now resides in Paris. It was expected that he would be present and make an address, but the illness of his wife prevented his coming. He, therefore, sent a letter giving a history of the society. Some 2000 delegates have been in attendance, and at the opening session, on September 1, the president, Dr. John R. Mohler, acting chief of the government bureau of animal industry, delivered an able address, in which he reviewed the revolution in veterinary practice resulting from the scientific advances of the past twenty-five years. Most of the diseases observed in man, he said, affect also domestic animals, and the work done in the domain of infectious diseases has shown how advantageous, and even necessary, is the coöperation of the veterinarian and the physician. Incidentally he remarked that the United States meat inspection service constitutes the largest piece of veterinary administrative work in the world; inspection being maintained in 786 establishments in 222 cities and towns, and requiring the services of about 2500 employees, including a large proportion of veterinarians.

PROF. SAMBON IN NEW YORK.—Prof. Louis Sambon, head of the Tropical School of Medicine in London, recently arrived in New York, on his way to Spartanburg, S. C., where he is to lecture before the pellagra commission and make personal studies of pellagra as it exists in South Carolina. Professor Sambon states that when

he expressed the opinion that pellagra existed in England and Scotland the medical profession ridiculed the idea, but within five months he discovered 53 cases of the disease in hospitals and insane asylums; and he believes there are doubtless many more to be found there. Now, he says, the British government, realizing the danger of pellagra spreading and helping to increase the number of the insane, has appointed a special commission to study the disease in the localities where it has disappeared.

Eyeglasses for Poor Children.—It is stated that Dr. B. L. Becker of New York has offered through the Board of Education to provide 3000 pairs of eyeglasses to school children with defective eyesight if such children were sent to his office with the proper order from principals, teachers or visiting school nurses. Dr. Becker's generosity is in part explained by the fact that he himself has risen from a poor east side boy to a position of distinction. It is evident that the problem of defective eyesight among poor children is not met by a mere determination of the defect, and the remedy being a matter of considerable expense has naturally been difficult to provide.

Clinical Department.

Medical Record.

August 9, 1913.

1. Mears, J. E. *The Problem of the Social Evil Considered in Its Social and Medical Aspects and in Its Relation to the Problem of Race Betterment.*
2. Reuben, M. S. *Infant Mortality.*
3. Stein, J. B. *Authoritative Diagnosis of Gonorrheal Stomatitis.*
4. Meding, C. B. *A Glimpse of Indian Hospitals.*
5. *Van Riempst, T. S. *Personal Experience with Neosalvarsan.*
6. Warbrick, J. C. *Indicanuria, the Feces, and the Sulphates of the Urine.*
7. Brewer, I. W. *Tuberculosis in the United States Navy.*
8. Berlin, W. C. K. *Pneumonia, Immediate and Contributing Cause of Death; Rational Treatment.*

5. Van Riempst gives some personal experiences with neosalvarsan. He has found it preferable to salvarsan on account of its equal efficacy, lesser toxicity and easier mode of administration. In early syphilis timely injection can prevent the appearance of secondaries. Neosalvarsan is not a positive cure for syphilis, but is superior to mercury, potassium iodide, or mixed treatment, and should always be resorted to when lesions persist under such treatment. The intervals between injections should never be shorter than a week. The writer adds that the introduction of a little air into the vein has no deleterious effect on the patient. [L. D. C.]

New York Medical Journal.

August 9, 1913.

1. *Whitmore, E. R. *Dysentery in the Tropics.*
2. Herrman, C. *Acute Infections Jaundice in Children.*
3. White, C. S. *Retrocalcanean Bursitis.*
4. Stanton, E. M. *A Combined Cystoscope and Evacuator.*
5. Goodhue, E. S. *The Surgical Cure of Leprosy, Based on a New Theory of Infection.*
6. Solis-Cohen, M. *The Use of a Very Minute Initial Dose in Tuberculin Therapy.*
7. Goodman, E. H. *A Case of Acute Dilatation of the Stomach Complicating Pneumonia.*
8. Kahn, L. M. *Chronic Intestinal Stasis.*
9. Alexander, R. M. *Polycythemia; with Report of a Case in an Insane Patient.*
10. Condon, A. P. *Unilateral Septic Infection of the Kidney.*

1. Major Whitmore of the Medical Corps, U. S. A., discusses the important differences between the two types of dysentery seen in the tropics. Amebic dysentery, he says, is endemic and does not ordinarily give rise to epidemics, while bacillary occurs in extensive epidemics. In amebic dysentery the process begins in the submucosa from the specific destructive property of the amebae which have penetrated the mucosa primarily. Amebic dysentery tends to become chronic with relapses, while bacillary dysentery is a self-limited disease with tendency to complete recovery. Liver abscess is common in amebic dysentery, rare in the bacillary form. Emetine is a specific for amebic dysentery. In the bacillary form, best results are obtained with sera. [L. D. C.]

The Journal of the American Medical Association.

August 23, 1913.

1. Wilber, R. L. *The Teaching of Therapeutics.*
2. Adami, J. G. *The Future of the Medical Man.*
3. Clarke, W. C. *Surgical Pathology.*
4. Wishart, J. S., Richardson, C. W., and Smith, S. M. *Teaching of Otolaryngology. Report of Committee Appointed to Consider the Best Methods to be Followed in the Teaching of Otolaryngology in Undergraduate and Postgraduate Schools.*
5. Adair, F. L. *Care of the Umbilical Stump. A Bacteriologic Study.*
6. *Mayo, W. J. *Operative Treatment of Cancer of the Stomach.*
7. Horsley, J. S. *Experimental Transplantation of Intestine after Extensive Excision of the Sigmoid.*
8. *Pfahler, G. E. *The Healing Process of Osteosarcoma Under the Influence of the Roentgen Rays.*
9. *Pusey, W. A. *What Can Be Done in Cancer With Roentgen Rays?*
10. Lange, S. *Roentgenotherapy in Measured Massive Doses.*
11. *Neff, M. *The Minimizing of Insanity.*
12. Gengenbach, F. P. *Precocious Menstruation.*
13. Hachtel, F. W. *The Use of Blood-Agar in the Routine Examination of Milk Sediments.*

6. Mayo states that with our present means of diagnosis cancer of the pyloric end of the stomach can be recognized sufficiently early to perform the radical operation in at least one half of the cases. The mortality is about 10 per cent.; depending largely

on the class of cases accepted for operation. With early diagnosis and the patient in good condition, the mortality will be less than 5 per cent. There is a prospect of a five year cure in about 25 per cent. and of a three year cure in 38 per cent., in those recovering from operation. Comparatively few patients who recover fail to get more than one year of relief following resection.

8. Pfahler: Osteosarcoma heals by a progressive deposit of lime salts in the tumor areas until these areas attain the solidity and density of normal bone. This process usually begins within a month and is progressive for a year or more, continuing long after the roentgenotherapy has been discontinued. In twelve cases treated, including the inoperable and recurrent, seven, or over 58 per cent., have completely recovered and remained well from 5 to 11 years. In only one case was there no improvement. Treatment should be given in any inoperable case. Where operation will result in deformity or serious loss of bone, roentgenotherapy should be tried for at least a month.

9. Pusey illustrates his article with some very marked cures. He believes the roentgen ray is an agent of great value in cutaneous epitheliomas and in localized inoperable cancers near the surface of the body. He also believes that the rays should be used as a measure of prophylaxis after operations for such growths. In deep cancer the rays are practically valueless.

11. Neff's article on Insanity is of intense practical interest and value. The author seems to have reached many fundamental underlying causes. [E. H. R.]

AUGUST 30, 1913.

1. JACOBI, A. *A Final Word to the Fellows and Members of the American Medical Association.*
2. *EASTMAN, J. R. *Fetal Peritoneal Folds and Their Relation to Postnatal Chronic and Acute Occlusions of the Large and Small Intestine.*
3. SUMMERS, J. E. *Surgical Aspects of Intestinal Stasis From an Anatomic Point of View.*
4. MOORE, R. *Preneurasthenic and Preinsane Conditions.*
5. PRATT, F. H. *Teacher and Learner in Medicine.*
6. PLUMMER, H. S. *The Clinical and Pathologic Relationships of Hyperplastic and Non-Hyperplastic Goiter.*
7. HASTINGS, T. W. *Reciprocal Relations of the Clinic and the Laboratory in Medicine.*
8. CAMP, C. D. *Epilepsy and Paresis in Railway Engineers and Firemen.*
9. ANDERSON, J. F. *The Phenol Coefficient of Certain Disinfectants.*
10. WEAVER, G. H. *Antistreptococcus Serum.*
11. COLE, R. *Treatment of Pneumonia by Means of Specific Serums.*
12. *RUSSELL, F. F. *Progress in Antityphoid Vaccination in* 1912.
13. *ELY, L. W. *Chronic Arthritis.*
14. DEAVER, J. B. *Posterior Gastroenterostomy in Acute Perforative Ulcer of the Stomach and Duodenum.*
15. GIFFIN, H. Z. *Clinical Notes on Patients From the Middle Northwest Infected With Entamebas.*
16. BRAV, A. *Sarcoma of the Chorioid. A Case With Metastasis to the Liver Eight Years After Enucleation of the Eye.*
17. *Eleventh Annual Summary of Fourth of July Injuries.*

2. Eastman's article is beautifully illustrated by numerous valuable plates of the conditions he is describing and explaining, the paper gives in a brief way an explanation of many mooted points in the discussion of these conditions.

10. Weaver's article is more an explanation of the theory and use of antistreptococcus serum, than a plea for its use.

11. Cole says that antipneumococcus serum in order to be effective must be given early, in large amounts. Since pneumonia, so far as their immunologic properties are concerned are divided into distinct groups, it is necessary in any case to administer the serum action against the group to which the organism infecting this case belongs. There is some experimental evidence that part of the action of the immune serum may be antitoxic.

12. Russell pronounces antityphoid vaccination a success in the army and navy, in hospitals, institutions and pleasure camps and urges its more general use in all civil life.

13. Ely makes the very distinct statement that every non-traumatic case of chronic arthritis is infectious in nature. The main indication for treatment is to find the focus of infection and remove it. Chronic nephritic arthritis is by no means rare. It is useless to immobilize a syphilitic joint.

[E. H. R.]

DEUTSCHE MEDIZINISCHE WOCHENSCHRIFT, No. 30.

JULY 24, 1913.

1. SCHOLTZ AND RIEBES, E. *The Combined Salvarsan and Mercury Treatment of Syphilis.*
2. *SCHOENFELD, W. *Is Psoriasis a Symptom of Chronic Tuberculosis or Syphilis.*
3. STÜMPKE, G. *Serum Treatment of Skin Disease.*
4. EWALD, A., AND FRIEDBERGER, E. *The Pathogenesis of Pernicious Anaemia.*
5. HAGEMANN, R. *The Treatment of Surgical Tuberculosis With Strong Sunlight.*
6. FRÖHLICH, W. *Research on the Light and Color Senses.*
7. BASCH, K. *The Thymus.*
8. SCHRÖDER. *The Toxicology of Alypin.*
9. SCHÖNFELD. *Treatment of Arthritis With Electargol.*
10. BÄHR, F. *Pathology of the Knee Joint.*
11. GLASER, F., AND FLIESS, H. *Pyelitis and Otitis Media in Nurslings.*
12. HEINEMANN, O. *Two Remarkable Cases of Rhinolith.*

2. By means of the tuberculin and Wassermann reactions, the author examined a series of patients with psoriasis for signs of tuberculosis and syphilis. He concludes that there is no definite evidence to indicate that psoriasis is merely a symptom of either of these diseases. [C. H. L.]

JULY 31, 1913.

1. LEDDERHOSE, G. *Subphrenic Abscess.*
2. DOLD, H., AND RADDOS, G. *The Significance of Anaphalotoxins and Allied Bodies for Pathology, Especially of the eye.*
3. OHM, R. *Venus Pulse and Heart Tone.*
4. LIPPMANN. *Comparison of Axillary and Rectal Temperature After a Forced March.*
5. RICHTER, G. *Diagnosis of Early Apical Tuberculosis of the Lungs.*
6. HOLTERDORF, A. *Tetany in Perforative Peritonitis.*
7. LEVY, L. *Perineal Infection by Typhoid Carriers.*
8. HAMMESFAHR, C. *Pseudomyxomatous Cyst of the Vermiform Process.*
9. SCAGLIOSI, G. *Polyposis Intestinalis Adenomatosa Diffusa.*
10. VALENTIN, B. *Experimental Tranplantation of Fascia.*
11. SCHLOSS, E. *Codliver Oil, Lime, and Phosphorous in the Treatment of Rachitis.*
12. MEYER, F. *Modern Roentgenotherapy.*

[C. H. L.]

MÜNCHENER MEDIZINISCHE WOCHENSCHRIFT.

No. 31. August 5, 1913.

1. Bumm, E., and Voigts, H. *The Technique of X-Ray Treatment of Carcinoma.*
2. *Kielleuthner. *Recent Progress in the Study of Prostatic Hypertrophy.*
3. Abderhalden, E., and Weil, A. *Sources of Error in Serological Diagnosis by the Dialysis Method. The Influence of Blood-Containing Organs.*
4. Klotz, R. *The Influence of Rays and Chemo-Therapy on Inoperable Carcinoma of the Uterus.*
5. Janeway, H. H. *A New Method For Gastrostomy.*
6. Ansprenger, A. *An Interesting malformation of the Male Genitalia.*
7. *Werther. *The Skin Lesions of Pyemia.*
8. Hartmann. *Tuberculin Treatment in Ambulatory Cases.*
9. Grünberg, J. *The Treatment of Lues by Potassium Cyanate of Gold.*
10. Król, J. *A Remarkable Case of Death Following Salvarsan.*
11. Jäger, F. *Tenosin.*
12. Schnée, A. *A New Practical Four Cell Bath Connection.*
13. Brüning, A. *A Simple Method of Protecting the Hands During Purulent Operations.*

2. There are two theories as to the cause of prostatic hypertrophy. Ciechanowsky and Rothschild believe that the hypertrophy is a consequence of chronic inflammatory changes in the gland by which the efferent ducts become compressed and form cysts. Casper, Young and others consider that the disease is a papillary adenoma arising from the epithelium of the gland and characterized by retention cysts.

Various methods of prophylactic treatment for this condition or treatment by medication have given negative results. Radical operations have been introduced to remove a mass which mechanically hinders urinary outflow.

The two methods of approach to the gland are by the supra-pubic or perineal incisions. Up to a short time ago it was believed that supra-pubic prostatectomy extirpated the gland. Tandler and Zuckerkandl have shown that this is a false idea. Prostatic hypertrophy involves the median lobe and that part of the gland immediately around the urethra. In the great majority of cases the prostate as a whole is not affected, but becomes atrophied by pressure forming a kind of capsule around the enlarged medium lobe.

Of the two operations, perineal prostatectomy is the more dangerous and more complete. Recent advances in the study of renal function have been of great value in prostatic operations to determine the degree of kidney involvement from back pressure. The supra-pubic operation should be made in two stages, first making a bladder fistula to relieve stasis, and later removing the tumor mass. General narcosis should be avoided. In elderly men spinal anesthesia works satisfactorily, and in very decrepit patients local or regional anesthesia.

7. Various skin lesions including erythema, purpura, papules, vesicles, abscesses and necroses appear in the course of infectious diseases. Eruptions however which can be rightly called skin lesions of pyemia are produced by bacteria directly or by thrombosis resulting from bacteria or their toxins in the circulating blood.

Werther describes four cases which he considers should be grouped together as representing a peculiar type of pyemic skin disease. The clinical picture was the same in each case and apparently of a septic nature. An identical process occurred on the face and flexor surfaces of the fingers and toes. The centre of the face was raised in butterfly form by an erythema, by extravasation of blood and by a hemorrhagic exudate. The eye-lids were edematous, the lips and external ears swollen and crusted. The palpable glands were generally enlarged and painful. Erythematous spots appeared on the fingers and toes of irregular outline, becoming hemorrhagic. In places the epidermis was raised by exudate.

Werther believes that such a clinical picture represents a type of erythema exudativum of atypical localization and of a septic or pyemic nature. Future observations in similar cases will determine whether more exact classification is possible.

[R. F.]

No. 32. Aug. 12, 1913.

1. Aschoff, L. *How Are Pure Cholesterin Stones Produced?*
2. Bodmer, H. *The Chemo-Therapy of Pulmonary Tuberculosis, Especially by Finkler's Method.*
3. Schlimpert, H., and Issel, E. *Abderhalden's Reaction With Animal Placenta and Serum.*
4. *Jungmann, P. *The Influence of the Nervous System on Renal Function.*
5. Dietlen, H. *Orthodiagraphy and Teleroentgenography as Methods For Measuring the Size of the Heart.*
6. Jüngling, O. *The Danger of Iodine Intoxication For the Surgeon When the Skin is Disinfected With the Tincture of Iodine.*
7. *Benario, J. *The Pathology and Treatment of Diabetes Insipidus.*
8. Weber, F. *A Case of Injury by Impalement.*
9. Zimbler, A. *A Case of Perforation of the Uterus.*
10. Espeut, G. *Rupture of the Uterus After Pituglandol (Hoffman-La Roche).*
11. Boecker, W. *The Operative Treatment of Chronic Edema.*
12. Heilner, E., and Petri, T. *The Artificial and Natural Production of Abderhalden's Reaction and its Significance.*
13. Bruck, F. *The Diagnostic Significance of Abderhalden's Reaction.*
14. Goudsmit, M. E. *The Technique of Abderhalden's Dialysis Method.*
15. Autenrieth, W., and Funk, A. *Liebermann's Cholestol Reaction.*
16. Seydel, V. *Surgeon General z. D. V. Bestelmeyer.*
17. Michelson, F. *The Illness and Death of Otto Nicolais.*

4. It is known that the kidney is supplied with vaso-motor fibres from the vagus and splanchnic nerves. Their rôle in secretion has not been determined. Jungmann conducted the following experiments.

Rabbits were anesthetized and the fourth ventricle exposed. The region of the brain where the cerebellum overlies the medulla oblongata was punctured transversely with a cataract knife. The immediate effect was to render the animal anuric, shown by kymograph tracings to be due to lowered blood pressure. When the blood pressure regained normal, however, a polyuria resulted containing an absolute and percentage increase of sodium chloride.

To study the effect of the splanchnic and vagus nerves on the kidney they were first stimulated by electricity and then cut. Stimulation produced an oliguria, while cutting provoked diuresis. If the ventricle were punctured and the splanchnic nerves trans-sected no diuresis occurred, while if one were cut, diuresis resulted from that kidney.

Jungmann concludes that these experiments demonstrate that purely nervous factors not only change the amount of urine excreted but also its chemical composition, and that therefore they suggest a specific nervous stimulation of the renal epithelium.

7. Benario reports seven cases of diebetes insipidus collected from the literature and his own material, all of which appeared to be of syphilitic origin and responded to syphilitic treatment.

He reviews current opinion as to the anatomical cause producing the symptom complex and concludes

that gummatous or selerotic lesions in or near the posterior lobe of the hypophysis are significant. Syphilis of the nose by pressure on the sella tursica and hypophysis may also be important. Finally, in any case, evidence of hereditary or acquired lues should be looked for, and if found, treated appropriately.

WIENER KLINISCHE WOCHENSCHRIFT.

No. 30. JULY 24, 1913.

1. MARNYAMA, H. *The Diagnostic Practicability of a Reaction of Special Fluids of Paralytics.*
2. HIFT, R. *The Metallic Appearance of the Skin After the Ingestion of Colloidal Metals.*
3. MARK C. *Serologic Diagnosis of Typhus.*
4. STARKENSTEIN, E. *Pharmacological Action of Calcium-Precipitating Acid and Magnesium Salts.*
5. BAUER, T., AND WASSING, H. *Adiposita-Hypophysarea.*
6. HAUDEK, MAX. *Luxatio Femoris Centralis.*
7. ARZT, L., AND SCHRAMEK, M. *On the Technique of Intravenous Injection.* [F. S. K.]

Miscellany.

RESOLUTIONS REGARDING TUBERCULOSIS.

At the recent International Congress on School Hygiene, Dr. S. Adolphus Knopf, Professor of medicine, department of phthisiotherapy, at the New York Post-Graduate Medical School and Hospital offered the following resolutions which were unanimously adopted at the final general meeting of the congress.

Whereas, Nearly a million tuberculous children or children strongly pre-disposed to tuberculosis are attending our public schools, and there is hardly accommodation for 1500 to receive instruction in the open air; and

Whereas, The congress is convinced that the open air school is one of the most powerful agents in the prevention and cure of tuberculosis in childhood, and it has been furthermore demonstrated that nearly all climatic conditions, providing the air is dust-free, lend themselves to the prevention of tuberculosis in the predisdisposed, and in the cure of the afflicted; and

Whereas, Statistics show that there are not nearly enough hospital and sanatorium accommodations for adults and children afflicted with pulmonary tuberculosis or children suffering with tuberculous joint or bone diseases; and

Whereas, It has been demonstrated in New York and other cities that discarded vessels lend themselves admirably to transformation into all-year-around hospitals and sanatoria for consumptive adults, sanatoria for children afflicted with joint and other types of tuberculosis, and into open air schools for tuberculous anaemic, and nervous children;

Resolved, That the Fourth International Congress on School Hygiene petitions the United States government to place at the disposal of the various states of the Union as many of the discarded battleships and cruisers as possible to be anchored according to their size in rivers or at the seashore and to be utilized by the respective committees for open air schools, preventoria, sanatorium schools for children, or hospital-sanatoria for adults. Be it further

Resolved, That the congress expresses its appreciation to the Italian government of the example it has given by consecrating three of its discarded men-of-war to the combat of tuberculosis. Be it further

Resolved, That this congress expresses the sincere wish that other governments may follow the example of Italy; and be it it finally

Resolved, That copies of these resolutions be presented to the American and other governments represented at this congress.

THE BRUCE COMMISSION IN SOUTH AFRICA.

Two years ago the British government sent to Nyasaland a commission, under the leadership of Surgeon-General Sir David Bruce, to study the relationship of the South African fauna to the spread of trypanosomiasis in that continent. The following account of the work thus far accomplished by the commission was published in a recent issue of the London *Morning Post.*

"Sir David Bruce finds that the so-called sleeping sickness in Nyasaland is not the same as that of Uganda or the West Coast, although it belongs to the same category. It is more rapid and even more fatal. There has been no case of recovery. It is now established beyond doubt that the disease is carried by *glossina morsitans,* a fly which is widely spread over the whole of Africa and is not merely confined to well-defined areas like *glossina palpalis,* which was hitherto regarded as the carrier of the disease. Sir David Bruce's work has been carried on in a proclaimed district of Nyasaland on the eastern shore of the lake, extending fifty miles from north to south and twenty-five miles from east to west. Animals were shot early in the morning and specimens of the blood while perfectly fresh were carried back by motor-bicycle to the laboratory for examination. Half the wild animals shot in the area were found to be infected with sleeping sickness in some form or other, and in all probability the whole of them may be said to be affected. From this it will be safe to infer that the commissioners are of opinion that the game in these areas should be regarded in the same light as mad dogs and destroyed as a standing menace to natives and whites alike. The disease in Nyasaland and North and North-Eastern Rhodesia has been given the name of sleeping sickness, but the work of the commission went to show that it was the old tsetse fly disease of South African hunters, which was formerly supposed only to attack animals, but has now spread to man. Some regard the dis-

ease as a new one, but Sir David Bruce believes it to be the disease known over large areas as 'ngana' and called by that name in the nineties. Human cases have been found not only in Nyasaland, but also in North-Eastern Rhodesia, Portuguese East Africa, and South Zambesia, and in all probability other cases will be discovered wherever these flies are found, for it is proved that *glossina morsitans* carries the disease known as 'ngana.'

"Sir David Bruce does not believe that there is any danger of the disease spreading. He is of opinion that it has probably been in these areas from time immemorial, and that it will never assume the terrible proportions of the sleeping sickness of the Congo or Uganda. Camps were established for segregation purposes, but they were found to be of no avail, being unpopular with the natives. As patients were often only found when the disease had run two months of its course, and as they invariably died during the third month, the native naturally regarded the camps with suspicion, and accordingly sufferers were treated in the villages."

Dr. Bruce will return in a few weeks to South Africa, where he will remain for another year until the work of the commission is completed. In view of the work already accomplished, however, the British secretary of state for the colonies has already nominated a committee to consider and report on the following points:—

"(1) Upon the present knowledge available on the questions of the parts played by wild animal and tsetse flies in Africa in the maintenance and spread of trypanosome infections of man and stock;

"(2) Whether it is necessary and feasible to carry out an experiment of game destruction in a localized area in order to gain further knowledge on these questions, and, if so, to decide the locality, probable cost, and other details of such an experiment, and to provide a scheme for its conduct;

"(3) Whether it is advisable to attempt the extermination of wild animals, either generally or locally, with a view of checking the trypanosome diseases of man and stock; and

"(4) Whether any other measures should be taken in order to obtain means of controlling these diseases."

The importance of sleeping sickness as a public health question in South Africa is evidently considerable, and the promptness with which it is thus being dealt with is exemplary.

FORM OF DECLARATION REQUIRED OF IMPORTERS OF COCAINE.

The U. S. Department of Agriculture, acting under Treasury Decision No. 33456, dated May 29, 1913, with relation to the importing and use of cocaine, coca, and their derivatives or preparations containing them, has prepared and has ready for issue at all of its branch laboratories and at the Bureau of Chemistry in Washington, copies of the declaration form which must be subscribed to by all importers of and dealers in these products. These blanks will be furnished free on request from importers and dealers.

The purpose of the new system of declaration is to prevent the indiscriminate and promiscuous use of cocaine, coca, and derivatives or preparations containing them, on the ground that these things are dangerous to the health of the people of the United States. At the same time, under this declaration entry of these drug products is permitted for legitimate use in medicine. The form of declaration, official copy of which is appended, requires the importer to declare under oath that the import is designed for use in a manner not dangerous to health, and that he will secure from each and every person, firm or corporation to whom the import is sent, the same declaration as to the use the recipient will make of that portion of the import sold or sent to him. In addition, the importer must agree to allow accredited Goverment inspectors to go over statements from persons to whom he has supplied the goods, and at the end of the year the importer must report to the Bureau of Chemistry the amount of these products that he has on hand on the 1st day of January in each year.

The offiicial form of statement follows:

Declaration For Cocaine, Coca, Their Derivatives And Preparations In Compliance With The Requirements Of T. D. 33456.

Inasmuch as the indiscriminate and promiscuous use of cocaine, coca, their derivatives or preparations containing cocaine or its derivatives, is dangerous to the health of the people of the United States, and section 11 of the food and drugs act, June 30, 1906, prohibits the importation of any food or drug product into this country which is "adulterated or misbranded within the meaning of this act, or is otherwise dangerous to the health of the people of the United State ***," I subscribe to the following declaration as a condition precedent to the release of the merchandise enumerated therein.

Declaration.

"I,[1]....., of the[2].....,
.....,[3].....,
do solemnly and truthfully swear that the cocaine, coca, their derivatives or preparations containing cocaine or its derivatives, more particularly described in attached invoice, bill of lading or bill of sale, purchased from [2].....
....., by[2].....

[1] Name of individual or representative.
other dealer in or purchaser of drugs, as the case may be.
[2] Name of individual, firm or corporation.
[3] Importer. manufacturing chemist, or wholesaler, retailer, or any

the ..... day of ....., 191-, are intended in good faith for use in a manner not dangerous to the health of the people of the United States, and that I will keep, or have kept, a complete record of[4]..... in[5]..... packages of cocaine, coca, their derivatives or preparations containing cocaine or its derivatives and will secure from each and every person, firm or corporation to whom the goods herein described, their derivatives, or preparations shall be sold, in whole or in part, a declaration of this form, which declaration shall be kept on file for a period of not less than three years and be open to inspection of any properly accredited Government Inspector.

"I further do solemnly and truthfully swear that each and every package of cocaine, coca, their derivatives, or preparations containing cocaine or its derivatives, more fully described in attached order, bill of lading, or bill of sale, shall bear a statement, in the form prescribed by the regulation for the enforcement of the food and drugs act of June 30, 1906, of the amount of cocaine or cocaine derivatives contained therein.

"I furthermore solemnly and truthfully declare that I will make a report to the Bureau of Chemistry of the Department of Agriculture, Washington, D. C., not later than January 15 of each year, of the amount of cocaine, coca their derivatives, or preparations containing cocaine or its derivatives on hand the 1st day of that year, the amount imported or received during the preceding 12 months, and the disposition made therefore."

.....

.....

Declared to before me this .....day....., 191-.

.....

[4] Number of pounds, pints, ounces, etc.
[5] Number.

Correspondence.

NOTE ON THE USE OF KIMPTON AND BROWN'S TUBES FOR TRANSFUSION.

BOSTON, SEPT. 3, 1913.

Mr. Editor: For the purpose of adding to the evidence already at hand, that the Kimpton and Brown transfusion tube is practical and that the technique of the operation with it is simple, the following case is reported.

Male, 54 years of age, transferred to the third surgical service from the medical side, Boston City Hospital, where as the result of ulcerating hemorrhoids, he had been suffering from severe hemorrhage until a secondary anemia with 840,000 red cells and hemoglobin, 15%, was present.

Using the patient's daughter as a donor, three hundred cc. of blood was obtained in the paraffined tube, from the median basilic vein and pumped into the median basilic vein of the father.

The recipient's hemoglobin rose to 40% and the red count to 1,500,000. It is our intention as soon as possible to obtain more blood from another donor and make a second injection.

The technique used was that described by Kimpton and Brown in their article describing the tubes. This method is, I believe, the safest and most practical yet devised.

Truly yours,
FRANK H. LAHEY, M. D.

SOCIETY NOTICE.

MISSISSIPPI VALLEY MEDICAL ASSOCIATION. — The thirty-ninth annual meeting of the Mississippi Valley Medical Association will be held at New Orleans, La., October 23d, 24th, and 25th.

NEW YORK AND NEW ENGLAND ASSOCIATION OF RAILWAY SUREONS.

The twenty-third annual session of the New York and New England Association of Railway Surgeons will be held at the Hotel Astor New York City, on Wednesday, October the 22, 1913. Dr. Hugh H. Young, of Baltimore, will deliver the "Address in Surgery." Railway surgeons, attorneys and officials and all members of the medical profession are cordially invited to attend.

DR. JOHN W. LESEUR, *President*,
Batavia, N. Y.

DR. GEORGE CHAFFEE, *Corresponding Secretary*,
338 47th Street, Brooklyn, N. Y.

RECENT DEATHS.

DR. CHARLES HERMANN REINSBERG of New York died on August 28, at the age of forty-six years. He was graduated from the College of Physicians and Surgeons, New York, in 1900.

DR. MELBOURNE F. MIDDLETON of Camden, N. J., died, after a long illness, on August 22. He was one of the oldest physicians in the city, and a member of the boards of health and education.

DR. CLEVELAND FERRIS of New York died suddenly on August 21, in the 36th year of his age. Dr. Ferris was graduated from the Yale University medical school in 1903, after which he served as interne successively at the Lincoln Hospital and the New York Lying-in Hospital. On engaging in private practice he devoted his attention particularly to genito-urinary surgery, and at the time of his death was assistant genito-urinary surgeon to the New York Polyclinic Hospital and to the out-patient department of St. Luke's Hospital.

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Public Health Reports. Vol. xxviii, No. 34, August 22, 1913. Washington, D. C.

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THE WORKMEN'S COMPENSATION ACT FROM THE LEGAL STANDPOINT.*

BY J. C. JOHNSTON, ESQ., BOSTON,

Member of the Suffolk Bar.

During the past fifty or sixty years there has been a growing interest of the community in the individual. Prior to that time the liberal doctrine of John Stewart Mill and his school had dominated political thought. A state whose conception of its functions was merely to preserve order and leave the individual to work out his own destinies without responsibility to the community was the ideal of the politicians of those times. The disgraceful industrial conditions which characterized the past century were due in a large measure to the unhampered struggle for existence resulting from such a system. They necessarily produced the reaction in favor of state supervision and control which has been gaining such head of late years. Everywhere there is a growing appreciation of the value of the individual to the community, and in consequence an increasing regard for his welfare. It is not to be expected that the medical profession, intimately connected as it is with the physical well-being of man could long escape the influence of this social tendency. The community has already taken charge of the field of preventive medicine, and through its boards of health, both state and municipal, has made it practically an exclusive public function. It is not to be expected that the community should stop short here. On the contrary the logic of events requires that it should seek to regulate as well the curative branch of the profession. Law, after all, is merely the crystallization of popular tendencies. The workmen's compensation act is an embodiment of this social trend as well as a clear expression of the social interest in the individual, to which I have already referred.

In considering its operation and effect there are two factors which may be considered permanent and which must necessarily control its development. There will be constant economic pressure to lower the cost of insurance, which the community has ultimately to bear in the increased charges for the products of labor. Our short experience with the act has already illustrated this. A general complaint among the manufacturers led the Industrial Accident Board to investigate the question of cost. The insurance companies refused to coöperate in this investigation, but they made a horizontal reduction in rates of 25% in anticipation of the results of the investigation referred to. Inasmuch as the Ast was designed primarily to protect the workman, there will be a constant effort to secure for him the largest posible share of the premiums that are collected from the public. The continual interplay of these two forces will tend necessarily to reduce to a minimum the cost of operation, in which we must include charges for medical and hospital service. This is not a fanciful conclusion, but is recognized and has been urged by persons who are responsible for the administration of the law at widely different points. Allow me to quote with apology some statements that have appeared in this connection from responsible sources. The Hon. Cyrus W. Phillips, of Rochester, N. Y., who has made a special study of compensation laws and the effect of their operation, said recently, relative to the cost of medical attention under workmen's compensation acts, "One of the serious objections that has been made to the old system of employer's liability is the fearful waste entailed. As a result of the procrastination of the law and the consequent litigation, with the legal expense involved, but a comparatively small part of the amount paid out by the employer reaches the workman. By a system of workingmen's compensation laws, it is proposed to save this economic waste and secure to the injured workman and his family the largest possible share of the moneys disbursed by the employer. In stopping one leak, we must be careful not to create another. In saving the amount heretofore paid to the legal profession a great gain is made. If we unnecessarily increase the amount payable to physicians and hospitals a great loss will occur."

In commenting on the matter of medical expense, the report of the Wisconsin Mutual Liability Insurance Company, a quasi public organization, says, "The average charge for the services rendered is entirely too high. Most of the doctors forget that while they insist that their charges are based upon their medical association fee bill, every dollar of surgical aid rendered an employee of our policy holders means to them one hundred cents, and that the doctor who collects from fifty to sixty per cent. for such services in his general practice considers such a result highly satisfactory. Yet when dealing with this company there seems to be a disposition on the part of too many to add all the traffic will bear. On the other hand we have dealings with many doctors who appreciate what the compensation principle means to the employee, the employer and the medical profession, and that nothing but injury can come to that principle and the profession from any attempt at exploitation and extortion, and that it would become a serious problem if the doctor and his charges under the compensation, were to take the place of the ambulance chaser under liability insurance. We, of course, are passing

* Read at a meeting of the Norfolk District Medical Society, March 25, 1913.

through an experimental stage in this matter as well as in other phases of the compensation act, and as we recognize the dangers we must seek for and apply the remedy. In this instance there is no more reason why so large a proportion of the compensation payments should be diverted from the pockets of the injured workman to the coffers of the grasping doctor than there was for the lawyer to receive the lion's share of an award for damages. The expense for surgical aid may become a serious problem in determining the cost of compensation insurance and has already become a matter that should receive the attention of the employer, as a correct settlement of the problem will require the coöperation of each individual policy holder."

It is worth while to examine the statistics which have been gathered in the various jurisdictions where workingmen's compensation acts are in operation. The figures are collected with care in a recent issue of the *Journal of Commerce and Commercial Bulletin,* from which I quote *in extenso.* It would seem that the tendency of medical expense to increase in amount is everywhere apparent. The experience of Denmark with her friendly societies illustrates this. While in these societies pecuniary aid originally constituted the largest item of expense, its relative proportion has decidedly declined. In 1893 it formed 45.6% of the total expenditure of the societies, as against 36.5% for the six-year period from 1901 to 1906. It is now surpassed by the expenditure for medical attendance, which in 1893 was only about two-thirds as great. The annual cost of physicians' attendance has steadily risen from $71,346.65 in 1893 to $570,956.58 in 1907.

The cost of medical attendance under the French workingmen's compensation act averaged more than 25% of the premiums in temporary disability cases during the years 1901 to 1907, showing an increase during that period from 24.02 to 29.02%. The cost during the same period in death and permanent disability increased from 2.8 to 5% of the premiums. During the same period benefits for temporary disability fell from 64.02 to 53.02% of the premiums.

In considering these figures, it is to be borne in mind that under the French act the compensations for death and permanent disability are not limited to a period of time as under the American system, but are for the life of the beneficiary, and compensation in temporary disability cases begins after the fourth day, and where the disability exceeds ten days in duration relates back to the date of the injury, while under our law and the law of the sister states no benefits are paid in cases of temporary disability unless it continues for at least two weeks, and even then nothing is paid for the first two weeks of disability.

The material increase in the amount of compensation paid under the French act by reason of the facts I have just stated lower the percentage of cost for medical aid. It is apparent, of course, that if the compensations were disallowed for the first two weeks in the case of temporary disability and limited to a definite period in the case of permanent disability or death, as under our system, the percentage of medical expense would be much higher. It is quite likely, in fact, that the medical and compensation proportions would nearly approach each other.

The report of the Wisconsin Employer's Mutual Liability Insurance Company, to which I have already referred, shows during the year 1912 the payment of $29,588.81 for compensation and $16,385.87 for medical and surgical aid, including hospital care, or in other words, out of $45,974.68 disbursed, the doctors have received 35% plus of the total amount.

The report of the Massachusetts Employer's Mutual Insurance Company, covering six months' experience under the Massachusets Act, shows expenditures of $11,413.72 for medical and hospital services, with unpaid estimated liabilities on this account of $26,527.98, as compared with a total of $48,734.51 paid or payable on account of benefits. In other words, the cost of medical service was slightly more than three-fourths of the amounts received in benefits by the workingman. To put it in another way, the doctors have received 43% plus of a total of $86,674.21.

Statistics gathered by the Industrial Accident Board of the state illustrate the same condition. A study of a variety of industries employing 25,803 hands, showed the cost of medical attention to have been $12,135.13, and the amount paid for disabilities to have been $26,-443.91. While the percentage of medical expense to the total expenditure is less in this case, amounting to about 31% plus, it is to be remembered that the industries studied were most highly organized, and as a consequence it is to be inferred that the medical service was rendered with greater economy than would be possible with small manufacturers, so that this percentage, while it is high, is probably much less than would actually be the case if all insured industries were considered.

I wish to make it clear that it is not my intention to criticize the charges made by the doctors in cases under the act. On the contrary, I am fully aware that the average charge is not more and probably less than formerly. The ruling of the Industrial Accident Board that charges should be measured by the standards in force where there is no insurance makes it impossible that they should be higher, and the schedule of fees sent by the insurance companies to the doctors for their assent would indicate that fees were lower, at least where there has been an agreement with the company on the basis of the schedule. We cannot shut our eyes,

however, to the fact that the proportions which the figures I have cited indicate are extremely large, and this, it seems to me, is the angle from which the public will view the question. Under the old employer's liability law the attorney who took 43% of the award, although the medical expenses were to be paid out of it, was very likely to incur unfavorable criticism, and it was for the very purpose of eliminating this economic waste that the workmen's compensation law was enacted. It is not to be presumed that the public will be any more just in the long run to the doctor than it was to the lawyers. It is to be expected, therefore, that any effort to reduce the charge for medical service will receive very general support outside of your profession

The act itself provides the means for accomplishing this end. Part 2, Sect. 5, provides as follows:—

"During the first two weeks after the injury the association shall furnish reasonable medical and hospital services and medicines when they are needed."

You will observe that this leaves the choice of the doctor with the association rather than with the workmen. If I am not mistaken substantially the same provision has been incorporated in workingmen's compensation acts of the various states. Whether this has been deliberately done in the interests of a medical trust or is merely the result of blind obedience to the force of economic law is impossible to say. There is no doubt, however, that it is warmly defended by the protagonists of this law. The Hon. Cyrus W. Phillips, to whom I have already referred, in speaking of this matter, says, "It is to the interest of the employer that the injured person have a speedy, complete and permanent recovery, so as to reduce the amount of compensation, and to this end good medical treatment is essential. The wise employer will furnish aid though not required by statute. As a rule compensation statutes require that medical expenses be paid by the employer in addition to conpensation instead of by the employee out of compensation received." And again he says, "The physician should be selected by the employer or other agency paying the compensation." It is self evident that a physician selected by the person or agency that is to pay him will deal fairer than though the bill he renders to his employer is to be passed on to another for payment.

I might suggest a reason that he implies rather than states in the first paragraph which I have quoted, that is that inasmuch as the employer pays the compensation during disability it is his right to control the means for terminating as soon as possible the disability for which he is paying.

The twenty-fourth annual report of the United States Commissioner of Labor, speaking of the increasing cost of medical service in the Danish friendly societies, attributes it to the lack of adequate control and states that physicians have sought to substitute payment by visit for fixed annual remuneration and also to introduce a system of allowing members free choice of physicians. While it is true that the report was dealing with the Danish societies, it is plain that the present system of free choice is considered a stumbling block to the effective operation of the law.

It is true that the Massachusetts Industrial Accident Commission has given to the section referred to a very liberal interpretation. Under its ruling the workman still has the right of choice of doctors wherever the insured fails to supply medical aid immediately at the time of the injury. There seems to me to be small comfort in this liberality, for there is no doubt in my opinion that the insurance companies will be able to organize their medical staffs to such a degree of efficiency as to enable them to meet the requirements of this ruling. This has already been accomplished in their claim departments. You have all had occasion to observe the celerity with which claim agents reach the victims of an accident. There is no reason why a medical staff cannot be organized upon the same efficient basis. We have witnessed what I believe to be the beginnings of such an organization: many of you have received communications from insurance companies containing a schedule of fees for your approval and holding out the hope that you would be retained to look after their business in your respective neighborhoods. I have been told, moreover, that a very eminent doctor in this city, who has been identified with what we lawyers term "the defendant's interests," is building a hospital in the Back Bay to look after injured workmen whose employers are covered by the provisions of the act. There is no doubt, and I understand that he makes no denial of the fact, that this enterprise is financed by the money of insurance companies.

It may be urged that this right of the insurer to furnish medical aid is limited to the first two weeks of the disability. It is to be remembered, however, that in 84% of the reported cases the disability does not extend beyond the two weeks' period, and medical attention would usually no longer be necessary. In the remaining cases it would be impossible as a practical matter to supplant the company doctor who had cared for the patient during the first days of disability, by one of the workmen's choice. Moreover, the forces of which we have spoken will tend to strengthen rather than weaken the grip of the employer in this matter.

When we remember that we are merely upon the threshold of industrial insurance, we will realize what absolute control over the destinies of the medical profession we are placing in the the hands of the insurer. As soon as the present law outlives its experimental stage it will be followed in quick succession by occupational dis-

ease insurance and a system of old age pensions. What percentage the cases that will come under these various acts bear to the total volume of medical business, it is impossible to say. "Occupational disease" is a very elastic term and there will be a constant tendency to enlarge its application. Whatever may be left, however, without the scope of the law, I should expect that the company doctor would acquire such a leverage by his attendance in insured cases as to exclude the independent practitioner from the field. In Germany, for example, there are about thirteen million people who are protected by industrial insurance, or in other words, not quite 20%, or one in five of the population. The company doctor, therefore, if such a system were in vogue there, would have on the average of one patient in every home in the empire, who in most cases would be the breadwinner. It is probable, therefore, that it would not be long before he had them all.

It would seem an easy matter to secure the repeal of this provision, but as a matter of fact there are practical arguments which make it a very difficult undertaking. I will say nothing of the powerful lobby which would oppose any such legislation, but there remains the reason suggested by Mr. Phillips, to which I have already referred: the seeming justice of the provision that enables the interest which pays the bill for medical service to control the employment of the doctor. There is the added reason: that this provision of the act by making possible coöperation among the insurers will tend to reduce the cost of medical service, which is the goal that will constantly be sought.

In conclusion it may be said, therefore, that the tendency to reduce the cost of medical aid to a minimum necessitates an organized medical staff, as oposed to the competitive system that now prevails; and the provision of the law which I have discussed makes possible such a system. It is said by Mr. Phillips, to whom I have referred a number of times, "The employer, if carrying his own insurance risk, can and should retain his own physician or physicians under permanent arrangements, and should make similar contracts with the hospitals. If the employer is insured, the insurer, whether stock company or mutual association, should make similar arrangements with physicians and hospitals. In fact, the various mutual and stock companies ought to coöperate in each community in the employment of medical staffs in the hospitals. In this manner they can organize a highly skilled medical force at a lower cost than less skilled service could be secured without coöperation.

The risk to an individual of carrying his own insurance is so great that the number of such cases will be negligible, and the number of stock companies engaged in the business must constantly decrease in competition with the state mutual associations. Indeed they now admit that it is only a question of time when they shall be obliged to withdraw from the field. It appears that the cost to private corporations of doing this business is 60% of the premiums collected, while it is claimed that the mutual associations can be administered for about 15%. The ultimate result, therefore, would seem to me to be a highly organized medical staff under the control of the state associations, governed by the employers of labor, but which are in fact quasi public institutions. The fee system would necessarily be abolished in the interest of economy and contract service will supplant it, as has already happened in England. It is urged that enlightened self-interest on the part of the employers and the community will tend to secure most skilful medical service. There is room for grave doubt that such a system would make for the best interests of the profession and of society. Apart from the baneful influence of politics, which will affect the matter as the state associations come more and more under public control, the pressure of economy in the administration of industrial insurance, to which the employing classes would be extremely sensitive, by constantly reducing remuneration would withdraw the rewards at present held out to legitimate ambition. The contract system would remove to a great extent the incentive for research which has resulted in the remarkable medical achievements of the past half century. The doctor would be apt to degenerate into the clerk, whose endeavors would be largely devoted to escaping the criticism of his superiors, and men of talent would cease to find attraction in the medical profession. It is obvious that such a condition would react unfavorably on the community through impaired service. It would seem to me that it is here that you should make a stand, if you are prepared to resist at all. It is not enough to urge that this system is un-American for we are departing in many respects from American traditions, but I do not believe the public is prepared to accept the inevitable results of present conditions. The difficulty is that it fails to appreciate the far-reaching consequences of such legislation as this, and is dazzled by its Utopian promises. The community, however, is extremely loyal to the medical profession. The doctor to a very great degree enjoys its well-merited confidence. The remedy, if remedy there be, lies in your own hands. It is to be remembered, however, and you should take warning from the realization that the mere fact that the consequences are or seem to be evil is no guarantee against their accomplishment. The logic of events will bring upon us many evil things, which either we are too heedless or too impotent to prevent. It is for you, therfore, to use your influence for the creation of public opinion, for a correction of the conditions is only possible where there is an enlightened public appreciation of the consequences that will flow from them.

THE WORKMEN'S COMPENSATION ACT AS VIEWED BY A MEMBER OF THE INDUSTRIAL ACCIDENT BOARD.*

BY DUDLEY M. HOLMAN, ESQ., TAUNTON, MASS.

While the Workmen's Compensation Act was designed exclusively for the benefit of the injured wage-earners of the Commonwealth with that as its primary object, it was evident to the framers of the law, as it must be evident to you, that anything which financially benefits the workman himself must inevitably benefit all persons with whom he has dealings.

As a doctor's bill is one of the great dreads of a working home, and as its payment depends upon the productive ability of the wage-earner, anything that removes this burden from the family resources, leads to spreading good.

Up to July 1, 1912, the wage-earner who was injured by industrial accidents in Massachusetts, save in a very small minority of cases, was unable to recover anything in the way of damages for that injury because the employees had three so-called defences: (1) that the injury arose out of the obvious risk of the trade which the injured wage-earner assumed—called the assumption of the risk and there was no recovery; or (2) that it was caused by the negligence of a fellow wage-earner, in which case there was no recovery; or (3) that the injured wage-earner was not himself in the exercise of due care and there was no recovery. These defences stood as an almost insurmountable barrier against the successful prosecution of a claim for personal injury against an employer.

The injured workman, therefore, not only had to lie idle while his wounds were healing, but he had to pay for his medical and hospital attention out of his own pockets,—bear in mind that the average family income in Massachusetts is less than $800 a year, and in these days of the high cost of living it is a great and serious problem which confronts the head of a family to make both ends meet when all are in perfect health.

Various methods were therefore adopted to secure medical and hospital attendance, but particularly medical attendance at a minimum cost, and as a result contract doctors were employed by various associations to secure medical treatment at the cost of a few cents per visit. In a great many cases doctors—and I do not mean the contract doctors now—attended patients and received no compensation whatever because of the inability of the patient to pay. It was charity work and was recognized as such by the members of your splendid profession.

Hospitals had many cases, and while a nominal charge of from $7 to $8 per week was charged, in a great majority of cases they never received a penny for their work, and it went to charity account. This was the condition of affairs prior to the passage of the Workmen's Compensation Act. The legislature, following the trend of opinion all over the civilized world, decided that these wage-earners injured in industrial employment in Massachusetts should not bear the burden alone. That the cost of industrial accidents should be borne by the industry and not by the individual wage-earner who was unfortunate enough to receive an injury arising out of and in the course of his employment. And thus this law was passed for the sole benefit of the injured wage-earner.

The Commonwealth as its share in this legislation pays the cost of the administration of the Act, about $70,000 a year. The employer pays a heavy insurance rate in order to give his workmen the benefits of the act. The employee goes without compensation for two full weeks and then receives half his average weekly wage as his compensation during total incapacity. That is his contribution. The lawyer—well, he has been practically eliminated from the proposition, and when he appears at all for the injured wage-earner he receives only a nominal fee, if he gets anything.

The doctors and the hospitals. They get pay for reasonable medical attendance during the first two weeks after the injury.

This legislation is not perfect. It is the result of compromise, and it does not do all that we wish that it did, but it marks progress. It is a step in the right direction.

The law is elective both for employer and for the employe. An employer can choose to come in under the act or to stay out. If he elects to give his workmen the benefit of the act, he takes out an insurance policy. If he chooses not to come in under the act, he does nothing, but if an employee of his is injured he stands liable in heavy damages, the sole requirement being that the injured workman prove negligence on the part of his employer, superintendent or agent or defect in the ways and machinery. His three main defences are stripped from him. An employee can also exercise his choice to come in and rely on the Workmen's Compensation Act or stay out and claim his common law rights, but if he pursues the latter course he finds himself just where he was prior to July 1 last, and must prove that he was in the exercise of due care, that the accident did not arise out of the negligence of a fellow workman and that he had not assumed the risk.

I wish to call your attention to the question of cost.

Rates for compensation insurance are very high. It has placed a heavy burden on the employers of this state. As an example, one corporation which last year paid $650 for a liability policy covering its workmen, paid this year $9500 for a compensation policy. The rates were jumped from three to ten times what had been charged under the liability laws, and com-

* Read at a meeting of the Norfolk District Medical Society, March 25, 1913.

pensation insurance is a burden to employers, but most of them have been willing to assume the burden for the benefits they and their workmen derive under the act. The employer's benefit is not so great, however, that he would consent to any additional tax being levied upon him. Rather than that I believe that one-half those now insured would feel inclined to take their chances at common law with their defences taken away. The rates are too high, and the Industrial Accident Board by a study of its statistics demonstrated that fact. The liability companies admitted the correctness of our statistics by voluntarily reducing their charges 25 per cent. In the great majority of cases this still left rates too high. In a few cases the reduction was more than it should have been.

In making up their insurance rates the insurance companies figured that 40 per cent. of the money taken in as premiums would be needed to pay medical and hospital bills. They based their figures on the rates which obtained prior to July 1, 1912. The Industrial Accident Board has been trying to get, instead of two weeks' medical attendance for the injured workman, medical attendance during the entire time of his disability, but that involved cost—and it found that rates would be advanced if this were done. In the absence of a full year's statistics it was impossible to present facts that would enable us to ask this of the insurance companies. Yet in comparison with the total number of cases, those which require attendance for more than two weeks are a small minority.

Now any serious burden added to the employers means that many employers will cancel their policies and so largely restrict the number to be benefited under this act. In short, will practically put it out of business.

We found that in many, many cases doctors were very assiduously attending to injured workmen during the first fourteen days after the injury. Sometimes they visited them twice and three times a day, and on the fifteenth day we found that the injured man had miraculously recovered during the night. We found that hospitals that had been charging from $7 to $10 a week for ward patients of this sort prior to July 1, jumped their rates to $15 and $21 and charged also for medical attendance. One hospital charged $42 whether the injured man was there one hour or two weeks. We found that all the traffic would stand was charged in many cases. "Why should I take an insurance company's patient as a charity case?" was the inquiry.

Right here is the nub of the whole question. It makes no difference to the insurance company whether they pay $10 or $100 for medical attendance in a given case. It does not come out of their pocket. They simply collect and disburse the money for the employers. It is the employer who in the last analysis pays the bills. His rate will be reflected by what it costs the insurance company. The theory is that the cost will be placed on industry and eventually on the ultimate consumer. This would be true were the act a compulsory one. But it is not. Two men are operating factories for the manufacture of a certain article. They are both clearing $20,000 a year. One insures and pays out $9500 for his insurance. The other stands pat and does not pay out a dollar. The year rolls by and neither has an accident. How can the one who insured add to the cost of his product the half of his former profit which he has paid out for insurance. Manifestly he can't, and so the employer pays. Again these hospitals which increased the rates to workmen whose employers are insured, maintain the old schedule of rates of $7 to $10 per week for the workman whose employer refused to give his workmen the benefits of this act, and thereby discriminated in favor of the man who refused to give his workmen compensation rights and against the employer who at great expense did so.

The Industrial Accident Board conceives it the duty of doctors and hospitals to charge no more for an injured workman whose employer is insured than it would charge a man in his walk in life whose employer was not insured.

Every municipality in the state at times sends ward patients to some of our big metropolitan hospitals. They pay the ordinary ward rates. Yet they are millionaire corporations and ought not to be the recipients of charity. There is not an insurance company in Massachusetts, as I have reason to believe, that would object to paying cost if cost was also exacted from all other patients, such as those I have mentioned.

As I have said, we hope to secure full medical attendance during the entire time of incapacity if you gentlemen will help us. This is only one of many of our problems. Yet it is one of the biggest, and most vexatious. It has caused us more thought and anxiety than any other single question. Today you are sure of your pay for two weeks, where before it was questionable what, if anything, you received. We want to bring about an extension of medical attendance, but it cannot be done if the costs during the first two weeks are to be so very largely increased over what they were.

Another thing. The act provides that the insurance company "*shall furnish*" reasonable medical and hospital attendance during the first two weeks. In other words, unless the insurance company sends an injured man to you or to the hospital you have no legal right of recovery against the insurance company. They need not pay a dollar unless they wish. They can select their own physicians and their own hospitals, and deny the right of the injured workman to have his own family physician attend him for an industrial accident, and the action of the legislature of Massachusetts yesterday tends to confirm that policy.

Now the Industrial Accident Board believes

that a man should under most circumstances select his own doctor if he wishes, and thinks that recovery may be accelerated by such selection of a man whom he knows and trusts. All the insurance companies, or most of them, I think believe as the Board does, that this would be beneficial, but for the fact that they cannot control prices, and they have had bitter experiences during the past eight months with physicians' charges where they have not selected the physicians. This is not true in a majority of the cases, but it is true in many, very many cases.

Now this may result in several things. It may result in a sort of competitive medical trust controlled by the insurance companies. It may result in the establishment by insurance companies of hospitals for the treatment of victims of industrial accidents. Or it may result in employers withdrawing their support from hospitals now existing and joining with the insurance companies in establishing hospitals for the treatment of industrial accident cases. Both these matters are well within the realm of probability. One insurance company has established such a hospital in Boston. Others will follow unless we look this problem square in the face.

The Board has for the purpose of arriving at some definite basis on which rates in the majority of cases can be adjusted called a meeting tomorrow of representatives of all the medical societies in the state to go over with us these conditions and see how they can best be met.

Dr. Cotton, the chairman of the committee of the Massachusetts Medical Society on the regulation of fees for industrial accident cases, gave us a new line of thought, that by implication the employee should receive a little better treatment than he had been getting heretofore. It is this, that for a most careful supervision of these cases, and such attention as will enable the injured workman to return to his employment at the earliest possible moment consistent with perfect recovery, the doctor was entitled to a larger fee and possibly to more visits than he ordinarily would have charged for under the old law. That hospitals like the City Hospital, for example, should not treat them in the wards exclusively as charity patients; that they have been taken out of the charity class and been put in an industrial class. I leave this for you, gentlemen, to figure out for yourselves. We aim to secure eventually full and complete service during the entire time of disability, and it only needs your active sympathy and co-operation to make this possible.

A public bequest amounting to £750,000 has been made by the will of Sir William Dunn. This includes £2,000 to the institute of medical science of the University of London, and £2,000 to the London School of Economics.—*Science.*

THE WORKMEN'S COMPENSATION ACT AS IT AFFECTS THE PHYSICIAN.*

BY ROBERT M. MERRICK, M.D., DORCHESTER, MASS.

This act, as has been shown, endeavors to place the cost of the injuries attendant on industrial patients on the expense sheet of the manufacturer or the utilizer of labor. The subject tonight is how the act affects the medical profession.

I do not stand here as being thoroughly cognizant of all the benefits nor of all the defects of this act. I can only talk of it as one who has had some experience with it, who has studied it some and who has had the benefits of the experiences of some of my associates.

My paper tonight has not been written to serve as a presentation of our case to the responsible authorities but simply as a mere outline of the situation which confronts us as physicians, in order that we may plan to safeguard our rights and do all in our power to uphold the dignity and high standards of our profession.

The Workmen's Compensation Act provides that if A is injured in B's employ, whether through B's negligence or not, B, or the insurance company in which B is insured shall furnish to A reasonable medical and surgical treatment for two weeks and pay to him for the period of incapacity for work, provided it does not exceed 500 weeks, from four to ten dollars a week.

The act created a body known as the Industrial Accident Board. The chairman of this Board is paid $5000 and the other four members $4500 each a year. The Board has been given $10,000 for expenses and allowed to have a secretary at a cost of $3000. The term of office is for five years, arranged so that each year there is a vacancy on the Board. This Board decides the reasonableness of the medical fees.

The advocates of this act ask the physician to consider it favorably:

First, because it is a great philanthropic act. Second, because it assures the physician the certainty of payment of his bill for services to the injured.

In considering the second reason we find in regard to fees for services to the injured that there has been a systematic plan arranged by the insuring companies and endorsed by the Industrial accident Board to reduce the earning of the medical profession by offering fee tables greatly below the fees recognized as just in this section. We find that there has been an effort made by the insuring companies, endorsed by the Industrial Accident Board, to reduce the earnings of the physician of this State by interfering with the desire of the injured employee to select his own physician; by compelling him

* Read at a meeting of the Norfolk District Medical Society, March 25, 1913.

to enter hospitals erected for charity service to the poor or to be treated by some one of the "cut-rate" doctors hired by the insurance companies, that find that in doing this they show both a marked general distrust of the honesty of the whole medical profession and an evident disposition to evade payment of the just cost of industrial accidents.

We maintain that the law intended that an industry should assume the whole cost of the medical attendance for two weeks and we suggest that if the physicians suffer loss through the acts or judgments of the Industrial Accident Board a portion of the cost of industrial accidents has been placed unlawfully on them.

In the great increase in the cost of living which has taken place during the last twenty years, occasioned to a great degree by the boosting of the price of necessities to enable Big Business to enjoy the usual or unusual profits, it has been a source of gratification to the citizens of moderate means to find no increase in the fees of the physician. It is a distinct relief to him as he pays his bill to find that it is not keeping company with the increased cost of coal, gasoline, the necessities of the table, and clothing.

Under these circumstances, an attack on the incomes of physicians seems more predatory than equitable.

We are told in justification of these arbitrary rulings that small fees are paid in some small towns and cities, but that does not demonstrate that the greater fees usually paid in the large cities are excessive or even adequate.

We are further informed that the beneficiaries of this act are people of moderate means and that physicians would not be able to collect the full fee from the injured among them, but we assert that this is only a subterfuge on the part of the insurance companies to evade the whole cost of medical service and if the real cost of industrial accidents is to be charged to production, it is the duty of the Industrial Accident Board to see that there is no evasion by companies assuming the risks.

Let me give an example of the *modus operandi* of this Board. One of the officers of this society was called one winter night to attend an express man, who, falling from his wagon, had broken both bones of the leg. It was a compound fracture. The physician routed out of bed a brother physician to assist him. They scrubbed up the leg and prepared the aseptic working field. The opening was enlarged, the bones pried back into place, the incision sutured and dressed with an aseptic dressing, and the leg put in plaster of paris. The wound healed by first intention, the union of the bones was perfect, and the man restored in good condition to his work. The bill for this service, service of the assistant, dressings, etc., and for thirteen after-visits was sent to the insuring company. A hundred dollars would have been fair pay for the work, but the bill charged the insurance company eighty-nine dollars, which they refused to pay as exorbitant. They offered him fifty-four dollars, forty-nine for himself and five dollars for his assistant. He refused it, and taking of his time and putting himself in the debt of two of our best known and skilled surgeons, he appeared with them before the Industrial Accident Board and stated his case. They might just as well have stayed at home, for the Board estimated without consulting the insurance company that the service was worth fifty-four dollars. The Board was advised, it said, by some physicians, but they were not present at the hearing and their names were withheld from the mulcted doctor.

We maintain that this Board as now composed is totally unable to judge of the reasonableness of physicians' fees and that in its anxiety to furnish life to the new act, it has ridden rough shod over the rights of the medical profession; that it is cheapening the medical profession and will end by materially lowering the quality of medical service to employees.

A member of this Society attended a victim of an accident and the insurance company mailed him one of their cut-rate schedules. The physician has a large and lucrative practice, has a fixed rate of charging and collects his fees. The agent of the company, in telling of the incident, said "Dr. C— was very indignant about the circular but of course we did not intend to send such a man as C— a circular."

Evidently the insurance company did not think their "cut-rate" schedule fitted an able man. They were looking for a "cut-rate" man. They realized that the best men are not attracted by their cheap rates.

But how about the working man for whom this act was supposed to be passed.

This skillful physician doubtless has many employees of moderate means on his list; men, who although drawing small salaries, select a skillful man to treat them and their families, and pay him, even if they are obliged to deny themselves in other ways. Yet, when these men are injured they will have to go to a hospital erected for charity patients or submit to the care of a "cut-rate" doctor.

The insurance companies have established here in Boston a hospital where employees are patched up, at "reduced rates."

Some of our physicians have been warned by the insurance companies that the companies would not pay for more than the first emergency treatment, advising that some one who had accepted the "cut-rates" was to take charge after the first visit.

What is a man going to do who is called from his office patients during office hours to an injured employee insured in a company that employs cheap men at cheap rates?

And if in pity he goes and finds a poor fellow with his scalp hanging down over his ear, with the dirt and gravel and hair ground into the wound; and if thinking out aloud he says: This is a $10 piece of work, but the "Grab 'Em and

Squeeze 'Em'' company will pay me only $3. I think I will make him comfortable and go back to my office patient and let Dr. Cheapman tend him. Can you blame the employee if hearing the above, he wonders what kind of a deal he is going to get from a man who is only half paid? Could you blame an employee with a broken hip, if he sort of wished that a physician who was well paid would cure his fracture instead of a half paid man? Probably the advocates of this plan would say that he ought to be pleased that he was getting anything at all.

Suppose a man down at the Fore River Works, having a family of seven and getting nine dollars a week, has his back broken through the fault of the company. He is taken to the insurance company's hospital, a Kraske is done and the cord found hopelessly crushed. He stays two weeks? What will he do then? He has no money. It is true the Board will pay him and his family of seven $4.50 a week for 500 weeks. But he couldn't pay even a cut-rate doctor on that wage. Will the ''patch-'em-up'' hospital keep him? Not they. At the end of two weeks he will be turned over with great willingness to the doctor who generally attends his family, for free treatment, and if he doesn't have charity in him, his last hope is gone. It's Tewksbury for him.

Does an act like this place the cost on production? It certainly does not. In a case like the above the doctor catches it ''going and coming.'' He pays nine-tenths of the actual cost, due to accident, to the insurance companies and then in charity has to give his time to such a case unless the man dies.

Does a ruling which allows an insurance company to board a patient at the City Hospital below cost put the cost on production? And is it just that nine-tenths of the profit from the transaction should go into the insurance company's pocket? Where does the doctor fit here as a tax-payer?

During the first six months after the passing of this act the insuring companies, according to good authority, made a profit of 90%. That it, for every dollar paid out of ten collected they pocketed nine dollars. Since then the profit has been reduced to 65%. As we have seen, some of that 65% profit was taken from the physician by ruling of the Industrial Accident Board.

But we are told that ''it is a great philanthropic act. Well, we were from all states in the Union when this act was passed, but now ''we are from Missouri.''

Where does the philanthropy come in? In the act there are recognized the employer and employee, the insurance companies, the Industrial Accident Board, and the medical profession.

Who is distributing philantropy to the employee? The employer? He is in it because he is going to benefit, to save something, money, trouble, uncertainty. We all know Big Business well enough, as shown in the mills, the shops, building firms, the ''time contract'' building erectors and railroads to know they are not bothered by philanthropy; we can rule them out. The insurance companies? Hardly, with their enormous profits.

The Industrial Accident Board? The State is still solvent and paying its many commissions.

It rather looks as if the philanthropy was coming from the medical profession and, strange to say, is not going to the injured working man but to the insurance companies and the employer.

This is no philanthropic act. It is simply justice to the worker, and only partial justice at that, for full justice will be done only when human life and health is valued at a higher rate than is contemplated in this act.

There are unfortunately members of every profession who are unscrupulous; men who have no honesty, men who overcharge, men who put forth work of poor quality. We pick no quarrel with the Board for dealing sharply with them, and the medical profession would deal more summarily with them if it had the power, but in the attitude of the Board towards the medical profession we have all been indicted.

We give more to the community than we receive; our services are ever ready for the poor; our efforts in preventive medicine are recognized for their great worth by right-thinking men; the inestimable discoveries of our profession that go to lessen pain, promote health and save life are not put forth on the market covered with patents but given freely to the whole world. The State should hesitate before commercializing medicine, for it will not be an economical movement. If it will but view corporations piling up wealth on discoveries like ether—smallpox vaccine, antitoxines of diphtheria, patents on eradication of malaria and yellow fever, and patents on surgical apparatus, let it protect the profession from men of mean and narrow views. Rather let it stimulate this noble profession of ours to greater philanthropic efforts than belittle it and degrade it.

If the Industrial Accident Board is for fair play, it will force the insuring company to pay its honest due and allow the beneficiary of this act to enjoy the rights they enjoy, to select their physician. If it is for fair play it will trust such a profession as ours and we, who have the reputation of the medical profession in our keeping, will pledge ourselves to eradicate any abuse of that trust which may arise.

Until this is done we must organize and demand the following:

First. That all employees shall be entitled within reasonable bonds to a choice of physician.

Second. That the fees common in each community shall be paid for medical and surgical treatment and that in case of doubt reference will be made to the county societies of the Massachusetts Medical Society.

Third. That evidence of injustice be carried to the legislature and the law amended so that

the power of the Industrial Accident Board shall be limited.

Fourth. That this important work of placing the cost of industrial accidents involves matters that require men with medical training and that, therefore, His Excellency, the Governor, be solicited to appoint medical men on the Industrial Accident Board.

NOTES OF THE FIRST ANNUAL CONFERENCE ON THE MEDICAL AND SOCIAL WORK OF THE PSYCHOPATHIC HOSPITAL, BOSTON, MASSACHUSETTS.*

I. Remarks at the First Anniversary Meeting of the Opening of the Psychopathic Hospital, June 24, 1913. Walter Channing, M.D., Chairman, Boston State Hospital Trustees.

II. Juvenile Crime and Psychopathic States: the Legal Point of View. Harvey H. Baker, Justice, Boston Juvenile Court.

III. Voluntary Commitment and Commitment Laws. G. E. Eversole, M.D., Junior Assistant Physician, Psychopathic Hospital.

IV. On Certain Irregularities in Mental Defect, Demonstrable by Mental Tests and Suggesting Special Educative Measures. V. V. Anderson M.D., Assistant Physician, Out-Patient Department, Psychopathic Hospital.

V. Statistical Notes on the Need of Social Service in the Psychopathic Out-Patient Department. Mary C. Jarrett, Director, Social Service Department, Psychopathic Hospital.

VI. The Incidence of Syphilis (Wassermann Reaction) in 111 Consecutive Out-Patient Children and Adolescents. W. P. Lucas, M.D., Professor-Elect of Pediatrics, University of California; lately Chief of Out-Patient Staff, Psychopathic Hospital.

VII. Delirium Tremens and Alcoholic Hallucinosis, with special reference to previous History. A. W. Stearns, M.D., First Assistant Physician, Psychopathic Hospital; Assistant in Nervous Diseases, Tufts Medical School.

VIII. The Treatment of the Deliria in General Hospitals and in Hospitals for the Insane. Donald Gregg, M.D., Assistant Physician, Out-Patient Department, Psychopathic Hospital.

IX. Note on the Influence of Hydrotherapy on the Red Blood Cell Count in the Insane. H. M. Adler, M. D., Chief-of-Staff, Psychopathic Hospital; Assistant Professor of Psychiatry, Harvard Medical School and B. H. Ragle, Student, Harvard Medical School.

X. Reminiscences Concerning the Treatment of Delirium. John G. Blake, M.D., Trustee of Gardner State Colony.

XI. Progress with the Treatment of Paresis by Salvarsanized Serum. A. Myerson, M.D., Assistant Physician, Psychopathic Hospital.

XII. The Outlook for Work at the Psychopathic Hospital, Boston, 1913. E. E. Southard, M.D., Director, Psychopathic Hospital.

* Being Psychopathic Hospital Contributions, 1913. 3, to 1913. 14. The papers of Dr. Channing, Judge Baker and Dr. John G. Blake are presented in full. The paper of Dr. Lucas was read by title and is here presented in full.

I.

REMARKS AT THE FIRST ANNIVERSARY MEETING OF THE OPENING OF THE PSYCHOPATHIC HOSPITAL, JUNE 24, 1913.*

BY WALTER CHANNING, M.D., BOSTON,

Chairman Trustees.

I CAN say with truth that this is the happiest day of my life as a medical man, for my fondest dream has come true: Boston has at last a real psychopathic hospital! For years, you will remember, we longed and prayed for such a hospital. We appreciated how much it was needed, though not enough to lead us to storm the legislature until our wishes were heeded. Dr. Jelly, as medical examiner for the city, suffered from the lack of a proper place to send patients for observation more than any other man, but with characteristic tolerance and patience waited for the dawn of a better day. We can imagine having him with us today and hear him praise everyone for what had been done, without, however, alluding to himself.

Looking back we can see, that step by step, steady progress was being made toward the desired result. The public was becoming educated, both outside the legislature and in, to the imperative necessity of sending insane persons to a more fitting place than a city criminal institution for detention. The Society of Psychiatry and Neurology, leaders in many matters concerning the better care of the insane, was active and persistent in its advocacy of a proper hospital and deserves much credit for what was accomplished, but I am not quite sure when the legislature would have finally granted an appropriation for the erection of a building, had it not been for Dr. Copp, backed by a strong and able Board of Insanity. Dr. Copp is one of those rare men who can look straight into the face and eyes of a big problem and provide a means of solution which will successfully work. Right, with him, is might. Every doubting Thomas he can bring round to his way of thinking by the force of his arguments and personality. So it was when that magnificent special appropriation of $600,000 was granted by the legislature to buy land and erect a building. A large majority on the committees became convinced that it was a necessity, and I am happy to say that members of those committees, with whom I have recently talked, have never regretted their action.

The trustees of the Boston State Hospital, to whom was entrusted the building of the Psycho-

* Being Psychopathic Hospital Contributions, 1913. 3, introductory to a series of 12 communications read at the First Annual Conference on the Medical and Social Work of the Psychopathic Hospital, June 24, 1913. These communications will receive Psychopathic Hospital Contributions, 1913. 3-1913. 4. *(Bibliographical Note:* The previous contribution, P. H. Contribution 1913. 2, by E. E. Southard, entitled "The Psychopathic Hospital as Research and Teaching Centre." was published in the BOSTON MEDICAL AND SURGICAL JOURNAL, July 31, 1913, vol. clxix, No. 5, p. 151.

pathic Hospital, would have struggled under a terrible handicap had it not been for Dr. Copp and the Board of Insanity. Dr. Copp labored on the plans not only by day, but by night. He sought the advice of others and frequently consulted the trustees, but when all is said and done, this building with its many excellencies and few defects, is the work of Dr. Copp and in my own mind will ever be called "The Copp Psychopathic Hospital."

I must confess that while Dr. Copp was so sanguine of success and predicted a great influx of patients, during the eighteen weary months of the construction of the building, my heart often misgave me and I seriously questioned whether, after all, there was a field in Boston for an institution which was expected to correlate so many new kinds of activities,—humanitarian and scientific. However, Dr. Frost, who supervised in the most skilful way the details of building, was always cheerful and encouraging, and Dr. Southard, supervising the laboratory construction and the scientific equipment, had plenty of magnetism on tap, and I never wholly lost faith in the ideals with which we all started.

It can well be imagined that the organization of the hospital was no small matter. Begun in its earliest stages by Dr. Copp and carried forward by Drs. Frost and Southard up to the present time, it has presented innumerable difficulties, which are, however, one by one being overcome.

It can seldom be said that ideals in this world are ever fully realized, yet mine have come surprisingly near being realized at the psychopathic hospital. It formerly seemed almost hopeless that any case of mental disease, no matter what the conditions might be, could immediately find the doors of a hospital open to receive it. Yet such is the fact, and only a few days ago Dr. Dewey, one of the examining physicians for the city of Boston, commented on what a great relief this was. Neither could I believe that the public would fully appreciate the service such a hospital was intended to give them, yet already, in a few days less than a year, 1418 patients have been received,—the best possible testimony that the hospital has been appreciated. The success of the out-patient department has borne further testimony in the same direction. It was a splendid conception, but I feared must very slowly build up its clientéle, as the idea was novel and the location not well known. There again I was wrong. A large variety of most interesting cases have come for treatment, and I confidently expect that this department will be of immense social importance, as the connecting link between the people and the hospital. If mental disease is to be prevented, it will come through the service and influence largely of this branch of a psychopathic hospital.

One of the things that has particularly impressed me this first year is the number of special medical problems that have come to the hospital. Here at last is an institution that has the facilities for investigating problems and welcomes them. In an ordinary state hospital, the variety of cases, as well as the numbers are less, and over-worked assistants have only limited time to study them. It is, perhaps, nearly as difficult to discover that there *are* problems, as to find their solution. Broad scientific training and keen perception are necessary to start us on their scent. We are fortunate in having a director combining these qualifications, and he, with the help of his chief of staff, recently appointed assistant professor of psychiatry in Harvard University—and no better appointment could be made—is unearthing numberless problems and running them down, and to his great credit, be it said, is inspiring others to do the same.

In this connection it must be reiterated that such a hospital as this must be a centre for the instruction of medical students in mental diseases; otherwises it will fail to fulfil its most important function in the last analysis, which is:—first, education; second, education; and third, education,—the very foundation of all progress, and in no department of medicine of greater consequence than in this of mental diseases, which up to a recent period, has been such a terra incognita to the medical, as well as the lay world.

I have been especially pleased to find during the past year that the psychopathic hospital has been taking on the attributes of a general hospital by a natural process of evolution, in as far as this has been possible. I had always hoped that such might be the case, but feared that the seemingly similarity of superficial symptoms in cases of mental diseases, might lead to a cut-and-dried system of admitting patients. The contrary has been the practice. Every patient brought to the hospital has been examined very much as he would be in any general hospital, and the case has been admitted or rejected on its merits. The humanitarian aspects of each case have received careful attention and no one has been turned away if the conditions were critical. Though the law excludes the admission of cases of delirium tremens, a number have been admitted, there being no hospital devoted to their care. Their rejection in the circumstances would have been almost inhuman.

In conclusion I would say that, as a trustee, I endorse what I have said as a medical man, but in commending the work accomplished by the medical officers, I would speak with becoming humility, and so far we all feel that we have hardly taken the first step. We have been groping about in our swaddling clothes until finally strength enough has been gained to venture on that first step, which we all know counts for so much.

The state has been splendidly generous in building and maintaining this new departure in institutions, and the medical profession can show its appreciation by taking advantage of the op-

portunities it offers, and helping it to make good.

II.

JUVENILE CRIME AND PSYCHOPATHIC STATES: THE LEGAL POINT OF VIEW.*

BY HARVEY H. BAKER,

Justice Boston Juvenile Court.

IT is sometimes stated that the misconduct of a very large proportion of the children who get into court is due to mental deficiencies or defects. The correctness of that statement has not yet been established, but it is true that in a substantial number of cases the delinquency is due to mental conditions, and in those cases it is of the utmost importance to find out the true state of affairs and to find it out promptly.

A master of a school brought to our court informally one morning a nine year old boy, with the request that the judge give the boy a warning against the continuance of his misconduct, which consisted in general disorderliness and lack of attention in the class room, in quarrelsomeness in the yard, objectionable writing on the walls, and staying out all night and keeping younger boys out with him. Every teacher found fault with him; whippings had proved unavailing; and relief had been secured only by giving him a seat by himself as far away as practicable from the rest of his class. The master, the teachers and school visitor were all confident that the boy was by no means deficient: the teachers said he was bright enough, only he would not apply himself. The boy was unusually attractive in his appearance, although it was stated that he had a distinctly greater disregard for cleanliness of person and neatness of dress than most boys of his age and condition. He talked well, too. For example, when the judge remonstrated with him for his quarrelsomeness, he said, "I can't help it; the boys hit me and if I go away, they will call me a coward."

The judge gave the desired warning, but with even less than the usual slight effect, for in two days the master reported that the boy was as bad as ever and there was nothing to do but take him personally under the oversight of the court. The judge hesitated to commit to a reform school so young a boy who appeared so promising, and asked a child placing agency to try him in a private family under the close supervision of a trained visitor to see what effect a change of environment would have on the case. This very painstaking agency made a careful study of the boy and, despite the opinion of the school officials that he was a normal child, insisted on having him examined by a specialist because (in addition to the facts above stated) he had not begun to talk until he was three years old, was wetting his bed, associated largely with children younger than himself and had a tendency to be cruel to them. The physician, although very conservative in such cases, unhesitatingly pronounced the boy a suitable subject for a school for the feeble-minded. The parents would not listen to his going to any such place, and retained a lawyer of good standing, who scouted the idea of the boy's being deficient, declared that he could get plenty of experts to support his contention against the specialist who had made the examination, and insisted on appealing the case to a higher court, if the judge should refuse to let the child remain with his parents. Owing to conditions over which the officers of the law have no control, an appeal would have resulted in the discharge of the boy from any supervision whatever, so the judge acquiesced in the parents' taking the boy with them to a suburb where they established a new home; and, as one of the terms of the compromise, the probation officer abstained from any communication with the school authorities so that there might be no possibility of a new teacher's starting with any prejudices, and contented himself with inquiring about the boy from his parents. The parents gave uniformly favorable reports, asd at the end of two years it seemed as if this might be a case where the expert had been at fault, but before making any such entry on the records the judge sought verification of the apparent state of affairs from the superintendent of schools, who reported as follows: The boy had been a source of trouble ever since he entered the town; he had stolen from schoolmates, played truant and bunked out; he had been placed by his mother with friends in the country and been given up by them as impossible; he had stuck a lighted candle through a hole in the partition between his cellar and that of the other part of a double house so that it would set fire to the building after he was safely out of the way. He had locked people into a store and knocked down a small girl who had tried to let them out. Finally, he had stolen goods from a passing wagon and had just been committed to a reform school where he had already gained the title of "Jack Johnson" for fighting with all the boys in his cottage.

It is probable there is not a community in the Metropolitan District where there is not constantly at least a case or two very much like this; and the importance to the child itself, its schoolmates, the teachers, and the community of submitting such cases promptly to the Psychopathic Hospital or its equivalent cannot be overestimated.

* Being Psychopathic Hospital Contributions, 1913. 4.

III.

VOLUNTARY COMMITMENTS AND VOLUNTARY COMMITMENT LAWS.

BY G. E. EVERSOLE, M.D.,

Junior Assistant Physician, Psychopathic Hospital.

Massachusetts is one of sixteen states having voluntary commitment laws, one of five states re-

* Being Psychpoathic Hospital Contributions, 1913. 5.

quiring a mental condition rendering patient competent to make application, and one of nine states requiring detention no longer than three days after patient gives notice in writing that he wishes to leave. Massachusetts has had in all 1425 admissions from June 25, 1912, to June 24, 1913, inclusive, and of these cases there have been 389 voluntary admissions under the voluntary commitment law embodied in Section 45, Chapter 504, Acts of 1909. Of these 389 cases, 101 have turned out to be "not insane" and 288 insane. Of the 288 insane, 30 have been discharged recovered, 74 improved and 178 not improved, 6 patients have died and 86 patients have been regularly committed. The communication reports progress in a study of voluntary commitments which is being undertaken to work out the psychology of the will from the pathological standpoint. The problem has also an interest from the legal and sociological standpoint, inasmuch as these voluntary commitment laws apparently collide with certain contentions concerning the nature of individual liberty. It is especially interesting that 31 cases of general paresis were admitted as voluntary patients and 66 cases of dementia precox. These groups of cases require especial study with respect to the nature of psychopathic states and phases of mental disease, permitting such insight on the part of the patient as will permit an application for voluntary commitment.

Public attention should be drawn to the fact that 389 out of 1425 cases, viz., 27.2%, have been voluntary commitments. If, in future we can eliminate cases improperly or with doubtful propriety committed under this Section, we shall still be able to point to a large series of cases properly committed. The large series of cases which proved to be "not insane" from among this series is an especially good index of public confidence in the state mechanism for control of insanity.

IV.

On Certain Irregularities in Mental Defect Demonstrable by Mental Tests and Suggesting Special Educative Measures.*

BY V. V. ANDERSON, M.D., BOSTON,

Assistant Physician for Out-Patients.

I have carefully gone over a series of 225 cases intensively studied by exact mental tests. Of these individuals 41 were adults and 184 were children and adolescents. Of the adults 41½% proved to be mental defectives; 14½% distinctly inferior individuals classified as subnormal; 31½% showed sufficient evidence of mental aberration to arouse suspicion of a psychosis and later from a qualitative study of symptoms presented were diagnosed as such; 9¾% showed neither any signs of mental deficiency, mental inferiority or psychosis and were put into a class of individuals having fairly normal mental makeup. Of this series of 41 adults, there was one individual presenting the extremely variable reaction of the epileptic: at one examination very clear, quick, bright and up to normal; at the next dull, vague, heavy and falling far below his previous mark, at no time presenting any evidence of a psychosis. Of this series of 41 adults, 24 2-3% has a positive Wassermann reaction, indicating the presence of syphilis.

Of my 184 children and adolescents, 42½% were mental defectives, 32¾% were mentally inferior and were classified as subnormal, 8 2-3% showed sufficient evidence of mental aberration to lead to suspicion of a psychosis and later, by qualitative study of symptoms were diagnosed as such; 3% were epileptics, of whom 2 were normal, 1 defective, 1 subnormal and 1 had a psychosis; 1½% were deaf mutes, 2 were subnormal and 1 was a mental defective.

Twelve per cent. of this series of 184 cases showed no evidence of intellectual inferiority or mental aberration and were classified as normal. A positive Wassermann reaction was present in 17% of the 184 cases.

In every instance the Wassermann reaction was negative in those individuals classified as normal by exact mental tests.

It seems worth noting that the percentage of mental defectives in the two series was about the same,—among the adults 41½%, among the children and adolescents 42½%. But when we come to the subnormals and those suffering from psychosis, we notice quite a difference in the two series. Only 14½% of my adults were classified as subnormal, while 32¾% of the children and adolescents came under this group. And 31½% of the adults were diagnosed as suffering from psychosis, while only 8 2-3% of the children and adolescents had psychosis. Now, judging from these figures, we have every reason to feel that there are among our school children quite a large number of individuals who are backward, who are subnormal, mentally inferior, who are unable to cope with the battles of life and later on in life develop insanity.

There were 21 individuals who as a result of exact tests showed marked irregularity in their mental makeup, an almost complete dropping out of some field of mental imagery, whose memory seemed almost altogether of the auditory type or may be of the visual type. We do know that normal individuals differ greatly in the use of their imagination. In some the habitual thought stuff, if one may so call it, is visual, in another it is auditory, articulatory or motor, in most people it is evenly mixed. Of these cases that I refer to, all were sufficiently backward to arouse suspicion of "mental deficiency."

Forty-two and six-sevenths per cent. showed marked defects in auditory memory, 89% of

* Being Psychopathic Hospital Contributions, 1913. 6.

whom measured so low in the scale as to leave no doubt of their being feeble-minded children. The other came under the subnormal group.

The remaining 57 3-7% of the series showed defects in visual memory and little, if any, use of visual imagery. Of these 25% were feeble-minded, 66 2-3% of whom had congenital syphilis. Seventy-five per cent. of those showing visual defect were classified as subnormal, 11% of whom had congenital syphilis.

What is striking about the auditory defect is that 89% were feeble-minded and showed only the poorest promise of capacity for profiting by education. While of those suffering an apparent dropping out of the visual field, 25% only were feeble-minded, and 75% showed every evidence of ability to profit by education and fairly good native capacity. A mental inferiority due to a peculiar type of defect and not feeble mindedness, as had been suspected from school work.

The lesson to be learned from this is that there is a certain per cent. of the children in school showing one or other of these defects, whose extreme backwardness may be due to a defect in auditory word memory. This defect may be partial or extreme and their level in the scale of intelligence will depend upon the degree of severity of the defect.

If our list of cases means anything, it would point to the fact that those showing the auditory word defect are lower in the scale and are almost always feeble-minded unless proper instruction is begun very early. But the majority of those individuals suffering from defective visual imagery in whom visual memory of words will be found poor or decidedly in arrears are not defective children but otherwise fairly normal children requiring special instruction. They must be taught to help their memory out with auditory and articulatory imagery. Intensive instruction must be given along certain lines to make good the loss sustained from the dropping out of this field.

The importance of determining those cases that are educable, of finding those individuals whose backwardness is explainable by certain irregularities in their mental makeup, who because of their apparent mental inferiority and their failure to profit by education as it has been given them, have been considered feeble-minded, but in reality are not mental defectives, but children who under proper methods of instruction will develop into fairly normal individuals, —the importance, I say, of discovering those having promise of normal development, providing their peculiar handicap can in any way be remedied and considering them in a special class distinct from those that are really feeble-minded, those that are actually defective, for whom no amount of special training will ever provide a crutch strong enough to enable them to compete in the battles of life, is evident and need not be enlarged upon here.

V.

Statistical Notes on the Need of Social Service in the Psychopathic Out-Patient Department.*

BY MARY C. JARRETT, BOSTON,

Chief of the Social Service.

The out-patient department received 700 cases from the time of its opening in August, 1912, to June 19, 1913; 47% were children and 53% were adults; 194 men and 179 women; 58 boys between 14 and 21 years; 70 girls between 12 and 18 years; 112 boys under 14 years and 85 girls under 12 years, 1 boy and 1 girl under 1 year.

The reason given for coming to the clinic in 129 cases was the question of insanity, in 174 a question of mental deficiency, psychoneurosis in 116 cases, alcoholism in 61 cases, sex offence in 52 cases, delinquency in 85 cases, speech defect in 93 cases, after-care for discharged hospital patients in 170 cases, 165 of these being referred from the Psychopathic Hospital wards and five from other hospitals. Two hundred and three cases came through a general knowledge of the hospital, 66 were sent by public agencies, 22 by courts and 44 by schools, 58 came from hospitals, 131 from charities, 77 through private individuals, of whom 47 were doctors, 165 were referred from the Psychopathic Hospital wards for after-care. In 289 cases mental tests were made. Fifty-seven cases were admitted to the house after examination in the out-patient department.

A study of the records of 100 cases in the out-patient department and 100 cases in the house during May and June, showed that about 79% in the out-patient department and 66% in the house obviously needed some form of social service. The remaining 21-34% include a certain number of committed cases, patients whose families are competent to do all that can be done for them, and a number of unmarried persons who drift from place to place and whose habits of life are so confirmed that there is hardly a chance of affecting them, even if communication could be maintained.

Of the 79 cases in the out-patient department that needed social service, 43 were in the care of agencies which brought them for examination, and required only co-operation from the hospital. Of the 36 cases needing social service directly from the hospital, 20 needed supervision over a considerable period, 10 of these being patients discharged from the house; in 6 cases the family should have been advised; in 2 cases a history was necessary to the diagnosis; in 1 case there was a question of relief; in 3 cases the question was whether home or institution care was best; 4 cases should have been referred to special social agencies.

* Being Psychopathic Hospital Contributions, 1913. 7.

Of the 66 cases in the house needing social service, 14 were in the care of the social agencies which sent them. Of the remaining 52, 18 cases required after-care, 22 advice to the family, 18 a history needed for diagnosis, 3 relief, and in 9 cases there was the question of calling in another agency.

An attempt was made to estimate the staff of social workers needed to cover this work. There is no direct precedent or definite standard for determining how many cases one social worker in a psychopathic hospital can carry; but by a comparison of the experience of the Committee for Mental Hygiene of the New York State Charities Aid Association and that of other agencies doing somewhat similar work, it is estimated that one worker can take in a year 150 cases for investigation and miscellaneous services or can care for about 50 patients a year under supervision (that is 10 under treatment at one time for an average period of three months each), so that a worker who did both investigation and supervision would average 100 cases a year. On this basis, with 700 patients a year coming to the out-patient department and 1400 a year into the house, 8 trained workers would be required to do adequately the social work of the hospital. It is hoped that this number may be reduced by help from volunteers and students of the School for Social Workers.

VI.

The Incidence of Syphilis (Wassermann Reaction) on 111 Consecutive Children Examined in the Out-patient Department of the Psychopathic Hospital.*

BY W. P. LUCAS, M.D.,

Chief of Out-Patient Department.

The result of the Wassermann reaction on the following cases is reported simply to draw attention to the need of having such tests done as a routine in a children's clinic, especially in a children's clinic such as the Psychopathic Hospital, where the cases are sent in for mental examination perhaps more than for physical.

Practically everyone of these children have been seen in one or more of the children's hospitals or institutions in and around the city. None of the children, with one exception, had had the test done before they came to the Psychopathic Out-Patient Department. The large percentage of positive results would indicate the need of having this test done oftener. The reason for bringing these children to the hospital varied greatly, as is seen from the following table:

Reasons for Bringing to Hospital.

	Positive.	Negative.	Total.
Juvenile Court cases	3	8	11
Truancy	2	13	15
Mentally backward	22	36	58
Violent temper	2	7	9
Incorrigibility	5	9	14
Masturbation	3	2	5
Waywardness	3	0	3
Immorality	6	5	11
Stealing	3	11	14
Untruthfulness	1	10	11
Forgery	0	2	2
Nightmare	1	1	2
Speech defects	4	10	14
Depression	0	1	1
Extreme nervousness	2	6	8
Paralysis	1	0	1
Epilepsy	0	2	2
Erratic behavior	3	2	5
Inability to keep position	1	2	3
Suicidal tendency	0	1	1
Tic	0	1	1
Question of cong. syphilis	1	0	1
No definite cause	1	0	1

Lues could be ascertained from the family history in only nine of these cases. There were, however, other facts in the family history in some cases which aroused suspicion, but in the majority of cases there was little in the family history different from the family history of most children seen in the ordinary children's out-patient clinic, as is seen by the following table of the family history:—

Family History.

	Positive.	Negative.	Total.
Insanity	1	10	11
Mental defects	2	5	7
Alcoholic	2	10	12
Lues	8	1	9
Deaf-mutism	1	2	3
Miscarriages	4	14	18
Illegitimate	3	6	9
Still births	3	3	6
Early deaths	3	3	6
Tabes	1	0	1
Consanguinity	1	1	2
General paresis	2	0	2
Immorality	4	11	15
Friedreich's ataxia	0	1	1
Epilepsy	0	4	4
Negative	0	20	20

The ages of the children varied from two to nineteen years, there being simply one exception to this, that of a girl twenty-five who had definite physical signs of congenital lues (Hutchinsonian triad). The occurrence during the various ages is shown in the following table. It will be seen that the majority of cases fall between eight years and seventeen, or the ages during which syphilis is most often overlooked in childhood.

Age.

	Positive.	Negative.	Total.
2 years	1	0	1
3 years	2	1	3
4 years	0	2	2
5 years	0	0	0
6 years	2	2	4
7 years	1	2	3
8 years	0	7	7
9 years	1	5	6
10 years	1	6	7
11 years	3	10	13
12 years	5	4	9

* Being Psychopathic Hospital Contributions, 1913. 8.

	Positive.	Negative.	Total.
13 years	3	6	9
14 years	3	10	13
15 years	1	10	11
16 years	4	6	10
17 years	4	3	7
18 years	2	2	4
19 years	1	0	1
25 years	1	0	1
Totals	35	76	111
	31.5%	68.5%	

The physical examinations of these children brought out in many cases some very suggestive signs. The most important of these suggestive signs are found in the following table. It is interesting to note that defects in hearing, speech, sight and dental abnormalities are the four most common and suspicious of the physical signs found, with the exception of that indefinite physical symptom—*nervousness*.

SUGGESTIVE PHYSICAL SIGNS.

Defects.	Positive.	Negative.	Total.
Hearing	7	2	9
Eyes	12	5	17
Speech	12	11	23
Teeth	12	2	14
Bony	3	3	6
Nose	1	0	1
Skin	2	1	3
Nervous	15	10	25
Persistent headaches	3	1	4
Hydrocephalic head	1	1	2
Rheumatic endocarditis	0	7	7

The physical diagnosis of these cases is given in the following table. It will be seen from this that the diagnosis of congenital syphilis was made 28 times out of the 35 positive cases, but this diagnosis was not arrived at in all these cases by any means until after the result of the Wassermann reaction was known. We have come, however, to lay great importance on the occurrence of certain physical signs, especally the finding of defects of hearing, speech, and eyesight in any one case.

PHYSICAL DIAGNOSIS.

Diagnoses.	Positive.	Negative.	Total.
Under par	13	34	47
Adolescent	20	32	52
Speech defects	1	10	11
Tic	1	1	2
Deaf-mutism	1	2	3
Spastic paralysis	1	0	1
Friedreich's ataxia	0	1	1
Sexual hyperdevelopment	0	5	5
Delayed adolescence	0	7	7
Epilepsy	0	2	2
Hydrocephalus	1	1	2
Pulmonary tuberculosis	0	2	2
Congenital syphilis	28	4	32
Acquired syphilis	3	0	3
Normal	11	22	33

The mental diagnosis of these cases is also interesting, bringing out the fact of the high percentage of defectives that give a positive reaction (45.7%).

MENTAL DIAGNOSIS.

Diagnoses.	Positive.	%	Negative.	%	Total.
Defective	16	45.7	28	36.87	44
Idiocy	3	8.5	0	100	3
Retarded	8	22.8	19	25	27
Question of psychosis	1	2.8	4	5	5
Dementia precox	1	2.8	1	1.3	2
Sexual pervert	0	100	1	1.3	1
Psychopathic	0	100	4	5	4
Poor heredity	0	100	3	3.9	3
Delinquency	4	11.4	28	36.8	32
Normal	5	14	27	35.5	32

The analysis of the Wassermann reaction is seen in the following table:—

WASSERMANN REACTIONS.

Strongly positive	7
Positive	18
Suggestive of positive	5
Positive on either parent (not done on child)	4
Not done here (treated "606" at other hospitals)	1
Negative	76
Total	111

NOTE: On the 76 negative reactions, three cases showed strong stigmata of congenital lues.

We attempt to draw no conclusions from this small group of reactions, but simply hope that it will call attention to the needs of such tests being done in these border-line cases.

VII.

DELIRIUM TREMENS AND ALCOHOLIC HALLUCINOSIS WITH SPECIAL REFERENCE TO PREVIOUS HISTORY.*

BY A. W. STEARNS, M.D., BOSTON,

First Assistant Physician.

Under the name of delirium tremens and alcoholic hallucinosis most writers describe two quite different mental diseases, yet usually state that these two diseases merge one into the other in such a way as to make differentiation difficult or impossible. The distinction is made largely upon mental, aided perhaps by physical, examination. Separation of these conditions, usually of theoretical importance, has for the Psychopathic Hospital a peculiar though perhaps artificial value because of the fact that two of our laws, under which many more than half of our cases are admitted, discriminate against delirium tremens, the one (Chap. 395, Acts 1911) allowing admission of certain cases "other than delirium tremens and drunkenness," the other (Chap. 307, Acts 1909) by which we are allowed to receive cases from the police "in the same manner as persons afflicted with other diseases are taken to general hospitals" and "are not obliged to receive delirium tremens and drunkenness."

* Being Psychopathic Hospital Contributions, 1913. 9.

In a recent analysis of 100 consecutive alcoholic cases 40 were diagnosed alcoholic hallucinosis and 25 delirium tremens. Thus 25 cases were admitted through inability to distinguish on short examination between the two diseases, except for a few whose condition was such that humanitarian instincts demanded that they be admitted. A rough grouping of these 65 cases according to duration was made and it was found that 22 cases lasted one week or less, 12 cases one to two weeks, 3 cases two to three weeks, 6 cases three to four weeks, and 20 cases more than four weeks. This allowed very readily a division into long and short (acute and chronic), there being surprisingly few cases (2) in the middle zone, two to three weeks.

Classifying according to diagram, this low point represents the end of the delirium tremens series, there being but one lasting three to four weeks. But 8 of the alcoholic hallucinosis cases lasted under a week, while 20 of them lasted over four weeks, all cases lasting over four weeks being alcoholic hallucinosis. But 1 case came in the two to three weeks' zone.

This led the writer to wonder if the short cases might not be one disease and the long cases another, regardless of symptomatology and so to look for common characteristics in each group. One was especially noticeable, for 15 of the 25 cases of delirium tremens came to the hospital following a spree, while 31 of the alcoholic hallucinosis cases were steady drinkers. Of the 8 cases of alcoholic hallucinosis lasting less than a week, 4 were spree drinkers, 2 were steady drinkers but had been on a spree, and 2 were unknown. This fact seems to point toward the fact that the short cases are all the same and due to the presence of alcohol in the system, while the long cases, deprived of their recoveries, are much more serious, a larger percentage resulting in permanent brain damage, and so represent destruction of some sort.

It is suggested that all of the short cases following spree be called acute alcoholic hallucinosis, and the long cases chronic alcoholic hallucinosis.

VIII.

The Treatment of the Deliria in General Hospitals and in Hospitals for the Insane.*

BY DONALD GREGG, M.D., BOSTON,

Assistant Physician to Out-Patients, Psychopathic Hospital.

In the treatment of the deliria, general hospitals and hospitals for the insane have practically but one type of delirium in common, namely, delirium tremens. Consequently a study of the treatment of delirium tremens in the Psychopathic Hospital and five large general hospitals in Boston, New York, Philadelphia and Baltimore was undertaken. A summary of the results is shown in the accompanying table.

This table shows strikingly that although the cases were older and had more complications at the Psychopathic Hospital, yet eliminative treatment here of continued baths and packs, resulted in no mortality, whereas at general hospitals where restraint and depressant drugs were used, the mortality averaged 26%. The conclusions drawn were:—

First. The results of the eliminative treatment of the deliria with relative freedom and hydrotherapy, and a minimum amount of medication, far excels in effectiveness the usual treatment by restraint and depressant drugs in cases of the symptomatic psychoses, including alcoholism.

Second. Every general hospital should be provided with the facilities for treating properly, cases of deliria. Such facilities should include isolation wards where quiet is not essential, and continuous bath apparatus for hydrotherapy.

Third. The present situation in Boston, where no general or insane hospital is ready to take and adequately care for cases of simple delirium tremens, is one that should be promptly remedied by the establishment of a public hospital properly equipped for the treatment of inebriety.

* Being Psychopathic Hospital Contributions, 1913. 10.

	Sex.	Age.	Time in Hospital.	Complications.	Treatment. Restraint.	Depress.	Stim.	Elim.	Counter Elim.	Resulting Mortality.
Average of General Hospitals	8 m. 2 f.	39	10 days	.8	11	19	21	3.2	.9	26%
Psychopathic Hospital	10 m.	46	22 days	1.	0	.6	0	3.	0	0%

IX.

Note on the Influence of Hydrotherapy on the Red Blood Cell Count in the Insane.*

BY H. M. ADLER, M.D. BOSTON,

AND

E. H. RAGLE, BOSTON.

A large number of insane patients show a more or less marked degree of cyanosis. This cyanosis is most frequently observed in the extremities and face, less frequently in other parts of the body. The cyanosis is not dependent upon cardiac disease, and is variable in the same individual. The more intense the cyanosis, as a rule, the more pronounced are the symptoms of mental disease. Cyanosis has been observed most frequently in cases of dementia precox,—particularly the hebephrenic and katatonic forms,—in cases of manic depressive insanity, and in alcoholic hallucinosis.

* Being Psychopathic Hospital Contributions, 1913. 11.

It has been known for some time that this cyanosis is an accompaniment of polycrythrocythemia. It has been observed that the prolonged baths, which are administered to patients exhibiting psychomotor excitement, have a remarkably good effect in calming the individual. It has also been observed that as improvement sets in the cyanosis becomes less marked or disappears. A similar improvement in regard to cyanosis has been observed after the needle spray, Scotch douche, and other forms of hydrotherapy. This has always been looked upon as evidence of the beneficial effect of hydrotherapy upon the circulation, and it has been assumed that the cyanosis represented a sluggish peripheral circulation.

A study was made of the red count in six patients who exhibited marked cyanosis and more or less psychomotor excitement. The red blood cells were counted in the morning, the patient was put into a prolonged bath and kept there throughout the day, and the red blood cells were counted again in the late afternoon or early evening. The patients were put to bed in the evening and kept in bed until the following morning. Several of them, however, were restless and up and about all night. This examination was kept up for periods varying from one to three weeks. It was found that in general the red count was higher than the usual normal figures, all the cases showing marked cyanosis, and that the red cells were less numerous after a day in the prolonged bath. The female patients, of whom there were three, exhibited red counts varying from over six million to a little over four million. The male patients, of whom there were three, showed variations from between a maximum of 8,346,000 to a minimum of 5,900,000. With very few exceptions the count was found lower by 500,000 to 1,500,000 red cells per cubic millimeter after a day in the prolonged bath. It has been argued that the increase in red cells was due to the muscular activity of the patients during their excitement, and that the fall in number was due to the rest experienced in the baths. This seems unlikely in view of the findings in the case of one of the female patients, who has attacks of maniacal excitement following short periods of almost normal conduct. In her case the cyanosis appeared in her hands and lips a day before there was any muscular agitation, and, in fact, it was found that in her case the blood count was a fair index of her mental condition, so that one was able to predict a disturbed period by two to twelve hours.

It seems probable that the polycrythrocythemia in the insane is due, as a rule, to the same causes that produce this condition in sudden ascents to high altitudes, namely, to loss of water by evaporation from the surface. The baths may, therefore, be considered to act as water jackets, preventing the evaporation, if not actually replacing by absorption, some of the water lost.

X.

Reminiscences Concerning the Treatment of Delirium.*

BY JOHN G. BLAKE, M.D., BOSTON,

Trustee of Gardner State Colony.

My experience in the treatment of delirium tremens extends back fifty-three years. I was then surgical house officer in the Massachusetts General Hospital. We had a ward founded by Mr. Truro, which was known as the Truro Ward, to which all such cases were sent. The nurse, Miss Bragg, afterwards became a nurse at the City Hospital.

The treatment of delirium tremens in the Massachusetts General Hospital consisted largely in supporting the strength of the patients with simple nutritious food, together with stimulants and careful watching. Very little violence was used to control them. Most of the cases had complications either of pneumonia or surgically broken limbs or bruises. The mortality was usually very high. There was no hydropathic treatment of delirium tremens in those days. The mortality in non-complicated cases of delirium tremens admitted to the hospital in 62 cases was 11.

In the City Hospital for the past forty-nine or fifty years, we have had to take a large number of cases complicated and uncomplicated. We have no wards or modern methods there to treat delirium tremens. We have had 137 non-complicated cases of delirium tremens from January 1, 1912, to January 1, 1913. From these we had 38 deaths. In the statistics of the Relief Station, we find that they have had 117 cases and about 17 deaths. I think they used hydropathic treatment to some extent, but the usual treatment has not been interfered with in any degree. In the City Hospital we have to take them and place them among 600 other patients without any particular ward or appliances for treating them. We always hoped that when the Psychopathic Hospital was established we would be relived of the care of these cases, but in this we have been disappointed. Under existing conditions I cannot expect any better improvement in treatment.

XI.

Progress with the Treatment of Paresis by Salvarsanized Serum.†

BY A. MYERSON, M.D., BOSTON,

Assistant Physician, Psychopathic Hospital.

Within the past year the discovery of Moore and Noguchi that the Spirocheta Pallida is present and can be demonstrated in the brains of a

* Being Psychopathic Hospital Contributions, 1913. 12.

† Being Psychopathic Hospital Contributions, 1913. 13.

large percentage of paretics, has made rational the intensive treatment of general paresis. Particularly the use of salvarsanized serum, as advocated by Swift and Ellis, has thus received at least a partial theoretical sanction.

It is to report our experience with this method of treatment in general paresis, carried on by Dr. R. R. Rupp and myself, that this paper has been written. (For the method of preparation and administration see the original paper by Swift and Ellis.)

We have had under treatment 8 cases where the diagnosis of paresis was made. In seven of these the mental and physical signs of the disease were undoubted, and the four reactions,—Wassermann reaction in blood, Wassermann reaction, lymphocytosis and globulin increase in spinal fluid,—made the diagnosis certain. In the eighth the clinical picture was that of paresis, but the Wassermann reaction in spinal fluid was negative, so that the diagnosis of cerebrospinal syphilis has to be considered.

Case 11341. Entered January 3, first treatment February 13, nine treatments thus far (June 27). Wassermann Reaction in serum negative on March 15, negative since. Wassermann reaction in spinal fluid negative April 16, and with one exception negative since. Cell count less, globulin less. Some clinical improvement.

Case 11409. February 14, first treatment March 11, seven treatments up to date. Wassermann Reaction in spinal fluid negative April 23, has been slightly positive on two occasions since, generally negative. Wassermann Reaction in blood negative, May 24, negative since—cell and globulin decrease. Complete remission clinically. Home on visit.

Case 11415. February 17. First treatment February 22, three intradural treatments, nine intravenous doses of Neosalvarsan,—Wassermann reaction in blood negative. February 25, negative on all occasions since, spinal fluid negative since March 26. Cell and globulin decrease. Clinical improvement.

Case 11452. February 25, first treatment March 15, since seven treatments. Spinal fluid, Wassermann reaction negative April 23, since slightly positive. Wassermann reaction in blood April 30, since generally positive. No change in cell or globulin content. Symptoms stationary.

Case 11537. March 25, first treatment April 9. Since four treatments. No change in four reactions, marked deterioration. Treatment discontinued.

Case 11608. April 14, 1913. Case with spinal fluid negative to Wassermann reaction. First treatment April 30, since five treatments. Wassermann reaction in blood negative May 31, since only suggestively positive. Clinical improvement.

Case 11748. May 29, 1913, heredotabes and (paresis ?). Aged 11 years. First treatment June 5, one since. No change in four reactions, no change clinically.

Summarizing our experience we may state that for a time at least the pathological process in general paresis is changed by this treatment. The biological basis of the Wassermann reaction may entirely disappear from the blood and spinal fluid and remain away for, so far as we now know, an indefinite period. There may also be clinical improvement.

XII.

The Outlook for Work at the Psychopathic Hospital, Boston, 1913.*

BY E. E. SOUTHARD, M.D., BOSTON,

Director, Psychopathic Department, Boston State Hospital, Boston, Mass.; Pathologist to the State Board of Insanity; and Bullard Professor of Neuropathology, Harvard Medical School, Boston, Mass.

Our officers, with the valued assistance of Judge Harvey Baker of the Juvenile Court and of Dr. John G. Blake of the Boston City Hospital, have today presented the work of the Psychopathic Hospital for a year past. After so full and concrete a program and after the elated (not to say *euphoric*) words of Dr. Walter Channing, the chairman of our Board, I can myself do little but make my bow and dismiss you all to your homes.

I must confess that I share to a degree Dr. Channing's elevation of spirits, the more so as after all the director is nowadays little more than an *impresario*. I think we must all have been astonished at the variety and amount of work done and work begun. The program has roughly divided itself into a more social and a more medical portion, and I make no doubt that future annual conferences will preserve the same partition of interests and that we can again invite Judge Baker, Dr. Blake and you all to a program of similar nature, beset rather more with accomplishment than with promise.

I much regret that our former chief of the out-patient staff, Dr. W. P. Lucas, now on the high seas, had to leave his communication to be read by title. So socially minded a physician is seldom found. And a socially minded physician with statistical, that is to say, *transindividual*, insight is a *rara avis* if not a *nova* species. The size and importance of the syphilis and heredity problems, the important part played by work with children in the prophylactic tasks of mental hygiene, and the necessity of careful physical examinations in all our out-patient cases have been his tasks to consider and demonstrate; and he has left with me a series of brief papers to be shortly published which will present, in torso, something of what he might have accomplished, had he not been transported to a broader field of usefulness in California.

The statistical or transindividual point of view has extended to Miss Mary Jarrett's work

* Being Psychopathic Hospital Contributions, 1913. 14.

in the social service of our hospital. That an estimate of time and money necessary to surround the metropolitan problem of *social service for psychopaths* can be safely or at least concretely made at this time is matter for congratulation. There is no reason why a complete estimate should not be made for the state at large, so that social service for psychopaths shall become as routine a problem of this commonwealth as, *e.g.* the social service of minor wards, the adult poor, boarded-out insane, and the like. That the Psychopathic Hospital will need in the near future more than several social workers is clear.

That routine begets novelty is nowhere better shown than in Dr. Anderson's demonstration of cases whose special defect of imagery demands special educative measures. The full protocols of these special cases I hope Dr. Anderson will later present and thus initiate work which, however arduous and time-consuming, must yield new insight into pathopsychology.

I will not here rehearse the delirium and delirium tremens situation to which Stearns, Gregg, Adler and Ragle, as well as Dr. John G. Blake, have referred. I will say that at Minneapolis in the hospital section of the American Medical Association there was long and eager discussion of the plight of delirium treatment in American hospitals, following some remarks in my paper read there last week on the Psychopathic Hospital idea.

We intend to call it our especial mission during the coming year to work intensively on the topic of delirium and its treatment, and perhaps we shall be able to bring something about it of interest to our next annual conference. In one sense a campaign of education about matters understood already for years, I will call attention to the fact that the Adler-Ragle demonstration of a drop in the red blood cell count after prolonged baths is an earnest that there is something new to do even in the field of delirium, which has been handled these many decades in general hospitals, at times with a really scandalous mortality.

I will say nothing here of the at first sight forlorn endeavor to combat general paresis by the Homer Swift method of intradural injections of salvarsanized serum, just reported in the form of "progress" by Myerson.

If we can be optimistic as to paresis, we can be optimistic about anything. I believe you will all be convinced that we possess optimism *quantum sufficit*. If I myself have been little more than a non-productive leader (as a friend of mine might say *catalyzer*) I can still cheer myself with the reflection that I am an impresario of optimists!

PROFESSOR HIS, of Berlin, who was asked to accept the appointment of director of the medical clinic, at Vienna, as successor of Professor von Noorden, has declined.—*Science.*

Medical Progress.

REPORT ON OBSTETRICS.

BY ROBERT L. DE NORMANDIE, M.D., BOSTON,

AND

JOHN B. SWIFT, JR., M.D., BOSTON.

THE SERUM DIAGNOSIS OF PREGNANCY.

Judd[1] mentions the serologic methods used in the early diagnosis of pregnancy and then takes up more in detail Abderhalden's serum diagnosis of pregnancy. Briefly, Abderhalden's reaction is based on his theory that the free chorionic villi of an implanted ovum causes in the maternal organisms a reaction which produces digesting ferments for placental tissue. In order to perform the test a fresh placenta is obtained, finely ground and washed entirely free of blood. It is then thrown into about a quart of boiling water. This is repeated until the water at the end of five minutes' boiling shows no biuret reaction. This washed placental tissue is then dried and preserved, to be used as wanted. The apparatus necessary is as follows: Dialyzers impermeable to serum albumin and to the intact placental protein, but permeable to its cleavage products; glass containers for the dialyzers; capillary pipettes, test tubes and a Bunsen burner; reagents for doing the biuret test; finally, some means for obtaining at least 6 c.c. of sterile blood from the patient. Judd regards the performance of this test as simple and describes it as follows:—

The patient's blood is drawn and allowed to separate, and of the clear hemoglobin free serum 1.5 c.c. is placed in the dialyzer, which has been thoroughly saturated with water. To this is added 1 gm. of the placental tissue as previously prepared. The outside of the dialyzer is thoroughly rinsed in tap water, 20 c.c. of distilled water is then placed in the container and the charged dialyzer partially submerged. A layer of toluene, a preservative, is placed in both the dialyzer and the container. The whole is then incubated for from twelve to sixteen hours. As a control serum alone is placed in another dialyzer and also incubated. At the end of the incubation 10 c.c. of the water in the container are tested for the biuret reaction. If positive, it indicates that the tissue was digested by an enzyme of the patient's serum, which so far investigations have shown to be present only in the gravid state, the puerperium and in cases of retained membranes.

A negative test is strong, if not conclusive evidence that placental tissue is not and has not recently been in the patient's system. Judd warns the reader about controlling the test by avoiding any putrefactive changes in the pla-

centa by obtaining fresh serum and by selecting proper dialyzers.

Considering now results obtained from the use of the Abderhalden test, Frank and Heimann[2] report a series of 33 cases in which Abderhalden's claims are fully confirmed. All were early suspicious cases. Twenty-three came in for subsequent examinations, and 21 of these were found to be pregnant, having had a positive reaction. In six of these 33 cases the reaction was negative and none of these cases were found pregnant, despite amenorrhea. During the puerperium a positive reaction was found until the seventh day and never after the thirteenth day. The authors believe that the test is too complicated and requires too great technic at present to be of value outside of large general laboratories.

Henkel[3] reports the use of the test in forty cases at the Women's Clinic in Jena. Reliable results were obtained in both normal and pathological pregnancies, although the author does not state what the results were or the percentage of successes. He cites a case of extra-uterine pregnancy where the diagnosis was established by the test. This article contains a long review of Abderhalden's method and a number of helpful notes on the technic of the reaction. The author found that an eclamptic placenta could not be split up by serum from an eclamptic patient and that normal pregnancy serum could only be used with an eclamptic placenta. This finding, which was established by accident, has led the author to believe that possible valuable information may be obtained as to the etiology of eclampsia by the use of Abderhalden's reaction.

Piorkowski[4] in a summary reports the use of the test and its success in a series of cases, 96% of which were successful. He does not give the number of cases tested or the kind of cases upon which he worked.

Comparatively little has been written regarding the test as yet and very little in English. Opinions in regard to its value must be still held in abeyance, but it is fair to say that all reports so far have been favorable and in those that have not it does not seem that the technic, which is difficult, has been thoroughly carried out.

THE USE OF FETAL SERUM AS THE CAUSE OF ONSET OF LABOR.

Attention was first called to this possibility by observing the pregnancy of one of the united sisters Blazek. During the pregnancy the non-pregnant sister developed a series of secondary phenomena characteristic of pregnancy, but was not influenced by parturition. Influenced by their observations, however, Sauerbrook and Heide[5] continued experiments by sewing pregnant to non-pregnant rats. A few hours before the onset of labor the non-pregnant animal invariably became very sick and even in a few cases died. The ones that died were those that had been joined to the pregnant animal late in pregnancy. It was considered that the symptoms were those of an intoxication brought about by substances forming before uterine contractions commenced, but which were harmless to the pregnant partner.

Experiments were next done on human beings, four women at term being injected with from eight to twenty cubic centimeters of defibrinated blood from active parturients. Practically no results were obtained and the injected patients suffered no harm.

In the meantime Lockman and Thies[6] had observed that fetal serum injected into gravid animals had given marked results, causing definite uterine contractions and in many instances labor, while 71% of non-pregnant rabbits reacted to the injection, showing that pregnancy in itself may be considered anaphylactic from serum of the same kind.

Stimulated by this work, Heide began a series of experiments, using fetal serum obtained from the umbilical cord immediately after delivery. His results were as follows: In four cases after injection of serum, labor pains set in which led to expulsion of the fetus in patients who were not previously in labor. In three of these cases one injection was sufficient. In two cases a slightly larger second injection was given after the first. In three more cases the pains appeared transiently and in one of these a large second dose was followed by irregular pains lasting six hours. In none of this last series of cases was labor actually ended by the use of the serum, but it was evidently begun. In the third group injections were used for inertia in the first and second stages, and all these cases showed prompt response by the uterus in the number and vigor of contractions. The fourth group contained a series of cases in which the results were definitely negative. The fifth group of cases, in which the serum was used intramuscularly instead of intravenously, showed slight uterine contractions following the serum; otherwise, nothing definite. All the other injections were intravenous and recapitulated the hardest cases. Eight receiving intramuscular injections showed only slight uterine contractions. Eight receiving intravenous injections showed no effect. Five receiving intravenous injections promptly started in labor and were delivered. Eight receiving the injection intravenously during labor showed marked advantageous change in the labor.

Stimulated by the foregoing Rongy[7] at the Jewish Maternity in New York determined on a fresh series of experiments and injected 19 women at or near term, intravenously. Seven of these cases showed no results. Three showed a reaction to the serum, but delivery could not be said to have occurred as the result of the serum. Eight of the cases unquestionably delivered themselves as a direct result of the injection. One case admitted to the hospital for

threatened eclampsia after one injection, although she did not deliver herself, showed marked improvement, immediately developing a polyuria, albumen and casts almost instantly clearing up in the urine. (It was not stated what other treatment she received.) In conclusion, the author believes that he can completely corroborate Heide's observations. His explanations of these results is at best theoretical.

Heide believes that the whole active labor and the toxemias of pregnancy will in the future be reviewed as a mere anaphylactic reaction.

Experiments of Lockman and Thies have shown that serious changes, which must be considered as anaphylactic manifestations, are produced by injecting fresh fetal rabbit serum into full-grown rabbits. Heide believes that normally the birth act is brought about by the slow transmission of fetal substances into the blood of the mother, which gives rise to the formation of antibodies, "labor substances," as he calls them. Toward the end of gestation these substances are transmitted to the blood of the mother in excessive amounts. That there is a deluge of these substances is shown by the contractions which arise in the last weeks of pregnancy, and also by the uniform results obtained by the injection of the serum in inertia.

The foregoing, although interesting, can hardly be called conclusive in any way. The author feels certain that fetal serum intravenously induces uterine contractions. He says nothing concerning the care which it seems must be used, to be certain that syphilitic fetal serum is not injected. Further work should be done and the author's findings corroborated. It would seem as though most useful work could be done and knowledge gained by using animals for a number of preliminary tests.

A CONTRIBUTION TO THE STUDY OF ECLAMPSIA AS A TOXEMIA OF POSSIBLE MAMMARY ORIGIN.

Wilson's paper[8] is suggested by the recent papers occurring in regard to "Parturient Paresis of Cattle," the clinical and pathological picture of which shows an astonishing similarity to human eclampsia.

Wilson, reviewing this disease of cattle, defines it as a disorder of the cow occurring only in association with pregnancy, labor or the puerperium, usually in the first few days post partum. It is characterized clinically by paresis of the limbs, convulsive attacks, prolonged coma, by albuminuria, tube casts, glycosuria, and changes in the nitrogen partition in the urine. Pathologically it shows hemorrhages in the liver and occasionally in the central nervous system and by parenchymatous degeneration of the liver, kidneys and to a much less degree of the heart and other viscera. The predisposing factors in the etiology of this condition are all associated with the greatest development of milk production. Multiparity plays an important part, the disease being very rare in primiparae. It apparently occurs after easy normal births, rarely after difficult ones or where there was much hemorrhage.

Milk and colostrum from cows sick with this disease Healy and Kastle injected intraperitoneally into guinea-pigs and these pigs invariably became sick and died in a few days with characteristic lesions.

But little pathological research has been done by the veterinaries to clear up this condition. Delmer reports ten of his own in which he says the most constant and serious lesions were those of the liver. Invariably were found hemorrhagic extravasations under the liver capsule and into the gland substance. The kidneys show constant lesions.

Preceding the onset of the attack various prodromal symptoms appear; later there is considerable restlessness, twitching of the muscles, and the hind legs begin to appear weak. Coma follows, and is often preceded by convulsions.

Urinary findings show albumin to be present in the great majority of cases. Sugar is usually present. Nitrogen in the form of ammonia is increased. The amount is decreased and casts are present.

Prior to the so-called new treatment by injection of the udder with air the maternal mortality was from 50-70% but now the mortality of this disease is only 1%.

The treatment now given is to distend the udder with air. The degree of distension results in a diminution in its circulation and a consequent decrease in the supply of toxins going to the general circulation.

Wilson mentions the cases of eclampsia which have up to the present time been treated as a possible mammary toxemia. Up to the present time Wilson has found twenty-nine cases so treated including the case of Sellheim's where the breasts were amputated. The other case of breast amputation reported by Herrarschneider simply shows how much malpractice the patient may survive.

Wilson ends his article with the following points for consideration:

1. Parturient paresis is a disease of the parturient cow, and undoubtedly due to the circulation in the blood of a powerful toxin having its origin in some perversion of the mammary secretion.

2. The mammary theory of eclampsia is based almost entirely on the practically complete pathological and clinical similarity of the two diseases.

3. There are, however, the following important differences:

(a) Parturient paresis rarely attacks primiparous animals, while primiparity markedly predisposes to eclampsia.

(b) Parturient paresis occurs almost entirely post-partum; eclampsia shows no special predilection for this period.

(c) Parturient paresis increases in frequency in direct ratio with increased power in milk production. No such finding has been noted in eclampsia.

(d) Sugar is an almost constant ingredient of the urine of parturient paresis but is rarely found in eclamptic urine.

4. The mammary theory of eclampsia is probably merely specious.

5. An investigation should include

(a) A careful pathological and clinical study of parturient paresis.

(b) The determination of the toxic or non toxic character of the colostrum from eclamptics.

(c) A tentative trial in properly selected cases of eclampsia of the treatment by air or oxygen injection of the breasts.

The article ends with a bibliography of the subject matter.

(To be continued.)

Reports of Societies.

CONGRESS OF AMERICAN PHYSICIANS AND SURGEONS.

Ninth Triennial Session Held in the New Willard Hotel, Washington, D. C., May 6, 7, 1913.

SYMPOSIUM ON THE STUDY OF RENAL FUNCTION.

THE RELATION OF FUNCTIONAL TESTS TO PATHOLOGICAL DIAGNOSIS.

Dr. Henry A. Christian, Boston: There are various methods of testing renal function, as the following: Measuring the excretion of the salt, water, lactose, potassium iodide and sulphonaphthalein; by measuring the retension of non-proteid nitrogen in the blood; by the determination of diastase in the urine; by determination of the presence of indican in the blood; or by estimating uric acidity. A review of these methods shows that very great aid is given in determining clinically whether the kidneys are diseased; but distinctly less help has come in answering the second query,—What type of pathological lesions do the kidneys show? As in all forms of clinical diagnosis, not a single test, but many, yield the data on which diagnosis must be based. In this sense, these functional tests have yielded new data; and a discriminating evolution of this new data along with a consideration of data furnished by other methods of examining our patients, already long in use, justifies us in making diagnosis of renal conditions with increased certainty.

THE STUDY OF RENAL FUNCTION; ITS BEARING ON TREATMENT.

Theodore C. Janeway, New York: As the results of the recent studies of renal functions, the internal treatment of renal disease has made definite progress along two lines: (1) The study of experimental nephritis in animals has made clear the existence of isolated disturbances in the excretion of individual constituents and the existence of definite types of abnormal excretion of the diseased kidney through stimuli. These have been found to have their counterpart in human nephritis. (2) The accurate study of the salt and water exchanges in human nephritis and the relation to edema, has resulted in precisely the scientific method which is highly effective in certain types of renal diseases. In both animals and man polyuria is an evidence of slight or early disturbances of the kidney vessels; whereas oliguria represents a much more severe type of functional damage. Closely allied to this state of irritability of the vessels is the susceptibility to fatigue. This slight phenomenon of the vascular over-irritability must never be neglected in the treatment. In chronic nephritis the constant over-stimulation of the kidney, by so apparently harmless a treatment as water, may intail danger to the integrity of the local vascular functions. The over use of salt also increases the blood-pressure, and the uremic symptoms; and there is consequent in a salt poor regimen. Caution in the use of the common beverages is also necessary. It is necessary to have absolute uniformity in the salt intake, when testing the excretion of water; and also to study carefully the relation between water and sodium chloride in making the salt tests. The one essential guide to treatment is the absolute salt balance. The management of the water balance requires equal attention. The relation between intake and output in both substances is far more important than the absolute amount.

THE PROGNOSTIC VALUE OF THE STUDIES OF RENAL FUNCTION.

Dr. L. G. Rowntree, Baltimore: The best clinical training and experience do not fully equip the physician to cope successfully and thoroughly with the problem of prognosis in certain cases of nephritis, nor do they reveal the exact status of his patient in many other pathological conditions of the kidney. To his assistance now are brought the renal function tests.

Determination of renal function is of vital interest alike to the internist and surgeon from the stand point of diagnosis, prognosis and treatment.

Functional studies reveal only the excretory capacity of the kidney. By themselves they do not make the diagnosis or settle the prognosis. Functional tests will become more generally used and hence the more value when we know which one can be discarded without loss and which combination of tests (the smaller the better), will yield all the information necessary to any given type of disease. Through functional studies it is possible to ascertain that uremia is impending, even when no indications whatever of its proximity are revealed by clinical study.

DISCUSSION.

Dr. Hugh Cabot, Boston: It is only of recent years—and not even today sufficiently—that we have been realizing our responsibility with regard to this question of knowing and understanding the advance in the study of kidney function. It cannot be said that the tests of renal function have been, as yet, of great value to the clinical pathol-

ogist, who attempts to correlate the findings in the urine with those in the kidney.

Too many surgeons today neglect this matter of the study of kidney function, feeling that the urine will give them sufficient knowledge. It has been pointed out that the ordinary routine examination of the urine will not give authentic information. These renal functional tests are enabling us to discover beforehand the probable mortality in any group of operations. None of the color tests seem as valuable as the phthalein test of Rowntree and Gerachty. I regard it very highly. Another test on which we rely, is the nitrogen retention test. The surgeon may depend upon these two tests, if properly carried out, to give him a good idea of the operative prognosis. Dr. Rowntree has already referred to the value of these tests of the severity of the disease in the two kidneys, so that one may be able to decide in advance of operation whether the remaining kidney is of sufficient soundness to be compatible with life. I believe it is possible at present to determine with great accuracy whether the remaining kidney is sound enough to maintain life. That being determined, we have removed the largest factor in mortality. The more I see patients with impaired kidney function the more I am impressed with the fact that no line can be drawn where a distinction of dangerous or not dangerous can be made. A kidney with low function may be compatible with life in one patient and quite the reverse in another. If the function is low, but is yet stable, and if the patient can be put to some strain without an important variation in the function's being produced, he is a far better risk than one with twice as good a function, yet one in whom the least strain produces bad results. Stability is more important than low level of kidney function.

DR. GEORGE DOCK, St Louis: It is noteworthy that we have had actual statements from many doing the experimental work in the production of known kidney lesions, and also the clinical material, and then the careful clinical studies, including treatment. Until recently urine-examination suffered from an unmistakable tendency that applies to all medical diagnosis: that is, the tendency to rely on a single diagnostic method and miss the complete examination of the sick man. For instance, too many patients were neglected or allowed to be perfectly reckless on the basis of a single examination for albumin. The same thing was done with casts. The urea examination of urine was abused for years, and the uric-acid tests would have been more abused, except for the fact that there were no easily applied methods of making them. Although a great many different methods of examining kidney function have been mentioned today, yet one was missed by the authors. It is a new method for examining the blood. Unless these methods are used as fully as their importance warrants in every individual case, then the patient will be a victim of malpractice.

A striking thing is that most of the patients on whom you make these tests do not ever come to autopsy. There is a surprising lack of anatomical information along these lines. We need in the case of kidney diseases an enormous amount of light on renal anatomy. The difference in the classifications and the many classifications of kidney diseases, as well as the hopeless difference of opinion regarding the classification, show how much we still have to learn. The anatomical work that is done should be just as complete and just as careful in all parts as the clinical work, in order to bring good results.

DR. JOHN T. GERACHTY, Baltimore: The number of functional tests have become so great that it is impracticable to employ all of them in any individual case. The information furnished by many is of the same character, but more accurately furnished by one than another. For example, there is a parallelism between the excretion of the different dye-substances; but, as phthalein furnishes more accurately all the information obtainable from this group of substances, no advantage attaches to the employment of all. Lately we have discarded the nonproteid nitrogen estimations, and are depending on cryoscopy for evidence of cumulative phenomena. The tests which we consider of the greatest value in the excretory group are: Phthalein, Lactose and Chlorides; and of the tests of retention; Blood-urea, Rest Nitrogen and Cryoscopy. The tests most useful in conjunction with urethal catheterization are: Phthalein, Urea and Diastase. The total function should always be estimated by means of phthalein without urethal catheterization, in order to detect the amount of catheter-inhibition, should this exist. Where several bilateral lesions exist, one of the retention tests should be used.

The simplest and easiest test is undoubtedly the Phthalein test, as it requires the least amount of time and apparatus. The Lactose test, if quantitative determination is required, necessitates the employment of an expensive polariscope. Its use also requires familiarity with the technique of intravenous injections. The time necessary for a single determination with Diastase is scarcely warranted by the information obtained. Urea estimations of the urine can be accurately and rapidly done by the Marshall method. Chloride estimation, by the Lutke Martius method, consumes considerable time and requires daily collection of the urine with a knowledge of daily chloride-intake.

Estimation of function in renal surgery by means of phthalein has become so important that its position is firmly established. The surgeon of today is not justified in performing a nephrectomy or other significant procedures tending to disturb renal function, without having first learned the renal function, and without having first catheterized both kidneys.

DR. WILLIAM S. THAYER, Baltimore: During the past year and a half we have been following many cases suspected of renal disease and cardio-renal disease, under Dr. Rowntree's personal direction. We have studied the renal function in a considerable number of cases; and have already examined about fifty cases which have since come to autopsy. We are compiling these cases, and purpose to tabulate them later. These studies have taken into consideration the intake and out-put of salt, water, the elimination of nitrogen and lactose after the manner of Schlayer, the coagulability of the blood, and the excretion of phthalein. In the absence of chronic disease of the kidney, the lactic acid test is useful, in revealing the disturbance in the vascular apparatus of the kidney. I wish to emphasize the importance of the estimation of the intake and output of salt and water in renal disease. The value of the estimation of the blood-content of incoaguable nitrogen is of considerable advantage; but the introduction of simpler and more accurate methods of studying our cases has convinced us of the value of the phthalein test of Rowntree and Gerachty.

It is simple and easily carried out, and appears to be a really accurate index of the condition of the renal function at the time of its application. The value of the phthalein test, from a prognostic standpoint, is very well known in certain cases. For instance, eight years ago while I was at a medical meeting, a doctor, an old friend of mine, spoke to me about a gentleman whose condition seemed very bad with chronic nephritis. He had albuminuric retinitis, and the doctor did not think it likely that he would live another year. The doctor is now dead of arterioscelerotic and renal changes; but the patient is still living. The prognosis, however, would probably have been very different had they had the phthalein test as we have it today.

We are concerned here very largely with a chronic progressive disease, the etiology of which is still, in many instances, very uncertain, and to combat which we have, at present, very few weapons of decisive value.

We cannot always test the exact limitations of the functional capacity of the kidney, any more than we can test the limits of the functional capacity of a weak or diseased heart muscle. These tests are of importance in instances of slow chronic nephritis. I think of one instance in which the phthalein test remained unusually high until a period not so long before the fatal outcome. Unfortunately in that instance, the tests were not made with all the accuracy that one might demand.

Owing to the revival of the study of renal function, we are able to distinguish early disease of the kidney with greater accurateness, to estimate its extent more surely, and to prognosticate its future course more safely. We have learned to better treat our patients and to increase materially their comfort and their chances of survival.

Damage may be done at times by the undue pushing of the use of diuretics in renal disease. We have always known this; but not until recently did we realize to what extent their use might be dangerous.

Dr. Julius M. Rosenthal, New York: With the repeated administration of diuretics, we find in human nephritis that the kidney, after some time, refuses to act in its normal manner by answering with an increased secretion of urine. In nephritic animals, as in human beings, we find that each individual type of nephritis reacts differently to the diuretic. Some of them, given intravenously in one per cent. solution, will at first produce an increased secretion of urine, to be subsequently followed by a diminution in the amount. The secretion may be reopened by the administration of caffeine, which will be followed by an enormous diuresis. It is largely a matter of guess-work finding the right diuretic; because in human nephritis we cannot differentiate. We do not know which nephritis will react to the administration of salt, which to caffeine, and which to another diuretic; and we cannot use these diuretics without thought.

Dr. Christian, (closing): All forms of diuretic drugs are capable of injuring patients with nephritis. We can demonstrate this experimentally on animals. The injudicious use of any diuretic, far from being a benefit, may be distinctly injurious to the patient. It seems very probable that the functional study of the kidney is to give us a considerable insight into this question of the use of diuretics. Until we get more information on the subject, I am very certain we shall do as we have done in the past,—injure, and not benefit the patients, by using diuretics.

Dr. Janeway, (closing): These functional kidney tests are divided into two groups, which proceed to the solution of two totally different problems. I have seen liver disease discriminated by the phthalein finding to seventy or eighty per cent. and verified shortly by autopsy; and it has shown that chronic passive congestion is a real disease of the kidney, and not simply a functional sequel, the results of lesions elsewhere. The phthalein test shows us what the symptoms have always shown us, that it is a state dependent on anatomical lesions, well defined, and of practical importance.

If we of the medical clinic co-operate with our colleagues the pathologists in the autopsy room, and carry out over long periods of years the most exact functional tests of all kinds, at all times, not aiming at immediate practical results, but at as clear an analysis of the functional disturbances as is possible, and then, in the end, are able in different institutions to bring together large groups of cases that have been the subject of study for years, with the eventual histological findings on the kidneys, we may do what the brain pathologists have done—add vastly to the understanding of the normal secretory activity of the kidney and its localization in essentially differentiated anatomical structures.

(*To be continued.*)

Book Reviews.

Sterility in the Male and Female and Its Treatment. By Max Huehner, M.D., New York; Chief, Genito-Urinary Department, Harlem Hospital Dispensary, New York City; formerly Attending Genito-Urinary Surgeon, Bellevue Hospital, Out-patient Department, and Assistant Gynecologist, Mount Sinai Hospital Dispensary, New York City. Member American Urological Association, American Medical Association, Fellow of the New York Academy of Medicine, etc. New York: Rebman Company.

Failure to reproduce "after its kind" means the disappearance of any race or family, and is of the utmost importance to society and may be of great interest to the individuals concerned. Such failure is voluntary or involuntary. In the former case, if treatment is needed, it falls to the domain of some department other than medical science. Inability to procreate is the condition considered as sterility by Huehner in his monograph. The material was gathered from the genito-urinary clinics of the Harlem Hospital and Bellevue Hospital dispensaries, and also mainly from the gynecological clinic of the Mount Sinai Hospital dispensary, where for a period of six years, cases of sterility were referred to the author.

There were made 475 examinations for spermatozoa, consisting of the examination of 205 condom specimens, of 216 examinations of various parts of the female genitalia for spermatozoa, of 28 aspirations of the testicles and examination of the aspirated fluid in cases of azoöspermia, and 26 aspirations of the testicle in non-sterility cases, for comparison. From these investigations, the author draws his conclusions, presenting a critique of such previous studies and methods as have been published, and a "practical" method of treatment.

Much of the generally accepted teaching about sterility is inaccurate, and the responsibility for the sterility has been placed on the male or the female in most cases without adequate data for such a conclusion. The responsibility for the male ceases, the author claims, if live spermatozoa reach the cervix of the uterus. To determine this fact examination should be made soon after coitus, the sooner the better. In the vagina the spermatozoa are quickly killed by the acid secretion. Alkaline douches of sodium phosphate (one dram to the pint of water) immediately before coitus have a distinct tendency to prolong the life of the spermatozoa. Several examinations should be made before it is concluded that the spermatozoa do not reach the cervix.

The author has called his method "practical," but does it "work"? Here the book is disappointing for this important detail is omitted—whether the patients became pregnant and in what percentage of cases. The chief value of the book then lies in calling attention to the want of accurate information on this subject and suggesting lines along which work may be done. It represents a large amount of careful and conscientious work and helps considerably to clear the ground for later studies.

Fibroids of the Uterus. Their Pathology and Treatment. By SIR JOHN BLAND-SUTTON, F.R.C.S., Surgeon to the Middlesex Hospital. pp. xvi, 240, with 39 illustrations. Bound cloth. London: Science Reviews Ltd., 36-38 Whitefriars Street, E. C.

This monograph is an interesting contribution to the literature of myomata of the uterus. It purports to be "in narrative form a summary of our knowledge of the extremely common tumors known as uterine fibroids," and is best described by these words. The writer's experience is wide and he speaks with authority. The style is flowing and clear and there is the pleasant quality of the personal note, not obtrusively presented. The practical suggestions are numerous and excellent, and one lays down the little book with the feeling that not only is the subject entirely worthy of a more extended treatment, but that the writer has much more of interest that he might say. The illustrations are chiefly of the more unusual conditions.

Diet in Health and Disease. By JULIUS FRIEDENWALD, M.D., Professor of Gastro-Enterology in the College of Physicians and Surgeons, Baltimore; and JOHN RURAH, M.D., Professor of Diseases of Children in the College of Physicians and Surgeons, Baltimore. Fourth edition, thoroughly revised and enlarged. Octavo. Pp., 857. Philadelphia and London: W B. Saunders Company. 1913.

The fourth edition of this valuable book has been necessitated by the many new facts which have been added to the knowledge of food and metabolism. The work of the authors is complete, well arranged and sound. The arrangement is excellent. There are many valuable tables and diet lists.

Therapeutics of the Gastro-Intestinal Tract. By CARL WEGELE, M.D., Adapted and Edited, with additions on the diagnosis of the diseases of the esophagus; diagnosis of the diseases of the gastro-intestinal tract; duodenal tube and its uses; diseases of the pancreas, and x-ray examinations of the gastro-intestinal tract by MAURICE H. GROSS, M.D., Attending Gastro-Enterologist to the Har Moriad Hospital and I. W. HELD, M.D., Attending Physician to the Har Moriah Hospital. New York: Rebman Company. 1913.

The editors have made rather extensive additions to the German work. Diagnosis is given a much more prominent place than in the original. The various disorders of the gastro-intestinal tract are discussed in detail and explicit directions for treatment, especially dietetic, are given. The book is somewhat superficial but is based on abundant clinical observations and will be found of value to general practitioners rather than to those giving special study to gastro-intestinal diseases.

The Narcotic Drug Diseases and Allied Ailments. By GEO. E. PETTEY, M.D., Memphis, Tennessee. Philadelphia: F. A. Davis Company. 1913.

This work is based on a large experience of the author in the treatment of the narcotic drug diseases. He gives in detail his own treatment with case reports. On the whole, the large mass of material at the disposal of the author is not utilized to advantage. There are many repetitions. In places one finds rather unwarranted assumptions. The value of the book is considerably marred by an intolerant spirit of criticism of other workers in the same field.

Gout, Its Etiology, Pathology and Treatment. By James Lindsay, M.D. (Edin.), M.R.C.P. (London). London: Oxford University Press. 1913.

The author presents in this small book of 200 pages the results of his clinical observations in a study of about 600 cases of gout. The work is carefully done. The inquiry has not been searching but the result is an interesting book.

Blood Pressure. By Percival Nicholson, M.D. Philadelphia: J. B. Lippincott Company. 1913.

This is a little book of 120 pages which is written entirely from the standpoint of the practical significance of blood pressure. There are a number of important omissions as is perhaps inevitable in such a short popular work. On the whole the book is sound and should prove useful to those who desire a superficial survey of the value of blood pressure in routine practice.

Stammering and Cognate Defects of Speech. By C. S. Bleumel. Two Volumes. New York: G. E. Stechert & Company. 1913.

Stammering and similar defects of speech constitute a somewhat neglected subject, certainly in medical practice. A book on the subject written in an understandable way is, therefore, welcome. Such a book Bleumel has provided in the two small volumes before us. The first volume discusses the psychology of stammering and the second contemporaneous systems of treating stammering, their possibilities and limitations. A somewhat novel feature of the treatise is that the subject has been considered primarily from the mental side. It is, therefore, rather psychological than physiological. Such a plan in the present state of our knowledge of these subjects seems entirely reasonable and likely to be productive of progress in the understanding of the complex function of speech and its defects. Following out this general plan there are certain brief statements regarding psychological terms and the language of psychology, introducing the more special subject matter. The physiological and anatomical element is not entirely omitted as shown by a brief but suggestive chapter on the brain. In general the first volume should prove of value not only to students of speech but to those interested in applied psychology in general. The second volume is of more practical character and should be of service in dealing with speech defects of most varied character. A glossary of forty-four pages renders the book and its terminology intelligible to the uninitiated.

A Reference Handbook of the Medical Sciences. Embracing the entire range of Scientific and Practical Medicine and Allied Science. By various writers. Third Edition. Completely Revised and Rewritten. Edited by Thomas Lathrop Stedman, A.M., M.D. Volume II. New York: Wm. Wood & Co. 1913.

The second volume of the third edition of the Reference Handbook of the Medical Sciences entirely maintains the standard set by its predecessor; in fact, this handbook in its brevity and admirable arrangement has a position which is not likely to be altered in the future. The development of the medical sciences is indicated by the fact that in spite of the conciseness of the individual articles the volume of 832 pages begins with Baden-Baden and ends with chloroform. We await the forthcoming volumes with pleasure and confidence.

Heredity, Evolution and Vitalism. By Ronald Campbell Macfie, M.A., M.B., C.M. New York: William Wood and Company. 1912.

The author of this book attempts in the scope of 283 pages to give a somewhat popular account of the more modern theories of heredity and evolution. The text is readable and contains many facts of interest. The conclusions, however, will be regarded as somewhat speculative and with justice, although it may frankly be admitted that modern scientific research is leading, in a measure, toward a less materialistic conception of the world than has prevailed during the past half century. The text is supplemented by a very detailed index.

Surgery of the Lung. By C. Garrè, Professor of Surgery, Univ. of Bonn, and H. Quincke, formerly Professor of Medicine, Univ. of Kiel. Second Edition. Translated by D. M. Bancroft, M.D., New York: Wm. Wood & Co. 1913.

This volume, convenient in size, containing about 250 pages, well printed, adequately illustrated with clear, clean pictures, may be unhesitatingly recommended to every operating surgeon. It is elaborated in fifteen chapters; anatomy, pathology, methods of differential pressure, general technic, injuries, suppurations, tuberculosis, actinomycosis, fistulae, operations for pulmonary embolism, tumors, echinococcus, foreign bodies, herniae, and emphysema. The translation is distinctly good. The descriptions are vivid, the conclusions temperate, the field is thoroughly covered, and all non-essentials rigidly excluded. The only regret which the book creates, lies in the almost complete absence of names of American surgeons in the bibliography.

The Surgical Clinics of John B. Murphy, M.D. April, 1913. Philadelphia and London: W. B. Saunders Company.

Twenty subjects are presented in this number, varying from hysterectomy for essential hemorrhage, to a description of Murphy's proctoclysis, and including fractures, periosteal sarcoma, decompression for cerebellar tumor, spina bifida, laminectomy for fracture, duodenal block, German statistics on the button, and two clinical talks by Mr. Robert Milne of London (one of which is a summary of his talk at the Boston Medical Library). This April number is even more than usually interesting, and illustrates extremely well the possibilities and limitations of this publication. It is always suggestive. Dr. Murphy discusses at some length his favorite assertion that temperature is an invariable accompaniment of appendicitis.

A System of Surgery, edited by C. C. CHAYCE, B.Sc., M.D., F.R.C.S. Dean and Teacher of Operative Surgery, in the London School of Clinical Medicine, etc. Pathological Editor, J. MARTIN BEATTIE, M.A., M.D., C.M. Professor of Pathology and Bacteriology, and Dean of the Faculty of Medicine, in the University of Sheffield, etc. In 3 volumes. New York: Funk & Wagnalls Co. 1912.

The first two volumes of this system make a very favorable impression upon the reviewer. Type and paper are unusually good, and the plates and very numerous cuts merit even greater praise. Each volume contains about a thousand pages and is distinctly smaller and lighter than the usual American text-book. Fifty well-known Englishmen contribute the monographs which constitute the volumes. The impression received after glancing through the books is one of conciseness, condensation and conservatism. The point of view is distinctly English, the style of writing being far better, more polished, and more accurate than that of many of the text-books which are now appearing so rapidly in America. The volumes are valuable as an index of the opinions and practice of a large number of eminent English surgeons upon every topic of the surgical field. Quoting from the preface: "This work is designed for the practitioner of surgery who desires to keep himself abreast of the most modern teaching, and for the senior student who aims at a sound and comprehensive knowledge of present-day surgery. It has been written by surgeons and pathologists who are actively engaged in teaching and in practice. The aim was to produce a work representative of surgery, theoretical and practical, of Great Britain." In this the authors have been successful. They have not tried to include operative surgery nor lesions of the eye or the skin. The monographs vary considerably in quality, as might be expected. For example, the chapter on spinal anesthesia seems much better than that on general anesthesia, which contains certain things and omits others in a manner surprising to an American surgeon. Upon the whole, this concise system may be strongly recommended to those who desire an accurate idea of the theory and practice of modern British surgery.

Diseases of the Stomach, Including Dietetic and Medicinal Treatment. By GEORGE ROE LOCKWOOD, M.D., Professor of Clinical Medicine in the Columbia University; attending Physician to Bellevue Hospital, New York. Pp., 624, with 126 engravings and 15 plates. Lea and Febiger: Philadelphia and New York. 1913.

The author in his preface announces his intention to describe the diseases of the stomach as he has happened to see them. The work does not represent a compilation from various authorities. Dr. Lockwood has given us a clear and sound treatise of the diagnosis and treatment of the various gastric disorders, based chiefly on his own large personal experience. The pages show intimate familiarity with the literature. The arrangement is excellent; the discussion is direct and logical. The chapters on chronic ulcer of the stomach and duodenum and on gastroptosis strike one as particularly sound and wholesome in the face of so much conflict of opinion. In general the book can be recommended as a particularly well-balanced presentation of diseases of the stomach.

Manual of Tropical Diseases. By ALDO CASTELLANI, M.D., (Florence), Director of the Clinic for Tropical Diseases, Ceylon, etc., and ALBERT J. CHALMERS, M.D., F.R.C.S., D.P.H., Director Wellcome Tropical Research Laboratory, Khartoum, etc. Pp., 747. Second Edition. New York: William Wood & Company. 1913.

It is not surprising that a second edition of this monumental work has appeared within the short space of three years. The significance of tropical diseases to the whole civilized world is such that knowledge of their causes and ravages is becoming essential to a liberal medical education. This volume will fill this need in admirable fashion. In preparing this second edition most of the chapters have been revised and the illustrations, already excellent, increased in number. We again commend most cordially this book to special students of tropical diseases as well as to those who take interest in following the progress of an increasingly important field of medicine.

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Medical and Surgical Journal

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REPORT OF THE MASS. STATE BOARD OF INSANITY.

In one sense this is never a very cheering report since it concerns approximately 16,000 dependents for the support of whom the state is called upon to provide between three and four million dollars yearly. It should, however, not be forgotten that unquestioned progress is being made in the care and we believe in the prophylaxis of this type of disease. It is true that however remote the possibility may be that many of these dependents should return to active life in the communities from which they came, they are undoubtedly becoming increasingly useful in the constricted circle in which they are forced to live. The development of industries and employments of various sorts has had a most notable effect in changing the character of our great public institutions and in making useful to a greater or less degree a large number of persons who otherwise would exist in absolute idleness. That the products of these activities are a factor not only in the welfare of the individuals primarily concerned but also toward the support of the institutions is coming to be an established fact and should be widely recognized by the community at large. It is unfortunate that visits are not more frequently made by our citizens to the institutions for the insane or feeble-minded in order that they might have impressed upon their minds the positive progress toward normal living which is being made in these isolated communities.

When, however, we turn to the actual report the same apparently discouraging statistics face us. Thus it appears that including all persons under the jurisdiction of the State Board of Insanity the number on October 1, 1912, was 16,507 or one such person to every 212 of the estimated population of the state. The increase for the year was 815 which, considering the decreasing prejudice regarding treatment in public institutions and the increase of population, should not be looked upon with alarm. The nativity of first cases of insanity is essentially the same as of the previous year. Thirty-nine per cent. were born in Massachusetts, slightly over 49% in New England, between 55% and 56% in the United States and slightly over 44% in foreign countries. The fact that nearly half the commitments were of persons foreign born offers food for thought in connection with our immigration laws.

The report gives considerable space to the much-discussed subject of the feeble-minded. It is unfortunate that there should be any increase among persons classified as insane but it is peculiarly regrettable that the increase of the feeble-minded should not be definitely checked. No doubt this increase will continue so long as complete segregation remains unaccomplished. In spite of much pressure from various quarters it has not been possible to increase the facilities for the care of the feeble-minded in proportion to the demand, and so long as such irresponsible persons who have reached maturity are extant in the community their propagation is sure to go on in an alarming degree. Dr. William Noyes conducted during the year under the direction of the State Board of Insanity an inquiry for the purpose of gaining as accurate an idea as possible of the actual number of the feeble-minded in the state. In this research he was naturally met with great difficulties owing in part to the definition of feeble-mindedness and in part to the great amount of work entailed in verifying various statements and in securing the adequate coöperation of physicians and others in the investigation. The general result of the census showed slightly over five thousand individuals who were considered by one or more persons as being feeble-minded. The number is actually probably larger than this. Apart from its other obligations, the state has in the problem of caring properly for these persons a very grave responsibility. That they should be segregated as completely as possible is regarded by all who

have seriously looked into the question as the only safeguard to the community. For such segregation facilities much greater than at present exist in this state are requisite. The work of building should certainly be pressed forward as rapidly as the financial condition of the Commonwealth will permit. There is no more vital problem before the legislature than this.

An interesting and altogether encouraging portion of the report is that of the pathologist, Dr. E. E. Southard, who has demonstrated what may be done in the way of investigation, which ultimately means alleviation of conditions, by a group of men properly guided. It should be a source of great satisfaction not only to the medical profession but to the community to realize that a systematic attempt under Dr. Southard's leadership is being made to formulate the great problems relating to the insane and their treatment, manifestly a first step toward practical results of far-reaching consequence.

PUBLIC LAUNDRIES.

IN a letter to the *New York Times* Dr. Donald B. Armstrong, superintendent, Bureau of Public Health and Hygiene of the New York Association for improving the Condition of the Poor, draws attention to the possibility of establishing a public wash-house in New York. The society of which he is superintendent has investigated the matter of washing conditions in that city as well as in others both in America and in Europe. It appears from these studies that in three different parts of New York about 45% of the families are without any washing facilities whatever and that from 75% to 99% do not have hot water except as may be heated on their stoves. Going further in the matter the Bureau of Public Health and Hygiene has obtained an expression of opinion from 9000 users of a certain public bath as to what their attitude would be on the question of a public wash-house in the same section. Ninety per cent. of the women said that they would make use of a public tub and most of them were enthusiastic regarding the idea. Although certain men who were questioned were not quite so ardent, 30% of those who were obliged to do their own washing said that they would also make use of a public laundry were it established.

Wash-houses of this character are not altogether experimental. There are said to be about fifteen in operation in this country, the most successful of which are in Baltimore, Md. There are in that city five such laundries which were used in 1912 by 22,000 people. In London there are said to be 35 laundries which in one recent year were used by nearly a million people. The charge for the use of these facilities in London is a penny an hour and three pence for two hours; in Baltimore the charge has been three cents an hour.

Dr. Armstrong suggests that eventually such agencies of public welfare should be controlled and operated by municipal funds but that in the meantime it would be well that the experiment be undertaken and maintained by private organizations. Personal cleanliness among the masses has in a measure been attained by the establishment of public baths which may now be regarded as an integral part of municipal sanitation. As the writer of the letter to which we allude states, there is no reason why this hygienic measure should not be carried further and provision made for the proper cleansing of garments worn by the people. This general socializing tendency may be observed in many activities looking to the welfare of the poorer classes and should be accepted as a presumable step in progress.

COMPLEMENT FIXATION TEST IN GONORRHEA.

IN a recent issue of the *Weekly Bulletin* of the City Health Department there is an article on the complement fixation test in the diagnosis of gonorrheal infection, the statements in which it is interesting to note in connection with the views expressed by Dr. James Homer Wright in his paper on The Complement Fixation Test in Diagnosis, read before the Massachusetts Medical Society and published in the JOURNAL of September 4. The results obtained from testing the sera of several thousand persons for gonorrheal infection, the *Bulletin* says, would seem to justify the assertion made by Schwartz and McNeil that the complement fixation test for gonorrhea is specific, and that a positive reaction can safely be interpreted as evidence of a focus of gonorrheal infection somewhere in the body. A positive reaction, however, is practically never obtained in an acute anterior urethritis in the male or in an acute vaginitis

in the female; but in all chronic gonorrheal infections a positive reaction is usually obtained. With a modification of the usual technic, whereby tests are allowed to stand in the ice-box for four hours to bind the complement, instead of one hour in the incubator at 37° C., a considerable increase in the number of positive results is obtained. Excepting in acute cases, the reaction persists in those cured for approximately fifty days after the cure has been effected. This fact has been confirmed both by animal experimentation and the study of clinical cases. The sera of persons suffering from gonorrheal joint disease give, as a rule, strongly positive results, making this test of special value in the differential diagnosis between gonorrheal and other forms of joint affections. In a recent series of tests made on the sera of nearly 500 women confined in a public institution, 65% gave positive complement fixation tests for gonorrhea, while but five positive vaginal smears were obtained from the same women. The majority of specimens of sera taken from infants suffering from vulvo-vaginitis have given positive results, and in many cases of long standing, where the smears have become negative, the complement fixation test has given positive results. While a negative result does not absolutely exclude the possibility of the existence of a gonorrheal infection, it is much more significant than a negative Wassermann test for syphilis, as in this case we are dealing with specific antigens and antibodies.

WORKMEN'S COMPENSATION ACT.

A meeting of the Norfolk District Society was held March 25th to consider the Workmen's Compensation Act in all its relations. This meeting was attended by many delegates from other districts of the State that there might be full expression of opinion and discussion preceding a conference to be held on the following day between the delegates and the Industrial Accident Board. The papers which are published in this issue of the JOURNAL presented the standpoint of the lawyer, the physician, and the Industrial Board itself. At the conference held at the State House on the following day it was decided that many difficulties would be avoided, coöperation secured, and a just administration of the law effected by appointment of an advisory board of seven doctors, all to be members of the Massachusetts Medical Society or the Massachusetts Homeopathic Society, four to be selected by the presidents of these societies, one to reside in western Massachusetts, and one in eastern Massachusetts, and three to be appointed by the Industrial Accident Board.

This committee has now served long enough to have been of much service and to have reached certain definite conclusion regarding the workings of this act, which are stated over the names of the committee in this issue. It is not surprising that an act so sweeping in its relations should be difficult of satisfactory adjustment soon after its passage. On the whole progress of a very definite and satisfactory sort seems to have been made in dealing with the problem in this State and we have no doubt if the various interests concerned can be brought to a full realization that completest coöperation is the only means by which final results may be obtained, that the act will ultimately conduce to the welfare of all who are concerned in its provisions.

MEDICAL NOTES.

FRAUDULENT RADIO-ACTIVE WATERS. — The United States Department of Agriculture through the Bureau of Chemistry has issued a warning in regard to so-called radioactive mineral waters offered for sale in bottles. It is pointed out that although some of the waters thus advertised are taken from springs which, as the water comes from the ground, do possess certain radioactive properties, such properties are entirely lost after the water has been bottled. It is stated that if the activity of a water in a spring is 100, four days after bottling it will be only 50, twelve days after 10 and at the end of a month it will be reduced practically to nothing.

RESULTS OF FRIEDMANN TREATMENT.—Sufficient time has elapsed since the beginning of the Friedmann tuberculosis treatment to determine in a general way its probable results. From Providence comes the report that of 120 patients with pulmonary tuberculosis treated by Dr. Friedmann last April practically none have shown the improvement predicted by him. On the contrary about 17% have shown greater

activity of the disease than would otherwise have been expected. Naturally, a longer time must elapse before a final estimate of the treatment can be determnied. One patient with joint tuberculosis is said to have shown improvement.

AMERICAN PUBLIC HEALTH ASSOCIATION.—The American Public Health Association held its forty-first annual meeting in Colorado Springs from Sept. 9th to 13th. Among the papers of interest was one by Dr. J. H. Kellogg of Battle Creek, Michigan, who, in pessimistic vein, is reported to have stated that insanity was gradually overtaking the human race and that with the diminishing birth-rate the time was coming when there would be no more births. Modern science, he thought, was bringing about race degeneracy by saving the weaklings.

BOSTON AND NEW ENGLAND NOTES.

BEQUESTS.—Through the will of the late Katherine Allen of Worcester $327,000 is disposed of in public bequests. The Memorial Hospital of Worcester is a residuary legatee in the sum of $100,000.

APPOINTMENT OF DR. ROBERT W. HASTINGS.—Dr. Robert W. Hastings has been appointed chief medical inspector of Brookline Public Schools to succeed Dr. H. Lincoln Chase resigned.

MORTALITY RECORD.—The State Board of Health reports deaths in Massachusetts cities and towns of more than ten thousand population, for week ending August 30, as follows: Fall River, 32; Lynn, 27; Southbrige, 6; Adams and Clinton, 3 each; Newburyport, 1. Deaths under five years: Fall River, 17; Lynn, 12; Southbridge, 3; Adams, 2; Newburyport and Clinton, 1 each.

INFECTIOUS DISEASES.—Case of infectious diseases reported to the Boston Board of Health for the week ending Sept. 9, 1913, are as follows: Diphtheria 42, of which 5 were non-resident; scarlatina 20, of which 5 were non-resident; typhoid fever 18, of which 1 was non-resident; measles 11: tuberculosis 64, of which 5 were non-resident.

The death-rate of the reported deaths for the week was 14.82.

ANGELL MEMORIAL ANIMAL HOSPITAL.—The suggestion has been made, probably from the fact that the new Angell Memorial Animals' Hospital is to be located in the immediate proximity of the Harvard Medical School, that vivisection will be practised at the hospital. The directors of the Massachusetts Society for the Prevention of Cruelty to Animals deny this possibility and state emphatically that vivisection or experimentation will not be practised under any circumstances or in any form in connection with the hospital or on any animal intrusted to its care.

NEW YORK.

PHARMACEUTICAL CONFERENCE.—It is now announced that the pharmaceutical conference which is to be held on October 2 and the days following is to be of wider scope than at first appeared, and is to be participated in by the medical profession. Its official title is "The Drug Trade Conference of Pharmacists and Physicians," and its general object is (1) to afford an opportunity for debate and discussion, in an endeavor to clear away any prejudices that may as this time prevail between the practitioners of medicine and pharmacy; (2) to bring about coöperation between these allied professions and foster a mutual desire for real scientific concert of action; (3) to impress upon the people of the State of New York that efforts are being made earnestly and conscientiously sought to conserve their health and happiness. In the discussions the practices on the part of physicians which are condemned by pharmacists, and those on the part of the pharmacists condemned by physicians, are to be grouped under seven topics: 1. Consideration of the physicians who make a practice of prescribing habit-forming drugs, and the pharmacists who sell these drugs indiscriminately. 2. The physicians who dispense their own drugs, usually of uncertain strength and purity, and the pharmacists who "counter" prescribe in certain instances. 3. The physicians who criticize to their patrons charges on prescriptions, and the pharmacists who criticize to their patrons the charges of physicians. 4. The physician who questions and criticizes the ability and integrity of the pharmacist, and the pharmacist who questions and criticizes the ability of the physician. 5. The physician who writes careless, unscientific or unethical prescriptions, and the pharmacist who fills the prescrip-

tions in a careless and unscientific manner. 6. The physician who makes a habit of prescribing proprietary medicines, and the pharmacist who promotes the sale of patent medicines. 7. The pharmacist who substitutes different ingredients in putting up prescriptions. The various medical societies have been invited to send official delegates to the conference.

Coöperation between Bakers and Health Board.—It is stated that the officers of the New York locals of the international bakers' union have agreed to coöperate with the board of health in compelling the enforcement of sanitary laws in relation to cellar bakeries. If such bakeries are still in an unsanitary condition on January 1st they will forthwith be closed. The bakers' unions are said also to be in accord with the rules of the board of health in forcing the examination of all bakers as to their physical condition by physicians of the board.

Current Literature.

Medical Record.

August 16, 1913.

1. Abbe, T. *The Surgery of the Revolutionary War.*
2. Fox, F. J. *The Wassermann Reaction in Cancer.*
3. Pogue, G. R. *Specifics in the Treatment of Tuberculosis.*
4. Maverick, A. *Blunders Made by Nature. The Part Played by Nature in Causing Disease of the Respiratory Tract and Circulation.*
5. Brandeis, J. W. *Dream Interpretation.*
6. Chappell, W. F. *History of a Broncholith, Bronchial Calculus, or Lung Stone.*
7. Newlin, A. *Positive Wassermann Reaction in Apparently Non-Syphilitic Cases.*
8. Purse, B. S. *Treatment and Pathology of Appendicitis.*
9. Richter, G. *The Etiology of "Blackwater Fever."*

August 23, 1913.

1. Hecht, D. *The Inheritance of Epilepsy.*
2. McCready, E. B. *Feeble-Mindedness and School Children.*
3. Dickinson, G. K. *The Uterine Syndrome.*
4. Jones, H. W. *Landry's Paralysis, with Report of a Case.*
5. Gallant, A. E. *Prolonged-Precipitate Parturition Due to Disengagement of the Disproportionate Head.*
6. Wagner, J. *An Appendix Free in the Abdominal Cavity Without Suppurative Peritonitis.*
7. Shumway, E. A. *Traumatic Bilateral External Rectus Paralysis, with Transient Paresis of the Left Facial Nerve.*
8. Dearborn, G. V. *A Sphygmomanometer of New Principle.*

August 30, 1913.

1. *Einhorn, M. *Further Experiences with Duodenal Ulcer.*
2. Wilson, L. B. *Notes on the Pathology of Simple and Exophthalmic Goiter.*
3. Blackford, J. M., and Sanford, A. H. *Results of Intravenous Injections of Extracts of Goiter on Blood-Pressure in the Dog.*
4. McCaskey, G. W. *Variations of the Urea Content of the Blood, with a Practical Method for Its Determination.*
5. Sheffield, H. B. *Clinical Interpretation of Chronic Abdominal Enlargement in Children, with Especial Reference to a New Differential Sign Between Rachitis and Tuberculous Peritonitis.*
6. Fisher, M. K. *The Röntgen Treatment of Eczema.*
7. Strauch, A. *Congenital Stenosis of the Pylorus.*
8. Wooschin, W. *A Case of Sacharomycetic Infection of the Lungs.*

1. Einhorn makes some further remarks on duodenal ulcer and gives the following indications for surgical interference in these cases: perforation, recurrent profuse hemorrhage, frequent small hemorrhages, constant continuous hypersecretion not yielding to treatment, severe pain not checked by medication.

[L. D. C.]

New York Medical Journal.

August 16, 1913.

1. Hudson-Makuen, G. *The Prevention of Deafness.*
2. Kaplan, D. M. *The Importance of Serological Analyses in Neurology.*
3. Smith, H. *Safety Pin Removed from Larynx of Child by Direct Laryngoscopy.*
4. Bechet, P. E. *The Etiology and Treatment of Hypertrichosis.*
5. *Harrower, H. R. *Secretion as a Remedy in Gastrointestinal Disorders.*
6. Austin, H. W. *Importance of Early Operation for the Radical Cure of Hernia.*
7. *Lemon, F. *The Use of Phosphorus in Diseases of the Lungs.*
8. Crawford, A. C., and Twombly, M. M. *Notes on the Response of Veins to Epinephrin.*
9. Minor, J. C. *So-Called Latent Syphilitis, or Paretics and Tabetics; a Water Suggestion.*
10. Pixley, C. *Typhoid Fever From Uncooked Vegetables.*

5. Harrower has found the hormon secretion of value in the treatment of the "digestive insufficiencies." It is a definite, stable preparation and is a specific excitant of all the important digestive juices. It is not a digestant but its fundamental value is greater than that of the digestive ferments, such as pepsin and pancreatin.

7. Lemon has used phosphorus with good results in all kinds of lung conditions during the past eleven years. He has found it especially valuable in acute bronchitis and pneumonia and in phthisis. Not only the lung condition but the patient's general resistance showed improvement. He suggests that tendency toward tuberculosis may be due to lack of phosphorus in the nervous and other tissues of the patient.

[L. D. C.]

August 23, 1913.

1. Pedersen, V. C. *Topography of the Bladder, with Special Reference to Cystoscopy.*

2. *SQUIER, J. B. *The Modern Diagnosis and Treatment of Gynecological and Obstetrical Patients with Syphilis.*
3. DOUGLAS, J. *Surgical Indications of Certain Gastrointestinal Symptoms.*
4. KAPLAN, D. M. *The Importance of Serological Analyses in Neurology.*
5. TOMPKINS, H. E. *The Respirator; An Appliance for Resuscitation by Producing Enforced Artificial Respiration; Report of 163 Experiments.*
6. BALDWIN, J. F. *Cesarean Section with Hysterectomy in Cases of Positive Infection.*
7. HIELSCHER, H. H. *The Appendix and Some of Its Diseases.*
8. DEUSTEN, J. C. *Carbon, Oxygen, Hydrogen Group, Plus Nitrogen or Nonnitrogenized and Nitrogenized Food.*
9. COFFEY, W. B., CARSON, G. R., AND CUMMINS, W. T. *An Unusual Case of Septicopyemia.*
10. FRANKEL, J. *Some Reasons for Advising No Delay in Operating All Forms of Hernia.*

2. Squier insists that in gynecological and obstetric patients with syphilis treatment should be begun at the moment diagnosis is certain, and it must be as intensive, both from an arsenical and a mercurial standpoint, as the history of the case and the patients' physical condition warrant.

[L. D. C.]

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

SEPTEMBER 6, 1913.

1. *CAPPS, J. A. *Epidemic Streptococcus Sore Throat—Its Symptoms, Origin and Transmission.*
2. *DAVIS, D. J. *Chronic Streptococcus Arthritis.*
3. DOCHEZ, A. R., AND GILLEPSIE, L. P. *A Biologic Classification of Pneumococci by Means of Immunity Reactions.*
4. BUSH, A. D. *The Teaching of Laboratory Physiology.*
5. *ENGMAN, M. F., BUHMAN, R., GORHAM, F. D., AND DAVIS, R. H. *A Study of the Spinal Fluid in One Hundred Cases of Syphilis, Including Investigations for Arsenic after Intravenous Administration of Neosalvarsan.*
6. *SMITH, W. H. *Chronic Adherent Pericarditis. A Study of Sixty-two Cases.*
7. *BREM, W. V. *The Intensive Treatment of Syphilitic Nervous Affections Controlled by Examinations of the Cerebrospinal Fluid. A Preliminary Report.*
8. SPALDING, A. B. *The Value of Abdominal Measurements in Pregnancy. A Statistical Study.*
9. BACON, C. S. *The Essentials of Sanatorium Treatment of Tuberculous Gravidae and Puerperae and Their Children.*
10. LUGER, A. *Some Features of Roentgenolographic Changes in Pituitary Diseases.*
11. VARNEY, H. R., AND BAELSLACK, F. W. *A Comparative Study of Antigens for the Wassermann Reaction.*
12. EGGLESTON, C. *Clinical Observations on the Emetic Action of Digitalis.*
13. COLE, L. G. *Physiology of the Pylorus, Pilleus, Ventriculi and Duodenum as Observed Roentgenographically.*
14. YODER, A. C. *Unique Wrist Injury. Recurrent Anterior Dislocation of Ulna.*
15. GAGE, W. V. *A First-Aid Packet for Miners' Use.*
16. VENABLE, C. S. *A New Forceps.*
17. COOK, J. E. *A Useful Pipet.*
18. WILHOIT, J. C. *Longitudinal Fracture of the Lower End of the Radius Toward the Ulnar Surface.*
19. BROWN, P. K. *A Fatal Case of Coccidioidal Granuloma.*
20. v. ADELUNG, E. *The Pneumothorax Manometer.*

1. Capps believes he has established the source o contagion in the recent severe epidemics of sore throa in Chicago, Baltimore and Boston, from the mastiti found in the cows furnishing the milk at that time.

2. Davis gives a very clear and definite pictur of a type of arthritis of an acute type with tendenc to later deformity which can almost always be trace to a streptococcus infection most generally of th tonsil. He considers this disease a definite entit differing from so-called acute articular rheumatism.

5. Engman and his associates find that only comparatively small percentage of cases infected b the spirochaeta pallida gives serologic and cytologi evidence of cerebrospinal invasion, and when such a invasion does occur there are generally early clinica manifestations of it which substantiate clinical obse vation.

6. Smith in a study of 3053 necropsies draws th following conclusions in regard to chronic adheren pericarditis. The disease may be impossible of diag nosis in cases unassociated with cardiac symptom cardiac enlargement or murmurs. The diagnosis un der such conditions is unimportant, as in this type o the disease it probably contributes but little to th disability of the patient. A second type in youn adults, with a previous rheumatic history, with asso ciated endocarditis, is serious. Adhesive pericarditi is overlooked because the coincident endocarditis ap pears in the foreground. It should always be though of in a young adult whenever rheumatism followe by endocarditis appears in the history, and especiall considered when the cardiac picture is more marked o the cardiac enlargement more extensive than the end cardial damage seems to warrant.

7. Brem thinks one may assume that syphiliti patients with positive findings in the cerebrospina fluid have the infection localized in the central ner ous system or meninges and are candidates for th late syphilitic nervous phenomena. He believes tha every syphilitic should have his cerebrospinal flui examined and in positive cases the treatment shoul be continued in an effort to change the fluid to no mal. The positive tests in the cerebrospinal fluid ar much more difficult to reduce than the Wasserman reactions in the blood. Therefore a negative blood i not a criterion of cure. There is little or no relatio between the blood Wassermann and the reaction o the cerebrospinal fluid. [E. H. R.

THE JOURNAL OF EXPERIMENTAL MEDICINE.

SEPTEMBER 1, 1913.

1. ZINSSER, H. *Further Studies on the Identity o Precipitins and Protein Sensitizers.*
2. FARR, C. B. AND AUSIN, J. H. *The Total Non Proteid Nitrogen of the Blood in Nephritis an Allied Conditions.*
3. *FRASER, F. R. *A Study of the Cerebrospina Fluid in Acute Poliomyelitis.*
4. COURET, M., AND WALKER, J. *The Cultivation o Amoebae in Pure Culture Upon Autolyzed Ti sues.*
5. MEDIGRECEANU, F. *On the Excretion of Glycuroni Acid in Pneumococcus Infections, with Specia Reference to Lobar Pneumonia.*
6. BROWN, W. H. *The Histogenesis of Blood Plate lets.*
7. CARREL, A. *Contributions to the Study of th Mechanism of the Growths of Connective Tissu*
8. GITHENS, T. S. *The Influence of Temperature o the Action of Strychnin in Frogs.*
9. KLEINER, I. S. *On Elimination Through the Mu cosa of the Urinary Bladder.*
10. *NOGUCHI, H. *Contribution to the Cultivation o the Parasite of Rabies.*

3. Fraser made 362 examinations of the cerebr spinal fluids in 126 cases of acute poliomyelitis. Th

majority of the cases examined in the first few days after onset of symptoms showed changes in the number of cells present or in the globulin content or in both. The number of cells in one case reached 1221 per cubic millimeter. By the third week the cell count was above normal in only 32% of the cases. The cell increase was chiefly that of the mononuclear cells. A high polymorphonuclear count was noted in the very early stages. The globulin reaction was most marked during the third week and persisted to the fourth week. All the fluids reduced Fehling's solution. The examination of the spinal fluid while of value in the diagnosis of early or mild cases did not seem to be of value in prognosis.

10. Noguchi makes a preliminary report with illustrations of the cultivation of the parasite of rabies. He has been able to reproduce rabies in the various laboratory animals from his cultures. [R. I. L.]

Deutsche Medizinische Wochenchrift.

No. 32. August 7, 1913,

1. *Strauss, H. *Obstipation and Diarrhea as Objects of Dietary Treatment.*
2. Fromberg, C. *Tuberculous Pericarditis.*
3. Goldmann, G. *Thrombosis of the Splenic Vein and Portal System.*
4. *Sussmann, R. *Nongonorrheal Blenorrhea of the Newborn.*
5. Dobbertin. *Pathogenesis of So-called Typhilitis.*
6. Stroink, H. *Bacteriological Investigation of Acute Nongonorrheal Orchitis and Epidydimitis.*
7. Schmidt, H. E. *Late Changes in the Skin and Internal Organs Following Roentgenotherapy.*
8. v. Lehmann, A. *A Source of Error in the Antiformin Method of Detecting Tubercle Bacilli in the Circulating Blood.*
9. Wolf, K. *Pituitary Extract in Obstetrics.*

1. Strauss' article gives an able review of the causes and treatment of obstipation and diarrhea. Obstipation is divided into two great classes, spastic and atonic, and the various conditions which may be the etiological factors in producing spasticity and atony of the bowel are enumerated. The author considers diets from the point of view of their cellulose content, which he regards as a most important factor in treating obstipation.

In the discussion of diarrhea there is nothing original. The use of the Bacillus Bulgaricus cultures is advised in a certain class of cases (those due to the gas bacillus?) and various methods in general use are recommended. The article adds nothing new to our knowledge, but does present it in classified form.

4. The author gives statistics as to the occurrence of the nongonorrheal forms of blenorrhea in the newborn. These comprise about 50% of all cases. Clinically the differential diagnosis rests upon the following points:

The nongonorrheal forms show:

1. Longer incubation period.
2. Less purulent secretion.
3. Greater inclination to bleed.
4. Slower convalescence.
5. Immunity of the cornea.

[C. H. L.]

Deutsches Archiv für Klinische Medizin.

June, 1913.

1. Eichorst, H. *Lesions of the Spinal Cord in Variola.*
2. Lyingdahl, M. *A Case of Pneumopericardium.*
3. Voorhoeve, N. *The Study of Calcium Metabolism.*
4. *Holstoi, O. *Study of the Pancreas Secretion in Man.*
5. v. Nyss, H. *Edema Produced by Sodium Bicarbonate.*
6. *Henes, E. *Investigation of the Cholesterin Content of the Human Blood in Internal Diseases.*
7. Reckzeh. *Analysis of Irregular Pulses.*
8. Neumann, W. *Diastatic Ferment in the Urine.*
9. Singer, C. *Value of Reckoning the Peptic Strength of the Gastric Juice for Diagnosis of Organic Disease of the Stomach.*
10. Groedel, F. M. *The Roentgen-Ray Findings of the Heart and Big Vessels. Its Importance and the Results Obtained to Date.*

4. Holstoi had the opportunity to study a man with a pancreatic fistula. He takes up some of the questions in regard to the physiology of pancreatic secretion about which there is some difference of opinion and reports the result of his observations at length. He tested the effect upon the flow of secretion of different kinds of food stuffs. After carbohydrate diet the secretion is regular and comes early, reaching its height at the second hour. After meat there is an immediate flow which becomes scanty by the end of the first hour and then gradually increases, reaching its height in the third and fourth hour. After an oil meal the flow is scanty and only amounts to anything in the third and fourth hours. He then takes up a study of the relative strength of the different ferments after different types of diet. He reports the result of psychic influences upon the secretion and also the effect of different drugs upon the flow.

6. Henes describes the different methods for detecting the amount of cholesterin in the blood serum and the method that he used. He studied a variety of conditions with and without complications such as chronic nephritis arteriosclerosis metabolism irregularities typhoid fever, acute infections, malignant tumors and heart disease. He concludes that cholesterin poor diet, old age, and general poor hygiene, and all febrile conditions show a diminished cholesterin content. In cases with cholesterin rich diet, metabolic disorders, chronic diseases, the cholesterin in the blood seems to be increased. [C. F., Jr.]

Annales de L'Institut Pasteur.

June 25, 1913.

1. *Kérandel, J. *Trypanosomes and Leucocytozoons Observed in Birds in the Congo.*
2. Javillier, M., and Tchernoroutzky, N. *Amygdalase and Amygdalinase in the Aspergillus Niger.*
3. *Marchonx, E., and Couvy, L. *Argas and Spirochetes.*
4. Kiesel, A. *Morphological Changes in the Aspergillus Niger in the Presence of Different Acids and Acid Salts.*
5. Sauvage, C., and Grey, L. *A Case of Voluminous Syphilitic Gumma in the Newborn. Recovery of the Treponema.*
6. Marmier, L. *Modification of a Regulator for Electric Heating.*

1. Kérandel describes in detail seven different types of trypanosomes which are found in birds in the Congo and also five different types of leucocytozoons. Accompanying his article are two plates with colored representations of the different forms.

3. These authors take up the question of whether the spirochetes have a life cycle in some intermediate host such as the louse. They take up the views of different authors such as Dutton and Todd, Leishmann, Balfour and others on the subject. Certain granules are described on the intermediate host which may be considered part of the life cycle. These

authors feel from their studies and experiments that in the *argas persicus* are granules similar to those described by Leishmann. It is impossible to inoculate these free from the spirochetes. They think the bodies that they find are degenerative bodies and not due to a stage in the life cycle of the spirochete.

[C. F., JR.,]

Obituary.

THEODORE SCHAEPKENS VAN RIEMPST.

DR. THEODORE SCHAEPKENS VAN RIEMPST of 152 West 73d St., New York City, died suddenly on August 21, 1913, at Saranac Lake, New York. He was educated at the University of Louvaine, and received his medical degree at the University of Ghent, Belgium, in 1901. Following an interneship of one and one-half years at the Staivenberg Hospital in Antwerp he was appointed surgeon to the Red Star Line. When he resigned in 1907 he was ranking surgeon of the fleet. Coming to New York he specialized in genito-urinary surgery and received appointments at the Polyclinic Hospital, The Demilt and Hudson Street Dispensaries. In 1908 he married Miss Jessie Hoysradt at Hudson, New York. In 1910 he was appointed assistant genito-urinary surgeon to the Massachusetts General Hospital, Boston. One month after his removal to Boston he had typhoid fever. After a severe illness and a prolonged convalescence he returned to New York, where he became Chief of Clinic O. P. D. at St. Luke's Hospital and Lecturer in Genito-Urinary Surgery at the Polyclinic Hospital. He was a Fellow of The Massachusetts Medical Society, a member of the American Urological Association, the Polyclinic and West Side Clinical Societies. His last published article was "Personal Experience with Neo-Salvarsan," *Med. Record*, Aug. 9, 1913.

Miscellany.

UNITED STATES CIVIL SERVICE EXAMINATION. CHIEF BACTERIOLOGIST.

THE United States Civil Service Commission announces an open competitive examination for chief bacteriologist, for men only. From the register of eligibles resulting from this examination certification will be made to fill a vacancy in this position in the Bacteriological Laboratory of the Bureau of Chemistry, Department of Agriculture, Washington, D. C., at $3500 a year and vacancies as they may occur in positions requiring similar qualifications, unless it is found to be in the interest of the service to fill any vacancy by reinstatement, tranfer or promotion.

The duties of this position will be to direct all bacteriological and a portion of the fermentation work of the Bureau of Chemistry; to direct the work necessary in controlling the bacteriological purity of interstate shipments and importations of foods; to carry on all investigations of a bacteriological nature connected with the enforcement of the Food and Drugs Act, and to carry on other investigations connected with the agricultural chemical work carried on by the Bureau of Chemistry.

Information regarding general education and other matters pertaining to eligibility may be had on application for Form 304 and special form to the United States Civil Service Commission, Washington, D. C.

Applications must be filed on or before Aug. 6, 1913.

REPORT OF MEDICAL ADVISORY COMMITTEE, WORKMEN'S COMPENSATION ACT.

THE Workmen's Compensation Act in this Commonwealth has now been in force over a year,—long enough for everyone concerned to learn something of its workings, though not long enough for anyone to know how a number of things are going to shape up in the final reckoning.

The medical profession has a two-fold interest in the working of this act; broadly, because it is of interest as a step in social progress, and most of us are interested in these matters, and in particular, because the doctors must care for the accidents for which compensation is provided, and must in some way be compensated for this care.

In the first few months there was much friction, and in particular the doctors were very much dissatisfied with their treatment, and inclined to blame the Accident Board. There were doctors' meetings and protests, many of them. Presently, the Accident Board, through Mr. Carroll, the chairman, asked for a medical advisory committee, asked the presidents of the Massachusetts Medical Society and the Massachusetts Homeopathic Society to name four men. This was done, and, with three men nominated by the board from out of the membership of these societies, these representatives have since served as a committee whom the Accident Board might call on to advise them in medical matters, in disputes, and in the laying down of principles of action to be followed in the future. The seven men (undersigned) composing this committee have met a number of times and have accomplished something.

We wish first to say that we have been fortunate in having, apparently, the confidence of the best element in the profession; we certainly have been accorded the most loyal support from all the members of the Accident Board. It

seems fitting now that our work should be laid before the medical men, first as a sort of report to the profession, whom we in some measure represent; secondly, because there has appeared of late some tendency in certain quarters to warp or even misstate what we have recommended, or even what the Accident Board has ruled, acting on our advice. This will not do, of course, and it has seemed to us wise to publish the statement which follows. By permission and with the approval of the Accident Board we give our conclusions in the form of a direct quotation from our report of recommendations to the Board, made May 22, 1913. Such part of the following text as is transcribed from this report appears in quotation marks. Since that time to date, July 24, we have made no recommendations. If other recommendations of any broad principles are made in the future; if any rulings are made at our recommendation, we shall try to make sure that the profession in Massachusetts may learn of them promptly.

As to the source of the friction and complaints it may be said that this is a new law in a new field, necessarily experimental in details. The original measure was amended permitting insurance companies that are run for profit to compete with the altruistic company created by the state. As a result, perhaps too much power was given to the commercial companies. A certain small proportion of these companies have adjusters and other subordinates who are at times inclined to play cheaper games than proper. There has been a tendency on the part of some physicians, not many of them members of our societies, but still physicians ostensibly respectable, to pad their bills and raise their rates—in other words, to treat this law as an opportunity for medical graft. In many of these matters the medical advisory board has been able to help the industrial board toward a solution.

Right here it may be well to state what the law is, and what powers the board lacks, for this matter seems still imperfectly understood. The law provides (Part 2, Sec. 55) that "During the first two weeks after the injury, the association shall furnish reasonable medical and hospital services, and medicines when they are needed." Some of the companies furnish such services. There is no agreement as to what the word furnish really means. When no service is offered, or when the injured person does not accept the service offered, and calls on his family doctor, disputes over bills arise. Disputed bills go to the board and hearings may be held, but even then the board seems to lack power to enforce its decrees in the matter of medical or hospital fees. In fact, however, the board reached, before we came into the matter at all, a sort of working agreement with the insurance men that the companies should pay reasonable charges for work actually rendered. Lately there have been two conferences between the board, the advisory committee, and the insurance men, which have helped toward a reasonable coöperation on the part of the companies.

It has been necessary, to keep peace, under this agreement, to adopt an "industrial rate" as to bills, not a fixed rate, but an understanding that services paid for under this act, shall be at a rate not less than the average minimum rate in the locality where such services were rendered.

It seems to us that the whole intent of the law is not charity, but rather to lift the injured worker out of the pauper class, and, at least for the fortnight following his injury, to furnish him with the best care, to give him the best possible chance for complete and early recovery and return to working power. Some of the insurance men regard the whole matter, seemingly, as a partially charitable service, and argue that as cut rates and charity were granted the sufferers by doctors and hospitals before this act went into effect, therefore this sort of thing should continue.

There has been a good deal of talk about the advisability of leaving the choice of the physicians to the injured man.

There is much to be said on both sides of this. If there were not a considerable chance of the injured man picking out a not too competent attendant, if there were not on the other hand an open opportunity for the insurance company to resort to contract service of the bargain-counter quality, decision might be simpler. There is no doubt that for accident work there is an intrinsic advantage in organized prepared service, but there must be assurance that such organization is really in the interest of efficiency. There is nothing in the talk of absolute individual right of choice*—as we see it, the matter is one of expediency and efficiency, one on which we are not yet ready to take a definite position.

The medical advisory committee have felt that there is no objection to the designation by a company of a certain doctor or doctors for a given industrial plant, but have urged strongly against this designation being made to exclude deliberate choice by the injured man.

Since the medical advisory committee to the

* Dr. F. W. Anthony, of the committee, in a recent note, has phrased this matter a little differently.

"I am obliged to differ slightly from one paragraph only of the report, that discussing the right of choice of an injured employee. My belief along that line is as follows: there is no doubt that for accident work there is an intrinsic advantage in organized, prepared services, this advantage maintaining most in establishments employing a very large number of men where severe accidents are apt to occur and proper hospital service is at a distance If such organized prepared service is provided, the profession should be assured that such organization is really in the interest of efficiency and is manned by surgeons who are recognized as of ability and good judgment. Even in this event the employee should have the right to choose other services of equal efficiency and also even in the event that he sees fit to choose inefficient services, no compulsion should be brought to bear upon him driving him in the direction of what might really be for his best, although if he elect a service manifestly to his disadvantage and one likely to impair his efficiency and delay his return to employment, under such circumstances an insurance company should not be blamed for taking advantage of the technicality of the law that would properly protect their interest. In other words, it is a matter of civic economy and true kindness to proffer the best organized service provided that service is properly compensated at what have been established as proper industrial rates. Second, the choice of the injured of services equally good should not be interfered with. Third, the choice of poor services in the face of proffered good services should not carry with it compulsory payment by the insurance company."
—F. W. Anthony.

board has been in action the following recommendations have been made by it:

"First, That a permanent advisory medical committee is necessary.

"Second, That we consider it inexpedient to have a medical man as a member of the Industrial Accident Board.

"Third, That the Industrial Accident Board should have a consulting surgeon upon whom should fall the duty of detail work in the preparation of matters to be laid before the advisory committee. Matters in dispute regarding services and fees of physicians should be referred to this committee for recommendation.

"Fourth, That insurance companies be requested to provide suitable blanks for notifications as well as specifications of services rendered by physicians.

"Fifth, That industrial insurance companies be encouraged to allow all reputable physicians to render services in industrial accidents, provided they are willing to render such services upon a reasonable industrial basis.

"Sixth, That the accident board should make arrangements, with which the insurance companies should coöperate, that any physician whose bill is in dispute may appear before a representative of the accident board within a reasonable distance of his home.

"Seventh, That the accident board shall provide for referees by districts.

"Eighth, That fees paid by the companies should not be less than the average minimum fee in the locality in which the service is rendered.

"Ninth, That charges up to $50 for major operations are not excessive.

"Tenth, That physicians appearing at hearings before the board shall receive the compensation as provided for under Section 8 of Part 3 of the act.

"Eleventh, That services rendered by 'lodge physicians' be paid for, provided such payment is not inconsistent with the rules of the order.

"Twelfth, That specialists, established and recognized by the profession as such, may receive special industrial rates for their work, provided the case requires special skill.

"Thirteenth, That the ruling previously made by the accident board, that fees should not be charged an injured party, whose employer was insured, larger than the injured party would be charged were he not insured, should be interpreted to mean that in a given accident the fee paid by the insurance company for services should not be less than the average minimum fee for similar services in the locality in which the said services are rendered.

"In summarization we may say that this is a new law, which an excellent industrial board is administering as best it can. The law has as a whole done good. In framing it the doctors were not consulted nor apparently considered, and their side of the matter needs adjustment.

"The board has asked for coöperation on the part of the profession, has gotten and freely used the committee asked for."

This committee believes that the law has worked out well so far,—for a new law,—and that, *on the whole*, the medical profession has lost nothing by it. In certain communities, medical men previously retained by the employers to care for injured employees have received less than their due consideration (often, in fact, not a particle of consideration) from the insurance companies that have assumed the employer's liability. Here and there insurance companies, usually the unimportant ones, have shown a desire to press the advantage given them by the phrase of the current law. In the main, however, the better companies,—those with whom all of us have policies, for fingers, or lives, or automobiles,—have shown themselves decent and reasonable, not inclined to overwork a technical advantage.

Because this is so, and because we believe that most of the difficulties that have arisen may best be met by publicity and the consequent clear understanding of the interest of all concerned, and of the workings of the law as it stands, we submit this report, if one may so term it, to the medical profession of this Commonwealth.

(Signed)

F. J. COTTON, M.D., Boston,
W. H. RUDDICK, M.D., Boston,
S. H. CALDERWOOD, M.D., Boston,
FRANK E. ALLARD, M.D., Boston,
F. W. ANTHONY, M.D., Haverhill.
S. E. FLETCHER, M.D., Chicopee,
F. D. DONOGHUE, M.D., Boston.

Correspondence.

WINCHESTER, SOUTHAMPTON, AND THE PILGRIMS.

SOUTHAMPTON, ENGLAND, Aug. 15, 1913.

Mr. Editor: It seemed not inappropriate that we should go from London the present to Winchester the ancient capital of Britain. Though by comparison the latter appears nowadays but a provincial town, it retains traces of its former regal splendor, particularly in its old Parliament Hall and in the heroic statue of King Alfred sending westward the benison of his uplifted swordhilt. The name of Alfred is indelibly associated with Winchester, for it was here that he made himself first King of the English and began his publication of vernacular translations which became the real origin of popular education in England.

Perhaps the most interesting and remarkable relic in Winchester is the curious round table, now hanging in the Great Hall, and alleged, not without possible veracity, to be the identical one given by Uther Pendragon to Leodegrance of Cameliard and by him as dowry with his daughter Guenevere to King Arthur. There are authentic records which show the

table to have been hanging in its present position for five hundred years past, and to have been in Winchester for seven hundred years before that. So that only about two centuries remain unaccounted for since its origin, and these naturally went unchronicled as they represented the barbarous interregnum between the fall of Arthur's British hegemony and the rise of the English kingdom of Wessex.

It has been the custom, and is still locally so at Winchester, to identify that city with the Arthurian Camelot. This identification, however, rests almost solely on Mallory's express statement that Winchester is Camelot. It may well have been made by the Norman minstrels who gave Arthurian epic its first literary form, and who, knowing nothing of the Arthurian capital, would naturally have confounded it with the Alfredian Winchester which became the chief city of the Conqueror. Here, too, the Round Table would naturally have been brought as a trophy after the fall of Arthur's kingdom. It is known that the table was repainted in its present form in the time of Henry VIII; but there is no reason to suppose that this repainting, which divides the table into twenty-four segments, each marked at the periphery with the name of a knight, did more than reproduce the original seating order about the board.

In other respects Winchester presents no likeness to the legendary Camelot. It has, to be sure, a ruined castle with a river flowing by its gates; but the castle was built by Cardinal Wolvesley many centuries after Arthur, and the river, the Itchen, has authentic associations with Sir Izaak Walton, the angler and biographer complete, rather than with the Lady of Shalott. To be sure, Mallory again tells us positively that Guildford was Shalott or Astolat; but here again, he would be likely to adopt, without critical question, the hasty misidentification of Norman romancers.

Moreover, the internal evidence of the *Morte d'Arthur* is against the identification of Camelot and Winchester. To cite only a single point: Camelot is always spoken of as being but a day's journey from Avalon or Glastonbury. This would obviously make Winchester impossible as its modern representative. We shall hope to return to this subject and in our further travels obtain positive local evidence of the true site of "many-tower'd Camelot."

One amusing, and quite un-Arthurian, item of discovery in Winchester was a stone in the graveyard, near the cathedral bearing the following inscription:

In Memory of
Thomas Thetcher

a Grenadier in the North Regt. of Hauts Militia, who lied of violent Fever contracted by drinking Small Beer when hot the 12th of May, 1764, Aged 26 years.

In grateful remembrance of whose universal good will towards his Comrades, this Stone is placed here at their expence, as a small testimony of their regard and concern.

Here sleeps in peace a Hampshire Grenadier,
Who caught his death by drinking cold small Beer.
Soldiers be wise from his untimely fall,
And when ye're hot drink Strong or none at all.

This memorial being decay'd was restor'd by the Officers of the Garrison. A.D. 1781.

An honest Soldier never is forgot,
Whether he die by Musket or by Pot.

However unsuited this epitaph may seem to its sacred environment, it is surely no more so than Gay's in Westminster Abbey:

"Life is a jest and all things show it;
I thought so once, and now I know it."

Moreover, what a vivid picture is drawn of Thetcher's personality. Doubtless the genial grenadier did not really want the fatal beer at all, but drank it only out of "good will towards his comrades." Apparently small beer is as dangerous to drink as it is ignominious to chronicle. In any event, the therapeutic counsel of the epitaph is sound, even though the etiology of the fever be dubious; and the consolation of the last couplet should have been music to the ear of such a one as Falstaff, had he only lived two centuries later.

Singularly enough we happened quite unexpectedly to-day at Southampton on an event of national interest to us as well as of local concern to the inhabitants, namely the unveiling of a Pilgrim Monument on the site of embarkation of the Pilgrims for America. After coming from their fugitive settlement at Leyden and Delfthaven, they sailed from Southampton on August 15, 1620. To commemorate their departure a beautiful monument has been erected, by public subscription, close to the shore, not far from King John's house, and we had the fortuitous opportunity of assisting at its dedication on August 15, 1913. There was a large assemblage of notables, with all the speeches and formalities that usually characterize such occasions. The entire population of the city took a half holiday and turned out to witness the



PILGRIM MONUMENT

ceremonies. On the platform were many resident and visiting Americans. The monument was unveiled by Mr. Walter Page, the United States Ambassador.

The monument is a quadrilateral, fifty-foot column of rough Portland granite, surmounted by an Ionic cupola with eight columns, four of which stand on carved corbels. Three of these corbels are female heads, representing Faith, Hope, and Charity. The fourth, facing the sea, represents the prow of the *Mayflower*. The dome surmounting the cupola is of gilt and white glass mosaic, and is capped by a model of the *Mayflower* in copper. The cupola also contains a bronze cage, similar to those used in ancient times for beacon fires.

Perhaps the greatest heroism of the Pilgrims was not in daring the broad Atlantic and the savages and

hardships of an unknown land, but in leaving so beautiful a country as that which they for generations had learned to call home. They were *peregrini*, wayfarers from their native shores; and "when as pilgrims we come to revisit" the land which they left that fateful August afternoon, not yet three centuries ago, it kindles the heart indeed to find that they are not forgotten, but are thus lovingly and worthily commemorated by the people from whom they sprang and by those to whom they have given birth in a new nation.

PEREGRINUS NOVUS.

SOCIETY NOTICE.

AMERICAN ASSOCIATION OF ORIFICIAL SURGEONS.—The twenty-sixth annual convention will be held at Chicago, Illinois, September 23, 24, 25 and 26, 1913.

RECENT DEATHS.

DR. WALTER MILLARD FLEMING, who practised in New York City from 1869 to 1909, died on September 9 at his home in Mount Vernon, N. Y., at the age of 75 years. He was a native of Portland, Me., and was graduated from the Albany Medical College in 1862. Dr. Fleming was especially prominent in Masonic circles. His two sons are both practising physicians, one in New York, and one in Mount Vernon.

DR. JOHN LOCHNER of Jersey City, N. J., died on September 3. He was born at Albany, N. Y., in 1840, and was graduated from the medical department of the University of the City of New York in 1871. Dr. Lochner served for some twenty years in the Jersey City board of health, and also as medical examiner of the the fire department.

DR. JAMES A. COYNE of Newark, N. J., died on September 8, at Sterling, Mass. He was forty years of age, and was graduated from the Jefferson Medical College, Philadelphia, in 1896.

DR. EPHRAIM WOOD NORWOOD died at his home in Spencer, September 11, 1913, aged sixty-five years. He was a graduate of Colby University (1869) and of the Harvard Medical School (1882). He had been a fellow of the Massachusetts Medical Society since 1884 and a councillor from the Worcester District from 1896 to 1912.

DR. THEODORE SCHAEPKENS VAN RIEMPST, whose death is noted in your issue of Sept. 4, was a Fellow of The Massachusetts Medical Society, entering in 1911.

W. L. BURRAGE, *Secretary*.

Sept. 5, 1913.

CHANGES IN THE MEDICAL CORPS, U. S. NAVY, FOR THE WEEK ENDING SEPT. 6, 1913.

August 23, G. E. THOMAS, passed assistant surgeon. Ordered to Navy Yard, Portsmouth, N. H.

August 23, D. H. CASTO, passed assistant surgeon. Detached from *St. Louis* and ordered to *Cheyenne*.

E. W. PHILLIPS, passed assistant surgeon. Detached from *Kansas* and ordered home.

August 25, M. E. HIGGINS, passed assistant surgeon. Detached from *Illinois* and ordered to *Kansas*.

August 28, C. T. HIBBETT, medical director. Detached from Naval Hospital, Norfolk, Va., and ordered home, wait orders.

G. PICKRELL, medical inspector. Detached from Naval Hospital, Annapolis, Md., and ordered to Naval Hospital, Norfolk, Va.

J. G. FIELD, medical inspector. Detached from Naval Hospital, Newport, R. I., and ordered to Naval Hospital, Annapolis, Md.

J. L. NIELSON, surgeon. Detached from *Illino* and ordered to Guam Hospital.

L. W. BISHOP, surgeon. Ordered to Receiving Shi New York.

P. T. DESSEZ, passed assistant surgeon. Detache from *Castine* and ordered to *Vestal*.

E. O. JEYTINGE, passed assistant surgeon. Detache from *Supply* and ordered home.

E. L. WOODS, passed assistant surgeon. Detache from *Rainbow* and ordered home.

R. G. DAVIS, assistant surgeon. Detached fro Hospital, Olongapo, and ordered to Naval Hospita Canacao, P. I.

W. A. BLOEDORN, assistant surgeon. Detached fro Yokohama Hospital, and ordered home, wait order

OFFICERS OF THE AMERICAN ELECTRO-THERAPEUTIC ASSOCIATION.

At the twenty-third annual meeting of the Amer can Electro-Therapeutic Association held Septembe 2, 3 and 4, 1913, at New York, the following officer were elected: President, Dr. George E. Phaler, Phila delphia, Pa.; vice-presidents, Dr. Albert C. Geyse New York, Dr. Frank B. Granger, Boston, Mass., D John D. Torbett, Marlin, Texas, Dr. William L. Clark Philadelphia, Pa., Dr. Frederic P. Tico, Roanoke, Va. treasurer, Dr. Emil Heuel, New York; secretary, D J. Willard Travell, New York; registrar, Dr. Fre M. Law, New York.

APPOINTMENTS.

Dr. Christian A. Ruckmick of Cornell University i to become instructor in psychology in the Universit of Illinois.

EXAMINATION FOR ASSISTANT SURGEON.

TREASURY DEPARTMENT, UNITED STATES PUBLIC HEALTH SERVICE.

Boards of commissioned medical officers will b convened to meet at the Bureau of Public Healt Service, 3 B Street, SE., Washington, D.C., and a the Marine Hospitals of Boston, Mass.; Chicago, Ill. St. Louis, Mo.; New Orleans, La.; and San Francisco Cal., on Monday, October 20, 1913, at 10 o'clock a. m. for the purpose of examining candidates for admissio to the grade of assistant surgeon in the Public Healt Service, when applications for examination at thes stations are received at the bureau.

Candidates must be between 23 and 32 years o age, graduates of a reputable medical college, an must furnish testimonials from two responsible per sons as to their professional and moral character Service in hospitals for the insane or experience i the detection of mental diseases will be considered and credit given in the examination. Candidates must have had one year's hospital experience or tw years' professional work.

BOOKS AND PAMPHLETS RECEIVED.

Headache by Dr. Sigmund Auerbach. London Henry Frowde, 1913.

A Manual of Venereal Diseases. Sir Alfred Koegh Col. C. H. Melville, Colonel Sir William Leishman Major C. E. Pollock. Henry Frowde, 1913.

The Deaths of the Kings of England, by James Rae, M.D. Sherratt & Hughes. 1913.

Clinical Surgical Diagnosis for Students and Prac titioners by F. de Quervain. William Wood & Co 1913.

Address.

NEEDS OF THE FUTURE IN HOSPITAL ADMINISTRATION.*

BY FREDERIC A. WASHBURN, M.D. BOSTON,

Administrator, Massachusetts General Hospital.

The president of this association finds one of his most difficult duties is the preparation of the annual address. My first task when this duty became urgent was to read the messages of my predecessors in office. These addresses have been strong, as a rule; they have placed the ideals of hospital administration upon a high plane; they have been worthy of the men who have written them. The topics discussed have been many. Among these I find certain definite recommendations which, as no action has been taken upon them, it is well to again emphasize.

In 1908 Dr. Goldwater was impressed with the fact that the Association was becoming too large and its personnel was too complex to work to the greatest advantage in a single section. This is more true today than it was then. At the present conference your president and executive committee are attempting in a small way to try the experiment of section work. I will ask you to watch and see whether it is a success, and, if it is, to take action so that your next president and executive committee may have the authority of the Association for repeating this step and perhaps adding other sections.

Dr. Goldwater also recommended the addition to our membership of hospital physicians, surgeons, pathologists, and superintendents of nurses. By the timely suggestion of Mr. Ludlum, our president in 1906, the association was broadened from a society of hospital superintendents to the American Hospital Association. Can we ever be all that name implies until we admit members of our staff and superintendents of nurses? The hospital problems of the future and of the immediate present cannot be handled by hospital administrators alone; we need the help and close coöperation of our staffs of physicians. As that is the case, they can best discuss these problems with us at our conferences as associate members of this body.

If superintendents of nurses were associate members, I believe that we should have a better understanding of each other's aims and purposes, and that harmony in the hospital world would be promoted. A training school section may very well be one important part of our annual conference.

Let me make a strong plea for such a change in our constitution as will again broaden our membership and make us truly the American Hospital Association.

* President's address at the fifteenth annual conference of the American Hospital Association.

In 1910, Dr. Howard, then your president, made a most important recommendation. He called attention to the fact that hospitals can best be placed upon a high plane and kept there if some system of inspection is adopted. We all need and would profit by friendly criticism by competent authority. Dr. Howard thought that this could best be done by the individual states. He was influenced in this belief by the successful work in this line done in insane hospitals by the Massachusetts State Board of Insanity. The objection to doing this work by states is that the effect of comparison is lost. We would wish to compare one large general hospital with another doing substantially the same work, to compare the standards of a hospital in the East with one in the West. During this meeting a definite plan for such inspections will be proposed and the Association will be asked to express its approval or disapproval. To me this scheme of inspection, if it can be worked out under auspices in which we have confidence, promises a most important step in advance. From the statistics gathered we should eventually learn the essentials of a model hospital of each class. Hospitals would soon learn that a low per capita cost is not the first requisite; that high-grade modern work needs first-rate personnel in all departments; a complete system of records; all modern contrivances for scientific research; and a spirit of investigation and teaching. How better can this be brought out than by comparison of hospitals trying to do a similar grade of work? It is of course essential that this should be done by a person with the requisite hospital knowledge, and in a spirit of the utmost fairness. Hospital trustees would welcome friendly criticism and suggestion and the information that their institution is not in all particulars the acme of perfection would do them no harm. When this plan is proposed, I bespeak for it your careful and best thought and favorable consideration.

I now come to the subject upon which I wish to lay special stress in this my presidential message to you.

GOOD ORGANIZATION THE PRIME REQUISITE FOR MEDICAL AND SURGICAL EFFICIENCY.

We have to thank Johns Hopkins for the introduction into this country of paid chiefs of medical and surgical services with continuous duty.

The great professional departments of a large modern hospital should each have a single head with a service uninterrupted except for the necessary vacation. This makes possible an effective planning of the work. These heads of departments, or, when the departments are too numerous, representatives of them, to make a committee of not more than five or six, meet with the superintendent of the hospital and consider the problems of medical and surgical administration and the great questions of the medical and sur-

gical policy of the institution. The superintendent should be required by the rules of the trustees, to be present at their meetings also. Here we have an efficient organization. The superintendent is able to get the advice of the ablest men on the staff in the many problems where he needs such advice. He is the agent of this small representative body of the staff, of which he is a member, in carrying out their orders where they properly have jurisdiction. By his presence at trustees meetings he is able to clear up many points which are not entirely plain to his board and to turn their thoughts toward the problems which need their consideration.

Here is an organization which will give us efficiency to meet the great questions which are pressing upon us. Preventive medicine: how can the hospital best help? How coöperate in the prevention of occupational diseases? Social service: how far are we warranted in going? What shall be our attitude toward workmen's compensation and other forms of insurance which affect hospitals? Hospitals are in a particularly advantageous position to help eliminate social disease. Clear-headed judgment is required in this. How shall we stear our course so as to best protect the community at the same time that we guard the rights of the individual and retain his confidence? These are a few of the questions.

We hospital superintendents need all the aid we can get. The staff is a better staff if a small representative committee knows and discusses these hospital problems and advises and acts upon those subjects over which it properly has authority.

In some hospitals there exists jealousy of the staff by the superintendent, and jealousy of the superintendent by the staff. There will be no better way of doing away with this than by creating an organization which will make trustees, staff and administration pull together for the whole institution. The chief of a medical or surgical service can no longer give what the modern hospital requires by visiting his patients for an hour or two daily. The hospital should demand that each chief shall devote at least a half of each day to its service; that private practice shall be secondary. In this way only can we get the highest efficiency. The ideal chief of service should have youth, yet his judgment must be mature; he must have vigor and enthusiasm. He must be just and generous in recognizing and promoting the efforts of his subordinates. He should be able to plan pieces of investigation for his staff and stimulate their accomplishment. He should see to it that the expensive "hospital days" are not wasted either by patients waiting the convenience of the surgeon for operation or by unnecessary stay in the hospital for sepsis.

How can we obtain such services of such men? Only by paying them adequate salaries. The standard of efficiency of an entirely unpaid medical staff has in many instances been high; but it does not meet the requirements of the present day.

You will perhaps ask me what concern this is of the hospital administrator who is not charged with the treatment of patients. My reply is that the modern medical administrator of a hospital is not doing his duty by the community or by his trustees by simply attending to the housekeeping or by limiting his duties and responsibilities as they have often been limited in the past. By acting with a small medical board, he should see to it that nominations to the trustees of the men to fill vacancies on the staff are the very best possible, and that when these men are appointed they work for the greatest efficiency of the hospital and not for their personal aggrandizement. The superintendent of the modern hospital to have the highest efficiency must keep in touch in a general way with the problems and progress of medicine. The medical board may make efficiency tests of the work of the various departments, or it may delegate this work to a committee reporting to them. Just as it is well for a hospital to submit to inspection and criticism, so it is of advantage to have the different departments examined. In this way we may stimulate careful productive work and prevent slipshod work.

This committee, may, for instance, take the records of a number of cases of a certain sort in one out-patient department and examine them to see if the patients received a thorough examination; if all the laboratory tests were made; how many visits there were; the results of treatment and whether advantage was taken of all the facilities for treatment furnished by the hospital. No harm is done if this committee interests itself in some of the functions of administration. It may well watch the admission of patients in the out-patient department, see if there is unnecessary delay, if applicants are handled with kindness and good judgment. If these duties are not well performed, no one is more desirous of knowing it than the superintendent. It hurts none of us to be checked up and be given friendly criticism.

Let us then impress upon our trustees the necessity of paying adequate salaries to these chiefs of service; for we cannot demand from them the work we need until we are prepared to pay for their time. This does not at all mean that we are to throw away the voluntary work of men who make their living by practising medicine and surgery. Their services are of the greatest value to the hospital, and the hospital work is of the greatest value to them. The community needs that they should have the experience which only the hospital can give. Inasmuch as the hospital is necessarily secondary to their private practice, they must be content to work under the leadership of those who are paid to make the hospital work their first interest.

My message to the larger hospitals is, then: Give more attention to medical and surgical efficiency and to that end get the right men for

chiefs of service and pay them adequately to devote a large measure of time to the hospital.

A word about the small general hospitals: I recognize that much admirable work is done in these institutions. I believe, however, that sometimes too little thought is given to the community need when such a hospital is started. Often a hospital could be erected at a central point which would serve several towns and be able to command better work than could several smaller institutions in the various towns. There is a tendency in some of the smaller hospitals for members of the staff to attempt surgery for which they have had no adequate training. In some places this has been a crying scandal. Medical associations are now proposing to license surgeons. This will help a great deal, but there must be developed a public sentiment which will make ignorant surgery impossible. A surgeon of small experience must learn that it is no disgrace to admit that a given patient's chances are better in the hands of another man and tranfer the invalid to the metropolitan hospital, if feasible.

Well authenticated report comes to me that in some hospitals in certain sections of the country the standards of deportment, decorum, and, in some instances, even decency, are low. The relations of staff and nurses are altogether too intimate. No hospital with low standards in this particular can ever permanently flourish or do good work. I wonder if this has anything to do with the difficulty of some of these hospitals in getting nurses? To any of you who know that I am justified in making these charges, I leave the answer to this question.

Too many small hospitals are started without adequate provision for their support. The result is a constant struggle and a probable attempt to make the unfortunate nurse in charge carry a greater burden than anyone should be asked to carry, both in hours of work and responsibility.

We should all use our influence against the starting of a hospital until it has been clearly shown that it is necessary; that the location suggested best meets the need; that there is adequate support in evidence, and that its conduct is in the hands of those whose ideals are high and whose methods are practical.

In 1905, when this association last met in Boston, I well remember hearing an honored superintendent of long experience urge that meetings should be held once in three years, because all the subjects of interest to hospital superintendents had been pretty thoroughly discussed. This was just before any adequate realization of the expanding work of the modern hospital and the responsibilities of its administrator. In selecting topics for my words to you, I have been embarrassed not by the paucity of interesting subjects, but by their multiplicity.

I thank you for the honor which you have conferred upon me in making me your president, and it is my most sincere wish that this meeting may be productive of benefit to the hospital world.

Original Articles.

ATROPHIC RHINITIS WITH OZENA. ITS ETIOLOGY AND SURGICAL TREATMENT.*

FRANCIS P. EMERSON, M.D., BOSTON.

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INTRODUCTION.

From the discussion of atrophic rhinitis with ozena, as found in the literature, it is evident that special investigators are particularly interested in two methods of procedure in the study of the cause and treatment of this disease.

First, in an attempt to isolate a specific organism and establish a method of treatment based on such findings, and second, in looking upon the symptom complex as due to pus-producing organisms, causing multiple foci that are amenable to the recognized surgical principles of drainage and cleanliness.

The difficulties encountered by an investigation along the first procedure are due to the results of decomposition and secondary infection, which give rise to an innumerable bacterial flora and interferes with an attempt to determine which particular one is the active organism in the disease.

Renewed interest has been awakened of late by the work of Abel and his experiments with the Bacillus Mucosus Ozena. This painstaking work has led others to attempt to substantiate his claims. An excellent article, among others, appeared last year in this country, by Cobb and Nagle. This phase of the subject has already in previous years engaged the attention of the members of the profession, notably Lowenberg, Pesand, Gradenigo, Dreyfuss, Loeb, Ambi, Brindell, Gruenwald, Hajek, Marano, Abel and others, but without any definite results.

In the second method of procedure, where the symptom complex is considered as due to an attenuated infection with multiple foci, secondary to a pan-sinusitis, this would suggest that the original infection is not followed by an essential or primary atrophic process, acting as an intermediate step, but that the sinuses are invaded directly by a pus-producing organism. While it is conceivable that foetor and crusting might be produced by the breaking down of soft tissue, bone necrosis and defective drainage, with the resulting secondary infection, yet we know that certain pus-producing organisms

* Read at the annual meeting of the Laryngological, Rhinological and Otological Society at Washington, May, 1913.

by themselves are capable of causing a thin, others a thick, secretion, and still others may cause foetor and crusting. In this sense a specific organism might be necessary to produce ozena, but not necessarily have, as its primary manifestation an atrophic tissue change. If we accept the latter view, which the writer believes is true, we can with advantage continue to search for a specific organism and at the same time, perfect our surgical technic, because purulent retention within non elastic walls requires free drainage, as a pre-requisite to cure, whatever the infective agent might be.

THEORIES.

From the earliest medical records to the present time, many theories have been advanced as to the etiology of ozena, but none of them have had a considerable following, among men of eminence. For a review of this literature, you are referred to the excellent article by Sendziak in the *Annals of Otology, Rhinology and Laryngology for* 1907.

That tuberculosis and syphilis cause a certain number of cases is conceded, but the researches of Sobernheim, Eisenbohr and Alexander by the aid of the Wassermann test, showed that syphilis, the disease most suspected as a cause of ozena, was responsible for relatively only a small percentage.

Bosworth's theory of a preceding purulent rhinitis, with no sinus involvement as a cause of ozena in later life, has been questioned by the researches of Pearce at the Boston City Hospital and of Pearce and Winne at the Albany Bender Laboratory, who showed conclusively that the sinuses are often invaded by a pus-producing organism in the course of the infectious diseases as early as the second year. Is it not also the experience of all rhinologists, with their present better knowledge of sinus infections, that a primary purulent rhinitis is a thing of the past? It is always secondary to some focus of infection in the epipharynx or hollow spaces.

Theories based on the shape of the face, as being a cause are less often referred to today with our more definite pathology on which to base a diagnosis.

The Herd theory of a sinus disease as a cause of ozena, has had such able exponents as Greunwald, Hajek, Loehnberg, Michel and not a few among the members of this society, although this theory has not been generally accepted; yet the writer brings this phase of a much discussed subject before you today again, because of his belief that the rapid advance in our knowledge of and ability to cure sinus diseases, has opened new possibilities in the study of the etiology and cure of ozena, even granting a specific organism. In the past, when treating these focal troubles intranasally, even if we agreed as to its etiology, yet our knowledge of the surgical technic of sinus disease has advanced sufficiently to make it possible to adopt a common method of thorough exenteration of involved cells. This would in turn lead us to some definite agreement for or against a focal infection, as being the chief underlying cause of this disgusting affection.

PERSONAL WORK.

It is for this purpose that I venture to offer the results of the following surgical procedure, after briefly stating the grounds, which in my opinion implicate the accessory sinuses, without there being a true atrophic process.

First, the writer has never seen a case of a so-called atrophic rhinitis, that was not relieved by thorough drainage, instead of being made worse, as would be the case, if trauma and increased air space were added to a genuine atrophic mucosa.

Second, the crust formation and foetor when unilateral, are always on the wide side, where they have apparently been preceded by a compensatory hypertrophy of the second turbinate, due to the deviated septum. This enlarged turbinate would in turn interfere with the proper drainage of a subsequent sinus infection.

Third, the discharge of pus over a mucous surface, in a long standing case, is in the writer's experience always accompanied by a glazed appearance of the mucosa, dryness and an exudate, a low grade catarrhal process, and not a true atrophic process. That this is not a true atrophy is shown by the return of function of the mucous surface with the establishment of free drainage and the cure of the underlying focal infection. This is often seen on the posterior pharyngeal wall in cases of chronic sinusitis of the sphenoid cavity, or posterior ethmoid cells.

Fourth, radical surgery with the object of establishing free drainage, lessens the tendency to crust formation, instead of increasing it. The lessening of crust formation is in proportion to the thoroughness with which the affected cells are drained. This is followed by a purulent or muco-purulent discharge, until the diseased surface is made healthy, by topical applications and cleanliness. Nowhere in the body does nature tolerate so much abuse as in the nasal chambers, if we provide free exit for the secretions.

Fifth, ethmoid disease, the writer believes to be the most constant of the infectious processes in the nasal chambers. As a suppurative ethmoiditis it is easily recognized. On the other hand, there are inflammatory processes of the ethmoid cells which are less active, or where the drainage is better, in which case, they are characterized by serious infiltrations, dilatation of the capillaries, with the mucous membrane dry and red; and if seen after the process has been going on a certain length of time, there is found covering the mucous surface an exudate which is made up of dead epithelium, pus mucus

and blood. These seem to be the steps and the macroscopic appearances clinically of a certain type of catarrhal ethmoiditis. This type of an inflammatory process, where it fails to undergo resolution, passes into a chronic condition, which the writer has repeatedly noticed, was spoken of by many clinicians as atrophic rhinitis. Since these cases of so-called atrophic rhinitis get well under improved drainage, the question would therefore arise, whether the clinical term of "atrophic rhinitis" is a misnomer or the pathological understanding of atrophy is incorrect. To the writer it is inconceivable that a true atrophy with destruction of the glandular elements and an increase in the connective tissue stroma, should resume its function clinically, as is the case of the mucous membranes of the nasal chambers, where a free exit for the secretions is provided. Such cases untreated may continue indefinitely, but when the ostia become obstructed by inflammatory changes, and drainage is interfered with, a subsequent active infection may take place resulting in a suppurative ethmoiditis.

Sixth, the general systemic symptoms, such as pallor, loss of weight, muscular weakness, gastric and other symptoms, are a sequel rather than a predisposing cause of the local condition. These symptoms are found to improve with diminished absorption, as the local condition is relieved.

Seventh, the writer's cases of ozena have shown the morbid process more uniformly to be in the ethmoid and sphenoid sinuses. Next in frequency have been the ethmoid, sphenoid and frontal, and last ethmoid, sphenoid and antrum.

The preceding observations were further strengthened by the classical work of Gruenwald on nasal suppuration and the report of cases by Michel, Lowenberg, Hajek, Mayer, Beck, Theissen and others, although in the beginning of this work, the cases were tedious and necessarily difficult to cure, owing to the haphazard way individual cells were attacked at that time and their proneness to relapse with re-infection, yet the results during the last four years have grown increasingly more satisfactory with added experience and a better technic. I wish to emphasize right here that the successful results in the treatment of these cases of so-called atrophic rhinitis with ozena depends absolutely upon the careful after-treatment, which is fully as important as the thorough surgical exenteration. Regular and painstaking care must be exercised until all the affected surface is brought into a healthy condition; and even then for a long time we have a membrane with low vitality, easily re-infected and functionally disturbed.

GENERAL DESCRIPTION OF CASES.

The clinical cases fall into two general classes, one, the typical cases of Fraenkel with crusting, foetor, anosmia, necrosis and sloughing of the soft tissue, and second the atypical cases in which foetor and crusting may be absent and where the diagnosis of attenuated sinus infection might be more an open question. Contrary to the established facts in the treatment of diseases, the older the stage of this disease, the easier it is to cure. This is in perfect harmony with the sinus theory of the etiology of ozena, owing to the fact that in the third stage, where the infection is less active, the ostia open and the drainage more or less perfect, due to the necrosis and the sloughing of the soft tissue, there is left a smooth bony surface, and therefore the cure is relatively easy.

In the second stage, although earlier in the disease, with the mucous membrane boggy, drainage blocked, and the entire surface covered with a thick, firm crust, the problem is increasingly difficult.

The element of foetor has not seemed to the writer to indicate that a case would present any additional obstacle to healing, for the reason that the odor may be due to a particular organism, not necessarily more virulent or more intractable to overcome than those with little or no odor. In fact the only serious problem is an anatomical one. In those cases where the cells are developed in the floor of the frontal sinus or out over the orbit, it is obvious that drainage must be obtained by extranasal methods. If we assume that drainage is essential, then we must admit that a certain per cent. of cases of ozena presenting these anatomical peculiarities cannot be cured by any intranasal procedures, whether these are along medical or surgical lines. These variations in development have been pointed out by Shambaugh in an excellent article entitled: "The Construction of the Ethmoid Labyrinth," in the *Annals of Otology, Rhinology and Laryngology*, Vol. 16, 1907.

We approach our surgical procedure then with the understanding that,

First, for anatomical reasons all cases cannot be cured intranasally.

Second, that when functionally cured the previously infected surface is prone to relapse, due to re-infection.

Third, that only constant attention to drainage, the removal of polypi, topical applications and cleanliness following radical exenteration will avail in any case. Given these conditions, the writer believes that as large a percentage of cases of ozena can be brought to a successful issue as we could expect to cure intranasally, cases of undoubted pan-sinusitis.

SURGICAL TECHNIC.

The first step consists in anesthetizing the patient in a reclining position. He is then placed in a chair and then the nasal mucosa is adrenalized. The sphenoidal opening is next located with a probe and if not easily accessible, part of the second turbinate is removed, in order that we may take away enough of the anterior

sphenoidol wall, so that the enlarged sphenoid opening can easily be recognized, when the land marks have been removed. Next the method of Mosher is employed to systematically exenterate under direct vision the ethmoid labyrinth. With the head tipped back the agger nasi cell is located a little above and in front of the attachment of the second turbinal, corresponding to the rounded eminence on the outer nasal wall. This is found with a curette, by first feeling for the hard surface of the superior maxillary process and then working toward its posterior margin until you break through the thin outer wall of the cell, which corresponds to a large cavity lying at the floor of the naso-frontal duct. It is now important to bring the head forward, so that it is at right angles to the body. The curette is then turned so that it faces the nares, away from the orbit. With a lateral to and fro motion the inner cell walls and partitions can with a little practice be easily broken down by the sense of touch, back to the posterior ethmoid cell. The point here which the writer wishes to emphasize is, that the curette is not to be used to remove the lining membrane, but as an instrument to break down the bony partitions and nasal wall of the cells. This leaves the second turbinate turned down and attached by a narrow base which can be wholly removed by the nasal scissors or forceps in a few minutes. We next pack the operative field with strips of gauze wet in a solution of adrenalin 1-3000. We can now work on the opposite side, where our original operative procedure is duplicated and the field tamponed. The gauze in the first side is then removed, the enlarged sphenoidal opening sought, and its remaining anterior wall is then removed up to the posterior ethmoid cell. The field is then gone over by introducing the little finger into the nares in order that we may detect any irregular bony projections or margins of cells that may interfere with drainage. All granulations and polypi should be removed without destroying the entire mucous lining. The patient is then returned to bed without any nasal packing.

AFTER-TREATMENT.

First, mechanically remove all crusts gently to avoid bleeding. If the drainage is good after the first week or ten days, these will cease to form and the discharge will have become mucopurulent.

Second, after the first week remove all polypi, that may appear. These will tend to return for several weeks.

Third, use the Bier suction apparatus after first washing out the sphenoid cavity with a cannula. Watch especially the sphenoid opening at its margin where it tends to granulate rapidly and obstruct drainage, as pointed out by Hajek. Touch the margin with silver nitrate, or trichloracetic acid, until it remains permanently open as the result of cicatrization.

Fourth, make the surface dry by gentle pressure and after the first week apply a 4 to 8% solution of silver nitrate, especially to the sphenoid cavity itself and over all unhealthy areas wherever found.

Fifth, if the patients live at any distance, allow an alkaline wash to be sniffed twice daily, from the hand or a table spoon. The surplus water should then be blown from the nares without taking hold of the nose on account of the danger of back pressure in the Eustachian tubes.

Sixth, do not allow a water spray of any kind to be used. For four weeks the patient should be seen two or three times a week, then for four weeks more once a week, and after that at irregular intervals until discharged. Remember to caution the patient that an acute infection will bring on a relapse which should be attended to at once. This usually means only a few treatments, after the acute infection subsides.

GENERAL SUMMARY.

The interest of the profession in the etiology of ozena seems from the literature to be centered upon two methods of procedure.

First, in an attempt to isolate a specific organism, and second, in looking upon the symptom complex as due to pus-producing organisms, causing multiple foci.

The difficulty in isolating a specific organism, arises from the innumerable bacterial flora, resulting from decomposition and secondary infection.

The second procedure does not admit an essential or primary atrophy as an intermediate step in the disease.

Theoretically, a specific pus-producing organism might cause foetor and crusting, without a true atrophic process. That tuberculosis and syphilis are the underlying cause of ozena, except in a small per cent. of cases is not probable.

Bosworth's theory of a preceding purulent rhinitis in infancy without a sinus infection is questioned. The post-mortem reports of Pearce and Winne show sinus involvement as early as the second year in the course of the infectious diseases.

More definite pathology has led to the abandonment of many former etiological theories. The rapid advance in our knowledge of and ability to cure accessory sinus disease makes it now possible to adopt a more uniform surgical technic for their exenteration. This should show more definitely the relationship of sinus infection to ozena.

What seems to be an atrophic process is always improved by drainage.

SUMMARY CONCLUDED.

A sinusitis frequently develops in the following manner. A septal deviation is followed by

a compensatory hypertrophy of the second turbinate with a resulting catarrhal ethmoiditis. This hypertrophy and catarrhal inflammation so interfere with drainage that a subsequent infection by a pus-producing organism makes a sinusitis probable.

A chronic catarrhal inflammation accompanied by an exudate is frequently spoken of as an atrophic process. The return of function with improved drainings shows that it is not a true atrophy. Radical surgery, by establishing better drainage, lessens the tendency to crust formation. Is atrophic rhinitis then a misnomer?

The general systemic symptoms are secondary. The writer's cases have shown the morbid process more often to be in the ethmoid and sphenoid sinuses; next often in the ethmoid, sphenoid and frontal, and last the ethmoid, sphenoid and antrum.

There are two types of clinical cases, one the typical cases of Fraenkel and the other the atypical cases, without foetor and crusting. The atypical cases are less open to question in regard to sinus involvement. The third stage of the disease is more easy to cure. The after-treatment is as important as the surgical exenteration. Foeter does not indicate a more intractable case. The serious obstacle to cure arises from an abnormality in the development of the bony cells. When such abnormal cells are present, certain cases of ozena are incurable by any intranasal method. All cases are easily re-infected, but respond readily to local applications, if the drainage is good.

CLINICAL CASES.

Case 1. Mrs. H. C., 39 years. Born in Norway. Married.

Diagnosis. Bilateral atrophic rhinitis with chronic ethmoiditis and sphenoiditis and a traumatic perforation of the septum.

Operation. Radical exenteration of the ethmoid labyrinth and sphenoid sinus on the right side, leaving the left as a check.

History. F. H. negative. Pain general over the head and face for five years. Profuse discharge from the nose for two years. Has had several previous nasal operations.

Examination. The entire nasal septum is destroyed to the ethmoid plate, leaving a large central perforation. Both inferior turbinates are shrunken and covered with crusts. Part of the middle turbinate remains. There is a large opening on either side of the cribriform plate. An x-ray shows double ethmoid clouding. The left frontal region is unsatisfactory. Thick scabs are general over both sides and underneath there is a foetid purulent secretion.

Operation. 9. 16. 11. Dr. Emerson.

Owing to previous operations the land marks are destroyed. There is some difficulty in locating the agger nasi cell. The ethmoid region between the posterior ethmoid cell and the anterior is one solid bony mass, with the wall too thick to penetrate safely. The anterior and posterior region was thoroughly opened and the remains of the turbinate removed.

Operation. Feb. 12, 1912. Dr. Emerson.

Exenteration of the left ethmoid labyrinth and sphenoid under ether. Polypi in left posterior ethmoid cell removed. Partial remains of the right anterior sphenoidal wall removed.

Result. March 23. The right side has been free from crusts and odor for two weeks. The left side has some free pus especially in the region of the naso-frontal duct and cribriform plate. Some headache on the left side.

Note. This case was followed at the writer's office for some weeks until he was convinced that there was trouble in the left frontal sinus. This was uncertain from the x-ray plate. A Killian operation was then performed, which showed that the ethmoid cells extended out of the orbit and that there was a large cell in the crista galli. The frontal sinus was full of granulations and considerable pus was seen coming from the cell in the crista galli as well as from the sinus. Such a case could not be drained intranasally.

Result. The right nose has been clear for months. The left has a few drops of clear pus coming from the frontal sinus.

Case 2. A. H. Born in Ireland. 26 years. Domestic. Single.

Diagnosis. Bilateral atrophic rhinitis with chronic ethmoiditis and sphenoiditis.

History. F. H. One brother has bi-lateral ethmoiditis. Mother and one sister has goitre. No specific history. Measles at nine years. Frequent colds and discharge from the nose for five years. Pleurisy four years ago for a week. Occasional headaches. Odor from the nose has made it difficult for the patient to retain her position as a domestic. She is not strong and tires easily.

Examination. Patient poorly nourished. Cheeks flushed and tongue coated. Alae flattened. Septum deflected to the left. Whole outer nasal wall on both sides covered with a thick crust that can be removed with nasal forceps en masse. Under this a bleeding surface and free stinking pus.

Report from the Boston Consumptives Home. Lungs and sputum negative.

Operation. Exenteration of ethmoid cells and anterior sphenoidal walls.

Result. Patient was treated at intervals for a year as the ethmoid region was exenterated at intervals under local anesthesia. For two years the patient has been entirely well with no odor or dryness and the mucous membrane is clean. The sphenoidal openings are large and clean. She has gained twenty pounds and has used no wash for a year.

Note. During the last year the patient has been treated only twice following an acute infection. This patient was one of the most marked cases of ozena; she now shows a perfectly clean nose without the use of any wash.

Case 3. A. E., 32 years. Born in Russia. Grocer. Married.

Diagnosis. Bilateral atrophic rhinitis with chronic ethmoiditis and sphenoiditis.

Operation. Radical exenteration of the ethmoid cells and anterior wall of the sphenoid under ether.

History. F. H. negative. Patient referred for an examination for a possible focal infection as a cause of his endocarditis. There is crusting and discharge from the nose with loss of smell. Duration seven years. He has been to several hospitals,

and was there told that his disease was incurable. He is weak and finds it difficult to do his work.

Examination. Crusting over both outer walls of the nares, with very offensive discharge underneath. The second turbinates are shrunken. A large quantity of free pus is seen in the right middle meatus. The bridge of the nose is somewhat depressed. The septum is deflected to the left at the upper third. The right sphenoid cavity is very large, the left nearly obliterated.

Result. The tendency to crusting stopped in two weeks. There was persistent discharge from the region of the right sphenoid until it was discovered that there was a partition in the sinus with a narrow vertical ostia close to the septum, leading into the main cavity, which had not been opened. The partition was removed and the cavity irrigated; then treated with silver nitrate 8 per cent. Further trouble was experienced by the tendency of the margin of the anterior wall to fill in with granulations. Finally by the use of silver nitrate and trichloracetic acid to the margin, this was overcome and the cavity remained permanently open, and the discharge ceased.

CASE 4. H. H. Shoemaker. Married. Born Russia. 31 years.

Diagnosis. Bilateral ethmoiditis and sphenoiditis with ozena. L—O. M. S. Ch.

History. Severe headaches for 8 years. The writer had performed a radical mastoid on the left side, and in doing the dressings the foul sour odor from the nose was very marked.

Examination. Both nares contain a considerable amount of foul pus with crusting. The middle turbinates are boggy and myxomatous at their anterior ends. Anosmia complete.

Operation. Oct. 8, 1912. Both ethmoid labyrinths were exenterated from before backward under ether. Both anterior walls of the sphenoids were removed and the two cavities connected.

Oct. 20, 1912. Nose clean and no odor.

Oct. 31. 1912. Patient discharged from the hospital and treatment continued at the writer's office.

Nov. 10, 1912. Discharged.

Result. The patient moved to Michigan and was treated there four times as the nose was not completely healed.

April 22, 1913. Examination by the writer showed the nares free from crusts or discharge. Both sphenoid cavities are widely opened.

CASE 5. A. M. Born in Nova Scotia. 44 years. Married. Furniture mover.

Diagnosis. Bilateral atrophic rhinitis with chronic ethmoiditis and sphenoiditis.

Operation. Exenteration of the ethmoid cells and the anterior walls of the sphenoids. Local anesthesia.

History. F. H. negative. No specific history obtained. Malaria 14 years ago. Several attacks of otitis media. Dryness of the nose and crusting with loss of sense of smell for 20 years.

Examination. The middle turbinals are covered with dry crusts and also the post nasal space. The nasal cavities are wide. The turbinals are atrophied on both sides including the middle and inferior. The mucous membrane is pale and dry. There are several erosions on the septum.

Result. This case was one representing the so-called terminal stage of ozena and responded quickly to operative measures. For four years there has been no nasal symptoms.

CASE 6. November 18, 1908. C. N. C. Irish American. Born in Ireland. 53 years. Married. News agent.

Diagnosis. Bilateral atrophic rhinitis with chronic ethmoiditis and sphenoiditis.

Operation. Radical exenteration of ethmoid and sphenoid sinuses under ether.

History. F. H. negative. No specific or tubercular history obtained. Catarrh for ten years with nasal obstruction and loss of smell. Colds often. Hacking cough. Post nasal discharge. Patient spends a long time each morning trying to get his nose free from crusts. Indigestion with chronic bronchitis and bronchorrhea for 10 years. Aprosexia and neurasthenia marked. Odor pronounced.

Examination. Face pale and pinched. Nose small and alae flattened. Septum to the right. Inferior turbinates atrophied. Right middle turbinate large and covered with dry secretion. The left middle turbinate shows myxomatous degeneration and there is a polyp between it and the outer wall. Erosion on the septum. Pharynx atrophic, glazed and dry.

Result. Following a radical exenteration the crusts and odor disappeared and for two years there have been no nasal symptoms.

CASE 7. M. F. Born Boston. Irish American. 20 years. Single. Female. Brushmaker.

Diagnosis. Atrophic rhinitis with chronic bilateral sinusitis of ethmoid and sphenoid.

History. F. H. negative. No specific or tubercular history. Pneumonia 10 years ago. For four years the patient had had headaches on rising, especially over the right eye. Colds often. She has been under constant treatment at various hospitals for four years. Sense of smell lost; occasional epistaxis. Odor marked.

S. P. General condition fairly good.

Examination. Alae flattened; septum is deflected to the left. Both inferior turbinates are covered with crusts. Right middle turbinate very large. Much muco-pus in the middle meatus. Mucous membrane, where it is not covered with crusts, is dry and the nose obstructed. Pharynx dry.

Operation. Exenteration of ethmoid cells and anterior wall of the sphenoids under local anesthesia. Os planum on the right side is partially destroyed.

Result. Patient has been seen at frequent intervals for a year. For the last two years she has been entirely well with no nasal symptoms.

CASE 8. G. B. American. Born in Vermont. 25 years. Married. Advertising manager for a machine company.

Diagnosis. Atrophic rhinitis with bilateral sinusitis of ethmoid and sphenoid.

Operation. Exenteration of ethmoid and sphenoid sinuses, under ether.

History. F. H. negative. No specific history obtained. Frequent colds. Loss of smell. Nose obstructed and dry for ten years. Scarlet fever as a child. Pneumonia ten years ago. General pressure symptoms over the entire head. Muscular weakness. Aprosexia. Odor marked.

Examination. General condition poor. Face pale. Alae flattened and dilated. Odor marked.

Septum deviated to the right with a horizontal ridge and posterior spur. Both outer walls of the nares are covered with crusts, which bleed on removal. Middle turbinals swollen and ulcerated. Much muco-purulent discharge especially in the posterior nares. Pharynx dry and glazed.

Result. This case was much improved, but on account of the fact that he lived in an adjoining state, and could not be seen except at long intervals, he is far from being cured. Since treatment was stopped there has been no crusting or odor, but there is considerable purulent discharge, which the patient can remove by using the nasal wash.

Conclusions.

The illustrative cases of ozena here presented are only a few out of a large number seen by the writer, during the last ten years. The study of these and similar cases has led to the belief that ozena is the sequel of a focal infection.

Clinically the course of events is as follows: a septal deviation causes a compensatory hypertrophy of the middle turbinal. This is followed by a chronic catarrhal ethmoiditis which interferes with drainage to such an extent that a subsequent active infection results in a sinusitis.

The foetor and crusting are probably due to the direct action of a specific pus-producing organism on the tissues, without any preceding true atrophic process.

The difficulty in establishing free drainage, where there is an abnormal anatomical development of the bony cells, makes the cure of certain cases of ozena impossible with any intranasal procedure.

Whatever aid bacteriology may give us in curing this disease, must follow the free drainage of all foci of infection.

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SPINAL ABSCESSES.

BY JAMES K. YOUNG, M.D., PHILADELPHIA,

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From time immemorial, a large collection of fluid in any part of the spine, as a result of destructive changes, and slow in its progress, has always been regarded as a "cold" abscess. The exact character of these collections was unknown to surgeons prior to the time of Percival Pott (1779), their tuberculous nature, however, was suspected by a coterie of distinguished French surgeons as early as 1825 and for several years succeeding, but the real pathological character of these abscess contents was not scientifically demonstrated until the memorable labors of Koch were given to the world in 1882 and still further corroborated and elaborated by the more recent advances in the field of bacteriology. For a long time, the view obtained that all cold abscesses were tuberculous in character; at the present time, however, this deduction has been proved fallacious, and we are enabled to recognize the presence of many organisms in association with spinal abscess besides the tubercle bacillus.

The abscess may be secondary to infection from the staphylococcus, the streptococcus, gonorrhea, typhoid fever, rheumatism, actinomycosis[1] and very rarely perhaps from syphilis; as well as those instances associated with osteoarthritis and arthritis deformans. Among the rarer varieties are those occasionally seen in conjunction with tabes dorsalis, and rarely in gout.

With spinal abscesses there is usually little constitutional disturbance, a slight rise of evening temperature, mild rigors and perspiration.

The morning temperature is usually subnormal, with a slight elevation in the evening. Abscesses, however, may occasion much disturbance from pressure and distensions of surrounding parts, or they may attain great size and remain stationary for long periods, especially in children without occasioning inconvenience so long as they remain sterile. When mixed infection occurs the picture changes—the range of temperature is greater and rigors may occur, with rapid pulse, furred tongue, constipation, headache, etc., indicating the occurrence of sapremia.

From their anatomic positions, spinal abscesses are designated, cervical, dorsal and lumbar. According to the well-known physical law, collections of pus follow the paths of least resistance and open at some point distant from the seat of origin. A study of the various fasciae in connection with the muscles in relation and in close proximity to the spine, thus, becomes all-important, but in a brief exposition such as this, we need but content ourselves with the briefest mention of some of the more salient points bearing on the subject.

When abscesses in the cervical region open externally, the pus passes between the longus colli and the scalene muscles to the posterior aspect of the sterno-mastoid muscle; they may, however, burrow posteriorly into the pharynx or beneath the deep fascia into the thorax, forming a mediastinal abscess to ultimately discharge into the trachea, esophagus, through an intercostal space; or in the case of the author's, through the pleura, resulting in an empyema.

Abscesses of the dorsal region may burrow posteriorly and open on the back or side a short distance from the spine or within the sheath of the psoas muscle beneath Poupart's ligament in Scarpa's triangle.

Purulent collections in the lumbar region, owing to the peculiar anatomic relations of the lumbar fascia, may vary much in their course and exit. The sheath of the psoas and the lumbar fascias from their peculiar and intricate natures are so important that the writer has suggested a division of lumbar abscesses into the external and the internal[2], their relation to the sheath of the psoas fascia and the anterior layer of the lumbar fascia determining their position.

A lumbar abscess may enter the psoas sheath, as a psoas abscess; it may burrow between the fascias of the quadratus lumborum and the abdominal muscles, through the internal oblique and appear posteriorly beneath the external oblique and latissimus dorsi at the outer border of the erector spinal muscle. Then again a lumbar abscess may terminate as a gluteal abscess in one of two ways: either it may gravitate beneath the internal iliac muscles over the posterior brim of the pelvis and perforate the great sacro-sciatic foramen, or it may be directed to the iliac region along the course of the aorta and the external iliac arteries.

In the abscess contents occurring in cases of spondylitis from varying causes, some will be found to contain not only the tubercle bacillus, the gonococcus, etc., but there is often found a mulitiple infection that has taken place prior to the time of incision.

When the abscess formation is very rapid it is usually found to contain staphylococci, or streptococci, but other germs may also be present. In the examination of many abscesses before operation, the writer, by means of a fine hypodermic syringe and a culture of the contents, found 50 per cent. of the cases sterile while the remaining half of the cases revealed the presence of staphylococci, streptococci, pneumococci and other forms of the diplococcus.[3] Among the rarer organisms found in abscess collections about the joints, I have recorded a case of mixed infection with staphylococci engrafted upon actinomycosis of the vertebrae. Again, there are a number of different organisms existing in sinus cavities and in the discharges. Bergey has demonstrated the existence of an unusual number of the pseudo-diphtheria form, probably pyogenic in nature.

Before operative measures are instituted for treatment of spinal abscess, resort should be made to exploratory puncture for diagnostic purposes. This should be made several days before the contemplated operation in order to use the laboratory findings in the surgical treatment of the abscess or of the primary pathological lesion. In the examination of 24 operative cases all of which were diseases of joints, I found that 6 contained tubercle bacilli, 6 pyogenic organisms and 12 were sterile. Among other bacilli found were, the streptococci, staphylococci, bacillus pyocyaneus and pneumococci. The examination of the fluid is important in deciding what operative measures are to be instituted and whether an operation is immediately required.

TREATMENT.

Small, stationary abscesses, that exert no pressure on important organs will frequently become absorbed by fixation and recumbency. In cases demanding operative interference, strict antisepsis, free incisions, openings, counter-openings, with the insertion of drainage tubes, are to be advocated; especially is this to be urged where from location and size it appears possible to remove by curetting the entire pyogenic membrane. In retro-pharyngeal abscess, with the patient's head dependent over the end of the operating table and the mouth gag inserted, an incision is made with a guarded bistoury in the median line of the posterior wall of the pharynx, the free discharge of pus taking place through the mouth and nose. In deep cervical abscesses which are approaching the thorax along the deep cervical fascia, an incision should be made through the sterno-mastoid, an exploratory incision carried through the deep fascia and if pus be found, the incision further extended.

In psoas and lumbar abscess, through and

through drainage should be instituted whenever possible. The abscess is opened by careful dissection, the incision made in the direction of Poupart's ligament, half an inch internal to the anterior superior spinous process. The external oblique is divided in the direction of its fibres and the internal oblique at right angles or the fibres are separated. The sac is evacuated and a grooved director is passed up above the position of the sacro-iliac junction and a longitudinal incision made upon it. The abscess cavity is thoroughly irrigated with sterilized water and boric acid solution. A rubber drainage tube is passed through it and secured with safety pins. This is allowed to remain in place two or three days, after which it is gradually shortened, and a bichloride dressing is applied.

The indications for this operation are:

1. When the abscess is large and makes pressure upon important structures.
2. When the abscess is rapidly increasing in size.
3. Where rupture into the peritoneal cavity seems imminent.

A word seems opportune as to psoas abscesses. Early operation is to be advocated if the condition at once be recognized, with the following symptoms emphasized: When the condition is of sudden onset, with rapid pulse elevation of temperature to 102° or 104° F. and a leucocytosis of at least 18,000, with confirmatory evidence as shown by the x-rays, early operative measures are followed by rapid healing and recovery is usually prompt and thorough.

If, however, the abscess has existed for two or three months and has assumed a certain degree of size it is too late to perform the early operation and the depth of the abscess in the abdominal cavity makes it too difficult to reach through the anterior route and there is an interval when it is best to wait until the swelling assumes a larger size and presents itself above and to the inner side of the anterior superior spinous process of the ilium. Through and through drainage may then be performed. When the abscess has descended below Poupart's ligament and is presenting itself at the saphenous opening, the operations must be modified. It is also necessary here to make through and through drainage. In cases of this kind I have devised an original method of closing off the lower abscess by separate tubes and packing and establishing through and through drainage as above remarked. Before the abscess has advanced far enough to appear as a swelling in the groin, but assumes a sausage-shaped contour at the iliac fossa, it may at times be opened by the posterior route. The incision made is parallel with the lumbar vertebrae and divides the quadratus lumborum muscle until the sac is reached. My experience with this operation has been satisfactory, but I prefer through and through drainage. After thorough cleansing with boric acid solution, a full aseptic dressing is applied. A proper fixation apparatus will add much to the efficiency of the local treatment that has been instituted.

From the above statements, it is evident that psoas abscesses may present themselves at three different periods for the surgeon's consideration, namely, early, intermediate and late and, as has just been related, the intermediate period, marks the time of surgical inactivity. There is no general rule, however, that can be applied to the abscesses in different regions of the spine. In the cervical region they should be incised early in order to avoid burrowing beneath the deep cervical fascia into the thorax. In the dorsal and lumbar region especially where they are external they should, as a rule, be incised early because of the great pain. In the lumbar region where the abscess has formed a sausage-shaped mass in the iliac region, a delay is sometimes of an advantage as it permits the abscess to elevate the fascia, pushing the peritoneum out of the way and thus avoiding injury to it, and advancing forward toward the inner side of the anterior spine of the ilium, thus avoiding a deep dissection in a region which later might become rapidly infected.

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[1] See author's article on "Actinomycosis of the Vertebrae." University of Pennsylvania, "Medical Bulletin," October, 1908.
[2] "A Manual and Atlas of Orthopedic Surgery," Jas. K. Young, P. Blakeston's Son & Co., Philadelphia.
[3] Article by author, "Mixed Infection in Tuberculosis and Treatment," Monthly Cyclopedia and Medical Bulletin, December, 1910.

SIZE OF HOSPITALS FOR THE INSANE AND FEEBLE-MINDED.

BY W. MAULE SMITH, M.D., ENGLAND,

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If your columns are not yet closed to the discussion on the above subject I should like to present an aspect of the question which I think has not received sufficient attention either in the article by Dr. Walter Channing, advocating large asylums, or in the criticism of it by Sir Thomas Clouston, recommending those of smaller size.

These two writers present arguments for and against the mere size of mental hospitals but it seems to me that this is, at the present day, a matter of secondary importance compared with their scientific equipment and medical personnel.

If only the "care and control" of the insane is to be the primary factor of consideration, then it is necessary to closely consider whether this could be more economically done in large or in small establishments; but if the investigation of the causation of insanity with a view to its more exact treatment and cure is to be the aim, then the size of the hospitals is immaterial provided they are all supplied with appropriate appliances for the carrying out of this work.

Any attempt at reorganizing the management of mental hospitals ought to have this aspect of the question clearly in the foreground.

The establishment of isolated psychopathic hospitals is a step in the right direction but they do not go far enough. Their population must of necessity be a floating one and they cannot contain the large proportion of patients who are at the present time suffering from incurable forms of mental disorder and who must be drafted to asylums. These patients supply the material from which investigations can be made with a view to cure; hence the necessity for well-equipped laboratories in every hospital, where research can be pursued side by side with the clinical material. It matters not whether the hospital contains 500 or 1500 or more patients, but it does matter very materially that each place should be proportionately equipped with a medical staff trained in mental research work. This is the weak spot in asylum management in the United Kingdom at present, and it is a condition of affairs which ought to be guarded against by a community that is bent on reorganization.

There are at the present time in Great Britain a comparatively small number of asylums with laboratories attached to them, although some of them have been well equipped with laboratory facilities for many years. Until the necessity for all asylums to be thus provided is recognized, progress in scientific research must be retarded. Dr. Rows has described the efforts in Germany to work on these lines, in an article published in the *Journal of Mental Science*, October, 1912.

In this country there is no widespread attempt to seriously tackle this subject. Asylum committees are chiefly interested in general administration for the reduction of expenditure and apparently do not recognize the immense importance of research work which certainly would cause initial outlay but ultimate economy in the cure and prevention of insanity. It cannot be too strongly urged upon the notice of public authorities that it is absolutely necessary for them to develop this branch of asylum work.

I agree with Dr. Channing's statement that a capable superintendent has a great influence for good on those under his care and charge, but most superintendents are fully occupied with their multifarious duties and have little time to direct and supervise laboratory work. This most difficult scientific field has consequently to be left to the junior medical officers who need not have had any special training in the work. This anomaly does not even stop here for there is often insufficient laboratory appliances; they may have to work under serious difficulties; and they have no time set apart for scientific pursuits.

The diploma in psychiatry recently instituted in some of the universities in Britain, in course of time will help to supply the lack of training in those who are taking up asylum work. But more efforts ought to be made to induce men to take up research work in connection with insanity. This might be facilitated by means of scholarships—such for example as given by the Crichton Royal Institution, Dumfries—the holders to devote the whole of their time to laboratory and clinical work in the asylum; and a system of small grants should be within the reach of those who are working at special subjects in order to provide themselves with the special appliances requisite for their work.

To some such method as this we must look to make any real advance in the causation and treatment of insanity.

It is to be regretted that the keynote of Sir Thomas Clouston's article is one of despondency. The "tendency to dementia" ought not to be the usual issue for the majority of the insane. This tendency largely arises from our want of knowledge of exact causation and mode of treatment, and the tendency in the opposite direction can only be reached when more abundant opportunities are provided for investigation. The day is past for "time is the great healer" to be used when speaking about the treatment of insanity; on general medical lines I venture to say there is nothing very remarkable in the majority of cases of insanity and there is no reason whatever why this majority should not belong to the recoverable forms of disease. But so long as we remain comparatively inactive and are content to merely house and care for the sufferers and to make no widespread effort to reach the root of the evil, so long will public bodies continue to expend money without progressive results. As pointed out by Dr. Vernon Briggs, if proper attention had been given to the matter twenty years ago, the state of our knowledge of insanity might not today have been so meagre.

THE CLASSIFICATION OF NEPHRITIS FROM THE PATHOLOGICAL POINT OF VIEW.*

BY F. B. MALLORY, M.D., BROOKLINE, MASS.

THE inflammatory lesions of the kidney are caused, for the most part, by toxins of various sorts brought to it by the circulating blood and by infectious agents, chiefly bacteria, which reach it ordinarily through the blood or through the ureter. The lesions may be divided, therefore, primarily into two groups, the toxic and the infectious. It is the first or toxic group which the clinician has in mind when he thinks of nephritis.

In studying the lesions of the kidney it is important to bear in mind that it is composed of a large number of small units. Every unit consists of an afferent vessel, and of a glomerulus composed of a knot of capillaries, and of a tubule.

* Read at the annual meeting of The Massachusetts Medical Society, June 10, 1913.

The blind invaginated end of the tubule is applied to the surface of the glomerulus. Its actual beginning is known as the capsular space. In addition to these four main structures of a unit there is an efferent vessel and a network of capillaries derived from it and surrounding the tubule. These vessels are of minor importance. A little connective tissue surrounds the vessels and tubule and extends in small amounts into the glomerulus.

Of these different structures in a unit the glomerulus, where blood vessel and epithelium are in close association, seems the most susceptible to the action of injurious agents.

If any of the four essential parts of a renal unit is destroyed, the other three in time atrophy and cease to function. Each part is useless without the other three.

In order to understand the lesions of the kidney it is necessary to separate it into its units and study the effect of injurious agents on each part of the unit.

The toxic lesions of the kidney are best classified on an anatomical basis, *i.e.* according to the part of the renal unit most affected. This classification gives four groups which form the type lesions: they are as follows:—

1. Tubular nephritis.
2. Capsular glomerulonephritis.
3. Intracapillary glomerulonephritis.
4. Vascular nephritis (arteriosclerosis).

Each one of these varieties may occur practically in pure form, but the first three may be, and often are, combined in varying proportions. Whether the first three can be recognized clinically as three distinct types is doubtful. While usually acute, they also occur in subacute and chronic form; vascular nephritis is always chronic.

TUBULAR NEPHRITIS.

The term tubular nephritis is used when degeneration and necrosis of the renal epithelium occur as the result of the action of diffusible toxins excreted through the kidneys. The lesion is limited almost exclusively to the cortex and involves chiefly the cells lining the convoluted tubules. The lesion may be extensive and diffuse or occur in small scattered foci. It may exist by itself or complicate the different forms of glomerulonephritis.

Tubular nephritis may be caused by a variety of toxins and poisons, so that the resulting inflammatory reaction is not always the same. In rare instances the toxin is strong, acts quickly, and causes extensive necrosis of nearly all the epithelial cells lining the convoluted tubules. The lumina become filled with the necrotic desquamated cells which attract polymorphonuclear and endothelial leucocytes in varying numbers. Some tubules contain serum and networks of fibrin. In addition there may be some edema and lymphocytic infiltration of the connective tissue stroma. Regeneration of epithelium from the cells not killed is very active. Mitotic figures are often numerous. The first cells formed are stretched out very thin to cover the walls of the tubules. Later the cells thicken up and gradually become differentiated like their predecessors.

Lesions of this severe type commonly occur only after strong poisons. In the case pictured they followed abortion, perforation of the uterus, and streptococcus peritonitis. Similar lesions, but rarely so extensive, follow poisoning with corrosive sublimate.

The more common form of this lesion is less acute and extensive so far as necrosis is concerned, but the inflammatory reaction is usually much more marked: in fact, it often more or less completely masks the primary injury, especially if the process is seen in the later stages of repair.

This form of tubular nephritis follows such acute diseases as scarlet fever, diphtheria and measles. It does not occur early in such a disease, but only after ten days to several weeks. It is characterized by hydropic and hyaline change and by necrosis of the epithelial cells lining the convoluted tubules. The necrosis is rarely extensive in any one place. It is moderate in degree and more or less scattered. But the process of degeneration and necrosis is continuous for some time. On this account the inflammatory reaction is usually prominent. It consists of serum, fibrin and polymorphonuclear and endothelial leucocytes within the tubules, which are often considerably dilated. Hyaline casts are also frequently present. In addition, the intertubular tissue is infiltrated with numerous lymphocytes, including plasma cells, and often also with small numbers of endothelial leucocytes and an occasional eosinophile. The infiltration with lymphocytes is usually the most prominent and characteristic feature of the lesion. On this account the term acute interstitial non-suppurative nephritis has been applied to it.

CAPSULAR GLOMERULONEPHRITIS.

This term is applied to an inflammatory reaction to toxins taking place within the capsular space around the glomerulus. The reaction may consist of several different elements, of an exudation of serum containing albumen, of an immigration of polymorphonuclear and endothelial leucocytes, and of a proliferation of the epithelial cells lining the capsular space. This reaction may be complicated by hemorrhage or by the formation of fibrin. According as one element or another predominates, the term exudative or proliferative capsular glomerulonephritis are used. When hemorrhage occurs it is usual to say acute hemorrhagic nephritis without reference to the real lesion which underlies it. The various types of reaction depend on differences in the character and strength of the toxins brought to the glomerulus and excreted from it.

Exudative Type. When the reaction is exudative the fluid portion for the most part flows away with the urine. Only the fibrin which forms out of it and the cellular elements tend to remain. Within the dilated capsular space polymorphonuclear leucocytes may be present in small to large numbers according to the activity of the reaction. Many of these leucocytes pass into the tubules, where some of them may undergo necrosis on their way to the pelvis of the kidney. Endothelial leucocytes are found in the exudation only in very small numbers; occasionally one of them will contain in its cytoplasm a polymorphonuclear leucocyte. Fibrin may occur as a delicate meshwork or in dense hyaline masses. The exudative type of reaction is usually complicated by more or less proliferation and desquamation of the capsular epithelium, both from the parietal wall of the capsule and from the surface of the tuft. The cells from the latter situation often present a tailed appearance just as the cells do in the deeper layer of the pelvis of the kidney. After desquamation the cells tend to assume a more or less spherical shape with an eccentrically situated nucleus and resemble endothelial leucocytes; but they are smaller, are not phagocytic for other cells, and have the peculiarity of applying themselves to the surface of any fibrin formed in their neighborhood. These cells, like the polymorphonuclear leucocyte, often pass into the tubules, sometimes in large numbers. When numerous and packed in the capsular space these cells become flattened.

Proliferative Type. In many cases of capsular glomerulonephritis the reaction consists chiefly of proliferation and desquamation of the epithelial cells lining the capsular space. Mitotic figures are found in sufficient numbers (frequently two in a single section through a glomerulus) to account for all the cells formed. They occur in cells lining the parietal wall and covering the tuft and also in all layers of the masses of cells which collect together as the result of desquamation. These cells do not proliferate on account of injury to other epithelial cells adjoining them, as occurs in tubular nephritis where simple regeneration takes place, but because they are needed to counteract, probably by means of the production of an antitoxin, the toxins which filter through the wall of the tuft. They play the part acted elsewhere by the endothelial leucocyte. No analogous reaction, at least to anything like the same extent, on the part of epithelial cells seems to occur in any other part of the body.

These desquamated cells when numerous form a crescentic mass within the capsular space with the thin edge towards the base of the tuft where the vessels enter and leave, and with the thickest part usually opposite the beginning of the tubule which they more or less completely occlude. Frequently the mass of cells projects for some distance into the tubule. The cells, when numerous, appear flattened, probably from pressure, although the polymorphonuclear leucocytes among them preserve their spherical and ameboid forms.

Fibrin is often associated with these cells in the form of delicate fibers and sheets which run everywhere between them, or as solid masses.

It is possible to conceive of the leucocytes and proliferated epithelial cells disappearing entirely from the capsular space when the purpose for which they are collected there is accomplished, and of the glomerulus regaining its normal function. As a rule, however, this return to the normal condition is prevented, owing to the formation of fibrin. As soon as fibrin appears in the capsular space it stimulates the fibroblasts in the tuft and in the capsule, wherever it happens to touch them, so that they proliferate and grow into it and organize it just as occurs elsewhere in the body when fibrin is formed. Collagen fibrils take the place of the fibrin. The epithelial cells which lined the surface of the fibrin thus come to line the connective tissue. In this way the capsular space may be divided into a number of small epithelial lined cavities resembling glands. The process is analogous on a small scale to what takes place in the pleural cavity in the organization of a fibrinous exudate, with the resulting formation of solid and stringy fibrous adhesions, and gland-like cavities. In time the epithelial cells more or less completely disappear and the newly formed connective tissue contracts, squeezing the tuft in a strangle hold which destroys its power of functioning and obliterates the capsular space.

In other capsular spaces the connective tissue grows very early in between all the cells and no gland-like cavities result when organization takes place. In still other capsular spaces the fibrin has been deposited irregularly in masses so that the resulting fibrous tissue affects only a small part of the capsular space; the rest is normal.

INTRACAPILLARY GLOMERULONEPHRITIS.

This term is applied to the reaction to toxins acting within the capillaries of the tuft. Sometimes the reaction is limited sharply to these vessels: at other times more or less toxin passes into the capsular space and occasionally into the tubules and leads to a reaction there also.

The reaction within the glomerulus may be evidenced by the formation of fibrin or by the accumulation of polymorphonuclear and endothelial leucocytes. Each of these elements may occur by itself or they may be variously combined. As a rule fibrin occurs in the most acute lesions, polymorphonuclear leucocytes in the less acute lesions, and endothelial leucocytes when the process is comparatively slow. The nature of the toxins probably plays some part, however. Occasionally eosinophiles are present.

Rarely the formation of fibrin within the capillaries of the glomerulus is the only striking evidence of a lesion in the kidney. The fibrin

may occur in threads and networks or in solid masses and more or less completely occlude the vessels. It is probably due to a strong toxin causing direct injury (necrosis) of the capillary wall.

A lesion easier to understand consists of the accumulation of polymorphonuclear leucocytes in large numbers within the capillaries so that many or all of the vessels are distended and plugged with them. As a result, the glomeruli are considerably enlarged and the number of nuclei appearing in a section through one of them may be several times as many as normal.

Endothelial leucocytes often occur in various proportions in connection with the polymorphonuclear leucocytes. When the reaction within the glomerulus is not very acute and intense, however, the cell accumulation is limited almost entirely or even exclusively to the endothelial leucocytes. Some of these leucocytes are unquestionably brought by the blood stream. Most of them, however, are derived directly by proliferation and desquamation from the endothelial cells lining the capillaries. Mitotic figures are by no means uncommon in the earlier stages of the lesion.

The endothelial cells and leucocytes distend and more or less completely occlude the capillaries and many of them exhibit ameboid forms. Very rarely they show phagocytosis for polymorphonuclear leucocytes. Eosinophiles are often associated with them; one to four and even as many as ten may occur in a section through a single glomerulus.

As a result of the accumulation of endothelial leucocytes in the capillaries the glomeruli appear more or less enlarged and in stained sections they are seen to contain many more nuclei than normally. Not infrequently a part of a lobule of the tuft will project from the capsular space into the beginning of the tubule. Usually the capsular space appears obliterated.

When the reaction is distinctly intracapillary in character, and the lesion is in its early stages, the normal lobulation of the tuft is usually more or less completely obscured because the dilatation of the capillaries forces the lobules close together.

Repair. When the toxins are strong and the reaction is intense so that fibrin and leucocytes occlude the capillaries more or less completely, death may occur from uremia in a few days or weeks. When, however, the toxins are mild and their action is prolonged, certain changes of a reparative nature gradually take place in the tuft. The fibroblasts forming the supporting walls of the capillaries, owing probably to some effect of the toxins, are stimulated to increased activity, possibly to proliferation; or it may be only a process of regeneration. At any rate the effect is that the collagen fibrils are increased in amount at the base of the tuft and running through the center of each lobule. As the connective tissue thickens and contracts the lobules are drawn apart so that at this stage, sometimes called subacute glomerulonephritis, the glomeruli are very distinctly and even prominently lobulated. Capillaries can be made out in them only here and there. As further contraction takes place the capillaries are completely obliterated and the lobules shortened and approximated so that the tuft is finally reduced to a small spherical, non-vascular mass of hyaline connective tissue containing a few fibroblasts. It has become a sclerosed glomerulus. This slow process of repair terminating in sclerosis of the glomeruli lasts sometimes for weeks and months.

VASCULAR NEPHRITIS (ARTERIOSCLEROSIS.)

The primary lesion in vascular neprhitis is located in the blood vessels, especially in the smaller arteries of the cortex and in the capillaries of the glomeruli. The lesion is similar in character to that which occurs in the aorta and other blood vessels in general arteriosclerosis and is a part of the same general process. It is a retrograde process, characterized by the presence of much fat in the injured cells. The cells most affected are the fibroblasts beneath the lining endothelium. In addition, however, smooth muscle cells, if present, are also often involved, and not infrequently the lining endothelium itself is ultimately affected. Fat set free by necrosis of any of these cells is taken up by endothelial leucocytes. Necrotic fibroblasts are replaced by regeneration in excess so that the vessel walls are thickened and the limina narrowed. The elastic tissue is produced in increased amounts by the fibroblasts. The muscle cells may entirely disappear.

When the lining endothelial cells are destroyed, fibrin formation (thrombus) commonly occurs and produces partial to complete occlusion of the part of the vessel affected. Later the fibrin is invaded and replaced by fibroblasts. In this way irregular thickening and frequently occlusion of the vessels is produced. The process is chronic, lasting usually over many years; it is also frequently intermittent; but in suitable cases all stages of the development of the lesions can be found.

As the result of occluded capillaries and arteries many glomeruli become in part or entirely sclerosed. Sclerosis of a glomerulus is followed by atrophy and disappearance of its subtending tubule, and by contraction and hence thickening of the surrounding connective tissue.

The primary vascular lesion is diffusely and irregularly distributed throughout the kidney and may in time affect many glomeruli, thereby causing destruction of a large part of the kidney involved. It is evidently toxic in origin, but as it often leads, by narrowing the lumina vessels, to interference with the blood supply in adjoining part of the kidney, secondary lesions due to lack of nutrition arise. It is probable that the two types of lesions cannot always be distinguished from each other.

INFECTIOUS NEPHRITIS.

Infectious nephritis (the only lesion of infectious origin considered here) is the term applied to a diffuse inflammatory process in the kidney due to the immediate presence of organisms. It is most often caused by the colon bacillus, and infection, as a rule, takes place from the pelvis of the kidney, which has been invaded from the urinary bladder by way of the ureter. The organisms invade the tubules and ascend along them to the cortex, but they rarely invade the capsular space of a glomerulus. They produce an acute inflammatory reaction which is combined with more or less necrosis of the epithelium lining the tubules. The exudation consists of polymorphonuclear and endothelial leucocytes in varying proportions and of serum and fibrin. They collect in the tubules and distend them. Frequently a similar exudation is present in the intertubular connective tissue and has mingled with it numerous lymphocytes and plasma cells. An inflammatory process such as this may extend in narrow or broad, gradually widening bands from the pelvis to the capsule of the kidney or invade it more or less diffusely and extensively. Sometimes this fairly mild process is complicated by more or less extensive hemorrhage and by abscesses due to areas of necrosis of tubules and surrounding tissue, followed by softening. At other times the infectious organism is more virulent, and necrosis and softening are more extensive, so that abscesses and suppurating tracts form the most obvious lesions (suppurative nephritis, chronic pyelonephritis, surgical kidney).

Infectious nephritis may undergo repair at any stage of the process provided the infectious organism is killed off. This may happen in some foci and not in others, or it may occur throughout the kidney. Lesions in all stages of repair may frequently be found in the same kidney. The final result depends on the amount of injury done. Sometimes the tubules are completely restored by regeneration of the epithelium. At other times the tubules are narrow and the epithelium but little differentiated. Occasionally they are completely destroyed. The glomeruli may remain normal or be transformed into small masses of dense fibrous tissue. The intertubular connective tissue is usually more or less increased in amount, probably as the result of regeneration following injury, and as a rule contains a varying number of lymphoid cells.

Infectious nephritis is probably more common than is generally supposed. It occurs both in children and in adults, and frequently terminates in repair. It very often complicates other lesions of the kidney, especially vascular nephritis and amyloid formation.

Its recognition is important because in its healed stage it is often mistaken for some form of toxic nephritis, especially for the vascular variety or so-called arteriosclerosis.

AMYLOID KIDNEY.

There is still one type of lesion which requires consideration, namely, the amyloid kidney. Possibly it belongs in the group labeled toxic nephritis. Amyloid seems, without much question, to be an abnormal product of the fibroblasts. In the kidney it is formed first in the glomeruli and the blood vessels and later in the connective tissue generally between the tubules. Early in the process the kidney is enlarged owing to edema and colloid formation in the renal epithelium. In the later stage, however, when the amyloid deposit is marked, the tubules atrophy and disappear to a large extent and the kidney is diminished in size and much sclerosed. Whether the sclerosis is due to the same cause as the amyloid or follows as a result of the amyloid formation is not evident. More study is required on this point.

THE SIGNIFICANCE OF URINARY ACIDITY IN NEPHRITIS.*

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THE functions of the kidney are numerous and undoubtedly to a large extent interdependent. Under normal conditions the organism depends mainly on the kidney to regulate the acid-base equilibrium, osmotic pressure and water content, and to eliminate the end products of nitrogenous metabolism as well as many other less well-known substances. In experimental and pathological states a great variety of additioinal functions may be called into play. The results of the studies of the functions of the kidney under experimental conditions, though frequently difficult of interpretation, have their particular value. It is the purpose of this paper to report certain significant facts concerned with that normal and very important function of the kidney which has to do with the regulation of the equilibrium between acid and base in the human organism with special reference to nephritis.

Except under unusual circumstances the acid products of metabolism exceed the basic. Unless the excretion of the acid products is carefully regulated acidosis results and manifests itself in depletion of sodium bicarbonate from the blood. Except for carbonic acid which is excreted in the lungs, it is the work of the kidney to remove these acid products that the necessary constant equilibrium between acid and base in the body may be maintained. The kidney performs this function by removing a more acid fluid than the blood in which acid radicals

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are partially combined with ammonia. The efficiency of the kidney in performing this process depends on the intensity of urinary acidity.[1]

In our study of acid excretion three factors have been separately determined.

1. Urinary acidity (hydrogen ion concentration) as described in an earlier paper.[2]

2. Excess acid as measured by titration of the urine with sodium hydrate to the reaction of blood using neutral red as an indicator.[3]

3. Ammonia, determined by Folin's New Method.[4] The daily amounts of acid and ammonia are recorded as one-tenth normal solutions and for the total acid are additive.

The intensity of urinary acidity has been measured in over 3000 samples of urine from six hundred to seven hundred different individuals, one hundred and fifty of which were normal. In normal individuals there was considerable variation in the acidity, the general average being about twenty-five times that of normal blood while in many pathological cases there was a marked increase over the normal. Especially was this true in nephritis. In acute and chronic nephritis the acidity averaged between one hundred and twenty-five and two hundred and fifty times that of blood as compared with normal average of twenty-five. In nephritis and some other pathological conditions the acidity is persistently high throughout the twenty-four hours, while in normal individuals it is subject to considerable variation. We have never found a significant diminution of acidity in pathological cases nor in any case normal or pathological, a degree of alkalinity greater than that of blood, save after the administration of alkali or other experimental interference.[5]

We have confirmed the observation of Sellards[6] upon the action of ingested sodium bicarbonate upon the reaction of the urine. In all normal and many pathological individuals the small amount of one dram of sodium bicarbonate produces a marked lowering of the urinary acidity within one hour, while on a variety of pathological cases large quantities of alkali were without effect upon the reaction of the urine. These cases included many nephritics also cases of pleurisy with effusion, primary and secondary anemias, pneumonia, in addition to conditions where beta-oxybutyric acid is formed. Further, we find that such cases when once the urine has been made alkaline, upon discontinuing the alkali until the urine is once more acid, respond to the alkali in a normal manner. This observation leads us to believe that Sellards's term "tolerance" is inexact, that the phenomenon is due to a drain of alkali from the body and is in fact a real test for acidosis. These observations extend to a much larger variety of cases in which more accurate estimations of urinary acidity were made than has been observed by Sellards, and were made before we were aware of his work. Our observations lead us to believe that alkali as a therapeutic measure is indicated in many conditions not previously suspected, also that when alkali is given for whatsoever cause the effect on the urine should be carefully watched. The reaction of the urine should never be pushed below that of blood for we have found in normal individuals that when this occurs not infrequently a well-warked albuminuria may result.

The quantity of acid excreted in the urine (excess of acid plus ammonia) has been studied in sixteen normal individuals and thirty-five cases of nephritis. The two fractions of acid excretion appear to vary independtly though they are likely to be more nearly parallel in normal cases. When the two quantities are computed in cubic centimeters of a one-tenth solution the ammonia is greater than or equal to the acid. In chronic glomerular nephritis the relation is reversed, the ammonia occasionally being less than one-third the amount of acid excreted. The ammonia appears to be an index of the degree of acidosis only in those cases where beta-oxybutyric acid is produced.

In nephritis the relation between the intensity of urinary acidity and the total quantity of acid excreted varies greatly from normal. This variation is most marked in the more advanced cases of chronic glomerular nephritis. The intensity of urinary acidity is much greater than normal, one hundred to two hundred fold, while the total acid excreted is much less, not infrequently one-half to two-thirds. This relation seems to be much less disturbed in acute nephritis and individuals with the arteriosclerotic type of kidney. The relation between urinary acidity and total quantity of acid excreted appears to provide an index of the efficiency of the kidney in carrying out the important process of acid excretion. This "functional test" possesses the advantage that it involves no experimental interference.

We have reached the conclusion that mild states of acidosis not infrequently occur in nephritis, and other unsuspected cases and that the therapeutic use of alkali (in such quantity as to reduce the urinary acidity to that of blood) is often desirable. We also believe that the deviation from the normal of the kidney function in acid excretion is important both in differential diagnosis and prognosis.

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CLINICAL FUNCTIONAL TESTS, METHODS.*

BY EDWARD L. YOUNG, JR., M.D., BOSTON.

THE PLACE OF THE PHENOLSULPHONEPHTHALEIN TEST IN NEPHRITIS.

ANY clinical test to be of widespread value must have among other qualities the following essentials: first it must be easy to use both as regards technic and time required so that any practitioner can use it without complicated and expensive apparatus and without using up more time than he can afford; second, it must be harmless and painless to the patient; third, it must give consistent and accurate information of definite value in diagnosis, prognosis and treatment. This, test perhaps more than any other now in use fills all of these requirements. The only apparatus necessary is a hypodermic syringe measuring accurately in cubic centimeters; some of the drug which comes ready to use; some 25 per cent. NaOH; some forms of colorimeter which may vary in kind from the simple but clinically accurate home-made affair to the expensive imported instrument. The simplest form is a series of equal-sized tubes containing slightly alkaline solutions of the drug varying from 5 to 50 per cent. in strength, and another tube of the same size in which to put the solution to be measured; and lastly some vessel in which the urine obtained can be diluted to 1 liter. The technic is as follows:

One centimeter of the solution containing 0.6 gram of the drug is injected into muscles of the thigh, then one of two procedures may be followed; first the amount of urine during the next two hours may be collected, made alkaline with NaOH to bring out the color, diluted to one liter and the amount of drug measured by comparing its color with the color of the standards, since the amount of drug is in proportion to color. If there is any reason to suppose the patient does not empty the bladder a catheter must be used. Second, a catheter may be placed in the bladder and the urine allowed to drain into a receptacle containing some NaOH and the time of appearance, as shown by a pink color, is noted. Then the urine in the hour following the appearance is collected, diluted and the drug measured. By the first method the average normal output is 70 per cent., and by the second 40 per cent., of the amount injected with a time of appearance of from 8 to 15 minutes. Any fall in output is in proportion to a loss of functional ability of the kidneys at that time. The time required depends on which method of procedure is used. If the first is used and no catheterization is necessary then the drug can be injected in a few seconds and the amount collected by the patient, and later at his convenience, the physician can dilute, alkalinize and estimate all in a few minutes. The second method requires a little more time but is likewise a little more accurate.

The drug is absolutely harmless and painless to the patient in every way and causes no more local reaction than the insertion of the needle itself.

As regards the last requisite there has never been any question but that the results are accurate and consistent, and the whole question lies in the value of these results in diagnosis, prognosis and treatment. That this method of estimating the kidney condition and its ability to stand the strain of operation, especially any operation involving the urinary tract, is of the very greatest value, has been proved beyond a doubt and the right interpretation of and reliance on this test has been the means of lowering the mortality in several of these operations and especially in prostatectomy. Its place in surgery is fairly well fixed and no one who has had any experience with this test would operate in the face of a low output without studying the case very carefully.

The place of this test in medical nephritis, if I may use that term, is perhaps not so definite but I believe that it has its place and is of greater value than it is given credit for and might be of even more use, this value being not to say whether the glomeruli or tubules are involved but how much work the kidneys are capable of doing.

I shall give a few of the cases in which its results have been checked up either by autopsy or by the future conditions of the patients.

CASE 1. A painter of 32 came with the following story; had been off collor all winter, increasing shortness of breath, edema of legs at times, attacks of vomiting in the morning, had had a cough most all winter and had caught cold easily. He is an anemic and has a blood-pressure of 200 mm. Urine as follows,—normal, acid, 1012, trace of albumen, no sugar. Sediment shows casts, a few round and squamous cells, few red blood cells. While in the hospital he rapidly improved, blood pressure came down to 160 mm. amount of urine rose and albumen lessened. But the "red" test showed that no drug appeared in the urine for 50 minutes and the amount during the next hour was too small to measure. The last note in the record is as follows: "the patient now has no symptoms and is going home. There is a marked discrepancy between the test and the clinical findings." About six weeks after discharge I went to see how he was getting along and found he had been dead for nearly a month.

CASE 2. A man of 72 entered the hospital with a general suppuration of the urinary tract: in poor condition. He got worse, began to hiccough, got nauseated, failed steadily and from his symptoms was thought to be dying of uremia. The "red" test showed a delayed appearance to 30 minutes but an output of 26 per cent. in the next hour. At autopsy his kidneys were poor but according to the pathologist "compatible with a fair degree of work." But his heart was in very poor condition showing

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both myocardial and endocardial changes of high degree and it was to this that death was due.

Case 3. A man of 42 enters the hospital with a diagnosis of "Chronic Glomerulonephritis, Cardiac Hypertrophy and Dilatation and Hemiplegia." The "red" test showed a time of output of 19 minutes and an amount during the first hour of 9 per cent. Patient gradually failed, got drowsy, irrational and died. Autopsy showed, combined weight of kidneys 230 grams, capsule strips leaving rather pale granular surfaces. On section the tissue is quite firm, the cortices and pyramids are made out and cortex measures 4 to 5 mm. The cortex shows obscuration of the markings, is somewhat flint-colored and shows in places minute to small yellowish gray streaks and areas. In a few places the cortex shows mottling with dark brownish red areas. The cut ends of the vessels are slightly prominent.

There are one or two small cysts in each kidney.

Microscopical Examination. Marked arteriosclerosis with atropic changes in the tissues. Considerable hyaline degeneration of the smaller arteries, hyaline thrombi in some of the capillaries and some of the glomeruli. In other words a pathological condition apparently entirely consistent with the test.

There have been other cases in all of which the test has told the truth but these serve to illustrate the point. The use of this test in cardiorenal cases has helped and I think always will help to place the blame more accurately on the organ more at fault.

In coma of doubtful origin it will cast a strong vote for or against uremia.

In acute nephritis it is of less value, as very often a fairly sick patient will eliminate a considerable amount of the drug.

In chronic nephritis, inasmuch as a fairly low output is not incompatible with a considerable length of life if the kidneys can be kept in a state of compensation, some additional fact must be found, which coupled with this test, will give a more accurate prognosis as regards time.

To conclude—the phenolsulphonephthalein test comes nearest to fulfilling all the requirements of a clinically valuable functional test in that it is easy to use, is harmless to the patient, and gives accurate and consistent knowledge of the actual working ability of the kidney, a fact that the practitioner wants more than the knowledge of whether the glomeruli or tubules of the kidneys are affected.

In surgery it already has a recognized place.

In medicine it has a certain value which will increase with the increase in use.

Mental psychology is one of the branches of medicine which candidates for the M.D. degree of the University of London can take up. In addition diplomas in psychiatry can be obtained from the universities of Edinburgh, Leeds, and Cambridge. The Medico-Psychological Association of Great Britain and Ireland also grants certificates of proficiency after examination.—*British Medical Journal.*

NITROGENOUS WASTE PRODUCTS IN THE BLOOD IN NEPHRITIS.*

Their Significance and the Methods for Their Determination.

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AND

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Urine analysis though now developed to a comparatively high degree of perfection can furnish very little information concerning the actual retention of waste products in the body. Yet unless the physician can know the level of accumulation of such products in any given case of nephritis the treatment which he prescribes, particularly the dietetic treatment, must of necessity be indiscriminate.

For further progress in the study and treatment of nephritis it would seem to be absolutely necessary that blood analysis be introduced to supplement the analysis of urine. The old popular notion about "impure blood" is after all not entirely without sense, for whenever the kidneys fail to do their work adequately the products which are left behind must accumulate in the blood as well as in the tissues. Theoretically the importance of chemical blood analysis in connection with nephritis has been recognized for a long time but no one so far as we know has made any sustained effort to devise suitable methods for such work. The literature on the subject though abundant and associated with the names of prominent clinicians is from a chemical standpoint as crude as was the literature on urine fifty years ago.

Recognizing the lack of suitable chemical methods for the determination of waste products in the blood we took up the subject about three years ago and have developed methods for the determination of the ordinary nitrogenous waste products, the total nitrogen, the urea, ammonia and uric acid. It would scarcely be suitable to take up your time with descriptions of the technical details involved in such analytical work, for although intended for clinical work the methods can by no means be called clinical methods. It will, therefore, be sufficient to say that the problem which we had to solve was to find methods applicable to moderate quantities of blood, such quantities for example as are taken for the Wassermann reaction. By the help of certain color reactions (chiefly Nessler's reaction) we have solved the problem and now can determine all the products mentioned in about one ounce of blood. For the total (non-protein) nitrogen and the urea the two most important determinations in nephritis we need only about five cubic centimeters of blood.

* Read at the annual meeting of The Massachusetts Medical Society, June 10, 1913.

By the help of these new methods we have made a great many blood analyses during the past year, and among these there are about 50 cases of nephritis. Speaking on the basis of these 50 cases we can say that the accumulation of waste products in the blood varies between figures which are nearly normal to figures which are four or five times as large as the normal. As yet we have not found that any particular diagnosis corresponds to any particular degree of accumulation of waste products except that in cases of pronounced or threatened uremia the blood so far as our experience yet goes is invariably very high in waste nitrogen. There is no correspondence between the blood pressure and the degree of retention of the ordinary nitrogenous products included in our analyses.

One of the important questions to be solved by the help of blood anaylses is the effect of low protein diets in the case of nephritic patients who suffer from an accumulation of unusually large amounts of waste products. It is *a priori* not clear whether damaged kidneys are capable even on low protein diets to eliminate the waste products down to the normal level of retention for it is conceivable that a certain concentration of the waste products in the blood must be reached before any elimination can take place, and that this threshold of elimination is raised above the normal in nephritis. The results which we have so far obtained indicate that this is not the case. All the nephritic patients which we have yet examined on high and on low protein diets have shown that on the low nitrogen diets the accumulation of waste products sink and can be brought down to the normal level. In view of this fact it is clear that for a correct interpretation of figures obtained from blood analysis the total level of protein metabolism must also be known, in other words blood analysis must be accompanied by determinations of the total nitrogen in the urine.

Our analytical results have also revealed the fact that the retentions of urea and of uric acid do not go hand in hand. The urea retention is by no means always accompanied by an abnormal uric acid accumulation and considerable uric acid retention may occur without any considerable increase of the urea. These peculiar facts would seem to indicate that in some cases it is more important to exclude meat and other purin food than in others and that a low protein diet does not necessarily imply a meat-free diet. It looks as though by blood analysis it should be possible to determine with a very fair degree of certainty what kind of diet is suitable for each particular case of nephritis. It is already well recognized that the salt content of the food must be regulated in some kinds of nephritis and it seems to us equally clear that similar unequal abilities exist with reference to the nitrogenous products and that in such cases more definite knowledge can be obtained by means of blood analysis than in any other way.

GENERAL SUMMARY OF THE SIGNIFICANCE OF METHODS OF TESTING RENAL FUNCTION.*

BY HENRY A. CHRISTIAN, M.D., BOSTON.

In the preceding papers of the Symposium you have heard a discussion of the pathological types of nephritis and of the various methods used in testing renal function. Several of the speakers have described variations in renal function in individual cases as made out by different methods of testing renal function. It has been made evident to you that a number of new ways of inquiring into the activity of the kidneys have been provided which can be applied to patients reasonably easily. The question naturally arises, of what general value have these tests proved to be and how do they help in the management of patients having, or suspected of having, renal lesions?

In any case of renal disease, three problems present themselves to the physician or surgeon. (1) What is the actual condition in the kidney, or diagnosis? (2) What is to be the probable course and final result of the pathological condition, or prognosis? (3) What therapeutic measures should be applied in the management of the case, or treatment? Let us examine then briefly in how far these three problems are helped toward a solution by the newer methods of testing renal function.

DIAGNOSIS.

In the diagnosis of such renal lesions as are ordinarily treated by the physician we seek to know whether the kidneys are diseased or not, and if diseased, the nature of the pathological process. In surgical conditions of the kidney these same problems present themselves and in addition the questions as to which kidney is the diseased one and whether the less diseased kidney is functionally capable of carrying on the excretory work of the body in the absence of the more diseased kidney become of even greater importance. If by any of the various tests we can show that the kidney is not functioning in a normal way, we are justified in saying that the kidney is diseased. However, functional study of experimental lesions in animals has made it clear that a decrease in functional activity is not always accompanied by a demonstrable anatomical lesion, consequently we have to distinguish between a functional lesion and an anatomical lesion in the kidney. It is particularly in this field that functional tests have been useful. For example, it is their application at intervals which helps us to distinguish between a true nephritis and a renal disturbance consequent upon cardiac decompensation. In the stage of cardiac decompensation the kidney may show a

* Read at the annual meeting of The Massachusetts Medical Society, June 10, 1913.

marked functional disturbance in every way similar to that produced by a renal lesion of the nephritic type. In the former, however, with restoration of cardiac compensation as the result of appropriate therapeutic measures, the functional incapacity of the kidney disappears, while in the case of nephritis, though decreasing, disturbance of function of some nature remains to indicate an organic renal lesion.

In surgical conditions such as prostatic enlargement in a similar way repeated application of the functional tests serves to distinguish functional derangement consequent upon damming back of the urine from an actual diffuse renal lesion secondary to urinary stasis along with chronic infection. If the condition is merely the first, after a few days of permanent drainage the functional capacity is entirely or in great part restored, while in the second, no marked restoration of function takes place, indicating in the first instance reasonable safety in operation, and in the second, increased risk, because anatomical changes in the kidney have reduced the excretory capacity of the organ to a point likely to prove insufficient for the needs of the body during the strain of operation and surgical convalescence. Where the problem is of the nature indicated by the examples cited, it is the phenolsulphonephthalein test which has proved most helpful. Here the excretion of coloring matter indicates quite well the total renal function and if the amount of the dye excreted is determined from time to time this aids much in diagnosing whether or not there is an actual diseased condition of the kidney.

In another type of case it is often important to know whether there is a nephritis with uremia present or not. This is particularly in patients who are in a condition of coma. It is often far from easy to determine whether a patient in coma is suffering from cerebral hemorrhage or from uremia. In each the urine may show albumin and casts. The determination of nitrogen retention in the blood by Folin's method or some other method should prove of very great value in just this type of diagnostic difficulty, and under these conditions would probably be of greater value than the phenolsulphonephthalein test.

The other methods of testing renal function, which depend upon selective activity of different parts of the renal structure for various substances, while useful at times in making the diagnosis as to whether the kidney is diseased or not, should have greater value in determining the nature of the pathological lesion in the kidney, inasmuch as theoretically the rate of excretion of various substances ought to localize the lesion in glomerulus, tubule or blood vessel. Though this has been claimed by the advocates of these methods, an analysis of their results in cases which have been studied during life and examined at autopsy does not justify us at present in assuming that any very accurate pathological diagnosis of the renal condition can be made on the basis of these tests. In other words, while the application of these several methods of testing renal function do help very greatly in diagnosing whether the kidney is diseased or not, they do not at the present time enable us to make an accurate diagnosis of the type of pathological lesion which we will find when the patient is subjected to post-mortem examination. The application of these methods, however, increases materially the probability of making a diagnosis during life which will harmonize with the findings of the pathologist, and in that sense methods for testing the function of the kidney have materially advanced our ability to diagnose renal lesions.

PROGNOSIS.

A patient presents himself who has some signs indicative of a lesion of the urinary tract amenable to surgical treatment. If operation is performed, is it likely that the renal function can be maintained under these conditions and the operation be successful in such a case? Here tests of renal function very often give data of greatest value in forming a prognosis. The prognosis at first seems bad, but preliminary treatment may cause a second test to become of better prognostic significance. Before preliminary treatment prognosis was bad and operation contraindicated; after appropriate treatment function may have greatly improved and operation become comparatively safe. The newer tests of renal function largely have furnished this information. In such a case the phenolsulphonephthalein test is particularly valuable in prognosis.

However, it must be kept clearly in mind that tests of renal function are not of very great aid in prognosis unless considered in relation to the general physical findings and the probable diagnosis. A very low phthalein output in a patient with prostatic obstruction indicates the need of delay and preliminary treatment, which may convert a poor prognosis into a good prognosis. The same reduced phthalein output on the other hand in a case of chronic nephritis most likely would remain low and be of grave prognostic import.

The value of tests of renal function in prognosis of surgical conditions is now quite well recognized; their value in diffuse lesions, not capable of surgical treatment, is not so widely acknowledged. In the patient with nephritis the unsuspected, often very sudden, development of uremia, renders prognosis most difficult. Intimation of impending uremia is often given by the defective phthalein excretion and the nitrogen accumulation in the blood in these cases when symptoms and physical signs give no suggestion of uremia. It is in detecting early the approach of uremia that functional renal tests have been of greatest help in immediate prognosis. More remote prognosis in nephritis is aided much more by determining the ability of the kidney to excrete such substances as wa-

ter, nitrogen, salt, lactose, etc. In all these cases it is not the single test made once that is of value, but the repetition of several tests.

Tests of renal function, however, may fail entirely to yield any prognostic information as to the factors which eventually kill the patient. Renal function may be relatively good, but cerebral hemorrhage or cardiac failure may develop and terminate the life of the patient with diseased kidneys. In all criticism of the prognostic value of any test of renal function cases of this type which prove fatal contrary to the indications of functional tests should not be regarded as failures in renal prognosis, rather as cases in which an event, not to be prognosticated from any form of study of renal function, has ensued with fatal result. If this possibility is kept in mind, a guarded prognosis will be given after tests of renal function, but yet a prognosis far more apt to tally with the prognosis of the disease than one given without test of renal function. Other means than tests of renal function should yield information as to the probability of such incidents in the course of nephritis as mentioned above and these combined with tests of renal function will give data on which to base a reasonably certain prognosis.

TREATMENT.

Since intelligent treatment must be founded on a knowledge of the diseased condition being dealt with, all improvements in methods of diagnosis tend to improve treatment. As already pointed out, tests of renal function have helped materially in our ability to diagnose correctly renal lesions. Consequently in this sense these tests have improved our treatment of renal lesions.

Another important factor in successful treatment is our ability to anticipate impending changes. Disturbances of renal function that indicate the very early stages of a developing uremia put us in a position to begin a vigorous eliminative treatment which often will avert the serious forms of uremia or long postpone their development.

In the surgical treatment of renal lesions to know the functional capacity of the kidneys and the probable prognosis aids very greatly in selecting the proper operative procedure which will give to the patient the largest chance of cure. This knowledge often will lead to operation in separate steps which the patient can stand easily instead of a single long operation apt to prove fatal. During surgical treatment repeated tests of function are valuable aids in determining procedure.

The effects of the different diets in cases of nephritis may be expected to be measurable by the changes produced in renal function, and these changes are indicated by variations in the results of functional tests. Up to now, however, too little investigation has been carried on along these lines to justify any general conclusions as to the value of the several tests. Certainly, however, the output of water, salt and nitrogen are valuable guides in the determination of some factors in the diet for the nephritic.

Diuretic drugs need to be restudied by means of tests of renal function to enable us to decide what diuretics to use, when to push them and when to withhold them. As with diet, too little is known to-day of diuretics from this point of view to make it worth your time to talk of them at any length. It should be said, however, that present results from studies of this nature show that injury may be done the patient by the use of diuretics if their action on renal function is not studied at least by some of the simpler methods.

CONCLUSIONS.

Methods of testing renal function at present are of greatest value in determining prognosis; they help very much in diagnosis. In treatment we are not in a position to evaluate them for relatively little work has been done on their relation to therapeutic measures.

Present methods of testing renal function have advanced very materially our knowledge of renal disease. Most of these methods have been used relatively a short time and so we are not in a position to state which tests will prove of the greatest usefulness or how many and which tests should be applied in a single case. No doubt better tests will be developed, but much remains to be learned about those already in use. They have served to emphasize the functional conception of renal disease as compared with the structural, and this is a distinct advance.

As in all new fields of investigation it is likely that in the study of renal function enthusiasts will claim too much and critics will scoff. A balance between the two views, however, must be taken to get an adequate appreciation of the value of tests of renal function. In estimating this, it must be kept clearly in mind that tests of renal function furnish but one set of facts about a patient, while for diagnosis, prognosis and treatment, clinical data from many sources are required, not the one test but the many are to be used if we reduce our clinical failures to their minimal number. Tests of renal function are of unquestioned value in renal disease, but they should supplement not supplant other ways of studying the nephritic.

Those who desire a more detailed statement of the value of tests of renal function are referred to the papers "On the Study of Renal Function," by Henry A. Christian, Theodore C. Janeway and Leonard G. Rowntree, presented at the meeting of the Congress of American Physicians and Surgeons, held in Washington, May 6, 1913, and published in their transactions; and to numerous studies which have appeared during the past two years in the medical journals.

New Instrument.

A NEW ANTRUM KNIFE.

BY OLIVER A. LOTHROP, M.D., BOSTON,

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Pus in the antrum of Highmore is not an uncommon condition. A large proportion of suppurations are of dental origin and concomitant treatment of the diseased teeth is necessary. The antrum frequently acts as a reservoir for pus draining from some disease of the ethmoidal cells or frontal sinus. More rarely the antrum takes part in a pan-sinusitis of that side and may then be filled with granulations and polypi.

Ordinarily, antrum disease subsides quickly when the cause is removed and adequate drainage established through the antro-nasal wall. Unfortunately, any opening made in the antro-nasal wall tends to close rapidly. For this reason an opening should be made as large as possible. This could be done easily if the canine fossa were opened as an approach to the antrum, but this route makes extra operating and causes additional discomfort to the patient when only an opening in the antro-nasal wall is needed. When visual exploration of the antrum is necessary, or when it is filled with a mass of polypi, the canine fossa must be opened in addition.



A new antrum knife has been devised which makes a large opening easily and is used wholly intra-nasally. The knife consists of a stout handle and shaft and a thick, short, chisel-like blade which is set at right angles to the shaft. The shaft is curved outward to a slight degree. The cutting edge is so adjusted that when traction is made in the direction of the shaft the knife cuts downward like a carpenter's draw knife. There is a knife for either side, *i.e.* a right and a left. The knife which cuts downward on the antro-nasal wall on one side can be used to cut upward on the wall of the other antrum.

TECHNIC.

Ether is to be preferred for a radical operation but cocaine can be used in suitable cases. The use of adrenalin and cocaine with ether is not necessary but often makes the operation easier. The anterior fourth of the lower turbinate is removed with a punch and snare. The antrum knife cutting down is now inserted and pushed through the antro-nasal wall low down and well posterior. Then it is drawn forward as far as possible and the blade rotated upward and inward to divide the anterior attachment of the plate of bone to be removed. Should the bone be thick the ridge may have to be shaved down by repeated strokes. The knife which cuts upward is now inserted and a similar cut is made high on the antro-nasal wall near the attachment of the lower turbinate and the knife is rotated downward and inward on reaching the anterior part of the wall. The fragment of bone can be removed with bone forceps or punch. The antrum may now be swabbed out with gauze held firmly in a curved tenaculum.

The after-treatment consists in irrigation through the opening with a Eustachian catheter. Because of the previous removal of the turbinate and the large opening the passage is very direct, so that the washings cause no discomfort and cocainizing for each washing is unnecessary. Small openings for treatment made by trocars are difficult to find, their edges are sensitive, and they do not give adequate drainage. Moreover, they frequently close in an incredibly short time.

Medical Progress.

REPORT ON OBSTETRICS.

BY ROBERT L. DE NORMANDIE, M.D., BOSTON,

AND

JOHN B. SWIFT, JR., M.D., BOSTON.

(*Concluded from page 431.*)

A CRITICAL REVIEW OF THE MEDICAL AND SURGICAL TREATMENT OF PUERPERAL ECLAMPSIA.

Zinke[9] bases his outline of treatment on the thirty cases of eclampsia which he has seen in the past ten years, combined with results reported by other authors.

In the prophylactic treatment he advises, there is nothing new. In the curative treatment his mainstay is veratrum viride, 15 minims given subcutaneously and repeated every hour until the pulse rate is reduced to 60 per minute or less. If within an hour the pulse falls from 150 to 100 per minute the succeeding dose is only 10 minims. Zinke states that more than two or three full doses are seldom necessary to bring the pulse to 60. Catharsis he obtains by enemas or by Epsom salts, using stronger cathartics only when Epsom salts fail. Hot baths he prefers to hot packs to stimulate the skin. Ordinarily he does give but one bath in 24 hours and of not over thirty minutes' duration. Milk or broth is the only food allowed, with plenty of water.

If the patient is restless he gives chloral in sufficiently large doses to quiet her. Morphia and chloroform he has discarded. If the patient is at the end of the first stage of labor with grave symptoms he terminates labor.

Zinke does not claim this mode of procedure will invariably be successful but he believes when it fails very little could have been expected from surgical intervention. Zinke condemns unreservedly the immediate emptying of the pregnant uterus as the best and only rational treatment for puerperal convulsions, and does not agree that this treatment, more than any other, has reduced the mortality of this disease.

Zinke quotes freely from Peterson's article where the latter reports 530 cases of vaginal Cesarean section done immediately after the first eclamptic seizure, where the maternal mortality was 18.51%. Zinke's mortality from his method of procedure is 13.3% which to the writers is a distinctly poorer result than Peterson's figures for 530 cases.

Zinke takes one surgical procedure after another and roundly condemns it. He does not take into consideration the ability that the various operators may have. Emptying the uterus before labor begins, or early in labor is a very serious operation and unless the physician is competent to meet any emergency he should not do it. But Zinke's unreserved condemnation of these procedures is no more convincing than is the advice to deliver all eclamptics by Cesarean section.

Zinke's article is a timely one in that it calls a halt to the indiscriminate operating that now is taking place throughout the country by poorly trained obstetricians.

PITUITARY EXTRACT.

Broadhead[10] in his progress for the year in obstetrics has reviewed a number of articles on the use of pituitary extract. His opinion, drawn from a number of articles reporting a small number of cases, is that it is practically of no value in inducing labor. Its value increases as labor continues, and used when the cervix is nearing complete dilatation, or during the second stage when the pains are weak, it tends very strongly to increase the number and activity of the uterine contractions. Not a single case has been noted of any fatal effect on the mother, but a number of observers have noted that the fetal heart may become very weak after the use of the extract, and it is said by some to be contra-indicated when the fetal heart sounds are weak. There has also been noted a tendency to increased hemorrhage following the removal of the placenta. Animal experimentation would seem to show that there is practically no toxic effect from the use of the drug. One half to 4 c.c. is the doze usually given depending on the size of the woman, and if the first dose has no effect in ten minutes, a second and even a third may be given. The mode of injection, subcutaneous, intramuscular, or intravenous, did not appear to modify the result.

Patek[11] speaks of the use of the extract in abortions, and states that continued use of the preparation in abortion therapy has shown that we are in a position to terminate abortions spontaneously, provided that the cervical canal is open and pains however significant are present. Three cases of his list however deserve special mention. This was the arrest of labor, and continuation of pregnancy after abortion was well under way. The extract is known as a rule to produce a uterine contraction which is not at all tetanic. A number however have been reported (one so strong as to cause the death of the fetus. In speculating on the cause of the tetany, (by which means he thinks that the pregnancy must have been continued) the author believes it to be due to some foreign component, probably derived from the anterior lobe of the hypophysis.

Concerning the effect of the pituitrin on the child Spaeth[12] advances two possible causes for this, first that the increased contractions of the uterus compress the placenta more frequently and the child does not receive its normal supply of oxygen thereby. Secondly the cardio vascular effect of the extract of the hypophysis is well known and the drug probably passes into the fetal circulation through the placenta and exerts a markedly depressant action on the fetal heart.

Gousew[13] after an experience of 48 cases in which he used an extract of the posterior lobe of the pituitary body arrived at the following conclusions.

His dose was .75 c.c. given hypodermically and only once was a second injection necessary. Pains began two to ten minutes after the injection, accompanied at the same time by abundant micturition.

He believes that pituitary extract stimulates pain better during the second half of pregnancy, especially at its end, it gives good and reliable results in the stage of dilatation, and acts still better in the stage of expulsion.

The drug is more effective with ruptured than with unruptured membranes. Anesthesia and especially morphia inhibits the action of the extract. He believes that the use of the extract is a better and more reliable means for effecting artificial premature labor than vaginal douches and metreurysis. It replaces forceps application and makes traction rods almost superfluous. He does not consider that moderate pelvic contraction is a contra-indication for its use even in cases where the presenting part is above the brim of the pelvis.

He used the drug when pulmonary tuberculosis, diseases of the heart and kidneys, eclampsia, placenta previa (marginal), premature detachment of the placenta existed and he believes that the drug aided greatly in clearing up the edema coexisting with eclampsia.

No injurious effect was observed in the mothers or children. All of the children were alive and only two died afterwards, one on the 13th and the other on the 3rd day. He had one postpartum hemorrhage.

That there is still a considerable difference of opinion in regard to the use of pituitary ex-

tract is still obvious from the very varying forms of the articles which are being published.

THE RELATION OF HEMOLYTIC AND NON-HEMOLYTIC STREPTOCOCCI TO PUERPERAL SEPTICEMIA.

The authors[14] set themselves a series of questions to answer, which were as follows:

(1) Is the streptococcus (either hemolytic or non-hemolytic) present in the parturient canal during pregnancy, before any digital examinations have been made and in afebrile cases post-partum?

(2) Is the blood agar method practical as well as reliable in its application to puerperal cases to determine the hemolytic characteristics of the streptococcus.

(3) Is the hemolytic property sufficient to differentiate the virulent and non-virulent types of streptococci as claimed by some authors?

(4) Is the routine examination bacteriologically of maternity cases of clinical value in institutions as well as in private practice (a) in establishing the autogenous and exogenous source of puerperal sepsis, (b) in determining the presence of healthy carriers of puerperal sepsis?

The answers to these question derived from a careful bacteriological examination of 107 cases were as follows:

The streptococci, both hemolytic and non-hemolytic are present in the parturient canal during pregnancy, before any digital examination has been made as far as could be ascertained.

(2) The presence of the hemolytic streptococci ante-partum is the exception and not the rule.

(3) Non-hemolytic streptococci are twenty times as frequent as hemolytic streptococci in the secretions of the pregnant woman according to their findings.

(4) Hemolytic streptococci are found in afebrile as well as febrile parturient cases.

(5) Non-hemolytic streptococci are found in febrile as well as in afebrile post-partum cases.

(6) The frequency of positive findings post-partum of the non-hemolytic streptococci is far above that of the hemolytic type, being twice as many.

(7) Schottmuller's blood agar method is of practical value in detecting hemolytic properties of the streptococcus.

(8) The hemolytic property is characteristic of one type of the streptococcus group.

(9) Hemolysis as applied to the streptococcus does not determine the question of virulence or avirulence of this organism. Other tests will have to be found.

(10) The routine bacteriological early post-partum examination is practical and important from the standpoint of prophylaxis, diagnosis, prognosis and treatment.

(11) Clinical symptoms alone are not sufficient to establish a diagnosis of puerperal sepsis. The bacteriological examination is necessary.

(12) The findings of the streptococcus hemolytic or non-hemolytic in febrile or afebrile cases, should indicate the prompt isolation of the cases to prevent the spread of the infection in maternity hospitals.

(13) We have to recognize "healthy carriers" and unsuspected cases of puerperal infection.

(14) The findings of hemolytic or non-hemolytic streptococci in the secretions in febrile cases post-partum suggests the possibility of a grave infection.

(15) The findings of hemolytic streptococci in the blood is, according to most observers synonymous with a fatal case.

(16) Hemolytic or non-hemolytic streptococci causing morbidity are not necessarily of exogenous origin.

(17) Auto-infection plays an equal rôle with exogenous infection as to frequency of sepsis, but not as to severity.

The value of this contribution is marked. It gives a good explanation for the sudden appearance of sepsis in modern lying-in hospitals, where, as is well known, the per cent. of sepsis is much greater than in ordinary house to house obstetrics. It also gives a method for stopping this per cent. of infection, namely, the culturing of every uterus in hospital practice and the prompt isolation of those cases which show a streptococcus growth, whether the organism is hemolytic or non-hemolytic, and the patient sick or well. We have begun to recognize the dangers of typhoid carriers and diphtheria carriers to the community, why should we not recognize the danger of puerperal sepsis?

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Reports of Societies.

CONGRESS OF AMERICAN PHYSICIANS AND SURGEONS.

NINTH TRIENNIAL SESSION HELD IN THE NEW WILLARD HOTEL, WASHINGTON, D. C., MAY 6, 7, 1913.

(*Concluded from page 433.*)

SANITATION AT PANAMA AS IT RELATES TO THE SANITATION IN THE TROPICS GENERALLY.

COL. WILLIAM C. GORGAS, Ancon, Canal Zone: (President's Address). I appreciate this opportunity to address you on a subject of so much importance as is the result of the sanitary work done by our country on the Isthmus of Panama is going to have upon the sanitation of the Tropics generally. In 1904, when the construction of the Panama Canal was begun, the Isthmus was universally considered one of the most unhealthy places in the world. This reputation was warranted by the facts in the case. The sanitary measures enforced by the United States have enabled us to proceed with the construction of the canal for nine years with no greater loss from death and disease than would have taken place had the same kind of work been carried on in a place in the temperate zone. Moreover, this work has been accomplished at comparatively little expense; and therefore, similar results can be secured in other parts of the tropics. The greatest number of unacclimated persons on the Isthmus at any one time was during the time of the French Canal work, 1880 to 1890. For nearly four hundred years the infection of yellow fever had existed in Panama. Until the time that the United States took charge, no statistics of any kind had been kept.

In 1895, when the Panama Railroad was formally opened for traffic, Mr. Tomes, of the New York "Tribune", was sent down, as the guest of the railroad. He states that he did not see a single healthy-looking individual connected with the railroad. He says that during its construction the railroad brought over eight hundred Chinese laborers, who suffered severely from the diseases of the country, and many committed suicide. Within less than a month from the time they were brought into the country, not two hundred were left. One of the French engineers who remained with us after we took charge, stated that he had first come to the Isthmus with seventeen young engineers; and that within a month all but himself had died of yellow fever. Instances like this could be collected indefinitely. These were the conditions that existed when the United States took over the work in May, 1904. Before the beginning of the work, and while the French still had possession, the Canal Commission sent down a board composed of certain medical and engineering officers,—Dr. Ross, U.S.N., Dr. LaGarde, U.S.A., Maj. Gillette, U.S.A., and myself—to make plans for the sanitation of the Isthmus. The plans made by them were accepted by the Commission and about fifty thousand dollars was furnished to purchase supplies with before we went. Fifty or sixty persons was the personnel granted. With these we were able to make a pretty good start, and take care of the work for the first year and meet the exigencies of the case.

The chiefs of the other department came down there from time to time, and not knowing the conditions, reached the ground without either supplies or personnel. They, therefore, had a difficult time getting started, and were unable to perform their functions in connection with the work of the Sanitary Department.

The constructive force went down in May, 1904, with a great deal of enthusiasm; even though the men knew that the French had suffered severely. Conditions the first year grew more and more severe; yellow fever began to increase, and by the spring of 1905 had become pretty troublesome. Several of the higher officials had died of it, and a sort of general panic occurred in the force on the Isthmus. It looked then as if the work would come to a standstill, and as if we were going to have the same fatality that the French had had. During this period of depression, I am proud to say that the Sanitary Department never gave up hope. Not a single doctor or nurse became panic-stricken or deserted the work. This feeling of depression affected the Commission, as well as the force. The Executive Committee of the Commission, at this time, recommended to the Secretary of War that the Health Officer and his assistants then in charge at Panama, should be relieved, and men with more practical ideas substituted. The matter was carried up to the President, and he directed the Commissioner to support the Health Officer with all the force and power and means at his command.

Fortunately for us conditions began to improve at about this time. By the fall of 1905, the last case of yellow fever occurred in Panama. While there were other diseases there, the men did not fear them as they did the yellow fever.

It has been frequently stated that our sanitary work in Panama was very expensive, and that it was costing two million dollars per annum. This is an error. The Department spent about sixteen hundred thousand dollars a year to eradicate yellow fever, and controlled an area of fifty-five square miles. The whole Canal Zone is about five hundred square miles. Over one million dollars of the sum allotted to our Department goes for other things than the care of the sick. We have in our hospital department twenty-four hundred beds, and when I left there were in them about eighteen hundred patients. We have extensive church organizations of different kinds. All the ministers are paid from the funds of the Sanitary Department. Originally there were but two departments in Panama, the Engineering and the Sanitary Departments. Everything that did not pertain directly to engineering was turned over to the Sanitary Department. The expenditures actually concerned with health and that which had an effect on malaria and yellow fever, have averaged only three hundred and sixty five thousand dollars a year, about one cent a day per capita, of the population.

Now if it is a fact, as I have tried to show from our expenses down there, that these tropical countries, at a reasonable expense, can protect themselves against the infections of the Tropics, a Caucasian population will, in the course of time, drift to the Tropics, and there, being able to produce so much more wealth with a given amount of labor than they can in the Temperate Zone, will remain

here. I believe that again great empires, as have occurred in the past, will spring up in the Tropics.

SYMPOSIUM ON THE DEVELOPMENT OF TISSUES IN VITRO.

THE LIFE OF TISSUES OUTSIDE THE ORGANISM FROM THE EMBRYOLOGICAL STANDPOINT.

DR. ROSS G. HARRISON, Yale University, New Haven: The fundamental conception of modern physiology is that each organ and tissue has some specific function to perform in the body and that this conception is still further carried out in the cell-theory, which sees in certain minute organs of the body the mechanism by which the functions are carried out, and the idea of survival of parts after the death of the whole organism.

In surgery, the idea of survival and transplantability of organs plays a very important role. One of the most interesting facts of modern microscopic anatomy is that the leukocytes are able to move about in the same way that many of the lower organisms do. We have learned about the activities of the organisms as a whole; but we have learned comparatively little about the activities of the cells. It is to make up for this lack in our knowledge that these studies have been carried out.

The method of isolation of parts is but the carrying out of the work of the experimental physiologist, when an organism is isolated to see what it does. The method is an adaptation of the method so familiar to physiologists, the hanging drop culture, so that any originality that may be claimed for this work is due to the combination of ideas, rather than to the introduction of any particular new device.

In our work parts of the central nervous system of the embryo were cut out with the binocular microscope, then it was transplanted to a drop of lymph or blood-plasma on the cover-slip, and the slip inverted over the hollow side. When transplanted to the lymph, the tissues grow and undergo changes. I wished to find out what took place in the nerve cells. It was necessary to find out what the various tissues would do outside the body, and whether they would behave in a way comparable to the way in which they behaved in the body. A bit of muscle was found, in a day or two, to have differentiated into full-fledged muscle fibers with striations. I could see that the tissues were differentiating normally under these conditions. Therefore, it seemed to me safe to go to the nervous system and see what it would do.

The nerve cells grow from a mass of tissues. The cells grow longer and longer. This work has shown that the development of the nerve fiber is a matter of protoplasmic movement. Therefore, this same protoplasmic movement which brings about the motion of the blood corpuscle or the ameba, or which plays a part in the curing of epithelial wounds, when they are covered up, also forms the nerve in our embryonic mass.

The criticism has arisen that the conditions are so different from what they are in the body that the activities cannot be normal ones. That you have only necrotic changes or changes of degeneration is not true. You will have regular growth and cell division. We have then, not only progressive growth in the embryo, but also cell multiplication. The longevity has not yet been worked out fully, and while we are able to keep the cultures living for a long period, yet we are not justified in speaking of these cells as immortal. Before we can speak of their immortality, we must be able to keep them alive as long as they would live in the organism.

The work up to the present time has, in most cases, failed, except in those points where it shows differentiation of cells and growth and multiplication of cells. It has failed in the study of form development. Embryonic nerve cells do not develop into fore-brain, hind-brain, inner-brain, etc., but merely into masses of protoplasm.

I shall go into these points more fully while showing some lantern slides which I have. I think that the whole secret of these protoplasmic bridges is that they afford a support for the nerve fiber as it develops. I think that these results show that the method is applicable to the embryological studies of differentation and of cell movement. These processes are of the greatest importance in the study of embryology.

THE LIFE OF TISSUES OUTSIDE THE ORGANISM FROM A PATHOLOGICAL STANDPOINT.

(With lantern demonstration.)

DR. MONTROSE T. BURROWS, Cornell University, Medical College, New York: From these ameboid cells you can see the astral substances going out along the astral rays. When these substances diffuse out toward the surface of the cell, they are most concentrated in the wall, and produce proportionate decrease in surface tension, causing the cell to become round, or to bulge, at this point. Here is one showing the asters moved toward the two sides. This movement was produced by putting a drop of fibrin in. The cell finally broke through by the explosive movement of these two sides. It is of interest to note that almost every cell growing in culture media contains fat. Nerve fibers are the only exception. I found that they could grow without containing fat droplets, and that cells which had fat in them could also lose it. When there was an area suitable for cell division to take place, fat was not present.

Either the cells were in a position to burn their fat, or they had none. This is practically the same picture that you see in the animal body. When cells grow in plasma they cause evtensive liquefaction and grow out to the outer border of the plasma. It is the line of fibrin that remains that produces active ameboid movement. As fast as the fat is dissolved, it comes out.

THE LIFE OF TISSUES OUTSIDE THE ORGANISM FROM THE PHYSIOLOGICAL STANDPOINT.

(With lantern demonstration).

DR. ROBERT A. LAMBERT, Columbia University, New York: The new method makes it possible to pursue with ease many questions in the field of pathological histology, the solution of which has seemed to wait on the discovery of a technique of this kind. It permits us to eliminate many factors which in experiments on the animal body are a source of much confusion. The isolation of some single factor for the purpose of special study is made possible. We are able to introduce more easily into the experiment known and measurable factors such as changes in the physical and chemical

composition of the medium, introduction of specific toxins and poisons, variations in temperature, etc. Not all problems having to do with the activities of the cells are open to attacks by these methods since every tissue cannot be made to grow in vitro. The number of tissues that can be successfully cultivated in vitro is not inconsiderable, including connective tissue cells, bone, cartilage, endothelium, skin and corneal epithelium, intestinal epithelium, malignant tumors and possibly also thyroid and kidney epithelium. Certain cells, such as ganglion cells, seem to survive though they did not proliferate. The problems which presented the most fruitful field of application might be classified under three headings: First, morphological questions; second, questions in immunity, including cancer immunity, cellular and bacterial immunity; and third, problems relating to the cultivation and study of the viruses of certain infectious diseases, especially those in which the specific intracellular bodies had been described. In the spread of tumor through the body the activity of the individual cell plays an important part. In sarcoma culture we have seen a cell travel a distance of five millimeters in forty-eight hours. This rate would easily enable a cell in the centre of the breast to reach the axilla in six or eight weeks. I do not believe that cells die of fatty degeneration, because cells containing fat moved about freely and underwent perfectly normal miototic division. A comparison of the growth of normal cells and cancer cells in vitro showed that the normal connective tissue cells divided in an orderly regular manner, only normal mitoses were observed and the time required for division was quite constant; whereas, in the sarcoma cells atypical division figures of all kinds showed a diminished activity.

In connection with Drs. Steinhardt and Poor I have endeavored to study rabies and vaccinia. We tried to learn whether Negri bodies would show any development or multiplication in vitro when fragments of the brain from rabid animals were incubated in blood-plasma. So far as we could determine no development or multiplication took place in vitro. Our experiments led us to believe that Negri bodies are not a parasite, but a specific cell degeneration.

DISCUSSION.

DR. LEO LOEB, St. Louis: By making tissues grow in culture media, we can build up a physiology of tissues. Physiologists have studied various epithelial cells only in so far as they perform certain specific functions as a part of an organ. They never analyzed experimentally the factors underlying growth and movements, and similar phenomena of the component parts of organs, of various epithelial cells, or of the connective, and so on.

As to the methods used in our laboratory; in our later day we insert somewhat larger pieces in culture media in the test tube. We can, therefore, study the influence of various gases on the life and growth of the tissues; for instance, the reaction of hydrogen. We ordinarily study only the behavior of the outgrowing cells; while very important changes that may take place in the transplanted tissues may remain unnoticed, unless we also make use of embedbing and sectioning the whole tissue. The transplanted cells, living in culture media, may be very actively growing without any outgrowth of cells being noticeable. The outgrowth of cells depends mainly on secondary conditions; especially on a stereoscopic sensitiveness of connective tissue. I placed two pieces of tissue next each other in culture media, and found that tissue-cells may grow toward each other in cases in which necrosis takes place. Different tissues vary in their action in culture media, especially on coagulated blood-plasma or blood. Epithelial tissues grow out into the coagulum very much less actively than connective tissues. Testicle, thyroid, and ovarian tissue do not seem to grow into the coagulum at all. It has apparently been believed that a potential immortality of tissues could be rendered probable for the first time through growing them in culture media in vitro. I believe this to be erroneous.

DR. WARREN H. LEWIS, Baltimore: Mrs. Lewis and I have been interested in growing these tissues in media of known chemical construction. We practically started that experiment in the beginning with the use of simple salt, such as in Locke's solution, etc. The results have been quite uniform. Practically all the phenomena that have been observed in serum plasma or lymph have been observed in Locke's solution, with or without the addition of a certain amount of sugar, such as dextrose or cane sugar. We have followed the outgrowth of nerve fibres of the central portion of the nervous system of the chick embryo. The different portions of the n rvous system gave striking differences in the mode of outgrowth of nerve fibres, in the study of which we found that the method of using saline solution offered some advantages over the use of the plasma.

In order to show that these processes anastomose freely with other nerve fibers in the immediate neighborhood we put two pieces of nerve fiber near each other, and found that fibrils grew out of each piece and extended toward the other. Mitoses are quite frequent in these cultures with various solutions of salts, sugars and other things.

The first cultures that we made practically never contained fat droplets in the cells; but with the increase in the number of our transplantations and the improvement of our method, we have produced cultures in which the accumulation of fat in the various cells was so enormous that the structure of the cell was practically obliterated. Other cultures under different conditions, some of which we are not entirely ready to determine, show entire absence of fat in the cells.

The ordinary growth of cultures in these artificial media lasted from two or three to five or ten days and we have been able to practically double the time of the life of the tissues by the addition of a fresh drop to this artificial medium. The tissues apparently grew equally well in a solution in which there was no alcohol, and in one containing two and a half or nearly three per cent. of alcohol. There is usually quite an accumulation of fat in such tissues. Otherwise, the condition is not apparently abnormal. As to whether we shall be able to substantiate the idea that these chondria zones are the fore-runners of the neurofibrillae, the fibrils or the connective tissue, we have not been able to demonstrate.

DR. LAMBERT, (closing): Cells which are free in the plasma, where the edges are free, do tend in nearly all cases to become round in the course of division. It is only when the processes are so attached that they cannot become round that they do not do so. In regard to the accumulation of fat in the cells, I would say that we found it necessary to wash the fragments very carefully before putting them into the dilute media.

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THE TEACHING OF THERAPEUTICS.

THE teaching of therapeutics naturally ought o be a very different matter from what it was a ew years ago. Within the memory of many hysicians still in active practice the student as expected to gain practically his entire nowledge of the subject from courses of di- actic lectures, generally "dry as dust," in hich were cited long lists of drugs, with de- riptions of their characteristic and supposed irtues in the treatment of disease. It is no onder that there occurred a period of thera- eutic nihilism; though this has passed away, ever to return. It is recognized by all that in ecent years our remedial resources have been mmensely enlarged. In conditions formerly re- arded as quite hopeless a cure may now some- mes be effected, and where this is impossible uch may be done in the way of palliation and ie prolongation of life, while in conditions less rious the course of treatment is often much ortened, and at the same time conducted with reater comfort to the patient. As time goes on, ore and more are we possessed with the ability carry out the old therapeutic aphorism, *cité, té, jucundé.* These results have been brought out through the remarkable widening of the ld of therapeutics which has taken place, not ly by the introduction of new agents, meas- es and methods, but also by the development d perfecting of many already in use.

All this is now trite enough, but it clearly in- cates the comprehensiveness, as well as thor- oughness, with which therapeutics should be taught at the present day, and the importance of laboratory work as an essential part of the train- ing in this department. At the meeting of the American Medical Association certain important phases of the subject were well brought out by Dr. Ray Lyman Wilbur of San Francisco in his address as chairman of the section on Pharma- cology and Therapeutics, which has recently been published in the journal of the association. He is not very optimistic, for he finds the teach- ing of therapeutics even now in an unsatisfac- tory condition; stating that nowhere else has the dead hand of the past thrown its heavy shadow so far across the path of progress. The only way to teach therapeutics, he believes, is to prac- tise it under the eye of the student. Pharma- cology has gained a firm hold in medical instruc- tion, and it must not fail to extend its domain to the bedside, to become a part of the life of every teaching clinic. Practically, the modern teaching of therapeutics should concern itself with a choice from that "great hodgepodge" known as the materia medica, of the useful and the usable; with a study of practical pharma- cology, based on physiology; with bedside in- struction in pharmacology and therapeutics as a distinct part of medicine and surgery, and with the adoption and adaptation of all that is worth while in the various systems of medicine. The student should understand, for instance, that the osteopath or the hydrotherapeutist may ob- tain therapeutic results, even if his knowledge is crude, his logic poor, his theory unscientific. When physical therapeutics is taught by clinicians from the sound basis of physiology in all our medical schools, the problem of drugless healing, as it is practised outside the profession, will no longer exist. The teacher must remem- ber that a cannon ball rolled across the abdomen is more satisfactory to many constipated pa- tients than a cathartic pill inside it, and that a dietetic cure may be even more gratefully re- ceived. Daily instruction in the use of drugs, and in their selection, should be required of the teacher, and a few minutes at each bedside or outpatient clinical conference will bring out the main points. This is vital, since the majority of the text-books on therapeutics are "merely well arranged cemeteries filled with records of treat- ments that have gone before." Selection is just beginning to be recognized as the main function of the author of such a work. We must all rec- ognize that elegance in pharmacy has its place in

therapeutics. The modern stomach cannot be ignored, and the psychic element in gastric function holds for drugs as it does for foods. Nor must we lose sight of mental therapeutics. Reassurance is often as comforting as opium and has fewer after-effects.

Dr. Wilbur's plea is for a broader and for a narrower point of view in the teaching of therapeutics: a broader one to include all that is essentially sound or can be scientifically tested, regardless of origin; and a narrower one to exclude all that is outgrown, that savors of polypharmacy, and that smacks of quackery. It is, further, for pharmacological instruction of the student with the patient before him, and for a firm union of the teaching of therapeutics with all forms of clinical instruction.

TUBERCULOSIS AMONG COTTON MILL WORKERS.

Dr. Arthur R. Perry, to whose report we have already alluded in our issue of June 26, made his exhaustive investigation of health conditions among the cotton mill operatives in New England[1] by the death-rate method, as opposed to the inspection method, which has ordinarily been employed in such work. These methods differ radically. By the latter as many as possible of those engaged in a given industry are inspected, and from the prevalence of healthy or diseased conditions among them conclusions are drawn as to the wholesomeness of that occupation. By the death rate method the mortality of the workers is determined as accurately as possible for a period long enough to exclude the effects of temporary disturbances; then, from a comparison of such mortality with that prevailing in similar age and sex conditions outside the given industry, conclusions are drawn as before. The death rate method is far more precise and conducive to just and reasonable conclusions. Dr. Perry maintains that the only way to gauge longevity prospects of living mill operatives is to obtain as accurate as possible data relating to the life histories of those deceased. His mortality statistics are probably the most complete ever gathered in this field (making a volume of 430 pages); and this work, with the conclusions drawn, may well be termed epochal.

Selecting the three great cotton mill centres in the East—Fall River, Mass.; Manchester N. H., and Pawtucket, R. I., Dr. Perry sough the death causes of all persons in those citie from 10 to 44, in the years 1905, 1906 and 1907 dividing the decedents into two groups, op eratives and non-operatives. The age pe riod 15-44 years was selected for stud because it represents full industrial ac tivity when the death rate would normall be low. Vital statistics are customarily pre sented by decade age groups. Dividing th 15-44 years into these customary groups wi give for the three death rates sufficiently simila to justify considering them taken together as single age group. Besides, the 15-44 period rep resents more than one-half the entire populatio so that it gives a wider field of study than more limited age group could do. Again, for study of causes of death among cotton worker this 15-44 group presents peculiar advantages i that it includes one-half the entire populatio and 85 per cent. of the entire operative popula tion; while within its limts are found 76 pe cent. of the entire number of tuberculosis death of individuals ten years of age and over, 73 pe cent. of the whole operative mortality from a causes and 91 per cent. of the entire operativ deaths from tuberculosis.

The investigation having been primarily int causes of death among women and children co ton mill operatives, special attention was give to female decedents as compared with the corre sponding classes of male decedents. Cotton mi work was selected for study because it engage more women and children than any other indus try; exhibits a deplorably high female deat rate, and more frequently perhaps than an other industry, subjects its workers to inhalatio of irritant vegetable dust—a factor peculiarl conducive, in the overworked and the underfe to tuberculosis. And tuberculosis was selecte for study because it is the most prevalent ult mate or immediate cause of death within th 15-44 age period.

Dr. Perry seems to have clearly establishe from the data collected and the study made tha 1. The effect of cotton operative work in healt differs widely between the sexes. For the thirt years stated the male and female death rates i the general population are almost identical— 6.19 and 6.18. The death rates of male non operatives exceeded those of female non-opera tives by 22 per cent., but the death rates of f male operatives exceeded those of male opera

[1] Perry, A. R.: Causes of Death Among Women and Child Cotton Mill Operatives. Senate Document No. 645 of the Second Session of the Sixty-first Congress, Vol. 14.

ives by 33 per cent., despite the former aver-ging younger. 2. In the age groups within vhich operatives and non-operatives are fairly omparable female operatives have a decidedly igher death rate than non-operatives of that ex—especially as to tuberculosis, the death rate n general of female operatives being more than wice that of non-operatives, and in some age nd race groups many times as high, in the years rom 35 to 44 five times as high. 3. An exami-ation of different factors which might affect he death rate, especially from tuberculosis—na-ive or foreign birth, tuberculous kindred or inti-nates, over-crowding, home conditions as to anitation, ignorance, impure air, bad or ill hosen, or ill cooked or ill chewed food, alcohol-sm, bad personal hygiene, long labor and short leep, the stresses of hurry and anxiety, scant ncomes (whether through thriftlessness, misfor-une or low wages), accompaniments of the con-ugal condition (childbirth and dependence), verwork or non-resiliency from fatigue—an ex-mination of such factors fails to reveal any nassing of predispositions to tuberculosis among ne female operatives as would explain their un-aryingly higher death rate from this disease. Hence,'' states Dr. Perry, ''it seems impos-ible to escape the conclusion that operative ork is prejudicial to the health of females, that ne combination of operative work with matri-ony is especially harmful, and that, while the eneral hazard of the female operative is greater an that of the non-operative, the former is in ost danger from tuberculosis. Whether the armful effects of operative work are greater an those of other industrial employments and hether they inhere in cotton textile work as a hole or are due to certain occupations carried n within the mills, are questions for further in-estigations to answer. This has established the act of the high mortality among female cotton peratives and of their special susceptibility to uberculosis.''

GEOGRAPHICAL PATHOLOGY.

It has been said that ''morality is geography''; nd as is the rule with pithy sayings, there is in is one a germ of truth. In like manner it may said that there is a great deal about disease at is geographical, and the fact is increasing in importance with the ever-increasing proportion of Americans temporarily or permanently living within the tropics. For generations past the Briton adventuring in East India and Africa has known what it is to encounter the diseases distinctively tropical. It has been demonstrated by the labors of German and British masters in bacteriology and preventive medicine that the tropics can be made habitable for the white man, although there still remains and must remain the ''tropical wrath'' which has from time to time been manifested by hideous brutality toward inoffending native peoples. Every one knows, of course, what has been accomplished by Gorgas and his associates in our western tropics; how yellow fever, the malarias and the fatal dysenteries have been practically vanquished; how the Isthmus of Panama, no longer ago than the era of De Lesseps, one of the deadliest regions of the earth, has now a mortality rate as low as that of any American city, and much lower than many.

The field of tropical medicine is indeed wide. It has for a long time been traversed by representatives of the Liverpool School of Tropical Medicine and like schools in London and Hamburg, of the Wellcome Laboratory at Khartoum, and of other institutions. The Japanese have done much notable work in Formosa. In nearly every tropical region under temperate-zone administration —Hongkong, Calcutta, Ceylon, the Philippines—there has been sanitary progress in recent years. Indeed, Dr. Frederick Hoffman believes there is abundant evidence, official and otherwise that, with respect to sanitary control, the Philippines are today as well, if not better, administered than our Southern states. The practical beginning in America of schools of tropical medicine, after the fashion of the European institutions noted, has been made in connection with several universities, for example, Tulane University in New Orelans and Harvard University in Boston. Such schools should not want for equipment and funds for their development. With the opening of the Panama Canal, New Orleans will particularly become an important commercial outlet for our trade with the countries to our south and west. Moreover, with the increasing water-borne traffic the possibility of tropical diseases being introduced into the southern parts of this country will become all the more serious. Such danger should, and no doubt will, be apprehended and so far as may be, obviated.

ACUTE APPENDICITIS AND THE SUMMER DIGESTIVE UPSET.

THAT the diagnosis of acute appendicitis should offer more difficulties at one season of the year than another perhaps seems strange, but second thought will prove the correctness of the statement. We refer to the atypical attack of appendicitis with some of the cardinal and classic symptoms lacking, which simulate so closely the summer digestive upset. It is in such cases that the practitioner must be argus-eyed and view the case from all standpoints.

In summer time there is, at least in temperate countries an almost universal carelessness or at least variety in the diet not present at other times. Sea foods, such as clams, lobsters and other shell fish, corn and berries of various sorts are eaten, and often the unusual food, or excessive amounts of it, cause the "cholera morbus" attacks of the older text-books. The wise practitioner knows that any one of these attacks may be an acute appendicitis and will treat them with respect. With any suspicion of involvement of the appendix the usual cathartic should be withheld, the stomach washed out if necessary, and the bowels moved by enema at first, if possible waiting twenty-four hours, as the increased peristalsis caused by the enema might be harmful in case of appendix trouble.

THE AUTOMOBILE AS AN EMERGENCY AMBULANCE.

AMONG the unusual uses to which the automobile may be put, that of an emergency ambulance is certainly one of the most important. In isolated communities and summer colonies where the large and luxurious touring car is in constant use it makes an ideal ambulance for emergency needs. The space in these cars is so ample that a patient may be put diagonally across the back seat, with the feet supported on one of the folding seats, being meanwhile as comfortable as if in bed. A shorter person or a child can be accommodated on the back seat at full length with great comfort. The length of such cars and the freedom from jolting makes a ride of even a number of miles safe, with a minimum of discomfort. Thus persons suffering with appendicitis, strangulated hernia, extra-uterine pregnancy or any other grave surgical emergency may be transformed to a hospital by this means with a saving of many precious hours.

MEDICAL NOTES.

LONDON DEATH-RATES IN JULY.—Statistic recently published show that the total death-rat of London in July was only 10.6 per 1000 in habitants living. Among the several district and boroughs, the highest rate was 14.0 in Ber mondsey, a crowded southern slum, and th lowest was 7.8 in Lewisham, an open suburb o the south.

JUSTIFICATION OF ANIMAL EXPERIMENTATION —The director of the research laboratory of th Liverpool School of Tropical Medicine was las week summonsed to court by the Society for th Prevention of Cruelty to Animals for allege cruelty to a donkey, upon whom he had bee experimenting with reference to sleeping sick ness. The doctor was judged to have conducte his experiments legitimately and humanely, an was acquitted; the society was fined the cost and was rebuked by the bench for not makin more careful investigation before bringin action.

CHOLERA IN THE NEAR EAST.—Report fron Belgrade states that during the month o August there were in Servia 572 cases o Asiatic cholera, with 158 fatalities. Repor from Vienna, on the same day, announces tha a case of the disease has been discovered also i that city.

HEALTH OF THE CZAREVITCH.—Report fron Odessa on Aug. 30 states that the young Czare vitch, though apparently in good general health is still unable to walk after his illness of las winter. It seems possible that this illness, th exact nature of which has never been revealed to the public, may have been poliomyelitis.

BOSTON AND NEW ENGLAND.

SEIZURE OF TAINTED FOOD.—The inspector o meats of Malden, Mass., has seized several case of eggs and several hundred pounds of veal a unfit for food. The attempt is being made t prosecute vigorously those guilty of selling mea or other food unfit for use.

Baby Saving Campaign.—Statistics show that in 1912 six hundred and seventeen babies died under one year of age from June 1 to September 6. A corresponding period this year shows five hundred and fifty-six deaths, or a reduction of mortality of approximately ten per cent. This result is to be attributed in part at least to the work of the milk and baby hygiene association, whose visiting nurses have under care more than fourteen hundred babies. The attempt to encourage breast feeding has resulted in a considerable degree of success. The work of preventing mortality does not cease with the summer months and will be continued throughout the fall and winter, particularly with relation to stations for clean milk.

Boston Floating Hospital.—The Boston Floating Hospital has discontinued for this year, after a very successful summer. A number of the physicians who have served on the hospital will continue their study as house officers or will enter into practice. The summer's work shows that in the permanent wards 6,323 days' care were given. Patients on the outer deck received 4,149 days' service. Important work was accomplished in the laboratory, some of the results of which will be published later in this journal.

Money Needed for Boston City Hospital.—An appeal has been made to the Mayor of Boston by the president of the Boston City Hospital trustees for an extra appropriation of $15,000 for maintenance and repairs. It is stated that unless $10,000 is secured it will be necessary to close a part of the hospital temporarily. Since this hospital is continually growing, and enlarging its service to the community, all reasonable demands for maintenance should be approved if the institution is to continue the excellent work which it has accomplished in the past. The per capita cost of patients at this hospital is said to be one of the lowest in the country.

Adulterated Milk.—A large number of milk dealers have recently appeared in the Boston municipal court relative to the sale of adulterated milk and have been fined in accordance with the law.

Infectious Diseases.—Cases of infectious diseases reported to the Boston Board of Health for the week ending Sept. 16, 1913, are as follows: Diphtheria, 30, of which 1 was non-resident; scarlatina, 13; typhoid fever, 14; measles, 7; tuberculosis 46, of which 1 was non-resident.

The death rate of the reported deaths for the week was 15.60.

NEW YORK.

Seaside Hospital of St. John's Guild.—The enlarged buildings of the Seaside Hospital of St. John's Guild were opened on Sept. 15 for the autumn and winter service, and from this time on the work of the hospital is to be carried on regularly throughout the year. A special feature will consist of various practical classes for the mothers and older children in the institution, who will be instructed in household duties and in sewing, basket weaving, and other work. During the past summer the floating hospital and the Seaside Hospital of the guild cared for 60,021 women, children and babies. At the Seaside Hospital there were given 23,716 days of treatment, and the average stay per patient was eleven days.

Mortality Statistics.—The death-rate continues low in the city. The weekly reports of the Health Department show that during the month of August the mortality represented an annual death-rate of 12.72, as against 12.32 in July and 13.24 in August, 1912. Among the diseases in which there was a diminished fatality were the following: The weekly average of deaths from measles declined from 9.25 in July to 6.5 in August; the weekly average from diphtheria and croup, from 16.75 to 15; from epidemic cerebrospinal meningitis, from 4.25 to 3.25; from pulmonary tuberculosis, from 152.75 to 145; from pneumonia, from 43.75 to 42.5; from broncho-pneumonia, from 68.75 to 52.25; from cancer, from 75.75 to 73.5; from organic heart diseases, from 145.5 to 142.75; and from appendicitis and perityphilitis from 13.75 to 12.25. Among the diseases in which there was an augmented mortality were the following: The weekly average of deaths from typhoid fever increased from 6.25 to 8.25; from diarrheal diseases under five years, from 147.75 to 194.5; from apoplexy and softening of the brain, from 15.75 to 17; from hernia and intestinal obstruction, from 8.25 to 9.75; from cirrhosis of the liver, from 11.5 to 15.25; from Bright's disease and acute nephritis, from 80.5 to 88.75; and from puerperal diseases, from 10.75 to 12. The maximum mortality from diarrheal diseases under five years for the season

was reached in the week ending August 9, when 234 deaths from this cause were reported.

WATER SUPPLY OF NEW YORK.—Recently the first gate of the great Ashokan dam, in the Catskills, was closed, showing the advanced stage of the work on the new water supply system for the City of New York. The construction of the Ashokan reservoir has necessitated the wiping out of six or seven villages and the relocation of several miles of the Ulster and Delaware Railroad, which passed through the centre of the reservoir district. In it will be stored 130 billion gallons of water, furnishing the city, through the aqueduct which passes under the Hudson River in the Highlands above West Point, with a daily supply of five billion gallons. The reservoir will cover about 13 square miles, and the greatest depth will be 200 feet, the average depth being 50 feet. Its width will be about three miles, and the total length of the shore line something like 40 miles, while the length of the dams and dikes will be about five and one-half miles.

FARM GARDENS.—The little farmers, 120 in number, who have been cultivating the farm gardens located on some vacant lots adjoining the grounds of the Rockefeller Institute, harvested their crops on Sept. 13, and the winner of the first prize for boys, for steady and faithful work, was a small lad with Pott's disease, whose head was supported by a "jury mast." These farm gardens are maintained by the National Plant, Flower and Fruit Guild, and this is the second summer that Mr. Rockefeller has given the use of the lots for the purpose.

Current Literature.

MEDICAL RECORD.

SEPTEMBER 6, 1913.

1. KENNEY, J. S. *Lead Poisoning in New York City: A Study of Twenty-five Cases with Special Reference to Industrial Hygiene from the Dispensary Standpoint.*
2. HABERMAN, J. V. *The Psycho-analytic Delusion. A Criticism and Review.*
3. MARTIN, W. *Is There Value in Electro-therapeutics?*
4. MEYERS, J., AND BENSON, E. G. *Two Cases of Pancreatic Lesions.*
5. PHILLIPS, W. F. R. *Extreme Enlargement of the Cavum Septi Pellucidi.*
6. BROWN, S. H. *Ludwig's Angina. Clinical Report of a Case.*
7. GEIRINGER, D. *A Direct-View Irrigating Urethroscope for Diagnosis and Treatment.*
8. STEVENS, J. H. *A New Salvarsan Needle.*

[L. D. C.]

NEW YORK MEDICAL JOURNAL.

AUGUST 30, 1913.

1. DEEKS, W. E., AND BAETZ, W. G. *An Analysis of Five Hundred Fatal Medical Cases in the Tropics, with the Clinical Diagnosis in the Light of Autopsy Findings.*
2. CARSTENS, J. H. *Nervous Conditions and Their Relation to Pelvic Diseases.*
3. BATES, W. H. *Myopia Prevention by Teachers.*
4. THOMAS, L. W. *A Study of Stillbirths.*
5. JACKSON, J. A. *Report of an Imbecile with Paresis.*
6. JENNINGS, W. B. *The Present Status of Serum Therapy.*
7. SHALET, L. *The Management of Pulmonary Tuberculosis.*
8. DAY, G. H. *A Modified Drainage for Suprapubic Prostatectomy.*
9. ALEXANDER, R. M. *A Case of Artificial Pneumothorax in the Treatment of Pleurisy with Effusion.*
10. SCADRON, S. J. *A Case of Measles Complicating Pregnancy.*

[L. D. C.]

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

SEPTEMBER 13, 1913.

1. *BILLINGS, F. *Chronic Focal Infection as a Causative Factor in Chronic Arthritis.*
2. *YOUNG, H. H. *The Rôle of the Prostate and Seminal Vesicles in General Toxemias.*
3. DUNHAM, K., AND ROCKHILL, C. S. *Therapeutic Pneumothorax as a Palliative Measure, Safeguarded by Stereoroentgenograms. A Report of Twenty Cases from the Cincinnati Tuberculosis Hospital.*
4. BOOTHBY, W. M. *Ether Percentages.*
5. *HERB, I. C. *Administration of Alkaloids Before Anesthesia.*
6. SLOAN, H. G. *Nitrous Oxid and Oxygen Anesthesia.*
7. PECK, C. H. *Intratracheal Insufflation Anesthesia (Meltzer-Auer). Report of a Series of Four Hundred and Twelve Cases.*
8. *MITCHELL, J. F. *Local Anesthesia.*
9. RICHARDS, J. H. *Vaccine Therapy for General Practitioners.*
10. WOOLSEY, W. C. *General Anesthesia in the Surgery of Childhood.*
11. POPE, C. *Hydrotherapy in Nervous Fatigue.*
12. PUCKNER, W. A. *The Quality of Drugs Sold to Dispensing Physicians.*
13. COLLINS, J. *Syphilis and the Nervous System.*
14. WILE, U. J. *The Demonstration of the Spirochaeta Pallida in the Brain Substance of Living Paretics (Forster and Tomaszewski).*
15. *OULMANN, L., AND WOLLHEIM, J. L. *The Administration of Salvarsan and Neosalvarsan by Enteroclysis. Report of Thirty-seven Injections.*
16. HEINECK, A. P. *Removal of a Foreign Body Introduced into the Uterine Cervical Canal to Prevent Conception.*

1. Billings believes that arthritis deformans is an infectious clinical entity, manifesting chronic periarthritis, synovitis, proliferation and degenerative osteo-arthritis, chronic myositis with contraction of muscles and perineuritis or neuritis. The infectious source is usually focal and located in the mouth (alveoli), faucial tonsils or antra (sinuses). Occasionally the focus may be in the prostate, seminal vesicles, female genitalia or chronic streptococcus ap-

pendicitis or cholecystitis. That an infection can occur from a chronic streptococcus incision of the intestines is a disputed question. Arthritis deformans may be differentiated from other types of chronic arthritis by the characteristic coincident involvement of articular and periarticular structures. Autogenous vaccines may aid in treatment.

2. Young calls attention to the fact that even inflammation of slight degree in the prostate or seminal vesicle may be the cause of many cases of arthritis, neuritis and obscure pains.

5. Herb makes the following statements in regard to alkaloids before anesthesia. He believes that the use of morphine, scopolamin and atropin before general anesthesia has certain advantages, but that these advantages are not sufficient to counterbalance the risks attendant on their employment. The loss of the pupillary reflex is a serious handicap, as nothing else indicates so unerringly the degree of narcosis. He believes that the danger from ether, chloroform and nitrous oxid is not diminished by the use of the alkaloids, but they rather render the anesthesia more complicated, and more skill is required in the administration. The routine use of certain fixed doses of the alkaloids before anesthesia, regardless of the patient's condition, should be discouraged.

8. Mitchell, in a very good review of the present status of local anesthesia, states that novocain has proved the safest and most efficient substitute for cocain. It should always be used in infiltrating large areas because of its much less toxic effects than cocain. Urea and quinine hydrochlorid is especially valuable in tonsil and rectal work as its anesthetic properties last for many hours. It requires, however, about twenty minutes to become active. The article is well worth reading.

15. Oulmann and Wollheim believe that the administration of salvarsan by enteroclysis is the best method to use in children. [E. H. R.]

The American Journal of the Medical Sciences.

August, 1913.

1. *Gerster, J. C. A. *Experiences with Steinmann's Nail-extension Method in Fractures of the Femur.*
2. *Hochwart, L. V. F. *The Relation of Internal Secretions to Mental Conditions.*
3. *Seelig, M. G., Tierney, J., and Rodenbaugh, F. *An Experimental Study of Sodium Bicarbonate and Other Allied Salts in Shock.*
4. *Bassler, A. *Pinching the Appendix in the Diagnosis of Chronic Appendicitis.*
5. *Musser, J. H., Jr. *The Effects of Continuous Administration of Extract of the Pituitary Gland.*
6. *Cashman, B. Z. *Tuberculin Therapy in Surgical Tuberculosis. With the Correct Dosage Accurately Determined by the Cutaneous Reaction.*
7. *Pepper, O. H. P. *The Influence on Gastric Secretion of Aseptic Foreign Bodies in the Gall Bladder.*
8. Kahn, L. M. *Congenital Bilateral Fistulae of the Lower Lip.*
9. *Pilcher, J. T. *A Contribution to the Etiology of Pernicious Anemia.*
10. *Niles, G. M. *The Rôle of Hydrotherapy in the Treatment of Pellagra.*
11. *Roberts, S. R. *The Analogies of Pellagra and the Mosquito.*
12. *Siler, J. F., and Garrison, P. E. *An Intensive Study of the Epidemiology of Pellagra.*

1. Gerster reports favorable impressions from the application of the Steinmann nail-extension method in the treatment of fractures of the femur. The method consists in fixing the extension apparatus to nails inserted into the lower fragment.

2. Hochwart's article is an interesting collection of instances within our present knowledge where psychic and emotional states seem to be dependent upon changes in activity in the organs of internal secretion, notably the testes and ovaries, the thyroid, parathyroid, thymus, pituitary, pineal and adrenal glands. The recognized influences upon temperament and mentality of puberty and of sexual involution, of hyperthyroidism and of myxedema, have probable analogies in variations of the activities of other organs.

3. Seelig, Tierney and Rodenbaugh report the results of a series of fifty experiments as to the effects of injections of solutions of sodium bicarbonate in surgical shock. In animals with reduced blood pressure produced by opening the abdomen and manipulation of the viscera a marked and well sustained rise in blood pressure was obtained, and in animals injected with the solution before the abdomen was opened there was observed an apparent immunity to the induction of shock. Analysis of the various possible factors to which these phenomena may be attributed leads the authors to the conclusion that the salt has a specific action on the heart muscle.

4. Bassler describes a new but seemingly awkward method of pressing the appendix against the iliacus muscle to detect tenderness.

5. Musser has studied the effects of extract of the pituitary gland given daily by mouth for periods from one week to ten months. In all but one case the blood pressure was increased during the period, falling to its previous level only within two weeks after the discontinuance of the drug. Diarrhea occurred in certain cases.

6. Cashman reports the results of 28 cases of surgical tuberculosis treated by "old tuberculin," the dosage being determined by the cutaneous reaction after the method of White and Van Norman. Eleven were apparently cured, 11 improved, and of the 5 unimproved some were too short a time under treatment for results to be conclusive. There was one death.

7. Pepper's experiments on dogs showed that the introduction of a sterile pebble into the gall bladder caused no change in the gastric secretion or digestion, or in the morphology of the stomach or pancreas, within a period of eleven months after its introduction.

9. Pilcher supports the theory that the prime factor in the etiology of pernicious anemia is achlorhydria, which permits the overgrowth of pathogenic bacteria, which in susceptible persons produces a toxemia or bacteremia.

10. Niles reports improvement in all of 75 pellagrins treated by hydrotherapy.

11. Roberts draws certain analogies between the local prevalence of mosquitoes and the occurrence of pellagra.

12. The reports of Siler and Garrison in this and the previous issues, while not lending themselves to abstract, contain a large fund of information as to the conditions under which cases of pellagra have developed. [F. W. P.]

The Journal of Infectious Diseases.

July, 1913.

1. *Hastings, Halpin and Beach. *Avian Tuberculosis.*
2. *Jordan and Irons. *The Quincy (Ill.) Typhoid Epidemic.*
3. Craig. *The Identity of Entameba Histolytica and Entameba Tetragena, with Observations upon the Morphology and Life Cycle of Entameba Histolytica.*

4. GOOD AND CORBETT. *Investigations of the Etiology of Infectious Abortion of Mares and Jennets in Kentucky.*
5. HARTMAN. *Serum Studies in Pneumonia. The Antigenic Properties of Fibrin (Exudate) to Serum.*
6. TERRY. *A New Precision Syringe for the Accurate Injection of Small Quantities; a Holder for Such Syringes and for Other Purposes.*
7. WHITMAN. *A Contribution to the Botany of the Organism of Blastomycosis.*
8. KOLMER AND WILLIAMS. *Concerning Natural Hemolysins in Rabbit Serum.*
9. WHITE AND AVERY. *Some Immunity Reactions of Edestin. The Biological Reactions of the Vegetable Proteins.*
10. *WARDEN. *The Rôle of Staphylococcus in Gonorrhea. Studies on the Gonococcus.*
11. MALTANER. *Nitrite Destruction as a Presumptive Test for the Determination of Water Pollution.*
12. WHERRY. *Some Clinical Conditions Influencing Acid-Proofness and Non-Acid-Proofness in a Saprophytic Culture of B. Tuberculosis.*
13. HARRIS. *Further Studies on the Effects of Desiccation of the Virus of Rabies, and the Use of This Material in Immunization.*
14. *MOORE. *The Effect of Quinine on Rabies in Dogs.*

1. Avian tuberculosis is a widespread disease in the United States. That it is a disease of the abdominal cavity is shown by the presence of lesions in the liver in 97% of cases, in the spleen in 93%, and in the intestines in 60%. The disease is transmitted from flock to flock by the birds, and possibly by their eggs.

2. An epidemiological study of the Quincy (Ill.) typhoid epidemic discloses that the disease arose from the polluted waters of the Mississippi River, which was subjected to improper filtration. The bleaching powder added to the water at the time of the height of the epidemic was insufficient to kill contaminating organisms. The increase in the amount of powder, subsequently made, checked the spread of the disease almost immediately.

10. Warden states the surprising fact that many, if not all, of the gram negative intracellular biscuit shaped cocci observed in the purulent discharge in acute gonorrhea are not gonococci, but are in reality the staphylococcus urethrae. True gonococci are demonstrated with difficulty in such preparations. As a result he claims that the diagnosis of gonorrhea rests upon cultural methods rather than on microscopic examination. The staphylococcus urethrae when in cellular tissue or in pus is gram negative, and becomes gram positive when cultivated in vitro. Warden has isolated this organism from 52 cases of gonorrhea and from 20 "normal" urethrae. A detailed account of the morphology, cultural characteristics and biological reactions of the two organisms follows.

14. In a series of three dogs Moore was able to influence by large doses of quinine the physical condition of dogs which had already shown pronounced symptoms of rabies. The disease was artificially produced by cerebral injection of active virus. All the control animals died with characteristic symptoms, while of the treated animals two are still alive, and the third died two and a half months after apparent recovery from some obscure disease. Quinine bisulphate was administered by mouth in doses of 1.0 to 1.6 grams for a 6 to 7 hilogram animal. It is suggested that this may offer hope for the treatment of the disease in man. Its use will do no harm, since it is well known that the present treatment of the disease is of no value after the appearance of symptoms. [L. H. S.]

Miscellany.

RECENT DEATHS.

DR. RICHARD VAN SANTVOORD, a prominent physician of New York, died on September 10, at the Presbyterian Hospital in that city. He was 60 years of age, and was graduated from Bellevue Hospital Medical College in 1875. Dr. Van Santvoord had been for many years a visiting physician to the Harlem Hospital, and formerly he was a member of the New York State Commission in Lunacy.

DR. ROBERT EMORY MOORE of Brooklyn, N. Y., died at Saranac Lake on September 15, at the age of 34 years. He was graduated from Johns Hopkins University in 1906, and at the time of his death was assistant surgeon to the Kings County and Bradford Street Hospitals.

DR. NATHAN JACOBSON of Syracuse, one of the best known surgeons in Central New York, died suddenly from cardiac disease on September 16. He was 56 years old and was graduated from the College of Medicine, Syracuse University, in 1877. Dr. Jacobson was a member of the American Surgical Society, surgeon to St. Joseph's Hospital, and consulting surgeon to the Hospital for Women and Children, Syracuse.

CHANGES IN THE MEDICAL CORPS, U. S. NAVY, FOR THE WEEK ENDING SEPT. 13, 1913.

September 5, P. A. Surgeon G. S. Hathaway, from Naval Hospital, Boston, Mass., to Naval Hospital, Newport, R. I.

P. A. Surgeon W. H. Connor, from Naval Hospital, Newport, R. I., to Naval Hospital, Boston, Mass.

Asst. Surgeon C. P. Lynch, from Naval Hospital, Las Animas, to Naval Recruiting Station, St. Louis, Mo.

September, 6, Surgeon R. E. Hoyt, from *Massachusetts* to *Michigan*.

Surgeon C. G. Smith, from *Michigan* to home; wait orders.

P. A. Surgeon W. N. McDonell, from Navy Rifle Team to Washington Hospital for treatment.

P. A. Surgeon L. W. McGuire, from Puget Sound Hospital to temporary duty at Washington, D. C.

Asst. Surgeon I. W. Robbins, from San Francisco Training Station, to Navy Yard, Puget Sound.

September 9, P. A. Surgeon I. F. Cohn, to Receiving Ship, Navy Yard, Puget Sound, Washington.

P. A. Surgeon G. B. Whitmore from Receiving Ship, Navy Yard, Puget Sound, to Naval Hospital, Puget Sound.

September 10, P. A. Surgeon J. J. McMullin, from *North Dakota* to home.

P. A. Surgeon F. X. Koltes, from *New Jersey* to *North Dakota*.

BOOKS AND PAMPHLETS RECEIVED.

A Clinical Manual of Mental Diseases by Francis X. Dercum, M.D. W. B. Saunders & Co.

Acute Abdominal Diseases by Joseph E. Adams and Maurice A. Cassidy. William Wood & Co., 1913.

MASSACHUSETTS MEDICO-LEGAL SOCIETY.

The fall meeting will be held in the pathological amphitheatre of the Boston City Hospital on Wednesday, Oct. 1, 1913, at 2.30 o'clock. The following paper will be read and discussed: Suggestions in Making Autopsies in Cases of Suspected Poisons, William F. Whitney, M.D., of Harvard Medical School.

Inspection of the building.

Autopsy demonstration, Prof. Timothy Leary, medical examiner, of Boston.

OLIVER H. HOWE, M.D., *Recording Secretary*

Original Articles.

INDICATIONS FOR AND RELATIVE VALUES OF TONSILLOTOMY AND TONSILLECTOMY.*

BY J. L. GOODALE, M.D., BOSTON.

The subject of our conference seems for a variety of reasons opportunely chosen. In the first place, our conception of the relation of the tonsils to the rest of the system has within recent years become expanded from one chiefly of a hypothetical function and of local pathology to one including also important problems of general infection. Coincident upon a recognition of its importance in this respect, there has necessarily followed a change in our former ideas with reference to its removal, and the frequent failure of tonsillotomy to accomplish the results desired has led naturally to the operation of tonsillectomy. The sudden illumination afforded by this procedure in many previously dark corners of etiology has attracted a rush of wanderers seeking the right path, and in the impetuosity of the search, there seem to have occurred not a few instances of aberration beyond the rays of light into new regions of obscurity. Whether such aberrations are more frequent in America than elsewhere I cannot say, but that they exist on both sides of the Atlantic is only too evident from the warnings of many observers, as well as from the personal experience of most of us. Thomson, Makuen, J. H. Pearson, W. S. Syme, C. W. Richardson, J. N. Mackenzie and Milligan, among others, have shown the functional ill effects, dangers and anatomic distortion from improperly performed operations of tonsillectomy. When, however, we consider that this operation occupies at times a highly important position, and also that it may be done without essential danger or anatomical injury, it certainly behooves us to determine when and how it may be best performed.

A comparison of the relative advantages of tonsillotomy and tonsillectomy involves logically first the determination of the question whether the complete excision of the tonsil is likely to prove in any way a loss to the system. I shall not attempt here to discuss this subject, but I will simply enumerate some of the reasons justifying the assumption that the system may dispense with this organ without essential detriment.

First, if we believe that the tonsils furnish something of value to the body, we should logically admit also the existence of a similar function in the other histologically identical aggregations of lymphoid tissue in Waldeyer's ring. Consequently on theoretical grounds at least, the removal of the tonsils during their period of activity should, if necessary, be followed by a compensatory increase of function, whether or not demonstrable clinically, in the neighboring lymphoid structure.

Furthermore, in adult life retrograde metamorphosis of the tonsil frequently proceeds to such an extent that but few traces of lymphoid tissue may be detected, the greater portion of the organ being represented by fibrous tissue. A progressive atrophy of the lymphoid tissue is manifestly taking place, and a mechanical removal of the organ will only anticipate the process of nature.

Finally, in the last few years the tonsils have been excised both in children and in adults by the majority of laryngologists without, so far as reported, the establishment of any ill-effect upon the system from the extirpation itself. The question of influence upon the voice is here expressly excluded and will be considered later. While we should deprecate the unnecessary excision of this as of any other organ, yet it seems to me that until definite evidence is forthcoming from experienced observers that they have observed harmful effects to follow their tonsil enucleations, we may in the future continue to perform the operation of tonsillectomy, if otherwise indicated, without fear of systemic injury.

If we admit the possibility that the complete removal of the tonsils does not in itself constitute an irreparable loss to the system, and if we acknowledge that a tonsillotomy often fails to accomplish the result desired, we may ask why tonsillectomy is not always the operation of choice. I shall endeavor to present the indications for and relative advantages of the two operations by a study of the question first from the surgical or technical point of view and second from the standpoint of ultimate advantage accruing to the patient.

The surgical aspect of the questions involved comprehends the following chief points:—

(*a*) Trauma.
(*b*) Septic complications.
(*c*) Hemorrhage.
(*d*) Alteration of the anatomical relationship of the parts involved.

(*a*). With reference to the relative amount of trauma and subsequent inflammatory reaction resulting from the operations under consideration, so many methods are in use by different operators that attempts at comparison would involve us in hopeless confusion if we did not first reach some sort of agreement as to what constitutes an ideal operation. Without attempting to cover the many ingenious methods devised by our colleagues, I shall endeavor to define what appears to me the preferable methods of procedure.

With reference first to tonsillotomy, the ideal operation removes as much of the tonsil tissue as possible without injury to the pillars, and leaves an area of lymphoid tissue to be covered in by granulations. This procedure is accomplished most typically by the various amygdaltomes, of

* Read before the Section on Laryngology at the Seventeenth International Medical Congress in London, August 9, 1913.

which the knife moving in one plane leaves a flat, more or less circular wound, represented by lymphoid tissue, attached to the capsule of the organ. Consequently the area of trauma and liability to subsequent deformity is reduced to a minimum. Unfortunately in the case of imbedded tonsils, these instruments are of little use, and the operator is obliged to employ punches to pass between the pillars, and reach the lymphoid tissue. Although such instruments should not increase the risk of deformity, yet since the area of a hemisphere is greater than that of a circle, the region of trauma is unavoidably extended, with consequent increase of post-operative inflammation.

Tonsillectomy may be done in a variety of ways, distinguished by the manner in which the capsule is separated from its surroundings. We may divide the methods for operation into two classes, namely, those in which the excision is performed chiefly by the use of relatively blunt instruments, and those in which the excision or the greater portion of it is accomplished by sharp knives or scissors. Experience has shown that the amount of inflammatory reaction subsequent to the operation depends to a great extent upon the character of the surface left. In general, the reaction is proportionate to the extent of necrosis supervening in the wound, particularly in the muscular tissues.

Since the necrosis is increased by overstretching and crushing of the parts, the manner of handling the instruments is of primary importance, and two operators with the same general technic may achieve entirely different results so far as the subsequent discomfort of the patient is concerned. Where the finger is used to aid dissection the type of digit possessed by one operator may be as different from that of another individual as a tenotomy knife is from a periosteal elevator. For many surgeons, myself among the number, the finger operation exposes the patients to unnecessary trauma. While it is true that the use of a sharp instrument is less likely to be followed by reaction than a dull one, yet on the other hand, the cutting of vessels by a sharp knife is more likely to be followed by troublesome hemorrhage than if these are broken, twisted or cut with a dull instrument. I have, therefore, taken as the ideal tonsillectomy those methods by which the tonsil is dissected from the pillars and from the surrounding tissues by such instruments as will produce a minimum of trauma down to the point where the tonsillar artery enters, this spot being then cut through by the aid of a dull instrument such as a snare. It is, of course, assumed that the vessels in the pillars, so frequently the source of troublesome hemorrhage, are left intact.

The question of technic is so important in endeavoring to reach a conclusion regarding the comparative advantages of the two operations that statistics derived from published records are of little value, unless each reporter describes in detail the method which he employs. For this reason I shall describe the method which after trying most of them in use, I have found to give the best results. After a hypodermic injection of morphine and atropine, proportionate to the patient's age, ether introduced by nitrous oxide is administered to a point immediately beyond the abolition of reflex action when the throat is touched. It is important not to exceed this degree of anesthesia to any marked extent, as we wish the patient's control over coughing and swallowing to be within prompt reach when operative bleeding begins. When the proper stage of anesthesia is reached, the gag is introduced on the right side by a good illumination from a headlight, the patient being in a sitting position, and the left cheek drawn outward to the left by the etherizer. The prepared snare is passed over the tonsil forceps and allowed to hang free, while the forceps seize the right tonsil and draw it slightly out of its bed. A small sharp tenotomy knife performs the dissection from above downward, the cutting edge being used at first, and often later, as occasion requires, the back of the point, in order to avoid cutting the pillars or the lymphoid tissue itself.

The dissection proceeds rapidly down to the point where the tonsillar artery enters, when the tonsil is lifted upwards, and a horizontal cut is made, delimiting the organ from the lingual lymphoid tissue. The snare, which in the meantime has been hanging free, has now only to be slowly closed to cover the region of the artery and the tonsil comes away in the forceps. The procedure is then repeated for the other side. The size and shape of the knife blade is of the first importance, only a small one, which can be easily turned in the hand and made to cut as described, front or back meeting the requirements. The hypodermic injection of morphine and atropine serves the purpose of keeping the field of operation dry, and diminishing subsequent pain. The headlight permits accurate manipulation of the knife, and renders one independent of the varying conditions of daylight and of the presence of spectators. My reason for giving ether in preference to local anesthesia has been chiefly the comfort of the patient, and also the apparently diminished tendency to post-operative bleeding. In several thousand cases at the Massachusetts General Hospital, at the Boston Children's Hospital, and in private practice, I have seen only one case of bronchopneumonia during the past eighteen years, following tonsil operations under ether, in the upright position. This case was a mild one in a child, and could be explained on other grounds than inhalation.

(*b*) An examination of the literature shows a greater frequency of septic complications following tonsillectomy than had been previously recorded for tonsillotomy. In 1912 the following complications were gathered by C. W. Richardson in a review of the literature:—

Hyperpyrexia with fatal termination and infarct of the lung appear to be rare. Mild general sepsis is, on the other hand, frequent. Severe sepsis seems uncommon so far as the number of reported cases indicates. Emphysema of the neighboring tissues was found in two cases. Infection of the lungs and serous membranes is not uncommon. Torticollis attributed to sepsis has been noted in three cases.

In the consideration of the relation of sepsis to tonsil operations, the important question arises first whether the increased frequency of late years is attributable to changed methods of operating or to the fact that we are now removing tonsils more often than before for conditions which in themselves favor the occurrence of systemic infection. For many operators it is true that a far greater amount of trauma and inflammatory reaction follows their present operations of tonsillectomy than occurred after their earlier tonsillotomies. It must also not be forgotten that we are to a much less extent than formerly concerned chiefly with the removal of simple hyperplasia. We are now asked to operate upon tonsils which are themselves foci of infection, and which in the earlier days would not have been treated surgically. So far as the literature is concerned it is manifestly extremely difficult to determine from a description of the method employed precisely how much trauma is occasioned by a given operator, and yet the importance of this point cannot be too highly estimated. In no other region of the body do we find such an association of conditions favoring sepsis, namely, a surface bathed in a fluid open to the reception of every chance pathogenic micro-organism and a surface, moreover, which cannot be put to rest after the operation. While it may be unjust to read into the published accounts of septic complications an unnecessary amount of operative trauma, yet my own observations regarding the inflammatory reactions occasioned by student operators at the Massachusetts General Hospital lead me to believe that an improvement may be possible in the methods of their elder brethren.

So far as the second point is concerned, the removal of tonsils which are in themselves essentially septic has in my experience been followed by greater inflammatory reaction than occurs in cases of simple hyperplasia. This reaction seems often unavoidable, and for these cases, therefore, I have thought it especially necessary to operate with care, to avoid stretching of the parts, and to leave the wounded surface as clean and smooth as possible.

It may here be in place to record that I have yet to see after a tonsil operation an instance of septic complication involving the ears or other parts of the system, beyond one doubtful case of broncho-pneumonia and two of exacerbation of previously existing infectious endocarditis. How much this good fortune is attributable to chance and how much to the use of sharp instruments for dissection is impossible to say, but I cannot help believing that the latter has been a considerable factor in the result.

(*c*). With reference to postoperative hemorrhage it appears that local causes are most frequently from the tonsillar artery or from vessels in the pillars if these are wounded. The statistics of operators differ widely in this regard, some reporting that they have never had a hemorrhage, while with others hemorrhage has been so frequent that sewing of the pillars together is practised as a precautionary measure. In my own experience of twelve years tonsillotomy work with the guillotine punch and snare, I can remember only two cases of postoperative bleeding that required treatment of any kind, while in the last six years where tonsillectomy has been the rule, I have seen at least ten instances of troublesome hemorrhage in which it has seemed best to suture the pillars. In these cases the bleeding has come from the tonsillar artery so far as could be determined. I have not seen hemorrhage from the vessels in the pillars so frequently mentioned. When the bleeding once begins a clot is apt to form in the recess left by removal of the tonsil, which keeps the vessels from undergoing retraction. I have on three occasions found the bleeding to stop promptly after removal of the clot without additional treatment.

With our present methods of suturing the pillars, and with the pliable hemostatic clips, recently introduced, I believe that ample provision is available for the slightly increased risk of hemorrhage following tonsillectomy, so that so far as this possibility is concerned, we may feel entirely free to choose whichever operation is indicated by the other circumstances of the case in question.

(*d*). With reference to the conservation of the anatomical relationships of the parts involved, tonsillotomy by its nature should produce no gross deformities, and yet it is frequently the cause of a serious result, namely, the narrowing or occlusion of the lacunar orifices which are left in the stump of the tonsil. In a certain percentage of cases, I have found that my patients upon whom tonsillotomy had been performed, reported after a lapse of one to several years with symptoms denoting chronic absorption of decomposing material in the crypts. Examination showed that the orifice of one or more crypts had been occluded, evidently by cicatricial contraction after the operation, with the resulting accumulation of detritus in the cavity.

The operation of tonsillectomy has been reproached for the extent of deformity which frequently supervenes. The removal of the tonsil and its capsule involves a larger area of wounding than does tonsillotomy, and in numerous instances the adhesions between the tonsils and its surroundings are so firm as to render a separation extremely difficult. Consequently the pillars may be cut or torn away, or they may become fused, or a stellate cicatrix may occur with

resulting puckering and retraction of the parts. Such alterations of structure may have harmful consequences for voice production. Even if no such ill effects are noted, still the anatomical distortion produces a feeling of dissatisfaction, at least to the examiner. Such reproaches have certainly been justified in the past by the results which have been frequently seen. It is not, however, necessary that any deformity should occur. Among our best operators I do not find it, and I think you will agree with me that what some laryngologists can do we should all be able to do, or else we should withhold our hand from the operation of tonsillectomy.

In passing now to the consideration of the ultimate advantage accruing to the patient from the adoption of one or the other of the two procedures, a clarification of our ideas will be favored by bearing always in mind the precise object which we seek to attain.

In the first place, we shall undoubtedly agree that no operation shall be undertaken unless we can reasonably expect an improvement in a present undesirable condition or a restriction of harmful future occurrences.

I use here intentionally the words "undesirable" and "harmful" rather than "abnormal," because I believe that much unnecessary surgery of the tonsil owes its origin to an exaggerated conception of the importance of correcting pathological and yet not necessarily injurious alterations. To an especial degree the lymphoid tissue of the fauces undergoes changes in response to influences from within and without, and imposes upon us the task of distinguishing between such as do not conflict with the welfare of the patient, and those which are to a greater or less extent detrimental.

Let us consider what alterations of the tonsils require surgical intervention. With the omission of neoplasms, for our present purpose these alterations may be comprised under the headings of harmful enlargement, chronic inflammation and tendency to bacterial infection. These conditions may exist singly or in association.

First, what constitutes harmful enlargement? Here we have been especially prone to error, and there are few of us, I imagine, who have not, at some time, deposited upon the operating table tonsils of impressive size, which *in situ* have offended our sense of proportion, and if asked how the patient will be helped by the operation, we should have found it difficult to define precisely the manner of benefit.

The disturbances arising from simple hyperplasia are chiefly mechanical in nature, such as faulty articulation and tubal closure. Nevertheless, patients are continually seen with marked tonsillar enlargement who show none of these symptoms or any others referable to the tonsils, and who are, furthermore, in vigorous bodily health. Such cases lead to the conclusion that tonsillar enlargement in itself is not necessarily injurious to the individual. If, however, the hypertrophy is associated with mechanical obstruction, we have first to inquire whether it is likely to be persistent or whether it will diminish within so short a space of time that we can wisely wait for this subsidence to occur.

A study of the natural process of development and retrograde metamorphosis of the faucial tonsils is here of the first importance. If we indicate upon a chart these changes, we shall find in the majority of individuals a line resembling the temperature curve of a fever, characterized by sudden onset and gradual lysis. From birth until about the age of six, a rapid increase occurs in the number and size of the lymphoid units, which remain essentially unchanged until puberty, when a diminution supervenes, leading to a progressive shrinking of the organ as old age is approached. During this whole period the lymphoid tissue experiences increase in size in response to various stimulations. Such stimulations may be physiological, as in the enlargement of the tonsils, accompanying the four periods of molar eruption, namely at two, six, twelve and seventeen years of age, or pathological and dependent upon the toxines of acute and chronic infections. In certain instances, for reasons that are not yet clear to us, the tonsils fail to undergo their normal process of involution and remain enlarged into middle and old age. In the examination of the tonsils we have, therefore, first to distinguish between those hypertrophies which are likely to be transitory, and those in which no material change can be expected. We may in the case of children reasonably look for a diminution in the size of the hypertrophied tonsil, the more so if the examination is conducted at a time when dentition is active. Furthermore, both in children and in adults, if the examination is made during or immediately subsequent to the occurrence of an acute infectious disease, much of the enlargement may be assigned to the temporary stimulation of the lymphoid tissue by the toxic influence of the affection. We must, therefore, discount, as occasion requires, the actual enlargement present, and ask ourselves how much of it is due to a transitory increase in the lymphoid units.

In such conditions of uncomplicated simple hyperplasia, the problem is purely a mechanical one, and involves only the removal of a sufficient amount of surplus lymphoid tissue to free the fauces from the existing obstruction. A tonsillotomy is, therefore, theoretically adequate and is in practice usually sufficient. In early life, however, the influences which stimulate lymphoid proliferation may be so active as to effect a considerable subsequent enlargement of the organ, requiring eventually a second operation.

While, in simple hyperplasia, I do not believe that it is essential to excise all of the organ, nevertheless, if, however, it is the experience of a given operator that his method of enucleation produces a negligible increase of trauma, pain and risk over a partial removal, it seems to me

that he may be justified in employing tonsillectomy, even in such cases. In my own experience, it is these very cases of simple obstructive enlargement which show the least difference between the two operations as regards trauma and risk, if the tonsillectomy is done by sharp dissection, with subsequent snaring of the large vessels. I am consequently led more and more to adopt tonsillectomy in all cases where I believe an operation to be indicated, but I should be loath to recommend this practice to all operators, and for those whose manipulation is clumsy or whose technic faulty, I should feel that a tonsillotomy should be here the method of choice, so far as it was in any way permitted by the circumstances of the case.

We come now to a consideration of the second cause for removal, namely chronic inflammation with retention of lacunar detritus.

At the meeting of the British Medical Association in 1903, the discussion upon this subject in our section showed that we had in the past sinned from errors of operative omission even more than in conditions of simple hyperplasia from errors of commission. The difficulty of recognizing chronic sepsis is frequently considerable, as where concealed collections of detritus exist in tonsils of normal outward appearance. This class of cases calls always for treatment or for surgical intervention.

In these conditions a partial removal is most frequently inadequate. To be sure, a marked improvement may be expected, inasmuch as under favorable circumstances the long, more or less tortuous crypts, become shallower, and with consequently a smaller epithelial surface, so that they may be theoretically considered to exhibit less surface for infection and greater ease of cleansing during swallowing. Nevertheless, a tonsillotomy is here especially apt to be followed by the cicatricial narrowing of the lacunar orifices already referred to, leading at times even to a greater accumulation of detritus than originally existed. While a tonsillotomy is, therefore, usually inadvisable in these cases of lacunar retention, it must not, on the other hand, be assumed that a tonsillectomy is our only alternative. Many tonsils occur of essentially normal size with one or two occluded crypts, which can be readily opened by scissors or a right-angled knife, so as to establish free drainage. If such a tonsil is in other respects harmless and not abnormally subject to bacterial infection, a tonsillectomy would appear unnecessary. On the other hand, if the crypts are tortuous and contain much debris, especially if the tonsil is at the same time enlarged, incisions into the crypts are generally a waste of time, and it is better to proceed at once to tonsillectomy.

Our third cause for tonsil operations is found in a tendency of the organ to bacterial infections. Such infections may be acute, as in the pyogenic inflammations, or chronic, as in tuberculosis of the organ.

In the case of acute infections we have first to distinguish between occasional ones arising in virtue of a specially virulent type of microorganism and those infections which show a predisposition to recurrence, dependent upon local or systemic weakness on the part of the host.

Of these the first class is represented most typically by infections due to virulent strains of streptococci and the bacillus of diphtheria. These may involve both the tonsils, whether or not previously diseased, and the follicles of the adjacent mucous membrane.

In a recent extensive epidemic in Boston of septic sore throat from milk infection with numerous fatalities, I had opportunity of observing in patients from whom the tonsils had been previously enucleated, primary involvement of the pharyngeal follicles, followed by severe general sepsis, and in one case by death. This epidemic involved individuals, irrespective of age and bodily vigor.

Such cases do not, therefore, enter into our discussion of operative procedure.

In the second class of acute infections, namely those showing tendency to recurrence, we distinguish:

1. A primary vulnerability or diseased condition of the tonsils most frequently represented by chronic lacunar tonsillitis, favoring either local acute inflammation, as acute proliferative tonsillitis, intrafollicular and circumtonsillar abscess, or permitting the entrance of the infecting agent into the general system, and producing a variety of disturbances such as endocarditis, nephritis and arthritis. These types of tonsils call always for complete excision when possible. We have here to consider a highly important point which merits full discussion, namely in conditions of recurrent acute inflammations of other regions, such as the endocardium, the kidneys or the joints, characterized by symptoms pointing to the tonsils as the probable infection atrium, how shall we determine when the safe and most favorable moment has arrived to perform the tonsillectomy? With reference to acute articular rheumatism and to the more or less chronic forms of infectious arthritis, I have in many cases removed the tonsils within a few days after subsidence of the acute joint manifestations without in any instance observing either local or remote ill effects. The recommendation was even made at the Sixteenth International Medical Congress to remove the tonsils for acute articular rheumatism during the attack. While the expediency of this advice may on theoretical grounds be questioned, we may at least assume that no long delay is necessary.

In the few cases of recurrent acute nephritis with supposedly tonsillar origin, which I have seen, the tonsils were removed several weeks after the urine had become essentially normal without exciting renal irritation.

In recurrent infectious endocarditis, where the tonsils have been excised soon after the subsidence of acute cardiac symptoms, I have twice

seen a lighting up of the process, causing considerable anxiety.

I believe in this latter class of cases great care should be exercised not to operate until a competent internist has pronounced both the cardiac and the general condition sufficiently satisfactory.

The question of operating if elevation of the temperature exists cannot be answered by establishing a fixed rule. In many instances of recurrent general infection the temperature is maintained as the result of absorption of toxine from the tonsil, such as occurs in some forms of chronic tonsillitis, with rentention of lacunar detritus and in tuberculosis of the organ. Such conditions require removal, but if the temperature cannot be thus explained, it is preferable not to operate until a reasonable time after it has completely subsided.

2. A primary vulnerability on the part of the system to the various acute catarrhal infections. Here a tonsillectomy is usually indicated if the tonsil shows pre-existing chronic inflammation. We are, however, frequently asked to operate upon tonsils for the purpose of preventing sore throats in the individual, and if we fail to remember that the tonsils form but a part of a penetrable lymphoid ring we may be involved in the subsequent disappointment when in spite of a careful tonsillectomy, the sore throats nevertheless continue to appear. Especially in children with enlarged pharyngeal follicles and in adults with lateral pharyngeal hypertrophy severe types of sore throat occur, even after the most careful excision of the tonsils.

In both these classes a tonsillotomy may be helpful, but it is in general inadvisable. We have probably all seen patients in whom a tonsillotomy has been done, who after the operation have been more subject to tonsillitis, and even circumtonsillar abscess, than before, in whom an investigation has shown contraction of the lacunae with retention of detritus. In persons of rheumatic tendencies, particularly, such subsequent tonsillitis is prone to occur, even when hardly more than a trace of tonsil tissue is left.

It is, therefore, evident that acute infections of the fauces depend upon the various factors of the individual's resistance to infection, the presence of penetrable pharyngeal lymph follicles and virulence of the micro-organism, as well as upon the capacity of the tonsils themselves for admitting infection.

Of the chronic infections of the tonsils, primary tuberculosis is chiefly conspicuous as requiring surgical treatment. This condition is usually accompanied by a similar invasion of the cervical lymph nodes, and not infrequently involvement of the adenoid. Here a thorough excision of the tonsils and adenoid should be performed previous to any operation upon the lymph nodes of the neck, in order to close as far as possible this portal of entry.

Tonsillectomy has been advised in primary syphilis of the organ and in persistent Vincent's angina, but of its advantage in these conditions I have no personal experience.

The question frequently arises in the case of children with adenoid hypertrophy requiring removal whether the tonsils shall also be excised, even if not demonstrably causing disturbance. We may be influenced to take this course for several reasons. For instance, if the tonsils are left and become later the source of trouble, we may incur criticism from the parents for not having removed them at the time of the adenoid operation. This point is worthy of full discussion, but I shall content myself with a statement of what has seemed to me the wisest course to pursue under such circumstances. I believe that it is usually best to leave the tonsils if not demonstrably injurious, where simple obstructive hyperplasia of the adenoid exists. In infants and young children the lymphoid tissue of the throat has not yet reached its maximum stage of development, and a later operation upon the adenoid may be necessary, at which time the tonsils will probably have declared their character and can be removed if found to be injurious. It is important to explain these facts fully to the parents, who should be instructed to bring the child regularly for examination at least once a year, for as long a period as may be necessary.

However in children above three or four years of age, where an adenoid operation is contemplated chiefly for the sake of recurrent inflammation involving the middle ears, I believe that it may be wise to remove also the tonsils, even if they are not definitely abnormal. Here we may assume the existence of systemic predisposition to pyogenic infection, or the ready penetrability on the part of the lymphoid tissue of the fauces. Hence the removal of the tonsils with the adenoid may aid materially in accomplishing the object desired, namely, the prevention of future attacks of acute otitis media. The infecting organisms may, of course, continue to find entrance through the follicles of the pharynx, but to a less extent, so far as my experience enables me to judge.

In considering the relative influence upon the voice of a partial and of a complete removal of the tonsils, we have in the first place to consider the part played by the soft palate and by the normal tonsils in phonation. As Makuen has shown, the soft palate has two important functions in voice production, one being a valvular function influencing vocal resonance, the other a power of tilting the thyroid cartilage and stretching the vocal cords, thus modifying the quality and pitch of the voice. The normal tonsil keeps the pillars apart and may theoretically be assumed to improve the vocal resonance. Under conditions of tonsillar hyperplasia the valvular action of the soft palate is impeded, while the quality and pitch are impaired. The muscles surrounding the hypertrophied tonsil are crowded out of their normal position and therefore they lack precision of action, and the

resonance of the voice is impaired in proportion to the size of the tonsillar mass and its interference with the valvular action of the palate.

The muscles forming the pillars of the palate, instead of being quite straight in their vertical planes of action, are bowed, the one anteriorly and the other posteriorly, to a degree corresponding to the size of the tonsil, and even moderately large tonsils sometimes so displace these muscles and limit their action as to keep the soft palate from rising, thus entirely preventing the performance of its valvular function during phonation, and as a result there remains an open channel from the oral cavity into the nostrils, giving undue nasality to the voice. Not only so, but the pressure upon these depressor muscles of the palate, and their resultant sluggish action serve to put all the muscles of the palate in a more or less paretic condition, and we have the so-called relaxed palate, the result of which is always more or less evident in the strongly muffled character of the voice, and in its limited range of pitch, for owing to the laryngeal functions of the palato-pharyngii muscles, the quality and pitch of the voice cannot be controlled with any degree of accuracy when the soft palate is relaxed'' (Makuen).

Chronic inflammatory conditions of the tonsil may have an unfavorable influence upon the voice, both on account of the adhesions which usually coexist in the vicinity and also in virtue of the tendency to catarrhal pharyngitis and laryngitis.

While we should not expect to find a voice of extremely fine quality in an individual who has either obstructive hyperplasia or chronic inflammation of the tonsils, we must for practical purposes distinguish between the ordinary individual whose voice is used solely for speaking, and the singer. Since in the former class of cases comparatively extensive departures from the normal may exist in the tonsils without sufficient influence upon the voice to annoy its possessor, it is not often for this reason alone that we are called upon to operate. Our indications for removal here should follow the lines already discussed. I have myself not observed any ill effect upon the speaking voice from a carefully performed operation, either of tonsillotomy or tonsillectomy. On the contrary, where obstructive hyperplasia or chronic inflammation has existed an improvement has followed, either in the previously existing faulty resonance or tendency to catarrhal disturbances. In the case of tonsillectomy, considerable post-operative deformity may exist without appreciable influence upon the speaking voice. Particularly, fusion of the pillars seems to have little effect, provided there is no shortening or puckering from cicatrical contraction. Palatal changes, however, characterized by loss of muscular tissue or by restriction of mobility are likely to have unfavorable results. It is not alone the graver sorts of deformity that should receive our condemnation, but as Makuen well says, ''In this age of radical operations upon the tonsils by finger and other blunt dissection there is grave danger of using greater force than these delicate structures will bear, and of thus stretching them to the breaking point.''

In the case of singers a distinction is to be made between beginners, whose voices are in process of training, and those whose voices have already attained a definite degree of development. In the first instance harmful alterations of the tonsils are likely to hinder the vocal apparatus from attaining its possible limits of perfection. The principles of procedure previously discussed may here be followed in general by skilful operators with, however, the recommendation in the case of especially promising voices to exercise all possible patience in carrying out other available measures before proceeding to operation. This advice is particularly urgent for soprano voices, where a slight change in the movement of the palatal muscles may unexpectedly lower the whole range without a commensurate improvement in quality. I have, to be sure, seen a student, with a fairly good mezzo voice, who, after a tonsillotomy done on account of chronic tonsillitis, develop suddenly a contralto of fine quality, but such good fortune cannot be predicted. Furthermore, I should prefer a tonsillotomy, if the conditions permitted, to a tonsillectomy with its greater risk of palatal alteration.

In the case of experienced singers, the above remarks apply with even greater force. In the first place, where the voice is truly a great one, pathological changes in the tonsils if they exist, are probably not harmful or the voice would not have become great. Only in the rare event of tonsillar changes threatening the general health so seriously as to jeopardize in this way the voice, should any operation be performed, an association of circumstances certainly rare.

Extremely common, on the other hand, is the problem of determining whether the tonsils should be removed in the case of singers who have undergone several years' training and whose voices leave something to be desired. Here we ask, Is the unsatisfactory quality due to the tonsils or does it exist independently of them? The general attitude of teachers on the question of tonsil operations has probably been justified by their experience in the past, when tonsillotomy was the usual procedure, and it has not been shown that enucleation has had a more beneficial influence upon the voice. Many of these singers are predestined to attain only mediocrity and are constantly seeking our help to remedy vocal imperfections which are actually inherent in a faulty development or training of the vocal apparatus. The risk of causing disappointment, or even of making matters worse, should consequently render the laryngologist extremely conservative in resorting to operative measures in such cases.

While recommending this attitude of caution, I do not wish to be understood as advocating

always a policy of non-interference. I should not hesitate to do a tonsillectomy in singers where obstinate laryngitis is attributable to chronic inflammation of the tonsils, but I should insist that the patient understand and assume the possible risk involved.

CONCLUSIONS.

1. It has not been demonstrated that complete removal of the tonsils is followed by harmful effect upon the general system.
2. Tonsillotomy involves usually less trauma than does tonsillectomy, but in the latter the method of removal is of primary importance, a sharp dissection down to the tonsillar artery, with snaring of the vessels giving the least amount of inflammatory reaction.
3. Of the two operations, tonsillectomy shows a larger percentage of septic complications, due both to the greater trauma usually occasioned, and also the relatively larger number of septic conditions where of late years an operation is undertaken.
4. The relative frequency of post-operative hemorrhage is not definitely established, but in view of the available methods of treatment it is no longer a serious complication if dependent upon local causes.
5. While gross deformities of the parts involved are not likely to follow tonsillotomy, yet cicatricial occlusion of the lacunar orifices is frequent, and may lead to an intensification of the original chronic inflammation. Tonsillectomy in unskilled hands may be followed by marked and injurious distortion, but with good technic should have no other alteration than an approximation and occasionally a partial fusion of the pillars.
6. The indications for operation should be determined by the pathological changes of the tonsils, which are actually a detriment to the individual.
7. Simple hyperplasia, if obstructive or favoring catarrhal conditions, and if persistent, may be sufficiently treated by a tonsillotomy, especially in children.
8. The systemic ill effects of chronic tonsillitis may be increased by a tonsillotomy. Complete removal is here preferable to a partial one, although mild cases of chronic inflammation may be sufficiently relieved by appropriate treatment without excision.
9. Infection of the fauces due to virulent micro-organisms may not be prevented by removal of the tonsils.
10. Recurrent local infections or general infections having their origin in the tonsils require tonsillectomy as soon as a favorable moment for operating arrives. Tonsillotomy may be expected here to prove inadequate.
11. Recurrent acute catarrhal infections of the throat require complete removal of the tonsils if these show chronic inflammation, although immunity against subsequent attacks is not necessarily secured.
12. Local tuberculosis of the tonsil requires complete removal of the organ.
13. In young children with adenoid enlargement requiring removal the tonsils should not be excised unless demonstrably causing injury or favoring attacks of acute middle ear inflammation.
14. If an impairment of the speaking voice is dependent upon tonsillar disturbances, these may be corrected according to the principles already given, and if a tonsillectomy is indicated, it may with proper technic be performed without anxiety.
15. In singers slight alteration in the tension of the palatal muscles may influence the voice either favorably or unfavorably. In the case of beginners with harmful alterations of the tonsils a partial or complete removal may usually be done, if the local or general welfare of the patient demands it. With increasing length of singing experience a correspondingly conservative attitude should be maintained, particularly in respect to truly fine voices.

REMARKS ON THE RATIONAL TREATMENT OF GENITO-URINARY TUBERCULOSIS.*

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IN this brief paper the writers wish to lay emphasis upon the fact that the best results in genito-urinary tuberculosis can only be obtained by supplementing the indicated operative procedure by long continued observation and treatment. Also to describe the methods in use at the Massachusetts General Hospital at the present time, together with the results so far obtained and some suggestions as to operative technic.

In surgical non-pulmonary tuberculosis the operation is but an incident in a course of treatment, by far the most important of which come before and after the operation. That is to say, it is rarely possible for the surgeon to remove all of the disease in a given case, the aim being simply to render the condition of the local lesion as favorable as possible for cure, which cure can only be obtained after months of constant and careful supervision. The attitude of surgeons has changed considerably dur-

* Read at the annual meeting of American Association of Genito-Urinary Surgeons, held at Washington, D. C., May 6, 1913.

ing the last few years in regard to the operative treatment of tuberculosis, as is well illustrated by the present conservative operation for cervical adenitis as compared with the extensive procedure of the past. While there are conditions, as renal tuberculosis, which require quite extensive operation, the surgeon must recognize that his obligation to the patient does not terminate with his discharge from the hospital and that some provision for careful and intelligent observation and after-treatment must be made if good results are to be obtained.

We believe, furthermore, an equally careful and constant supervision prior to any surgical procedure will vastly increase the benefit of such procedure and that this is particularly true in urinary and genital tuberculosis.

The establishment of a department for the observation and treatment of non-pulmonary tuberculosis at the Massachusetts General Hospital has been the result of gradual evolution.

The State of Massachusetts at the present time is fairly well equipped with accommodations for cases of pulmonary tuberculosis. This is not the case, however, with surgical tuberculosis, there being practically no beds available for adults in sanatoria or hospitals where patients with non-pulmonary surgical tuberculosis can receive adequate hygienic treatment. The reasons for this are obvious, in that surgical tuberculosis is rarely a danger to the community, which has its hands full in caring for its dangerous and infectious cases. These reasons, although adequate, do not help the sufferer from renal or other surgical tuberculosis. It became increasingly evident that as the usefulness of the home sanatorium movement for pulmonary tuberculosis was becoming less and less, in surgical tuberculosis it is and will continue to be a potent agent for good.

The department for the treatment for surgical tuberculosis is known as the "Tuberculin Clinic." This is a misleading name. It is true that in a great majority of patients, tuberculin injections are used in conjunction with other measures, but in few, if any, cases would we be willing to attribute to tuberculin all, or nearly all, of the improvement. In some of the genito-urinary cases it has seemed as if tuberculin was an important factor in the treatment; in the great majority of cases, however, while a factor, it is by no means the most important one in producing results. The tuberculin used is a bouillon filtrate supplied by Dr. E. R. Baldwin of the Saranac Lake Laboratory. It is administered once a week according to the rules of Trudean, the initial dose being from .0001 mg. to .0005 mg., rarely .001 mg. This is gradually increased to 50 or 100 mgs. The increase in dosage is gauged by careful observation of clinical signs of reaction, local, focal or constitutional. Constitutional reactions have been rare and no untoward results have followed such as have occurred. Occasionally benefit has seemed to follow a mild constitutional disturbance. It is the aim, however, to avoid all such and, as a rule, it has been possible to carry patients up to large amounts without discomfort. There is one marked exception to this in the case of a girl of 26 who had a nephrectomy done for tuberculosis. She also had a tubercular knee of long standing. This patient was much improved by her nephrectomy as to bladder symptoms and general condition. All symptoms were aggravated by tuberculin, a moderate dose causing increase in frequency, a flare up of the knee and a reopening of the sinus. This happened on three occasions. This was probably due to the fact that there was a considerable interval between injections, and the dose given, though small, was too great for this particular patient.

This clinic is held once a week at the hospital and is composed of patients referred from other departments, particularly the male and female surgical and genito-urinary departments. The routine is as follows: When a new patient arrives, a careful physical examination is made to rule out any pulmonary involvement, and a record of the weight, pulse and temperature is made. This method of treatment and reasons for all procedures are explained in detail, the patient is then sent to the social service department (without which, or its equivalent, no such clinic could exist) with the request, "Please examine home conditions and report." This is followed by a personal interview with the social worker taking up the case in which the exact needs of the individual patient are explained. Also frequent consultations are held with the member of the department referring the case with regard to treatment of the local condition. From the very first, every effort is made to secure the patient's cooperation and to see that she or he understands the reason for everything done. Patients are urged to attend regularly once a week until the process is cured or arrested. In a number of cases this cannot be done and some compromise has to be made. As the local and general conditions improve the patients are allowed to come once in two weeks and when the process is arrested, to report once a month or once in two months. A record of the weight, pulse and temperature is made at each visit and the events since the former visit are carefully gone into, particularly as regards reaction, local or general. If nothing of note has happened, the interview is short; if, on the other hand, there has been a loss of weight or the patient has not been following directions, it may take some time. The lungs are carefully watched and whenever there is any suspicion of pulmonary involvement, radical treatment, usually in a sanatorium, is instituted. It is advisable and generally necessary that the patients with renal tuberculosis give up work for the first two or three months of treatment. This, howver, is not always possible. The same applies, as a rule, to the patients with genital lesions although many of these keep at their regular work during the entire course of treatment. In some of both types the general condi-

tion has been so good that enforced idleness seemed an unnecessary hardship.

If a patient is under weight one quart of milk a day is added to the usual three meals and occasionally olive oil after meals. Unless patients are distinctly in need of more nourishment, nothing more is given provided that it is definitely assured that the patient is getting three good meals. Drugs are rarely used, except when there is painful and burning micturition. Then capsules of Ol. Santali or of Guiacol Carb. are prescribed generally with remarked relief, some patients preferring one and some the other. Some patients sleep out of doors all the year, some during the summer months only. All are advised to and the question of plenty of fresh air at night is gone into in every case. Such, in brief, is the regime. Now as to results accomplished.

There are at present, or have been until recently, 24 cases of renal tuberculosis under observation who have had nephrectomy performed. Eighteen of these were referred from the genito-urinary service and six from the general surgical service. In addition to the eighteen, there have been four other nephrectomies performed on the Genito-urinary service for tuberculosis, three of which have not returned for treatment and observation but all were improved when last seen. There was one death 38 days after operation from sepsis and probably general miliary infection. Of these 24 cases, one case, that of a young woman of 26, left for her home in Sweden in failing general condition five months after operation, she having developed a pulmonary process. Bladder symptoms were unimproved and she was unable to work.

Another case, a man of 39. Fifteen months after operation has a tubercular wound, genital tuberculosis and an old process in the lungs. He is unable to work. He shows slight gain in weight and slight improvement but has only been back to the hospital for a short time.

Another case which was under observation for a time, but is not included in the list is of interest. At an exploratory operation a single kidney only was found. Cystoscopy was unsatisfactory and an accurate diagnosis could not be made without operation; the symptoms were more in favor of a genital process. He has since died from pulmonary tuberculosis. In all the other patients under observation the lungs have remained free with the exception of a boy of eighteen who had a slight lung involvement which yielded to treatment.

The other cases all show improvement since operation, some to a very marked extent. In this series one case had a previous operation for bilateral tubercular epididymis 2½ years previous to his nephrectomy. Another patient has had that operation performed since his nephrectomy 1½ years ago. Still another case has had resection of the knee for tuberculosis since the nephrectomy. The joint involvement being of long standing.

The longest period elapsed since operation that we have record of is that of a patient operated on June 14, 1907. On April 9, 1913, she is working hard. Some frequency, at times a little blood, her general condition is good and she has gained weight. Another case operated on in August, 1905, last note June, 1911. Some cystitis, some frequency and tenderness over other kidney. Two other cases 3 years after operation are working hard, one as a blacksmith, the other as a machinist. With the exception of the patient whose knee was resected and two of the very latest cases, all the other patients are able to work.

While all patients have made some gain in weight, there are a number where this has been marked; one a gain of 15 pounds, two of 20 pounds, one of 25 pounds, and one of 30 pounds; most of these have been made in a few months. Parallel with the increase in weight has gone a marked improvement in color and general condition.

All of these patients have suffered for varying periods of time from several years to several months prior to operation from pyuria and painful and frequent micturition. The amount of pus in the urine has diminished in all cases since operation. In some few the urine has become perfectly clear, in others nearly so, in the majority of patients the urine is cloudy but the amount of pus is much less than before operation. In regard to frequent and painful micturition. In nearly every case the pain and burning have disappeared. The frequency of micturition varies between wide limits. In one case where frequency was marked before operation, one year ago, he now holds his urine, which is clear, for seven hours at night. In a number of cases which suffered from marked nocturia, micturition occurring from four to eight or more times, now are bothered from one to three times only. The day interval being likewise lengthened. One patient who was obliged to wear a urinal before operation, micturition occurring every 15 minutes, now goes from two to four hours and works hard.

Frequency, although diminished, may be expected to persist to a greater or less extent in some cases for several months, some of our patients showing little improvement in this respect for at least three months. As a rule we employ no local treatment for vesical lesions. In a few cases instillations of Gomenol oil have been used but not with sufficient regularity to form an opinion as to its effect. We employ internally the oil of Sandal wood which has seemed to us to have distinct value. Frequency is a stubborn symptom but, as a rule, tends to lessen as time goes on.

The majority of the sinuses closed within a few weeks or less. Some remained open for several months. At present one case has been discharging for five months, it is, however, closing slowly. Another has had a good-sized sinus for 15 months. This patient had a pneumonia

following operation and tuberculosis infection of the wound. He only returned for close observation and treatment a month ago, but is already showing signs of improvement. In another case where the entire wound broke down, although the surfaces presented bright red granulations, there was not the slightest tendency to heal even after months. A secondary suture was undertaken with great success. The wound being closed except for a sinus at its upper end which healed solidly later.

Of late we have adopted the suggestion of the Mayos and after the removal of the kidney have closed the wound without drainage. After making sure there is no rent in the peritoneum, the muscles are sutured in the ordinary way, a rubber tube being left to the cavity, 10 or 12 ounces of salt solution are then injected, the tube withdrawn and the wound closed. Five patients in the above series were treated in this manner. In the first case a small subcutaneous hematoma broke down about the fifth day but healed without trouble. In the other four, primary union took place. We regard this procedure as one which saves the patient much time and discomfort and even if not always successful, primary union is surely most desirable in wounds that may become so troublesome as these.

Such, in general, are the results thus far achieved in renal tuberculosis at our hands. On the whole, they are quite satisfactory when we consider the lack of sanatorium facilities and that the financial condition of so many of these patients makes it necessary for the adults to return to work much sooner than would be the case under ideal conditions.

There are also under observation in the tuberculosis department a number of cases of genital tuberculosis. These include at the present time nine patients who have been operated upon for unilateral or bilateral tuberculous epididymitis as well as some cases of inoperable genital lesions and one or two bilateral renal cases. What has been said of the general management of renal cases at the beginning of this paper applies as well to these groups of patients. Naturally these patients do not exhibit the striking changes that are seen in the renal cases. Still, improvement is noticeable in many of them.

In conclusion we would again state that we do not attribute to tuberculin alone the improvement that has been brought about in these patients. We do, however, think it helps. There can be no doubt of the value of the psychic effects of the treatment for which patients will return regularly, thus enabling us to keep them under observation with greater regularity and for a much longer time than would otherwise be the case.

The improvement noted in these patients we consider to be due to the judicial combination of surgery, proper hygiene, tuberculin, and the careful consideration of the individual needs of each patient.

OBSERVATIONS ON A SERIES OF NINETY-EIGHT CONSECUTIVE OPERATIONS FOR CHRONIC APPENDICITIS.*

BY E. A. CODMAN, M.D., BOSTON.

What is a chronic appendix?

Pathologists deny the existence of chronic appendicitis. They say there is no evidence of any real condition of chronic inflammation, and explain our surgical chronic appendices as healed or healing appendices. The effects of previous inflammation are shown by:

1. Peritoneal adhesions (not congenital).
2. Obliteration of the whole or portions of the lumen.
3. Stricture of the lumen with more or less dilatation distal to it.
4. The presence of a hard concretion or foreign body. Such bodies are either retained by strictures or mechanically produce the same effects as strictures.

Every surgeon should read Aschoff's recent monograph on the Pathology of Appendicitis. In brief, he holds that the demonstration of obliteration proves a previous inflammation and that over 50% of humanity have during their lives attacks of appendicitis. He gives definite statistics on this point. His book is thorough, logical and painstaking and leads to the inevitable conclusions that the appendix is always a menace and should be removed as a routine.

I believe that any surgeon who is willing to follow the facts to their logical conclusion will say, if he is not too much afraid of ridicule, that routine appendectomy is logical and reasonable for every child. I can show you that it is far more logical and reasonable than our foolish attempts to diagnose chronic appendicitis and on the ground of our diagnosis to advise operation. In addition to Aschoff's statement just consider that out of one hundred abdominal sections taken in a consecutive series at random from the Massachusetts General Hospital records, 71 showed definite lesions of the appendix, although no such preoperative diagnosis was made from the history. And yet, on the other hand, in my 98 cases diagnosed definitely as chronic appendicitis only 61 showed pathologic evidence. You may be able to diagnose these cases better than we can, but I would like to see you prove it.

I tell you that when you advise routine appendectomy you are talking reasonably and when you attempt to advise appendectomy on cases which have never had a definite acute attack, because you have made a diagnosis of chronic appendicitis, you are talking foolishly.

Your advice for appendectomy is more defensible on the general ground that it is "six to one, half a dozen of t'other" that your patient has or will have appendicitis, than it is on the

* Read at the annual meeting of The Massachusetts Medical Society, June 10, 1913.

ground that you have made a diagnosis of chronic appendicitis. If you have seen your patient in an acute or subacute attack, that is another matter, but even then you must expect to find at operation evidence of a healed or healing appendicitis, not of a chronic one. You may shut the barn door after the horse has been stolen. For instance, if the attack which you saw affected only the tip, that portion would be found as a harmless obliteration, but if it was more proximal and caused stricture then it would be a healing appendix or practically a chronic appendix since inflammation tends to recur behind a stricture. Personally, I believe it may persist behind a stricture so that for all intents and purposes a strictured appendix is a chronic appendix, and is the form really most vicious.

Aschoff shows that bends and kinks in the appendix are potentially the same as strictures. It is an unusual appendix that the surgeon cannot show to have at least a bend or a kink!

However, in this study I have not included bends, kinks, injected appearances, catarrhal appendices, or any doubtful irregularity or thickening as a "chronic appendix," but have held up definite peritoneal adhesions, strictures and obliterations as the standards of pathologic demonstration. Even adhesions and obliterations cannot strictly be called "chronic appendicitis" but for the sake of argument I have included them, although they are probably safer than the so-called normal appendices. Concretions, if hard, I have regarded as pathologic, but not so, soft, fecal masses.

In nearly every case I have myself cut the specimen in the laboratory and examined it with care. Dr. W. F. Whitney has made sections for me of over one-half the specimens. Together we have reached the conclusion that the microscope alone cannot make the diagnosis of a previous inflammation as well as the gross observation of the appendix *in situ* and on section. The presence of a stricture with more or less dilatation distal to it seems to me the one dangerous form of chronic appendicitis.

I have made several observations at the operating table which interested me a good deal, but which I had never noticed before in the ordinary course of operating. One is that when the abdomen is first opened an appendix may appear long, large, flaccid and whitish like a dead fish worm, and yet when it is handled it contracts and shortens. Immediately tortuous injected blood vessels stand out on its surface. I have seen such appendices removed and claimed as pathologic.

Appendices after removal shrink one-quarter to one-third in length. This destroys histologic opinion founded on the thickness of the muscular coat. By tickling an appendix *in situ* at one spot, a local stricture can be produced which could easily deceive an audience.

This report differs from the usual surgical paper in that the cases were studied with certain definite objects in view and was not a compilation of statistics from purely fortuitous observations.*

More than this, it inaugurates what I hope will prove an important method of really scientific clinical observation at the Massachusetts General Hospital, for poor as it is, it forms a definite basis for comparison, so that future surgeons at the hospital who undertake succeeding series of cases will have some standard to surpass.

The ideal chronic appendix operation should remove a clearly pathologic appendix, which has been without doubt the cause of the patient's symptoms. The operation should be done without mortality, pain, vomiting, the faintest sepsis, hernia, ugly or sensitive scar or other complication.

If a surgeon could do one hundred cases and fulfill these conditions he could certainly qualify as an expert abdominal surgeon. If at the same time he could contribute any important original observations on the subject he might add himself to the list of great surgeons.

To show how far I fell short and to offer a record for some junior surgeon to excel, I present the following remarks.

All cases operated upon were diagnosed as chronic appendicitis, but only sixty-one appendices had demonstrable evidences of having been inflamed.

In seventeen cases the real causes of the symptoms as determined after operation were probably as follows:

Chronic salpingitis	2 cases.
Tuberculous mesenteric glands	3 cases.
Painful right inguinal hernia	1 case.
Gallstones	2 cases.
Small ovarian cyst	1 case.
Tuberculous peritonitis	1 case.
Congenital pelvic kidney	1 case.
Tape worm	1 case.
Cardio-spasm	1 case.
Megasigmoid	1 case.
Ptosis and megaduodenum	1 case.
Appendix abscess	1 case.
General syphilis	1 case.

But six of these seventeen cases also happened to have a chronic appendix.

In twenty-six cases the appendix appeared normal and may or may not have caused the symptoms. Even if an appendix shows no gross or microscopic evidence of an inflammation it by

* All the cases in this series were either sent into the hospital under the diagnosis of chronic appendicitis or were so diagnosed in the hospital by some other surgeon and then transferred to me.

After carefully taking the history and examining each case, if I considered the symptoms as more probably due to some other organ than the appendix I transferred the patient to the general service. Thus the fact that I accepted the cases in the series was an acknowledgment of agreement in the diagnosis that the appendix was the most probable cause of the patient's symptoms. Only about six cases were thus transferred and I regret to say that three of these showed a chronic appendix at operation.

In a number of cases there was grave doubt in my mind as to whether the patient really had chronic appendicitis and as my experience grew I began to recognize the cases which were positive and those which were doubtful, but even if not positive, I operated just as we all do when we consider that the symptoms justify appendectomy.

I do not believe that I operated any oftener in doubtful cases than does the average surgeon in private practice. In a few instances the patients after hearing that a positive diagnosis could not be made, refused operation. These cases were operated on between Dec. 1, 1911, and June 1, 1913.

no means follows that it has not been the cause of symptoms. The mucous membrane of the nose, pharynx and tonsils may be severely inflamed, swollen and infected and yet return to a perfectly normal condition. Why should not an appendix which is abundantly supplied with active mucosa and lymphoid tissue likewise suffer acute inflammation with a purulent discharge and yet shortly return to a normal condition? Is it not reasonable to assume that most acute inflammations of the appendix discharge naturally into the lumen of the bowel? It is only when some pronounced bend or kink retains the secretion that trouble comes. This is another argument for routine appendectomy, for it might save many ordinary belly-aches.

There was no mortality in any of the cases, although besides appendectomy the following operations were also done:—

1 Oophorectomy.	2 Herniotomies.
1 Nephrectomy.	1 Trachelorraphy.
1 Cholecystostomy.	2 Ventral suspensions.
1 Fibroidectomy.	7 Operations for Lane's kink.
1 Pyloroplasty.	

Only eight patients (and these were done under anoci association) had practically no pain. Only eleven cases were recorded as having no vomiting, although in twenty-eight cases no vomiting was recorded.

There was no serious sepsis, but in eighteen cases first intention was not absolutely perfect, varying from a slight ooze of serum to a slight purulent discharge (only four cases). Such sepsis is not individually serious, but shows an imperfect technic, which might be serious in more grave cases.

Therefore, the next student of chronic appendix cases still has problems of diagnosis and technic to meet. I should have felt badly about my diagnostic skill had not my colleagues removed an equal number of chronic appendices during the same period from cases which they had diagnosed as gallstones, gastric and duodenal ulcers, retroversion, acute appendicitis, etc. We have now adopted a habit of writing down preoperative diagnoses so as to make these mistakes a little more personal.

Before starting this series I wrote down ten distinct objects of the investigation, the more important of which were as follows:

1. To find a set of symptoms constant enough to justify diagnosis.
2. To find the relative frequency of
   (*a*) Constipation.
   (*b*) Intermittent diarrhea.
   (*c*) Hyperacidity symptoms.
   (*d*) Dyspepsia in general.
   (*e*) The kind of pain.
   (*f*) The hyperesthetic zone.
   (*g*) Dilatation test.
3. To make observations on prolapsed and redundant ceci with long mesenteries. (Jackson's veil, etc.)
4. To make observations on Lane's kink.
5. To try Crile's anoci association with novocain and quinine urea for post operative pain.
6. To find means to make the convalescence more comfortable.
7. To improve the operative technic in
   (*a*) Avoiding adhesions.
   (*b*) Speed of operation.
8. To teach the operation to house officers.
9. To obtain statistics of absolute asepsis.
10. To obtain x-ray data on Bismuth meals.

I will take up the answers in order.

No. 1. As to diagnosis:

There were two fairly distinct symptom complexes.

(*a*) The true appendix sequence. Cases which have had a number of previous attacks lasting a few days—not hours. These attacks are characterized by epigastric or general abdominal onset and right iliac localization of pain followed by gradually subsiding tenderness after the pain has gone. In the interval between the attacks tenderness at McBurney's point may be absent. These cases seldom have habitual constipation.

They show definite appendix strictures, obliteration, or adhesions.

(*b*) The pseudoapppendix sequence. These cases have right sided pain in the appendix region which is frequent, usually daily, though intermittent. There is general right-sided tenderness, especially at and about McBurney's point. They have no long interval of freedom. The attacks are mild and not often feverish. They are constipated and usually have the other stigmata of visceral ptosis.

At operation large, long, free, flaccid appendices usually containing soft fecal material are found. In addition, various local anomalies such as *cecum mobile*, Jackson's veil and Lane's kink are usually evident. These cases are not often permanently relieved by removal of their appendices, although at first they enjoy the experience of recovery from the operation.

Next year I hope to present accurate reports of the end results of these two groups, for by classifying these cases now and following them up later, I can compare the results.

No. 2. As to individual symptoms:

In the sixty-one definite appendix cases constipation, usually not habitual, was present in only 21 cases, and in eight of these mobile ceci were also present. But in four cases no note was made.

In the thirty-seven cases with normal appendices sixteen were habitually constipated. In asking the questions about constipation I was particularly careful as I was myself astonished at finding how seldom it was a symptom of chronic appendicitis. It almost seems as if the presence of a strictured appendix irritated the bowel enough to prevent constipation, while on the other hand in the cases with large flaccid appendices the stimulus was absent. This point may be proved or disproved by the next investigator.

Diarrhea, persistent or intermittent, occurred in only nine cases out of eighty-seven recorded, and can no longer be quoted as a symptom of chronic appendicitis, but when present in a doubtful case is in favor of a diseased appendix, because eight of the nine were among the sixty-one true chronic appendices.

One of the things that interested me most, was that dyspeptic symptoms, especially the hyperacidity form which we now consider the cardinal symptom of duodenal ulcer, were found at all severe in only twelve cases and were vaguely present in only twenty-five more.

Of these thirty-seven, *cecum mobile* was also found in twenty-two. This suggests that the para-appendiceal conditions may be the cause rather than the appendix itself.

The hyperesthetic zone test was most disappointing as a rule, although in a few instances it was very positive. It was negative where it should have been positive thirty-seven times and *vice versa* ten times, in seventy-one observations.

The dilatation test, which consists in inflating the colon with air and thus exaggerating local pain and tenderness, was occasionally of value, especially where there was a condition of subacute inflammation. It was positive twelve times when it should have been negative and *vice versa* fourteen times, in sixty-one observations.

No. 3. I have not yet convinced myself that the various operations recommended for *cecum mobile,* pericolic membranes, Jackson's veil, etc., are worth doing. Therefore, in this series I determined to wait until a year had passed after appendectomy before recommending any surgical treatment for these conditions. Next year these results will be reported. Suffice it now to say that in sixty-seven cases where the mobility of the cecum was noted it was found long enough to pull out of the wound easily in forty-two cases. In twenty of these the appendix was normal. Jackson's veil was found in thirty-seven out of seventy-one cases.

At the end of the series I came to the conclusion that he who operates on Jackson's veil or *cecum mobile* is likely to find many cases.

Lane's kink was present twelve times and in seven cases I did the usual plastic operation without much faith, but believing it might do good and was not likely to do harm. The results will be reported next year. I am inclined to think that they will not be favorable.

No. 5. As to the comfort of the patient:

It took two trips to Cleveland to convince me that Crile's anoci association technique was worth while. Twenty-five cases were done more or less perfectly by this technique and the more perfect the technique, the better the result. A few cases really had no pain at the time of the operation or after it. Though not directly connected with this subject, I may state that I have done with this technique without shock, other difficult operations which I feel would have been fatal without it. In the hurry of hospital practice it is not used; but I believe that its general principles have come to stay in operations for chronic appendicitis and most others.

There is no question but that it renders the convalescence far easier. If it fails it means lack of care on the part of the surgeon.

No. 10. As to the value of the x-ray:

In fifty cases I have carefully studied the x-ray plates which Dr. Dodd was kind enough to take of these patients with bismuth meals. Careful study of the plates justifies the conclusion that the x-ray is of considerable help in the diagnosis of chronic appendicitis, especially in differentiating the condition which I have called pseudoappendicitis or ileocecal anomalies. The lumen of the appendix distended with bismuth was frequently seen.

Although this paper is brief and perhaps offers no new points of interest to you, I hope you will agree that the method which it illustrates is an important one. Great hospitals like the Massachusetts General Hospital have a duty to perform to medical and surgical science. Their clinical material should not be used haphazard to perfect the skill of a few favored operators without scientific study of the cases. By grouping cases into series large enough to favor comparative study and by observing definite previously-determined points a rational clinical science can be established. By putting the results on record the patient will not only be protected, but each operator will have the strongest incentive to excel in all the details of diagnosis and technique which count toward a successful result. This method will put an end to the old experimental surgery where each operator took a try at each new operation and reported only the good results.

It will also discourage hasty diagnosis and thoughtless operating by busy men with great reputations. By making the opportunity to operate the reward of study of the cases, it will give the young surgeon a chance to educate himself as well as to advance the science of surgery.

For instance, when a technique is evolved so sure that no deaths, no pain, no vomiting, no hernia, no complications of any kind occur—then we can offer the best of arguments for routine appendectomy.

The Surgical Executive Committee at the Massachusetts General Hospital have it in their hands to answer this question by continuing to assign blocks of 100 cases of chronic appendicitis to individual surgeons until their statistics show that the ideal, harmless, painless operation has been reached. Then routine appendectomy can begin, and the price will be cut to somewhere near its proper relation to the skill required.

POSTSCRIPT.

Suppose chronic appendicitis had not yet been described and some one offered the following

arguments that it existed and he could diagnose it.

Ninety-eight cases were diagnosed as chronic appendicitis and at operation only 61 appendices showed evidence of ever having been inflamed—and 50 of these should really not be included because they had definite histories of classical acute attacks.

Meanwhile (1½ years) his colleagues and he himself operated on an equal number of abdominal cases under other diagnosis than chronic appendicitis and yet a "chronic appendix" was the only abdominal lesion they could find!

Another consecutive series of 100 laparotomies was taken, which were done for other lesions (chronic appendicitis not even being mentioned) such as retroversion, fibroids, gallstones or ulcer, and in which the condition of the appendix was recorded. This showed 71 "chronic appendices." A greater proportion than in the diagnosed cases!

Would these arguments be listened to if the disease were new? Would they be tolerated in any other branch of science?

And then the paradox that the pathologists say there is no such thing as chronic appendicitis!

Obviously this subject of "chronic appendicitis" needs revision and a new nomenclature. The writer suggests the following:

1. Terminal obliteration—The scar of previous inflammation is distal—*i.e.* begins at the tip and obliterates the lumen to a greater or less degree towards the base and therefore causes no obstruction. (Fig.3.)

2. Strictured—The scar does not involve the tip and therefore has active secreting mucous membrane distal to it and hence presents delay to discharge of the contents. (Fig. 2.)

3. Kinked appendix—Cases in which the walls of the appendix are normal but in which the discharge from the lumen may be hindered by anatomical conditions outside of the appendix such as a contracted mesentery, congenital misplacement or post inflammatory adhesions. (Fig. 1.)

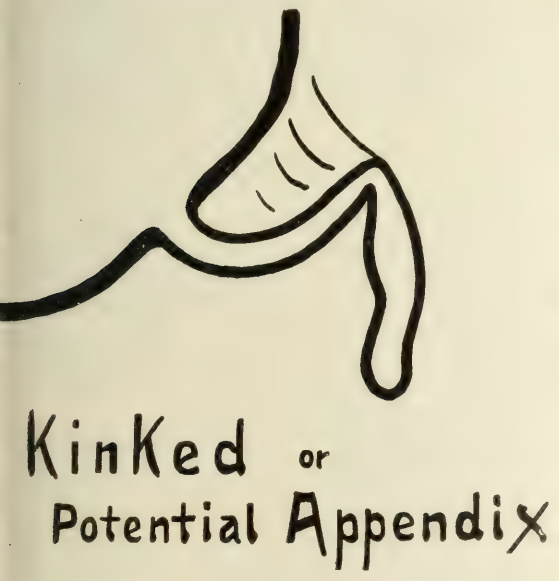


Fig. 1.

This class includes kinks, bends, twists, short mesenteries, congenital adhesions and misplacements or other causes which render a partial obstruction of the lumen probable. Such conditions predispose to retention of feces and bacteria and later prevent the exit of infected secretions.

They represent the next most dangerous condition to stenosis from post inflammatory stricture.



Fig. 2.

In this class previous inflammation in the proximal portion has left cicatricial stenosis just as in stricture of the urethra. As long as there is active mucous membrane distal to the stricture there will be a tendency to recurrent inflammatory attacks.

This class includes cases of hard concretions and retained mucopus or hydrops. If strictures were not present the concretions would be discharged. These are healing appendices for eventually repeated inflammation would destroy all the mucosa.

Strictures are most common at the points of kinking.

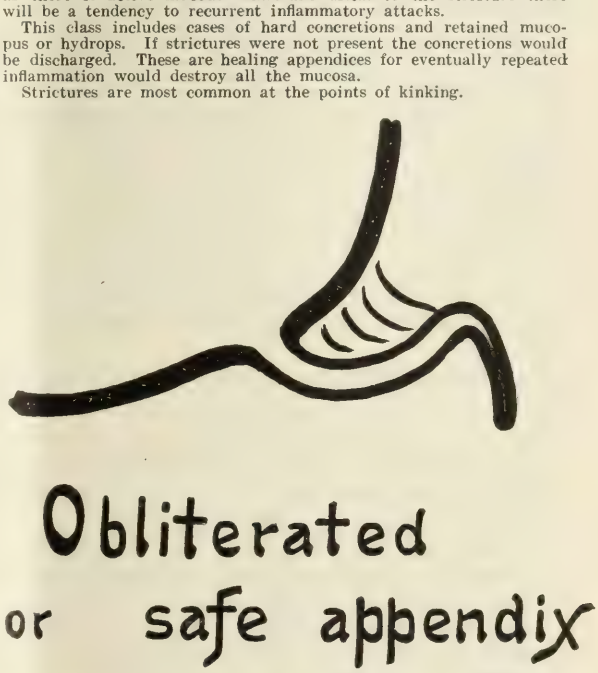


Fig. 3.

This class represents the healed or partially healed appendix. Obliteration is most common at the tip. The further the obliteration has progressed from the tip the greater the safety of the individual. Obliteration means that the mucosa has been destroyed by previous inflammation and that the discharge has escaped through the unobstructed lumen.

There is no good Indian but a dead Indian and there is no safe appendix but a completely obliterated one.

4. Chronic appendices—The so-called normal appendices in which the lumen is patent and neither hindered by stricture in the walls nor obvious kinks or adhesions in the neighborhood. These are the appendices which the x-ray now shows us retain the bismuth hours or days after the rest of the meal has passed. They include the catarrhal, the lymphoid, and the minor kinks and twists—but their lumen is still free so that when their internal tension rises the discharge can escape into the cecum (and only cause a slight belly-ache or indigestion). (Fig. 4.)

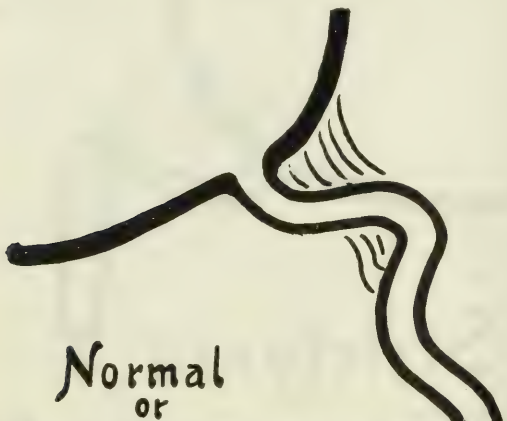


FIG. 4.

This class of normal appearing appendices covers a multitude of sins; the catarrhal, the injected, the lymphoid, the one with thickened muscular coats and all others which are not susceptible of pathologic proof. Presumably it may at times be as badly inflamed as the mucous membrane of the nose with influenza and yet by discharging through its lumen return to a normal condition without a trace of cicatrization. How many of the belly-aches of life it is responsible for we do not know, but they must be many for it is reasonable to suppose that most inflamed appendices discharge through their lumen, even when there is partial stoppage from kinks and twists.

Since the organ is abundantly supplied with lymphoid tissue, toxic conditions which affect lymphoid tissue in other parts of the body must affect it.

The x-ray now shows us that the appendix often retains the bismuth hours and days after ingestion.

The normal appendix has all the possibilities of evil, great and small!

The line to be drawn between No. 3 and No. 4 is merely defined by the obvious character of the kink.

5. Acute suppurative appendicitis of varying degrees.

A PERSONAL WORD TO THE READER.

There is no more need of your having your children's appendices removed than there is of your carrying life insurance or of your abstaining from liquor or of avoiding over work and over worry or of over speeding your automobile; but you will still probably do all of these things and will still submit yourself or members of your family to some eminent consultant for his opinion as to whether or not the occasional belly-ache is due to the appendix. The consultant may look wise but in a hundred cases he cannot show the wisdom of the doctrine of chances, unless there has been a previous definite attack of the symptom complex—general abdominal or epigastric pain, right iliac localization and *tenderness persisting at McBurney's point for a day or two after the pain has disappeared.*

If he wishes to make no positive mistakes he will add to this sequence, on the second day, slight fever and vomiting or nausea.

He cannot avoid negative mistakes for many cases with definite appendiceal lesions give no history of previous attacks.

We all agree that No. 2 should be removed because it is really dangerous.

We all agree that No. 1 at times, and perhaps always, presents the same dangers in minor degree as No. 2.

Most surgeons seem satisfied and regard their operation as successful when they can demonstrate No. 3 to the patient or to the attending physician, but is it not more logical to remove No. 4 which has all the possibilities of the others? For it would save No. 3 the attack which caused his obliteration—it would save No. 2 the original attack which caused his stricture as well as the repeated later attacks—it would save No. 1 and No. 4 all the minor belly-aches which are relieved by the discharge of the contents of the appendix into the lumen of the intestine, and besides it would save the manifold dangers and complications of real acute suppurative appendicitis and its various sequelæ.

At least 50 per cent. of mankind show No. 2 or No. 3; at least 25 per cent. more show No. 1, and it is highly probable that of the remaining 25 per cent. nearly everyone suffers from appendiceal belly-ache and reflex gastric indigestion at times. The x-ray is teaching us that these open "normal" appendices frequently retain food remnants hours and days after the rest of the meal has passed the cecum and yet the operation has no mortality and few complications as compared with acute appendicitis.

DISCUSSION.

DR. P. P. JOHNSON, Beverly: This society is to be congratulated upon having such a paper presented with all the statistical points determined before the taking of the histories. Accurate statistics can only be arrived at in this way, and we can all appreciate of how little value they are when taken in the usual way from haphazard hospital records.

I am quite in accord with the statement that chronic appendicitis is much more common than we have supposed and I find that practically all of the appendices which are taken out in acute attacks show evidence of previous disease even if a previous history is lacking. It seems to me that we have but two cardinal symptoms, pain and tenderness, other symptoms being of no great value in making a diagnosis. Certainly I feel that these two symptoms should be present before operation can be advised.

Surgery does not seem to have progressed to that point where we can promise absence of complications. Therefore, I should hesitate to advise the removal of normal appendices. I regard constipation as being of no value as a symptom, but in my experience it seems to be present in fifty per cent. of the cases. To determine its relation to chronic appendicitis I have made x-ray studies of these cases and in no case do I find stasis in the ileum or cecum except there be constricting bands or adhesions.

The question of *cecum mobile* has also been intensely interesting to me, and for the last six months I have been making x-ray studies before and in some cases after operations to determine whether there is any stasis. As a result of these observations I have come to the conclusion that stasis in the cecum is not a result of *cecum mobile* alone; but is either a part of a general ptosis and atony or organic interference. Therefore, fixation of the cecum seems an unnecessary operation.

In two recent cases I have found marked stasis in the cecum. The first case showed a large mass in the cecum fifty-one hours after a Bismuth meal and persisting in spite of several enemata. At operation the cecum was full of feces and tied down into the pelvis by adhesions resulting from an old appendicitis. This was complicated by a Lane's kink and proximal to this four annular constrictions of the ileum. These constrictions were lined by small ulcers which proved to be tubercular.

The second case showed a large mass in the cecum at the end of twenty-four hours when the observations ceased. Operation showed also feces in the cecum, which was bound down into the pelvis by adhesions, and the first portion of the ascending colon rotated outward by Jackson's membrane as it passed to the parietal peritoneum, making a sharp angulation of the bowel.

I have not been so successful as Dr. Codman in relieving my patients of gas pains and discomfort following the operation by Crile's method of anoci association. Possibly my technique has not been so perfect. However, the principle seems to be so logical that I deem it worthy of further trial.

Dr. J. B. Blake, Boston: Dr. Codman's paper was, as usual, original, careful, positive and thorough, even if we do not agree with him on every point. Under a misapprehension which was my fault, I had supposed that Dr. Codman was going to speak of the results of appendectomy and I had prepared my discussion along those lines.

I have been interested to find out whether the patients who have been operated could be considered well—in other words, to find whether the operation was a complete success. Although seventy-five patients were notified by telephone or card, less than one-fourth of them could be traced, illustrating the difficulty of tracing patients in a municipal hospital. The figures, therefore, are too small to be of convincing value, but what I did discover was sufficiently interesting and it seems to me sufficiently positive to be worth while.

The private cases were followed up after operation by my brother and myself. There was what might fairly be called a complete and satisfactory cure in four-fifths of them. At all events, the patients were free from the symptoms for which they had been operated, and they had nothing abnormal about the seat of operation.

Sixty per cent. of the hospital cases, on the other hand, which had been discharged from the wards, had symptoms persisting which the operation might have been hoped to relieve. These symptoms were either general or local, often local in the cases which had healed by first intention.

This emphasizes a point that every one knows but many forget—the importance of after treatment of appendicitis. It need not necessarily be confined to the surgeon, but may go perfectly, properly, into the hands of the family practitioner. It is very important; patients should never be given a suggestion that the operation alone without after treatment is going to be effective toward complete cure, but should, on the contrary, be impressed with the great necessity of post-operative regulation.

The second point I wish to speak of is this: The medical community and the general public have been educated so well to the importance of pain in the right iliac fossa that we get cases early. Therefore, if we may occasionally open a case where the appendix seems normal we may not feel badly over it. On the other hand, the right upper quadrant has not received the same consideration from the general public. The right upper quadrant cases arrive at a much later period, as the community is not educated to the great necessity of early surgical interference in lesions of the region. When people have appendicitis they beg to get into the hospital and be operated, but with infections of the biliary tract, it is quite impossible to get them to substitute early surgery for long-continued medication.

Dr. S. A. Mahoney, Holyoke: I should like to inquire of Dr. Codman what methods he uses to carry out the anoci association in the technique, in a general hospital—whether he has a regular-trained set of nurses and attendants in order to carry out the treatment.

Also I should like to know what incision he makes in getting his appendix out. Whether he explores the entire abdominal cavity, in addition to the right iliac region, to see if there are any other lesions besides chronic appendicitis.

Dr. Codman: The anoci association technique which I use is very nearly the same as Dr. Crile's except that I use novocaine, quinine-urea, and adrenalin together. They seem more efficacious than when used singly. He does not use adrenalin. The actual technique I have taken from observing him do it on three different

visits to Cleveland. I am sure that in my earlier cases I used it insufficiently, so that the results were not quite so good. What I have done has been merely to copy him.

In regard to the incision, I prefer a straight rectus incision and I explore the whole right iliac region. For instance, there were twelve Lane kinks in the series of ninety-eight, and I have forgotten just the number of Jackson's veils, but those will be put on record with the paper.

Clinical Department.

A CASE OF INFECTION WITH NOCARDIA.

BY ALBERT E. STEELE, M.D., BOSTON,

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AND

ROGER I. LEE, M.D., BOSTON,

Visiting Physician, Massachusetts General Hospital; Instructor in Medicine, Harvard Medical School.

INFECTION with nocardia is sufficiently rare to warrant the report of a case. This case is also interesting because it resembled very closely tuberculosis both in the clinical aspect and the morphology of the infecting organism. The recovery is unusual. The reader is referred to an excellent article by J. H. Wright[1] for a good classification of the group of infection to which nocardiosis belongs. Musgrave and Clegg[2] reported their studies on streptotrichosis in 1908, together with a very complete bibliography by Polk.

CASE REPORT. P. B. Aged 19. Schoolboy.

Family History. Grandfather died in 1898, age 70, of pulmonary tuberculosis; one granduncle also died of pulmonary tuberculosis. The family history is otherwise negative.

Previous History. Always rather delicate and suffered somewhat from bronchitis as a child. No serious illness.

Present Illness. May 13, 1912, developed suddenly a typical right lobar pneumonia; empyema followed and he was brought to the Faulkner Hospital, Jamaica Plain, Mass., and operated upon by Dr. F. G. Balch, June 1, 1912. At operation a small cavity containing pus was found, this was drained and a rib resected. No examination of the pus was made. Aug. 24, 1912, he was seen by one of us (R. I. L.). The wound had drained constantly. During the previous week there had been an occasional slight elevation of temperature, followed by increase in the discharge and normal temperature. Sterile bismuth paste had been injected into the empyema cavity. No pain. Very little cough. No sputum.

Examination. Heart negative. Left lung negative. Right lung, no expansion of right chest. Empyema opening was draining purulent material just below the angle of the right scapula. Dullness to flatness below the angle of the scapula; fair resonance above. Diminished normal breathing heard throughout right chest. Fremitus is slightly diminished. Pleural sounds are heard in the back. No râles. No excursion of the diaphragm on the right.

X-ray by Dr. Walter J. Dodd shows a very high diaphragm on the right and a dense oval shadow with the empyema opening at its apex. This shadow is considered to be the abscess wall and not retained pus.

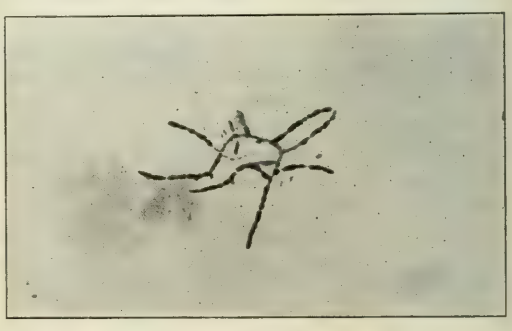
On September 14, 1912, Dr. Balch put in a tube for better drainage.

There was little irregular fever but the right chest was expanding a little. Later the opening was enlarged.

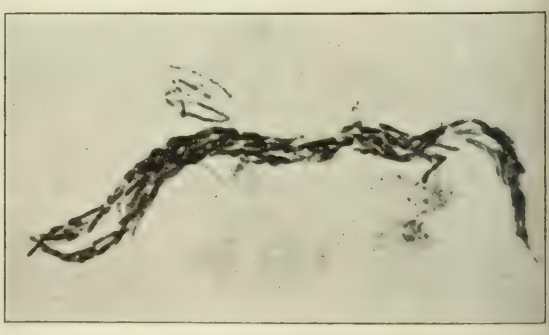
On November 6, 1912, there was irregular temperature, 98 to 101, pulse 70 to 100, respirations 25. The wound was draining profusely. Considerable cough developed with varying amounts of sputum.

X-ray by Dr. P. Brown shows the empyema shadow as before, some peribronchial thickening.

On physical examination there was no change in the chest signs. The sputum at this time was mucopurulent and tinged with blood. Microscopical examination of the sputum constantly showed large numbers of a Gram-positive, acid-fast, branching, filamentous organism. In places they were arranged as a bundle of rods massed together, in other places the branching radiate structure was more noticeable. Occasionally one saw a mass of organisms, resembling a tangled skein of yarn. The filaments were not of uniform breadth but narrower in some parts than in others. A more deeply stained coccus-like body was present in irregularly distributed places or at the junction of trunk and branch; this structure was more readily seen in the Gram-stained specimens in which the coccus-like body took the stain very deeply. Not all of the organisms were filamentous; some were distinctly bacillary in type and looked like tubercle bacilli.



Nocardia, filamentous type, x 2000.
Photograph by L. S. Brown.



Nocardia, bacillary type, x 2000.
Photograph by L. S. Brown.

The acid-fast characteristics of the organism varied. Decolorization by Czsplewski's solution washed all of the Carbol Fuchsin out of some of the organisms while others were left pale pink to red. Decolorization with plain 30% nitric acid washed the color out of all of the organisms. Gabbet's method showed the morphology much better and was the method with which all of our best slides were secured. This was used as follows: Carbol Fuchsin (heated) 3 minutes, Gabbet's decolorizer 10 seconds and counter stain with Methylene Blue. This organism then resisted decolorization by weak acids after being stained by Fuchsin but was readily decolorized by a strong acid. This experience demonstrated the importance of caution in the interpretation of results obtained by decolorization by weak acids. Precisely similiar organisms were found in small numbers in the empyema pus.

The sputum was washed and cultures planted on plain agar, hydrocele agar, glycerine agar, bouillon, blood serum and blood agar and incubated at body temperature but unfortunately no growth of the organism was secured. A guinea-pig was inoculated with some of the fresh sputum containing very large numbers of the organism and died 49 days later. Autopsy was negative and no evidence of tuberculosis could be found either macroscopically or microscopically. The organisms, we believe, belong to the group of "acid fast streptothriciae," called by some observers nocardia.

The negative guinea-pig test apparently rules out tuberculosis in the case and the acid-fast characteristics preclude actinomycosis.

The further progress of the case was as follows: The patient's sputum ceased abruptly after November 25th, and his general condition improved. His empyema wound healed about December 10, 1912. On January 9, 1913, his right chest expanded 1.5 cm., the patient felt perfectly well. April 22, 1913, x-ray by Dr. Dodd shows good expansion, a flat diaphragm on the right which is reasonably low and very little evidence of thickened pleura.

On physical examination at this time the expansion was 3 cm. on the right. There was slight dullness with diminished breathing and pleural sounds at the right base. Since that time the young man has remained well.

DISCUSSION.

We are fully aware that the diagnosis of nocardia in this case is not free from objections. We were unable to verify our findings by either culture or animal inoculation. It is well recognized, however, that often cultures and animal inoculations with nocardia are unsuccessful. In this case our material suddenly ceased and we were unable to pursue this line of investigation. We do not believe that this case was primarily an infection with nocardia. The history is very typical of pneumococcus pneumonia with an ensuing pneumococcus empyema. The infection with nocardia seems to have been secondary. Most of the reported cases of infection with nocardia are located in the respiratory tract. We believe that tuberculosis is ruled out by the morphology and the incomplete acid-fastness of the organism and by the negative animal inoculation. The rapid, complete recovery is also against tuberculosis.

The morphology of the organism with its incomplete acid-fastness, its lack of similarity to tuberculosis, its presence in a suppurative pulmonary condition seem to us to warrant the assumption that we are dealing with a group of organisms best classified following Wright as nocardia. Dr. Wright kindly examined our preparations and considered the organism nocardia. Biologic evidence[3],[4],[5] is accumulating to show the close relationship between the various members of the acid-fast bacillus group (tubercle bacillus, leprosy bacillus, etc.), and the branching organisms, both the acid-fast and the non-acid fact.

SUMMARY.

The case reported here seems to have been a case of secondary infection with nocardia. The morphology of the organism and the staining reactions led to the diagnosis of tuberculosis at first. Tuberculosis seems to have been excluded. The case is also unusual in the prompt recovery.

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ON THE RELIEF OF EARACHE AND INDUCTION OF OPERATIVE ANESTHESIA BY INFILTRATION OF THE AURICULOTEMPORAL AND TYMPANIC (JACOBSON'S) NERVES.

BY P. G. SKILLERN, JR., M.D., PHILADELPHIA,

Fellow of the Philadelphia Academy of Surgery.

Earache may attain the distinction of being one of the most agonizing and intolerable pains that can rack the human frame, and none realizes more fully than the practitioner how utterly all medical measures fail to relieve with the sole exception of free use of the tears nature sheds for those in pain and distress from the sleep-bestowing poppy. The bread poultices, hot-water bags and steam vaporizations of our grandmothers; the blood-letting and hot-water douchings of our forefathers, and our own ef-

forts to cocainize the auditory canal thwarted because it is lined with skin, are alike impotent. In a certain class of cases earache is magically relieved by paracentesis or perforation of the drum-head from pressure-necrosis, but there are earaches and earaches.

H. L., male, white, aged 21, came in my office one evening complaining bitterly of pain in the right ear. Two evenings before he noticed for the first time soreness in the right ear; last evening this developed into a throbbing pain which caused insomnia, and now it feels "as though a tremendous wad were in the ear." The lobe of the ear is sore to the touch, and mastication is painful. Examination revealed no otorrhea and no deafness, but a furuncle on the posterior wall of the external auditory canal 2.5 cm. from the cavum conchae, in the early stage of induration. Owing to the size of the furuncle, incision was clearly indicated, and it remained to decide upon the best method of inducing operative anesthesia. Direct injection of the furuncle would certainly be most painful, and the hyperplastic induration of a furuncle usually interferes with diffusion of the anesthetic. It occurred to the author to infiltrate the auriculotemporal nerve, from which the chief supply of the meatus is derived. Accordingly, a barrelful of a solution of novocain two per cent. with adrenalin 1-3000 was drawn up into a hypodermic syringe, the needle inserted along the course of the nerve between the superficial temporal artery before and the tragus behind, and a few drops injected. The result was most gratifying, all pain being immediately relieved. In a few minutes the effect of this small dose wore off and the pain returned: repetition of the injection, giving a larger dose again brought immediate relief, the patient stating he could "almost feel it leaving." The distribution of the auriculotemporal nerve was now tested with the hypodermic needle for pain-perception, but was anesthetic throughout. During this maneuver the distributions of the small occipital and great auricular nerves to the pinna were very clearly demonstrated. The furuncle was now incised painlessly, and the canal douched with hot Wright's solution. The dressing consisted in the insertion of a bullet of cotton into the meatus in such a manner that its tip would rest against the furuncle, thus enabling the sodium chloride-citrate solution with which it was saturated to encourage depletion of the boil. Upon discharge relief from all pain continued. Ear-cough from irritation of Arnold's nerve during these manipulations was very prettily demonstrated. A curious feature was that the cartilage of the tragus remained hypersensitive to the touch. Within 36 hours the boil evacuated itself into the cotton bullet.

It is not germane to the purpose to detail the distribution of the auriculotemporal nerve: suffice it to say that it supplies a large part of the pinna (anterior auricular branches), the greater part of the meatus (meatal branches), and the tympanic membrane (ramus membranae tympani). This last fact may be taken advantage of in performing paracentesis.

Whether for the relief of pain or the induction of operative anesthesia, therefore, I recommend this procedure because of its safety, simplicity, and efficiency. For the relief of pain alone quinine-urea hydrochloride, one-half per cent. solution, is the anesthetic of choice because its effect lasts for many hours. For operations in which no such prolongation is necessary novocain-adrenalin is an ideal combination. For intractable neuralgia of this nerve, other than reflex in origin, alcoholic injection is indicated. Could the secretory fibers it conveys to the parotid gland be reached, it might be possible to reduce the production of saliva and thereby favor healing of a parotid salivary fistula. Caution to protect the anesthetic ear in freezing weather, lest frostbite supervene, is necessary. The superficial temporal artery may be readily avoided by feeling its pulsations, and the needle is to be inserted directly behind it. By opening the mouth more room for these manipulations may be gained by the condyle traveling forward.

A recent text-book on "Surgical Anatomy" dismisses this nerve with the statement that it "is not of much surgical moment."

As regards the relief of pain in the middle ear, I am not desirous of poaching upon the domain of aural specialists, but a few ideas may not be amiss. Here we have to deal directly with a little space about the size of the little fingernail, and one-twelfth inch in width. It is supplied by the glossopharyngeal through Jacobson's nerve, which ramifies upon its inner wall as the tympanic plexus. For relief of pain in the ordinary catarrhal form of otitis media it seems perfectly feasible to perforate the tympanic membrane with a fine needle and inject novocain-adrenalin directly upon the plexus. The mucous membrane which lines the cavity will certainly absorb the solution and be anesthetized by the novocain and blanched by the adrenalin,—an effect beautifully illustrated when it blanches an injected conjunctiva. If in doubt as to the presence of suppurative otitis media, the needle may be used as an exploring needle previous to injection. In suppurative otitis media relief of pain by any other method than decompression of the abscess by paracentesis is contraindicated, for the same reasons that trephining is the only correct treatment for acute bacterial osteomyelitis.

Reports of Societies.

ASSOCIATION OF AMERICAN PHYSICIANS.

Twenty-Eighth Annual Meeting Held in Washington, D. C., on May 6, 7 and 8, 1913.

STUDIES ON THE NATURE OF BIOLOGICAL SPECIFICITY.

Dr. Frederick P. Gay, Berkeley, Cal.: In studies in collaboration with T. Brailsford Robertson, efforts have been made to determine the chemical fraction or condition in a protein responsible for biological specificity. Derivatives and compounds

of the purest obtainable protein, casein, have been studied. The reactions used in testing were the precipitin and fixation reaction for antibodies and the anaphylaxis reaction. Amino acids in the proportion in which they occur in casein do not produce antibodies nor do the complete products of peptic digestion of casein. Paranuclein gives rise to antibodies which interact with antibodies to casein. The reversible action of pepsin has been shown to produce paranuclein from the complete hydrolysis of casein by pepsin. Such synthetic paranuclein agrees chemically, and, from the standpoint of immunity reactions, with split paranuclein. In other words, the action of pepsin has produced specificity in forming this synthetic paranuclein.

Compounds of casein with a non-antigenic protein (protamin and globin) were unsuccessful in the first instance in throwing light on specificity, globin caseinate, however, gave most interesting results in that it was found that the antibody to globin caseinate reacts not only with globin caseinate and with casein, but also with globin, which latter substance is not in itself antigenic.

DISCUSSION.

Dr. V. C. Vaughan, Detroit: The results of Dr. Gay's work are confirmatory of what has been held by some of us for years: that there is present in the protein molecule a specific antigenic body. Zundt has been working on this subject and has found a proteose which has the property of sensitizing animals without being itself poisonous; the work here presented by Dr. Gay is thus in the same direction.

THE POISONOUS GROUP IN THE PROTEIN MOLECULE.

Dr. V. C. Vaughan, Ann Arbor: In 1903 Vaughan and Wheeler found that all protein, bacterial, vegetable and animal, contain a poisonous group. They split off this group from the protein molecule by chemical reagents, and predicted that the same would be done in time by ferments. This prediction has been fulfilled. The paper discusses the poisonous group, its preparation, and the part that it plays in the infectious diseases.

THE FUNCTION OF THE DIAPHRAGM.

Dr. C. F. Hoover, Cleveland: Contrary to the generally accepted teaching, the author finds the diaphragm does not aid in the elevation of the costal borders or inspiratory widening of the subcostal angle.

When the relations are such as to give the diaphragm the greatest mechanical advantage, its contraction causes a retraction of the costal border toward the median line and an inspiratory narrowing of the subcostal angle.

Paralysis of the diaphragm and upward displacement of the diaphragm permit an inspiratory widening of the subcostal angle and divergence of the costal borders.

Downward displacement of the diaphragm gives its musculature a mechanical advantage, so the resultant action is subcostal narrowing and approximation of the costal borders during inspiration.

Obsolete pleurisy of the anterior thorax which produces an upward displacement and fixation of the diaphragm to the thoracic wall confers a mechanical advantage on the diaphragm which causes an inspiratory narrowing of the subcostal angle and traction of the costal border toward the median line.

Study of the respiratory movements of the subcostal angle and costal borders gives accurate information about the fixative and excursive functions of the diaphragm which are useful in the study of both phrenic, supraphrenic and infraphrenic diseases.

DISCUSSION.

Dr. Lewis A. Connor, New York: I understand Dr. Hoover to say that any cause that increases the convexity of the diaphragm will place it at a mechanical disadvantage: I would reach just an opposite conclusion; for with descent of the diaphragm, the fibres of that muscular dome more and more merely pull in opposed action. I would like Dr. Hoover to explain this statement more clearly.

Discussion closed by Dr. C. F. Hoover: The Diaphragm has two functions to perform: (a) to maintain the integrity of the longitudinal thoracic diameter, and (b) to increase (by descent) the longitudinal thoracic diameter. In a low position, the diaphragm, instead of merely maintaining the integrity of the longitudinal thoracic diameter which tends to be shortened by the lift of the scaleni and intercostals, is at a mechanical advantage and its traction causes a narrowing of the subcostal angle and an inward movement of the costal borders.

A Comparative Study of the Treatment of Human and Animal Cancer by the Intravenous Injections of Various Substances.

Dr. Leo Loeb, St. Louis: Experiments are recorded which tended to determine whether human and animal cancer reacts in a similar way to the intravenous injections of various substances. So far our results show that there exists a great similarity in the behaviour of animal and human tumors. Both are affected by similar substances. These investigations also bring out the difficulties which will have to be overcome in future therapeutic efforts.

OBSERVATIONS ON THE PASTEURIZATION OF MILK.

Drs. William W. Ford, Johns Hopkins University, and Jas. C. Pryor, United States Navy: Nearly twenty years ago it was pointed out by Flügge that when milk was heated to certain temperatures the lactic acid bacteria were destroyed, and the resistant spore-bearing organism left behind. Milk heated to 70° moreover differed markedly from milk boiled a few moments as to the kinds of organisms which survived. According to Flügge the peptonizing spore-bearing bacteria developing in boiled milk were of great significance in the etiology of summer diarrhea of children. No extensive observations have thus far been reported in this country as to the reactions described by Flügge, and it is not yet certain whether the conditions which he has noted apply only to certain parts of Germany or are equally applicable to America. During the past year the authors have examined nearly 100 samples of milk from Baltimore and Washington, including certified milk, bottled milk, pasteurized milk, and the so-called dipped milk, and the present paper deals with the results obtained.

The clinical significance of this work is also

pointed out in view of the results obtained in man by lactic acid therapy.

DISCUSSION.

Dr. W. W. Park, New York: I think if pasteurized milk is used within the ordinary time of consumption under commercial conditions there will be no danger of the remaining spore-bearing organisms over-crowding. The changes noted by Dr. Ford are to be seen only after two or three days after pasteurization.

Dr. M. J. Rosenau, Boston: We have recently obtained results not entirely in accord with Dr. Ford's findings. We have found that when the milk is exposed to 65° to 70° C. for a short time it does sour and coagulate afterwards in the normal way. Under such conditions of pasteurization certain groups of lactic acid bacilli survive. Putrefactive changes take place only after the milk has been exposed to high temperatures.

Discussion closed by Dr. W. W. Ford: We have studied the time in which the putrefactive organisms grow in pasteurized milk; they grow rapidly at 22° C. and they grow when the milk is on ice; and the growth appears during the period of consumption, which in Baltimore may be as long as 70 hours. In the milk samples tested, which has not been high-grade milk, we have found no lactic acid organisms surviving exposure to 60° C.

A CLINIC FOR PRECAUTIONARY X-RAY EXAMINATIONS.

Dr. Francis H. Williams, Boston: Establishment of a clinic for precautionary x-ray examinations at the Boston City Hospital. Term x-ray examination defined.

X-ray examinations, for example, in thoracic aneurysms, present or suspected. Determining the size of the heart. Pulmonary disease: Central pneumonia, tuberculosis. Early pulmonary tuberculosis; what it may mean.

Importance of examining members of a closely associated group of persons where one has pulmonary tuberculosis. Assistance given by the x-rays in pointing out abnormal conditions of the lungs before there is cough, and when the physical signs are indefinite or absent. Illustrative cases.

DISCUSSION.

Dr. R. C. Cabot, Boston: The establishment of the clinic described by Dr. Williams is an admirable idea. The good it will do will be proportional to the care and reserve with which the term "positive by x-ray" is employed. We say that the result of examination of sputum is positive for the tubercle bacillus: and this is admissible; for the finding is positive for one particular thing. We are, of course, grateful to Dr. Williams for this work and for his paper descriptive of it, but I think it important that we should always interpret x-ray pictures as shadows and not as lesions.

Dr. Lewis A. Connor, New York: To carry Dr. Cabot's warnings a step farther, I would express the hope that the convenience and valuable possibilities of x-ray examination will not tempt clinicians to allow skiagraphy to supplant careful physical examination: this temptation is a real one but should sedulously be avoided.

Discussion closed by Dr. Francis H. Williams: I am glad that the statements made in the discussion were made; because only part of the paper could be read, and it did not appear in the abstract that our practice is to use the terms positive and negative for classification of cases only; in actual diagnostic work we have definitely declared the x-ray findings to be positive of a given condition only four times in some three hundred cases. The point I wish to insist upon is the immense value of such a clinic as an aid to early diagnosis and upon the importance of such early diagnosis for the advantage of patients. I have always emphasized my belief that x-ray examinations have only contributory value as they are used in conjunction with the usual careful clinical study.

ON THE REMOVAL OF DIFFUSIBLE SUBSTANCES FROM THE BLOOD OF LIVING ANIMALS BY DIALYSIS.

Drs. J. Abel, L. G. Rowntree and B. B. Turner, Baltimore: The work has been with an apparatus, called by the authors an artificial glomerulus; it consists essentially of a series of glass and celloidin tubes so arranged that the intake and outlet can be coupled into a divided blood vessel. The blood passing through the tubes is kept fluid by means of extract of leech heads. When in operation the tubes are immersed in a chamber containing distilled water; the osmotic pressure in the chamber being negative, diffusible substances will pass through the celloidin tubes into the immersion chamber. The apparatus may be used for extracting and estimating a single diffusible substance by using an artificial serum in the immersion chamber, the artificial serum being isotonic with the blood serum, but hypotonic for the particular substance to be obtained by dialysis. (The apparatus was exhibited.) A small form of the apparatus can be used to investigate the blood passing out of a single organ as the kidney, for example.

DISCUSSION.

Dr. Frank Billings, Chicago: I should like to ask Dr. Abel if this apparatus has been applied to man?

Dr. J. Abel, Baltimore: Such an application of the apparatus is a long way off yet.

Dr. S. J. Meltzer, New York: This very promising method of physiological study is somewhat restricted by the fact that other organs of the body are engaged in disposing of dialysible substances besides the kidneys. We know, for example, that morphine does not pass out of the body through the kidneys at all, but passes through other organs. And we give salicylic acid not for its action on the kidneys but upon other parts of the body.

Dr. Abel did not add to the discussion.

THE EFFECT OF CARDIO VASCULAR STIMULANTS ON THE VENOUS BLOOD PRESSURE.

Dr. Joseph A. Capps, Chicago: A comparison is made of the influence on the venous and arterial blood pressure of digitalis, strophanthin, the nitrites, alcohol, strychnia, and morphine.

THE IMPORTANCE OF ANAPHYLACTIC PHENOMENA AND THE MEANS OF LESSENING THEM BY REFINING THE SERUM OR DESENSITIZING THE PATIENT.

Dr. W. H. Park, New York: The refining of serum lessens the serum reaction following either the first

or repeated doses. This is due, not only to the elimination of proteid substances, but also to the heating. Second injections are not as a rule followed by serious symptoms and the fear of such symptoms could not prevent either the immunizing dose or a later curative dose. Statistics were given.

DISCUSSION.

Dr. Simon Flexner, New York: I should like to say a word about accidents following the intraspinal injections of anti-meningitis serum. It goes without saying that such accidents are more apt to occur in anaphylactic persons when sera are given intraspinally than when given subcutaneously. The number of such accidents has not been large, but the figures have not been accurately assembled. It is obvious, of course, that extraordinary care is needed in making intraspinal injections; and at the Rockefeller Institute the importance of making simultaneous estimations of the blood pressure has been demonstrated. It has been suggested, especially in the lay press, that the phenol or other preservatives present in sera may be the cause of accidents. It is difficult to say absolutely that such a thing may not happen, but it seems hardly likely in view of the extremely small dose of phenol contained in sera; and moreover, the same sort of accidents are reported from France where no preservative is used in sera. Three possibilities suggest themselves as to the cause of these accidents: (1) Anaphylactic shock; (2) pressure; and (3) preservatives in the serum. It seems to me that the third ought to be put last and disregarded in the practical use of sera.

Dr. Frank Billings, Chicago: We have recently had some instructive, though alarming, experience, with a polyvalent antistreptococcus serum, made by immunizing horses with streptococci obtained from numerous infected foci. We used this serum on twenty-five patients for immunizing purposes and more than one dose was necessary. Although care was taken in the use of this serum anaphylactic phenomena were observed in a number of cases after the third or fourth injection, usually rather mild in character; but three patients nearly died in collapse after the injection of 10 c.c. of refined serum. We managed to save these patients by the use of atropine sulphate and adrenalin chloride, which we had ready at hand. Our experience in these cases led us to abandon the use of the serum. The three serious accidents happened; one after the fifth, one after the third, and one after the second injection.

Dr. C. F. Withington, Boston: I recently encountered an instance of severe anaphylaxis in the son of a Boston oculist. This patient at the age of three had had conjunctival diphtheria; at the age of eighteen he had laryngeal diphtheria, and his breathing became much embarrassed. It was necessary, of course, to give antitoxin; although the danger of anaphylaxis was considered, the young man's father recalling the early history. The first dose of five thousand units was well borne, but, the symptoms not abating, after twenty-four hours twenty thousand units were given, followed by very grave symptoms of anaphylactic shock. Fortunately the patient recovered.

Dr. S. J. Meltzer, New York: I listened yesterday to Dr. Weil's analysis of Besredka's method to prevent anaphylaxis; until Besredka's work we were entirely helpless against such accidents. Their rarity in earlier days was due partly to good fortune and partly to the almost exclusive use of subcutaneous injections. As Auer has shown that the use of atropine will greatly reduce the danger of anaphylactic shock, this drug should be given always when the possibility of anaphylaxis is suspected. Another preventive measure, as Dr. Park has said, is the refinement of biological sera; but, as Dr. Park also pointed out, our present methods of refinement are inefficacious; and it becomes necessary to follow out the work of Gay presented here at this meeting and discover the split protein responsible for anaphylactic poisoning.

Dr. John F. Anderson, U. S. Public Health Service: I feel, with Dr. Flexner, that the preservative present in sera has nothing to do with the production of serum accidents. Not more than four-tenths per cent. of trikresol may be used in sera, and animal experiments have shown that the toxic dose of this and like phenols is enormously greater than that present in any conceivable dose of serum.

Dr. J. J. Kinyoun, Washington, D. C.: I have been studying anaphylaxis by attempting to desensitize animals. A horse was immunized by gradual, repeated injections until the blood became strongly hemolytic; transfusing this blood to another horse, the second horse's blood became strongly antitoxic. A small amount of the antitoxic blood, mixed with a toxic serum, preserved the lives of guinea-pigs, but unfortunately I found that the precipitins increased *pari passu* with the antitoxin..

Discussion closed by Dr. W. H. Park: There can be no doubt that serum from certain horses is more dangerous than that from others. As in Dr. Billings' cases, some one must have the bad experiences. Even in Dr. Billings' series, however, only one had bad symptoms after the second injection. It is possible to desensitize animals by following a small dose in two or three hours by a second injection. I did not wish to underestimate the value of atropine and adrenalin in the treatment of anaphylactic shock; but Auer's work indicates that atropine must be given to the maximum dose to prevent the phenomenon, and is then not always sure to do so. I believe in view of the comparative safety of refined sera, and the rarity of accidents, it is better not to give such large doses of atrophine to combat a condition which may not arise. In the case of the Cincinnati accidents, the same serum had been used on other patients with no ill effects; it is likely, therefore, that here we are dealing with individual idiosyncrasies.

COMMUNICATION ON THE CULTIVATION OF THE VIRUS OF POLIOMYELITIS.

Dr. Simon Flexner, New York: That the cultivation of the virus of poliomyelitis *in vitro* is possible has already been published. The primary culture is obtained with difficulty; it is necessary to place a piece of infected tissue in fluid medium with a piece of organ tissue, such as kidney; the fluid is covered with paraffin oil. Growth is slow and appears first near the organ tissue in the tube. Subcultures can be grown on ordinary agar and ascitic fluid (not all such fluids, however) in equal proportions; the organism grows under anaerobic conditions; therefore, grown in the fluid under paraffin oil, and in agar it grows under the surface. There is nothing very distinctive about the organism; it looks like a coccus, but may prove to be a protozoon; it has, therefore, simply been called a globoid. It is non-motile. It is small enough to pass through a porcelain filter but is not ultramicroscopic. Evidence of its specificity depends on experimental work; the organism has been infective to monkeys to the twentieth gen-

eration. It quickly loses virulence on artificial cultivation, but may be made virulent again by passage through monkeys.

DISCUSSION.

Dr. W. H. Park, New York: I would ask Dr. Flexner in passing cultures of this virus through porcelain filters the organisms can be recovered from the sediment? If so, we may have to revise some of our notions about filterable viruses.

Dr. M. J. Rosenau, Boston: Has any growth been obtained from the filtrate?

Dr. Frank Billings, Chicago: I would like to Flexner if in passing cultures of this virus through evidence that poliomyelitis may occur in the foetus *in utero?* I ask the question because I think, I have seen such a case.

Discussion closed by Dr. S. Flexner: We have not looked into the question raised by Dr. Park for lack of time; but we know that the organism is present in small numbers in the sediment left in the filter. The organism can be cultivated from the filtrate, but with some uncertainty. I have heard of no such case as that mentioned by Dr. Billings.

TRANSMISSION OF POLIOMYELITIS.

Dr. M. J. Rosenau, Boston: (Published, *Journal A. M. A.*, May 24, 1913, p. 1612.)

DISCUSSION.

Dr. Simon Flexner, New York: The statements just made by Dr. Rosenau are too precious not to be carefuly regarded by us all, and the ideas expressed by him need to be widely disseminated. In the interest of Dr. Rosenau's investigations upon the possible conveyance of this disease by insect carriers, it is important that physicians everywhere should submit to him all the information possible.

Dr. Rosenau did not add to the discussion.

(To be continued.)

Book Reviews.

Diseases of the Eye. By George E. deSchweinitz, M.D., Professor of Ophthalmology in the University of Pennsylvania. Seventh Edition. Thoroughy Revised. Pp. 979. 360 text illustrations, and seven lithographic plates. Philadelphia and London: W. B. Saunders Company. 1913.

The seventh edition of this well-known textbook is fully up to the high standard set by previous editions. The results of recent progress have been incorporated in this edition and every chapter shows signs of revision. Among new subjects are, Schiotz tonometer, Ophthalmodiaphanoscopy, Sporotrichosis of lids and conjunctiva, Epithelial dystrophy of cornea, Marginal degeneration of cornea, Progressive atrophy of iris, Blindness from organic arsenic compounds, and trephining of Sclera. The indications for salvarsan and the use of vaccine therapy in ocular diseases are discussed. The book is abreast of the times and a conservative guide to the best ophthalmic practice.

A Text-Book of Biology for Students in Medical, Technical and General Courses. By William Martin Smallwood, Ph.D. (Harvard), Professor of Comparative Anatomy in the Liberal Arts College of Syracuse University. Illustrated. Lea and Febiger, Philadelphia and New York. 1913.

In this volume of 284 pages, the author covers in elementary fashion the principles of biology, with special reference to the needs of medical and other students. In general, he has admirably accomplished his purpose of stating many facts and principles in clear language, free from undue technicality and in drawing certain eminently practical conclusions. The book is, therefore, one which might be taken up with profit by a person wholly unacquainted with the subjects of which it treats. Naturally, in so condensed a statement, occasional wrong, because imperfect, impressions are given; as, for example, in the anatomical description of the nervous system, which, confined to the nervous system of the frog, is summarized in about eight pages. The illustrations are numerous and admirable and the entire book is printed in a most satisfactory manner.

Marriage and Genetics: Laws of Human Breeding and Applied Eugenics. By Charles A. L. Reed, M.D., F.C.S. The Carlton Press, Publishers, Cincinnati, Ohio. 1913.

Dr. Reed has condensed into a small volume of 183 pages, the current knowledge regarding applied eugenics. To accomplish this purpose in so small a compass, he is dogmatic in statement, and thereby lays himself open to the criticism which such dogmatic presentation permits, particularly when dealing with subjects many of which are by no means established as facts. Such statements are, however, of value and carry weight from their very dogmatism. At the same time, it should not be forgotten that the advocates of eugenic doctrines and the laws upon which they are based are prone to attribute to hereditary influences much that may be, and is in fact, being explained as never before by an appeal to environmental conditions. This tendency is inevitable in the enthusiasm of demonstrating the validity of the new science, but it is none the less inevitable that a juster estimate of the problems at issue will follow in due time, when all the facts are properly appraised. The language of the book is at times unnecessarily bombastic, and we particularly regret the use of the improper term "agenic," as the antithesis of eugenic. A much more proper term is that suggested by Southard, "cacogenic." The book is poorly printed, and is quite below the modern standard of book-making.

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THE PERILS OF STATISTICS.

It was a remark of President Kirkland, of Harvard, that "The chief use of statistics is to confute other statistics." Certainly statistics have been subject to as many and as varied uses and abuses as any other engine of human progress, and not the least of the abuses to which they have been applied have been in the supposed interests of medical and other scientific advances. Statistical logic, like good wine, "is a good, comfortable creature, if it be rightly used"; but it is often used to evoke a false sense of comfort from inaccurate or incomplete data, or to conjure up needless alarm by incorrect argument from sound premises. It is as dangerous as any sharp-edged tool for any but the expert and honest to handle; for like a double dagger, it may stab both ways.

In one of his recent addresses, Professor Karl Pearson, perhaps next to Galton the greatest statistical genius the world has known, has called attention to some of the errors of hasty generalization from statistics in the newest of the medico-sociologic sciences, eugenics. For instance, it was argued by one authority that the later children in large families are more susceptible to tuberculosis, and that therefore the decline of tuberculosis is due to the decreasing size of families; without regard to other conditions which make such a deduction *per se* quite unwarrantable. Such a conclusion, indeed, might equally well be used as an argument for the desirability of small families, a result quite the converse of that which the aims of eugenics tend to establish.

Even more common than such aberrations of logic, however, are conclusions rightly derived from imperfect or inadequate data. In this respect vital statistics are not infrequently sources of error owing to the manner in which the crude data are reported or compiled. Not long ago the American Medical Association issued a bulletin commenting as follows on the unreliability of some of our national vital statistics:—

"The present condition of the registration of vital statistics in the United States, considering the country as a whole, is not far from constituting a national disgrace. Unlike practically all other civilized countries, we have no general and thorough system for recording the chief events of human life, and especially the births of our children and the deaths of our people. . . Honest data, fairly presented, will remove the imputation of unhealthfulness from many localities now tainted by the apprehension of unsanitary conditions in the minds of possible incomers. Intelligent immigration will not go where the conditions of civilization are so slack that no regard is paid to human life, even so much as to record its beginnings and endings.

"Some states have no law requiring a registration of vital statistics; in other states the laws are inadequate, and in still others the laws so far have not been effectively enforced. The value of accurate vital statistics to the fundamental principles underlying life insurance is too well known to require mention, and we recommend that for the present the Association give particular attention and such assistance as lies within its power to the passage and enforcement of proper and necessary laws for the registration, preservation and compilation of vital statistics; and that a reasonable sum of money be expended for such purposes."

The first and fundamental essential for any efficient use of statistics to further scientific progress is the accumulation of accurate and complete data. The second essential is the perspicacity of a genius for their interpretation. Statistics are hopelessly bewildering to any but the most extraordinarily gifted mind, and it is even easier to deceive one's self with them than to deceive others. The temptation is irresistible,—nay is so subtle that it is not recognized as a temptation,—to use statistics to prove whatever point one wishes to establish. Indeed their peril is so great as to make one instinctively suspicious of any conclusion reached by their means, and almost to justify that other famous saying of Mark Twain, that "Figures can't lie, but liars *will* figure."

GERMAN NATIONAL HEALTH INSURANCE.

There is at present on exhibition at the Boston Public Library an interesting series of 66 plates representing the various hospitals and sanatoria maintained by the several local governments under the German Empire for the care of patients insured by the state. These pictures form the illustrations of a valuable work, "Invalidenversicherung und Arbeiterwohlfahrt," published in 1910 to commemorate the twenty-fifth anniversary of the establishment of German national insurance. At first, this consisted merely of an old-age pension system, later extended into an insurance against disability from accident or occupation disease. Finally, in 1896, this was elaborated into an extensive, voluntary health insurance and state provision of hospital care for those thus insured. From 1896 to 1908, over 200,000 such persons were received as patients in state hospitals and sanatoria. In 1908 alone, 36,133 insured patients, of whom one-third were women, were treated, at a cost to the government of $3,350,000.

The institutions at which this state care is provided, as illustrated in the plates now on exhibition, are of three sorts,—first, sanatoria for the out-door treatment of tuberculosis, with associated free clinics for examination and early diagnosis; second, special hospitals for the treatment of the various acute diseases; and third, convalescent homes and institutions for the treatment of alcoholism.

The present experiences of Great Britain in the attempt to establish a system of national medical insurance give additional and timely interest to these illustrations of the working of an apparently successful method of health insurance in Germany. The pictures at the Boston Public Library are to remain on view until the fourth of October, and it is to be hoped that every physician who has opportunity, will take occasion to inspect this important exhibition.

THE MILK SUPPLY OF BOSTON AND PARIS.

With the coming of autumn will undoubtedly be resumed the perennial discussion, legislative and popular, about the Boston milk-supply. It may, therefore, be of interest to quote the following statement by M. Guichard, relative to the methods adopted at Paris, a city having essentially the same per capita consumption of milk as Boston.

"There have been established in France about 250 collecting stations, the average receipt of which is 4200 quarts. Between three o'clock and six in the morning the milk is collected, and on its arrival at the station is mixed in tanks of a capacity of five hundred to two thousand quarts, pasteurized within the limits of 167° and 176°, then cooled to below 50°, and put into pots of ten, sixteen or twenty quarts, which are sealed and placed until the time of shipment in tanks of cold water. About four o'clock the afternoon milking is collected, similarly treated and the two collections, usually with distinguishing marks, go to Paris together, arriving there in the night. The treatment thus gives the city the milk of the previous day and delivers it to the stores or to large customers in original packages after pasteurization. The milk received is a mixture of that of many cows and affords the reason why its quality is not to be affected by any local condition of a farm, but only by conditions of time of day or season. The evening milk is found to be richer, while the winter season produces deficiency in butter fats. The distribution after the milk reaches the city is under the eye of the authorities of Paris."

Whether it would be effective or desirable to adopt the same or similar methods in Boston, is a question yet to be answered. The fact remains that, for all the fault found with it, Boston already has as good a milk supply as most large European cities, and probably better than many.

DISINFECTION OF LETTERS A CENTURY AGO.

In a recent issue of the *London Times* was reprinted the following item published in that paper under date of Sept. 16, 1813 relative to a device for preventing infection by fumigating letters coming to England from ports where the plague was then epidemic.

"Plague-infected letters being sometimes received in this country from ports in the Mediterranean, where the plague prevails, without its being known here, the merchants at the foreign port keeping it secret to avoid quarantines, and for other obvious purposes; no letter from the Levant, therefore, should ever be read until it has been fumigated open. Information of the plague, now unhappily raging at Malta, was suppressed by the natives for nearly three weeks, to the imminent danger of all correspondents. This alarming circumstance, so frequently

occurring, the late symptoms at Wapping, and the present plagues at Odessa and Smyrna, as well as at Malta, have induced an English chemist to construct a convenient machine for fumigating foreign letters, and also for purifying the infected air of rooms, ships, etc., with the oxygenated muriatic acid gas of M. Guyton de Morveau, a celebrated French chemist. It is now used in the hospitals of Paris, and is the same that prevented a contagion spreading in Spain. It is allowed by all British chemists to be the most efficacious ever discovered, being more convenient and more diffusive than that used on board ships of war, for the discovery of which £5000 were voted by Parliament. Subscribers of seven pounds, at the bank of Messrs. Everett, Walker and Company, opposite the Mansion-house, London, will be furnished with the mahogany chest, apparatus, composition, and instructions for making and using the disinfecting gas the vessel attending which will fumigate daily for six months, by opening it only. As soon as an hundred are subscribed for, the delivery will commence. They should be exported to every part of the world, at this crisis, when plagues afflict three places, as it will prevent infections of all sorts, the yellow fever not excepted."

It would appear from the concluding sentence that some doubt had already at that time arisen as to the transmission of yellow fever by fomites.

MEDICAL NOTES.

Bubonic Plague in California and Japan.—Report from San Francisco states that on Sept. 12 a death from bubonic plague occurred in the neighboring town of Martinez. It is believed that the disease was not of exoteric origin, but was communicated through the agency of infected ground-squirrels. On Sept. 23 a death from plague was reported at Yokohama, Japan.

Foot-and-Mouth Disease in Argentina.—Report from Argentina states that an epizoötic of foot-and-mouth disease is at present prevailing among the short-horned cattle of that country. Over 200 cases of the infection are said to have occurred.

The Gestation of Kangaroos.—Before the recognition of the true nature and structure of the marsupials, it used to be supposed that their pouch was an external uterus in which the young were developed from conception. Cunningham, writing of kangaroos, said: "From this singular mode of gestation, you may handle the *fetus in utero* and pull it about by the tail, like a kitten, from the moment of its appearance there up to the very day of its birth, without causing either pain or annoyance to it or its mother." As a matter of fact kangaroos are born in the usual mammalian manner, but in an embryonic stage of development, and are then carried in the mother's pouch for about eight months before they become independently viable.

Mesothorium in Germany.—Apparently the use of mesothorium in the treatment of cancer is the latest popular medical fad in Germany. A Munich correspondent of the London *Times* writes, under date of Sept. 12:—

"All Germany is obsessed with the idea of procuring mesothorium to be used as a panacea for cancer. It is stated to have the power of emanating rays similar to, but much more effective than radium, and the cost seems to be almost as great. The substance is derived from the thorium waste in the manufacture of gas mantles, and it is used in tiny portions enclosed within a silver covering in which extremely small holes are pierced.

"There is hardly a town of importance in the country which has not voted a large sum from the public funds for the purpose of purchasing some of the costly material, and where public funds are not forthcoming, concerts, bazaars, and such like means are adopted for raising money for the same purpose."

Arsenic Poisoning from Sprayed Apples.—It is reported that several recent obscure cases of arsenic poisoning in Norway have been explained as due to eating American apples from orchards sprayed, after the fruit had set, with an insecticide consisting of a mixture of Bordeaux solution and Paris green; and it is averred that traces of arsenic were found upon analysis of the powder scraped from the skin of apples imported for sale from the American market.

Number of Hawaiian Lepers.—There are at present about 700 lepers in the United States leper colony at Molokai, and about 100 in the isolation hospital at Honolulu. The majority of the patients are native Hawaiians.

Phthisis Chalets in Scotland.—It is reported that the Public Health Committee of Greenock, Scotland, has recently purchased a twenty-acre tract of land, on which it will erect a number of so-called phthisis chalets for the

isolation and treatment of advanced cases of pulmonary tuberculosis.

Comparative Death-Rates in English Cities.—Statistics recently published show that during the week ended Sept. 6, the total death-rate of London was only 12.4. During the same period the death-rate of Liverpool was 17.3; that of Manchester, 15.1; Birmingham, 15.3; Bristol, 11.1; Sheffield, 16.3; and Leeds, 13.3. Among the larger English cities, the highest death-rate for this period was 26.4 at Wigan, a manufacturing and coal-mining centre in Lancashire; and the lowest was 4.0 at Swindon, a city of Wiltshire, whose population is largely composed of young adult males engaged in railroad engineering works. In Greater London, during the week in question, there were 3154 recorded births and 1647 deaths, of which 199 were due to enteritis in children under two years of age.

Cholera in Roumania.—Report from Bucharest on Sept. 22 states that there are at present over 1000 cases of Asiatic cholera in that city.

Artificial Legs.—It is said that the supply of English willow, which has heretofore been used almost exclusively for the manufacture of artificial limbs, has diminished to such an extent that a substitute must be found. It is believed that a certain cedar growing on the Pacific Coast may prove equally satisfactory. Experiments are being conducted to determine this point.

International Congress on Alcoholism.—The Fourteenth International Congress on Alcoholism, which met last week at Milan, Italy, adopted resolutions favoring the organization of an international federation of physicians opposed to the use of alcohol as a drug. At the closing session of the congress, it was announced that the next (fifteenth) meeting will be held in the United States, at Atlantic City in 1914.

A Living British Centenarian.—Mr. William Hoather, of Lewes, England, who is said to have been born in September, 1812, celebrated last month his supposed one hundred and first anniversary. His health is still excellent. He has spent his entire life in Lewes, where he worked as a bricklayer until he was over eighty years of age.

An Irish Centenarian.—Mr. Hugh Kelly, of Corrinshego, Ireland, who died last month at Newry, is said to have been born in 1812. He was by occupation a farmer, but by habit a total abstainer from neither alcohol nor tobacco.

A Vigorous Anglo-American Nautical Centenarian.—Mr. Edward Munroe, of Islington, London, a pensioner of the British Naval reserve, is said to have been born on Sept. 8, 1809, and celebrated last month his supposed 104th anniversary by attending a kinematographic exhibition. He enlisted in the United States Navy in 1826, and for some time saw active service in pirate-hunting. Later he rose to be a quarter-master, and in that capacity served throughout the Civil War. He then entered the English merchant marine, in which he continued until 1898, when he retired, after following the sea for 72 years. In 1910 he suffered a fracture of the neck of the femur, from a fall, but has recovered sufficiently to be able to walk without the assistance of a cane. This alert and vigorous nautical centenarian, who has led a prolonged life of great activity and exposure, and has never abstained from the use of alcohol or of tobacco, personally attributes his longevity and good health to the fact that he has thus far remained a bachelor.

BOSTON AND NEW ENGLAND.

Decrease in Defects of Hearing and Vision.—That medical inspection, treatment, and hygienic supervision of school children seem to be already producing results of value is suggested by the fact that whereas in 1907 there were in the Boston public schools 6829 pupils with defective hearing, in 1913 this number was reduced to 3224. In 1907, there were 26,435 pupils with defective vision, of whom 8535 were wearing glasses; in 1913, there were only 12,581 with defective vision, of whom 5950 were wearing glasses.

Angell Memorial Hospital.—On Saturday morning of last week, Sept. 27, ground was broken, near the corner of Longwood and Huntington Avenues, Boston, for the new Angell Memorial Hospital for Animals.

Award of Warren Triennial Prize.—The Warren Triennial Prize for 1913, consisting of $500, has been awarded to Dr. Prof. Arrigo Visentini, instructor of pathological anatomy

Royal University, Pavia, Italy, for his essay entitled, "La Fonction du Pancréas et ses Rapports Avec la Pathogénése du Diabête."

Examination of Milk Samples.—The Boston Board of Health is publishing for distribution to all physicians and medical associations or societies that may apply, a semi-monthly report on the bacteriological examination of milk samples, giving their bacterial count, with names of dealers who have failed to comply with the standard of the Board of Health.

Infectious Diseases.—Cases of infectious diseases reported to the Boston Board of Health for the week ending Sept. 23, 1913, are as follows: Diphtheria, 54, of which 2 were non-resident; scarlatina, 19, of which 2 were non-resident; typhoid fever, 37, of which 3 were non-resident; measles, 10; tuberculosis 37, of which 1 was non-resident.

The death-rate of the reported deaths for the week was 15.03.

Jewish Hospital.—It is stated that a Jewish Hospital will soon be built in Boston at an approximate cost of $125,000. This decision has been reached through a vote of delegates representing the Beth Israel Hospital Association of Greater Boston. An amalgamation will be made with the Mt. Sinai Hospital and the new organization will be known as the Boston Jewish Hospital Society.

Industrial School for Crippled and Deformed Children.—The twentieth season of the Industrial School for Crippled and Deformed Children began on Monday of this week. The object of this school is to make work possible for handicapped persons. To this end various industries, for example, printing, sewing, wood-working, basketry and cane-seating have been established. It is hoped that, as heretofore, this excellent work may be supported through public patronage.

NEW YORK.

Contagion in Scarlet Fever.—In a published interview Dr. John B. Murphy of Chicago, on his arrival from abroad recently, is credited with the statement that at the International Medical Congress in London evidence was presented to the effect that if scarlet fever patients are rubbed daily with eucalyptus oil contagion may be prevented; so that it is unnecessary to quarantine the house or isolate the patient. Fearing the dangerous effect which this announcement might have in the community, Dr. A. H. Doty, for so long health officer of the port, has come out in a public communication in which he states that this view is so antagonistic to those held by practical sanitarians of today, and so directly opposed to our present knowledge of the subject, that he feels sure that Dr. Murphy simply referred to the theory as one of the many presented at the congress without giving it his personal endorsement. Having referred to the fact that during the past few years indisputable evidence has been presented that our theories regarding the transmission of certain infectious diseases, such as yellow fever, malaria, bubonic plague, and typhus fever, were wrong, Dr. Doty says that during this period careful investigation has shown that the principal causes of infection in scarlet fever and measles are the discharges from the nose, throat and ears. Furthermore, there is reason to believe that continued investigation will show that desquamation is a negligible factor in the transmission of infection. Even if eucalyptus oil has definite germicidal action when applied to the skin, it would in no way avert the danger from the discharges which constitute the principal media of infection.

Poliomyelitis.—The *Monthly Bulletin* of the State Department of Health states that a report of the special investigation of the epidemic of poliomyelitis in Buffalo in 1912, by Drs. W. H. Frost and J. P. Leake of the U. S. Public Health Service, has recently been submitted to the department. Some of the statistics were as follows:—

Cases reported as poliomyelitis, or suspected poliomyelitis, from January 1 to November 7, 1912,		355
Diagnosed as "not poliomyelitis"	26	
Diagnosis doubtful	12	
		38
Diagnosis confirmed—poliomyelitis		297
Cases classed as "abortive," terminating in recovery without definite paralysis		16
Cases of poliomyelitis resulting in paralysis		281

The epidemic was of gradual, rather than explosive, development, showing a progressive increase from the first of June to the middle of August and a gradual decline, interrupted by a secondary rise in the middle of September. The summer of 1912, and notably the month of August, was cool, while the mean temperature for September was considerably above the nor-

mal, suggesting that the weather conditions may have been to some extent responsible for this increase. The month of greatest prevalence, August, was a month of unusually heavy rainfall, fairly uniformly distributed; so that there is no evidence that the excessive prevalence of dust was an important factor in the causation of this epidemic. Cases occurred in all parts of the city, and in certain sections the epidemic had already reached its maximum and declined before other sections were at all affected. The epidemic first developed among the Italians, and the prevalence among these was proportionally greater than among the other elements of the population. Based upon the estimated number of the two classes, the disease was about 46 times more prevalent in children under 10 years of age than in older persons. Many other interesting facts are noted in the report, and the figures given indicate that poliomyelitis is not highly contagious in the ordinary sense of the word; but the study of this outbreak has developed nothing new or distinctly unusual in the epidemiology of the disease.

Typhoid Fever Due to Milk.—An outbreak of typhoid fever has occurred in the east side district of the city, between Sixth and Fortieth Streets, and an investigation by the Health Department showed that it was attributable to the milk supplied by one dealer. So far as announced, the investigation has not yet determined the exact source of the infected milk, but a rigid scrutiny is being made of the dairy farms furnishing the milk to the company supplying the dealer in question. Orders were at once issued, however, prohibiting the company from selling any but pasteurized milk. From Sept. 1 to Sept. 24, 255 cases of typhoid were reported from the district named, and a large number of the patients are being treated in Bellevue Hospital.

National Council for Industrial Safety.—The second Safety Congress of the National Council for Industrial Safety was held on Sept. 23, 24 and 25, and on the opening day Dr. W. H. Tolman, of the American Museum of Safety, who recently attended a similar congress in Holland, made an address in which he gave an account of the safety movement in Europe.

Bequests.—Among the charitable bequests in the will of Homer N. Lockwood, who died recently in Washington, are $20,000 to the Auburn (N. Y.) City Hospital, and $5,000 each to the Women's Hospital and the Presbyterian Hospital in New York.

Harvey Lecture by Dr. Augustus D. Waller.—The coming course of lectures under the auspices of the Harvey Society begins on Saturday, Oct. 4, 1913, at the New York Academy of Medicine, at 8.30 p. m., with a lecture by the distinguished physiologist of the University of London, Augustus D. Waller, M.D., F.R.S. His subject will be "A short account of the origin and scope of electrocardiography." Dr. Waller comes from London especially to give this lecture and brings with him his own apparatus, with which he will give demonstrations during the lecture. He is a pioneer in animal electricity and was the first to record the human electrocardiagram.

Bureau of Eugenics in Jersey City.—A Bureau of Eugenics has been recently established in Jersey City, and on Sept. 23 Dr. Joseph J. Carven, of the local board of health, was appointed chief of the new bureau.

Current Literature.

New York Medical Journal.

September 6, 1913.

1. Ogilvy, C. *Orthopedics in General Practice.*
2. Randolph, B. M. *Vaccine Treatment of Typhoid Fever; Report of Cases.*
3. Mulford, H. J. *The Foundation of Education.*
4. Deeks, W. E., and Baetz, W. G. *An Analysis of Five Hundred Fatal Medical Cases in the Tropics.*
5. Cunningham, W. P. *Cutis—Index Morbi.*
6. Green, L. *Vincent's Angina.*
7. Fisher, J. W. *The Rational Treatment of Pustular Skin Diseases.*
8. Goldstein, S. *Double Drainage Tubes (Inner and Outer) for Nares after Submucous Resection of the Septum.*
9. Manion, R. J. *Three Cases of Acute Gastro-intestinal Intoxication with Constipation and a Suggested Method of Surgical Treatment.*

September 13, 1913.

1. Knopf, S. A. *Discarded Battleships to be Used as Sanatoria and Open Air Schools.*
2. Beattie W. J., and Myers, E. E. *The Relative Value of Turtle Tuberculin in the Treatment of Tuberculosis.*
3. Robinson, D. D. *Hygiene of the Skin.*
4. Clark, A. S. *Internal Causes of Skin Diseases.*
5. Mackee, G. M., and Remer, J. *The External Causes of Skin Diseases.*

6 BOEHME, G. F., JR. *The Therapeutic Value of Oral Prophylaxis and Treatment.*
7. RIDDELL, W. R. *The Botanic Family Physician.*
8. KNOX, H. A. *Two New Tests for the Detection of Defectives.*
9. *OGAN, M. L. *Cerebrospinal Meningitis; Its Occurrence in New York City During Half a Century; References to Some Recent Literature.*

9. Ogan gives some interesting statistics on the occurrence of cerebrospinal meningitis in New York City during the past fifty years. Outbreaks of this disease have shown a remarkable periodicity and seem to be due to an accumulation of susceptibles. The virulence of the meningococcus varies greatly, too, and this is a factor of the greatest importance. Subdural administration of the Flexner serum has proved to be distinctly beneficial, the case fatality in serum treated cases having been reduced at least one-half over the old rate of over 70%. Flexner's analysis of a world-wide series of 1,294 cases shows a fatality of only 31%. [L. D. C.]

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

SEPTEMBER 20, 1913.

1. BLOODGOOD, J. C. *The Added Responsibility of the Surgeon When Called to Treat Surgical Lesions in Their Earlier Stages.*
2. BIXFORD, E. *The Mechanics of Production of Certain Fractures: Greenstick Fractures, Buckling Fractures, Flexion and Torsion Fractures.*
3. *CASE, J. T. *Roentgenoscopy of the Liver and Biliary Passages, with Special Reference to Gall Stones.*
4. *CHILDS, S. B., AND SPITZER, W. M. *Roentgenographic Study of the Normal Kidney, the Pelvis and Ureter.*
5. *FREEMAN, L. *The External Bone Clamp versus the Internal Bone Plate in the Operative Treatment af Fractures.*
6. *WILLIAMS, J. R. *A Study of the Use of Ice and Other Means of Preserving Food in Homes.*
7. *BRAASCH, W. F. *Clinical Observations on Essential Hematuria.*
8. GERAGHTY, J. T., AND ROWNTREE. *The Value and Limitations of Functional Renal Tests.*
9. BLUE, R. *The Public Health Aspect of Leprosy in the United States.*
10. BOECKMANN, E. *Clinical Aspect of Leprosy.*
11. DYER, I. *The Dermatologic Aspect of Leprosy.*
12. TRASK, J. W. *Morbidity Reports: Their Purpose and Present Status.*
13. FURNISS, H. D. *Postoperative Renal Infection.*
14. *CORLETT, W. T. *Two and One-Half Years' Experience with Salvarsan and Neosalvarsan.*
15. AUSTIN, E. D. *A Simple Toruniquet.*
16. THOMASON, H. E. *Golf Ball Burn of Eye.*

3. Case illustrates his article with some extremely fine plates, clearly showing gall stones in the gall bladder.

4. Childs and Spitzer show some beautiful plates of normal kidneys injected with collargol, and draw the following conclusions from their work: Unless the lower border of the pelvis is concave it is abnormal. A pelvic content of over 15 c.c. should be viewed with suspicion and investigated further before its normality is accepted. Angulation curves and kinks of the ureter are found in normal persons without symptoms. Pain, shock and temperature are caused by rapid distention of the kidney pelvis rather than by any particular kind of drug used.

5. Freeman sets forth in a rather attractive manner the advantages of the external clamp as opposed to the internal plate in fractures.

6. Williams states that most of the refrigerators used in homes for the preservation of food in warm weather are almost worthless and grossly uneconomical. With proper refrigeration the cost in ice could be reduced at least one-fourth of its present cost.

7. Braasch discusses interestingly so-called essential hematuria. He finds it predominating in the male sex, more often occurring on the right side, generally in patients over 40 years of age, and giving a hemoglobin in patients coming to operation of about 63%. He does not believe that the most commonly accepted theory of its origin, that of nephritis is a correct one.

14. Corlett gives some very interesting experiences with salvarsan and neosalvarsan of the type that shows its dangers and difficulties. [E. H. R.]

THE JOURNAL OF MEDICAL RESEARCH.

AUGUST, 1913.

1. *MACNIDER. *The Effect of Different Anesthetics on the Pathology of the Kidney in Acute Uranium Nephritis.*
2. SMITH, G. M. *Morphological Changes in Tissue with Changes in Environment. Replacement of Surface Epithelium of Grafted Tissue by Adjacent Epithelium.*
3. SURFACE AND ROUTT. *Studies on the Complementary and Anti-hemolytic properties of Normal Sheep Serum.*
4. KENDALL, DAY AND WALKER. *Studies in Metabolism. XII. The Selective Action of Certain Bacteria on Peptone.*
5. HARRIS. *The Association of Tuberculosis and Malignant Growths.*
6. BULLOCK AND ROHDENBURG. *Primary Sarcoma of the Liver of the Rat Originating in the Wall of a Parasitic Cyst.*
7. KOLMOR, YUI AND TYAN. *Concerning the Activity and Fixability of Complement in Rat Serum.*
8. WEIL. *The Intravascular Implantation of Rat Tumors.*

1. MacNider produced changes, vascular as well as epithelial, in the kidneys of dogs by the injection of uranium nitrite. These were found more pronounced in adult and old dogs than in puppies. These changes were found increased in severity following the administration of such anesthetics as Gréhant's solution, consisting of chloroform and alcohol, and ether. The pathological changes, due apparently to the anesthetics, were less marked following ether than Gréhant's solution. [L. H. S.]

THE ARCHIVES OF INTERNAL MEDICINE.

JULY, 1913.

1. *HEWLETT, A. W., ZWALUWENBURG, J. G. V., AND AGNEW, J. H. *The Pulse Flow in the Brachial Artery.*
2. *FITZ, R., AND ROWNTREE, L. G. *The Effect of Temporary Occlusion of Renal Circulation on Renal Function.*
3. *SYMMERS, D., AND WALLACE, G. H. *Observations on the Pathological Changes in the Thyroid Gland in a Cretinistic Variety of Chondrodystrophic Foetalis.*
4. *O'HARE, J. P. *Experimental Chronic Nephritis Produced by the Combination of Chemical and Bacteria.*
5. *O'HARE, J. P. *Acute Renal Lesions Produced by Uranium Nitrate in the Dog in Comparison with the Rabbit.*
6. HUNT, C. J. *Paratyphoid Fever; A Serologic Study in Relation to the Epidemiology.*
7. *PEPPER, O. H. P., AND PEET, M. M. *The Resistance of Reticulated Erythrocytes.*
8. BAYNE-JONES, S. *Simplified Methods for Quantitative Estimation of Chlorids in the Urine.*
9. ROSS, E. L. *A Preliminary Note on the Excretion of Indol-Acetic Acid in the Urine.*

1. Hewlett, Zwaluwenburg and Agnew studied the pulse flow in the brachial artery with the plethysmograph, especially the effect of nitroglycerin and of aortic insufficiency upon it. They find that the volume pulse is not a reliable index of changes in the blood flow through the arm. In different pathologic conditions the two bear no relation to each other. In a single individual the volume pulse is relatively small when very fast flows are produced by heat and by exercise, and it is relatively large after nitroglycerin has been given. A peripheral reflection of the primary pulse wave, due to the elastic recoil of the peripheral arteries, may produce a negative wave of flow in the brachial artery during late systole. This is a very prominent feature of the nitroglycerin pulse. In aortic insufficiency the brachial pulse flow has a large primary wave, dependent in part on the unusual amount of blood expelled by the left ventricle during systole, and in part on the relaxed condition of the arterial tree. There is often a rapid back flow during diastole, due mainly to the regurgitation into the left ventricle. There is also a back flow during the latter portion of systole, due indirectly to an elastic recoil of the peripheral arteries.

2. Fitz and Rowntree studied the effect of temporary occlusion of renal circulation on renal function in dogs and rabbits. They found that forty minutes was the longest time that renal circulation could be clamped without killing the animal. With circulation through the kidneys occluded not longer than this, temporary disturbance of function was produced, disappearing within six days. Acute or healed pathologic changes were found in kidneys so treated —edema, hemorrhage, necrosis, cellular infiltration and (in healed cases) foci of connective tissue.

3. Symmers and Wallace present autopsy protocols of five cases of chondrodystrophia fetalis. In these cases they have observed anatomic changes which suggest an intimate association between this disease and cretinism, and in every case they were able to demonstrate histologic alterations in the thyroid gland sufficient to account for the cretinistic phenomena.

4 and 5. O'Hare reports on further studies of experimental nephritis in dogs and rabbits. He finds that chronic renal lesions can be produced with considerable regularity by injections of a chemical agent (uranium nitrate) and a bacterial agent (B. coli communis) in combination. The lesions so produced are very similar to the renal lesions of chronic interstitial nephritis in man. He finds the dog's kidney more resistant to the action of uranium nitrate than the rabbit's. The glomerular lesion with the formation of hyaline droplets in the wall of the capillary tuft is produced with great difficulty in the dog.

7. Pepper and Peet studied the red corpuscles of the blood by the method of vital staining. Reticulation is the most important of the intra-erythrocytic phenomena. It is an evidence of youth of the cell. It is probable that reticulated red corpuscles show greater resistance to hemolytic agents than do unreticulated forms, although satisfactory proof of his has never been presented. [L. D. C.]

Surgery, Gynecology and Obstetrics.

September, 1913.

1. Byford, H. T. *The Significance of Anemia as an Operative Risk.*
2. *Cullen, T. S. *Operations on Patients with a Hemoglobin of Forty Per Cent. or Less.*
3. Webster, J. C. *The Conduct of Pregnancy and Labor in Acute and Chronic Affections of the Heart.*
4. *Reynolds, E. *The Conduct of Gynecological Operations in the Presence of Chronic Affections of the Heart.*
5. Polak, J. O. *The Conduct of Gynecological and Obstetrical Operations in the Presence of Acute and Chronic Endocarditis.*
6. *Morley, W. H. *The Calcium Content of the Blood During Pregnancy, Labor and Puerperium.*
7. Coe, H. C. *Pathology the Basis of Gynecology.*
8. *Findley, P. *The Management of Puerperal Thrombophlebitis.*
9. Cargin, E. B. *Under What Conditions Should Uterine Inertia Be Treated by Artificial Delivery?*
10. *Robb, H. *Iodine in Sterilization of the Skin.*
11. *King, A. F. A. *Uterine Carcinoma. Another Hypothesis as to Its Cause and Prevention.*
12. Taussig, F. J. *Factors in the Formation of Skin Striations During Pregnancy.*
13. Law, A. G. *Ventral Tumors of the Sacrum.*
14. *Smith, R. R. *Intra Uterine Fracture.*
15. Cobbins, W. R. *Compilation of the Methods Used and the Results Obtained by Fellows of the Chicago Surgical Society in Brain Surgery.*

2. Cullen believes that, as a rule, patients with a relatively low hemoglobin stand pelvic or abdominal operations fairly well, but when carcinoma of the cervix or body of the uterus exist the danger is materially increased.

4. Reynolds believes that with an internist in charge of the heart condition, and with all the other safeguards to operation present, it is very rare for a chronic cardiac lesion to contraindicate a needed operation.

6. Morley finds a noticeable reduction in the calcium content of the blood during pregnancy and the puerperium, and suggests that the toxemias of pregnancy may be in some future time found to be related to such a disordered condition of the calcium content.

8. Findley finds no justification for operative removal of the veins in puerperal thrombophlebitis, and believes that the procedure is dangerous and particularly liable to open up fresh areas for infection. Vaccines and serums are likewise useless. General supportive treatment is our greatest mainstay.

10. Robb believes that there is no certain method of sterilizing the skin. Tincture of iodine in all probability possesses a definite inhibitive action on the growth of bacteria, but sterilization is not to be relied upon and should be used only when more elaborate forms are contraindicated.

11. King advances the theory of spermatic infection of somatic cells which have become sexualized as the origin of cancer.

14. Smith's paper is a thorough review of the subject, illustrated with a few plates and many cases in point. [E. H. R.]

Munchener Medizinische Wochenschrift.

No. 33. August 19, 1913.

1. Basler, A. *The Sense of Taste.*
2. Helly, K. *The Pathology of the Adrenal Glands.*
3. *Dieterle, T., Hirschfeld, L., and Klinger, R. *Studies on Endemic Goitre.*
4. Wesener, F. *Two Years' Experience with the Wassermann Reaction.*
5. Bitter, L. *A Useful, Easily Prepared Organ Extract for the Wassermann Reaction.*
6. Vogt, E. *Addison's Disease and Pregnancy.*
7. *Straub, W. *The Danger of Combining Morphia with Narcotics or Hypnotics.*
8. Hauck, L. *A Fatal Case of Blood Poisoning in Man from the Use of Potassium Cyanate of Gold.*
9. Jelke, R. *The Use of Collargol Intraperitoneally in Diffuse Purulent Peritonitis.*
10. Rauschenberger. *A Case of Gonorrheal Tenosynovitis.*

11. Auerbach, B. *A Case of Caseous Pericarditis with Autopsy.*
12. Schurig. *The Treatment of Sciatica.*
13. Sander, H. *A Case of Acute Gonorrheal Spondylo-arthritis.*
14. Friedlander. *Seasickness and Vagotony.*
15. Cremer, M. *John Seeman.*
16. Fieesler, A. *Legal Requirements for Practising Physicians.*

3. Various authors have claimed a definite relation between endemic goitre and mountain springs. Dieterle, Hirschfeld and Klinger studied the inhabitants of fourteen Swiss hamlets. At the same time the drinking water of the same towns was investigated by geological experts as regards the nature of the soil through which the water passed and as to the geological formation at its source. No coincidence between goitre and any geological formation was found. In those villages where the water supply was derived from several springs, the cases were scattered widely, and where there was but one water supply were so distributed that such factors as crowding and general hygiene seemed of as much importance as the character of the water. Experiments were made on dogs and rats kept in towns where goitre was endemic or not, who were fed or injected from day to day with water taken from various springs. Where goitre was endemic, the animals acquired the disease whether given water from that district or from a spring where there was no goitre. On the other hand, in places where the disease was rare, it was impossible to produce it by feeding the animals water from that district or from a spring where goitre was common, except in a few cases where contact infection could not be excluded. From these facts, Dieterle, Hirschfeld and Klinger believe that drinking water is not of primary importance as a cause of endemic goitre.

7. Straub saw a patient with a slight injury who was given a small dose of morphia, and was later enesthetized with chloroform. Sudden death from respiratory paralysis occurred. As a result experiments were made to determine whether morphia and chloroform together will increase the toxic action of either of the two drugs. Rabbits were injected with enough morphia to decrease respiration one-fifth. Various anesthetics were then given, including chloroform, ether, and chloral. The immediate result was to lower respiration markedly, lasting until the effect of the anesthetic had passed off. Straub discusses various possibilities as to the cause of this phenomenon. He conclude that the action of the morphia in general narcosis may be fatal. This fact does not necessarily contra-indicate the combined use of narcotics, but should influence the choice of drugs. When morphia is given, ether, on account of its stimulating action on respiration, should be preferred to chloroform. In children and individuals susceptible to morphia, narcotics in combination should be avoided.

Il Policlinico.

August, 1913.

medical section.

1. Giuseppe, M. *Clinical Observations on the Syphilitic Reinfections, Superinfections and Relapses of Primary Type.*
2. Righi, I. *On the Importance for the Etiology of Rabies of Certain Free Bodies Recently Described.*
3. Daretti, N. *On the Behavior of the Nitrogenous Compounds in the Urine in Certain Febrile Diseases.*
4. Zanda, G. B. *Certain Changes Which Accompany the Putrefaction of Blood Serum..*

[L. D. C.]

surgical section.

1. Chiavaro, A. *Scarlet Red and the Obturation of Pathologic Bone Cavities in Dentistry.*
2. *Razzaboni, G. *Experimental Researches on the Behavior of Epiphyseal Cartilages in Operative Articular Interventions.*
3. Leota, N. *Wounds of the Heart.* (*To be continued.*)
4. Abetti, M. *Two Cases of Primary Endothelioma of the Bones.*
5. *Piccioli, G. *Some Observations on the Treatment of Testicular Ectopy.*
6. Barnabo, V. *The Relations of the Sexual and Hypophyseal Glands.*

2. Razzaboni made four series of experiments on rabbits to determine the behavior of the inferior femoral epiphysis following arthrotomy of the knee-joint, arthrectomy of the knee-joint, resection of the knee-joint, and in prolonged immobilization of the knee-joint. His conclusion is that the majority of such interventions do not have any deleterious action on these cartilages.

5. Piccioli describes his operative technic in the treatment of undescended testicle, particularly with regard to bringing the testicle down and fixing it beyond the external ring. He believes the essential elements to be adequate elongation of the cord and secure anchorage of the testicle and closure of the new ring. [R. M. G.]

Archiv für Klinische Chirurgie.

Vol. 101. Part 4.

40. *Heile, B. *The Epidural Space.*
41. Goebel. *Experiences in Military Surgery on the Expedition of the German Red Cross to Tripoli.*
42. Colmers. *The Effects of Pointed Bullets.*
43. Waljaschko, G. A., and Lebedew, A. A. *The Prevention of Hernia and Prolapse after Laparotomy.*
44. Burckhardt, H. *Infection of the Chest Cavity.*
45. Tiegel, M. *Spontaneous Healing of Wounds of the Lung.*
46. Finkelstein, B. K. *Surgery of the Large Intestine, Especially the Rectum.*
47. Rehn, E. *The Use of Autoplastic Fat Transplants in Dura and Skull Defects.*
48. Girard, C. *Dysphagia and Dyspnea Lusoria.*
49. Schewandin, M. *End Results of Lexer's Arthrodesis in the Ankle.*
50. Guleke. *Penetrating Injuries of the Chest.*
51. *Sprengel. *The Choice of Narcotics in Operations for Acute Inflammatory Conditions in the Abdomen.*
52. Nordmann, O. *Transjejunal Drainage of the Liver.*
53. Rasumowsky, W. J. *The Surgical Treatment of Cortical Epilepsy.*
54. Voelcker, F. *Operations on the Seminal Vesicle.*
55. Rittor, C. *The Diminution of Hemorrhage in Brain Operations.*

40. This article is a study by Heile of the anatomy of the epidural space, with the application of his finding to the technic of epidural anesthesia. He finds that this space is divided into two halves by a longitudinal septum, and that each half extends from sacrum to tentorium cerebri without communicating with the others.

51. Sprengel describes a complication which has followed a number of his appendectomies with fatal outcome. This is acute yellow atrophy of the liver, a condition which he carefully differentiates from pylephlebitis. From the reports of others, who found this condition occurring even when there was no peritonitis and from his own observations, he believes it to be due to the use of chloroform as an anesthetic. He has, therefore, given up this drug in cases of sup-

puration in the abdomen, using instead ether supplemented by morphine and atropine. He gives the history of seven fatal cases and three recoveries.

52. Nordmann has used successfully a new method for anastomosing the bile duct and the intestinal tract in a case of obstruction to the common duct combined with absence of the gall-bladder. A loop of jejunum is short-circuited by an entero-enterostomy at its base. To the apex of this loop the severed bile duct is joined by oblique implantation. A slender rubber tube passes from the bile duct, through the lumen of the jejunum, and out again to the surface of the abdomen, to act as a temporary splint and drain, and later be removed. [G. G. S.]

Revue de Médecine.

August, 1913.

1. *Lépine. *The Progress of Our Knowledge of the Pathogenesis and Treatment of Diabetes Mellitus and of Acetonemia.*
2. Trunevels. *The Anastomoses Between the Small and the Great Circulation of Blood, in the Normal and Pathological State.*
3. Benon and Cier. *The Asthmic Form of General Paresis.*
4. Lubetzki. *The Psychasthenic Diathesis.*
5. *Belkowski. *Hematuria Resulting from the Use of Urotropine in Typhoid Fever.*

1. The present article concludes an exhaustive treatise upon the subject of diabetes mellitus. Lépine states as his conclusion that the fundamental pathological element in the production of diabetes is the diminution of glycolysis. This may be brought about by diminished activity of the pancreas or by excessive secretion of the suprarenals. There is also undoubted, but unknown, relation to the secretion of the thyroid and hypophysis. In light of present knowledge it seems certain that there are many types of this disease, apparently dependent upon different pathological changes.

5. Belkowski has treated 40 cases of typhoid fever with 0.5 to 0.6 grams urotropine three to four times daily. The mortality was 7%. This number compares favorably with similar cases treated elsewhere in the usual manner. It is the impression of the author that this small series of cases presented fewer severe complications and a smaller death-rate than other cases otherwise treated. He encountered no perforations, hemorrhages or relapses. Hematuria produced by this drug ceases at once upon omission of its use. [L. H. S.]

Obituary.

EDWIN BAYARD HARVEY, M.D.

Dr. Edwin Bayard Harvey was born in Deerfield, N. H., April 4, 1834, and died in Westboro, Mass., on Sept. 28, 1913.

Dr. Harvey graduated from Wesleyan University in 1859 and after teaching a short time in various places was called to the chair of natural science in his alma mater. He graduated from the Harvard Medical School in 1866 and settled in Westboro, Mass., at once taking a leading position, not only in his profession, but in all public affairs. He was a member of the school board for eighteen years and superintendent of schools three years. He was chairman of the board of trustees of the public library, trustee of the Westboro Savings Bank, and for six years a trustee of the State Reform School at Westboro. He was a member of the House of Representatives in 1884-5 and of the Senate in 1894-5. A member of the American Medical Association, the American Academy of Medicine, and the Massachusetts Medical Society, he was president of the latter society in 1898-1900, and a councillor of the society for more than thirty years.

Dr. Harvey was the chief factor in establishing the Board of Registration in Medicine in this state in 1894. He drew up the bill and engineered it through the legislature to enactment. He was secretary of the board for eighteen years, until compelled to give up the work by reason of his impaired health. He gave his entire time to the duties of the office.

The subject of this sketch also originated and carried through the legislature the bill supplying free textbooks to the pupils of the public schools of the state. The framing of these two bills and their enactment, largely through his personal exertions, were considered by him as the best original work he ever accomplished during his long and busy life.

Dr. Harvey was a man of positive ideas. He did things and did them well. A clear thinker, a close reasoner, having much common sense and a judicial mind, together with the command of terse, forceful English, he left no doubt in the minds of his hearers as to his exact meaning. Brusque and at times impatient, yet he had a kind heart and his motives were always good, as he understood the matter. Like all positive personalities, he had his enemies, most of whom did not estimate him correctly. Being an able parliamentarian and having the courage of his convictions, he was an able advocate, a still more able antagonist and a terror to humbugs of all sorts. His advice was frequently sought by members of the different legislatures upon questions pertaining to the public health. He had a hand in framing not a few bills now upon the statute books of the commonwealth and many pernicious bills were thus prevented from enactment.

Dr. Harvey was a born politician of the best sort. Honest, earnest, fearless, with high ideals, but not too high to be practical, well versed in legal matters pertaining to his profession, familiar with the machinery of legislation, as well as with the basic principles of our form of government, he was indeed a useful member of the community. Loyal to its best interests, as well as to those of the medical profession, he did much to raise the standard of legal fitness of those who sought a license to practise medicine in this state.

It may not be generally known that in some states only three or four per cent. of the applicants for a license to practise medicine fail to pass the examination, while in this state the failures vary from thirty to forty per cent. In other words, the examinations for a license to practise medicine in this state mean something. It is not a mere formality through which any one may pass successfully, whatever may be his qualifications.

By reason of the great disparity in the results of the examinations in the different states, Dr. Harvey was opposed to reciprocity, as it prevails between many of the states. He was severely criticized for the stand he took in this matter, but his arguments have never been controverted. He always claimed that reciprocity tended to lower the standard of fitness to practise in certain states, among which was Massachusetts. This opinion was confirmed in the following manner:—

The ten questions in anatomy and histology with the answers thereto, made by an applicant of fair average ability were sent to the examining boards of ten different states, with the request that each should mark its ratings upon a scale of 100. The returns were interesting. The marks upon certain questions varied from 80 to 0! The averages of the different boards ranged from 49 to 83. The mean of the ten averages was 64.7, the rating of the Massachusetts Board being 64 per cent. In view of these and many other pertinent facts, it would seem to be the duty of our board of registration in medicine to retain the right of granting licensure entirely in its own control. Only in this way will it be possible to prevent physicians with qualifications beneath our standards from securing a license to practise here without an examination by our state authority. For instance, a certain applicant has appeared before the board in this state more than a dozen times without success. He has a license to practice in one or more states. It should be said that our examiners do not know the names of the applicants, each one having a number by which he is distinguished. Dr. Harvey always contended that the licensing board was created to safeguard the community against ignorance and fraud, and that the board had no constitutional right to delegate that duty to another state. By so doing the object of the law might be defeated. Under existing conditions no applicant from another state, who is fit to practise medicine, has any difficulty in securing a license in this state. For this reason reciprocity would seem to be unnecessary.

For several years Dr. Harvey had been handicapped in his activities by an organic affection of the heart, hypertrophy, dilatation, angina, dropsy and pleuritic effusion. Through the faithful and skilful attention of his medical friends, backed up by his own determined efforts, he lived to a good old age and accomplished a large amount of valuable work.

Miscellany.

ERADICATION OF TRYPANOSOMIASIS.

At the annual meeting of the British Association, held in Birmingham a fortnight ago, Dr. E. A. Minchin presented before the section on zoölogy a paper on "Some Aspects of the Sleeping Sickness." After describing the etiology and pathology of the disease, he continued as follows to discuss the possibility of its complete eradication:—

"It was thus seen that the parasite of sleeping sickness was dependent for its existence on two hosts—a vertebrate (man) and an invertebrate (the tsetse fly); consequently, if the flies could be destroyed or prevented from biting human beings, the disease would disappear. Unfortunately, however, the trypanosomes of sleeping sickness were not strictly specific to human beings, but, like other pathogenic trypanosomes, could flourish in other hosts as well. Thus it had recently been found that both *T.gambiense* and *T. rhodesiense* could live in various species of antelopes, to which they appeared to be quite innocuous. Thus the wild game constituted a 'reservoir' of the disease, from which the parasite could be taken up by the fly and brought to human beings. It was proposed, therefore, to exterminate the wild game on a large scale in order to get rid of the reservoir of the disease.

"It was open to doubt, however, whether this measure would bring about the desired effect. In the first place, it should be noted that not the antelopes alone, but ruminants generally, including domestic stock, could harbor the parasite; consequently destruction of the game would only remove a part of the reservoir. If, for instance, a similar state of affairs existed in the Highlands of Scotland little would be effected by destroying the deer so long as the cattle were left. Secondly, we were without information at present as to how far destruction of the game might affect the occurrence of the flies; it was possible that the removal of their natural food might make them move closer to human habitations, and hence increase the transmission of the disease amongst human beings and domestic stock. It was to be hoped, therefore, that if game was to be destroyed it would be done experimentally and in limited areas at first, until we had more accurate knowledge of the results produced.

"With regard to the possibility of destroying the fly itself, it was to be noted that the greatest enemies of the fly were gallinaceous birds, such as the common fowl or the wild guinea fowl, francolin, etc. These birds scratched up the ground and so found and destroyed the pupae of the fly—its most vulnerable stage in its life history. *G. palpalis* dropped its pupae on the ground, but it was a curious and hitherto unexplained fact that this tsetse fly was found only

in the vicinity of the water. It was possible that in such places its enemies, the gallinaceous birds, were scarce and absent, so that it was able to breed freely there. *G. morsitans*, on the other hand, was not confined to the vicinity of water, and was known now to protect its pupae against the wild guinea fowl and francolins by depositing them in holes in trees and sheltered places of this kind. It was probable that the reduction of tsetse flies could be effected: (1) by protecting the wild gallinaceous birds, and also introducing species not indigenous, such as the Indian jungle fowl, and by encouraging the natives as much as possible to keep domestic fowls round their villages; (2) in *morsitans* areas by also tarring or stopping in some way all holes in trees near the villages or human habitations. Experiments should at least be carried out to ascertain whether reduction of the tsetse flies could be effected in this or other ways."

STATE CARE OF CRIPPLES IN GERMANY.

The state care of cripples in Germany, a subject extensively discussed before the Berlin Congress of 1912, was reviewed a while ago, in the *Journal of State Medicine*, by Dr. Biesalski, director of the Berlin-Brandenburg Hospital for Cripples.

The first public institution for the care of cripples in Germany was established in 1832; but it was not until 1886 that the work of Kundsen in Copenhagen stimulated the extension of such hospitals throughout the empire. In 1906, Dr. Biesalski undertook a census of the cripples in Germany under sixteen years of age, of whom he found that 21% were then under state care.

"In Germany, in 1906, there were 100,000 cripples under sixteen, of whom 52,000 were in need of institutional care. The available beds were, however, only 3000. This has been remedied, and although there is a yearly increase corresponding to the annual population growth of three-quarters of a million, still the beds have overtaken this increase. The number of special institutions in 1902 was only 23, with 1600 beds, and today it is 53, with 6000 beds. There is one helper to every 4.5 cripples—in some instances as high as one to every two children—and the average expenditure is $103 per year. The bulk of the maintenance money comes from public funds. It is the aim of the institutions to convert the unfortunate into a healthy wage-earner. They keep in touch with other and neighboring activities for social betterment, with infant mortality preventive work, with care of epileptics, deaf mutes and the blind. The larger institutions have clinic, school and workshop. The clinic is well organized and equipped; the school takes up elementary education and here is done the work needed for the 'backward children.' Continuation and trade classes are also arranged for the workshop. The teaching is largely manual, observation being employed by the handling of objects and copying such forms in plastic materials. In the shops 81 different modes of employment are taught, of which two-thirds are for boys."

Boston enjoys a high reputation in Germany as an orthopedic centre, and it will be seen that many of our institutional and educational methods have been adopted in the German state care of cripples.

SOCIETY NOTICES.

International Congress of Hydrology, Climatology and Geology.—The Eleventh International Congress of Hydrology, Climatology and Geology will be held at Madrid from the 15th to the 22d of October, 1913.

Conference on Electrology, Radiology and Radium Therapy.—A theoretical and practical conference on Electrology, Radiology and Radium Therapy will be held from Nov. 3d to Dec. 2, 1913 at the Hôpital de la Pitié, Paris.

The Harvey Society.—The first lecture will be delivered on Saturday, October 4th, at 8.30 P.M., at the New York Academy of Medicine, 17 West 43d Street, by Professor Augustus D. Waller, M.D., F.R.S., University of London. Subject: "A Short Account of the Origin and Scope of Electro-cardiography."

Augustus B. Wadsworth, M.D., *Sec'y*,
114 West 55th Street.

RECENT DEATHS.

Dr. Roland D. Jones, of New York, died in that city on Sept. 25. He was born in Delaware in 1856 and was a medical graduate of the University of Pennsylvania in 1881.

Dr. George H. Peters, of Waltham, Mass., died of pneumonia in that city on Sept. 25, at the age of 32.

Dr. Eugene E. Burke, a dentist practising in Brockton, Mass., died at New Bedford, Mass., on Sept. 24 as the result of an automobile accident.

APPOINTMENT.

Dr. Alfred W. Brown, of Quincy, Mass., has been recently appointed medical supervisor of the public athletic parks and gymnasia of Baltimore.

CHANGES IN THE MEDICAL CORPS, U. S. NAVY FOR THE WEEK ENDING SEPT. 20, 1913.

September 15, Assistant Surgeons W. C. Espach, A. E. Younie, and J. F. Jones, Commissioned Assistant Surgeons in the Medical Reserve Corps from August 18, 1913.

September 18, Passed Assistant Surgeon G. B. Trible, detached from Naval Hospital, Washington, D. C. and ordered to the *Solace*.

BOOKS AND PAMPHLETS RECEIVED.

United States Public Health Service. Rocky Mountain Spotted Fever by L. D. Fricks. Reprint No. 139. Washington, D. C.

Monthly Bulletin of the State Board of Health of Massachusetts, Vol. 8, No. 7.

Original Articles.

ADDRESS OF THE CHAIRMAN OF THE SECTION OF TUBERCULOSIS.*

BY J. F. A. ADAMS, M.D., PITTSFIELD, MASS.

In opening this session of the Section of Tuberculosis, our first thought is one of profound sorrow, due to the great loss which we have sustained in the death of Dr. Arthur T. Cabot, which occurred on the fourth of last November.

For the last seven years of his life Dr. Cabot stood at the head of the movement for the suppression of tuberculosis in this society and in this state.

While president of the Massachusetts Medical Society in 1905 and 1906, he took this subject for the text of the addresses which he made to the District Societies as he visited them in rotation, being satisfied that this was the most important subject to which he could devote so exceptional an opportunity for awakening the interest of physicians throughout the state.

He originated the Tuberculosis Committees of the District Societies, organized them under the name of the Associated Committees; and it was through his influence that the Section of Tuberculosis was added to the activities of the state society.

In 1907, he became Chairman of the Board of Trustees of Hospitals for Consumptives, and thenceforward his time, his strength and his great abilities were almost wholly devoted to the anti-tuberculosis cause.

That such a man as Dr. Cabot should thus become the enthusiastic standard-bearer of this cause gave a wonderful impulse to the anti-tuberculosis campaign, an impetus which will long be felt.

This campaign against tuberculosis is one of the most remarkable movements of this remarkable age. It is actually ridding the world of one of the worst, if not the very worst enemies of the human race. It has reduced the mortality rate from consumption in Massachusetts, already, to one-third of what it was forty years ago, and it is gradually lifting from the earth a dark cloud by which it has long been over-shadowed.

Dr. Cabot believed that active participation in the war upon this disease had become, now that it was known to be infectious and preventable, the highest duty of the medical profession, and this belief became the controlling motive of the closing period of his life.

What can we do to honor his memory? What monument can we rear to show the love and reverence with which his great career has inspired us? Of what his own choice would be there is no doubt. He would ask us not to let the work suffer through his withdrawal, but to continue the fight with the same courage, the same devotion, the same pertinacity, and the same confidence in success which were ever conspicuous in his own labors.

This war upon consumption is everybody's business.

The contagion of disease must be opposed by a contagion of intelligence. No human being exists who cannot be of some use in passing on the message. But, before all, this is the business of the medical profession, all of whose members have the knowledge which fits them for leadership; and, having this knowledge, it is our duty to use it for the public good, even though this may not be in our special line, even though it actually takes money out of our pockets, as it certainly must. The physician who allows commercialism to swerve him from his duty is not acting in the true spirit of our noble profession.

By the public our profession is regarded with respect and honor, and this consideration is not deserved unless we esteem it our bounden duty to sacrifice ourselves constantly for the public good. We should, therefore, all become missionaries, seeking opportunities to instruct and advise, aiding and abetting the efforts of city and state and striving to perfect ourselves in a knowledge of this disease, and especially in the ability to detect it in its incipient stage, a task as difficult as it is important.

The subject of state and municipal control is of such vast importance, and is still beset with so many perplexing problems that we have this year returned to this aspect of the tuberculosis question and have arranged a program dealing with practical problems of this class, the keynote being the desire to ensure more complete coördination between the various public agencies and to help to overcome the difficulties by which they are at present seriously hampered.

* Read at the annual meeting of The Massachusetts Medical Society, June 10, 1913.

THE IMPORTANCE OF EDUCATION IN THE TUBERCULOSIS CAMPAIGN.*

BY LYMAN ASA JONES, M.D., NORTH ADAMS, MASS.

The following quotations are taken from a report presented to the Legislature of Massachusetts in 1850, by a Sanitary Commission, appointed under a Resolve of the preceding year:

"We believe that the conditions of perfect health, either public or personal, are seldom or never attained, though attainable;—that the average length of human life may be very much extended, and its physical power greatly augmented;—that in every year, within this Commonwealth, thousands of lives are lost which might have been saved;—that tens of thousands of cases of sickness occur which might have been

* Read at the annual meeting of The Massachusetts Medical Society, June 10, 1913.

prevented;—that a vast amount of unnecessarily impaired health and physical debility exists among those not actually confined by sickness;—that these preventable evils require an enormous expenditure and loss of money, and impose upon the people unnumbered and immeasurable calamities, pecuniary, social, physical, mental and moral, which might be avoided;—that means exist, within our reach, for their mitigation or removal; and that measures for prevention will effect infinitely more, than remedies for the care of disease."

"We recommend that the causes of consumption and the circumstances under which it occurs, be made the subject of particular observation and investigation."

Immediately following this recommendation are these statements taken from a circular issued by a Dr. Fisher of Boston, in 1840 or 1841:

"No remedial agent has ever yet been, and probably never will be, discovered, which will cure the malady when once developed in the lungs. It becomes, therefore, the duty of those who are aware of this fact and of the mortality which consumption occasions, to ascertain the causes of the disease, and to inform the public how these causes may be avoided. If the mortality produced by this disease is ever to be lessened, it is to be effected by preventive means. These means, when known and fully appreciated by the community, will be adopted, to a greater or less extent, and by their adoption a vast amount of human suffering and human life will be saved."

It is difficult to realize that these quotations, which so accurately outline the work of preventive medicine, as it is organized today, including the campaign against tuberculosis, were written more than sixty years ago. It is even less easy to understand why the organization of this work has been so long delayed; why it is only now beginning to receive the general recognition which it deserves; why there are so many obstacles to be overcome, and why the results at times seem so meagre and unsatisfactory. This is especially true with reference to the efforts for the eradication of tuberculosis.

For our encouragement, however, attention should be called to the fact that at the time the above report was written, the death-rate from tuberculosis in this state was practically 400 per 100,000, while in 1912, based on the returns of 89 per cent. of the population, the death-rate was only 110 per 100,000.

Of recent years the efforts for the control and prevention of tuberculosis have doubled and redoubled. The State Sanatorium at Rutland was established in 1898. The institutions at Reading, Lakeville and Westfield were authorized in 1907. Tuberculosis was made a reportable disease throughout the state in 1907. More recently laws have been passed requiring cities and towns, under certain conditions, to establish local hospitals for the care of these cases. Likewise dispensaries are to be maintained. Many local antituberculosis societies and camps have been organized.

Repeated investigations of the problem have been made under authority of the Legislature. Each step in advance has been accompanied by the hope that now the problem would be solved. But in each instance, while progress has been made, more difficulties have arisen, or perhaps better, there have followed appreciation and recognition of additional factors concerned in the campaign, such as nutritional, and housing problems, social relations, the necessity for follow-up work in reference to arrested cases, etc., so that the whole question of eliminating tuberculosis seems to become more complex than ever.

The real explanation of this condition, and the annual suggestion of new measures, is to be found in the attitude of the medical profession and of the general public. The subject of tuberculosis is agitated by an increasing number of those who are especially interested in preventive medicine, and by others who are coming to appreciate the vast amount of suffering and economic waste involved in the continued spread of the disease.

But the general public is yet ignorant of these things, ignorant, because, save by those specially interested, it does not yet individually grasp the significance of the facts so frequently presented.

Tuberculosis in its various forms has been so constant a feature of daily life, in the home and in the community, that it is calmly accepted as a natural accompaniment of such daily life. And yet let any more acute illness occur in that same community, an acute illness involving far less of suffering and death than tuberculosis, and the people of the locality rise in indignation and fear, demanding action by its authorities, to the end that the plague may be stopped.

If this same public had a proper realization of what the constant presence of tuberculosis involved, instead of opposing so many obstacles to the carrying out of preventive measures, would it not at once furnish the means necessary, and demand and insist that present measures of known value be generally carried out?

The ignorance of the public and misconceptions regarding tuberculosis are responsible for many of the obstacles to be overcome.

The individual is often unwilling to admit that he has tuberculosis. Feeling somewhat out of health he visits a physician. Upon being told that he probably has consumption, he refuses to accept the diagnosis and seeks another physician, repeating the process until he meets a physician who through lack of ability to recognize the beginning of the disease, or through lack of proper ethical standards, tells him he is merely run down and that he needs a little rest or tonic. When the individual finally realizes that he has tuberculosis, the disease is advanced to a point where its arrest is unlikely or impossible.

Or an intelligent patient, feeling poorly, and suspicious as to his condition, goes to his physician, who assures him after a hasty examination,

that there is no trouble, that he is merely tired out, and that a short rest will set him right. Reassured, the patient follows instructions, soon returns to work, and when the difficulty is finally recognized, the condition is much advanced, and the time necessary for recovery—if indeed such is possible—is much prolonged.

Another physician, though he realizes that the patient has incipient tuberculosis, reasons that if he informed the patient of the disease, the patient, not wishing to know of his condition, will seek some other physician who will tell him he has no serious trouble, so lets the matter go that he may retain his patient. In this way much valuable time is lost and the patient's chances of recovery are seriously jeopardized.

If the public and physicians could learn and appreciate the importance of an early recognition of the disease; if they could realize that a sense of fatigue out of proportion to the work done, that a loss of weight, that a slight cough continuing over a month or two, accompanied by a fractional rise of evening temperature, unless entirely and satisfactorily explained on other grounds, even if unaccompanied by physical signs, are strongly suggestive of beginning tuberculosis, and that this is the time to begin appropriate treatment, a long step in advance would be gained.

If the public could be brought to thoroughly believe that by the observance of simple precautions and care as to the disposal of sputum a person afflicted with consumption could safely work or live in their midst, much suffering and hardship could be avoided.

If the public could understand that tenements or rooms occupied by those ill with the disease should be thoroughly renovated before being occupied by others, many cases would be prevented.

If physicians were fully impressed with these things and the necessity for them, they would insist that their patients observe rules, and that the necessary precautions be taken.

Though we have numerous laws bearing on health and sanitary conditions, it is not easy to secure their enforcement until the public, the health authorities, and the physicians are firmly convinced of the need for carrying them out. For such education of the public the medical profession itself is largely responsible, because physicians are in close contact with their patients, who look to them for advice and guidance.

This ignorance and the lack of appreciation on the part of the public and physicians is the underlying difficulty or obstacle in the different lines of work looking toward the prevention of tuberculosis. Hence the chief problem in this work, which applies also to other lines of preventive medicine, is the necessity for the education of physicians, and, indirectly largely through them, of the public.

We are willing to spend money for those things which we regard as needful or desirable. The facts regarding tuberculosis should be made a matter of common knowledge, and should be presented in such a manner that all will come to regard them as things necessary to be done for our personal good and protection. When this is accomplished there will be no lack of funds to do with, no reluctance to provide the means for any branch of anti-tuberculosis work which is based on sound and effective lines.

Much has already been accomplished by way of spreading accurate knowledge regarding the prevention of this disease. Much more requires to be done.

When appendicitis was first receiving attention some years ago many physicians waited till abscess formation before advising operation. Now no intelligent physician pursues such a course. So with tuberculosis, all physicians, instead of those especially interested in or working with tuberculosis, must become impressed with the picture of incipient tuberculosis and make their diagnosis accordingly instead of waiting till the disease is advanced before declaring that a patient has the disease.

This applies especially to those who studied medicine before the recent widespread campaign for the prevention of tuberculosis began, ten or fifteen years ago.

This educational work must be done continuously. Spasmodic efforts will not avail. The subject must be kept continually to the fore, till the attitude is similar to that of the physicians and the public toward appendicitis at the present time. This object may be assisted in various ways.

Students in medicine should have the facts concerning the prevalence and spread of the disease firmly impressed upon them. They should be fully familiar with the earliest symptoms of the disease. It would be of advantage if all senior students could spend a week in a sanatorium where incipient cases are cared for. They should have definite and detailed knowledge as to the treatment of such cases, and of the precautions necessary to protect other members of the household and fellow workers. They should know how to reassure those who are well, and to avoid giving needless alarm, to the end that unnecessary hardship may not be inflicted on patients.

This same knowledge should be brought home to those older in practice through frequent presentation of the subject in medical societies, and through circulars of information sent out at regular intervals, for unfortunately many who particularly require this knowledge are least often found in attendance at such meetings.

The same knowledge should be brought to the attention of the public through the systematic publication of suitable articles in the press, particularly in the smaller daily and weekly papers.

Because their work should be directed much more toward preventing disease than merely caring for sickness when once it is present, local boards of health might very properly use some

of their funds in advertising, inserting in the local papers from time to time, suitable concise statements regarding tuberculosis.

One of the most practical measures for affording education and instruction concerning tuberculosis in the home, is the employment of visiting nurses by local boards of health, private organizations and anti-tuberculosis societies. Through such nurses the well members of an afflicted household may receive detailed instruction which will enable them to keep well, and the patient will learn to observe the precautions necessary to protect others, or that necessary precautions cannot safely be relaxed simply because the patient is no longer in an institution. Physicians as a rule are unfamiliar with these small details, or do not take time to impress properly upon the patient the necessity for them.

Another agency for bringing knowledge to the general public concerning preventive medicine, including tuberculosis, is the moving pictures. This means of entertainment has grown enormously since its introduction a few years ago, and already a beginning has been made along the line of health instruction by this means. But it could be extended much more. Certain films relating to tuberculosis are now obtainable. Others could be prepared and furnished to moving-picture theatres by state or local boards of health for frequent exhibition. For the showing of these things once does not suffice. Impressions of the single exhibition are soon lost in the midst of many other impressions, hence pictures relating to health conditions must be frequently repeated.

There is also an opportunity for the presentation of correct knowledge before lodges, societies, teachers' associations, parents' associations, etc. Such opportunities could be greatly increased if local boards would provide funds to secure competent speakers.

Traveling health exhibits have been employed in the preventive medicine campaign with gratifying success in California, in Louisiana and in Maryland.

The exhibits included numerous charts illustrating the vital statistics of the state, showing the relations between health and diseases; with especial prominence given to the prevalence of tuberculosis in the state. Models were shown illustrating tenement conditions unfavorable and favorable to tuberculosis, showing how present-day methods of treatment are carried out, or how they may be adapted to modest homes. Model dairies and barns were shown. Models were shown also illustrating the manner of typhoidal pollution of domestic and public water supplies and how such pollution can be avoided. In some instances lantern slides were prepared from pictures taken in the town where the exhibit was temporarily located showing how sanitary measures might be applied practically to that particular locality.

Such an exhibit, in charge of trained demonstrators, following a given route, well advertised, in coöperation with local boards of health, with arrangements made in advance for visits from school children and other bodies, could not fail to accomplish much good. It would seem well worth while that the state, through the State Board of Health, should undertake such an educational measure.

However valuable any specific measures for the control of tuberculosis may be, the good which may be accomplished must of necessity be greatly enhanced in proportion as the public becomes thoroughly informed as to the extent of the problem, and individually apreciative of its own responsibility in the matter.

As members of the medical profession we, who rightly should lead the way in the advance against tuberculosis, we especially, every one, should not be found lagging behind the intelligent layman in favoring measures of established and recognized value against tuberculosis, and much less should we be found expressing opposition to such measures.

THE TUBERCULOSIS PROBLEM FROM THE POINT OF VIEW OF LOCAL BOARDS OF HEALTH.*

BY BRADFORD H. PEIRCE, M.D., CAMBRIDGE, MASS.

IN these days when the question of tuberculosis is so much before the public, we often read of what this or that organization is doing to eradicate the disease, but we hear very little of the actions of the local authorities except perhaps to learn that they are making no effort or are absolutely to be condemned.

Before bacteria were heard of certain diseases of rapid evolution such as smallpox, scarlet fever and diphtheria were found by experience to appear in epidemics. Experience with such epidemics showed that isolation reduced the number of cases. To prepare for and carry out isolation and thus cut down the spread of contagious disease was the primary reason for establishing local boards of health.

From time to time other matters pertaining to the general health of the municipalities were given into care of these local boards, very often as the result of some advance in medical knowledge or of public agitation.

During the last few years the people have discovered the great ecomonic loss due to tuberculosis. A constantly increasing demand for the prevention of the spread of this disease has manifested itself, and of course the local boards of health were the logical candidates for the responsibility.

Some of these boards accepted it at once and enacted regulations requiring the reporting of

* Read at the annual meeting of The Massachusetts Medical Society, June 10 1913.

every case. In the places where this requirement existed the enthusiastic physicians complied, while those not so enthusiastic regarded it as an additional burden, even none of the board of health's business, and neglected to report their cases unless frequently prodded.

The agitation continued, and by the amendment of an existing statute[1] the State Board of Health in 1907 designated tuberculosis "a disease dangerous to the public health" and therefore reportable by law. Since that time so much legislation has been offered, part of which has been enacted, that the local board of health has had great difficulty in deciding what its policy should be. It takes time to develop a campaign such as is necessary against tuberculosis and it is distressing to expend much effort and money in one direction one year and find that the next, a great deal, if not all of the previous work has gone for nothing.

Under the law[2] some municipalities established isolation hospitals for tuberculosis, then the state established the Trustees of Hospitals for Consumptives, built three more sanatoria, and said[3] that any person whom the Trustees wanted to send to a state hospital could go and the city or town in which that person had a legal settlement must pay the bill no matter whether or not the place in which he had a settlement could provide a bed for him.

It costs four dollars a week to board a patient in a state hospital because the state shares the expense, whereas it costs from eight to fifteen dollars to board a patient in a local hospital. Is it any wonder that those places without local hospitals failed to establish them and that those places with hospitals already built objected strenuously to paying for patients sent to state hospitals against their wishes while maintaining hospitals of their own with many empty beds? Why should the judgment of local officials be handicapped more in tuberculosis than in any other disease?

We have never objected to a patient's going to any hospital he wished so long as he or his friends paid his board, but we have insisted that if we were to stand the expense we would provide for him in our own hospital. In this we have been backed up by the Trustees in nearly every case, except in the incipient cases, although the Trustees have absolute power to deny us this right if they so desire.

Often we are called on to provide for the tubercular patient who has no legal settlement. No matter what it costs us to care for this person, the State Board of Charity will never reimburse for the full expenditure. Sometimes the State Board of Charity says it will not pay anything if the patient is able to go to Tewksbury. Should the patient refuse to go, as many do, we are compelled to discharge him or isolate him at our own expense. Furthermore, the State Board of Charity does not consider itself bound by the laws governing notice and denial of liability, and in cases of doubtful settlement, delays so long before notifying the local board that it is not responsible, that there is legally no time left for the local board to serve notice on a city or town in which the patient may have a legal settlement. Cities and towns must notify the State Board of Charity of liability within five days. The State Board of Charity often takes two or three years to notify cities and towns.

The legal side of the problem is but one of the difficulties. Much more trying at times are our relations with physicians and with laymen interested in the subject.

So far as physicians are concerned we are improving. They seem, in Cambridge at least, to be less and less dependent on a positive sputum for diagnosis and more anxious to get their cases reported before the death certificates come in. Progress in this direction is slow, largely because even the best of physicians hesitate to make a definite stand without actually finding tubercle bacilli when it means so much to the patient. I believe that the men who wilfully conceal cases are few and far between, though many who fail to report, offer the excuse that someone else has been treating the case and supposedly had reported it. It is a good idea to insist that every physician report every case as soon as he makes a diagnosis no matter what the previous history has been. More than one physician has informed me that he desired assistance on some case but dreaded to report it for fear the social workers or other misguided enthusiasts would get in on it and set everybody by the ears.

This brings us to a most perplexing phase of the situation, namely the relations between the interested laymen and the local boards of health.

Boards of health are official bodies upon whom are conferred certain legal powers oftentimes very indefinite, because the statutes conferring the powers are in several instances of origin back as far as 1792 and many times modified. It is interesting to read[4] that if a disease dangerous to the public health "exists in a town, the selectmen and board of health shall use all possible care to prevent the spread of the infection, and shall give public notice of infected places to travellers by displaying red flags at proper distances and by all other means which in their judgement may be most effectual for the common safety." This seems to make it mandatory that a red flag be placed on every house in which there is a case of tuberculosis.

By interested laymen I mean philanthropic individuals, members of societies organized to prevent the spread of tuberculosis, and social workers. They are all earnest, enthusiastic, and well meaning. It is doubtful if any two of them have the same amount of common sense or the same degree of knowledge of the disease. A few with whom I have come in contact are well posted, see our difficulties, sympathize with us and give us valuable assistance. The majority know as little about the tubercle bacillus and its lesions as we do about the organism of small-

pox. They are just as apt to cross the street when they see a tuberculous person approaching as they are to go round the block rather than pass by the diphtheria hospital. There are people who say to the local board of health, "You should do this," or "You should do that"; furthermore they do not hesitate to tell patients that the board of health is obliged to take care of them and if it does not do so it is neglecting its duty. They resent it if the board of health makes different plans from theirs for a particular patient, with the result that many patients become confused and disheartened. They advertise in large letters and red ink that "Tuberculosis Can Be Cured" but in much smaller type add the all-important statement "if taken in time." They clamor to have this or that pet scheme tried which they are sure will clear up the whole situation.

This is all very well in the place where little or nothing is being done, but where the local board of health is doing all it can, I feel most strongly that these individuals should coöperate with the board of health and not that the board of health should coöperate with them.

Another difference in point of view between the layman enthusiast and the board of health is manifest when we consider that their sole object of attack is tuberculosis, while we are fighting not only tuberculosis but scarlet fever, diphtheria and other much more rapidly spreading diseases. It may and does happen that the entire effort of the board of health must be concentrated on an epidemic of scarlet fever. Delay in scarlet fever would be disastrous but tuberculosis correspondence can wait.

A month or two ago I was informed that a lecturer was using a picture of a large apartment block in Cambridge to illustrate unsanitary living conditions and describing this particular building as a "hot bed for tuberculosis." I have heard residents of the city call it by the same name. Not aware that it was such a dangerous place, I made some inquiry.

The block faces on four streets and contains about ninety apartments some of which open only onto a shaft. Of those apartments opening onto a shaft only one is occupied and that by a single man who is not there much of the time. The others are used for storage. There are seventy-one families in the building at present, mostly of Polish or other foreign birth. The sanitary conditions of the premises is certainly no worse than that of many others in the city and the owners are quite willing to keep them in as good condition as they can. During the nine and one-half years since January, 1904, when tuberculosis became reportable, we have had but six cases reported from this block. Considering the locality, the class of people, their occupations, mode of life, and itinerant propensity, this is a very low ratio, lower indeed than that of other houses near by. To call this block a "hot bed for tuberculosis" is an extravagant statement, hurtful to the property, the owners, the board of health, and, to common sense people, hurtful to the cause.

Of all the non-medical workers with whom boards of health touch elbows the most frequent contact is with the social workers. Folks[5] has dealt with this subject in a very common sense way. Among other bits of good advice he remarks that points of contact between health officers and social workers should not be points of conflict. Not as yet have we attained to this in the tuberculosis problem. The fault is not entirely with the social workers but until they individually and officially "uphold, strengthen and dignify" health administrations the blame must rest largely on their shoulders.

The social workers with whom I have had dealings are inclined to regard boards of health as a means to their ends, or if, as they say, through shirking, ignorance, laxity or what not, failing to give them the assistance they demand, as bodies to be circumvented and left out of consideration altogether. They do not hesitate to criticise health officers and institutions, to drag patients from their physicians, or to tell us what we ought to do, yet I would give them all credit for being interested, enthusiastic and conscientious.

Over and over again we learn of a case that is being treated somewhere, never reported to us, unknown to the family physician, but which has been discussed with some worker in our town. Those who are dealing with it say, "Why I supposed some one else had reported it." Often we have to ask the Trustees who it was that made out the application for a case that has been living in the city right along. I have several letters written concerning several patients in which one social worker insists that if the board of health will not consent to her plan then the board must take the responsibility. She might have added that the board of health had never asked her to assume any responsibility and we could have said that if she had not meddled with the cases they would have all been taken care of properly with far less discomfort. I have another letter from another worker in which she tells a patient's mother that she does not think our hospital "is at all a fit place." She goes on to say, "I realize that it is very hard for you to know who to believe when different societies tell you different things." The family was one that could afford to pay its physician yet she tried to get them all to the hospital she represented. Still another social worker with a very sick patient to provide for from several miles out of town begged us to take him in. We did so on her assurance that she could and would get the town in which he had a settlement to assume financial responsibility. The patient off her hands, her connection with the case apparently ceased. These same women go to public hearings and denounce physicians and boards of health.

Settlement law is a stumbling block for all of us. Nothing could be more confusing. A person

interested in a particular case will argue with exasperating persistence that because the patient lived in a certain city for twenty years or more his legal settlement must be in that place, whereas he may never have paid any taxes and have gained a settlement elsewhere through his father or mother. Such arguments lead to distrust and ill feeling.

The problem of the vicious, incorrigible consumptive is one which probably no municipality of any size has escaped. I have heard and read many discussions of the subject, mostly by those who have never been obliged to face it. None have discussed it so sensibly as Callahan[6] at the recent conference at Holyoke. No matter how clear it may appear on paper it is not so simple as it seems. To cite a case may not be amiss.

A. B. was admitted to our hospital, where he remained about a month, creating more or less disturbance. He left to go on a drunk. After about another month, much talk by interested citizens and a good lecture he was readmitted. This time he stayed a little over three months greatly to the disgust of many inmates who were self respecting. His conduct was such that he could not remain. We next boarded him with a person experienced in the care of consumptives. Here, too, he acted so badly that the woman would not keep him. I told Dr. Hawes all about it and he consented to giving the man a trial at a State sanatorium. While waiting to enter, we even provided him with money, very unwisely, until, through the efforts of others combined with ours he was admitted to a home. He stayed in the home a short time, left, had a severe hemorrhage on the street and died in the hospital to which he was taken before he could be admitted to a State sanatorium. We had no jail in which to keep him if we had possessed unquestionable power to seize him, nor could we allow him to upset all discipline at the hospital. In spite of all we had tried to do we received a letter from an enthusiastic citizen, partly as follows:—

"This case is typical and essentially requiring active treatment.

. . . . . .

"It is most important that our health authorities should have the confidence of the community and be assisted properly, but ———— cannot set the law in motion without your aid, if indeed they should ever assume such action.

"I have the hope that this letter when duly considered will prevent any uncalled for distrust of our health officers.

. . . . . .

"I see where there is power that if not exerted our City becomes a dangerous community as compared with another protected by law.

Our attempts to deal with these cases by court proceedings have been discouraging. Personally I believe that such cases as this will always be a source of worry until we are able to commit them in some way similar to that of disposing of the insane or the habitual drunkard.

The financial end of the tuberculosis problem seems never to concern anyone except the local board of health. With a twelve dollar tax limit, and say six of that to go by law to the school department and three and a half to the police and fire departments, there remain but two dollars and a half for streets, disposal of garbage and rubbish, parks and health. Rigid economy is absolutely necessary. Whether the new law regarding the tax levy will help out remains to be seen.

The aftercare of the consumptive is important. It is a question if the discharged patient should be provided for by the board of health alone or by somebody more interested in the purely economic side of the question. It depends on the particular case. At all events boards of health should not be too severely criticised for failure to act until they are properly notified of the discharge of such patients.

I have indicated the more important phases of our problem. The remedy is not for me to suggest. Until the efforts of local authorities who do their best are more fully recognized, boards of health will remain on the defensive and those inclined to shirk will continue inaggressive. Apropos is the proverb, "You can lead a horse to water but you can't make him drink."

Some day, I hope, the health laws of Massachusetts will be simplified and codified not entirely by those who have no practical knowledge of the local authorities' point of view. I hope too, that we shall be treated fairly by all the State boards; that due consideration will be given the seriousness of the steadily increasing spirit of paternalism; and that we shall not be compelled by our law to provide a hospital for tuberculosis patients and be obliged by another law to pay for patients sent elsewhere at the will and pleasure of someone else. Persons whom we are supposed to control should not be able to say they will not do as we wish because they can pay their board a week or two at some other place and then stay on at our expense.

If we are to have responsibility let us have the authority and respect necessary for us to assume it properly.

REFERENCES.

[1] Revised Laws, Chapter 75, Section 50; Acts 1905, Chapter 251; Acts 1907, Chapter 480.
[2] Revised Laws, Chapter 75, Section 35; Acts 1906, Chapter 365; Acts 1911, Chapter 613; Acts 1912, Chapter 151.
[3] Acts 1907, Chapter 474.
[4] Revised Laws, Chapter 75, Section 43.
[5] Folks: American Journal Public Health, II, No. 10, p. 776.
[6] Callahan: Boston Med. and Surg. Jour., vol. clxviii, No. 22, p. 794.

NEED OF CO-OPERATION BETWEEN LOCAL AND STATE FORCES IN TUBERCULOSIS WORK.*

BY JOHN B. HAWES, 2ND, M.D., BOSTON.

At the present time, there are many physicians who are declaring that the sanatorium movement is a failure. This is undoubtedly an extreme

* Read at the annual meeting of The Massachusetts Medical Society, June 10, 1913.

point of view; It would be far nearer the truth to state that our sanatoria are not accomplishing as much as they should. It is a matter of individual opinion as to how far short they are falling from the proper standard. In this paper I propose to discuss what I believe to be the great reasons for this shortcoming and to consider plans for betterment of the situation.

The two great factors which militate against good sanatorium results are *first*, lack of strict discipline and close co-operation between physician and patient while the latter is still at the institution, and *second*, lack of co-operation between the sanatorium and local forces, including first, the discharged patient and his family, second, the patient's physician, third, local tuberculosis organizations, and fourth, the local boards of health. It is this second factor, lack of co-operation between state and local forces, which is by far the more important of the two.

It is not difficult to outline on paper a plan whereby proper co-operation could be brought about. Among other features there would be embodied in such a plan careful and detailed instruction of the patient while in a sanatorium and when about to leave it; prompt notification and tactful advice to physicians and tuberculosis organizations, and, above all, a higher standard of effort on the part of local boards of health which will force them to assume their proper responsibilities. Such a high standard would necessarily include periodical examinations of the patient and of his family, supervision of his work, the following up and keeping in touch with the wandering patient, and the proper control and segregation of the incorrigible consumptive.

Some of these measures are now in active operation on the part of the state. All local forces are promptly notified of the arrival of every patient; attempts are made, not as yet, I regret to say, with much success, to secure the co-operation of the patient while at the sanatorium. While on discharge every patient is examined and given friendly advice as to the future. In addition to this a letter is written to the patient's physician, in which his condition is fully described and suggestions made for future treatment. Copies of this letter are sent to the local board of health, the local tuberculosis association and the state board of health. The patient himself is also provided with a copy for his own use. This system, by means of which we are endeavoring to get in closer touch with local forces and discharged patients, is now in operation at each of the four state sanatoria and is already beginning to show good results.

That we still have a long way to go, however, will be shown by the following figures collected by Miss Billings, the social worker employed by the State Tuberculosis Trustees to follow up discharged patients. Miss Billings began her work July 23, 1912. These statistics are the results, therefore, of ten months' investigation on her part. During this time she has looked up 613 patients discharged from the State sanatoria. The table given below shows the exact figures. It should be borne in mind that the statements as to the present condition of these patients, good, fair, ill, etc., are not medical opinions but merely those of a trained social worker for whose general common sense and intelligence, however, I have a high respect.

TABLE IN REGARD TO DISCHARGED SANATORIUM PATIENTS.

Classification on Admission.		Condition at Miss Billing's Visit.						
		Good.	Fair.	Ill.	Died.	In San.	Not traced.	At Work.
Incipient	118	63	27	5	1	6	16	per cent. 73=61.8
Mod. advanced	213	67	72	23	11	16	24	102=47.8
Advanced	279	30	65	84	45	24	31	73=26.1
Not considered	3	1	1	.....	.....	.....	1	2,
Total	613	161	165	112	57	46	72	250=40.7 per cent.

The important points in this table are that only 61 per cent of the incipient cases and 47 per cent of the moderately advanced are able to work while 26 per cent of the advanced cases are apparently able or feel that they are able to carry on some occupation. The comparatively low per cent of the incipient cases, 61 per cent and the equally large per cent of the advanced cases at work are surprising features. An investigation of these same patients a year later will be of great interest and value. Regarding the work of local boards of health, Miss Billings has found that in only 39 per cent of the 613 cases has the local board been known to clean up or fumigate the patient's premises while a still smaller proportion of the patients, 23 per cent, has received adequate advice or instruction from local boards.

From Miss Billings's careful survey of the situation during the last ten months in which she has had numberless interviews with patients and their friends, nurses, social workers, doctors, and boards of health, and from my own experience, during the last eight years, during which time I have been intimately connected with this work, I have formed several very definite opinions on this general subject. The first is, that patients as a whole are deeply appreciative of advice and attention given them after their

discharge if this is done quietly and tactfully; in the case of a few incorrigible patients advice of any kind is but time wasted; a strict law and a stern public opinion is the only thing which will meet this situation. Second, on the part of local boards of health it is primarily ignorance as to methods, and next lack of funds, which stand in the way of good work. In about one third of the cases lack of harmony between the local board of health and the local tuberculosis organization is a great handicap. Third, it is only in the rarest of cases that private physicians are not glad to have their patients helped and advised by our worker.

For the future, to further increase the efficiency of the state's warfare against tuberculosis, we hope to enlarge the scope of our present work, first, by a stricter discipline of patients while in the hospital, discharging, if necessary, those who will not co-operate; second, by introductions of more social workers inside and outside our institutions; third, by adopting a system of "experimental furlough," *i. e.*, discharging a patient on trial, as it were, and readmitting him without delay if he shows any signs of relapsing; and finally, by establishing out-patient departments at each sanatorium where indigent patients can get free advice and treatment and discharged patients can come for periodical examinations and to report.

In addition to this, the gradual increase of local tuberculosis hospitals and particularly of efficient dispensaries will be of the greatest assistance. I doubt very much if the alone state should go further than I have indicated above. Local forces must meet state efforts half way. The problem of tuberculosis is after all a local one; only by the development of a strong public opinion in each community that tuberculosis is primarily a question to be met by local efforts, can the disease be successfully combated.

DISCUSSION OF PAPERS PRESENTED BY DRS. JONES, PEIRCE, AND HAWES.

Dr. Walter C. Bailey, Boston: I would like to say just a word to emphasize Dr. Adams' statement in regard to having this discussion general. I would like to listen rather than to speak; but there are one or two things in regard to Dr. Peirce's incisive paper that I have been trying to think about and wondering just what they mean. It seems to me that it comes down to the fact that in Dr. Peirce the Cambridge Board of Health has a most valuable and trained man in tuberculosis. Now if you can repeat Dr. Peirce all over the state you have the situation solved. A local board of health ought to be the board to which, for instance, our board can go in regard to everything in that city, not to the local tuberculosis society. I believe that is the answer to that. I do not see any better work than the local tuberculosis society can do in various towns and cities than to insist that there should be on the local board of health someone whose duty it should be to attend to the tuberculosis question. If that can be brought about it would be a great step in advance because we would have someone trained to recognize the difficulties as Dr. Peirce has recognized them and has pointed them out. It would relieve the clashing between the social worker or anybody else who is interested in tuberculosis and this feeling that everybody ought to do just as he thinks best; it would also relieve a lot of reduplication. I think that is one of the things which irritates me more about tuberculosis work than anything else—everybody doing a little something in one direction and then dashing off in some other direction. It is a criss-cross game which leads nowhere.

Secondly, I would like to state that the trustees of the state hospitals are studying and working at this question very hard indeed, and if anybody in this room has any ideas or knows of anybody who has any ideas in regard to the work of the state, or anything pertaining to this subject, we would be delighted to have him express them to us and would give them the most careful attention and most careful advertising that would be possible for us to do. I wish to insist upon that desire that we have to learn, to be helped, by anybody who sees the problem from a different angle from which we see it. I do think that the tuberculosis work is improving. The whole affair today is of an entirely different color than it was twenty years ago, but it seems to me that we have arrived at a position now where particular care is needed to continue in the right direction. Dr. Hawes has spoken to you about the state sanatoria work, and I simply wish to touch upon an experiment that is being tried today at North Reading, in regard to the "Sanatorium Class" and the "Hospital Class"—dividing the patients into people who want to get well and those who do not want to get well. I believe this is going to be very effective in accomplishing what we wish to accomplish. Now in conjunction with that work, which is one of application and of intensiveness, if you wish to use that term, there is also the other side, that it turns the problem over to the people who are there at the sanatorium. To conclude, I believe that a great deal of work can be done by the tuberculosis societies and the local boards of health. First, have someone on the board who really knows about tuberculosis. Second, there should be in every tuberculosis society, either as its president, or on its board of active management, one, two or three members of each labor union in that town or village. Now you can talk to the people as much as you like, but you will never get the real forces at work until you get them to take hold of it themselves and work it out, because they approach their own people from a different angle from what we do. They look upon our work many times as interference where, from their point of view, if those workers would take it up, it would

be received kindly. This is the effect we want to produce, but are often unable to bring about.

The third point is while we are doing this work, which must be now almost individual work, it has got into shape so that it cannot be treated *en masse* any more. We must have slow growth; it must be slow education, training of men and of workers, and slow education of people. There is one point in which I believe we could accomplish a great deal, that is infection from bovine tuberculosis. As you know, from 15 per cent to 20 per cent of the young children and young adults who develop tuberculosis probably are infected with the bovine bacillus. I think we could put in some effective work which would stimulate us and would be a point towards which we could work with straightforwardness and feel that we were getting somewhere. That means probably the drinking of pasteurized milk, and if this conference could make a regular campaign for the use of pasteurized milk, and the careful eradication gradually of tuberculosis in cattle, I believe that that would be a thing very well worth while, and I should like very much to have this conference take up that work.

Dr. Elliott Washburn, Taunton: In a somewhat exhaustive study of some of the difficulties in the tuberculosis problem in Massachusetts, made last fall, a number of difficulties were found, three of the most prominent being as follows: First, the method of appointment of local boards of health. Local boards of health in small towns consist of the selectmen. Selectmen when they act as boards of health almost invariably are poor boards of health. They regard their public health work as a disagreeable side line to their other work; they are looking to their reelection, and they do as little public health work as possible. In larger towns and cities boards of health often are appointed as political rewards and they shift frequently, so that when a board does become familiar with its duties it soon passes and the work has to be done all over again. That we found to be a great difficulty in effective work in tuberculosis.

The second difficulty which we found was the lack of a central control over the whole tuberculosis situation in Massachusetts; some clearing house to which all the organizations or workers in tuberculosis may go for advice.

The third difficulty, and a great difficulty, was the lack of a specific, definite law by which the unteachable and incorrigible consumptives may be compulsorily isolated. For the passage of such a law we found almost a crying demand. The present law under which smallpox cases are taken forcibly and isolated has been resorted to by some boards of health, more especially the Board of Health of Boston. In other cities the boards of health have been advised by their city councillors that they cannot take such action, so that we find the boards of health are timid in taking such action. Only Sunday night of this week a board of health telephoned to me asking what to do in the following case: A woman far advanced in tuberculosis persisted in spitting all about the yard; she lived in a large tenement house, and without doubt was endangering the rest of the people in that tenement. She absolutely refused to listen to reason. The board of health could do nothing with her. They asked if they could send her away. I told them they could; but first they had better obtain the opinion of their town lawyer. I told them not to send her away without so doing. There is need then of a definite, specific law whereby boards of health can take an incorrigible consumptive, when he does not regard the rights of his neighbors, is drunk half of the time, perhaps, who spits anywhere, and who absolutely refuses to listen to any of the demands of boards of health, and compulsorily isolate him.

Those three things stood out with special prominence: First, the inefficiency of some boards of health on account of the methods by which they are appointed; Second, the lack of a central control of the whole situation, and Third, the lack of this definite, specific law whereby incorrigible consumptives can be compulsorily isolated.

Dr. E. O. Otis, Boston: I think we are all familiar with the measures which have been presented to the legislature during the present session in regard to the tuberculosis problem in the state of Massachusetts, all tending toward the codification and unification of laws and unity of administration. Some of these bills have desired to put the whole matter, the whole tuberculosis problem, under the State Board of Health and give it absolute power to deal with it; others that the State Board of Health should have advisory power over all health matters and in addition definite administrative powers, and that under it the trustees of state hospitals should constitute a division which should carry on the whole tuberculosis work in this state. I think that one trouble in regard to the tuberculosis problem in this state is that there is uncertainty and a division of responsibility in regard to the execution of the various laws in connection with tuberculosis. It seems to me that out of all this agitation we shall have some day a more definite state arrangement by which the whole problem of tuberculosis shall be placed under either a commissioner, or, what would be more practical and which I favor, under the trustee of the consumptives' hospitals; so that everything relating to tuberculosis, supervision of voluntary and private local tuberculosis measures, the care of the state hospitals as now, the supervision of the local hospitals and of the prospective dispensaries, all should be under the supervision and the direction and administration of the consumptives' trustees. We all know that recently the state of New York has adopted a new code for its State Board of Health and they manage the tuberculosis problem by making it one division under the State Board of Heath, and have appointed a

single commissioner to be responsible to the head of the health department for the whole tuberculosis problem in the state.

It seems to me there are three distinct points which are uppermost now in regard to the fight: First, that of notification, which is not by any means satisfactory at the present time, and it seems to me it can only be made satisfactory by the physicians themselves. They have got to take more pains and more care in reporting cases. I fully recognize that there are a great many difficulties in doing it. If a case, for example, is reported in a well-to-do family and the boards of health sends its inspector around, a great deal of anxiety and worry is produced, and the physician often has to bear the brunt of the malediction of the patient and his family. I recall the case of a poor woman who was boarding in an apartment house, who was visited by the inspector of the board of health, and the people with whom she was boarding immediately turned her out as a dangerous case, and she could not find any other place to go. I think that we should take great pains in reporting all our cases of tuberculosis. Of course there are various physicians and institutions who differ as to whether they shall report only those cases in which the tubercle bacillus is found, or whether they shall report all cases which they feel with absolute certainty have tuberculosis, whether or not tubercle bacilli are present. I wrote to the Boston Board of Health about this and they said "report every case which in your opinion is a case of tuberculosis."

Second, the matter of local provision for consumptives' hospitals. I agree with Dr. Hawes that this is a local question. Patients should be cared for by the local community where they are near at home. In the case of the large cities many have their own local hospital for their cases of tuberculosis. You know doubtless of the so-called Fall River bill which has been introduced into the present legislature, one provision of which is that the state shall appropriate a half million dollars for taking upon itself the provision of these local hospitals. I believe that each section of the state should provide its own means for caring for its indigent, advanced cases of tuberculosis.

The third point which I do not believe is satisfactiorily settled is the matter of efficient dispensaries. If we are going to find out these cases early we must have efficient dispensaries; dispensaries which are open in the evening, because a great many working people do not feel themselves sick enough to lose a day's work or half a day's work. The Trustees of the Boston Consumptives' Hospital have already voted to hold an evening clinic, and I believe they already have one in Springfield. The most important part of a local dispensary is the social visitor, infinitely better in my opinion than a mere trained or visiting nurse. The social worker should have some knowledge of tuberculosis, but I think from her general training she is far more valuable than a mere trained nurse. After the physician has examined the patient and expressed his opinion as to its disposition, the social worker sees that those suggestions are carried out. If a patient has to go to a sanatorium she makes the necessary arrangements; when the patient is there she visits him; when he comes out she visits the patient again and brings him around to the dispensary and has him examined. She keeps track of him all the while; she never lets him out of her view. I think that is the most essential part of a dispensary.

I think it was Dr. Jones who suggested the value of advertising to bring the problem of tuberculosis home to the people. Dr. Barnes, the superintendent of the sanatorium in Rhode Island, read a very interesting paper recently in Washington, at the meeting of the National Tuberculosis Association, on this very point. I believe that we should advertise in our local papers in such a striking way that the attention of the people would be attracted to it, and if they have any of the symptoms which may be suggested, the most important symptoms, they should be urged to consult immediately their physician or go to the dispensary. We might not only advertise in our various papers but if some charitably-disposed person were inclined to make a contribution, we could have advertisements in our trolley cars, in the places where other advertisements are put, giving some sort of suggestions which would attract the eye of the traveling public, stating that if they have any plain, leading symptoms they should immediately consult with their physician. In line with this the Boston Tuberculosis Association last year and this summer has instituted a series of lectures in the moving-picture shows in the city and surroundings. We have a capable lecturer who is sent around and almost invariably these 5-and 10-cent shows have been willing to give him seven minutes with his stereopticon views, to be put in between other performances, and in that way a large number of people have been reached. People will go to a moving-picture show and in that way they find out something about tuberculosis that they did not know before. I would like also to call attention to the moving-picture films which are supplied by the National Tuberculosis Association. They always attract attention.

With regard to the incorrigible consumptive, I daresay that some of you have had the same experience as myself, *i. e.*, that it is not always the poor consumptive who is careless and hence dangerous. That is one of the difficult problems, that it is sometimes the well-to-do consumptives who through carelessness or whatever it may be, are not altogether safe consumptives. Some time ago I called the attention of one of the car conductors to a very well-dressed man who was expectorating on the floor of a car. Rather reluctantly the conductor went up to this gentleman and said: "You are spitting on the floor,

sir,'' at the same time calling his attention to the no-spitting sign in the car. The man replied: ''Sir, I am a gentleman and I have got trouble with my throat.'' The well-to-do consumptive sometimes, so far as the care of the sputum is concerned, is careless.

Dr. Hawes has referred to the physicians being informed of the discharge of patients from the sanatoria. There are many patients who have no physicians; they are sent from different institutions, dispensaries, hospitals, etc., so that it is somewhat difficult in that way to get track of those patients if they are sent from a dispensary or hospital.

There is where your social worker comes in; she finds out at once when he comes back and she goes and visits him.

One point in conclusion, that is with regard to the further use of the sanatoria for training in early diagnosis and for better research work. There has just been inaugurated in the city of Philadelphia the Henry Phipps Institute for Tuberculosis. This is a model institution for doing research work. We have in each sanatorium in the state an admirable opportunity for research work. A good deal is being done already; but I think that the state could contribute more largely than it does if it would be willing to pay for workers in these institutions, pathologists, bacteriologists, etc. In this way I believe a great deal could be accomplished.

Further, with regard to early diagnosis, the suggestion is a good one that there should be, let us say, a week of schooling offered to the physicians, at a sanatorium. Various states have what they call schools for local boards of health in which the different health officers come together for two or three days where they profit by lectures and study in health matters. Now if an arrangement could be made by which certain groups of physicians could go for a week or ten days or two weeks and remain at the sanatorium to see the institution and to study the methods and especially early diagnosis there, it seems to me they would derive great benefit and so would the various communities in which they practice.

Dr. Albert C. Getchell, Worcester: Two points I would like to speak of. While they are not definitely indicated by the program yet they are germane to the subject. We look upon this question as a problem and I think we are likely to lose sight of a very important fact, that while tuberculosis is a problem, yet the tubercular person is a sick person and should be considered so individually. This is the first point I wish to emphasize. It is said that in the crowded cities of Europe every one at some time has tuberculosis. While this is not true to such an extent with us, yet tuberculosis is much commoner than it is thought to be and is not the fatal disease it is commonly supposed to be. Indeed, many persons get over an attack of tuberculosis without knowing they ever had it. It is not a rare experience with me to find evidence of a healed lesion in the lung where there is no definite history of sickness to account for it. These patients consult a doctor for reasons of ill health with perhaps some symptoms pointing to tuberculosis. For instance, I recently saw a tyewriter who consulted me mainly because she spat some blood. I am sure she had a healed lesion in the lung and that she would maintain the recovery she had made if she did not allow her resistance to run down.

Again, a person may have evidences of what we are accustomed to think active tuberculosis and still be in good health and able to work. Not to multiply cases, but to cite one in point, a man who has been under my obervation for several years. Nine years or more ago he was definitely sick with tuberculosis and went to a sanatorium. Since he came back, now over eight years, he has been steadily at work in a department store. He has had slight hemorrhages and other evidences of disturbance from which he has promptly recovered, and has generally been in good condition and able to do his work. Part of the time he has had bacilli in the sputum. I have told him not to worry and gradually he has come to accept this advice and act on it. I think we are in danger of putting this class of people off by themselves as a menace to the community, a mistake, in my opinion. This is a state problem; but it is also a problem of sickness and one that physicians have to take up exactly in the way they do any other illness and advise the individual patient as to what is the best thing for him to do in his particular sickness; some to go to a hospital, some to a sanatorium, while others can keep at work under suitable conditions.

Closely connected with this thought is the second, so admirably emphasized by Dr. Peirce in his paper. And here you will allow me to quote Dr. White of Pittsburg, a capable man and one of large experience in tuberculosis matters. He read a paper in the recent meeting at Washington on ''The Doctor and the Social Worker.'' It is not my purpose at this time to discuss the relation of the social worker to the tuberculosis problem. The problem is a complex one and we have to utilize every instrumentality society offers. But, I do want to emphasize the point that Dr. White brought out, namely, that it is primarily a medical question and must be controlled by medical men, but yet it had got away from this control. He cited the fact that, while a large proportion of deaths was due to tuberculosis, little definite instruction in the subject was given in the medical schools. To show that the medical schools are beginning to realize their responsibility in the matter, he spoke of the recent acquisition by the University of Pennsylvania and the Jefferson Medical College of important tuberculosis dispensaries whereby this subject may be more adequately taught to their students. This shows a tendency in medical schools to realize their medical responsibility in the tuberculosis question. So, while tuberculosis is one of the great questions of society it, as well

as the care of the tubercular sick, must be under medical control.

Dr. Charles E. Prior, Malden: I do not know that I can throw any light on the subject more than has been already shown, therefore, perhaps I had better speak of the situation as it appears right at home. In Malden we are trying to fit in as a cog in the big wheel of progress and to carry out the program as outlined by the state at present. I have been sorry to see any attempt to change the law on this subject, particularly the Fall River bill seemed a step backward. It seems to me we have plenty of law at present and what we want is to go ahead and carry out the law. If we try to get more legislation we shall be at sea all the time. It seems to me that we have the authority and it is up to us to follow it. That is what we are trying to do in our little town.

Dr. F. H. Fuller, Walpole. I would like to speak on one matter, that of bovine tuberculosis. I happen to have knowledge of a certain district in this state where the local inspector of cattle has been accustomed to condemn an animal and then his superior in command would release that tubercular animal. The result would be that perhaps after a considerable time some of the Jewish dealers or others would buy that animal and send it to Brighton and thus it would get into the food supply. It seems to me that this is a matter which needs attention. It would appear that the Board of Animal Industry is at fault, and if this happens in one district I am sure it will happen in another.

Another matter is the notification of a tubercular patient's removal from one town into another. This should be much more general, so if a patient moves from one town into another, or the physician changes, the proper authorities should be notified so that immediate health measures may be taken. As a result, local boards of health are apt to be very lax in following up these cases, in giving advice, and disinfecting when needed. I think when we get our organization as thorough as it should be that the local board of health will disinfect where required and follow up every case not only for one year but for several years so as to know what progress, if any, has been made, and to see that these people do not become so great a factor in the dissemination of this disease.

Dr. Bailey: I would like to ask Dr. Fuller what he considers to be the dangerous factor in bovine tuberculosis?

Dr. Fuller: It seems to me that where such cows are giving milk the milk might be infected and would very likely be given to children.

Dr. Bailey: It was not the idea of meat?

Dr. Fuller: No, sir, not so much, so far as infection is concerned.

Dr. I. J. Clarke, Haverhill: I just want to refer to three or four points. It seems very necessary that a state law be enacted making it mandatory for boards of health to disinfect the same as they do in a smallpox case or any other infectious disease. So long as it is left to the board of health, unless the law is mandatory, we shall be a long time in getting the sort of disinfection which we need.

I also hope that there will be a thorough and early understanding between either the State Board or the Trustees of Consumptives' Sanatoria in relation to the new hospitals that are being constructed by the local towns and cities. Quite a number of them are now nearing completion, and I know in our town there is not very much interest being taken. It is said it will be ready to open in a month. I know that it will take more than a month to arrange things, to get physicians and trained nurses and so on to command an institution of that kind.

I want to speak of something that has not been mentioned here in general discussion and that is the use of the clinical thermometer in early diagnosis. I find it of the greatest importance in finding out in obscure cases what the matter is, and I am enlightened very often by getting the temperature. It is my rule to furnish a thermometer to patients and request them to bring me in the temperature taken four times a day—most of them are quite willing to do this. The results are certainly very instructive.

I would also like to see foreign printed matter furnished by the state. In our town it could be easily distributed among the local sick-benefit societies. There are a lot of people who cannot read our English-printed papers and they have no means of knowing anything about what is going on. On my desk I have some pamphlets printed in Italian. I find that the Italians are very glad to look over them, and if they were printed in several languages it would be a great help. If they were furnished I think the Tuberculosis Societies in the several towns and cities would be very glad to distribute them.

I am in favor of the advertising scheme, the same as the quacks advertise in the newspapers and draw their victims. We ought to advertise in some way and draw the attention of the people to what the symptoms are in early tuberculosis.

I know of one town, it seems to me it is Salem, where they have had the best results in the dissemination of knowledge in regard to the prevention of tuberculosis in their lectures to the school children in the 9th and 10th grades and the High School. It seems to me that the impression which you make on the young children lasts much longer and is more deeply founded.

One other point in trying to establish an early diagnosis: So many patients say no one in the family had had tuberculosis, they don't know of anyone with whom they have been associated who has had it, but you notice that insurance companies are very anxious to ask the question: "Have you been associated

with any person during the past year who has had tuberculosis?'' Insurance people are a great deal shrewder than we are in making this inquiry.

DR. GETCHELL: I suppose Dr. Clarke knows that this material printed in different languages is for sale in New York, I don't know exactly where, but I think you can buy them at cost from the National Tuberculosis Association.

DR. ARTHUR K. STONE, Boston: The National Tuberculosis Association provides literature in 27 different languages and it can be had on application for $1.88 per 1000.

DR. JOHN B. HAWES, 2nd: I would like to make a few remarks about Dr. Jones' and Dr. Peirce's papers. In the first place Dr. Jones' statement about the lack of teaching. I want to emphasize that very much. In the Harvard Medical School at least I cannot see that the fourth year man when he graduates has had any practical experience whatever as to how tuberculosis is handled as a state problem or to any extent in private, as a big problem or as a little problem. It seems to me this is one of the missing cogs in our system.

About the visiting nurses, that was one of Dr. Arthur Cabot's hobbies—that the school nurse or the school social worker was the most important factor in the whole campaign.

When I got through the Massachusetts General Hospital in 1904 one of the regular jobs which all of us young men in Boston had was to go round to Trade Unions and the various lodges and give talks on tuberculosis and the Boston Association used to give us the material for these talks. I do not know why it is not done nowadays. It seems to me it was a very necessary thing to do. You cannot now get the young men to do it. I have been practically in every large city in this state.

Dr. Peirce in making his statement about the $4.00 a week at the state sanatoria and the $10.00 and $15.00 a week at home, did not mention the state subsidy of $5.00 a week which takes that much off the cost of the local sanatorium. He ought to have mentioned that $5.00 a week which the state pays back for local support.

I should like to ask the question of the local men about the reporting of cases when a man sends you a case in consultation. Is it courteous or right or proper to report those cases? I talked with a prominent physician of the State Board of Health and he said he would advise me not to report those cases. That brings up a question which is not settled in my mind.

DR. E. O. OTIS: The other day when a case was referred to me by some other physician I supposed naturally that he had reported it until I received a communication from the Boston Board of Health asking why I did not report that case. It seems to me that it is best to report all cases.

DR. BRADFORD H. PEIRCE: Dr. Hawes mentioned the $5.00 a week subsidy. I should like to say in answer to that that we never know what patients we are going to get subsidy on. When a case is reported we try to provide for it. Then if it comes within the rules which the trustees have laid down for obtaining the subsidy we go for it, but even in the case of the patients for whom we receive subsidy we get no direct benefit. The check is made out to the city. This is in Cambridge of which I am speaking, and the Board of Health gets no really direct use of the subsidy.

THE VALUE OF THE ROENTGEN METHOD IN THE STUDY OF CHRONIC APPENDICITIS AND INFLAMMATORY CONDITIONS, BOTH CONGENITAL AND ACQUIRED, ABOUT THE CECUM AND TERMINAL ILEUM.*

BY ARIAL W. GEORGE, M.D., BOSTON,

AND

ISAAC GERBER, M.D., BOSTON.

WE are presenting here a series of cases which illustrate just how we can make Roentgen diagnoses of surgical conditions in the right lower quadrant of the abdomen and neighboring organs. In practically all of these cases the clinical symptoms were very much alike. First and foremost was constipation, usually extending over a period of years; then there were more or less vaguely-localized abdominal pains, with frequent distention and flatulence. In some cases the symptoms pointed more towards the stomach —pain, pressure or distress after eating, heartburn, belching, nausea, frequent headaches. In one case there were vomiting attacks of increasing frequency, until practically nothing could be held on the stomach. Many of these cases had been chronic constipation. In none of these cases did the treatment give more than temporary relief; in some not even that. In most of them the true condition, as shown by the Roentgen examination and proved by later operation, was not even suspected, although they were under the care of competent internists and surgeons. This was due not to any neglect on the physicians' part, but rather to the inaccessibility of this region to the ordinary methods of diagnosis. We shall not dwell here further on the clinical aspect of these cases, but merely describe their appearances from the Roentgen point of view.

In our examinations we used our usual test meal, consisting of 90 grams of bismuth subcarbonate in a mixture of artificially-prepared buttermilk and water; in all about 500 c.c. In some cases a bismuth enema was used to confirm or clear up the information given by the meal.

* Read at the annual meeting of The Massachusetts Medical Society, June 10 1913.

These cases naturally divide themselves into five groups.

1. CHRONIC APPENDICITIS.

By this term we do not wish to indicate appendices that have necessarily at any time undergone acute inflammation, but refer rather to those cases where the appendix is either kinked or involved in adhesions. Of course, many of these adhesions are of anomalous developmental origin, but their effect in producing symptoms, and their Roentgen appearance, are the same as the others. Chronic appendicitis may be shown in two ways: *First,* by the ileal stasis which it produces; and *second,* by actual demonstration of the kinked and adherent appendix. By "ileal stasis" we mean retention of bismuth in the terminal loops of ileum for a longer period than is normal. Normally, six hours after our test meal, the bismuth should not only be out of the stomach, but also nearly completely out of the coils of ileum. Many perfectly healthy persons, however, will show a small amount of bismuth still present in the terminal ileum at the six hour examination. To be safely classed as real ileal stasis bismuth should be present at least twenty-four hours or longer. From the presence of marked ileal stasis alone we cannot make a diagnosis of chronic appendicitis; but we can sometimes infer it. It is, however, just this method of inference that has served to bring much of the Roentgen bismuth work into disrepute among careful physicians. We feel in this, as in other departments of Roentgen diagnosis, the aim should be to find some factor that offers positive, not inferential evidence.

This positive evidence is found in the actual demonstration of the appendix itself, that is of the bismuth mixture within the lumen of the appendix. The fact that the appendix can be demonstrated Roentgenologically is today known to only a small proportion of our surgeons, and even of the Roentgenologists. Only two months ago, Groedel, one of the foremost of German Roentgenologists, published a paper in which he claimed to have demonstrated the appendix in three cases, all of which were pathological; and he showed a print of one. From this extensive series he concluded that the normal appendix cannot be demonstrated by the Roentgen ray; and conversely that an appendix which can be demonstrated by this method is pathological. Of course this evidence is ridiculously insufficient. Pathological appendices have been shown for many months by Jordan of London who does the Roentgen work for Lane at Guy's Hospital. In this country, Case of Battle Creek over six months ago published a large series of over sixty cases in which he had demonstrated the appendix, some normal, most of them pathological. Case also inclined to the view that an appendix that can be filled with bismuth, if not definitely pathological, is at least a potential danger. We will agree with him in those cases where bismuth remains in the appendix for forty-eight hours or more, when it has passed out of the surrounding intestinal tract. In the other cases, where the size, shape and position of the bismuth shadow correspond to a normal organ, we do not believe that the potentiality for danger is any greater than is always associated with any unremoved appendix. Since our attention was called to the appendix by Case we have succeeded in demonstrating this organ either normally or pathologically in about seven out of every ten cases examined. In many cases the normal condition was verified at a later operation for other purposes.

A pathological appendix can of course only show itself, if its lumen is unobstructed, at least in part. It may show a bismuth mass which is sharply kinked in one or more places. There may be adhesions to itself, to the cecum, ileum, or even to the sigmoid. We have shown an appendix wrapped around and adherent to the terminal ileum so as to obstruct the latter. Retrocecal appendices can sometimes be shown distinctly. Often these are obscured by the dense mass of cecal bismuth; and will show up more clearly when some of the bismuth has passed out of the cecum. In many of the cases bismuth will persist in the lumen of the appendix for many hours after it is out of the cecum and ascending colon; in one of our cases as late as five days after the ingestion of the bismuth meal. Of course in these cases the appendix is definitely pathological, but usually the abnormal condition is manifested by accompanying adhesions or kinks. Occasionally an appendix which is not shown on the plate may be definitely pathological, but usually the abnormal condition is manifested by accompanying adhesions or kinks. Occasionally an appendix which is not shown on the plate may be definitely filled out with the bismuth mass by massage under fluoroscopic control.

2. LANE'S KINK.

This is the condition, so much emphasized by Lane, where the terminal loop of ileum is fixed by one or more bands, either congenital, developmental or inflammatory. This condition as shown by the Roentgen method has, first of all, marked ileal stasis. This alone, however, is of little value. The actual demonstration of the distended and fixed terminal ileum is the real diagnostic point. This loop of intestine will be found in an abnormal and definitely-fixed position, at different times during the examination, and even on different days. The fluoroscopic examination here is very important. With the fluorescent screen we can manipulate and show that the terminal loop of ileum is really fixed.

3. JACKSON'S MEMBRANE.

This condition is sometimes called "membranous pericolitis," and is another condition

where opinions are divided as to whether the cause is inflammation or anomalous development. We are not concerned here with the etiology, only with the demonstration of the condition by the Roentgen method. The presence of the membrane, which runs across the ascending colon and on to the proximal transverse colon, is shown in several ways: First, there will be more or less ileal stasis. This, however, is frequently due to the accompanying Lane's kink or chronic appendicitis. Obstruction in the ascending colon is usually present, and is shown by retention of bismuth in this part and in the cecum for twenty-four hours or longer. A bismuth enema will also sometimes show obstruction at the same place with perhaps acute angulation of the proximal transverse colon. However, the demonstration of ileal stasis and colonic obstruction is not enough. We must demonstrate the actual effects of the adhesions themselves upon the adjacent parts Single plates which show apparent "matting together of cecum, ascending colon, and hepatic flexure" are not conclusive. The diagnosis of Jackson's membrane from this evidence alone is likewise shrewd guesswork. Real positive evidence can only be obtained by manipulation under the fluoroscope where the effect of the adhesions can readily be shown, or by demonstration on plates of the peculiar filling mechanism which we have found to be associated constantly with Jackson's membrane.

When the cecum is only partly filled with fecal material the ascending colon and transverse colon may be some distance apart and apparently not connected. However, as the cecum and ascending colon become filled more and more with ileal contents, these adhesions begin to show their presence by pulling the proximal transverse colon towards the ascending colon. Finally we have the characteristic "double-barrelled shotgun" effect of the two adjacent colonic parts. At this time under the fluorescent screen these cannot be separated by manipulation. This pulling together of the ascending and transverse colons as the result of filling is characteristic for these pericolitic adhesions only. With an atonic cecum (Typhlatony) we may have ileal stasis, and likewise a dilated cecum with abnormal bismuth retention. Here, however, we do not have the above-mentioned filling mechanism; and we cannot demonstrate adhesions under the fluoroscope. With this condition we have the so-called "ascendens" type of chronic constipation which is a subject for medical, not for surgical treatment.

4. ADHESION.

This group of cases we will pass over rather rapidly. We have found many cases of chronic constipation where the cause, as shown by the Roentgen ray, was adhesions of the sigmoid to the cecum from old pelvic inflammation; or the transverse colon may have been adherent to the ascending colon or cecum as the result of duodenal ulcer, gall bladder disease or old appendicitis. In these cases the demonstration of obstruction and ileal stasis was likewise not as valuable as the fluoroscopic demonstration of the adhesions or of their peculiar filling mechanism. In these cases the bismuth enema has been valuable because by its use we have been able to bring the colon more nearly to its normal position under complete filling. Acute angulations due to adhesions show very definitely by means of the enema.

5. CECUM MOBILE.

This is a condition which, although not found in this particuar series of cases, deserves mention here, because of the emphasis which has been placed upon it of late by surgeons like Wilms and others. This anomaly of colonic fixation can readily be demonstrated by the Roentgen method. The cecum and ascending colon are found not only to be in an abnormal position, perhaps in the median line, or to the left; but under the fluoroscope they can be very readily moved about. Incidentally, the diagnosis of left-sided appendix can be definitely confirmed.

SUMMARY.

In a series of cases which clinically show severe constipation, and more or less indefinite gastric symptoms, examination by the Roentgen Ray has shown the causes to be definite surgical conditions in the right lower quadrant. In all of these cases the demonstration of mere ileal stasis or obstruction is not as important as the more positive demonstration of the actual conditions.

In chronic appendicitis the kinked and adherent appendix is shown.

In case of Lane's kink we can demonstrate the fixed and distended terminal loop of ileum.

In cases of Jackson's membrane we can show the effect of the adhesions under the fluoroscope, as well as the presence of a characteristic mechanism of filling.

Various adhesions in this region as the result of old inflammatory disease or congenital anomaly can also be shown in the same manner.

Cecum mobile and left-sided appendicitis can be readily demonstrated.

CONSERVATION OF RADIUM EMANATION.—Report from London on Oct. 2 states that a method has been devised whereby radium emanation can be stored in glass tubes and distributed for therapeutic use. This discovery, if true, may be of considerable importance, not only in preventing the waste of radium emanation, but in enabling its more extensive application at reduced cost.

MEDICAL CONTRIBUTIONS OF THE STATE BOARD OF INSANITY OF MASSACHUSETTS: INTRODUCTORY NOTE.*

BY E. E. SOUTHARD, M.D., BOSTON,

Pathologist to the State Board of Insanity; Director of the Psychopathic Department of the Boston State Hospital; and Bullard Professor of Neuropathology, Harvard Medical School.

ABSTRACT.

Statutes concerning scientific investigation and publication of scientific reports by the State Board of Insanity of Massachusetts (1898).

Maintenance and development of laboratories in the supervised institutions, culminating in the Psychopathic Hospital, Boston, 1912.

Appointment of a Pathologist to the State Board, 1909.

Appropriation for expenses of investigation since 1911.

Fourteen branches of investigation so far pursued.

Summary and Remarks.

From the beginning of its work in 1898, the State Board of Insanity of the Commonwealth of Massachusetts has had by statutory law the specific duties of encouraging scientific investigation and of publishing the results of such investigation (Acts of 1898, Chap. 433, Sec. 5); Revised Laws (1902), Chap. 87, Sec. 5; Acts of 1909, Chap. 504, Sec. 6. The latest revision (1909) reads that (*a*) "The board shall encourage scientific investigation by the medical staffs of the various institutions under its supervision," and that (*b*) The board "shall publish from time to time bulletins and reports of the scientific and clinical work done therein."

The first of these duties has been faithfully executed in the sense that clinicopathological laboratories have been maintained, improved, and increased in number since 1898. Laboratories with special officers in charge are now maintained at Danvers (1895), Worcester (1895), Taunton (1897), Westborough (1898), Boston (1910), Boston (Psychopathic Hospital) (1912). Special buildings for these laboratories have been provided (Worcester, 1904; Westborough, 1906); and the appropriate modern outfit of laboratories in a psychiatric clinic in the German sense is being gradually installed in the ample laboratories of the Psychopathic Hospital (Boston). It has also happened that the spirit of scientific investigation has not been confined to the special laboratory officers, but has spread to the other members of the staffs and *vice versa*.[1] The mutual reactions between ward and laboratory have often been remarked, and in more than one instance a man trained as pathologist has turned into clinician, and a clinician by training has turned pathologist. The results of the scientific work in these institutions have been published very scatteringly in different medical journals and may be judged by the titles in a bibliography of articles printed which will subsequently appear. Over eighty of these publications have already been listed in a paper entitled "Contributions from the Psychopathic Hospital, Boston, Massachusetts: Introductory Note" and published in the Boston Medical and Surgical Journal, where note has been made of the wide scope of this work, despite its comparative neglect of sociology and psychopathology in favor of neurological and somatological contributions.[2]

As to the second duty above mentioned, viz., that of publication, the State Board of Insanity has hitherto confined itself to concise remarks suitable to its annual reports (Pub. Doc. No. 63) and has with a certain propriety left the business of publication to the institutions specially the source of given investigations. It is undoubtedly wise for the institutions to continue their own publications in the usual form, perhaps with one small feature added, viz., the assigning of an accurate serial number or year number (*e.g.* Contributions from ——— State Hospital, Number ———; or, 1913. 1, 1913. 2, etc.). Such a numbering system is in use or contemplated for the Danvers, Westborough and Worcester contributions, as well as for the Contributions of the Psychopathic Hospital and of the State Board of Insanity about to be issued. The usual form of publication in various appropriate medical or other journals seems preferable to publication in official reports or public documents, first, because the communications thus reach a wider and more suitable audience, and secondly, because the cost of publication is borne rather by the journals than by the commonwealth.

However, in 1909, the State Board of Insanity went a step farther in execution of its duty "to encourage scientific investigation by the medical staffs" by appointing (May 1, 1909) a pathologist, whose duties should consist of (1) supervision of the clinical, pathological and research work in the various institutions under the board's general supervision, (2) visits to the institutions from time to time, and (3) reports to the board. The general problems derived from the pathologist's work in the institutions proved shortly to demand more funds than were readily available in a given institution, and many of the problems were of so general a nature that their extended study could hardly be undertaken in a single institution. Accordingly, there was incorporated in the Acts of 1911, Chap. 688 (the appropriation act of salaries and expenses in the department of the State Board of Insanity) a paragraph appropriating "for the expenses of an investigation as to the nature, causes, results and treatment of mental diseases and defects, and the publication of the results thereof, a sum not exceeding twenty-five hundred dollars." This appropriation has been

* Being S. B. I. Contributions, 1913. 1. *Official information* concerning the State Board of Insanity of Massachusetts is contained in its Annual Reports (Pub. Docs., No. 63) published since 1900. Reports of the pathologist, included therein, began in the eleventh annual report for 1909, published in 1910

since continued (1912, 1913). Reports have been printed each year listing the branches of investigation undertaken and briefly describing their results.

Of work having a general scope before the appropriation for expenses was made, the following may be mentioned (see Annual Reports of State Board of Insanity, 1909, 1910):

1. Nature and causes of mental disease beginning between fifty and seventy years of age (Southard and Mitchell). Proof was brought that neither wasting of the brain substance nor damage done by diseased blood vessels is responsible for the mental disease in a good proportion of cases. Alterations in the nerve cells and in the interstitial cells were found, giving rise to the hypothesis of a disorder of cell metabolism in these cases.[3]

2. Nature and causes of senile dementia (Southard). A special group of cases (termed "senile atrophic dementia") was separated out from the arteriosclerotic and functional cases of mental disease in the aged. Evidences of active and progressive destruction of nerve cells were found in these brain-wasting cases. Attention was called to the fact that in some cases the brain suffers wasting along with all other viscera, but that in some cases the wasting affects the brain and spares the other organs. The causes of the two affections are possibly separate.[4]

3. Errors in the diagnosis of general paresis (Southard). This study was undertaken before the usage of the Wassermann reaction for detection of syphilis and showed an error of 10-15% in the diagnosis. This result has medico-legal importance, and emphasizes the necessity of Wassermann serum and cytological tests which have now greatly reduced the error. The special nature of those cases in which errors were made was described (cerebellar, arteriosclerotic, etc).[5]

4. The margin of error in the diagnosis of mental disease. Ten cases in 250, or 4%, were found obscure even after autopsy (Southard[6]), although the problems in these 10 were later to some extent cleared up (Alford[7]). The causes in these obscure cases and in many cases in which the clinical diagnosis was proved erroneous were found to be infectious, toxic, somatic, non-nervous (*e.g.* streptococcus septicemia, streptococcus meningitis, cerebellar abscess). This work was of importance in prescribing work for the Psychopathic Hospital. The series showed that, where all diagnosticians came to agreement, the percentage of accuracy was about 9 in 10; that, where there was disagreement, somebody proved to have been correct in about 3 out of 4 cases; and that every diagnostician was in the wrong in about 7% (17 cases), in the 250 cases.

5. The nature and causes of dementia precox. The organic nature of this disease was supported by the observation of gross or microscopic lesions in 86% of the unselected series investigated. The necessity of studying the anomalies and scleroses in these brains from a topographical point of view was shown. These results have prescribed much of the photographic and anatomical work since done under the appropriation (see below). The issue between the "mind twist" or psychogenic hypothesis and the "brain spot" or encephalogenic hypothesis came out clearly in the discussion of these findings at the Triennial Medical Congress, Washington, 1910.[8]

6. Geographical variations in the distribution of insanity. Two studies have been completed (a) as to towns,[9] (b) as to cities.[10] Surprising variability was found, more in the towns than in the cities. A rough correspondence was found to hold between the insanity rates (commitments) and the census rates (enumerations in 1905) of defectives, physical and social. The correspondence is closer between the rates for insanity and those for physical defectives.

SPECIAL INVESTIGATIONS UNDER THE APPROPRIATION.

7. The nature and causes of epilepsy and imbecility. The recent work on heredity, some of which had been done at Monson Hospital, working with the Eugenics Record Office, Cold Spring Harbor, Long Island, has tended to throw discredit on special causes such as infectious disease. This problem was attacked (Lucas and Southard) from the other end: the after-history of children who had apparently recovered from poliomyelitis was followed. Proof was brought that cases of epilepsy could develop subsequently to such attacks of infectious disease.[11, 12] The heredity of these particular cases is now under investigation by a eugenics worker at the Psychopathic Hospital.

8. The nature of such mental disease as is consistent with normal or normal-looking brains. Statistical studies were made on Worcester Hospital material.[13] Previous results concerning the absence of evident brain damage in senile dementia (Danvers material, see paragraph 2 above) were confirmed with the Worcester material. The possibility was made out that there are two groups of dementia precox cases, a group subject to early death (often under two years), and a far more viable group dying as a rule at various ages eight or more years after onset. One brain in three was found to look normal in the Worcester series as against one in about four in the Danvers series. The problem of the normal looking brains in psychopathic subjects is of great importance, because the normal appearance of such a brain means either finer and largely non-destructive changes or else that the causes of the insanity in question reside outside the brain.[14]

9. The relation of mental diseases and defects to syphilis. Special work has been done with the Wassermann test to establish the percentage of syphilitics in various groups of pa-

tients (Worcester Asylum, 5 to 6%). The Essex County (Danvers) percentage of cases as received goes as high as 22% (study by H. L. Paine). The Psychopathic Hospital has occasionally received as high as 30% in a given month. Three special pieces of work are in progress as to the relation of syphilis to mental disease: (*a*) Dr. A. Myerson of the Psychopathic Hospital staff is testing the merits of the Homer Swift treatment of general paresis by injections of salvarsanized serum into the cerebro spinal sheath. Progress in this work will be reported in the Notes on the Annual Conference for the Psychopathic Hospital.[15] (*b*) Dr. W. P. Lucas, formerly chief of the out-patient staff of the Psychopathic Hospital, is to report shortly on the general relations of the Wassermann reaction for syphilis to medicine, with special relation to mental disease. This paper will appear in the Boston Medical and Surgical Journal as one of the State Board of Insanity Medical Contributions.[16] (*c*) It is contemplated, as material accumulates, to supplement the work mentioned under paragraph 3 above (errors in the diagnosis of general paresis) with statistical work on autopsied cases, showing the exact degree of improvement in diagnosis which has followed the introduction of the Wassermann method.

10. Nervous diseases of children and their bearing on mental defect. Lucas' work on congenital syphilis is of great importance here.[17] Boston City Hospital and Massachusetts General Hospital data, owing to the courtesy of the directors of their laboratories, have also been collected and given a preliminary analysis (N. K. Wood). This work will be published in due time, together with some studies of brain weight in children having a bearing on the effects of acute nervous disease.

11. Brain weights in normal and in insane subjects. To compare with insane hospital data, the data concerning brain and other visceral weights from two large general hospitals (Boston City Hospital and Massachusetts General Hospital) have been collected and partially analyzed. Some data concerning spleen weights have been utilized by Dr. H. M. Adler, chief of staff of the Psychopathic Hospital, in his studies of the relation of the lymphoid apparatus, fat absorption, and insanity.[18] Data concerning a ratio termed the brain-trivisceral ratio (brain weight compared with combined weights of heart, liver, and kidneys) have been already published by Burns[19] (relation of brain weight to cancer) and have also been utilized in developing a conception of differential brain atrophy (atrophy of brain without similar atrophy of other organs, of paragraph 2, supra).

12. Anatomy of mental disease—statistical studies. Extensive tabulations of anatomical findings in mental disease, establishing tentative ratios of the normal to abnormal brains (appraised by available methods), have been made (see paragraph 8, supra). Use has been made of accumulated results in several publications (Southard[20]) and in directing research at the findings in the remainder of the body in normal-brain cases. It has been hoped thereby to clear the field for a study of mental disease, not attended by brain disease, if, as seems likely, there is such a group. Attention would thus be levelled upon the glands of internal secretion and other body organs.

13. Anatomy of mental disease—photographic studies. The most expensive and time-consuming investigation as yet undertaken under the State Board of Insanity fund has been the photographic and dissection work with brains. The brains studied now amount to about 500. The photographic work has been systematic and uniform and permits a record of appearances, both before and after stripping the pia matter in the formalized brain, of the superior, inferior, left and right lateral, and left and right mesial surfaces. The work has been under the general supervision of the pathologist to the State Board of Insanity; the arduous dissection has been performed by Dr. Annie E. Taft, custodian of the Harvard Neuropathological Collection and appointed special investigator under the State Board of Insanity; and the photographic work has been done almost exclusively by Mr. Herbert W. Taylor. The work has been performed in the various laboratories from which the brains are derived and to which they are returned for safe keeping and in the neuropathological laboratory of the Harvard medical school. The brain photographs include, besides many from brains of the insane, photographs from fifty Monson State Hospital brains (epileptic) and a smaller number from the medical examiner of Suffolk County, Dr. George Burgess Magrath. A variety of studies, both qualitative and encephalometric, is being made from this collection (see next paragraph for example).

14. Anatomy in dementia precox. The photograph collection mentioned in the previous paragraph has been utilized most intensively so far in the study of dementia precox. In the prosecution of this study, made on Danvers State Hospital material (a continuation of work mentioned under paragraph 5, supra), frontal sections have been made and a photographic record taken of a sufficient number of the surfaces of section. From a combined study of the surface and section appearances, the sites of most extensive or markworthy lesions and anomalies are mapped, and histological work is then carried out upon these areas and their fellows in the opposite hemisphere. In this way rapid entrance is effected into the problem of topical variations in the degree of destructive process going on. These topical variations will in future permit, or lay the basis for, an analysis of the correlation of structure and function in this most important group of mental diseases. The first results have been presented at the Triennial Congress of Physicians and Surgeons be-

fore the American Neurological Association at Washington, D. C., 1913, and at the International Medical Congress at London, Eng., 1913, and will be shortly published in this series of medical contributions.[21] An extension of the work to manic-depresive insanity, and other obvious extensions, will be carried out as time permits.

SUMMARY AND REMARKS.

A general picture is offered of the medical scientific activities of the State Board of Insanity of Massachusetts. The duty of investigation and publication as prescribed by law, and the special duties of the pathologist to the board are summarized.

A general summary of the various pieces of investigation before and after the special appropriation was made is given. It is estimated that over twenty-five workers have contributed to various aspects of the different investigations. The investigations are listed under fourteen heads, of which eight relate to work done subsequent to the special appropriation.

It is impossible that studies of this particular type and range shall be carried out without special funds, such as the New York Lunacy Commission and the Massachusetts Board of Insanity provide. It is hoped that other states will be prevailed on to establish a similar policy. The amount of money necessary for such investigations is negligible as compared with the money spent on maintenance; the results, however insignificant they may appear at a given moment, are bound to be some day of importance.

It is planned in future to publish various medical contributions from the State Board of Insanity in various appropriate journals with serial numbers such that readers may readily refer back to earlier contributions.

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[20] Especially see publications mentioned under notes 13 and 14.

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OUR LITTLE BALLOONS. SOME OBSERVATIONS ON GAS AND PTOSIS.

BY E. A. CODMAN, M.D., BOSTON,

Assistant Visiting Surgeon, Massachusetts General Hospital.

ALMOST every medical journal one takes up nowadays has an article on ptosis. There is much discussion of the "ligamentous supports" of the abdominal viscera, of "muscular relaxation" of the abdominal walls, of "congenital adhesions", of "non rotation of the colon", of variations in the "poise of the skeleton", and of alterations of the normal "pear shape" of the abdominal cavity. According to Goldthwait all our organs are hung on a peg by the cervical fascia, and by lines of traction through the pericadium and mediastinum.

So far every theory seems based on the idea of the weight of the viscera producing a downward drag. The writer wishes to emphasize another neglected element—the balloon effect of the gas in the hollow viscera. The x-ray shows us that we have at least four little abdominal balloons which are constant in all individuals.

1. The stomach.
2. The hepatic flexure.
3. The splenic flexure.
4. The small intestine.

The last mentioned is a coiled compound balloon. The sigmoid and rectum might also be included and doubtless are the safety valves of the system since their gaseous content is more or less under our voluntary control.

Consider the viscera from below upward. Suppose a ptotic cadaver with the stomach, ascending colon, transverse colon and descending colon left *in situ*, and the rectum, sigmoid and small intestine removed, and each of these latter inflated with gas and tied off at both ends.

While some one carefully holds up the transverse colon by the omentum we will now pack into the empty lower half of the abdomen the organs which we have removed and inflated.

First, our little rectal balloon very nearly fills the bottom of the pelvis; over that the sigmoid fits quite naturally and almost fills the remainder of the pelvis. Now with much difficulty and crowding the distended small intestine is forced in under the transverse colon and the omentum nicely tucked down in front of it. The abdominal wall is then closed.

Set the cadaver upon his feet. Has he got ptosis now?

The transverse mesocolon is held up like a shelf by the compound balloons underneath it. On top of this shelf rests the stomach. It cannot drop down, and if the omentum is long and nicely tucked in it keeps the small intestine from bobbing up in front of the colon.

Now this change does not demand the strengthening of "ligamentous supports" in the neck or elsewhere—in fact, all the natural supports were cut when the viscera were removed to be blown up individually.

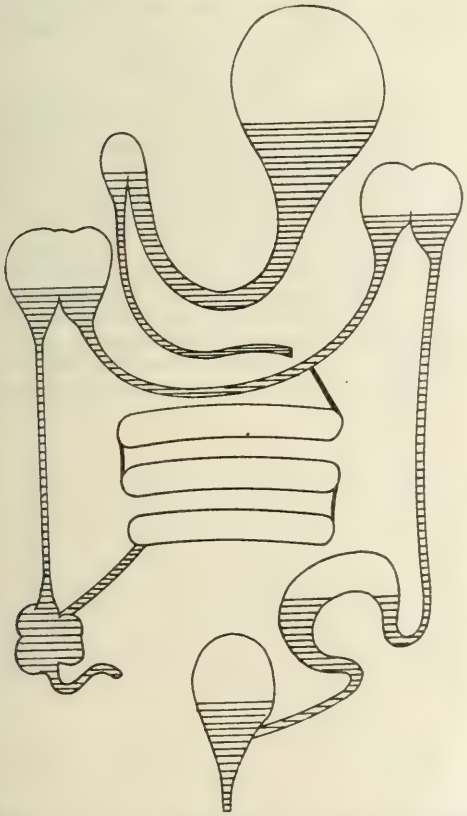


Diagram of our little balloons with their uplifting tendencies. N. B. If you wish to send a fragile liver by express, pack the bottom of a barrel with inflated small intestines; put in the liver; tack down a rubber apron over it and fill the remaining space with inflated lungs.



The healthy individual whose normal appetite furnishes fermentation to his intestine so that there is always plenty of gas in the small bowel to hold his transverse meso-colon up.



The ptotic individual whose sensitive intestine is irritable to the normal amount of gas and who does not eat enough fermenting food to cause natural distension. These patients complain of gas but they are not distended.

When we add to the picture by putting a toy balloon in the top of the stomach and other smaller ones in each of the colonic flexures we can readily see that the hollow viscera are likely

to fly away with the liver! And by the way, the liver has an easy time of it riding on an air cushion all day!

Looking at ptosis from this point of view many interesting questions come up.

Should we not feed ptotic individuals with gas-producing foods, and teach them to endure temporary distress from distention for the sake of crowding their organs up into place?

Should we not urge these poor collapsed individuals to retain the gas which they seem impelled to eruct or expel?

What are the effects in the standing patient of inflation of the colon as seen by the x-ray?

Do different articles of food produce different kinds of intestinal gas?

Are different kinds of gas equally agreeable to the intestine?

What are the toxic effects of the absorption of different gases?

Why is it that some patients who are obviously not distended complain of distress from gas?

What are the laws governing the manufacture and absorption of intestinal gas?

Do individual coils rise and fall in the abdomen according to the weight of their contents?

And many more!

Clinical Department.

REPORT OF A FEW CASES WHERE SUTURES INSTEAD OF PACKING HAVE BEEN USED AFTER SUBMUCOUS RESECTION OF THE NASAL SEPTUM.

BY MARGARET L. NOYES, M.D., BOSTON.

In ten cases of submucous resection of the nasal septum, in which through and through sutures have been placed to hold the flaps, instead of using the packing, the report is favorable.

The method according to Lothrop[1] has been used. It is in brief, as now used, as follows: Pass the needle threaded, from above down, into the left nares, carrying it as far back as the bone and cartilage has been removed. Pass through both flaps of septum, withdrawing the free end of suture from right nares. Attach a hemostat, then withdraw needle, without unthreading, to anterior edge of septum, just posterior to incision; pass as before through both septal flaps, withdrawing the loop through the right nares. Pass the free end of suture first withdrawn through the loop and draw back the needle and suture through left nares, making a quilting stitch. After taking as many as necessary for firm splinting, perhaps five, tie all the sutures at once lightly under the columnella of nose. In the cases reported here the results were good in all but one. In that one, on the fourth day a swelling came between the flaps and pus was found upon making an incision for drainage. There resulted a small perforation near the floor and just posterior to primary incision, which was due no doubt to the poor placing of sutures and so drawing the flap back and exposing a tear on opposite flap. The abscess healed after a few days' treatment. It did not seem to be due to the sutures, but to faulty technic of a clinic operation.

Advantages:—

1. Does away with discomfort of nasal packing.
2. Allows free breathing through nose at all times following operation.
3. Results in less trauma to turbinates and thus a quicker healing and restoration to normal, the functions of the nasal mucous membrane.

Disadvantages:—

1. Five to ten minutes necessary to place sutures.

[1] Oliver A. Lothrop: Boston Med. and Surg. Jour., Mar. 28, 1912.

Reports of Societies.

ASSOCIATION OF AMERICAN PHYSICIANS.

Twenty-Eighth Annual Meeting Held in Washington, D. C., on May 6, 7 and 8, 1913.

(*Continued from page 508.*)

THE PROBLEM OF TYPHUS FEVER IN THE UNITED STATES.

Dr. John F. Anderson, Washington, D. C.: Except for isolated cases of typhus fever at our largest seaports, it had generally been believed that the disease had disappeared from the United States. The determination of the identity of the disease, described by Dr. Nathan E. Brill, of New York, with typhus fever has, however, led to the recognition and report of cases from widely separated sections of the United States. The disease apparently has a very low mortality. It is possible, however, that it may assume virulence and become even more widespread.

DISCUSSION.

Dr. Wm. H. Thompson, New York: In 1859 and 1860, I was physician to the New York Quarantine Hospital, and in that service I was constantly seeing typhus fever among immigrants coming into that port. The typhus fever I saw at that time was as different from Brill's disease as smallpox is from measles. That disease was particularly contagious, and I had several friends who contracted the disease and died of it. I think it is very unfortunate to attempt to identify Brill's disease with typhus fever.

Dr. W. H. Park, New York: We had the interesting experience of finding a family consisting of the father and three children; the father had the symptoms of typical typhus, the children those of Brill's disease. Guinea-pigs and monkeys showed the usual reactions for typhus when inoculated from all these patients.

Dr. Lewis A. Connor, New York: What are we to do with these cases? Shall they be reported as typhus fever or as Brill's disease?

Dr. Herman M. Biggs, New York: There is no question but that these cases should be reported as typhus fever. Some uncertainty formerly prevailed in New York as to this question, because the diagnosticians of the Health Department had not been educated to recognize Brill's disease as typhus fever.

Discussion closed by Dr. John F. Anderson: With regard to the different types of typhus to be encountered, we saw many different types in Mexico. At the Mexico General Hospital the mortality rate was five per cent., and only the worst cases come to the hospital. We have seen cases of typhus fever of all grades and we have no doubt that Brill's disease is true typhus.

A PARATHYROID BACILLUS (FROM FOWLS), AND ITS TOXINS.

Drs. Theobald Smith and Carl Ten Broeck, Boston: Many epidemics of enteric disease have been studied abroad and have been regarded as due to meat poisoning; in this country we have many instances of paratyphoid infection, but seldom meeting with groups of meat poisoning; this difference has been ascribed to the thorough cooking usual in this country. There have been instances, however, of group outbreaks among people who have eaten chicken salad, and like foods; were such outbreaks due to putrefaction of the food, or to an organism present in the food? An avian paratyphoid bacillus has before been noted and studied, but only recently has it been found by the authors and studied by them. This is a paratyphoid bacillus, found in fowls, and standing near the true human paratyphoid; the organism is non-motile, but agglutinates with human typhoid serum. The agglutinated clumps are very small, this being due to the absence of flagellae. This avian paratyphoid bacillus early produces a toxin in culture fluids; filtrates after three days are toxic enough to kill rabbits; these animals die in 1½-2 hours after intravenous injection. If they survive 24 hours, they present the folfowing symptoms: difficult and noisy breathing, with nasal discharge; evidence of abdominal pain; there is some paralysis of the hind extremities if they survive four or five days; further survival is marked by great wasting and gradual recovery. Guinea-pigs are also susceptible; monkeys are not susceptible, while dogs die in 24 hours after an injection of this toxin, the autopsy showing intense congestion of the small intestine and the rugae of the large bowel; these changes are not due to anaphylaxis but to direct toxic action. The toxin will resist 60° C. for one hour.

DISCUSSION.

Dr W. H. Park, New York: I should like to ask if Dr. Smith has used one bacillus to absorb the agglutinins produced by inoculations of the other?

Dr. V. C. Vaughan, Ann Arbor: I suppose Dr. Smith in this connection uses the word toxin in the sense of a poison and not as an antibody?

Discussion closed by Dr. Theobald Smith: We have studied the absorptive power of one organism against the other and it has not been found to be complete. Experiments have been made to show whether the toxin here studied is a true toxin like diphtheria toxin or whether it is like the endotoxins; but the evidence is not conclusive.

RUPTURE OF THE SPLEEN IN TYPHOID FEVER: REPORT OF A CASE WITH CURE BY OPERATION.

Dr. Lewis A. Connor, New York: Report of a case of spontaneous rupture of the spleen during the second week of typhoid fever, with diagnosis of the rupture and cure by operation. Discussion of the diagnostic features. Reasons for believing that rarely such a rupture of the spleen may be followed by spontaneous recovery: there had been symptoms exactly similar to those which were followed by operation 48 hours previously; at the operation, there was found upon the surface of the spleen a firm clot (evidently much older than those resulting from the recent injury) which covered a small rent in the organ. Review of the literature.

DISCUSSION.

Dr. Theodore C. Janeway, New York: Examination of the peripheral blood by the ordinary methods soon after even large hemorrhages will not reveal much change. It takes considerable time for the blood to replenish its bulk, and my experience is that an interval of about three days usually elapses after large hemorrhages before there will be found in the peripheral blood a reduction in the red count and in the hemoglobin. There seems to be no way to estimate the bulk of blood loss in internal hemorrhage at the time of the accident except by observation of the facies.

Dr. Connor did not add to the discussion.

THE POSSIBLE RELATIONSHIP BETWEEN RIGG'S DISEASE AND ORGANIC DISEASE OF THE NERVOUS SYSTEM.

Dr. Joseph Collins, New York: A brief report of a series of cases of neuromuscular disease: Universal myokymia, generalized multiple neuritis, diffuse myositis in which pyorrhea alveolaris was the only etiological cause that could be determined, and in which local treatment of this disorder and the use of autogenous vaccine was followed by recovery. (Published, *Journal A. M. A.*, June 7, 1913, p. 1779.)

DISCUSSION.

Dr. W. W. Ford, Baltimore: How soon did the improvement begin in Dr. Collins' patients after the beginning of vaccine therapy? In observing some cases treated with vaccines in Baltimore, the improvement of symptoms seemed to follow too quickly to beget confidence.

Dr. Joseph Collins, New York: In my cases, no improvement was noticed for several weeks after the vaccine was started.

Dr. Frank Billings, Chicago: I not only agree with Dr. Collins as to the possibilities which may arise from a chronic septic focus, but I would go a step further and say that not only may the neuromuscular system be affected, but there may be produced degenerations of the myocardium, etc. And there may be more conditions able to give rise to these remote disorders than Rigg's disease: *e.g.* alveolar abscesses, infected tooth pulps, infected faucial tonsils, infected sinuses, infected gall-bladders, etc. The present wide-spread use of vaccines is a furor which will wane; we need to attack di-

rectly and remove the source of infection; body-immunity will then come up without the stimulus of vaccines. Vaccines without proper hygiene may fail; probably will fail always in the long run.

Dr. Frederick T. Lord, Boston: I should like to confirm Dr. Billings' remarks as to the possibility of hidden infection in and about the teeth; and in that connection, I wish to call attention to the value of x-ray photographs of the maxillary region in disclosing the presence and location of such infected foci.

Dr. Chas. S. Bond, Richmond, Ind.: I wish to report two cases of epilepsy occurring in young men, both having seizures every day. After the discovery and cure of alveolar abscesses, there has been not a single seizure in the case of one of these patients, and but one seizure in the case of the other.

Dr. Lewis A. Connor, New York: What are we to do if we take x-ray pictures of all our patients' teeth? I predict that we will find abscesses somewhere about the teeth of the majority; shall we then sacrifice all these teeth? It must be a curious organism that is able to produce any train of symptoms from epilepsy to auricular fibrillation. I readily concede the importance of oral sepsis as a source of danger to the human organism, but I certainly deprecate this tendency to accept it as the ultimate cause of such various and serious manifestations of disease.

Discussion closed by Dr. Joseph Collins, New York: Dr. Connor should not be apprehensive for his patients' teeth, even if abscesses be found; it is only necessary to employ the right dentists, who do not remove such teeth. In view of Dr. Connor's remarks, I am sorry that my second case had auricular fibrillation, but he did have it and his symptoms all improved with the improvement of his Rigg's disease. I was interested in Dr. Bond's cases, and in that connection I might cite a case seen with Dr. Taylor in which a streptococcus viridans infection had caused a local meningitis with epileptiform seizures; of course this was not true epilepsy. It is important to establish centres in large cities for the treatment of Rigg's disease, and dental infirmaries should be utilized for this purpose. I agree with Dr. Billings that in all cases suffering from chronic infected foci that the most meticulous care in hygienic management is necessary. Vaccine therapy is far from the whole thing in treatment.

BLEEDING IN TYPHOID FEVER.

Dr. R. D. Rudolf, Toronto: Read by title.

ABSCESS OF THE LIVER FOLLOWING TYPHOID FEVER.

Dr. Robert B. Preble, Chicago: Read by title.

THE RELATION OF DENTAL TO SYSTEMIC SEPSIS.

Dr. C. N. B. Camac, New York: Read by title.

THREE CASES OF GENERAL DISSEMINATED MILIARY TUBERCULOSIS INVOLVING THE SKIN.

Dr. W. P. Northrup, New York: Detailed account of a recently observed case of general, disseminated miliary tuberculosis, photographs showing disseminated lesions (vesicles) in the skin, x-ray photographs showing disseminated miliary tuberculosis of the lungs without consolidation, all confirmed by autopsy record, bacteriological and microscopic observations; collected cases similar.

DISCUSSION.

Dr. S. Solis Cohen, Philadelphia: In what proportion of the cases may such skin lesions be found?

Discussion closed by Dr. W. P. Northrup: I can only reply to Dr. Solis Cohen that I do not know; I have seen only three cases in my whole life.

SOME OF THE CAUSES OF EXPERIMENTAL HYPERPLASIA OF THE THYROID GLAND.

Dr. W. S. Halsted, Baltimore: Experiments performed a number of years ago indicated that in dogs the excision of a portion of the thyroid gland was invariably followed by hyperplasia of other portions; this hyperplastic tissue was not at all like the normal gland but like the tissue of the exophthalmic gland. It was thought that the hyperplasia was a true compensatory change. Later experiments have indicated that this hyperplasia may not be compensatory but due to infection of the wound; the following reasons, among others, are cited: (1) the hyperplasia is disproportionate to compensatory needs; (2) injections of culture of staphylococcus albus produce like hyperplasia; (3) peritoneal infections may be followed by like hyperplasia; (4) the same hyperplasia follows when the gland is exposed and the open wound allowed to heal without suture, etc. Experiments performed recently under the strictest possible aseptic technic have shown that 1¼ or 1½ lobes of the gland may be removed without the slightest hyperplastic change in the remainder of the gland. It is still impossible to speak definitely in regard to the matter, because true compensatory hyperplasia has been noted after experiments performed under unexceptionable conditions. Could vaccinations against distemper have had any influence upon the absence of hyperplasia after the recent experiments? May the thyroid gland normally be at comparative rest and capable of enormous increase of function on demand, so that a part can do the work of the whole? May the hypophysis and the parathyroid glandules be able to take up the thyroid functions vicariously? Evidence for and against compensatory hypertrophy of these organs.

Dr. S. J. Meltzer, New York: This report opens a huge question. We have been of the belief that one of the most wonderful capacities of the human organism is the ability to compensate itself for losses; but Dr. Halsted's present work throws doubt on the doctrine of compensatory hypertrophy in general. Perhaps studies on the ductless glands are not the best for determining this question; there may be other organs of internal secretion which are able to take up the work of those removed or destroyed. We have all believed in the compensatory hypertrophy of the kidney after removal of its fellow; but perhaps in these instances there have not been sufficient precautions against wound infection and the hypertrophy resulting may be of the same sort as the hyperplasia of the thyroid in Dr. Halsted's dogs. There is one instance of hypertrophy without association with infection of which we may speak certainly, however, and that is the compensatory hypertrophy of the over-worked heart. But my principal reason for rising was to utter an encomium

upon the superb scientific honesty of Dr. Halsted in thus presenting evidence to discredit the results of his earlier observations and conclusions, observations and conclusions accepted without question and admired by the whole world.

Dr. W. G. MacCallum, New York: Dr. Halsted's suspicion that the hyperplastic changes seen in the thyroids of his experimental dogs may have been due to wound infection possibly has an important bearing on the etiology of Graves' disease. Though a vast amount of work has been done in the study of the disease itself, no special attempts have been made to study the exact causes underlying the development of exophthalmic goitre; but Dr. Halsted's observations serve to recall the suggestion that some primary infectious disease may be back of it. It is likely that in those instances in which the parathyroids of thyroidectomized animals have been said to have undergone colloid changes, the so-called parathyroid glandules were in reality aberrant thyroids.

Discussion closed by Dr. W. S. Halsted: I can only thank Dr. Meltzer very heartily for his exceedingly kind remarks. Dr. MacCallum's suggestion that so-called hyperplastic parathyroids containing colloid are in fact aberrant thyroid masses is probably correct.

THE PATHOLOGY OF THE THYROID GLAND IN EXOPHTHALMIC GOITRE.

Dr. Louis B. Wilson, Rochester, Minn.: Review of anatomy of thyroid glands in exophthalmic goitre; vascular changes: connective tissue changes: hypertrophy and hyperplasia: adenomata and "adenomatosis"; regeneration; character of secretion; estimation of index of excretion of gland from study of preceding factors; relation of index of excretion to toxic symptoms.

THE CLINICAL DIFFERENTIATION OF THE VARIOUS TYPES OF GOITRE.

Dr. H. S. Plummer, Rochester, Minn.: Brief review. Errors in diagnosis. The clinical complex associated with hyperplastic thyroids.

EFFECTS ON PULSE AND BLOOD PRESSURE OF INTRAVENOUS INJECTIONS INTO DOGS OF SERA FROM PATIENTS WITH EXOPHTHALMIC GOITRE.

Drs. J. M. Blackford and A. S. Sanford, Rochester, Minn.: Sera from patients with exophthalmic goitre injected into dogs. Kymographic records of pulse and blood pressure. Sera from patients in acute toxemia of disease causes marked fall in pressure. Sera from chronic and old intoxication, from patients with simple goitre and from normal individuals give no such effect. Charts, tracings and case records.

(a) The Pathology of the Thyroid Gland in Exophthalmic Goitre. Dr. L. B. Wilson, Rochester, Minn.

(b) The Clinical Differentiation of the Various Types of Goitre. Dr. H. S. Plummer, Rochester, Minn.

(c) The Effects on Blood Pressure of the Injection of Thyroid and other Extracts. Drs. J. M. Blackford and A. M. Sanford, Rochester, Minn.

DISCUSSION.

Dr. S. J. Meltzer, New York: I am especially interested in the last paper. The evidence is that thyroid extracts from all cases have a depressing effect on blood pressure; now the extract of any degenerating organ would contain some peptone and the injection of such an extract would be followed by the effects of a peptone injection. Ten or twelve years ago I advanced the hypothesis that there is present in the body a substance which accelerates the internal activities of all sorts, and also a contrary, inhibiting substance. I also advanced the hypothesis that myxedema was due to an increase of this inhibiting substance. When I came to explain the surface vasomotor dilatations, I helped myself (as we must do when supporting hypotheses based on pure speculation) and concluded that this too was due to an excess of a constricting substance in the blood, but that the effect of this substance was expended on the vessels of the splanchnic area, and the peripheral dilatation was secondary to that. Here we have advanced the fact that injections of extract of thyroid glands produce a fall of blood-pressure; this combats my idea, but the substance presupposed by my hypothesis need not necessarily be a part of the extracts used in these experiments.

Dr. V. C. Vaughan, Ann Arbor: With respect to the conclusions of the last paper, the truth is that all protein poisons lower the blood pressure in dogs; but most of them have a different effect on guinea-pigs, in which animals such injections cause constriction of the bronchioles. I would like to ask what is the cause of the fall of blood-pressure? Is it due to dilatation of the capillaries? Does barium chloride prevent it? Does nicotine affect it? The general results of the experiments would seem to indicate that there is a degenerating protein responsible for the phenomena noted.

Dr. Frank Billings, Chicago: From a clinical standpoint, it must be admitted that the blood-pressure is increased in the active stage of exophthalmic goitre, meaning by this that the heart's action is increased; at the same time there is a dilatation of the cutaneous vessels, independent of the arterial tension.

Dr. G. H. Whipple, Baltimore: Blood serum from eclamptic patients will produce sharp and prolonged depression of blood-pressure in dogs; I believe there is present in such blood a toxic substance due to the splitting of protein.

Dr. A. J. Ochsner, Chicago: The findings of Dr. Wilson and those of Dr. Plummer correspond. Since Dr. Wilson's first paper on this subject, I have examined regularly all specimens coming to our laboratory without any knowledge of the clinical history of the cases from which the specimens were derived, and my experience quite confirms Dr. Wilson's findings. Carrying out the ideas expressed in Dr. Plummer's paper, I find that the exophthalmic poison will always be exaggerated by the simultaneous presence of any other poison such as worry, over-work, alcohol, or nicotine; and this exaggeration always appears wherever the manifestations of Graves' disease are most marked, varying in different individuals.

Dr. R. C. Cabot, Boston: I would like to ask Dr. Wilson if he finds his work in opposition to Marine's work in Crile's clinic or in confirmation of it?

Discussion closed by Dr. L. C. Wilson: I wish to call attention again to two types of thyroid glands, viz.: those that are hyperplastic and toxic, and those that are regressive and non-toxic. Extracts of glands of these two types act differently when inoculated. As to Dr. Billings' remarks on dilatation of vessels; we find that the vessel walls are thickened rather uniformly in toxic goitre cases. In reply to Dr. Cabot's question, I would say that the points of difference between my work and that of Marine are due to differences in clinical classification of cases. We have been able to take Dr. Marine's specimens and tell him what were the clinical manifestations in the cases with a considerable degree of accuracy.

Dr. H. S. Plummer, Rochester, Minn.: I would like to add somewhat to Dr. Wilson's reply to Dr. Cabot. In 1908, Dr. Wilson pointed out that in 80% of cases clinically called exophthalmic goitre, there could be demontrated hyperplasia of the thyroid gland, and that the remaining 20% of the cases were not in fact exophthalmic goitre. The point of the present paper is that in cases showing evidence of intoxication there is always hyperplasia of the thyroid. Not all cases are intoxicated and in such the gland will show regressive changes.

Dr. J. M. Blackford, Rochester, Minn.: As regards Dr. Meltzer's remarks, the extracts of definite exophthalmic thyroids produce drops in the blood-pressure of dogs three times greater than the depression caused by other extracts. Dr. Vaughan very truly said that all foreign proteins are poisons to dogs, and egg white, horse serum, and other proteins have been used by us in our experiments, but the behavior of the blood-pressure after the injection of these substances is entirely different from that observed after injection of thyroid extracts. We have not been able to work out the physiologic mechanism of the drop in blood-pressure, and we have not used barium chloride nor nicotine in our work.

(To be continued.)

Book Reviews.

The Influence of Monarchs. Steps in a New Science of History. By Frederick Adams Woods, M.D., Lecturer in Biology in the Massachusetts Institute of Technology. New York: The Macmillan Co. 1913.

Dr. Woods has rendered a distinct service in his attempt to bring the facts of history into the realm of scientific study. In the pursuance of his aim, he has coined a new word, "historiometry," or the method of historical measurement. It is his belief that the general opinion that history is too full of errors to lend itself to scientific treatment is an assumption without basis in fact. The volume before us is an attempt to prove that in spite of the errors of history and the false theories that have been built up by writers untrained in scientific methods, it is still possible to arrive at a judgment of historical values through the application of the historiometric method. Dr. Woods' interest in heredity and its collateral science, eugenics, is well-known through his previous book on "Mental and Moral Heredity, in Royalty." In this volume he discusses the influence of the various monarchs of Europe, and arrives thereby at certain conclusions which should be of interest to all students of human evolution. The book is concluded by elaborate appendices, which summarize briefly the characteristics of the various monarchs, and quite apart from the main object of the book, should prove of value as a means of ready reference in relation to their weaknesses, strength, and idosyncrasies. It is perhaps unjust to regard the book as in a measure an elaboration of the obvious, and yet this criticism may arise in the minds of some who read it. In general, we commend the volume both to the historian and the scientist; or better perhaps, to the increasing number who are pleased to call themselves scientific historians.

The Surgery of the Skull and Brain. By L. Bathe Rawling, F.R.C.S., Surgeon, with Charge of Out-Patients, Senior Demonstrator of Practical Surgery, Demonstrator of Operative Surgery, St. Bartholomew's Hospital. London: Oxford Medical Publications. 1912.

Mr. Rawling's interesting book may be cordially recommended to surgeons. He has summarized the "experience derived and research carried out during the past ten years" within 300 pages. The text does not contain case histories, but does contain the author's results in the various conditions described. There are only eleven chapters, and as the print is very large, nothing but essentials are given. For instance, the text of Cranio-Cerebral Topography covers only 5 pages, and omits most of the names with which such a chapter is often overburdened. More than half the book, however, is devoted to fractures and head injuries, and only 35 pages to tumors. In other words, Mr. Rawling gives us, in excellent English, the essence of his opinions and the carefully condensed results of his work, and we should be very grateful for it. The illustrations are extremely good, and the printing and book-making much above the average. We consider the volume one of the best that has appeared upon the subject—and one which represents the other extreme from the huge systems of which we have lately seen so many. As a type of the text-book which has for its motto *multum in parvo*, the book certainly vindicates itself handsomely.

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DR. REGINALD HEBER FITZ.

The death of Dr. Fitz takes from the medical profession one of its really great men, a man whose repute was not restricted to his own community and will not be limited to his own day. Dr. Fitz was one of a group of such men, whose names and personality have brought distinction to Boston and whose services have brought enduring benefit to mankind. There are but few characters of this type in a generation.

Dr. Fitz was a man to be remembered in many different ways. Those who knew him as a teacher can never forget the keen, calm, clear logic of his lectures, and better still, the rapid, accurate observation, the deductive skill, and the brilliant forensic method of his clinical instruction. His readiness of wit and interrogation would have done credit to the legal bar, yet his cross-examination of students had always an energetic pleasantry and underlying kindliness that never left a sting. He had a faith in men which enabled him to bring their unseen merits to the light.

Socially and personally Dr. Fitz was a man of charming cordiality and active optimism. Those who did not know him intimately could realize this from observing his associations with his coeval friends. To many classes of students, a very much treasured recollection is that of the clinics which he used to give in conjunction with the late Dr. Maurice H. Richardson. The genius of these two men, who were such warm and close friends, was in many respects antithetic, yet each never showed to better advantage than when enlightened by contrast with the other. They were two champions entering the lists for friendly tourney, yet even in the stress and rigor of action, the spectators could never forget that good-hearted friendliness in both contestants. They both saw the truth, each arriving at it by quite different and characteristic methods.

In the scientific world Dr. Fitz's fame will rest chiefly on his classic description of appendicitis, an achievement peculiarly dependent on the three great qualities of his professional equipment,—his accurate knowledge and observation as a trained pathologist, his wide clinical experience, and his wonderful intellectual powers of inquiry and deduction. Dr. Fitz's original paper on "Perforative Appendicitis with Special Reference to Diagnosis and Treatment," was delivered on June 17, 1886, before the American Association of Physicians. The abstract of it, appearing shortly thereafter in the Journal, occupied barely more than a column. The really momentous utterances of science, like those of a Lincoln or a Mill, are most often brief. Dr. Fitz's direct, incisive style sketched the picture of his discovery simply and with such indelible traits that the common and critical disease, long misrecognized and misunderstood, thenceforth stood plainly revealed in its nature and course, and therefore accessible to intelligent treatment.

All who have lived in that time recall the long series of arguments and discussions, of therapeutic experiment and clinical observation and report, which followed Dr. Fitz's paper and by means of which the present truth and knowledge of appendicitis were developed. The pages of the Journal during the succeeding years are rich with the history and evidence of that contention. And throughout, it was the clear, dominating personality of Dr. Fitz, which defended and triumphantly proved the correctness of his deduction.

Not many medical pioneers have more than one great discovery to their credit. Dr. Fitz's later description of pancreatitis, though perhaps not so generally familiar or of such far-reaching importance, was quite as brilliant and even more difficult a piece of deductive clinico-pathologic research on account of the greater obscurity and subtlety of the problem. In this, too, Dr. Fitz displayed in their perfection the qualities of training and intellect which made him great.

In the passing of such a man there is always, to those who knew him, the personal loss, which is irretrievable. Yet the more impersonal element of his achievement is indestructible. Dr. Fitz was singularly happy in the degree to which the work of his hands was established within his own lifetime. That work, we know, is bound to continue and bear fruit. Dr. Fitz himself, with his courageous and resolute optimism, would be even surer of that than perhaps we can feel. There could be perhaps no more fitting epitaph for him than that which President Lowell recently quoted as applying to another faithful and distinguished servant of Harvard University and of mankind:—

"God buries his workmen, but the work goes on."

PREVENTION OF INDUSTRIAL DISEASES.

THE first national conference on industrial diseases, held in this country in June, 1910, served to call public attention to a large group of ailments proceeding directly or indirectly from conditions associated with various occupations. Some of these conditions are apparently inevitable, others are preventable, or at least their results can be to a great extent avoided or obviated. Physicians had long recognized these diseases, but in the previous absence of popular interest, little systematic effort could be made for their prophylaxis. Following the conference, however, this interest began to develop, and in April, 1912, led to the passage by Congress of the Evans phosphorus bill prohibiting the manufacture, importation, or sale in the United States of poisonous red phosphorus matches. This bill was aimed to prevent the possibility of phosphorus necrosis of the jaw in workmen or others engaged in handling matches, and was the first specific legislative measure directed towards the eradication of an industrial disease.

In June, 1912, the second national conference on industrial diseases still further stimulated popular interest in this important matter, and led to the formation of several subsidiary societies for the study of special aspects of the problem. At the recent 41st annual convention of the American Public Health Association, held at Colorado Springs, a paper on occupational diseases was presented by Dr. John B. Andrews. He classifies as follows the principal elements of industrial environment which may be harmful to health.

1. Specific industrial dusts, fumes, gases, vapors and acids (poisonous and non-poisonous).
2. Harmful bacteria and micro-organisms.
3. Compressed or rarefied atmospheres.
4. Improper lighting.
5. Extremes of temperature.
6. Excessive strain.

The exact or relative importance of each of these factors in the conditions of any given industry cannot be determined without more recorded data than at present exist. Dr. Andrews quotes statisticians in the statement, based on figures from Germany, that the annual loss in the United States from sickness of those industrially employed is nearly $750,000,000, of which $200,000,000 might be saved by prophylaxis. It should be remembered, however, in any such statistical conclusion, that the loss is potential, not actual, and that in treating it as a definite entity one is liable to fall into the economic fallacy of estimating as lost that which never had tangible existence. To reckon the cost of sickness in this fashion is rather to "consider too curiously." Nevertheless the true cost of industrial disease, in whatever terms it be estimated, is erroneous; and such measures as are being taken to better industrial conditions must result in great diminution of the industrial diseases by removal of their causes.

DOCTORS AND TRANSPORTATION TRAUMA.

THE recent death within a week of three New England physicians as a result of automobile accidents calls renewed attention not only to the constant perils of modern motor traffic, but also to the apparently peculiar liability of physicians to injuries of this sort. It has for some time been known that doctors are particularly liable to death by accidental trauma. Not only does the age mortality of their profession rank next to that of the dangerous trades, but its percentage of death from violence stands next to that of miners, sailors, and engineers. The reason for this is by no means clear. As a class, doctors should be and indeed probably are the most cautious and careful of men. Moreover, their occu-

pation should not subject them to the extraordinary risks of mechanical injury which beset many of the handicrafts. Their chief *risque professionel* is that of infection. Nevertheless, it is probably true that a larger proportion of physicians drive automobiles in pursuing their daily work than of the members of any other profession. Fatigue, haste, and preoccupation on their part may, perhaps, at times be factors in causing accidents, though more often apparently the physician is the sufferer from others' carelessness. By whatever conveyance, the majority of physicians travel much about the streets or from town to town, and at all hours. Murder and suicide are infrequent causes of their death, and the greater part of their accidental injuries are incidental to their transit from place to place. In spite of many safety devices, the perils of human locomotion have on the whole increased during the past decade, and the doctors still furnish their high proportionate quota of fatalities from transportation trauma.

IMPERIAL CANCER RESEARCH FUND.

The recently published eleventh annual report of the British Imperial Cancer Research Fund records briefly the work of this important institution of research for the year 1912-1913. Dr. E. P. Bashford, in his report as general superintendent and director of the laboratories, discusses particularly the relative frequency of cancer in different localities. In the whole of England and Wales the total cancer mortality per million, during the year covered, was 856 males and 1070 females; whereas in Lancashire the corresponding figures were 801 and 976, and in Huntingdonshire 1267 and 1644. This marked difference seems in part accounted for by the excess of persons over 35 years of age in Huntingdon and under 35 years of age in Lancashire. Dr. Bashford believes also that in the case of Huntingdonshire "the fallacy which lurks in small numbers may also play a part, the high death-rates being obtained by multiplying the deaths by the factors required to raise the population to one million of each sex." This illustrates precisely the possible danger of deduction from statistics, to which we referred editorially in last week's issue of the Journal. The doctrine of chance becomes increasingly less reliable the fewer instances it involves.

MEDICAL NOTES.

Birth of Quadruplets.—Report from Centralia, Ill., states that on Sept. 26 Mrs. Pearl Yates of that city gave birth to quadruplets. The infants, who are all boys, are said to be apparently vigorous. Their respective weights are not given.

Declining British Birth-Rate.—A report of the registrar-general, published in London on Sept. 27, shows that whereas in 1876 the birth-rate of England and Wales was 36.3 per 1000, in 1910 it was 25.1, in 1911 24.4, and in 1912 only 23.8. During the decennium from 1881 to 1891 the ratio of births to married women of child-bearing age decreased 34%.

Recent Explorations by Dr. Rice.—Report from London on Sept. 24 states that Dr. Alexander Hamilton Rice, F. R. G. S., of Boston, has just returned to England, after extensive and successful explorations in South America, in the northwest basin of the Amazon river. At San Martin, in the Andes, he made investigations into malaria and other blood-diseases of animals. Dr. Rice will present the results of his researches in an address before the British Royal Geographical Society.

The Newburgh Survey.—The recently published Newburgh Survey is of interest for several reasons. It was initiated by citizens of Newburgh, N. Y., who called in specialists from the Department of Surveys and Exhibits of the Russell Sage Foundation, New York City. It was essentially a community undertaking, for on the survey committee were representatives appointed by the Chamber of Commerce, Merchants Association, Central Labor Union, Ministerial Association and the Associated Charities. The survey covers schools, public health, housing, delinquency, public library, recreation, charities, industrial conditions, and municipal administration. It points out the credits, and calls attention to the debits of the community, and outlines a program for development, upon which citizens are already at work.

Many cities in the United States are following Newburgh's example in developing a sound basis for civic advance. Since the Russell Sage Foundation organized its Departments of Surveys and Exhibits last fall a number of cities have already asked for assistance in conducting

social surveys and special civic investigation and exhibits.

LIVING EUROPEAN CENTENARIANS.—German statistics, recently published as to the total number of living centenarians in Europe, state that there are 3883 in Bulgaria, 1074 in Roumania, 573 in Servia, 410 in Spain, 213 in Portugal, 197 in Italy, 92 in Great Britain, 89 in Russia, 76 in Germany, 23 in Norway, 10 in Sweden, 5 in Belgium, and 2 in Denmark. One is tempted to suggest that these figures indicate, by inverse ratio, the veracity of the inhabitants of the respective countries.

BOSTON AND NEW ENGLAND.

NEW MILK STATION.—A new milk station of the Boston Milk and Baby Hygiene Association was opened last week at 662 Hale Street, in the West End, in charge of Dr. Karlton G. Percy.

AMERICAN ROENTGEN RAY SOCIETY.—The fourteenth annual meeting of the American Roentgen Ray Society was held in Boston last week, and was attended by about one hundred members.

THREE CENTENARIANS.—Mrs. Jacob Cass, who died at Bristol, N. H., on Sept. 24, is said to have been born on Dec. 18, 1811, in Concord, N. H. She was married in 1836, but had been a widow since 1890. She is survived by the eldest of her five children, by two grandchildren, and by four great-grandchildren.

Mrs. Honora Quill, who died at Newburyport, Mass., on Sept. 25, is said to have been born in 1811 in Ireland, whence she migrated to the United States in 1861. She is survived by one aged son and several grandchildren.

Mr. Peter Rowe, who died in Jersey City on Sept. 24, is said to have been born on Nov. 5, 1812, at Cherry Valley, N. Y. Throughout his adult life he smoked and chewed tobacco and drank alcoholic beverages in moderation. His longevity and persistent good health he attributed to his habit of going to bed and getting up early. He is survived by three daughters, two sons, and 67 grandchildren and great-grandchildren.

RECENT HOSPITAL BEQUESTS.—The will of the late Miss Harriet Otis Cruft, of Boston, who died on Aug. 31 at Buxton, Derbyshire, England, was filed on Sept. 27 in the Suffolk probate court. It contains bequests of $30,000 to the Massachusetts General Hospital, for free beds; $25,000 to the Children's Hospital, Boston; $20,000 to the Convalescent Home of the Children's Hospital, Wellesley; $10,000 each to the Massachusetts Charitable Eye and Ear Infirmary, and the Industrial School for Crippled and Deformed Children, Boston.

The will of the late Charles John Prince of Boston, recently settled by compromise, contains provisional bequests of $500 each to the Children's Hospital, Boston, the Industrial School for Crippled and Deformed Children, Boston, the Free Home for Consumptives, the Perkins Institution for the Blind, and the Boston Floating Hospital. These bequests become operative only on the death of the testator's widow; but if she dies without issue, they will be increased to $1500 respectively.

The will of the late Francis Bartlett, of Beverly, Mass., contains provisional bequests of $50,000 each to the Harvard Medical School and the Massachusetts General Hospital, contingent on the death of the testator's two grandchildren without issue.

INFECTIOUS DISEASES.—Cases of infectious diseases reported to the Boston Board of Health for the week ending Sept. 30, 1913, are as follows: Diphtheria, 50, of which 1 was non-resident; scarlatina, 14, of which 2 were non-resident; typhoid fever, 47, of which 2 were non-resident; measles, 15; tuberculosis 60, of which 4 were non-resident.

The death-rate of the reported deaths for the week was 14.46.

NEW YORK.

TYPHOID PREVENTION.—Health Commissioner Lederle has, in a statement issued on Sept. 26, made the recent localized outbreak of typhoid on the east side of Manhattan the text for urging the more general adoption of immunization against the disease, at the same time expressing the opinion that the outbreak will serve the purpose of making the immunization more popular in the community. He also states that it presents one more emphatic warning to the public of the risk accompanying the drinking in New York of any raw milk except that in "Grade A." "For the past four years," he says, "the Department of Health has relentlessly urged the necessity of pasteurization. By increasingly

stringent regulations the Board of Health has raised the proportion of pasteurized milk to the total supply from about 7%, in 1910, to over 50% at the present time. It has been the definite purpose of the board to bring about as rapidly as possible the pasteurization of the general milk supply of New York and eliminate the class of raw milk in 'Grade B.' ''

Retirement of Dr. Bensel.—Dr. Walter Bensel, sanitary superintendent in the City Health Department, retired from that office on Oct. 1. Having served for twenty years in the department, he is entitled to a pension amounting to one-half the salary of the position, $7,000 a year. Dr. Bensel was promoted to the office of assistant sanitary superintendent in 1903, and became sanitary superintendent in 1907.

Appointment of Dr. Mendelson.—Dr. Walter Mendelson of New York was selected by the convention of the alumni of Columbia University, on Sept 24, to fill the vacancy in the board of trustees of the university resulting from the death of J. Pierpont Morgan. Up to this time no graduate of the medical department has been a member of the board, and there was a general feeling that there should be on it a representative of the department. Dr. Mendelson was graduated from the Columbia School of Mines in 1877 and from the College of Physicians and Surgeons in 1879.

Current Literature.

The Lancet.

July 19, 1913.

1. *Bruce, J. M. *A Clinical Lecture on the Early Diagnosis and Treatment of Pulmonary Tuberculosis.*
2. Barker, A. E. *Three Cases of Solid Tumors of the Umbilicus in Adults.*
3. Watt, J. *Partyphoid Fever Associated with an Epidemic of Typhoid Fever.*
4. Madden, F. C. *The Incidence of Stone in Egypt with Remarks on a Series of Three Hundred and Twelve Operations.*
5. Battle, W. H. *The Black (Pigmented) Appendix.*
6. Drew, D. *Procidentia of the Uterus and Rectum at the Age of Twenty-seven Years, with Remarks on the Treatment.*
7. *Tubby, A. H. *Surgical Tuberculosis in Children with Suggestions as to a Method of Treatment.*
8. *Lea, C. E. *An Analysis of Thirty-five Consecutive Cases of Bradycardia.*
9. Page, C. M., and Appleyard, S. V. *Medical and Surgical Experiences in the Balkan War.*

1. Bruce, speaking on the early diagnosis, lays special stress on the following points: The diagnostic bearing of pleurisy, hemoptysis without signs, early cases marked by bronchial catarrh, evidence afforded by family and personal history, and languor. He emphasizes the importance of individualizing in every case as to sanatorium or home treatment. The paper is well worth reading by all practitioners.

7. Tubby reviews the methods and results of the treatment of surgical tuberculosis. He believes that hospitals for the treatment of such cases must be outside of large cities, and that surgery must be made a factor subservient to general hygienic measures. The leading principles in treating this form of tuberculosis are (1) registration of all cases, (2) climatic treatment in suitable places, (3) such places to be conducted on hospital or sanatorium lines, and not conducted as rest or convalescent homes, (4) education of children while under observation, (5) teaching trades to tuberculous cripples, (6) special provision for incurable cases.

8. From a study of thirty-five consecutive cases of bradycardia Lea concludes that the cure of this condition in most cases is altered auriculo-ventricular conductivity, usually due to digitalis. [J. B. H.]

July 26, 1913.

1. *Murray, G. R. *Some Aspects of Internal Secretions in Disease.*
2. Moynihan, B. *The Gifts of Surgery to Medicine.*
3. Nutt, W. H., Beattie, J. M., and Pye-Smith, R. J. *Arsenic Cancer: a Case under the Care of W. Harwood Nutt.*
4. Twort, C. C. *The Rapidity with Which Contamination of the Thoracic Cavity and Its Contained Glands Follows Infection of the Peritoneal Cavity.*
5. Whole, H. L. *The Use of Arsenical Compounds for Syphilitic Disease of the Nose and Throat. A Note on Sixteen Cases.*
6. Miller, T. *Early Diagnosis of a Case of Leprosy Much Assisted by the X-rays.*
7. Fry, H. J. B. *The Decalcifying Action of Oxalic Acid.*
8. Page, C. M., and Appleyard, S. V. *Medical and Surgical Experiences in the Balkan War.*

1. Murray discusses the thyroid gland and thyroid insufficiency with an historical review of the condition and its treatment. He then takes up hyperactivity of this gland and the subject of exophthalmic goitre. He continues to discuss the parathyroids, the pituitary and suprarenal glands, and the generative organs as to their secretion and inter-relationship. [J. B. H.]

August 2, 1913.

1. *Evans, J. H. *Tuberculosis of the Urinary Tract.*
2. Gordon, M. H. *On a Fatal Illness in Children Associated With Acute Interstitial Parotitis.*
3. Singer, C. *The Production of Ulcer of the Stomach in the Rat.*
4. *Nutt, W. H., Beattie, J. H., and Pye-Smith, R. J. *Arsenic Cancer.*
5. Maberly, J. *Some Notes on a New Guaiacol Chlor-Iodide Compound on the Treatment of Various Conditions.*
6. McKenzie, D. *Laryngectomy Subsequent to Tracheotomy for Epithelioma of the Larynx.*
7. Gem, W. *A Case of Lightning Stroke, Followed by Recovery.*

1. Evans, in a short article on tuberculosis of the urinary tract states that, "We surmise that many cases of chronic cystitis are of tuberculous origin apart from the finding of tubercle bacilli in the urine by the result of employing one of the following tests: (1) Colmetti's, (2) von Pirquet's or Moro's reaction." (This statement would not be accepted in this coun-

try either by genito-urinary surgeons or tuberculosis specialists.—J. B. H.). He goes on to review the onset and progress of these conditions and to demonstrate methods of treatment.

4. The writers present the summaries of thirty collected cases of arsenic cancer and discuss the various theories which have been presented in regard to the development of epithelioma subsequent to or during the ingestion of arsenic in some form. The real cause of such cancer is as yet unknown. They present an elaborate bibliography and briefly discuss treatment and prevention of this condition.

[J. B. H.]

British Medical Journal.

July 26, 1913.

BRITISH MEDICAL ASSOCIATION.

1. Hollis, W. A. *President's Address. A Medical History of Brighton and Its Neighborhood.*
2. Murray, G. A. *Some Aspects of Internal Secretions in Disease.*
3. Moynihan, B. *The Gifts of Surgery to Medicine.*

August 2, 1913.

1. Bickerton, T. H. *The Influence of the British Medical Association in the Establishment of Ophthalmology as a Special Science.*
2. Gelarie, A. J. *The Influence of Copper upon the Growth of Mouse Carcinoma.*
3. *Moore, B., Oldersham, G. F., and Williams, O. T. *On the General Toxic Effect of Heavy Metals after Subcutaneous Injection and on the Question of Poisoning by Volatile Emanations from Paints.*

SECTION ON MEDICAL SOCIOLOGY.

4. Ryle, R. J. *Introductory Remarks.*
5. Schuster, E., et al. *Discussion on "Eugenics."*
6. Scott, J., 59 al. *Discussion on Crime and Punishment.*
7. Moore, B., et al. *Discussion on Hospitals in Relation to the State, the Public and the Medical Profession.*

3. The writers conclude that there is no poisonous emanation from either lead carbonate or sulphate as used in paints, which can possibly affect persons, painters or otherwise, coming in close contact with freshly painted surfaces. True lead poisoning arises from the actual lead, but never from emanations

[J. B. H.]

The Quarterly Journal of Medicine.

Vol. 6. No. 24. July, 1913.

1. *Gossage, A. M., and Hicks, J. A. B. *On Auricular Fibrillation.*
2. *Lewis, T. *Illustrations of Heart-sound Records.*
3. *Windle, J. D. *The Incidence and Prognostic Value of the Pulsus Alternans in Myocardial and Arterial Disease.*
4. Marrack, J. *Pseudochylous Body Fluids.*
5. *Waterhouse, R. *Cysticercus Cellulosae in the Central Nervous System, with an Account of Two Cases.*
6. *Amrein, O., and Lichtenhahn, F. *On Pneumothorax Treatment of Tuberculosis of the Lungs.*
7. Herringham, W. P., and Trevan, J. W. *The Localization of Function in the Kidney.*
8. Miller, R. *The "Specific" Use of Salicylate in Acute Rheumatism: a Consideration of Practical Objections.*

1. The authors have observed cases in which auricular fibrillation comes on in hearts which were apparently previously healthy. They suggest that dilatation of the ventricles may be sometimes rather the result than the cause of auricular fibrillation. Sudden death in cases of auricular fibrillation is not uncommon. Gossage and Hicks suggest that the cause of death in such cases may be fibrillation of the ventricles, a condition known to be incompatible with life. The exact cause of auricular fibrillation remains to be discovered.

2. Lewis describes apparatus for the simultaneous recording of the heart sounds and the electrocardiagram, and reports the results of his experimental and clinical work, with tracings. For the details the reader is referred to the original article.

3. Windle has made an exhaustive study of pulsus alternans, and has found it present in forty-five patients in the following five conditions, given in the order of frequency: (1) arterial and myocardial disease, (2) chronic heart disease due to rheumatism, (3) pneumonia, (4) paroxysmal trachycardia, and (5) acute rheumatic carditis. The present paper deals with cases belonging to the first of these groups. He found the condition fairly frequent in elderly people with arteriosclerosis, being the third commonest type of irregularity in this class of patients. The condition is frequently overlooked because it is not present at all times in some cases, but must be looked for after exertion. He considers it of very grave prognostic import when found in elderly people with arterial or myocardial disease, indicating a fatal outcome within two or three years at most. When first found the pulsus alternans was often a temporary condition, but sooner or later it became permanent, and failure of compensation set in. It is, therefore, a sign of grave impairment of the cardiac muscle.

5. Waterhouse gives an interesting description of cysticercus disease of the central nervous system, and reports two cases of his own. In both cases the diagnosis was made during life from the microscopical examination of cysticerci excised from the skin. The principal feature consists in epileptiform convulsions, and this symptom in an individual known to have harbored a pork tape-worm or who has cysticerci in the skin or eye justifies a tentative diagnosis of cysticerci in the brain. The finding of eosinophilia of the spinal fluid, as in the author's second case, renders the diagnosis practically certain, but unfortunately this feature is not constant.

6. Amrein and Lichtenhahn report an interesting series of cases of consumption treated by the artificial pneumothorax method, but the number is rather too small to draw conclusions from. The method, however, is now beyond the stage of experiment and is of undoubted value in many cases which are hopeless under any other form of treatment. The authors report immediate cessation of obstinate hemoptysis after the first nitrogen injection, and this has been the experience of others. The presence of active disease in the lung opposite to the one compressed was the cause of failure in more than one case, though it does not constitute an absolute contraindication to this method.

[W. T.]

Miscellany.

MASSACHUSETTS MEDICAL SOCIETY. MEETING OF THE COUNCIL.

A stated meeting of the council of the Massachusetts Medical Society was held in the Boston Medical Library, October 1, 1913, at twelve o'clock noon, the president, Dr. W. P. Bowers, in the chair, and eighty-eight councilors present.

The records of the last meeting were read and accepted.

The president announced the recent death of Dr. Edwin B. Harvey, for thirty years a councilor and also an ex-president of the society, and that of Dr. Reginald H. Fitz, for many years a councilor. He then made the following remarks:—

"Although the first meeting of our business year occurs in June, so much time is consumed in affairs connected with the annual meeting of the society, the hearing of reports, and the election of officers, that it seems inopportune to suggest topics for discussion, or plans for work, at that time. This second meeting of the year is a more fitting time for suggestions as to changing or enlarging the scope of our activities.

"Last year your president recommended a few plans, some of which have been considered and acted upon. Your attention is again called to the desirability of a consideration of the malpractice act, for if this act is to be continued in force there are certain features which should be carefully studied, such as the question of excluding from the benefits of defence fellows who have insurance with regular companies.

"Second. A more exact definition of the kind of suits which are to be defended, *i.e.* should a fellow evidently negligent be defended, or suits involving blackmail pure and simple?

"Third. Should any suits be settled either by the fellows or by the society?

"Fourth. Should medical experts receive any compensation when called as witnesses?

"Fifth. Should this subject be under the control of a special committee, as in the case in some state societies? At present it is left to the president and secretary.

"Sixth. Should the fellows of the society be persistently notified of the existence of this protection? At present, the knowledge which we have of this act is not general.

"Seventh. Should all fellows, irrespective of their means, be urged to avail themselves of this act?

"These and other questions may properly be considered by a committee and a report made at a subsequent meeting.

"The question has been raised as to the responsibility of our society relating to the appointment of medical men to public office. There is in process of formation an unofficial voluntary committee which will endeavor to work for good appointments; but you should consider whether it would not be wise to have an addition to the list of regular committees which will have official responsibility along this line.

"A very important suggestion relating to the development of regular publications of the activities of the society has been made. This is a subject of great interest and might be of value. You should study the problem and come to some definite conclusion in the near future.

"Your president has become more familiar with the work done by your secretary and treasurer, and is of the opinion that these officers are not receiving the compensation to which they are entitled. These matters have not been considered by the council for several years, and should be reviewed and acted upon.

"Your responsibility for the standing and fitness of our members is great, and regular concerted efforts should be made to keep the average doctor up to the requirements of modern practice. And not only physicians, but the public, should be systematically instructed in those matters which they are able to assimilate and use in the promotion of health and the prevention of disease. A campaign of this sort should not be desultory, nor spasmodic, but rather a concerted movement, arranged for and planned out by men in this society who know best what is needed and how that want can be supplied. At the earliest possible time you, as the executive body of the society, should take this matter in charge.

"Because of the necessity of a larger income, the question of the expense of the annual dinner is important. Many states require the participants to pay a part, or even the whole cost, of this entertainment: and with us, even a partial payment of this outlay would relieve the society of a serious burden and enable us to develop actively along the lines suggested above."

The Committee on Membership and Finance reported through Dr. Goss, recommending that two fellows be allowed to change their district membership, that six be allowed to resign, that three be placed on the retired list, and that thirty-six be deprived of the privileges of fellowship for non-payment of dues.

Voted: To accept the report and adopt its recommendations.

The reports of the committees appointed to consider the petitions of five former members to be restored to the privileges of fellowship, were acted upon favorably; and the report of the committee appointed to consider the petition of one former member (namely, that it could not consider the petition in the form in which it was written) was accepted.

The resignation of Dr. H. D. Arnold as a member of the committee on medical education and medical diplomas was accepted with regret. On nomination by the president, Dr. Channing Frothingham, Jr., was appointed a member of this committee in place of Dr. Arnold.

On nomination by the president, Drs. Vanderpoel Adriance, of Williamstown, and W. O. Wilder, of Pittsfield, were appointed delegates to the annual meeting of the Vermont State Medical Society.

Dr. Homer Gage reported progress for the committee on the revision of the boundary line between the Suffolk and the Norfolk Districts, and asked that the committee be continued; and it was so voted.

Dr. H. D. Arnold reported for the delegates of the Massachusetts Medical Society to the

House of Delegates of the American Medical Association. The following topics were considered: Credentials of delegates, membership and fellowship, uniform regulation of membership, relation of the A. M. A. to constituent state associations in matters of health and public instruction, national department of health, medical education, the secret splitting of fees and "contract" practice, sections, new section on gastro-enterology and proctology, elections, next meeting place and delegates to the A. M. A. Dr. Arnold concluded his report as follows:—

"For six consecutive years I have had the honor of acting as a delegate of the Massachusetts Medical Society to the A. M. A., and I have attended all the meetings of the House of Delegates during that period. In relinquishing this position, I wish to express my appreciation of the honor thus conferred, not only by re-election for this period, but by the favorable action of this society on all the essential recommendations which have been made from time to time in connection with this service. I trust you will pardon me if I add a few comments and suggestions based on this experience.

"At the beginning of this service, Massachusetts counted for little in the councils of the A. M. A. and in the important movements which the association was undertaking. These movements were for the benefit of the public and the profession, and Massachusetts should have been one of the leaders. This state of affairs was due in part to apathy on the part of our society as to its relations to the A. M. A., but chiefly to a lack of appreciation of the importance of the position of delegate, of the importance of having a full representation in the House of Delegates, and of having delegates serve terms long enough for them to become familiar with the machinery of the business organization. In a previous communication to the council, I pointed out that usually there had been an attendance of only two or three delegates, although the society was entitled to six, and that a man rarely attended even two years in succession. A man needs time to learn how the business is conducted, to become acquainted with the men who are working for the benefit of the profession, and to become known by them. Until this is accomplished, he can do little in the way of accomplishment, and his state society can have little influence.

"All this is now changed. I wish little credit for it personally,—only for a willingness to devote a certain amount of time and energy to these matters when I would have preferred to attend scientific or social occasions. We have had loyal coöperation by all the Massachusetts delegates. They have stood together for the ideals that the Massachusetts Medical Society stands for, and they have been heard from in some of the controversies. The association now knows that Massachusetts is an important factor and that it is always to be found on the side of what is right.

"From my report of the action of the House of Delegates, it must be clear to all that that body has to deal with many questions in which the society is vitally interested. Our society wishes to do its share in these important movements. It must also be ready to protect its own interests. For both these reasons there should always be a full delegation. In addition, delegates should be chosen who are able and willing to take part in the work of deliberation and administration, and at least two of the men should be serving terms of at least four years. It is important always to have present at least one man who has served at least two years and who is familiar with the situation. The medical profession is not free from self-seekers. The large influence of the association and its accumulating funds are an attraction to those who seek power for their own selfish aims. Politicians, in the real sense of the word, are developed. The experience of the past few years has shown that a few such men could, by skilful combination of effort, gain control of the association if the better elements—a very large majority—do not maintain a watchful organization. These same years have shown also that these better elements, if organized, can pull the association out of perilous situations. The danger will return, however, and Massachusetts should adopt a permanent policy that will aid in making the association what it should be,—a representative body of the whole medical profession of the country."

Voted, To accept the report and place it on file.

Dr. Gay moved and it was voted that the cordial thanks of the society be extended to Dr. Arnold for his efficient services as a delegate to the A. M. A.

On motion by Dr. Arnold, the following votes were passed:

Voted, That the secretary be instructed to send to each member of the society a copy of that part of the report of the Judicial Council of the American Medical Association which refers to secret fee splitting and "contract" practice.

Voted, That a committee be appointed to consider the relations of the Massachusetts Medical Society to the American Medical Association and to other state societies, and that it make a report to the council at its annual meeting.

This committee shall consist of the following officers: The president, vice-president, secretary, treasurer, and the following to be chosen by the president: One member of the committee on membership and finance, two presidents of district societies, two secretaries of district societies, two of the delegates to the American Medical Association who attended the last meeting of the House of Delegates.

Dr. George W. Gay introduced the following preambles and resolutions, which were passed unanimously:

Whereas:—Dr. Edwin Bayard Harvey, one of the oldest members of The Massachusetts Medical Society, has recently passed away, and

Whereas:—He was for nearly half a century an active and loyal member of the society, always interested in its welfare, at one time its president and for more than thirty years a councilor, and

Whereas:—He was the originator of and sponsor for the bill establishing the present Board of Registration in Medicine in this state and for seventeen years its efficient secretary; also the father of the bill which supplies free text-books to the pupils of the public schools of the state, and

Whereas:—He has rendered valuable service to the public and to the profession upon many occasions in shaping and guiding wise legislation, as well as in opposing pernicious legislation; now, therefore, be it

Resolved:—By the council of the Massachusetts Medical Society in session assembled, that it is deeply sensible of Dr. Harvey's many excellent qualities, as well as of the valuable services rendered the public and the profession during a long and active life.

Resolved:—That in the opinion of the council, Dr. Harvey's death is a distinct loss to the Commonwealth, which he has served so faithfully, and to the profession, to which he has always been loyal, and which has now been deprived of his sound judgment and wise counsel.

Resolved:—That the secretary be directed to send a copy of these resolutions to Mrs. Harvey and also the Boston Medical and Surgical Journal for publication.

Dr. Withington raised the question of the compensations of the secretary and treasurer of the society, stating that in his opinion they were inadequate for the time and effort expended. He moved, and it was

Voted, That the committee on membership and finance be requested to consider the subject of the salaries of the secretary and treasurer and report at a subsequent meeting of the council.

Dr. Cotton spoke for the committee of the society on the Workmen's Compensation Act, and introduced the following motion:

Moved, That the president be empowered to direct the legal counsel of the society to bring before the Superior Court, and if need be the Supreme Court, a test case under Part III, Sections 11 and 16, of the Workmen's Compensation Act (Chapter 751, Acts of 1911, as amended by Chapters 172 and 571, Acts of 1912) in order to clear up in part the vexed matter of the ultimate payment of physicians' fees in disputed cases.

The motion was discussed by Drs. Cotton, Cook, and Dolan, and was passed.

Dr. Ryder discussed the question of the present working of the society's act for the defence of malpractice suits. He read the following statement of the cases of malpractice which have been placed in the hands of the attorney for the Massachusetts Medical Society from June 10, 1908, when the act went into effect, to October 1, 1913, fourteen cases in all.

Disposal of these cases:	
Settled	4 cases
Verdict for defendent	2 cases
Suit withdrawn	3 cases
No suit brought	2 cases
Insurance Co. forced by our attorney to defend suit	1 case
Pending	2 cases
Total	14 cases
Total cost of malpractice defence to date	$1926.00
Average cost per year	$ 385.00

In addition to these fourteen cases, the secretary has discussed malpractice defence cases and furnished application blanks and copies of the act to approximately sixty (60) fellows during the time the act has been operative.

Dr. Ryder read seven suggestions which had been advanced for the perfecting of the malpractice act and to make it of greater use to the largest number of fellows:

He moved, and it was

Voted, That a committee be appointed by the president to consider the working of the malpractice act and to report at a subsequent meeting of the council what changes in the act, if any, are advisable.

Dr. Homer Gage spoke of the matter of publications. He said that the society often failed to get information about matters of general interest to the members promptly and the question had arisen as to how to meet this difficulty satisfactorily. Three suggestions had been made:

1. That a special department devoted to the affairs of the society should be created in the Boston Medical and Surgical Journal, and that every member of the society should receive a copy of the Journal.

2. That the society should take over the Boston Medical and Surgical Journal. And

3. That the present quarterly publication published by the society should be developed along larger lines so that more frequent numbers should be issued.

Dr. Gage moved, and it was

Voted, That the question be referred to the committee on publication and scientific papers, with a request that a report from this committee be given at the next meeting of the council.

On motion by Dr. L. M Palmer, it was

Voted, That the president appoint a committee of five to draw up resolutions on the death of Reginald Heber Fitz.

Adjourned at 1.20 P. M.

Walter L. Burrage, *Secretary.*

Correspondence.

ANTIQUATED SURGICAL INSTRUMENTS.



FALL RIVER, MASS., Sept. 15, 1913.

Mr. Editor: The writer exhibited the instruments, shown in the accompanying illustration, at the Minneapolis meeting of the American Proctologic Society; and they may be of interest to your readers. They are over fifty years old, and were made to treat one or more cases of anal or rectal stricture by Dr. James L. Wellington, of Swansea, a village memorable from colonial times, and situated a few miles from Fall River. Surgical supply houses were far away, or perhaps, even if accessible, would not have had suitable instruments; and the doctor's own ingenuity met the demand. The bougies, which, it will be noted, are of roughly graduated sizes, are made of old-fashioned diachylon wound about a core. Further stretching was accomplished by the dilator, which is really a clever bit of construction from wood and metal, and works somewhat on the principle of the modern Otis urethral dilator. It might even now be used for the purpose for which it was intended and produce equally satisfactory results. Dr. Wellington improvised instruments for work in other lines, but these were of interest of course to the proctologist. The doctor is still living in his ninety-sixth year and active, mentally and physically, and still doing some office work. Of further interest too, is the fact that he is now the oldest graduate both of the Harvard Medical School and of the Harvard academic department.

Yours truly,

RALPH W. JACKSON, M.D.

NOTICE.

MASSACHUSETTS GENERAL HOSPITAL.—The members of the medical profession are invited to attend the Ether Day address by Dr. Milton J. Rosenau, subject, "The Problems and Progress in Preventive Medicine," to be held October 16, 1913, at 4 P. M. in the lower out-patient amphitheatre on Fruit Street, Massachusetts General Hospital.

SOCIETY NOTICES.

THE NEW ENGLAND HOSPITAL MEDICAL SOCIETY.—There will be a meeting of the New England Hospital Medical Society, Oct. 16 at 7.30 p. m. in the Kensington Building.

Program: Public Health Educational Work, Dr. Bond and Dr. Noyes.

Discussion, Dr. Hamilton, Dr. Denig.

A Week at the Mayo Clinic, Dr. Culbertson.

A Report of Cases in Surgical Service at the New England Hospital since August 1, 1913, Dr. Smith.

Open discussion.

Light refreshments after the meeting.

MARGARET L. NOYES, M. D., *Secretary.*

WEDNESDAY NOON CLINICS IN MENTAL DISEASE for General Practitioners, Psychopathic Hospital, Boston.—Beginning Wednesday, Oct. 15, and until further notice, clinics in mental disease for general practitioners will be given by members of the Psychopathic Hospital staff on successive Wednesdays (omitting holidays) from 12 noon to 1 p. m. The discussions and demonstrations will be held either in the library or in the assembly room (occasionally in the wards) of the hospital.

In offering these clinics, the trustees of the Boston State Hospital (of which the Psychopathic Hospital is a department) are endeavoring to provide a profitable kind of post-graduate work in mental diseases for general practitioners (particularly of the Metropolitan District) and thus to make the Psychopathic Hospital *"a center of education and training of physicians"* (see Report of State Board of Insanity, Pub. Doc. No. 63, 1910, p. 30).

The clinical material of the hospital is ample for the demonstration of all classes of mental patients, particularly in the earlier phases of their diseases or attacks. Attendance upon a fair proportion of the Wednesday clinics during the season should insure to the practitioner a good review of modern psychiatric diagnosis.

Practitioners wishing notification of the topics and cases to be especially discussed at particular meetings should advise the director to that effect.

There is no fee for these clinics, to which all Massachusetts practitioners are cordially welcomed.

(Practitioners are also invited to the staff meetings held on other week days (except holidays) at the same hour; these are devoted to more advanced, obscure, or special topics, having to do with the investigative or medico-social sides of the hospital work.)

The hospital is at 74 Fenwood Road, Boston, and can be reached either by *Chestnut Hill cars*, alighting at corner of Fenwood Road and Brookline Avenue, or by *South Huntington Avenue and Brookline Village cars*, alighting at corner of Fenwood Road and Huntington Avenue.

E. E. SOUTHARD, M.D., *Director.*

74 Fenwood Road, Boston, Mass.

RECENT DEATHS.

DR. REGINALD HEBER FITZ, of Boston, a Councilor of The Massachusetts Medical Society, formerly Hersey Professor of the Theory and Practice of Physic in the Harvard Medical School and Visiting Physician to the Massachusetts General Hospital, died at Brookline, Sept. 30, 1913, aged 70 years.

DR. WILLIAM JOHNSTON BEATTIE, who died as the result of an automobile accident on Sept. 26 at Bretton Woods, N. H., was born in Ryegate, Vt., on Sept. 6, 1855. He received his preliminary education at St. Johnsbury Academy, and was graduated in 1889 from the Bellevue Medical College. He practised his profession in New York City and at Littleton, N. H., where he was president of the local hospital. He is survived by his widow and by four children.

Original Articles.

RELATIONSHIP BETWEEN GYNECOLOGICAL AND NEUROLOGICAL DISEASES.*

BY W. P. GRAVES, M.D., BOSTON.

An intimate relationship between the female genital organs and the nervous system has been recognized from the earliest times. Hippocrates regarded the uterus as the starting point of most nervous manifestations, and named from it one of the commonest of nervous diseases. This ancient idea was held with little modification up to comparatively recent times. In the middle of the last century such well known writers as Scanzoni, Amann, Romberg and Leubuscher, described hysteria as a "reflex neurosis resulting from genital irritation," and agreed that "every pathological change of the uterus, ovaries and tubes may be the precursor of hysteria." Even at the present time the celebrated Italian gynecologist, Bossi, is advocating by a prolific amount of literature the theory that minor gynecological lesions are the direct underlying cause of serious nervous and mental conditions.

An exaggerated conception of a direct relationship between pelvic abnormalities and nervous disease has led in the past to grave errors and has been the means of casting much discredit on the science of gynecological surgery. In the earlier days operations for lacerated cervix and later, ventral suspensions of the uterus, castrations, nephropexies, resections of cystic ovaries have been done by the thousands for the relief of nervous symptoms without sufficient surgical indication. In most recent times the same tendency has been seen in the excitement over autointoxication, enteroptosis, Lane's kinks and Jackson's membrane. etc., in which the relationship between abdominal aberrations and nervous manifestations has been often greatly exaggerated and many useless operations have been done. On the other hand the neurologists alarmed by this *furor operandi*, and impressed by the numerous surgical failures, have also erred and attempted to cure by long-drawn-out psychotherapeutic treatment, cases which in reality require surgery. In other words, there has been too little team work between the surgeon and the neurologist and it is the object of this paper partly to emphasize this fact and partly to make certain suggestions by which we may come to a truer understanding of that difficult class of patients which requires both gynecological and neurological treatment.

* Read at the annual meeting of The Massachusetts Medical Society, June 10, 1913.

INFLUENCE OF MENSTRUATION ON THE NERVOUS SYSTEM.

In considering the relationship between the genital and nervous systems one naturally regards first the important influence which the function of menstruation has on the general organism of a woman.

John Goodman in 1878 in an essay entitled "The Cyclical Theory of Menstruation" (*Amer. Jour. Obstet.*) was one of the first to call attention to the fact that the function of menstruation is not a purely local process but the expression of a profound change in the general circulatory system. This periodic change in the circulation Goodman regarded as under the direction of the nervous system and as following a regular law of rhythmic rest and activity such as is represented by the heart action.

Mary Putman Jacobi in the Boylston prize essay of Harvard University for 1876 presented under the modest title of "The Question of Rest for Women during Menstruation" a most valuable contribution to the physiology of the pelvic organs, by expounding for the first time the *wave* theory of menstruation.

According to this theory, menstrual blood represents the overflow of superfluous nourishment material which has been stored up as a provision for impregnation, but which when impregnation does not take place is discharged in the form of a catamenial flow.

Jacobi saw in this a rhythmic wave in the metabolic processes of woman which reaches its maximum immediately before and its minimum immediately after menstruation. In order to prove her theory Jacobi made monthly observations on several women and established that just before the menstrual period there is an increase in the body temperature, in the blood pressure, in muscle strength and in the pulse beat, all of which gradually diminish during the menstrual period and are at their lowest ebb at its close.

These observations were confirmed by other investigators. In 1890 von Ott and his pupil Schichareff (*Zentralbh. f. Gyn.*, 1890) studied in 57 normal women through 68 menstrual periods the temperature, pulse, blood pressure, muscle strength, lung capacity, inspiration strength and the ocular reflexes, and from these studies concluded that the energy of the functions of the female organism is at its height immediately before menstruation and that it diminishes from the time of the beginning of the flow of blood. Von Ott contructed a curve which represents graphically the monthly wave of the life processes of normal woman (*Zentr. f. Gyn.*, 1910).

The discussion as to the physiological cause of this menstrual wave of depression, whether it is the result of an ovarian internal secretion, whether it is from a rhythmic change in the central nervous system, or what not, does not at present concern us. The curve of Ott shows

plainly that there is in the organism of the healthiest women a monthly period of depression in her vital processes which finds definite expression in all her activities. This fact is of the very greatest importance in our understanding of a woman, either as an individual or as a patient. As Havelock Ellis (Man and Woman) has pointed out, the blood pressure chart of von Ott would probably be paralleled, if it were possible to make accurate observations, in all the senses, emotions and intellectual activities of women. In fact, such a series of tests has been made of the eye by Finkelstein of St. Petersburg.

"Finkelstein studied the functional activity of the eye during menstruation in twenty healthy women, aged between nineteen and thirty-three. He found that during the period there is a concentric narrowing of the field of vision, beginning one, two, or three days beforehand, reaching the greatest intensity on the third or fourth day of menstruation, and gradually disappearing on the seventh or eighth day after its appearance. The narrowing is more pronounced in those women in whom menstruation is associated with malaise, headache, cardiac palpitation, and other nervous symptoms, as well as in those who lose large quantities of blood. Not only the field of vision for white but also the visual fields for green, red, yellow, and blue undergo a regular diminution. Perversion of perception of green (which is seen as yellow) is observed fairly often (in 20 per cent. cases). Central vision is but slightly impaired, and rapidly returns to the normal standard after the period, and refraction remains intact."

There are numerous changes at the menstrual epoch that are more familiar. There is a feeling of tension in the pelvis; the breasts often enlarge and become tense and painful; the thyroid gland becomes congested; the peripheral blood vessels of the skin often become flushed; while in brunettes, the pigmented areas around the nipples become deeper in color and large dark rings may appear under the eyes. I have one patient in whom large ecchymotic areas appear periodically on the thighs and legs during the menstrual period. It is a well-known fact that the voice is affected during menstruation and in some place on the Continent provision is made that opera singers shall not perform during that period.

On the psychic and nervous side of perfectly healthy women the menstrual curve is still more plainly demonstrated. There is at that time a greater sensitiveness and impressionability. The individual is far more irritable and subject to outbursts of ill-temper and to unreasonable caprices. There is markedly less self-control and an invariable tendency to depression. The nervous reflexes are impaired and women are less skillful and dexterous during the menstrual period.

What we have said so far relates to women in perfect health. Under pathological conditions the same upward and downward curve occurs, but the changes may become much exaggerated.

In considering the pathological aspects of the relationship between menstruation and nervous disorders we must view the subject from two standpoints. First, the condition where abnormal menstruating function produces psychoneuroses in an individual otherwise sound as to her nervous system and, Second, the case where an abnormal condition of the nervous system is greatly aggravated or makes its only appearance during the menstrual period.

NEUROSES AS A RESULT OF MENSTRUAL IRREGULARITIES.

Of the menstrual irregularities that may produce neuroses, dysmenorrhea is by far the most important. By the term dysmenorrhea I refer to the so-called essential dysmenorrhea which consists of cramplike pains of the uterus felt usually in the front of the lower abdomen, occasionally in the sacral region. The pains of pelvic inflammation, chronic appendicitis, or other abdominal disease that are exaggerated during menstruation are not included under the term essential dysmenorrhea. Essential dysmenorrhea is undoubtedly a purely physical sign and in the majority of cases has some definite anatomical basis. The condition commonly associated with true dysmenorrhea is a local hypoplasia of the genital organs in which there usually exists a malposition of the uterus, in the form of a retrocessed anteflexion or a retroversion-flexion of developmental origin, or there may be malposition without hypoplasia. In a great number of these cases the individual is otherwise perfectly normal and there is often no predisposition to lack of nervous equilibrium. The painful periods at first often have little effect on the patient; but gradually as she grows from girlhood into womanhood permanent nervous manifestations of irritability, exhaustion, and depression make their appearance. The curve of menstrual depression becomes deeper and deeper and the return to the normal becomes later and later during the intermenstrual period. Such patients no sooner recover from the effects of one period than they begin to dread the effects of the next one. The condition is therefore one of continual hammering at the patient's nervous system and eventuates gradually in seriously affecting it. It is no wonder, therefore, that patients with dysmenorrhea always in time become neurotic. The mistake, however, must not be made in supposing that the dysmenorrhea is in these cases the result of the neurotic condition. It is held by some that psychic and nervous conditions may induce chronic dysmenorrhea. This may be true in some instances; but in my experience it is so uncommon as not to be regarded seriously in the routine treatment of the cases under dis-

cussion. These cases are, therefore, primarily for the gynecologist who must do what he can to relieve the underlying condition. Unfortunately essential dysmenorrhea is difficult to treat successfully, but a certain percentage, (50-65%), yield to surgical treatment with immediate improvement of the nervous condition. It sometimes happens that the dysmenorrhea cannot be cured by any known means and the patient develops into a hopeless invalid, a burden to herself and her friends. In these extreme cases castration with hysterectomy is justifiable and indicated. In properly selected cases the cure of the mental and nervous condition may be complete.

If neuroses persist after relieving the dysmenorrhea the patient becomes a subject for neurological treatment, for then the symptoms in the absence of other physical causes are due to a congenital neurotic predisposition or else they are an expression of the so-called habit neuroses, a subject which will be referred to later.

Other irregularities of menstruation besides dysmenorrhea may be the underlying cause of psychoneurotic conditions. Menorrhagia, for example, may so deplete the patient's general health and resisting power as to produce neurasthenic states, especially if there be coupled with it the fear of cancer. Continued amenorrhea may be the cause of mental depressions; but where it is associated with grave mental disorders such, for example, as dementia precox, it must be regarded only as a symptom of the disease.

It should be remarked at this point that disturbed psychic states may exert a certain amount of influence over the function of menstruation. It is extremely common for gynecological patients who are being prepared for operation to menstruate much out of their regular time. Sudden nervous or physical shocks often bring on the menstrual flow. It is doubtful if ordinary nervous shocks cause permanent irregularity though this claim is frequently heard in medico-legal cases. Fear or nervous shock may also cause temporary amenorrhea, as is often seen in women who fear impregnation, the menstrual period sometimes being delayed as much as ten days or two weeks under the influence of such apprehension.

INFLUENCE OF MENSTRUATION ON PATHOLOGICAL MENTAL AND NERVOUS CONDITIONS.

In this class of cases the primary seat of trouble is in the nervous system itself and it includes everything from hereditary functional disorders to serious organic mental disease. There is no doubt that all of these conditions are aggravated during the menstrual period. If in addition, the menses are also abnormal, the reaction on the nervous system is greatly increased.

The nervous disturbance may be expressed only by severe periodic headaches. Hysteria, hysteroepilepsy, epilepsy, erotomania, dipsomania, kleptomania, and melancholia frequently appear chiefly or solely at the menstrual period. Women with criminal or suicidal tendencies often show their inclinations at that time. To quote again from Havelock Ellis:

"Lombroso found that out of 80 women arrested for opposition to the police, or for assault, only nine were not at the menstrual period. Legrand du Saulle found that out of 56 women detected in theft at shops in Paris, 35 were menstruating. There is no doubt, whatever, that suicide in women is especially liable to take place at this period; Krugeltein stated that in all cases (107) of suicide in women he had met with, the act was committed during this period, and although this cannot be accepted as a general rule (especially when we bear in mind the frequency of suicide in old age), Esquirol, Brierre, de Boismont, Coste, Moreau de Tours, R. Barnes, and many others have noted the frequency of the suicidal tendency at this period. In England, Wynn Westcott has stated that in his experience as a coroner, of 200 women who committed suicide, the majority were either at the change of life or menstruating; and in Germany, Heller ascertained by post-mortem examination of 70 women who had committed suicide that 25 (or in the proportion of 35 per cent.) were menstruating, a considerable proportion of the remainder being pregnant or in the puerperal condition.

. . . . . .

"Among the insane, finally, the fact is universally recognized that during the monthly period the insane impulse becomes more marked, if, indeed, it may not appear only at that period. 'The melancholies are more depressed,' as Clouston puts it, 'the maniacal more restless, the delusional more under the influence of their delusions in their conduct; those subject to hallucinations have them more intensely, the impulsive cases are more uncontrollable, the cases of stupor more stupid, and the demented tend to be excited.' These facts of morbid psychology are very significant; they emphasize the fact that even in the healthiest woman a worm, however harmless and unperceived, gnaws periodically at the roots of life."

. . . . . .

The preceding cases are primarily for the neurologist and the psychiatrist, yet there are certain of them whom the gynecologist may relieve. Cases of dysmenorrhea or menorrhagia should be submitted to the gynecologist, for if these symptoms can be cured the patient is relieved of an important nervous irritant. A limited number of cases of this class where the manifestations appear solely at the catamenial period are subjects for castration, as I have at different times shown in some of my cases.

FUNCTIONAL NEUROSES ASSOCIATED WITH GYNECOLOGICAL DISEASE.

Under this heading we are dealing with a problem quite similar to that under the heading of menstruation excepting that the genital irritation of the nervous system is exerted not periodically but continuously as the result of chronic pelvic diseases.

Interest in this subject has recently been much aroused by the writings of Bossi of Genoa, who takes the ground that psychoneurotic manifestations even up to the point of suicidal mania are the direct necessary result of material changes in the genitals. Bossi regards the minor pelvic lesions as much more responsible for these neuroses than the more serious gross affections. For example, he states that the most important factor in the case is the forward or backward displacement of the uterus with the consequent "infectious endometritis." The outbreak of psychoneuroses up to the point of suicide at the time of the genital functions he declares to be the result of increased "production and absorption of toxic elements."

The absurdity of this doctrine needs little comment, the wonder being that it has attracted so much attention. In may only be remarked that infectious endometritis is a rare disease outside of the septic puerperium and under no conditions is it caused by simple malpositions of the uterus. The doctrine is therefore founded on an entirely erroneous pathological hypothesis. The writings of Bossi have been valuable, however, in bringing out much excellent discussion of this important subject more especially in the German periodicals. The most illuminating of these papers have been produced by Max Walthard who made his observations in the clinic of the celebrated neurologist Dubois. (*Prakt. Ergebn. der. Geb. und Gyn. Jahrg.* 2, p. 251 and *Zentr. f. Gyn.* 1912, No. 16.) Walthard calls attention to the fact that the old idea of a specific intimate nerve connection between the organs of generation and the brain can no longer be held and shows by a series of cases that the so-called genital psychoneuroses, (*i.e.*, neuroses in which the mind is fixed on sensations of the pelvic area) are found almost equally in women with sound genital organs, in women with diseased pelvic organs, and in women who have had them entirely removed. Walthard after describing the manner in which nervous symptoms may be produced by cortical irritation of chemical poisons resulting from digestive disturbances, bodily exhaustion, disorders of glands of internal secretion, etc., advances the theory that a pathological *mental habit* may in like manner produce an irritability of the nervous system and cause symptoms similar to those from functional bodily disturbances. The pathological mental habit is according to Walthard primary. The patient viewing every new sensation through her mental microscope refers it to a floating kidney, a misplaced womb, an inflamed ovary or to some operation which has caused her the loss of her organs. The sensations are greatly exaggerated and in the words of Walthard an "overvaluation of their significance is placed upon them." These patients are, according to him, subjects only for psychotherapy.

Walthard's ideas are not of course in any sense new; but they deserve much credit for forcing the narrow-visioned gynecological specialist to realize that there is a vast new field of psychotherapy of which in the past he has taken little account. It is difficult for the average practical surgeon to appreciate fully the psychic element of his cases. Neurological parlance is ordinarily vague and uninteresting while the psychoneurotic manifestations of surgical patients are regarded as a necessary annoyance which must be avoided as much as possible.

No neurologist to my knowledge, has had greater success in mental therapy than has Dr. Austen Riggs of Stockbridge. In his admirable pamphlets entitled, "Talks to Patients," Dr. Riggs presents the problem of nervousness in an especially graphic form and as these pamphlets are not published I shall take the liberty with his permission to make some quotations from them.

Dr. Riggs pictures the field of consciousness as a great sea of immeasurable breadth and limitless depth. The surface of this sheet of water is covered with waves. Each impression made upon our consciousness from the time of birth to the present moment is represented by a wave, and the waves are arranged in groups and systems according to the laws of association.

"Now assume that the whole sheet is in total darkness, save that at or near the middle portion there is a light suspended from above, which illuminates a very small area. It is a mere pencil of light, capable of illuminating but one wave at a time, but it has the faculty of very rapid motion, and is thus capable of illuminating a good many waves in such quick succession that it produces the effect of having illuminated them almost simultaneously. This light represents the attention. To carry out the figure, we must imagine ourselves suspended above it and as being able to control its direction by our will. Just as the searchlight of a battleship has a definite range beyond which the light does not reach, so the light of our attention can be projected over only a limited area of the sea of consciousness. All that lies outside this area, at any given moment, is, for that moment, subconscious,—so that we speak of that portion of consciousness outside the range of the attention as the *sub-consciousness* and that portion which lies with the illuminated area, as the *consciousness* or more accurately,—the former is called the *unaware* consciousness and the latter, the *aware* conscious." ("Talks to Patients," *Elementary Mental Mechanics.*)

"Most of the time, the vast majority of these waves stay quietly in the sub-conscious region, while only a small minority pass in and out of the aware region; but under certain circumstances a great many may obtrude themselves into the illuminated area, and when this happens, trouble promptly ensues.

"Each family of waves may be said to be made up of two sub-groups; one of which, comprising the waves representing the sensations of position, of vibration, and the deep muscle and tendon sensations, is a stable, stay-at-home cluster which normally always remains in the sub-consciousness. The other sub-group, which includes the sensations of touch, pain, and temperature, is more mobile, more loosely held together, and thus any of its members are easily drawn from the family circle into the aware region. Any of these mobile sensations become very easily accentuated by the ordinary physical stimuli of the environment and are thus constantly flashing in and out of the attentive region. Even without physical accentuation, one or more of them may be drawn to the attention if one simply thinks of this or that part of one's body, and consequently, at once becomes super-conscious of it.

"Bearing this mechanism in mind, it is easy to see that sensations of this class, after being repeatedly picked out and dwelt upon by an otherwise idle attention, will form a most unwelcome habit of finding their way with greater and greater ease into the aware consciousness and that consequently they will become exaggerated through repetition and over-attention. This process, in fact plays an important part in the genesis of hypochondriasis, where the sufferer becomes abnormally aware of many, one might almost say of all of his sensations; and it also plays no small rôle in numerous other sorts of 'nervousness.'

"There is another accident which may occur in the mental field which produces a similar result. Not only may the mobile sensations of the 'touch' class, of which we normally may or may not be aware, become accentuated and exaggerated, but even those sensations of which we are normally never aware, namely those belonging to the stable, sub-conscious group, may under certain cirucumstances, reach the light of our attention. This they do by virtue of a process of disassociation,—that is by a breaking up of the normal arrangements of sensations in sub-groups and families. Thus when a family of sensory waves becomes accentuated, (although usually only the more mobile sub-group of the touch and pain class is affected), provided that the mental constitution be liable to disassociation, the lightly balanced associative values of a whole family may be upset. The result is that one or more sensations of the stay-at-home group, which should have remained quietly at home in the sub-consciousness, now disassociate themselves from this their normal cluster, and promptly join the other sub-group of the family. They then assume the habits of their new companions and wander with them into the illuminated area. Thus not only does the "touch" sensation become prominent, but it drags with it into the aware field one or more of its normally sub-conscious brothers. Here of course the latter literally 'makes a sensation.' They wear the uniform, let us say, of the knee family and are therefore recognized as hailing from the knee country; but this is the only familiar characteristic they possess, and they are above everything fascinating to the attention because of the utter strangeness of all their other qualities. They are out of place,—as startlingly out of place as fish out of water. The sensations are perfectly normal in themselves but they are distinctly and markedly abnormal in their relative position in consciousness. Like deep-sea creatures suddenly hauled gasping to the surface, they are out of their natural element, the quiet sub-conscious regions, and are showing themselves in the utterly strange environment of the intensely active and brightly illuminated aware region. Of course they seem unnatural, undesirable; and furthermore, we treat them with fearful attention and respect, because they seem to signify that there is something very strange going on in the bodily region from which they emanate. The sufferer little realizes that their abnormality consists chiefly in mal-position and not in intrinsic quality or significance.

"Once having gained the *entré,* the dislocated sensations in question very soon acquire the habit of calling with always greater frequency and familiarity. Naturally the attention dwells with greater and greater intensity upon its strange guests, and the latter consequently swell to an enormous importance. Before long the secondary physical results make their appearance. The function over which the sensations in question formerly presided without let or hindrance, now suffers over-stimulation or over-inhibition as the case may be. The sensation, because of its abnormal activity and also because of its mal-position in consciousness, has attracted more than its share of the attention and the latter consequently interferes with the nervous control of the function." ("Talks to Patients" II, Nervousness.)

Let us now turn for a moment from this fascinating and poetic realm of the consciousness to the practical unimaginative gynecologist with an office full of nervous patients each with some real or supposed pelvic trouble. "What," he asks in confusion, "am I to do with these patients? Shall I send them all to the neurologist for mental treatment? I have tried that before and he does not seem to get any better results with them than I do."

Assume that we have a nervous patient before us who after seeing many consultants has been sent to the gynecologist as a last resort. We examine the abdomen and find say, a floating kidney or a retroverted uterus. Unless absolutely definite, painful or discomforting symp-

toms can be assigned to the condition found, gynecological treatment will do the nervous patient no good, but will actually do her harm by introducing to the searchlight of her mental attention new and strange sensations, thereby still more complicating her troubled and suffering consciousness. Such a patient therefore is not for the gynecologist even though she has a gynecological lesion, but is rather a typical case for psychotherapy, in the absence, of course, of other purely physical disabilities.

Assume now another patient who was a healthy, normal individual, say until the birth of her second child, which she describes as a difficult labor. This patient exhibits the same nervous symptoms that the first showed excepting that in the present case there are some symptoms very definitely localized in the pelvis, such as a sense of weight and pressure on standing, sacral backache, a leucorrheal discharge, etc. We examine the patient and find a uterus enlarged, retroverted and somewhat prolapsed. There is relaxation of the vaginal outlet, and an eroded lacerated cervix. Such a case is distinctly for operation. Every link of the broken chain of pelvic support is mended and the improvement in the entire nervous mechanism is astonishing. In this case the pain and discomfort of the pelvic family of sensations kept the searchlight of the attention continually flashing upon them and disarranged the entire central regulation system. The gynecological operation relieved the discomforting pain, allowing the pelvic sensations to recede to the dark recesses of the unaware region where they belong, with a consequent automatic restoration of the central mechanism to its normal condition.

Assume now still a third patient similar in every respect to the one just cited excepting that there is a hereditary predisposition to neuroses, and that the duration of illness has been considerably longer. In other respects the symptoms are much the same. A gynecological operation is performed. The patient is relieved of her local pelvic symptoms, but continues to be as nervous as before, and now perhaps rivets her attention on some group of sensations which before the operation were of secondary importance, localized now for example, in the muscles of the neck. In this case the operation was justifiable and entirely indicated. The relief caused by the recession of the pelvic sensations is not sufficient to bring about an automatic self-regulation of the central mechanism. The hereditary predisposition and the long duration of the disease are factors which prevent the patient's regaining the proper control of the searchlight of attention. This case then illustrates what the neurologists call "habit neuroses." The patient is now a subject for the neurologist, and with proper discipline and suggestion may become entirely cured. Such a cure, however, is made possible, or at least far more likely by the surgical operation.

We have then three well defined types of nervous patients who consult the gynecologist. First, those in whom there exists a gynecological lesion which is not giving local symptoms and which probably has nothing to do with the nervous condition. Second, those in whom a gynecological lesion is the undoubted irritating cause of the nervous condition and, Third, those in whom a gynecological lesion is a contributory source of irritation to a generally abnormal nervous state.

There are of course, numerous complications and combinations of these three types. The most important of the complications is the element of pathological mental suggestion. Thus a woman who has suffered long the constant nagging pain of pelvic inflammation is always nervous. If, however, she be told that the pelvic inflammation is the result of gonorrhea the nervous symptoms are many times increased. In the same way a patient who is suffering from long continued menorrhagia usually becomes very nervous; but she becomes much more so if there is added to the physical irritant the haunting apprehension of cancer. And so the instances might be multiplied.

We may summarize our conclusions of the relationship between minor gynecological lesions and functional neuroses by saying that: pelvic conditions which cause constant irritating, nagging pain or discomfort eventually produce neurotic symptoms, which are greatly increased if there be added the element of pathological mental habit with consequent overvaluation of the local sensations. There is, however, no mysterious or specific connection between the genital organs and the central nervous system. There is on the other hand between the two, exactly the same relationship that exists between the brain and every other area of the body, and the laws of pathological action and reaction are exactly the same. As proof of this a constantly irritating cholecystitis, or duodenal ulcer, or enteroptosis, or intestinal adhesion, or chronic appendicitis may produce a neurotic individual who does not in any way differ from the genital neurotic excepting that the searchlight of her mental attention is directed on a different group of sensations. Nor is this type of case confined entirely to those suffering from internal diseases. One of the worst male neurotics I ever saw is a man who was prevented from rowing on his college crew by a chronic synovitis of the knee. For many years his knee has occupied his chief attention. We are all of us only too familiar with the individual whose whole active consciousness is centered chiefly around an eczematous umbilicus. In all there is the irritating discomfort, the pathological mental habit of the attention, and the overvaluation of sensations.

MENOPAUSE SYMPTOMS.

A consideration of the menopause symptoms is one of much importance in our present dis-

cussion for there exists on this subject a very wide divergence of opinion both among the laity and among the profession. We are concerned chiefly with the artificial menopause which results from hysterectomy and castration. I have treated this subject in a recent paper entitled, "Influence of the Ovary as an Organ of Internal Secretion." (*Amer. Jour. Obstet.*, 1913.)

"There are those who regard the extirpation of the ovaries as provocative of the most serious postoperative psychoneuroses, while on the other hand there are many who believe that the removal of the ovarian secretion has an inappreciable influence on the physical welfare of a woman and that in certain neurotic conditions it is actually beneficial. In order to test this point I wrote a number of letters to my patients who had undergone supravaginal hysterectomy with removal of both adnexa. Each patient was asked the following questions:

"1. Whether or not she had suffered from hot flushes?

"2. Whether she had been more nervous or less nervous since the operation?

"3. Whether there had been any change in her sexual feelings?

"4. Whether or not she regarded herself improved in health by the operation, and to what extent?

"To this set of questions 136 answers were received. The operations represented in this list were all supravaginal hysterectomies, with removal of the ovaries, although in a few of them there had been an implantation of ovarian tissue. The operations were mostly for fibroids, pelvic inflammation and double ovarian disease.

"Of the 136 patients sixty-six had suffered from hot flushes for a few months, forty-two had had them slightly, but were not seriously troubled by them, twenty-eight did not have them at all.

"This question was put in order to determine the amount and duration of the symptoms of the artificial menopause on the theory that the presence of hot flushes is the most accurate index of this condition. The general impression gained from these figures was that the artificial menopause from hysterectomy and castration is shorter and less severe than is the natural menopause.

"In answer to the question whether the patients were more nervous or less nervous after the operation, ninety-six reported that they were less nervous than before, while forty reported either that they were just the same as before, or that they were more nervous. If 70 per cent. of castrated patients state that their operation has made them less nervous than they were when they had their ovaries, it does not seem as if the removal of the ovaries could have any great specific tendency to produce psychoneuroses. Of the forty patients who said they were more nervous than before the operation, or that their nerves were the same as before, thirty-three said that their general health had been improved, so that their nervous condition could not be said to be serious. Of the seven patients who said that their general health and nervous condition were both made worse, four were long-standing cases of pelvic inflammation who had had previous conservative operations, and who were markedly neurotic before the operation. The other three cases simply stated that they were more nervous, and that their general health was worse than before operation. In one of them the cause was found to be due to rheumatism, and in another it was due to a postoperative hernia of the wound. These figures would compare favorably with those of any other serious surgical operation, in which unquestionably nearly an equal percentage would report an increased nervousness after the operation. Definite severe psychoneuroses traceable directly to the loss of ovarian secretions have not come under my notice. The real causes for the serious postoperative nervous complications can usually be found in such lesions as postoperative pelvic adhesions, postoperative hernia, incomplete support of the pelvic floor, wound infections and other results of unsuccessful surgical technic, which leave the patient in an uncomfortable or painful state."

In analyzing the artificial menopause symptoms it is necessary to divide them into two very distinct groups. Namely, the vasomotor and the psychoneurotic.

The vasomotor symptoms are represented in general by the so-called hot flushes. These appear in at least 80 per cent. of castration cases.*

The vasomotor disturbances do not usually produce nervous symptoms unless they are very severe or frequent, in which case they sometimes react seriously on the nervous system in the same way as any other physical irritant.

Psychoneuroses as distinguished from vasomotor disturbances are by no means definitely consequent on the loss of the ovaries. On the contrary psychoneurotic conditions are again and again relieved or completely cured by a hysterectomy operation which has relieved the patient of some painful irritant like that for example of a pelvic inflammation.

Severe psychoneuroses may follow hysterectomy; but they are brought about in the following ways. The operation may have been misdirected and not indicated in the first place, or it may have been improperly performed or surgical complications may have ensued which have left the patient in a painful, uncomfortable state. As proof of this is the fact that postoperative neuroses following hysterectomy were formerly far more common not many years ago than they are now. This can only be explained on the ground that the technique of the operation has in the last few years been very greatly

* The cause of hot flushes is not known, though recent investigators such as Schickele and others ascribe them to a heightened blood pressure due to the removal of the vasodepressor influence of the ovarian internal secretion. Observations made at the Free Hospital for Women by Miss H. J. Ewin and myself in a series of about 50 cases have failed to reveal a single instance of increased blood pressure.

improved so that now if it is properly done there is no shock, no bleeding, no postoperative prolapse of the vagina, no pelvic adhesions, and other unfortunate complications, which if present, cause nagging discomforts that are sure to disarrange the nervous mechanism.

Another important cause of the psychoneuroses of the artificial menopause is that resulting from mental suggestion. Under normal conditions a woman does not instinctively suffer a sense of physical degradation from the loss of her pelvic organs especially if such a loss is attended with a relief of pain. This sense of degradation may, however, be very powerfully induced by the criticisms of an unfeeling husband or the suggestions of unwise friends by which the patient is led to contemplate her inability to bear children or to fear the loss of youth and the premature onset of old age. Under such conditions the mental distress may result in severe psychoneuroses. Such a state, however, must be regarded as due to psychical irritation and not in any sense as a specific consequence of the loss of ovarian secretion.

What has been said concerning the nervous disturbances of the artificial menopause is also true of the physiological menopause in which vasomotor and psychoneurotic symptoms may appear. Dubois after studying many cases for a period of more than thirty years has come to the conclusion (*Monatschr. f. Geb. u. Gyn.*, Feb., 1913) that the neurotic manifestations are largely due to mental suggestion, as a result of the cares and worries and apprehensions that are usually incident at the period of the climacteric.

GYNECOLOGICAL DISEASE AND THE PSYCHOSES.

On the subject of the true psychoses in their relationship to gynecological disease I cannot claim to speak with great authority on account of a limited experience with cases of this kind and on account of lack of familiarity with mental disease. Nevertheless I have had a number of instructive cases from which conclusions of some value may be drawn. The series which I have chosen to illustrate this subject consists of fifteen psychosis cases in which the operation of hysterectomy with castration was performed. All of these patients were suffering from some gynecological disease such as pelvic inflammation, fibroids, or severe dysmenorrhea. In all there were serious exacerbations of symptoms during the menstrual period, and in some the symptoms appeared only at that time.

The mental conditions represented were as follows: Hysteria, five cases; epilepsy, four cases; insanity of the melancholic or depressive type with suicidal tendency, five cases; dementia precox, one case.

Of the five hysteria cases three were much improved and two may be regarded as perfectly well. One of the cases which is entirely cured suffered from incessant epileptiform seizures which could with difficulty be distinguished from true epilepsy. The operation was for extensive pelvic inflammatory disease.

Of the four cases of epilepsy there have been no cures; but all have been improved, two of them markedly so and the other two moderately.

Of the five melancholic or manic-depressive cases, all have been very distinctly improved, while one is completely well though her mental condition before operation was the least promising, suicide having been twice attempted.

The dementia precox case was improved temporarily; but has since lapsed to her former condition.

It is sufficiently evident from this small series of cases that the performance of gynecological operations cannot be expected to cure true psychoses, but they may greatly improve the mental condition by removing the pelvic irritation of pain and discomfort, while in certain cases, which from the standpoint of the psychiatrist are essentially curable, operations may greatly facilitate or hasten a complete cure.

I wish to say in conclusion that the remarks in this paper touch only in a most superficial way a subject of the widest importance and one capable of very great development. It has been my desire chiefly to emphasize the point that there exists no mysterious or peculiar nerve connection between the female genital organs and the central nervous system, and that disturbances in the former cause manifestations in the latter by the irritation of pain and discomfort. It seems to me that if this simple theory be borne constantly in mind in our practical treatment of patients there will be fewer mistakes on the part both of the gynecologist and the neurologist.

DISCUSSION.

DR. W. L. BURRAGE, Boston: I feel in the same position as Dr. Hubbard. I prepared a discussion and in many ways I suppose I should not read it after hearing Dr. Graves' very interesting paper which covers the ground so well.

However, my opinion is rather different from his in some respects, and my experience dates back a little further, so I am going to read it.

Soon after the birth of gynecology as a specialty, in the year 1880, B. S. Schultze, of Jena, in discussing the effect of displacements of the uterus on the nervous system[1] made this statement:

"Nervous affections caused by reflex action from the uterus through the nervous centers, reveal their connection with the displacement by their disappearance coinciding with its removal. I have often observed a nervous headache depart immediately and forever, on the reposition of a retroflexed uterus, and I do not mean headaches only called nervous because their cause was not known, or in the sense that every pain is nervous, but properly diagnosed trifacial vaso-motor neuralgia, cases of hemicra-

nia which had existed for years, had exhibited paroxysms regularly several times a week, and which had been most vigorously treated in the orthodox manner without any benefit whatever."

Thomas Addis Emmet, pioneer gynecologist in America and originator of the operation of trachelorraphy, said in 1883[2], with reference to the effect of scar tissue situated between the lips of a lacerated cervix:

"I do not assert that the general health of every woman who has a scar in the cervix will suffer, or that she will always have neuralgia in consequence. But it has been demonstrated to my mind as clearly as anything we accept as truth in medicine, that there exists a relation of cause and effect under the following circumstances. If a woman receives an injury in labor, as a laceration of the cervix, and is in such perfect health as to be able to withstand the irritation, she may go for an indefinite time without suffering any evil consequences. But if she should ever become anemic, with this condition of the cervix, she will either be a victim of neuralgia, or will not recover her health until the source of the irritation has been removed by the surgeon, or by nature after she has gone through the change of life."

He refers to the greater prevalence of "neuralgia" among women who, in the previous years, had had their torn cervices treated by the application of nitrate of silver.

The intimate relationship between disease of the genital organs in women and nervous and mental disease became more apparent from year to year. In 1889, W. P. Manton of Detroit was appointed gynecologist to the Eastern and Northern Michigan Asylums for the Insane. As far as known this was the first appointment of a trained specialist in gynecology to care for the local troubles of the women inmates of an insane asylum. At the present time, it is the general custom to give uterine disease proper diagnosis and treatment in asylums for the insane as well as in general hospitals. After twelve years' experience in the treatment of the insane, Manton wrote:[3]

" 'Lesions of the pelvic organs are important factors in the production of insanity in those of unstable mental organization, *in the presence of co-existing conditions which themselves tend to impair the mental integrity;*' also: 'In not a single asylum case could insanity be traced solely to abdomino-pelvic disease. Nor have I witnessed a single recovery from mental disease following surgical operation in which the cure could be attributed to the operation alone.' "

This experience contrasts with the findings of A. T. Hobbs[4] in the London (Ontario) Asylum for the Insane during the five years ending in 1902. Among 1000 cases, he found 253 with gynecological lesions. All of these were operated upon; five died, 100 were cured, and 59 improved as regards their psychoses.

During the years that the gynecologists were solving the problems of the repair of vesico-vaginal fistula, lacerated cervix, and ruptured pelvic floor, while at the same time giving to the profession aseptic abdominal surgery, the neurologists were studying and classifying functional nervous diseases. In the eighties, the term "hysteria" comprised a very large proportion of all the functional nervous disorders. At the present time, hysteria is regarded as relatively uncommon in America. At first, a certain number of the functional neuroses formerly classed as hysteria were grouped under the new disease, neurasthenia; and today, many which formerly were classed as neurasthenia come under the title, "psychasthenia."

Following the classification and definition of such well-known neurologists as Charles L. Dana and Lewellys F. Barker, hysteria may be defined as increased susceptibility to suggestion. It is a transmissible neurosis affecting adult women more often than men in the proportion of four to one. Its stigmata are: anesthesias, anamnesias, abulias, and alterations of character; its accidents are: crises, paralyses, contractures, and delirias.

Neurasthenia is "irritable weakness." This also has heredity as a predisposing cause, and is found most often among the highly cultured, and is slightly more frequent in men than in women. Exciting causes are: mental strain, shock, sexual abuse, infectious fevers, alcohol, syphilis, and autotoxemia. Its chief symptoms are: headache or sense of pressure in the head, backache, sleeplessness, depression of spirits, disturbances of digestion, of circulation, and of the genito-urinary organs, such as anomalies of menstruation, frequent and painful micturition, and abnormalities of sexual desire or sensation.

Psychasthenia, a term suggested by Janet, is an obsession or fixed idea that consciously affects the mind. The most frequent etiological factor is heredity, just as in hysteria and neurasthenia. It occurs equally in males and females. The exciting causes are: shock, accident, alcohol, infectious fevers and uterine disorders. The symptoms are: a sense of incompleteness or feelings of unreality which dominate the patient. From these develop obsessions, impulses, fears, or dissociated personalities. The impulses often have to do with some criminal act, but the patient seldom yields to them. Other common symptoms are: a persistent sense of boredom, a tendency to over-exert in order to distract the mind, indifference to things in which the patient was formerly interested, premonitions of impending disaster or of going insane, or of having a dreadful disease.

Of these three common psychoneuroses, as they are called, it is plain that hysteria alone occurs more frequently in women than in men; and because in this disease, some neurosis or psychosis can be discovered in the parents of 75% of the cases, it is probable that the contention of the neurologists that the condition of the uterine organs has no etiological significance is well maintained.

Leaving out of consideration epilepsy, hypochondrias, the relatively rare traumatic neuroses, and the organic nervous diseases which have some association with, or are mistaken for, gynecological disorders, such as beginning tabes, Graves' disease, and multiple sclerosis, we come to a discussion of the modifying influence of uterine disease on hysteria, neurasthenia, and psychasthenia.

In Supplement VII to Nothnagel's Special Pathology and Therapeutics, published this spring, there are 162 references to the literature on the relation between pelvic disease and hysteria and neurasthenia, so that the claim cannot justly be made that the subject has been slighted.

Maria Tobler of Florence published an important article in the *Monatschrift für Geburtshilfe und Gynäkologie* in 1905, in which she reported conclusions gained by a study of 1020 women in her clinics during a period of two years. She found 137 of this number, or 13%, had psychic disturbances accompanying menstruation. Of these, 80, or 7.8%, had menstruation without any discomfort whatever; and 44 of the 80, or 59%, when examined, proved to have a normal uterine condition, while the rest showed a variety of gynecological affections. Fifty-seven women, or 5.6%, had painful menstruation, accompanied by such symptoms as headache and nausea. These experienced only depression of spirits or excitability during menstruation. Among these 57, the uterine state was reported as normal in 23, or 40%.

Altogether, among 1020 women investigated, 137, or 13%, had psychic disturbances with menstruation; and in 49.5% of these, the uterine condition was recorded as being normal. In other words, half of all the women having mental symptoms at their catamenia had normal pelvic organs. This means a good deal, for we have no reliable statistics of the incidence of normal uterine organs among healthy and sick women in general, and it is supposable that a considerable number of all women would be found to present some sort of uterine anomaly if subjected to examination at the hands of trained gynecologists.

Tobler concluded that the menstrual period in our women of today means, in a majority of cases, a time of diminished sense of wellbeing and a reduced functional capacity; a condition which must be considered neither as fundamental nor necessary. It is the result of a degeneration of an impaired constitution and of a wrong manner of living, so that the increased products of metabolism, which are formed during the periodic stimulation of the genital system, instead of being used for the benefit of the body, become toxic. For many women suffer no pain with their catamenia; and in a not negligible number, the menstruation time is subjectively a period of increased vital energy, when the organism is, theoretically, in condition to form and develop a new being.

To the unravelling of some of the twisted skeins of the interrelation of gynecological and nervous diseases, Max Walthard, of Frankfort, contributed a thoughtful paper in the *Praktische Ergebnisse der Geburtshilfe und Gynäkologie* in 1910, and followed it by an article in No. 16 of the *Zentralblatt für Gynäkologie* for 1912. He thinks that only when a patient's attention is called to the fact that she has gynecological disease,—some symptom, such as pain or leucorrhea, having made her conscious of local trouble,—and she overvalues this fact of uterine impairment, does pelvic disease cause psychoneurotic conditions and manifestations.

In Walthard's clinic, he found that 400 women out of 3000 who had consulted him, had sound pelvic organs and functional complaints only. In 5% of these, the functional disturbances were considered as psychoneurotic genital symptoms.

We must agree with him in the statement that only the etiological treatment of psychoneurosis,—that is, a complete change of the pathological mode of thought; a more judicious and reasonable valuation of the gravity of the disease,—can bring about a final relief of psychoneurotic symptoms.

Bossi, of Genoa, startled the medical fraternity by declaring in the *Zentralblatt für Gynäkologie* in 1911, No. 36, that in his opinion not less than half the suicides among women are of gynecological causation. He found a tendency to suicide more frequently in cases with relatively slight uterine disorders than in those having severe lesions; and he observed it mostly in cases of chronic metritis associated with displacements. Therefore, he concluded that any intoxication or poisoning of the system causing nervous or psychic phenomena, has a gynecological origin, and that curing pelvic disease is a sure prophylaxis against suicide. Beyond the report of seven illustrative cases, no further proof of his conclusions was given. In a second paper[5] he reported four more cases.

E. Siemerling's[6] comment, namely, that some of Bossi's instances of cure were due to suggestion, and that suicidal mania is only a symptom of a severe neurosis or psychosis, and not a disease in itself, strikes one as being sane and to the point.

I should subscribe to Walthard's statement that "it behooves us gynecologists to treat healthy genital organs less often in the presence of psychoneurotic manifestations; and, moreover, we should recognize these manifestations as functional symptoms and refrain from any form of local treatment." Also: "It is worth while for the gynecologist to become acquainted with psychotherapy, for in this way the number of gynecological operations and local treatments will diminish, and the number of successful results in gynecology increase."

DR. S. RUSHMORE, Boston: I feel after this paper and the discussion that there is really very little for me to say on the subject.

The importance and significance of the subject which Dr. Graves has presented is suggested by the fact that it is a topic which persistently recurs for discussion; that while there are times when very little attention is given to the subject, there are other times when it arouses a good deal of interest. That indicates two things:—first, that an important relationship exists between these two systems, the genital and the nervous; and second, that up to the present time at least, there has not been a satisfactory explanation of the correlation of the two systems. We have two important elements, the nervous system and the genital system, and several questions arise.

In the first place, if the genital system is diseased, what effect does that have on the normal nervous system; if the nervous system is diseased, what effect does that have on a normal genital system; and if both are diseased, what are their mutual and reciprocal relations?

The impulses which arise in the pelvis from the genital organs, pass to the spinal cord; thence, by the spinal nerves and sympathetic nervous system, to pelvic and abdominal organs. By this route we have a subcortical reflex. In addition to this we have impulses which travel to the brain, and through that we have what we may call a cortical reflex. Now the importance of the subcortical reflexes we do not at present understand. Most of us think that practically they are of very little importance in giving rise to symptoms. From time to time they have received a great deal of attention, but so far as the evidence goes they constitute a very unimportant part in the symptoms which arise from gynecological disease. More and more attention is being given to those reflexes which have added to them the psychic factor, and we have the numerous psychoneuroses which are associated with gynecological disease. Of course the important question is, what is the causal relation between the gynecological disease and the disturbed mental state.

To understand that properly we have to go into the cause of these nervous states in general, and we actually find that, while a certain proportion of them are apparently caused by gynecological disease, they may arise from other conditions also. Some mental disturbances are due to intoxications; and, by the way, Professor Bossi's view is that many disturbed mental states are due to non-septic intoxications arising in the genitalia. Some of them are due to congenital or developmental conditions. The interrelations of the glands of internal secretion are coming to play a more important part in our explanations of disease of both nervous and genital systems.

Now there is one point which I particularly wanted to emphasize in regard to their relations, and that is:—suppose we find a case in which quite clearly these symptoms are due to gynecological disease, and I am inclined to think that more of these cases of psychasthenia and neurasthenia should receive operative treatment than has been suggested by Dr. Graves; if we find such a case, the first treatment is operation, but by the operation we do not cure the patient, though we may relieve the anatomical condition. The patient is still neurasthenic and must undergo the appropriate treatment, which we should in no case forget or neglect.

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NOTES ON PELLAGRA IN MASSACHUSETTS. WITH REPORT OF TWO CASES IN DANVERS STATE HOSPITAL *

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Until within quite recent years the existence of pellagra in Massachusetts has been practically unknown. Medical men rarely met with cases where the question of this disease could be raised. In the few instances where lesions and symptoms might suggest pellagra, the conditions presented features admitting different etiological solutions. Generally in such cases a complex of physical, neurological and mental symptoms existed, more or less characteristic of various organic nervous disorders, and the pellagroid manifestations were, with more or less sufficient reason, interpreted as occurrences in these diseases, trophic disorders, etc. Our medical teaching led the majority of us to disregard the disease in our practice and studies as one peculiar to foreign countries. Few knew much more than that about it. Under the circumstances a mistake or failure to recognize a case can be regarded as only natural. At this day it is hard to say to what extent New England's long asserted freedom from the disease depended upon failure of diagnosis.

The same is true of other states where today the prevalence of pellagra assumes the proportions of a most serious problem. Babcock states he should have made the diagnosis of pellagra in South Carolina nearly twenty-one years ago. The disease was first recognized in that state in 1889, and the enormous increase in the number of cases reported since that time—in 1911 a conservative enumeration of pellagrins in the state institutions bringing the total up to 500—lends a peculiar significance to his statement. In Illinois, where the disease was first recognized in 1909, over 500 cases in state institutions were reported in that and the succeeding two years. In New England, Rhode Island, announcing the

* Danvers State Hospital Contribution No. 41, Series 1913.

death of the first case of pellagra in the state in 1911, reports a total of 38 cases in its state institutions, some of whom were admitted with well marked lesions of the disease. Evidence is not lacking that the disease existed in this country in the early sixties, that it was at least in part responsible for the mortality in the Andersonville prison during the Civil War, and that "cases of pellagra, native and imported, have probably occurred in general practice and especially in asylums and hospitals in this country for the last half century, although the diagnosis may not always have been correctly made" (Babcock).

In Massachusetts, at all events, though the first of the states to report a case of the disease, it would seem the clinical picture in any succeeding ones was not sufficiently clear to cause serious consideration of the possibility of a pellagrous origin. If cases did occur it must have been at rare and scattered intervals. It is reasonable to assume that if pellagra existed in this state it never attained to anything like epidemic or even endemic proportions. In the forty-eight years subsequent to 1862, medical literature does not contain reference to a single case of pellagra in Massachusetts; and the striking characteristics of this disease, had it prevailed to any great extent, could scarcely fail of recognition, notwithstanding a sense of security and immunity founded upon medical tradition and a belief in the non-existence of predisposing and exciting agencies under such geographic, climatic, and social conditions as ours. At the same time it must be borne in mind that in these states where the disease is now known to prevail extensively, older physicians are able to recall many cases which failed of diagnosis in the past, and which in the light of their present knowledge and experience they would not hesitate to call pellagra.

The first case of pellagra in Massachusetts of which we have record was reported by Tyler in 1862. Nothing further was heard of the disease in this state, either in institutions or general practice for almost fifty years.

The studies and investigations of Searcey of Alabama, and of Merrill and Babcock of South Carolina in 1907, showing conclusively that it had existed sporadically in certain South Atlantic and Gulf Coast states for years and that more recently it had made its first appearance in epidemic form in widely distant sections of the country, awakened an interest which has developed to a point of anxious concern with the enormous increase in the number of pellagrins reported since 1907 (estimates in 1911 running from 10,000 to 100, or more thousands for the United States). Following closely upon the discovery of pellagra in the South, reports from sections where the disease was hitherto not recognized, began to multiply, and in this connection it is interesting to note that since 1907 every one of our New England states has reported one or more cases.

In 1910 Fitzgerald (Worcester) reported the second case on record in Massachusetts. In 1911, Dean reported a case in the Northampton State Hospital following this in 1912 with a report of a case in the Northampton Almshouse, and of two in the State Hospital. Lee reported a case from the Massachusetts General Hospital in 1912, and Adler in 1913 mentions three (unpublished) cases seen during the previous two years at Danvers and Boston state hospitals, a total of ten recognized cases, all of which, with one exception, occurred since 1910. The diagnosis in most of these was accepted by expert authority, the subsequent course of each case was confirmatory of the diagnosis. There can no longer remain a question regarding the existence of the disease in our state; a sporadic existence if you will, but yet such as it maintained for some years in other states where now its victims are numbered by hundreds.

It is quite possible that the number of cases reported represents but a part, perhaps a small part, of the total number in the state. Students of the disease in other states remark upon the frequency with which cases failed of recognition in the earlier years, and even at the present time when it seems hardly possible that the majority of physicians have not become acquainted with its prevalence and very striking and obvious characteristics. Institution men in states where pellagra prevails, and the widest publicity has been given the disease in the lay and medical press, not infrequently receive pellagrous patients in whom the condition had gone unrecognized or under mistaken diagnosis. A superintendent in a Southern hospital for the insane is cited as stating that cases in his institution have been erroneously diagnosed as trophic disorders in general paralysis, etc., in years gone by. From Rhode Island, perhaps the most important focus of the disease in New England, Cohoon reports well marked cases received at the state institution in whom the condition had not previously been suspected, and he is of the opinion that pellagra is far more common in the community at large than the reports would indicate. Recently the writer has read a very clear description of a case in the records of the New Hampshire State Hospital,* the condition, however, failing of recognition, it occur-

* To the writer's recollection three cases occurred at the New Hampshire State Hospital during his period of service between 1907 and 1911. Raynaud's disease was considered in one case. Another appeared like an atypical case of general paralysis. In at least one case pellagra was considered a possibility. Within a month of the present time, a patient died in that hospital, in whom the disease has been recognized, and the cause of death given as pellagra. A note descriptive of one case appearing on the records of that institution is sufficiently interesting to justify its quotation here:

"Patient shows what appears like an eczema of the hands, supposedly due to her habit of frequently immersing them in water. But the course of the trouble is not like that in eczema. The skin first became somewhat chafed and inflamed, then black as if gangrenous, finally sloughing off leaving a raw surface. Both hands are in this condition, the affection extending upward to about two inches above the wrist joint. The elbows present similar lesions, and there is a beginning hardening and blackening of the skin over the knees. The mucous membranes are also similarly affected, the mouth being in very bad condition so that the patient is unable to swallow. The rectum is also involved rendering rectal feeding impossible. The vulva and vaginal mucosa show similar involvement." (Note: New Hampshire State Hospital records, August 30, 1911.)

ring at a time when the disease meant little more than the shadow of a name to physicians in that state.

During the present year two cases occurred at the Danvers State Hospital. Neither case was recognized prior to admission. One presented on admission a typical picture of typhus pellagrosus, a condition described by Lavinder as "an acute explosion peculiar to pellagra and occurring as an incident in the chronic course of the disease," and by Edward Jenner Woods as "a terminal phase, an acute exacerbation of the usual chronic condition." The other case developed the characteristic skin lesions after a residence of two months, but the history is strongly suggestive of previous attacks of the disease. In the one case the cutaneous lesions had been variously described as eczema, psoriasis, "vagrant's disease," dermatitis, etc., while the existing stomatitis, gastro-intestinal nervous and mental disorders obtained different interpretations. In the other, the history received contained nothing suggestive of pellagra. With the appearance of the skin lesions a fuller investigation revealed a long-standing condition of gastro-intestinal disturbances coincident with mental depression and confusion. The obscure nervous disturbances said to have existed in this case, the depressive mental state with the added digestive disorders, form not uncommonly the earliest manifestations of the disease. Indeed, instances are not rare where the mental and gastro-intestinal symptoms have existed for years before the skin lesions claimed attention, —the so-called pellagra-sine-pellagra, in which the cutaneous eruptions are so insignificant and of so short a duration as to escape notice or excite no serious consideration from the sufferer or the medical attendant.

A brief account of these cases, while containing nothing relating to pellagra that is not already known, may be of interest, and perchance of value in directing attention to a disease, the existence of which in our state is still by many questioned.

Case 1. Admitted April 9, 1913. I. L. G. White, female, housewife, 36 years of age at time of death. One brother neuropathic. One sister had attack of chorea at age of eight; recovered. Father died aged 61; cause of death said to be locomotor ataxia. Patient's early history uneventful; development normal; married at 22; three children living, one dead, three miscarriages. For ten years took drugs to bring about abortions. During early life very neat and tidy; during last ten or twelve years very slack and careless of her person and appearance. Home conditions very poor; surroundings unsanitary. Used mainly baker's bread since marriage; seldom cooked; used canned goods extensively. Three years ago showed marked change of disposition; had periods of despondency; appeared dull and disinterested; suffered from indgestion and diarrhea; occasional faint spells. Following birth of a child during that period had delusions about her husband; thought he was planning to kill her, and would not take medicine prescribed by physician, fearing poison. From this time on suffered greatly from "faint feelings" and other peculiar gastric and intestinal sensations, and intermittent attacks of diarrhea. Seemed worse in winter, improving somewhat with advent of summer. Seven or eight months before admission began to complain of a heavy feeling in her head; said it seemed at times as if a veil was over her eyes; often would brush and pick at face on this account. An eruption thought to be eczema began on the back of the hands around the knuckles. It spread slowly, involving the dorsal surfaces between the first phalanges and midway between the metacarpophalangeal and wrist joints. Eruption was symmetrical and of a dark reddish color. No discharge, no itching, but at times a burning sensation in parts involved. With appearance of eruption gastro-intestinal disorders became more marked, and at Christmas diarrhea became very troublesome. At same time glossitis developed, accompanied by increased salivation, and expectoration of much frothy material. She lost weight. She complained a great deal of weakness of the legs, and of pain in the occipital region, extending downward into the cervical spine. Gait became unsteady and she frequently stumbled over objects in her way. Later, the act of walking became almost impossible, as the motions seemed to give rise to retraction of the head and increased pain. The eruption had by this time extended upward to the wrist, which it encircled, and downward on the dorsa of the fingers to the distal joints. Cramps of the extremities and paroxysmal tonic contractions occurred, resembling tetany and causing the head to be drawn backward on the slightest stimulus. Mental attitude one of depression and confusion, with hallucinations of sight, ideas of persecution and tendency to suicide. Became extremely restless and noisy, complained of burning sensations; screamed fire and called for help. Showed marked speech defect; attempted to cut her throat and that of youngest child.

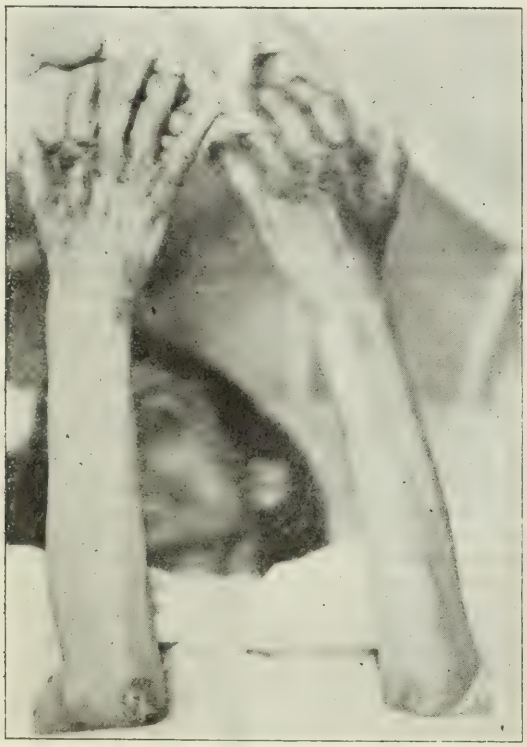
On admission very restless and confused. General muscular twitchings and frequent spasmodic retraction of head noted. Tactile hyperesthesia extreme. Jactatoid movements of both upper and lower extremities. Knee jerks increased to point of clonic contractions. Right ankle clonus. No Babinski or Kernig. Extensor spasms, finally so severe as to cause opisthotonos, lasting 15 or 20 seconds and induced by touch or loud noise.

Nutrition poor, musculature atrophied, complexion sallow. Tongue deep red, raw and beefy looking. On both hands and arms a perfectly symmetrical erythema extending from distal phalanges almost to elbows, and encircling the wrists, forming a well defined cuff; eruption dry, exfoliating, dark reddish in color, the line of demarkation between it and unaffected skin well defined by a deeper colored border. Palmar surfaces free from eruption, also ends of fingers. Pigmentation and scaling most marked on extensor surfaces. Deep fissures existed over the joints of the fingers, skin of legs and thighs roughened and dry, but without pigmentation.

Urine was negative, except for the presence of considerable indican. Blood negative. Wasserman negative.

Consciousness was profoundly clouded at time of admission. On the third day the patient was in a semi-comatose state and on the eighth day after admission death occurred. Autopsy not permitted.

CASE 2. Admitted Jan. 27, 1913. C. M. O., white, female, housewife, age 46. Married. Paternal grandmother died at sixty-six of cerebral hemorrhage. Father addicted to opium habit for years; died at sixty of "spinal meningitis." Mother died of cancer of the liver. One sister subject to fainting spells or "fits." At the age of fifteen patient had period of great religious excitement, with hysterical manifestations. Has five children. Nervous disturbances developing with pregnancies, morbid notions, ideas of persecution, etc. For several years took acetanilid for headaches, and in later years developed an opium habit from long continued taking of Squibb's diarrhea mixture, and



CASE II.

Showing the lesions on elbows and backs of hands. Note symmetry, the fissures and excoriations, the well-defined line of demarkation from healthy skin. At the present time in this case desquamation is complete, the appearance of the affected areas is pinkish, and the mental condition shows a slight improvement.

paregoric. About first of January became depressed, worried a great deal, had crying spells, felt weak and incapable of attending to household work. Delusions of poisoning. Finally passed into a manic state, showing extreme restlessness and disordered conduct.

In the hospital she continued restless, over-active, confused, disoriented, and hallucinated. From the first there was some evidence of salivary hypersecretion. She expectorated a great deal, and at times said she had worms in her mouth. Habits very untidy. From time of admission she had spells of diarrhea. About the first of April attention was drawn to an erythematous condition of the backs of her hands. This presented the appearance of a dermatitis somewhat like that seen in a bad sunburn, with scattered blebs containing a serous fluid. The color of these areas was dark red, the border defining them from the normal skin of a darker shade. The erythema involved the dorsal surface of each hand, extended downward over the dorsa of the fingers to the last joints and encircled the wrists. The lesions were perfectly symmetrical in size, shape and location. Symmetrical patches of a like character were present on the dorsal surfaces of the elbow joints, and a small area of a dry exfoliating erythema existed at each corner of the mouth. Symmetrical patches of a milder dermatitis and lighter pigmentation were present over the acromial processes. The tongue was swollen, showing indentations from the teeth, the mucous membrane of mouth and tongue reddened and inflamed, and ex-



CASE II.

Showing the dull and apathetic facies, emaciations, symmetrical lesions on anterior surface of wrists, "the cuff" and lesions on elbows.

amination showed a similar condition of the vaginal mucous membrane.

The skin lesions when first observed resembled dermatitis. A few blebs and considerable swelling existed. Later, fissures formed over the knuckles and finger joints, and on the anterior surface of the wrist in the "cuff." The color deepened to a copper hue. The tongue lost its epithelium, becoming beefy looking, and the skin of the affected areas exfoliated from centre to periphery. This process is practically completed at the present time, the new skin appearing of a delicate pinkish hue, the line of demarkation from the unaffected skin remaining of a distinctly darker shade. Before exfoliation was completed, the palms of the hands showed a slight involvement, and here also the epidermis is exfoliating. A suggestion of the "pellagrous collar" was given at one time by the appearance of some exfoliation of the skin on the anterior surface of the neck. Throughout the course of the eruption

the resemblance of the erythema to a glove covering the back of the hands, was striking.

The patient, while now appearing stronger and brighter mentally, is quite emaciated. The skin of the face and rest of the body has a dull leaden hue. Diarrhea, most severe at the height of the skin, and intestinal trouble, occurs occasionally. Stools have been throughout of very offensive odor. Examination for amebae gave negative results. Von Pirquet tuberculin test was negative. Blood examination showed no important changes, except a mild degree of secondary anemia. Blood serum gave a negative reaction to the Wassermann test for syphilis. The reflexes are diminished; knee jerks almost abolished. No Kernig or Babinski. Pupillary response normal to light and accommodation.

The mental state at first showed marked confusion, disorientation and clouded consciousness. The clinical picture was that of a mixed manic excitement. Coincident with the improvement of the skin and gastro-intestinal disorders, the excitement abated, consciousness became clearer, orientation partly returned, and the patient seemed to gain some insight, expressing curiosity regarding the condition of her hands, and asking the physicians at times if there was any chance for her recovery,—a change remarkable enough to lead to a question regarding the relation of the eruption to her excitement and confusion. In all probability one or more recurrent attacks will occur.

One of these patients was a native of Massachusetts, where she and her people had always lived. The other was born in West Virginia, but had lived for ten to twelve years in Massachusetts prior to the onset of her psychosis. Pellagra had never occurred in either family so far as their histories could be traced. Each of the families from which these cases came lived under conditions of poverty. In one, the sanitary conditions of the home were found to be very bad. In each case, malnutrition from want and insufficient and improper nourishment seemed to be a factor. Maize did not enter to any great extent into the dietary in either case; baker's bread and canned foods seemed to figure largely in it. Each patient was addicted to a drug habit, but the nature of the drugs used in one case points to gastric and intestinal disturbances as the source of the habit. In each case a neuropathic heredity existed. In one, there can be no doubt that the disease existed for some time before her admission to the hospital; in the other repeated attacks are suggested by the history. In either case the mental, physical, and neurological changes may be ascribed, in large part or entirely, to an intoxication of the nervous system by the disease, a result not at all uncommon according to competent authorities on pellagra. Most important considerations of all are, the evident failure to recognize the disease at its beginning, or even in its terminal stage (as in Case 1), implying that cases in the community may not infrequently escape detection; and the tendency to spread widely and rapidly, as shown by the reports from states where but a few years ago pellagra was unknown.

SURGERY OF THE BILIARY PASSAGES DURING A PERIOD OF TEN YEARS FROM JANUARY 1, 1901, TO JANUARY 1, 1911, AT THE MASSACHUSETTS GENERAL HOSPITAL.

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From Jan. 1, 1901, to Jan 1, 1911, 595 patients were operated on for diseases of the bile passages, other than cancer. Of this number 154 were men and 441 were women, showing about three times as many women as men.

I have made a series of tables that cover the cases in as condensed a form as possible.

Table I does not include the cancer cases nor does it include the secondary operations. I have used the word "cholecystitis" to mean inflammation of the bile passages. Cases classified as pancreatitis are those in which the record of the operation shows a thickening of the head of the pancreas and no other lesion.

During this period of ten years cholecystostomy for cholelithiasis was done 325 times, the number of cases showing a gradual increase. In the first four years they averaged twenty odd annually, then came a period of four years where the number of cases jumped up into the thirties and during the last two years it reached nearly fifty.

Cholecystostomy for cholecystitis was done 88 times and for pancreatitis only 6 times.

Cholecystectomy was done 92 times for cholelithiasis and 39 times for cholecystitis, a total of 131 times. This operation seems to have been popular in 1902, 1903, and 1904. In the following two years only a few were done, in 1907 more again, in 1908 and 1909 fewer, and in the last year the number has increased again slightly.

Cholecystotomy and choledochotomy was done 17 times. During the first six years only 4 times and 13 times during the last four years.

Cholecystectomy and choledochotomy occurs only five times in the ten years' record, only one of these cases having been done during the last five years.

Choledochotomy, 16 times; 3 times in the first five years and 13 times in the last five years. It may seem astonishing that in this table, not including secondary operations, 16 choledochotomies are recorded. This can be accounted for by the fact that some patients had had a first operation in private practice, some others, a first operation previous to 1901 in the hospital, and in a very few cases the gall bladder was found to be obliterated.

Cholecystostomy and duodenotomy was performed 4 times; only once during the last five years.

TABLE I.—JANUARY, 1901 TO JANUARY, 1911.

	1901	1902	1903	1904	1905	1906	1907	1908	1909	1910	Total for 10 Years
Cholecystostomy											
Cholelithiasis	24	21	24	20	34	34	35	36	49	48	325
Cholecystitis	10	8	3	7	9	15	12	4	10	10	88
Pancreatitis	1	1	1	1	0	0	0	1	0	1	6
Cholecystectomy											
Cholelithiasis	5	11	14	11	8	6	12	7	6	12	92
Cholecystitis	2	1	8	5	4	4	5	2	5	3	39
Cholecystostomy and Choledochotomy	0	1	0	1	2	0	3	4	3	3	17
Cholecystectomy and Choledochotomy	0	1	0	1	2	0	0	0	0	1	5
Choledochotomy	0	1	1	0	1	4	2	2	4	1	16
Cholecystostomy and Duodenotomy	1	0	0	0	2	0	0	1	0	0	4
Cholecystectomy and Duodenotomy	0	0	0	0	1	0	0	0	0	0	1
Cholecystenterostomy	0	0	0	0	1	0	1	0	0	0	2
Total by year	43	45	51	46	64	63	70	57	77	79	595

TABLE II.—IMMEDIATE OPERATIVE RESULTS.

	1901 R. D.	1902 R. D.	1903 R. D.	1904 R. D.	1905 R. D.	1906 R. D.	1907 R. D.	1908 R. D.	1909 R. D.	1910 R. D.	Mortality for 10 Years
Cholecystostomy	28 7	27 3	24 4	23 5	42 2	47 2	45 4	35 6	52 7	54 5	
Mortality	20%	10%	14%	17%	4.6%	4%	8%	14%	14%	8+%	10.7%
Cholecystectomy	6 1	9 3	20 2	12 4	10 2	8 2	16 1	8 1	11 0	13 2	
Mortality	14%	25%	9%	25%	16%	20%	5.8%	11%		13%	13.7%
Cholecystostomy and Choledochotomy		1 0		1 0	1 1		2 1	3 1	2 1	2 1	29%
Cholecystectomy and Choledochotomy		1 0		1 0	0 2					0 1	60%
Choledochotomy		1 0	1 0		1 0	4 0	2 0	1 1	4 0	1 0	6.2%
Cholecystostomy and Duodenotomy	1 0				1 1			0 1			50%
Cholecystectomy and Duodenotomy					0 1						100%
Cholecystenterostomy					1 0		1 0				
Mortality by years	20.9%	13+%	11+%	19+%	14+%	6.3%	8.5%	17%	10.3%	11+%	

Cholecystectomy and duodenotomy appears only once during these ten years, and cholecystenterostomy only twice.

The total number of primary operations shows a steady increase each year with one exception, 1908.

In this second table the letter "R" means that the patient left the hospital relieved of the trouble for which he entered. The letter "D" means that the patient died in the hospital. Causes of death have been taken up in another table.

The mortality following the operation of cholecystostomy for the ten years was 10.7%. The first year, 1901, had the high percentage of 20%; 1904, 17%. The following two years, 1905 and 1906, had the lowest mortality of the ten years, 4.6% and 4%, respectively.

The mortality following cholecystectomy was 13.7%.

The highest percentage of deaths was 25%, which occurred in 1902 and 1904. 1907 had a lower percentage, 5.8%, and in 1909 no patient died following this operation.

The mortality following cholecystostomy and choledochotomy for ten years was 29%; following cholecystectomy and choledochotomy, 60%; following choledochotomy 6.2%; and after cholecystostomy and duodenotomy it was 50%.

The only case which had a cholecystectomy and duodenotomy performed died. The two patients having cholecystenterostomy recovered.

The total mortality by years of all the different operations is given at the bottom of the table.

In 1906 the total mortality was only 6.3%; in 1907 only 8.5%, these being the best years. The total mortality for the ten years, not including secondary operations was 12.7%.

TABLE III.—End Results.

	No. Traced.	Well.	Recurred ½ Recurred.	O.K. Now.	Dead.
Cholecystostomy					
Cholelithiasis	262	139	56	20	47
Cholecystitis	59	29	16	1	13
Pancreatitis	1	1			
Cholecystectomy					
Cholelithiasis	89	63	5	1	20
Cholecystitis	25	19	2		4
Cholecystostomy and Choledochotomy	14	9	2		3
Cholecystectomy and Choledochotomy	7	2			5
Choledochotomy	5	2	1		2
Cholecystostomy and Duodenotomy	2	1			1
Cholecystectomy and Duodenotomy	1				1
Cholecystenterostomy	2	1			1
Totals	467	246	82	22	97

In this table the word "traced" means either that the patient was seen by me personally, or that I received a letter from him, or that he was seen by one of the house officers. By "well" I mean that the patient has had no further symptoms of disease of the bile passages. By "recurred," that the symptoms which they had before the operation returned and that they were apparently not benefited by the operation. "Recurred once or twice and now O. K." means that some time during the first year following the operation the patient has had one or two attacks of colic in the region of the bile passages but has remained perfectly well since. By "dead" is meant that the patient either died in the hospital following the operation or has died at home since leaving the hospital.

I have traced 467 patients. It has been impossible to find out anything about the other patients as they were very largely foreigners, who at the time of their admittance to the hospital were living in one of the nearby towns, but who have since then left the town, and I have been unable to find out where they moved to.

Two hundred and sixty-two patients had a cholecystostomy performed for cholelithiasis. Up to the present time 139 have remained perfectly well, 56 have had a recurrence of symptoms; in 20 cases the symptoms have recurred once or twice and the patient has remained well since.

Forty-seven are now dead. Of these cases traced, 21% have had recurrences.

Fifty-nine patients had a cholecystostomy for cholecystitis; 29 of them have remained perfectly well and 16 have had recurrences. One patient, who is now well, had several recurrences, and 13 are dead, showing 27% of recurrences in the 59 cases traced.

Eighty-nine patients had a cholecystectomy for cholelithiasis; 63 have remained well since the operation, 5 have recurred, one recurred once or twice, is now well, and 20 are now dead. In the 89 cases traced, 5.6% show a recurrence. This indicates a marked contrast to the percentage of recurrences following cholecystostomy for cholelithiasis.

Twenty-five patients had a cholecystectomy for cholecystitis. Nineteen have remained well, in two the symptoms recurred, and four are now dead; 8% of recurrences in the 25 cases traced.

Of cholecystostomy and choledochotomy, 14 cases have been traced. Nine have remained well, two recurred and three are dead.

Seven patients had a cholecystectomy and choledochotomy. Two have remained well, five are dead.

Five cases of choledochotomy traced, two remained well, one recurred and two are dead.

Two patients having a cholecystostomy and duodenotomy have been traced, one has remained well, one is now dead. One case has been traced that had a cholecystectomy and duodenotomy, and this patient is dead.

Two patients that had a cholecystenterostomy have been traced; one has remained well, one died.

Out of a total of 467 patients traced, having had these various operations, 246 have remained well, with no recurrences, 82 have recurred and

are apparently no better following the operation. This shows a percentage of 17% of recurrences. Twenty-two patients have had one or two attacks of colic and have remained well since then, 97 are now dead.

TABLE IV.—SECOND OPERATION WITH END RESULTS.

First Operation.	Second Operation.		Recurred.	Well.	Died Following Op.	Died at Home.	Not Traced.
CHOLECYSTOSTOMY. 25 Cholelithiasis.	Cholecystostomy	8	1	4		1	2
	Cholecystostomy and Choledochotomy	1			1		
	Cholecystectomy	7		3	1	1	2
	Choledochotomy	6		4			2
	Choledochotomy and Duodenotomy	1			1		
	Adhesions broken up	2	2				
10 Cholecystitis.	Cholecystostomy	2		1			1
	Cholecystostomy and Choledochotomy	1					1
	Cholecystectomy	2		1	1		
	Choledochotomy	1		1			
	Cholecystenterostomy	2			1		1
	Adhesions broken up	2			1		1
CHOLECYSTECTOMY.	Choledochotomy	1		1			
	Stone 1						
	Cystitis 0						
Total		35					

Table IV takes in the secondary operations and also the end results of these operations as far as it has been possible to trace the cases. Of the patients having had a first operation during this period of ten years, only 35 have returned for a second operation for a recurrence of disease of the bile passages. Of course patients returning for hernia in the scar, or for any other disease outside of the bile passages have not been included.

Twenty-five patients having had a cholecystostomy for cholelithiasis at the first operation have had secondary operations. Eight had a cholecystostomy for cholelithiasis done. Of these eight, one has had a further recurrence of symptoms, four have remained well, one died at home and two have not been traced.

One patient had a cholecystostomy for cholelithiasis and choledochotomy at the second operation. This patient died following the operation.

Seven patients have had a cholecystectomy at the second operation; three have remained well, one died following the operation, one died at home, two have not been traced.

Six patients had a choledochotomy at the second operation: four have remained well, the other two not traced.

One patient had a choledochotomy and a duodenotomy; this patient died following the operation.

Two patients had adhesions broken up at the second operation. Both these cases have had recurrence of symptoms.

Ten patients having a cholecystostomy for cholecystitis at the first operation have had a second operation. Two of these had a cholecystostomy for cholelithiasis at the second operation. One has remained well, one was not traced.

One patient had a cholecystostomy for cholecystitis and a choledochotomy at the second operation; this patient not traced.

Two patients had a cholecystectomy at the second operation; one remained well, one died following the operation.

One patient had a choledochotomy at the second operation, and this patient has remained well.

Two patients had a cholecystenterostomy at the second operation. One died following the operation; the other was not traced.

Two patients had adhesions broken up at the second operation; one died following the operation, one not traced.

In striking contrast to the number of secondary operations following cholecystostomy for cholelithiasis is the fact that only one patient returned for a second operation who had a cholecystectomy for stone, and no patient returned who had a cholecystectomy done for cholecystitis. The patient that returned for a second operation had a choledochotomy done and has remained well since.

TABLE V.—DEATHS.

	No.	Peritonitis.	Hemorrhage.	Shock.	Pneumonia.	Septicemia.	Kidneys.	Unknown.	Sub-diaphragmatic Abscess.	At Home.
Cholecystostomy	60	15	4	7	2	5	2	3	1	21
Cholecystectomy	24	5		2	2	1	1	2		11
Cholecystostomy and Choledochotomy	3		2		1					
Cholecystectomy and Choledochotomy	5		2	1					1	1
Choledochotomy	2		1		1					
Cholecystostomy and Duodenostomy	1		1							
Cholecystectomy and Duodenotomy	1			1						
Cholecystenterostomy	1			1						
Totals	97	20	10	12	6	6	3	5	2	35

At the present time 97 patients who were operated on are dead. Thirty-three have died at home since leaving the hospital and the other 64 died following the operation. Twenty of these died from peritonitis, 10 from hemorrhage, 12 from shock, six from pneumonia, six from septicemia, three from kidneys ceasing to functionate, and two from subdiaphragmatic abscess. In five cases I was unable to determine any cause for death from reading the records.

Of the 33 cases that died at home, eight died with further symptoms of disease of the bile passages, one from abscess of the liver, which was found at autopsy, and one from cancer of liver and gall bladder, also found at autopsy. Two died with recurrence of the old symptoms, four died following a secondary operation which was performed outside the hospital. The other cases died from pneumonia, tuberculosis, apoplexy, nephritis and following childbirth, and in 10 cases I was unable to find out the cause of death.

In this period of ten years, 19 operations were performed for cancer of the bile passages; nine had a cholecystostomy. Three of these died in the hospital, five left the hospital without relief; one died at home.

Nine had an exploratory laparotomy; six died in the hospital, the other three left without relief.

One had a cholecystenterostomy; this patient was not relieved.

The records show only three cases in which cancer was found at the second operation where stone was found at the first. One case, a cholecystostomy for stone, in 1900, had a cholecystostomy for adeno-carcinoma of the gall-bladder done in 1902, the second case had a cholecystostomy for stone in 1902 and cholecystostomy for cancer of common bile duct and head of pancreas in 1909. The third case had a cholecystostomy for stone in 1910, and a year later cancer of the gall bladder was found at the second operation.

Of the cases in which gall stones have recurred, a large percentage have recurred during the first year, a few between two and three years after the first operation, and a very few after a period of five years.

I have not discovered that the number and size of the stones found at the first operation have any distinct bearing on the recurrence. In other words, a patient having a few large stones at the first operation is just about as likely to have a recurrence as a patient with many small stones. Of the 30 cases of recurrence that I have traced in looking up this subject, 17 had many small stones and 13 a few large stones.

In conclusion, it would seem from these records that a patient having a cholecystectomy performed for either cholelithiasis or cholecystitis is very much less apt to have a recurrence than a patient having a cholecystostomy; the only objection to cholecystectomy over cholecystostomy being a slightly higher mortality.

THE PATHOLOGICAL LESION OF WHOOPING COUGH.*

BY F. B. MALLORY, M.D., BROOKLINE, MASS.

The whooping cough bacillus was discovered by Bordet and Gengou in 1900, but was not obtained by them in pure culture until 1906. They found it in large numbers in the sputum of all early cases of the disease examined. The organism is a minute ovoid, Gram-negative cocco-bacillus which stains lightly by the ordinary methods. It is about the size of the influenza bacillus. They were able to start cultures only on a potato-blood-agar medium which they devised. They were also able to obtain a complement fixation test by using an emulsion of the organism and serum from a patient's blood. This test showed fairly conclusively that the patient produced an antibody for the organism, and that reaction has been the basis of the proof since that date that the organism causes the disease. Still, in spite of the fact that the bacillus has been generally accepted by bacteriologists as the cause of whooping cough, it has not been accepted to any extent by the medical profession because the organism has never been demonstrated in connection with any lesion, only in connection with the disease.

In 1908 Klimenko repeated the work of Bordet and Gengou and confirmed their results. He also inoculated a number of monkeys and puppies with pure cultures of the bacillus. Most of the puppies died in the course of a few weeks. They coughed and sneezed, but never whooped. After the animals died or were killed he was able to obtain the pertussis bacillus again from them in pure culture.

Our work on whooping cough at the Boston City Hospital started from a chance observation. In going over the sections from an acute case of whooping cough microscopically with one of the pathological internes, I noticed what seemed to be minute organisms packed in large numbers between the cilia of the epithelial cells lining the trachea. Better sections and stains showed the organisms to be minute bacilli. They were present in great numbers, dozens to a hundred or more, over the surface of each cell. Sections from the trachea of another case where the disease had lasted six weeks show similar bacilli present but only in small numbers.

Lung tissue from three other cases was obtained and showed similar organisms between the cilia of the cells lining the bronchi. The bacilli were also found free in the bronchial secretion and enclosed in polymorphonuclear leucocytes, but they were never found within the alveoli. The broncho-pneumonia which so often complicates whooping cough seems to be due entirely to other contaminating organisms.

* Read at the annual meeting of The Massachusetts Medical Society, June 11, 1913.

The action of the bacillus pertussis seems to be largely mechanical. It interferes with the normal movements of the cilia and therefore furnishes a continual irritation which excites the coughing.

The organism also secretes a mild toxin as is shown in three ways by a slight inflammatory exudation, by a lymphocytosis and by the production of a specific antibody.

The finding of this peculiar lesion naturally suggested experimental work. We first obtained sputum from acute cases of whooping cough and inoculated it into the trachea of a puppy and of a rabbit. Later the animals were killed and the respiratory tract studied microscopically. Organisms identical in every way with those found in whooping cough were present between the cilia in the trachea and bronchi of both animals.

Attempts were next made to obtain pure cultures and after considerable effort we succeeded in getting three different strains. These were inoculated into a number of puppies and rabbits which were killed after a varying number of days. In many of them we found bacilli often in large numbers between the cilia of the cells lining the nares, trachea and bronchi, and obtained them again, as we believed, in pure culture.

The lesions of whooping cough as found in man have been controlled by the examination of trachea and bronchi from hundreds of other diseases. No similar lesion has been found in any of them. The experimental work on animals is open to a certain amount of doubt, owing to a recent observation made by Dr. L. J. Rhea and here appended.

"While reading Dr. Mallory's first contribution on the pathology of whooping cough I was impressed with the general similarity between this disease and canine distemper, a disease common among dogs, and thought it might be worth while to study the pathology of this disease, using the technic employed by Dr. Mallory in his work on whooping cough. A number of dogs have been examined. Some of these were normal, the others had distemper. The normal dogs showed no lesions referable to distemper, but in others a pathological lesion was found which was very similar to that found in whooping cough. This lesion consists of a rather superficial inflammatory reaction, especially in the trachea and bronchi.

"Besides this inflammatory reaction there are in the cilia of the epithelial cells of the respiratory tract very many small oragnisms which I have been unable to distinguish morphologically from the Bordet-Gengou bacillus. These organisms are in the cilia of the epithelial cells attached to the respiratory tract and in the desquamated epithelial cells as well. The similarity in the histological lesions and the exciting organism in whooping cough and canine distemper is of some interest from the view-point of comparative pathology and I believe of real importance in experimental work with whooping cough. If one is to use in the study of whooping cough laboratory animals that are subject to a disease produced by an organism which is found in the same anatomical situation and is so similar morphologically to the organism producing whooping cough, the interpretation of results is made with difficulty. Such work must be controlled by means other than histological. But the observations referred to above do not in any way detract from experimental work along these lines. On the contrary it suggests an interesting relationship between the two exciting organisms; the bacillus of Bordet-Gengou, the cause of whooping cough, and the bacillus bronchisepticus, the cause of canine distemper.

"I might add that an organism similar in its morphology and anatomical situation has been found in rabbits suffering with snuffles, and what has been said in regard to canine distemper can be said in regard to snuffles in rabbits.

"Besides the general medical interest in the work Dr. Mallory has just reported, this work illustrates the importance of the proper application of histological technic to problems in pathology. But it takes a Dr. Mallory to show us how to apply this technic."

In conclusion I should like to add that Dr. L. W. Gorham has recently repeated some of the experimental work, starting with a new culture of the whooping cough bacillus obtained from an acute case of the disease. He used six young rabbits from one litter. Two were inoculated daily for a week with a suspension of the whooping cough bacillus. They lost weight and died at the end of ten days. Two others were inoculated in the same way with the influenza bacillus, one with the pyocyaneus, and one with normal salt solution. These four were killed at the end of ten days. Sections of the nares, trachea and bronchi from the two animals inoculated with the whooping cough bacillus showed great numbers of minute bacilli between the cilia. Pure cultures were obtained from one of the animals; but it was the bacillus bronchosepticus, not the bacillus pertussis. Cultures from the other rabbit were badly contaminated. Cultures and sections from the four other animals from the same litter were entirely negative so far as the bacillus bronchisepticus was concerned.

Further experimental work is evidently needed in order to clear up the subject. The two organisms closely resemble each other morphologically and in cultures on potato-blood-agar, but can be distinguished by their differences in motility and their alkali production in litmus milk.

MASSACHUSETTS STATE CONFERENCE OF CHARITIES.—The tenth annual session of the Massachusetts State Conference of Charities will be held at Northampton, Mass., during the coming week, from Oct. 21 to 23, inclusive. The pricipal opening address will be by the president, Miss Frances G. Curtis, of the Massachuetts State Board of Charity, on "The Appeal of Social Service."

Reports of Societies.

ASSOCIATION OF AMERICAN PHYSICIANS.

Twenty-Eighth Annual Meeting Held in Washington, D. C., on May 6, 7 and 8, 1913.

(*Continued from page 546.*)

OBSERVATIONS UPON THE METABOLISM OF OATMEAL IN DIABETES MELLITUS.

Dr. E. P. Joslin, Boston: Read by title.

THE ETIOLOGY, SYMPTOMATOLOGY, DIAGNOSIS, AND TREATMENT OF ACQUIRED DISPLACEMENTS OF STOMACH AND INTESTINES.

Dr. Thomas R. Brown, Baltimore:

Etiology—(a) Cases due to changes in the pressure relations of the abdominal cavity. (b) Cases due to weakening of the natural supports of the stomach and intestines. (c) Cases due to the traction of adhesions. (d) Cases due to pressure of new growths, etc.

Symptomatology—(a) Symptoms due to the disturbances of the motor, secretory and sensory functions. (b) Symptoms associated with obstructive phenomena. (c) Symptoms due to chronic inflammatory conditions, fever, etc. (d) Symptoms due to constriction of nerves. (e) Symptoms due to fecal stasis—autointoxication. (f) Referred symptoms.

Diagnosis—(a) Diagnosis from the clinical symptoms. (b) The study of the temperature, and the effect of exercise. (c) The study of the leucocytes. (d) The study of the gastric secretions. (e) The study of the motor functions of the stomach and intestines. (f) The study of the stool. (g) The study of the urine. (h) The use of the x-ray. 1. The photographs. 2. The fluoroscope.

Treatment—(a) Dietetic. (b) Medicinal. (c) Postural. (f) The use of bandages and supports. (g) Massage. (h) Operative and post-operative treatment. Illustrative clinical cases with laboratory investigations covering the various points brought up in the paper.

DISCUSSION.

Dr. R. C. Cabot, Boston: I have two cases in mind which bear on the thesis of this paper. (1) A case of marked enteroptosis was studied by x-ray and treated by a régime, belt and posture. There was much improvement. Subsequently another x-ray study was made and the visceral condition was found unchanged. (2) While in London recently, I observed some x-ray studies of healthy medical students, made for the purpose of determining the normal intra-abdominal status. One particularly healthy young man was found to have a stomach which descended to the level of the pubes. I mention these cases so that we may be warned of the danger of allowing ourselves to be deceived by another therapeutic fad.

Dr. S. J. Meltzer, New York: Those physiologists who regard human beings as only another species in the animal family find the reason for these visceral prolapses in the departure from the primary quadrupedal mode of locomotion.

Discussion closed by Dr. Thomas R. Brown, Baltimore: The paper is based on cases of acquired ptosis only; the congenital cases were not considered at all. We studied cases presenting evidences of kinks, adhesions, infection, toxemia, etc. In our cases we have by fluoroscopic study demonstrated distinct amelioration of the displacements of the viscera, and have not been guided by improvement of symptoms alone. Of course, we realize that with the removal of belts or bandages the ptoses will recur.

THE EFFECT OF CHEMICAL SUBSTANCES OF THE FATTY ACID SERIES ON ACIDOSIS AND SUGAR ELIMINATION IN DIABETES AND THEIR FATE IN THE ANIMAL BODY.

Dr. A. I. Ringer, Philadelphia. (From the Department of Physiological Chemistry, University of Pennsylvania.) In the metabolism of carbohydrates and fats a series of intermediary reactions take place before the production of the final end products. The conclusions so far arrived at are: (1) Normal fatty acids in the diabetic organism undergo oxidation in the *beta* position, giving rise to acids with two carbons less. (This corroborates the findings of Knoop, Embden and Dakin.) (2) Fatty acids with even number of carbons give rise to beta-hydroxybutyric acid, aceto-acetic acid and acetone. (3) Fatty acids with an odd number of carbon atoms give rise to glucose. (4) The reverse is true in the case of the iso-compounds. Those containing an even number of carbons give rise to glucose, while those containing an odd number of carbons give rise to acetone bodies. (5) Several of the compounds fed possess specific effects on acidosis; they have striking powers of reducing the same.

DISCUSSION.

Dr. Theodore C. Janeway, New York: The facts presented by Dr. Ringer seem to point definitely and most hopefully to the solution of a great and hitherto exceedingly dark problem. We are so taken up with the fascinating problems of bacterial therapy, that we are apt to forget that pure chemistry is going forward to similar practical ends in its own way and is doing much to show us how to combat diseases due to purely chemical poisons. I think that Dr. Ringer's work comes nearer than any in the world to showing exactly how to combat acidosis. Only one more step needs to be taken to find some practical way to utilize for food in diabetes only those fats whose molecules contain the uneven number of carbon atoms; and I confidently look to see that step taken.

Dr. J. B. Leathes, Toronto: Dr. Ringer has courageously attacked a huge subject. The really important feature of the paper, from a practical standpoint, may have escaped attention. The dietetic problem in diabetes is to supply safely enough food to sustain the necessary body energy, and as the three-carbon fatty acids do not break down into the poisonous beta-oxybutyric acid, but into harmless glucose, we may be able to find some food by which we may utilize this knowledge.

Discussion closed by Dr. A. I. Ringer: I would like to add to Dr. Leathes' remarks that diabetics may produce fairly large amounts of acetone bodies without presenting any symptoms. Very small amounts of these substances arise from leucin, tyrosin, etc., and I have seen patients sustain large amounts with fair comfort. So that two or three grams of acetone bodies from protein combustion may well be withstood, if that from the fatty acids can be eliminated. Thus the problem is still further simplified.

ON THE VALUE OF X-RAY EXAMINATIONS IN THE DIAGNOSIS OF GASTRIC AND DUODENAL ULCER.

Drs. Julius Friedenwald and F. H. Baetjer, Baltimore: Many cases of peptic ulcer are atypical; important symptoms are frequently absent, so that additional aid in diagnosis should be greatly welcomed. While we admit that the x-ray diagnosis of ulcer is not as yet sufficiently well developed to be relied upon alone, we feel confident that it offers most valuable assistance as an aid in diagnosis of quite as much value as any of the important symptoms of this affection, and taken in combination with the other symptoms is of great diagnostic help. We have selected from our 55 cases of peptic ulcers in which x-ray examinations have been made 20 for this report, including only those concerning which we feel quite confident as to the correctness of the diagnosis. Of these there are 11 cases of duodenal and 9 cases of gastric ulcer. Three of these cases were operated on, and the diagnosis was thus confirmed. Three others had been operated on and the ulcers were revealed at the time of the operation, but were not interfered with, while the remaining 4 presented such typical symptoms of ulcer with the presence of blood in the stools, that the correctness of the diagnosis in these, too, remains undoubted. These cases were first studied clinically, and then without any note being given as to the nature of the disorder, we sent for x-ray examination. The two reports were placed side by side, and the clinical and x-ray diagnosis corresponded so closely in every instance, as to make the results appear most striking.

DISCUSSION.

Dr. S. J. Meltzer, New York: I would like to make several remarks: (1) Since Kussmaul first recommended large doses of bismuth for ulcer of the stomach, the sustaining evidence of its usefulness has been that at autopsies, no bismuth could be found in the stomach except in the ulcer itself. (2) How do the writers of the paper explain the clear areas around the ulcers? (3) In x-ray studies of the movements of the stomach and intestines, it has been regarded that the movements of the gut are actually seen; I would like to suggest that we do not see the movements of the organs, but the movements of the bismuth only. A problem occurs to me which should appeal to every practitioner. Bismuth has always been considered as indicated wherever there is a diarrheal condition; twenty-five years ago we gave 5 grains and wondered if the dose was too much, now we give two or three drachms at a dose. In some experimental cases we give to cats of 3 kilos 5 grams of bismuth; if we should give it to a man in that proportion, we should have to give about 100 grams; the problem is: When would he have his next movement?

Dr. M. H. Fussell, Philadelphia: The thing we wish to do is to make a diagnosis of ulcer which will stand the test of operation. I have often enough been discomfited to wish to know how the results of the writers have been proven.

Dr. W. S. Thayer, Baltimore: If these results are upheld by later observations, and if the stomach really empties itself so early in cases of ulcer of itself or of the duodenum, then it seems to me that this communication is a very important one.

Dr. S. Solis Cohen, Philadelphia: In similar work done with Magnus at the Jefferson, we have found this same hypermotility and the x-ray findings agreed with the clinical signs and in some cases with the operative findings.

Discussion closed by Dr. Julius Friedenwald: Some of our cases were confirmed by operations; many, of course, were not subjected to operation.

Dr. F. H. Baetjer: I do not wish to convey the idea that we believe that we can make an absolute diagnosis of gastric ulcer by x-ray examination. These cases have all been checked by careful clinical and, where possible, by operative observation. In reply to Dr. Meltzer's remarks, one would expect an ulcer in a dead stomach to be covered with bismuth; but in a living stomach, which by x-ray observations retained bismuth for 72 hours, it was found at operation that while bismuth was in the stomach there was none on the ulcer nor on a considerable area around it. We have not definitely concluded that the "vacant area" seen in our plates is the site of the ulcer, but the idea has been confirmed in several cases of operation. The bismuth suspension given in studies of this kind are very mobile and I believe we are justified in regarding the shadows cast by bismuth-containing-viscera as representing the outline of the organs themselves.

EXPERIMENTAL STUDIES CONCERNING HEPATIC FUNCTION AND DISEASE.

Dr. G. H. Whipple, Baltimore: Three factors have been studied and appear to have some value in determining the changes which may be found in the liver under different conditions.

EXPERIMENTAL STUDIES CONCERNING HEPATIC FUNCTION AND DISEASE.

1. *Lipase,* which is normally present in the blood serum or plasma, shows interesting and wide fluctuation in various liver diseases. When the liver is acutely injured there is a prompt rise in lipase of the blood. This rise comes on during the first 24 hours and may reach a maximum during the first, second or third day, according to the extent of the injury. The lipolytic activity may then be three to ten times greater than normal.

2. *Fibrinogen* may show great fluctuations with various diseased conditions of the liver. Following an extensive acute liver injury such as may follow chloroform anaesthesia or phosporous poisoning, there will be an acute drop in the fibrinogen content of the blood plasma, reaching low level at the end of 36-72 hours. This is not true when small injuries are inflicted upon the liver, especially repeated injuries, when the fibrinogen may rise far above normal and the same is true during the

process of repair of the injured liver. The normal fibrinogen content of the blood plasma as estimated by the heat method is 0.350—0.500 gm. per 100 c.c. plasma. This may fall to 0.020—0.050 gm. in acute liver necrosis when the liver is extensively involved and is very apt to be associated with a tendency to hemorrhage. The fibrinogen may rise to 0.900—1.000 gm. during repair following injury or in acute infections where we may imagine that the liver is injured repeatedly in a relative small degree (pneumonia, peritonitis, etc.).

3. *Phenoltetachlorphthalein* is a drug which is known to be secreted in bile (Rowntree). This drug may be given dissolved in oil and injected subcutaneously, but for this work it is best given intravenously as the sodium salt. After such an injection in a normal dog, the drug appears in the bile in 10-15 minutes and is excreted in great part within 10-12 hours. If a brisk purgation is effected about six hours after the injection and the feces are collected during the next 18-24 hours, the drug can be obtained easily from the feces and in normal animals the amount recovered is constant (35-45%). With various types and degrees of liver injury it is found that there is a marked drop in the phthalein in the feces.

DISCUSSION.

Dr. A. E. Taylor, Philadelphia: Is it assumed that the liver is the sole source of lipase? If this fact is not established, on what authority in literature does Dr. Whipple base the assumption?

Discussion closed by Dr. G. H. Whipple: It is obviously impossible to go into the literature of this subject in discussion, nor into the details of this work which has covered four years. There are fluctuations of lipase observable after liver injuries, but no such fluctuations after injury to any other organ.

CIRRHOSIS OF THE LIVER INDUCED EXPERIMENTALLY BY REPEATED PROTEIN INTOXICATION.

Dr. W. T. Longcope, New York: Read by title.

AN IMPROVED METHOD OF DILATING ORGANIC STRICTURES OF THE ESOPHAGUS.

Dr. Bertram W. Sippy, Chicago: Essentially the olive-tipped whalebone bougie now in common use was devised 100 years ago. The flexible linen bougie of comparatively recent origin is more efficient as a dilator, but the danger of perforating the esophagus is too great to permit of its general and continued use.

To overcome the obvious danger of forcing any type of unguided bougie down through a strictured area of the esophagus the writer has evolved a method which would seem to combine a very high degree of safety and efficiency with a low degree of traumatism. Demonstration of method which consists of causing the patient to swallow a thread, using the thread as a guide for a piano wire having an eyeleted blunt tip, threading on the wire olivary steel dilators, graduated in size from the wire tip up to size necessary to dilate to the caliber desired, and upon these to thread on the wire other steel olives in reverse order to prevent injury on withdrawing the wire; the train of olives is passed through the stricture by means of a flexible spiral wire device.

DISCUSSION.

Dr. H. S. Plummer, Rochester, Minn.: I have used the general principles of this method in treating hour-glass stomachs; instead of using the series of graduated olives as Dr. Sippy does, I employed portions of two dilating bougies, cut through the point of greatest diameter and threaded on the guide with their cut surfaces opposed, so that a spindle shaped bougie resulted. Dr. S. J. Mixter, of Boston, is the author of this method, but he has left the exploitation of it to Dr. Sippy and to myself.

Dr. S. J. Meltzer, New York: It is very satisfactory to see such progress of therapy in these lines. Until a few months ago it was true that cancer of the esophagus was beyond the reach of surgical intervention. Within the past two months, in two cases of carcinomata of the esophagus *have been* successfully removed.

Discussion closed by Dr. B. W. Sippy: I heartily concur in Dr. Plummer's remarks as to the value of Dr. Mixter's work. Twenty years ago, Saunders fastened a piece of lead to a string and had the patient swallow it; but no attention was paid to the maneuver. I repeat again that wherever water will go, a string will go; wherever a string will go, a wire will go; and every stricture which will admit a string can be dilated. The string method surely avoids the danger of making a false passage.

SCARLET FEVER AND NEPHRITIS.

Dr. John McCrae, Montreal: From analysis of the case reports of 1,200 cases of scarlet fever treated by the writer in exactly the same way, viz.: Confinement to bed and a strict milk diet for 21 days, irrespective of the severity of the attack, he concludes that fatal cases of nephritis appear to occur only in carelessly treated cases; in some 1,700 cases so treated, the writer has never seen a uremic convulsion nor a fatal case, although such have frequently been admitted to the hospital at the onset of severe symptoms in patients treated at their homes, and presumably carelessly. Nevertheless, with such precautions, a certain number of cases of nephritis arise, and even if the initial attack be not a severe one, it may well be supposed the most of the patients so suffering are gravely handicapped in subsequent life.

DISCUSSION.

Dr. W. S. Thayer, Baltimore: I wish to ask through how many years and in how many epidemics did Dr. McCrae's cases occur?

Dr. Joseph L. Miller, Chicago: Which does Dr. McCrae regard as the most important conservative factor of his cases, the rest in bed or the diet.

Discussion closed by Dr. John McCrae: The cases were taken as they came in the Alexandra Hospital during seven years and in all epidemics. I cannot say which is more important, the rest in bed or the diet; I am inclined to favor the rest.

(To be continued.)

Book Reviews.

Laboratory Methods. With Special Reference to the Needs of the General Practitioner. By B. G. R. Williams, M.D., assisted by E. G. C. Williams, M.D. With an introduction by Victor C. Vaughan, M.D., LL.D. Second edition. Illustrated with forty-three engravings. St. Louis: C. V. Mosby Company. 1913.

This book, which aims to stand midway between the complete text-book and the summary manual, is intended primarily for the general practitioner, and describes seriatim such tests as can be easily and accurately made with simple office laboratory apparatus and in a minimum of time. In this second edition, there have been added to the original text, descriptions of the albumin sputum test for tuberculosis, of Bass and Watkins' rapid Widal method, of Noguchi's butyric acid test for syphilis, and of the urobilinogen test for hepatic function. An appendix contains an account of some of the more recent simple, useful and practical tests. The interesting and commendatory introduction by Dr. Vaughan is the best criticism and recommendation which this volume can have.

Surgery of the Eye. A Hand-Book for Students and Practitioners. By Ervin Török, M.D., surgeon to the New York Ophthalmic and Aural Institute, ophthalmic surgeon to Beth Israel Hospital, consulting ophthalmologist to the Tarrytown Hospital; and Gerald H. Grout, M.D., assistant surgeon to the New York Ophthalmic and Aural Institute, instructor in the eye department, Vanderbilt Clinic, consulting ophthalmologist to the Bellevue Hospital. Five hundred and nine original illustrations, 101 in colors and 2 colored plates. Philadelphia and New York: Lea and Febiger. 1913.

This sharply and well printed manual of the surgery of the eye is a welcome addition to our library. It does not aim to be encyclopedic, but it is extensive enough to be of great practical value. It is detailed where details are needed, and the descriptions are lucid and to the point. The account of the preparation of the patient and his surroundings for an eye operation is excellent and takes up many small but important points which a beginner needs to remember. Rubber gloves, we are pleased to note, are not mentioned. Nearly all the operations in common use today are described, and with each group is given a discussion of the disease which they are intended to relieve. We find no mention of Smith's operation of extraction in capsule nor of Homer Smith's ripening operation.

Modern Ophthalmology. A practical treatise on the anatomy, physiology and diseases of the eye. By James Moores Ball, M.D., LL.D., Dean and Professor of Ophthalmology, the American Medical College of St. Louis. Third edition, revised and enlarged. Philadelphia: F. A. Davis Company. 1913

The third edition of this exhaustive text-book is larger and heavier than previous editions, but it is complete It would be difficult to find any subject within its province that is not touched upon in proportion to its importance. The first four chapters deal with embryology, anatomy, physiology and methods of examination, profusely illustrated both in black and white and in colors, as is the rest of the book. Then follow fifteen chapters on diseases of the structures forming the eye and the orbit, and ten more chapters on optics, muscles, refraction, the eye in nervous diseases, hygiene of eyes, operations, microscopic examination of the eye, legal relations of ophthalmology, and ocular therapeutics. Much of this is new and all has been revised to date, the whole making a trustworthy book for study or reference and a monument to the industry of the author.

Ophthalmological Diagnosis. Based on typical pictures of the fundus of the eye with special reference to the needs of general practitioners and students. By Dr. C. Adam, assistant at the K. G. L. University Augenklinik, Berlin. Translated by Matthias Lanckton Foster, M.D., Ophthalmic Surgeon to New Rochelle Hospital, member of American Ophthalmological Society, member of American Academy of Ophthalmology and Oto-Laryngology. New York: Rebman Company. 1913.

This book is not called an atlas, for it is based on a different principle. Its 86 colored pictures of the fundus oculi are grouped so as to bring together similar appearances in the fundus, such as hemorrhages, white spots, black spots, etc., for comparison and differential diagnosis. Special attention is paid to diseases of the eye related to general diseases. The pictures vary from an inch and a half in diameter up to five inches, most of them being large, presenting the inverted image magnified about ten times. This work is beautifully done and the text not only explains the plates, but discusses etiology, diagnosis, and, briefly, pathology and treatment. Much space is devoted to methods of examination and to normal variation in the fundus. There are also 18 illustrations in the text. The indexing is unusually complete. This is one of the best books of the kind we have seen, and the general practitioner as well as the specialist should take pleasure in it.

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ETHER DAY.

Sixty-seven years ago today the practicability of general surgical anesthesia by means of sulphuric ether was first publicly demonstrated at the Massachusetts General Hospital. According to the custom which has been happily instituted within recent years, the anniversary of this momentous event will be observed at the hospital this afternoon with appropriate exercises. The principal speaker on the occasion this year will be Dr. Milton J. Rosenau, professor of preventive medicine and hygiene in the Harvard Medical School. His address, which will be published in full in an early issue of the Journal, will be on the subject of "The Problems and Progress in Preventive Medicine."

The story of the first Ether Day has been so often and so eloquently told, and its portentous significance in human history has been so vividly emphasized, as to need no repetition. Yet the generation which saw the coming of ether, and knew the days before that coming, is well-nigh passed away; and it is well that we, to whom that miracle has faded into the light of common day, should thus review our realization of its beneficent wonder. Perhaps there is no better brief statement of the meaning of the first Ether Day than that of Dr. William Osler:—

"Within the life-time of some of us a strange and wonderful thing happened on the earth—something of which no prophet foretold, of which no seer dreamt; only St. John seems to have had an inkling of it in that splendid chapter in which he describes the new heaven and the new earth, when the former things should pass away, when all tears should be wiped away, and there should be no more crying nor sorrow.

"On October 16, 1846, in the amphitheatre of the Massachusetts General Hospital, a new Prometheus gave a gift as rich as that of fire, the greatest single gift ever made to suffering humanity. The prophecy was fulfilled—*neither shall there be any more pain;* a mystery of the ages had been solved by a daring experiment by man on man in the introduction of anesthesia. At a stroke the curse of Eve was removed, that multiplied sorrow of sorrows, representing in all ages the very apotheosis of pain. The knife has been robbed of its terrors, and hospitals are no longer the scenes of those appalling tragedies that made the stoutest quail. Today we take for granted the silence of the operating-room, but to reach this Elysium we had to travel the slow road of laborious research, which gave us first the chemical agents. And then brave hearts had to risk reputation, even life itself, in experiments, the issue of which was for long doubtful."

It is our human habit to take for granted the blessings of fire and ether and bacteriology and all the other gracious gifts with which we have been endowed; and therefore it is good for us to take occasion now and then to reflect gratefully on the example of those through whose agency these gifts came on earth. There are many steps yet to be taken in the progress of man's redemption of man. Preventive medicine is one of the sciences to which we look today with high hope of its possibilities of leadership in that progress. The prevention of disease by its wise provisions is as beneficent, though not so immediately dramatic, as the prevention of pain by ether. Whatever the method and means employed, the end is always the same. To us, then, the recurring lesson of Ether Day should be one not only of perennial gratitude and wonder, but of stimulus and encouragement in the zealous pursuit of that truth whose gradual revelation is winning the freedom of all mankind.

THE ETIOLOGIC ORGANISM OF POLIOMYELITIS.

In the issue of the Journal for March 27, 1913 (Vol clxviii, p. 474) we commented edi-

torially on the successful cultivation by Flexner and Noguchi of the etiologic organism of epidemic poliomyelitis. In the October number of the *Journal of Experimental Medicine*, these authors report further experiments on the cultivation of this microörganism. They have now succeeded not only in growing it in pure culture and perpetuating it through a series of subcultures, but in reproducing the disease experimentally in monkeys by inoculation from these subcultures. "Moreover, from the monkeys in which experimental poliomyelitis has been thus produced, the microörganisms introduced can be recovered in culture and even implanted successfully again." Finally, by means of a special stain, devised by Noguchi, the microörganisms have been demonstrated in smears and in sections from the central nervous organs of human beings and monkeys dead of the disease. Hence it would appear that the organism thus discovered and described fulfils the classic requirements of Koch's law, and may fairly be accepted as the causative agent of poliomyelitis.

This brilliant piece of research, which sheds further lustre on its already distinguished authors, is not merely a step of cardinal importance in the knowledge and control of the poliomyelitis. It demonstrates, as we observed in our earlier editorial, "that a filterable virus is not necessarily an ultra-microscopic organism." The minute globoid bodies in question, whose place in the animate world has not yet been determined, are representatives perhaps of a large class of infective organisms, hitherto undetected and possibly including the etiologic agents of other diseases whose causes are at present unknown. Further research by similar methods, as apparently already successfully made by Noguchi in the case of rabies, may serve thus to solve others of the still perplexing riddles of pathology.

GERMAN VITAL STATISTICS.

COMPARATIVE vital statistics of the German Empire for the years 1910 and 1911 have recently been published at Berlin. In 1910 the total number of deaths was 1,103,723, representing a total death-rate of 17.1 and an infant death-rate of 162. In 1911 the total number of deaths rose to 1,187,094, and the total and infant death-rates to 18.2 and 192 respectively. In 1910 the number of marriages in Germany was 496,396, the number of births 1,982,836, and the excess of births over deaths 879,000. In 1911, although the number of marriages increased to 512,819, the nmber of births fell to 1,927,039, and the excess of births over deaths to 740,000, representing a decline of 15% in the rate of growth of the population.

Apparently 1911 was a bad year for Germany. Her death-rate increased, her birth-rate declined, and her infant mortality rose alarmingly. Only as recently as 1906 the net surplus of births over deaths per thousand of population was 14.9. In 1910 it was 13.6; and in 1911, 11.3. Nevertheless, Germany is still not nearly as badly off as England whose population is stationary, or France where it is steadily diminishing, or the United States where the older stocks are rapidly dying out, and numbers are increased only by immigration.

A NEW EMERITUS.

THE recent action of the Board of Overseers of Harvard College in confirming Dr. John H. McCollom as emeritus professor of contagious diseases in the Harvard Medical School, sets the well-merited seal of academic approval on his work as a physician and teacher. Perhaps Dr. McCollom's most conspicuous service to medicine has been his fearless and efficient work as a pioneer in the introduction and use of von Behring's diphtheria antitoxin in this country. By this and by his admirable organizing and administrative ability, he placed the South Department of the Boston City Hospital in the foremost rank among the contagious hospitals of the world, preferring, with incorrigible modesty, however, always to assign to the institution the reputation which was deservedly his own. Moreover, of recent years, Dr. McCollom has served with equal self-sacrificing fidelity and courage as superintendent of the City Hospital, a position in which the community is most highly fortunate to have so able and so honorable a public official. As emeritus professor, the wealth of Dr. McCollom's clinical experience remains of avail for the benefit of medical education; and his many friends, who rejoice in congratulating him on this honor, rejoice also in the prospect of his many years of continued service to his school, his hospital, and his profession.

TYPHOID DEATH-RATES IN MASSACHUSETTS.

In 1877 the death-rate from typhoid fever in Massachusetts was 45 per 100,000 of population. In 1908 it was 16.5 per 100,000; 12.3 in 1909; 12.2 in 1910; 8.4 in 1911; and only 7.6 in 1912. This, however, is about 7.5 higher than it ought to be. Probably there is an irreducible minimum, below which the typhoid death-rate can never be forced, any more than that of small-pox. Yet we now possess means of protection against typhoid, almost as certain as that against small-pox, which makes possible the reduction of typhoid incidence and mortality to a vanishing-point.

In its effort to promote this reduction, the Boston Board of Health has recently prepared two official letter forms, one to be sent to every physician when he reports a case of typhoid, the other to the head of every household in which a case of typhoid is reported. The former reminds the physician of the desirability of antityphoid inoculation of all persons exposed, the latter urges upon householders the acceptance of this treatment by all members of the family. These letters seem a wise and enlightened step in the attempt to secure more widespread application of this beneficent protective measure.

MEDICAL NOTES.

London Death-Rates in August.—Statistics recently published show that the total death-rate of London for August, 1913, was only 11.8 per 1000 inhabitants living. Among the several districts and boroughs the highest rate was 20 in Finsbury, a crowded central slum, and the lowest was 8 in Wandsworth, a populous southern suburb.

The Fallacy of Examinations.—Sir William Osler has been quoted recently as saying that "half the candidates for examination before the Royal College of Surgeons fail, and that those who fail are better men than those who succeed." His remarks seem to be a protest against the examination method for determining fitness to practise medicine.

Epidemic in Washington.—Report from Bellingham, Wash., on Oct. 8 states that ten deaths have recently occurred among children in that vicinity from an epidemic infection resembling bubonic plague, the exact nature of which, however, has not been determined.

Alvarenga Prize of the College of Physicians of Philadelphia.—The College of Physicians of Philadelphia announces that the next award of the Alvarenga Prize, being the income for one year of the bequest of the late Señor Alvarenga, and amounting to $180, will be made on July 14, 1914, provided that an essay deemed by the committee of award to be worthy of the prize shall have been offered.

Essays intended for competition may be upon any subject in medicine, but cannot have been published. They must be typewritten, and if written in a language other than English should be accompanied by an English translation, and must be received by the secretary of the college on or before May 1, 1914.

Each essay must be sent without signature, but must be plainly marked with a motto and be accompanied by a sealed envelope, having on its outside the motto of the paper and within the name and address of the author.

It is a condition of competition that the successful essay or a copy of it shall remain in possession of the college; other essays will be returned upon application within three months after the award.

Lectures on the History of Medicine.—On Friday of last week, Oct. 10, Dr. Morris Jastrow, of the University of Pennsylvania, delivered before the Royal Society of Medicine, London, an address on "Babylonian Medicine," being the first of a series of lectures on the early history of medicine. The remaining addresses are to be given by Dr. Elliot Smith, on "Egyptian Medicine," and by Dr. R. Caton on "Greek Medicine."

A Pure Food Victory.—On Oct. 7, the United States circuit court of appeals in Chicago sustained the district court of Indianapolis in its refusal to enjoin the Indiana State Board of Health from prohibiting the sale of catsup and sweet pickles containing sodium benzoate as a preservative.

BOSTON AND NEW ENGLAND.

Scarlet-Fever in Brookline.—Nine cases of scarlet-fever have recently been reported in

Brookline, Mass., and one of the primary schools, in which they occurred, was closed for a week as a precautionary measure against the incipient epidemic.

GASTRO-ENTERITIS IN PEABODY.—Report from Peabody, Mass., on Oct. 5, stated that an acute epidemic of gastro-enteritis, presumably due to infected drinking-water, was then in progress in that town.

POLIOMYELITIS IN LACONIA.—In Laconia, N. H., two deaths from acute poliomyelitis occurred during the week preceding Oct. 8 among pupils in the local high school. The school has been closed.

GLANDERS IN BOSTON.—On account of the present increasing prevalence of glanders among horses in Boston, the commissioner of animal industry has recently issued an order directing the closure after Nov. 1 of all public fountains and watering troughs for horses within the limits of the city. There have been already over 400 cases of the disease in Boston this year.

FRAMINGHAM HOSPITAL GRADUATION.—The annual graduation exercises of the training-school were held at the Framingham (Mass.) Hospital on Thursday afternoon, Oct. 2.

NEW ROOMS AT MELROSE HOSPITAL.—Three new memorial rooms for patients have recently been provided and equipped at the Melrose (Mass.) Hospital.

NEWTON HOSPITAL FOR TUBERCULATES.—It has been voted by the city government of Newton, Mass., to erect, at a cost not exceeding $15,000, a new building for the care of tuberculates, to be near and under the direction of the Newton Hospital.

POLIOMYELITIS IN QUINCY.—Report from Quincy, Mass., on Oct. 8 states that since Sept. 1 there have been in that city 12 cases and 2 deaths of poliomyelitis.

A PROLIFIC FAMILY.—The largest family in Boston is believed to be that of a 70-year-old Italian in the North End, who has been twice married and has 28 living children. His present wife is eight years younger than his oldest son. His youngest child is 3 and his oldest grandchild 12 years of age.

HEALTH DAY IN BOSTON SCHOOLS.—Friday of last week, Oct. 3, was observed in all Boston public schools as "Health Day."

"In all buildings where a general assembly was possible, the pupils were assembled and special exercises carried out. There were remarks by the principals on the value of health, both as a means to greater happiness and as a means towards greater efficiency in work; reading of the regulations of the school committee and of a special circular bearing on health and reference to the necessity of possessing health in order to meet the requirements of recent legislation on working certificates.

"Teachers addressed the pupils on the importance of cleanliness, fresh air and sunshine, exercise and rest, food and drink, while school physicians, dentists and nurses also made addresses. Announcement was made that the windows on one side of the classroom are to be kept open at all times and that each pupil should go to school properly clothed to meet the requirements."

RECENT HOSPITAL BEQUESTS.—The will of the late Lorenzo D. Whittier, of Lawrence, Mass., which was allowed last week in the Essex County Probate Court, gives to the Lawrence General Hospital a half-share of the residuary estate.

The will of the late Otis K. Dimock, which was filed for probate on Oct. 8 in New York City, contains a provisional bequest of $12,500 to the Presbyterian Hospital, New London, Conn., which becomes available after the death of three other beneficiaries.

WORK OF MILK AND BABY HYGIENE ASSOCIATION.—A recent report by the Boston Milk and Baby Hygiene Association records some of the data of its work during the past season.

"At its eleven stations the association cared for 2185 babies regularly. During the corresponding months of 1912 it helped only 1767. There were 1045 new babies admitted during the summer, as against 714 new admissions during the same period a year ago, an increase in new registrations of 46% over last year.

"The increase in the public service of the association was made possible by gifts permitting the opening of new stations in Dorchester and Roxbury, and the addition of four nurses for temporary work during the summer. The city increased its force of nurses in the division of child hygiene from nine to eighteen. These nurses worked in coöperation with the physicians and nurses of the Milk and Baby Hygiene Association at its stations.

"The attendance at 206 weekly conferences held during the summer was 4361, an average of 21 babies at each conference. During the corre-

sponding four months of 1913, 5793 babies came to 193 conferences, an average of 30 at each conference.

"On Sept. 28, 1912, 83 mothers knew how to modify milk at home. A year later 403 mothers, a gain of nearly 400 per cent. had been trained to do this by the nurses. At the end of the summer a year ago 479 mothers were dependent upon formulas made at the dairy. Now only 151 are using them."

Pawtucket Memorial Hospital.—At the annual meeting of the Pawtucket Memorial Hospital on Oct. 2 at Pawtucket, R. I., Mr. Michael M. Davis, Jr., director of the Boston Dispensary, delivered an address on "How to Meet Community Needs for Health Service."

Needs of Winchester Hospital.—A public meeting was held in Winchester, Mass., on Oct. 2, in the interests of the Winchester Hospital. The attempt will be made to raise a sum of $100,000 to reëquip it and ensure its continuance.

NEW YORK.

Mortality in September.—The weekly reports of the Health Department show that the mortality in the city during the month of September represented an annual death-rate of 12.22, as against 12.72 in August and 12.14 in September, 1912. Among the diseases in which there was a diminished fatality were the following: The weekly average of deaths from measles declined from 6.5 in August to 2.75 in September; the weekly average from whooping-cough, from 12 to 10.75; from diphtheria and croup, from 15 to 11.5; from pulmonary tuberculosis, from 145 to 133.5; from acute bronchitis, from 8.25 to 6; from tuberculous meningitis, from 13 to 11.75; from diarrheal diseases under five years, from 194.5 to 140.75; from apoplexy and softening of the brain, from 17 to 15.25; from appendicitis and perityphilitis, from 12.25 to 10.75; from hernia and intestinal obstruction, from 9.75 to 8; from cirrhosis of the liver, from 15.25 to 13; and from puerperal diseases, from 12 to 10.25. Among the diseases in which there was an augmented mortality were the following: The weekly average of deaths from typhoid fever increased from 8.25 to 11.75; from epidemic cerebro-spinal meningitis, from 3.25 to 5.5; from broncho-pneumonia, from 52.25 to 53.75; from cancer, from 73.5 to 84.5; from organic heart disease, from 142.75 to 157.5; and from Bright's disease and acute nephritis, from 88.75 to 96.25. In the week ending September 13 the death-rate was 11.48, which was the lowest the city has ever experienced, with the exception of that of the week ending June 28 of this year, when the death-rate reached the low mark of 11.48. For the second time in many years, a week passed (that ending September 20) without a single death being reported from scarlet fever.

Deaths from Vehicles.—The National Highways Protective Society reports that in September the number of fatalities from vehicles in the streets of New York was greater than in any previous monthly record; 63 persons, including 33 children under 17, were killed, and of these deaths, 35 were by automobiles—9 more than in any previous month. As compared with the deaths from automobiles in the corresponding month of 1912, the increase is nearly 100%. In addition to the fatalities, 184 persons were seriously injured by vehicles, and 98 of these cases were caused by automobiles. In the state, outside New York City, automobiles killed 16 and injured 137.

An Unusual Verdict.—In a case of unusual interest a verdict for $3,000 damages was recently awarded in the New York Supreme Court to Mrs. Margaret Cahill for the death of her daughter, who was struck by an automobile in upper Broadway on December 21, 1911. She sustained, it is said, a fracture of the pelvis and other injuries, and was taken to Roosevelt Hospital, where she remained for two months or more, and was then discharged as cured. Later, however, malignant disease developed in the region of the injury, and from this she eventually died in a hospital at Bound Brook, N. J. Counsel for the defense contended that the injury received in the accident was not a factor in the causation of the cancer, but the other side appears to have proved to the satisfaction of the jury that this had contributed to the latter.

The Court Room as a Sedative for Nerves.—Supreme Court Justice Goff recently declined to excuse from duty for the October term of court a juror who asked for exemption on the ground that he was suffering from a slight nervous ailment. "The atmosphere of a court room," said the Justice, "is so restful and peaceful that it is better in many cases than a

sanitarium. I will keep the juror until the end of the term in the hope that he will find his nerves greatly benefited by the experience."

W. Bayard Cutting Fund.—At a meeting of the board of trustees of Columbia University held on October 6 it was announced that a gift of $200,000 had been received from Mrs. W. Bayard Cutting and her children, to constitute a fund in memory of the late W. Bayard Cutting, who served on the board of trustees from 1880 until his death in 1912, the income of which is to be devoted to the maintenance of traveling fellowships open to graduate students of special distinction in medicine, law, letters, science or engineering. Among other recent gifts to the university are, $2,500 from Clarence H. Mackay for surgical research, $1,000 from an anonymous donor for salaries in the department of physiology, and $350 from the Alumni Association of the College of Physicians and Surgeons for a fellowship. At the meeting the resignation of Dr. Joseph A. Blake from the professorship of surgery was accepted.

Investigation in Physical Chemistry.—Among recent arrivals in New York is Miss Ellen Gleditsch, a distinguished investigator in physical chemistry, who for five years has been associated with Mme. Curie in her laboratory work in Paris. Miss Gleditsch is one of the six fellows chosen by the government commission of Sweden to be sent to this country for advanced research work under the auspices of the American-Scandinavian Foundation, incorporated in 1911 to hold in trust an endowment of $600,000 created by the late Niels Poulsen of Brooklyn. She has selected Yale at which to pursue her scientific work here.

Bequests.—Among the charitable bequests in the will of the late Max E. Bernheimer of New York are $2,500 each to the German Hospital and Dispensary, Mount Sinai Hospital, and the Montefiore Home and Hospital for Chronic Invalids.

Issuance of Birth Certificates.—During the eight days immediately preceding the opening of the school term, the Bureau of Records of the Department of Health issued 20,834 copies of certificates of birth to children about to enter school. During these eight days 13,591 persons applied to the Bureau of Records of the Borough of Manhattan for records of birth, and the number of certificates issued exceeded those of the corresponding period of last year by more than forty per cent. Much inconvenience was experienced by the public on account of the large crowds and resulting delays, but this inconvenience was entirely unnecessary. The Bureau is open every working day in the year for the purpose of issuing certificates of birth to children who enter school for the first time, and if parents will apply at any time during the summer months, either in person or by mail they can obtain these necessary certificates without unnecessary delay. The great majority of people applying for certificates are poor and are compelled to bring their little ones with them and these children, as well as their mothers, are occasioned much discomfort, while waiting in the crowded corridors of the department building. It is hoped that in the future applicants will realize that these certificates can be procured at any time during the year prior to the admission of the child to school, and that it is not necessary to wait until immediately before admission in order to make their application.

Ninth Course of Harvey Society Lectures.—The following is the schedule of the remaining Harvey Society Lectures, which are to be given this winter on Saturday evenings at 8.30 in the New York Academy of Medicine.

October 18. Prof. Adolph Schmidt, University of Halle. "Severe Anemia in Gastro-Intestinal Diseases."

November 1. Dr. Charles V. Chapin, Health Department, Providence. "The Air as a Vehicle of Infection."

November 29. Prof. G. H. Parker, Harvard University. "The Nervous System; Its Origin and Evolution."

December 13. Dr. Rufus Cole, Rockefeller Institute for Medical Research. "Pneumococcus Infection and Lobar Pneumonia."

1914:—

January 17. Prof. Victor C. Vaughan, University of Michigan. "The Etiology of the Infectious Diseases."

January 24. Prof. Sven G. Hedin, University of Upsala. "Colloidal Reactions and Their Relations to Biology."

February 14. Prof. J. J. R. Macleod, Western Reserve University. "Recent Work on the Physiological Pathology of Glycosuria."

February 28. Prof. Richard P. Strong, Harvard University. "The Etiology of Oroya Fever and Verruga Peruviana."

March 14. Prof. W. S. Halsted, Johns Hopkins University. Title to be announced.

A Living Centenarian.—Miss Mary Monroe, of Binghamton, N. Y., is said to have been born on Oct. 7, 1810. Her health remains excellent in all respects.

Current Literature.

Medical Record.

September 13, 1913.

1. Kinnicutt, F. P. *Oral Sepsis.*
2. *Hiss, P. H., Jr. *Clinical Studies on the Curative Action of Leucocyte Extracts in Infective Processes.*
3. Cruice, J. C. *Intestinal Hemorrhage in the Tuberculous.*
4. Spence, T. B., and Graham, H. F. *Chronic Mesenteric Ileus with a Report of Three Cases.*
5. MacFarlan, D. *Potassio-Mercuric Iodide.*
6. Konkle, W. B. *Medicine's Need of a Cerebellum.*
7. Baldwin, J. F. *Dysmenorrhea from Imperfect Development of the Uterus or Malformation.*
8. Williams, G. O. *A Case of Varicose Ulcer Treated by Feeding It with Cheese.*

2. Hiss and Dwyer report on a series of 148 cases of erysipelas treated with leucocyte extract. They observed uniformly beneficial effects on the local lesion, the constitutional symptoms and the duration of the disease. The same extract was used in another series of fifty cases at Bellevue Hospital where infections treated with it within the first forty-eight hours were aborted. The spreading intractable lesions of the back and body were affected as readily as those occurring on the face and head. About 50% of infants under one year treated thus recovered. [L. D. C.]

September 20, 1913.

1. Woolsey, G. *Some Phases of the Surgery of the Stomach.*
2. Bishop, L. F. *The Cause and Prevention of Cardiosclerosis.*
3. Matthews, J. *Anaphylaxis and Asthma.*
4. Solis-Cohen, M. *The Administration of Tuberculin by the General Practitioner.*
5. Watters, W. H. *The Vaccine Treatment of Typhoid Fever.*
6. Wallace, J. E. *The Functions of the Psychological Clinic.*
7. Davidoff, M. *Bier's Artificial Hyperemia as a Therapeutic Agent.*
8. Kahn, L. M. *The Absence of the "Sausage-Shaped Tumor," and "Mass Per Rectum" in Intussusception in Infants.*
9. Ballenger, E. G. *An Easy Method of Administering Salvarsan and Neosalvarsan Intravenously.*

September 27, 1913.

1. Bainbridge, W. S. *A Contribution to the Study of Chronic Intestinal Stasis.*
2. Watson, L. F. *Exophthalmic Goitre Cured by Ligating One Superior Thyroid Artery.*
3. Palefski, I. O. *A Collapsible-Weighted Stomach Tube and a New Gastric Glass Bulb.*
4. Hall, J. N. *The Complications of Peptic Ulcer.*
5. *Tomlinson, W. H. *Preventable Deafness.*
6. Reed, A. C. *Alaska and Its Health.*
7. Phillips, S. L. *Unilateral Amblyopia and Diplopia Following Suppressio Mensium.*

5. Tomlinson emphasizes the great importance of preventing deafness wherever it is humanly possible to do so, and he points out a few facts which should be more keenly realized by the general practitioner. In the first place, one should remember that 80 to 90% of all deafness is middle ear deafnesss. Ninety per cent. of middle ear deafness originates in inflammatory conditions of the naso-pharynx, with extension along the Eustachian tube. The original inflammation often dates from childhood. Adenoid tissue in the epipharynx is the most frequent predisposing cause of middle ear deafness. Mild acute catarrhal otitis, if untreated, is apt to become chronic. Chronic catarrhal deafness demands persistent treatment and for this purpose Eustachian catheterization is more efficient than the Politzer bag. [L. D. C.]

New York Medical Journal.

September 20, 1913.

1. Wilson, H. A. *Pre-operative Caution to Avoid Postoperative Calamities.*
2. Sever, J. W. *The Position of the Stomach in Children in Relation to Posture.*
3. Carrington, P. M. *The Climate of San Diego, California, Region with Relation to Renal Diseases.*
4. Knox, H. A. *The Differentiation between Moronism and Ignorance.*
5. *Auerbach, J. *The Uses and Limitations of Paraffin in the Treatment of Ozena.*
6. Coon, C. E. *Traumatic Periostitis of the Lumbosacral Spine.*
7. Billings, W. C., and Wilson, J. G. *Retropharyngeal Abscess.*
8. Williams, B. G. R. *Cylinder Showers, Their Significance.*

5. Auerbach studied the effect of injections of paraffin into the nasal chambers in thirty-two cases of ozena. His results are encouraging. It is impossible to obtain a permanent cure, even where all the disagreeable symptoms disappear, as there is no influence anatomically on the atrophied structures. Functionally, however, the results are all that can be desired, but all cases eventually require reinjection. If hard paraffin of high melting point is used, the danger of embolism is eliminated. [L. D. C.]

Sepptember 27, 1913.

1. Meyer, W. *Public Education in Cancer.*
2. Roussel, A. E. *Pulmonary Syphilis.*
3. Wertembaker, C. P. *Eugenics and the Public Health.*
4. Brooks, H. *Concerning the Etiology of Hypertrophic Pulmonary Osteoarthropathy.*
5. Forbes, A. M. *The Surgical Treatment of Monarticular Rheumatoid Arthritis of the Hip.*
6. Walker, J. T. A. *Routine School Disinfection.*
7. Wise, F. *Epithelioma of the Lower Lip in a Woman, with the Report of a Case.*
8. *Smithies, F. *The Treatment of the Cachexia of Malnutrition.*
9. Podall, H. C. *Prophylaxis of Insanity.*
10. Sigler, C. L. *Obstetrical Experiences of a Country Doctor.*

8. Smithies reports a case of malnutrition with profound cachexia which he treated successfully by metagastric (*i.e.* through the duodenal tube) administration of artificially prepared end-products of digestion. The food thus given was a mixture of split peptone (prepared by means of the ferment activity of gastro-duodenal juice obtained from another patient) and maltose. The results in this case were so encouraging that the writer has used the procedure in two other cases, both of which they expect to report soon. Digestion of the peptone in these cases was carried on with trypsin instead of gastro-duodenal juice. [L. D. C.]

THE ARCHIVES OF INTERNAL MEDICINE.

AUGUST, 1913.

1. SWANN, A. W., AND JANVRIN, E. R. P. *A Study of the Ventricular Systole—Subclavian Interval, with a Discussion of the Presphygmic Period.*
2. *LEWIS, D. D., AND MILLER, J. L. *The Relation of the Hypophysis to Growth and the Effect of Feeding Anterior and Posterior Lobe.*
3. *NEWBURGH, L. H., PALMER, W. W., AND HENDERSON, L. J. *A Study of Hydrogen Ion Concentration of the Urine in Heart Disease.*
4. PALMER, W. W., AND HENDERSON, L. J. *Clinical Studies on Acid Base Equilibrium and the Nature of Acidosis.*
5. *WALKER, C., AND DAWSON, R. P. *The Effect of Diuretic Drugs on the Life of Animals with Severe Acute Nephritis.*
6. *MACNEAL, W. J., AND CHACE, A. F. *A Conribution to the Bacteriology of the Duodenum.*
7. *MEHRTENS, H. D. *The Frequency of Low Polymorphonuclear Leucocyte with High Lymphocytic Differential Counts.*
8. BARTLETT, F. K. *A Case of Acromegaly and Polyglandular Syndrome with Special Reference to the Pineal Gland.*
9. HOOVER, C. F. *The Functions of the Diaphragm and Their Diagnostic Significance.*
10. *JONES, A. P., AND TATUM, A. L. *On the Demonstration of Variations in the Thyroid Colloid in Conditions of Hyper- and Hypo-thyroidism.*
11. ROSS, E. L. *The Source of Urinary Indol-Acetic Acid in Two Dementia Precox Patients.*
12. *BUNTING, C. H., AND GATES, J. L. *Culture Results in Hodgkin's Disease.*

2. Lewis and Miller report results of experimental feeding of pituitary extract to white rats. From these and from clinical studies of acromegaly they find no evidence of lessened function of the posterior lobe in explanation of the Frölich syndrome of adiposity and failure of sexual development, but rather a suggestion of lessened secretion of the anterior lobe. Partial removal of the anterior lobe in young animals modifies growth and sexual development in a manner very closely resembling the Frölich syndrome. Removal of the posterior lobe has apparently no effect upon growth, neither has the feeding of posterior lobe or of anterior lobe.

3. Newburgh, Palmer and Henderson report on a study of hydrogen ion concentration of the urine in thirteen cases of heart disease. They find that in cases with severe cardiac decompensation the hydrogen ion concentration of the urine is higher than normal. It follows the general condition of the patient, becoming normal when compensation is restored. The writers could not demonstrate any definite relation between the hydrogen ion concentration of the urine and edema in the cases studied.

5. Walker and Dawson studied the effect of diuretics on experimental nephritis in rabbits. They found that theocin, caffein and potassium acetate definitely shortened the lives of animals with severe acute uranium nitrate nephritis. The unfavorable effect of spartein sulphate was not so noticeable. Water in large amount seemed detrimental in some cases. The diuretics alone in large doses and water alone in large amounts did no harm to normal animals. The writers conclude that diuretics are contra-indicated in severe acute nephritis in man.

6. MacNeal and Chace made a bacteriologic study of intestinal juice obtained with the Einhorn duodenal tube from some thirty patients with digestive symptoms. They found that the normal duodenal fluid during a fast was almost free from living microorganisms. The few living bacteria obtained in cultures from such fluids were generally gram-positive cocci. In gastro-intestinal disturbances the number of cultivable microbes in the duodenal fluid was markedly increased, bacilli, cocci, yeasts or branching forms being found in different cases. In a case of typhoid fever, B. typhosus was isolated. The writers suggest that this procedure may prove to be of value in the early diagnosis of typhoid fever and in the detection of typhoid carriers.

7. Mehrtens calls attention to the fact that low polymorphonuclear differential counts are very frequently observed in clinical work and he warns clinicians not to give undue significance to a high lymphocyte count.

10. Jones and Tatum found that the iodin content of the thyroid glands of rabbits serving as test animals was increased directly by feeding commercial desiccated thyroids and indirectly by intravenous injections of serum from hyperthyroid rabbits. The iodin content was found to be decreased by intravenous injections of serum of thyroidectomized rabbits.

12. In three cases of Hodgkin's disease Bunting and Gates obtained a pure culture of a pleomorphic diphtheroid organism. In two other cases this organism was recognized, but not secured in pure culture, and in a sixth case a similar organism was stained in the lesions of a primary intestinal Hodgkin's case. The writers believe that they were dealing with the same organism described by Negri and Mieremet and later isolated by Fraenkel and Muck.

[L. D. C.]

THE LANCET.

AUGUST 9, 1913.

1. BARLOW, T. *Presidential Address.*
2. CHAUFFARD, A. *Medical Prognosis, Its Methods Its Evolution, Its Limitations.*
3. *CUSHING, H. *Realignments in Greater Medicine: Their Effect upon Surgery and the Influence of Surgery upon Them.*
4. *FOWLER, J. K. *The Value of Tuberculin in Pulmonary Tuberculosis.*
5. *WHITE, W. C. *The Place of Tuberculin in Treatment in Relation to Other Methods.*
6. *SAHLI. *Theses on Tuberculin Treatment.*
7. WALKER, A. D. *Remarks on the Technic of Electrocardiography for Clinical Purposes.*
8. *RIDGE, P. B., AND TREADGOLD, H. A. *The Albumin Reaction in Sputum: Its Significance and Causation.*
9. ROEMMELE, A., AND SWEET, R. *Basophile Patches in the Protoplasm of the Neutrophile Polymorphs.*
10. MACNAMARA, E. D. *Syphilitic Infection Followed by Landry's Syndrome and Later by Tabes Dorsalis.*
11. ROSS, H. C., AND CROPPER, J. W. *An Investigation of the "Chronic Irritation" Caused by Fumes and Dust Produced in the Process of Manufacturing Tin Plates.*
12. CUNNINGHAM, C. W. *A Case of Volvulus of the Small Intestine Complicating General Peritonitis; Recovery.*
13. MACKAY, W. A., AND MACDONALD, I. *The Prevalence of Chronic Gastric Disease in Spain; Notes on Medical and Surgical Treatment.*
14. BLONDEL, R. *A Preliminary Study of the Plan of International Revision of Medical Terminology.*

3. Cushing, among other subjects, speaks on some of the achievements due to animal experimentation, the benefits derived by animals, the approaching transformation of the tropics, the elimination of pain, modern surgery and the formation of specialties, the tendency of surgery and medicine to converge, and the advantages of inter-institutional visitations.

4. Fowler believes that the use of tuberculin in any form is not free from danger; its use is inadmissible in any case in which there is fever, which in turn renders its use a very limited one.

5. White is of the opinion that tuberculin carefully given in small doses, but enough to produce mild reaction, is of distinct value.

6. Sahli expresses his views on the use of tuberculin in a series of fourteen theses. Even the slightest of reactions must be avoided; diagnostic reactions are dangerous. It should be given only by those experienced and skilled in its use. Cases of localized tuberculosis are peculiarly suitable for treatment with tuberculin.

8. Ridge and Treadgold conclude from their researches that practically all cases of active pulmonary tuberculosis contain albumin in the sputum; a negative reaction in these successive examinations is strong evidence against an active tuberculosis. In cases of chronic tuberculosis and emphysema the test is of value as evidence of active disease. [J. B. H.]

AUGUST 16, 1913.

1. EHRLICH, P. *Chemotherapeutics: Scientific Principles, Methods, and Results.*
2. BATESON, W. *Heredity.*
3. *BURNS, J. *The Relationship between Medicine and Public Health.*
4. BESREDKA, A. *Theories of Immunity and Anaphylaxis.*
5. BUXTON, D. W. *The Dosimetric Method of Administering Chloroform.*
6. *THOMSON, J. *Infection of the Urinary Tract in Children by the Colon Bacillus.*
7. FOLIN, O. *The Clinical Application of Pathological Chemistry.*
8. MACCOLLAN, A. F. *Ophthalmic Progress in Egypt.*

3. Cf. *British Medical Journal*, Aug. 9, 1913.

6. Thomson discusses colon infection of the urinary tract in children as to predisposing causes, clinical features, symptoms and treatment. With vaccine treatment he has had only disappointing results. [J. B. H.]

EDINBURGH MEDICAL JOURNAL.

AUGUST, 1913.

1. BROCK, A. J. *The Psychological Conception of Disease.*
2. *MCBRIDE, J. G. *Trauma in the Aggravation of Pre-Existing Disease.*
3. WATSON-WEMYSS, H. L., AND GUNN, J. D. *Simultaneous Electro- and Phono-Cardiograms.*
4. THATCHER, L. *Congenital Defect of Abdominal Muscles with Anomaly of Urinary Apparatus.*
5. BALLANTINE, J. W. *Literature and Medicine.*
6. GREEN, C. E. *The Local Incidence of Cancer in Relation to Fuel.*

2. This article will be of interest to practitioners both in England and in this country, in view of the Workmen's Compensation Act in England and similar acts in this country. The article is a general discussion of the subject, with numerous illustrative cases. [J. B. H.]

THE PRACTITIONER.

AUGUST, 1913.

1. HELLIER, J. B. *Points and Pitfalls in Gynecological Diagnosis.*
2. *GRÜNBAUM, O. *The Treatment of Hematemesis.*
3. TOBY, J. S. *Three Unusual Cases of Renal Tumors with a Discussion of the Operative Treatment of the Condition.*
4. WINGRAVE., V. H. W. *Polypi.*
5. MUECKE, F. *The Septum Nasi and Its Abnormalities.*
6. HARPER, J. *Peri-sinus Abscess as a Complication to Acute Middle-Ear Suppuration.*
7. HEMLETT, R. T. *Review of Tropical Diseases.*
8. ROWNTREE, C. *The Workman's Compensation Act and the Practitioner.*
9. *GOSSE, A. H. *Erythema Nodosum. An Analysis of One Hundred Cases.*
10. *ACKERLEY, R. *The Influence of Daily Habits on the Causation of Alimentary Toxemia.*
11. COLLINS, J. R. *Sepsis in Medicine.*
12. *FAIRLEE, H. P. *Nitrous Oxide-Oxygen Anesthesia in Major Surgery.*
13. HARROWER, H. R. *The Influences of the Pancreas and Extracts Thereof on Resistance to Infection.*

2. Grünbaum believes that any drug given in cases of hematemesis should possess the following characteristics: (1) it should act in very dilute solutions; (2) cause constriction of the blood vessel; (3) not raise the general blood pressure; (4) not destroy tissues and delay healing; (5) not possess any toxic properties; (6) not irritate the stomach. Adrenalin solutions given by mouth, 1:1000, in drachm doses, along with gram doses of neutral calcium chloride best meets with these requirements. He discusses other drugs and methods in the greatest of detail. The article is of distinct practical value.

3. Toby describes three unusual cases of renal tumor and discusses the operative treatment of such conditions.

9. Gosse discusses erythema nodosum based on a review of 100 cases which he presents in elaborate tabular form. He takes up classification, aetiology, and symptoms.

10. Ackerley, in an article showing the point of view of the extremist, believes that proper habits of eating should include: (1) thorough insalivation of all foods; (2) taking no beverage of any kind with meals; (3) avoidance of hot drinks of any kind; (4) allowing at least four hours between any two meals; (5) avoidance of condiments and all substances of an irritating character.

12. Fairlie takes up the advantages and disadvantages of nitrous oxide anesthesia. Among the latter he mentions: (*a*) bulk and complexity of the apparatus, (*b*) cost, (*c*) insufficiency of muscular relaxation. He describes the apparatus, administration, action, effect on muscular relaxation, circulation, respiration, and after-effects. He presents his fifty cases in an elaborate table. [J. B. H.]

Miscellany.

RESOLUTIONS ON THE DEATH OF DR. JULIAN A. MEAD.

DR. JULIAN A. MEAD served the Commonwealth as medical examiner for twenty-one years. During this time he became president of the Massachusetts Medico-legal Society. As presiding officer of this Society, he made a deep impression of dignity, faithfulness, and ability. In testimony of this abiding impression, this memorial is offered by the Society.

Doctor Mead had a broad medical faith founded on a keen intuition and a wide experience. Alert in manner and mind, he made his judgments quickly and with accuracy. Tolerant with the opinions of others, he held to his own faith with a kindly genial manner which made his foe his friend.

Doctor Mead served the town of his adoption and the Commonwealth for many years in many ways. In these activities, as well as in his medical practice, he set a high standard of duty and achieved success as a citizen of worth and definite accomplishment, as an official of marked ability and faithfulness as a beloved physician.

By his death, we suffer the loss of a genial spirit, a man of sterling character, an honored practitioner, and a loyal citizen.

THOMAS M. DURELL,
WALTER D. SWAN,
GEORGE L. WEST,

Committee for Mass. Medico-Legal Society.

Adopted at a meeting of the Massachusetts Medico-Legal Society held October 1, 1913.

OLIVER H. HOWE, M.D.,
Recording Secretary.

Correspondence.

BRISTOL AND THE CASTLES OF WALES.

Conway, North Wales,
10 September, 1913.

MR. EDITOR:—

The city of Bristol still stands as bravely on its seven hills as in the days when its maritime greatness was established by its commerce with Dublin. Bristol and London alone, of the large commercial and manufacturing towns of England, have a medieval past of importance and interest. Brigstow, "bright place," was the Anglo-Saxon name of the clean and prosperous settlement at the mouth of the Severn. The Normans made it the site of a castle, where later the unfortunate King Stephen, "that worthy peer," was imprisoned by Queen Matilda. The great advantage of its splendid harbor early made Bristol the principal seaport of England; and with its commerce it grew at one time to be second only to London in size. Of recent years it has been far outstripped by Liverpool, Glasgow, and Cardiff in trade, and by the great midland manufacturing cities in population. But the seafaring element is still conspicuous in its life, and one may see in its streets many trios like the famous "three sailors of Bristol City."

In a literary way two personalities are particularly associated with Bristol,—Robert Southey, who was born at a house in Wine Street in the cathedral parish, and Thomas Chatterton, the ill-starred boy-poet, born a posthumous child in the parish of St. Mary Redcliffe. It was in the muniment room over the north porch of this church, of which his uncle was verger, that Thomas, then a pupil at Canynge's school, pretended to have discovered the famous Rowley manuscript. He died at eighteen, a pathetic suicide in a London garret, not the first of earth's finest spirits whom the "fell grip of circumstance" has brought to unhappy destruction. Of all the geniuses prematurely lost to mankind "before his pen had gleaned his teeming brain," Chatterton seems most likely, had he lived, to have enriched the full garners of literature as much as any save Chaucer, Shakespeare, Milton, and perhaps Keats.

Another, though a very different, personality that one may associate with Bristol is that of Dr. Thomas Dover, long a practitioner there, and famous as the inventor of Dover's powder and the discoverer of Alexander Selkirk. His history, which has been recently detailed in the *British Medical Journal*, deserves a brief review on account of its general as well as local interest.

Thomas Dover was born at Barton, Warwickshire, in 1662. He entered Magdalen College, Oxford, in 1680, but later went to Caius College, Cambridge, from which he graduated in 1686. He then studied medicine under the great Sydenham, who took care of him through an attack of small-pox, and in 1696 we find Dover settled in the practise of his profession at Bristol. He early gained a reputation for treating many diseases successfully with large doses of mercury, and was sometimes known by the sobriquet of "the quicksilver doctor." This fact is an interesting bit of collateral evidence of the wide prevalence of syphilis in England in the seventeenth century.

Dover, however, was more than a mere doctor. He shared the exploring instincts of his age as well as of his profession, and at Bristol became a member of the famous Society of Merchant Venturers. In 1708, after taking part in various undertakings of this ancient and honorable organization, he joined with several of its members in fitting out, and himself sailed on, the memorable expedition to the South Seas which resulted in the finding of Selkirk on the island of Juan Fernandez.

The expedition consisted of six vessels, Dover sailing as physician on board the *Duke*, the flagship. Before long, however, he quarreled with Rogers, the *Duke's* captain, and by mutual agreement transferred to the *Duchess*, of which the afterwards famous Captain Cooke was then second officer. In the course of the voyage, the piratical little fleet captured a valuable prize, the *Manila*, and of this frigate, renamed the *Bachelor*, Dover was made captain with the rescued Selkirk as master. Both Rogers and Cooke afterwards published accounts of the voyage, from which it appears that Dover took rather more nautical than medical interest in the expedition. Indeed Rogers complains of "want of sufficient medicines, with which till now I thought we abounded, having a regular physician, an apothecary, and surgeons enough." It is probable, however, that Rogers was animated by ill-feeling against Dover, and resented the command of the *Bachelor* being given to the latter instead of to himself.

After his safe return from this voyage around the world, Dover resumed his practise at Bristol, where he continued until his retirement, when he went to live at the house of his friend Robert Tracy, at Stanway, among the Cotswold Hills, in Gloucestershire. There, in April, 1742, he died, and is buried under the altar of Stanway church. It was, of course, Dover's discovery of Alexander Selkirk which led DeFoe to give the immortal *Robinson Crusoe* to the world, and perhaps suffering humanity owes more to the Bristol doctor for this than for his mercury or his hypnotic anodyne.

From Bristol it is an easy and pleasant journey, by land or sea, to any of the southern ports of Wales, and once there one is again transferred from the breezy sunlight of historic England, to a land of Keltic character, tradition, population, and language, to the twilight of Arthurian romance. The people of Wales are most closely akin to those of Cornwall, though they have more the enterprising and vigorous disposition of the Scot. Indeed most of the Arthurian characters had originally Welsh or Scottish, Kymric or Gaelic, names. Uther Pendragon, it must be remembered, who bore the Welsh emblem on his standard, came down from Carduel to carve himself a kingdom out of Somerset, just as Lot came from far away Orkney to carve out his kingdom of Lothian. Cameliard, the home of Guenevere, was in North Wales. Caerleon, Arthur's summer capital, is in South Wales upon the Usk. And Merlin himself was originally Myrddin, a Welsh magician, just as Arthur was Arddyr.

The Welsh language, like the Gaelic, and unlike the Cornish, is still freely spoken as a mother-tongue, especially by the children. In the countries of Carmarthen and Cardigan, particularly the latter, it is almost the only speech used by the inhabitants. Indeed, it seems today by far the most vital of the surviving Keltic tongues.

Wales is preëminently a land of castles, and though many of them group themselves around the chivalric figure of Edward the First, a few have associations that go far back beyond his time to Arthurian days. Such a one is Chepstow, standing at the mouth of the Wye, the southern frontier town between England and Wales, as Chester is on the north, and representing in site, though not in fabric, the ancient castle "that hight Kynk Kenadoune and stood upon the lands that march nigh Wales." It was here that Arthur "held his feast at Whitsuntide," and here that the adventure of the white hart took place.

Carmarthen is traditionally the home and favorite haunt of Merlin. Indeed the name represents the English pronunciation of Caer Myrddin, Merlin's castle. In later times the castle, whatever its origin or early association with the wizard, belonged to Sir Rhys ap Thomas, a powerful noble who then owned most of the castles in South Wales, and to whose influence it was largely due that Henry Tudor, Earl of Richmond, became Henry VII of England. Sir Rhys is buried in the parish church of Carmarthen, as is also the genial Sir Richard Steele, who married a Welsh lady of this county.

Henry Tudor was born at Pembroke Castle, another fine Norman keep nearby, originally a seat of the Earls of Pembroke, one of whom was the Reginald, surnamed Strongbow, who conquered Ireland for Henry II, and is buried in Christ Church Cathedral at Dublin, which he built. Pembrokeshire, forming the southwest extremity of Wales, is a county quite distinct in the character of its inhabitants from the rest of Wales. It was settled in the twelfth century by a colony of Flemings brought over by Henry I, and to this day one hears little Welsh spoken here, and the district is commonly known as "little England beyond Wales."

Just as many of the castles in South Wales are associated with the Tudors, so those of North Wales are associated with the picturesque medieval personality of Edward I, surnamed Longshanks, to whom was due the final political integration of Wales with England. Harlech was a castle of his building, so was Beaumarais in Anglesey, and Rhuddlan in the Clwyd Valley. But the masterpiece of Edward's castles is Carnarvon, still in excellent preservation, placed in a commanding position at the western entrance of Menai Straits, which separate Anglesey from the mainland, and perhaps rightly known as the finest medieval castle in Europe.



CARNARVON CASTLE.

It was in the Eagle Tower of Carnarvon, looking out over the white-capped waves of the Irish Sea, that Edward's eldest son, the first Prince of Wales, later Edward II, was born in 1284. The familiar story tells how the astute king had promised his "new-caught sullen people" a prince born in Wales and not understanding a word of English. Then to the populace, gathered expectantly at the castle-gate, he exhibited his newborn son, exclaiming "Eych Dynn!", "Behold the prince," a phrase which later Teutonism curiously translitterated into "Ich Dien," as the Prince of Wales's motto.

The gate, where that first prince was shown, has ever since been known as Queen Eleanor's gate, after the prince's mother. She was a French princess, like Henry V's bride, and apparently her marriage with Edward was a true love-match. She was the "chère reine," for whom after her death the king built seven crosses, the last being Charing Cross, at the seven stations where her body rested on the way from Nottingham to London. Her son, Edward II, met a sad fate. After being defeated at Bannockburn by the younger Bruce, he was deposed, imprisoned in Berkeley Castle, near Bristol, and murdered there in 1327. One prefers to think of him always as the young first English Prince of Wales, and in fact so strong has been the sentiment towards his association with Carnarvon Castle that the custom has been recently revised of holding the ceremony of investiture of the new prince in the same Queen Eleanor's gate.

Of all the castles associated with this interesting family, however, none is more delightfully charming or full of connotation than Conway, which Edward built for the queen's honeymoon. Conway itself is a fascinating old Welsh town, still preserving its complete walls, like Chester, and is almost as much a paradise for artists as Clovelly or St. Ives or Rothenburg. It is a town of little zigzag narrow streets, and quaint old houses built up against the grey, slaty walls, with a fine river running past nobly wooded slopes through a gentle valley on one side, and on the other purple mountains rising crest upon crest to the far-away summit of Snowdon.



CONWAY CASTLE.

Conway Castle, like all ruined monuments of architecture, stimulates the imagination more than any completed structure can do; but unlike many, it remains in surroundings which are in harmony with the past, to which it belongs. Hawthorne, in his *Sketch Book*, said of it: "Nothing ever can have been so perfect in its own style, and for its own purposes, when it was first built; and now nothing else can be so perfect as a picture of ivy-grown peaceful ruin." The king's and the queen's towers, fronting on the quiet river, shelter between them a secluded garden, remote even from the little town which the castle protected, and more eloquent perhaps of the real inner character of the warrior king than all the more seemingly tangible memorials he has left. Whether one visits it first or last in his journeyings, Conway must, for this very personality of its association, remain always the most romantically beautiful of the castles of Wales.

PEREGRINUS NOVUS.

THE TEACHING OF THERAPEUTICS.

New York, Oct. 1, 1913.

Mr. Editor: Your admirable editorial in the issue of September 25, apropos of "The Teaching of Therapeutics," does not emphasize, as I believe it should, the great value of life-long experience of the practitioner, aside scientific explanation. There are formulae which have undoubted and great value, and yet we do not know precisely, upon what their efficacy in the cure of disease depends. Such a one is Warburg's Tincture—I do not believe one can cure certain forms and cases of chronic malaria, without it. This I have tested, and proved to my own satisfaction, not infrequently.

There are simple remedies that were much used in my early days, and are now almost lost sight of practically, that are really more useful, and far less objectionable, than many of the newer drugs, no matter how much they may be supported by the later science. To teach therapeutics to students in the best way, it seems to me, the older practitioner should make the rounds of the hospital ward frequently, with the attending staff, and when the younger men are through with their examinations, and statements, he should be called upon respectfully to express his views, product of much that he has seen, tried and learned.

I should be unwilling to abandon that knowledge of drugs and their uses, which I have learned almost solely outside and independently of the hospital ward. We should constantly bear in mind what we seem constantly to ignore, or forget, that practice among our private patients, and practice in the hospital, differs in many ways. To begin with, the habits and antecedents of those who are ill, differ essentially, as a rule.

Again, I defy any physician, no matter how learned he may be, to obtain successful results with patients, unless he strives, so far as possible, to observe and absorb, as it were, their personal idiosyncracies to drugs and treatment of any sort.

A mere nothing in the way of a drug, as treatment, will frequently make the very great difference between success, or failure, as to cure, temporary, or permanent.

Indeed, relief from painful, or annoying symptoms, is only thus obtained when cure is impossible.

BEVERLEY ROBINSON, M.D.

NOTICE.

WEDNESDAY NOON CLINICS IN MENTAL DISEASE for General Practitioners, Psychopathic Hospital, Boston.—Until further notice, clinics in mental disease for general practitioners will be given by members of the Psychopathic Hospital staff on successive Wednesdays (omitting holidays) from 12 noon to 1. p.m. The discussions and demonstrations will be held either in the library or in the assembly room (occasionally in the wards) of the hospital.

In offering these clinics, the trustees of the Boston State Hospital (of which the Psychopathic Hospital is a department) are endeavoring to provide a profitable kind of post-graduate work in mental diseases for general practitioners (particularly of the Metropolitan District) and thus to make the Psychopathic Hospital "*a center of education and training of physicians*" (see Report of State Board of Insanity, Pub. Doc. No. 63, 1910, p. 30).

The clinical material of the hospital is ample for the demonstration of all classes of mental patients, particularly in the earlier phases of their diseases or attacks. Attendance upon a fair proportion of the Wednesday clinics during the season should insure to the practitioner a good review of modern psychiatric diagnosis.

Practitioners wishing notification of the topics and cases to be especially discussed at particular meetings should advise the director to that effect.

There is no fee for these clinics, to which all Massachusetts practitioners are cordially welcomed.

(Practitioners are also invited to the staff meeting held on other week days (except holidays) at the same hour; these are devoted to more advanced, obscure, or special topics, having to do with the investigative or medico-social sides of the hospital work.

The hospital is at 74 Fenwood Road, Boston, and can be reached either by *Chestnut Hill cars*, alighting at corner of Fenwood Road and Brookline Avenue, or by *South Huntington Avenue and Brookline Village cars*, alighting at corner of Fenwood Road and Huntington Avenue.

E. E. SOUTHARD, M.D., *Director.*

74 Fenwood Road, Boston, Mass.

APPOINTMENTS.

HARVARD MEDICAL SCHOOL.—At a recent meeting of the Board of Overseers of Harvard College, the appointments were approved of *Dr. John Hildreth Mc Collom*, as emeritus professor of contagious diseases of *Dr. Reid Hunt* as professor of pharmacology, and of *Dr. Worth Hale* as assistant professor of pharmacology in the Harvard Medical School.

UNIVERSITY OF KANSAS.—*Dr. G. E. Coghill* has been appointed associate professor of anatomy at the University of Kansas.

WESTERN UNIVERSITY OF LONDON.—*Dr. Paul S. Mc Kibben* has been appointed professor of anatomy at the Western University of London, Ontario.

BOSTON CITY HOSPITAL.—*Dr. Halsey Beach Lode* has recently been appointed third assistant visiting surgeon to the Boston City Hospital.

RECENT DEATHS.

DR. ORREN BURNHAM SANDERS, of Boston, who died on Sept. 25 as the result of an automobile accident at Quincy, Mass., was born in Epson, N. H., on Nov 18, 1855. After graduating from the Boston Latin School in 1874, he studied for two years at Amherst College, and in 1879 received the degree of M.D. from Boston University. He was an out-patient physician to the Massachusetts Homeopathic Hospital; lecturer on genito-urinary diseases at Boston University Medical School; a member of the American Institute of Homeopathy, of the Massachusetts and Boston Homeopathic Medical Societies, and of the Massachusetts Surgical and Gynecological Societies; and since 190 a Fellow of The Massachusetts Medical Society.

DR. CHARLES LESTER LEONARD, of Philadelphia, who died at Atlantic City, N. J., on Sept. 22, of x-ray epithelioma, was born in 1858. He received the degree of A.B. from Harvard College in 1886, and that of M.D. in 1889 from the University of Pennsylvania.

DR. ALFRED T. BIRDSALL, who died of pneumonia recently at Brooklyn, N. Y., was born in that city in 1870. He graduated from the University of Minnesota in 1896, and in 1899 began the practise of his profession at Brooklyn. He was instructor in surgery at the New York Post-graduate Medical School and a member of the Kings County Medical Society. He is survived by his widow and by one son.

DR. WILLIAM H. K. DAVIS, who died of nephritis on Sept. 24, at East Orange, N. J., was born in 186 He received his medical degree in 1886 from the New York College of Physicians and Surgeons. He was a member of the American Medical Association and of the New Jersey State Medical Society. He was no married.

Original Articles.

SOME PECULIARITIES OF MEDICAL PROGRESS WITH ILLUSTRATIONS FROM STUDIES OF ARTICULAR CONDITIONS.

BY H. W. MARSHALL, M.D., BOSTON.

Continual increase in medical knowledge is going on as everyone is aware, but peculiarities of progress are not as obvious as the mere fact of its existence, and there is not complete appreciation usually of ways in which growth is occurring unless one's attention is called to them by special circumstances. The possibilities and difficulties of advancement, however, are very interesting.

Starting with any stage of development there may be extension in all directions as a continually expanding wave progresses in a widening circle from a single center. The wave is of the same uniform character in its larger sizes as in its smaller ones.

Growth may take place secondly in many different directions, each outgrowth maintaining its independent nature, developing without mingling with others, and retaining relationship with its origin by comparatively slight connections. In this latter instance there are changes in character as well as in extent of development.

Advances in medicine have been of both kinds. General knowledge uniform in all departments is now of greater extent than it was formerly, while in special branches of medicine, in some instances, there have been surprisingly great individual differentiations.

Progress among the minor departments occurs in the same two ways that advances are made in the whole subject; and furthermore the accumulated facts of all specialties now have become so numerous that it is impossible for anyone to comprehend the whole of them. So that matters that are unknown or novel to one worker may be the most familiar ones to others.

The writer has had an instructive experience which illustrates actual possibilities and limitations of advancement.

Selection was made of treatments of chronic joint diseases as subject of study; and instead of further increasing the numbers of special orthopedic, or surgical, or pharmaceutical or physical therapeutic methods by many new modifications, choosing one group to the neglect of the rest, an attempt has been made to acquire a new, more comprehensive general understanding of joint diseases as the first step in securing improvements in treatments. Then reductions in numbers instead of further increase of special therapeutic agents and methods naturally has followed.

Practically this has meant very slow progress, with attempts at combining accuracy of detail with breadth of view, keeping in mind and constantly comparing related special subjects with advice from many competent specialists.

Starting from an orthopedic standpoint, attention was directed first to mechanical and surgical treatments; then, as underlying causes of joint disturbances were looked into, it was diverted in part to certain details of internal medicine—diets, regulation of digestive and eliminative functions, etc., which directly or indirectly influence joints.

Further progress showed the necessity of becoming more familiar also with some carefully selected facts of physiology, pathology, anatomy, cellular biology, bacteriology and chemistry, because these subjects have important bearings upon understandings of health and diseases of articulations. Hydrotherapy, thermotherapy, electrotherapy, mechanicotherapy and massage, vaccine therapy, each are of benefit undoubtedly in selected cases, and cannot be ignored.

In five years' time the writer has found himself gradually acquiring a point of view that no special workers fully agree with; although many competent advisers, who have been freely consulted, are generally ready to say facts collected relating to their particular subjects are fairly correct as far as they go.

Usual criticism of papers, which have been prepared, are that in them have been mixed clinical and scientific data in such unusual ways that nobody cares to read them; while from special standpoints they present no new features, are incomplete, and contain a lot of superfluous inclusions. These comments are entirely just ones, from standpoints of specialists, but such articles possibly yet may have very important merits.

It is natural for orthopedists to emphasize the importance of further studies in orthopedics, or medical internists to advise more work in internal medicine, or chemists work in chemistry, pathologists work in pathology, biologists work in biology, and so on; and undoubtedly there are unlimited amounts still to be done in each special department. But from frequent discussions with clinical and scientific men, it has become perfectly obvious that each specialist's most cherished ideas gained carefully in his most important activities of life, may be wholly unknown or considered only as obscurities of uncertain value by other equally able, honest workers.

The extreme range of ideas expressed in these opinions upon the same one general topic has been even more impressive than the exact ideas themselves. If all unimportant features should be selected from this collected group of opinions in order to pick out all points to be avoided in study, it would be found that nearly every possible feature had been mentioned, and that nothing would be attempted.

Or instead if most important details are

picked out from the same lot it would be seen that the lists of most important features and least important ones are identical, the only difference being that contributors vary in the two instances. Apparently flatly contradictory notions are encountered very frequently, yet each opinion is based upon exceptionally extensive special knowledge, and furnishes within its particular sphere the most complete, well-balanced judgments that are possible.

It should be noticed, however, that contradictory opinions always are about complex matters in which there are several elements, and that each specialist sees the phases with which he is most familiar. The more perfect his special point of view is, the more faulty are likely to become his estimates of the comparative importance of other involved phases.

Contradictions therefore must be recognised to be natural accompaniments of extreme specialism, and their prevalence should not detract from appreciation of the great value of special views, but should indicate the need of comprehensive comparative studies for re-arrangement of various data into correct harmonious groupings.

It is possible to explain very many situations satisfactorily by sorting over the facts, placing them in their natural positions with regard to the rest, qualifying their apparent antagonisms by additional facts, instead of losing their significance through accidental or incomplete associations.

Special studies are readily appreciated because there are many specialists, while the work of persons who attempt generalizations and comparisons is accompanied by unusual obstacles. For example, if an attempt is made to combine the points of view of clinicians and of scientific laboratory workers, it is easily possible to persuade clinicians that laboratory workers should have better appreciation of difficulties and merits of clinical problems; while laboratory workers will be ready to admit that clinicians do not understand as fully as they should the difficulties and advantages of most careful scientific work.

But the person who spends his time in combining different views will have a thankless task and encounter insurmountable difficulties, however, if he attempts to show specialists individually that they tend to overestimate their own branches, and to underestimate the value of other departments of medicine.

The latter, who are devoting their time to their subjects, know much more about them than the person does who generalizes simply; and they are not favorably impressed with ideas which are at variance with their own about matters with which they are most familiar. And because such a critic's knowledge is relatively incomplete in this way judgments erroneously are likely to be that his opinions upon other comparative matters also do not amount to much.

Any person, however, who has studied carefully in turn several different topics in their relation to a single complex subject for a number of years, cannot honestly believe in the overwhelming importance of any one of them under all conditions to the exclusion of the others. Whoever generalizes, therefore, must expect poor opinions of special workers as the latter view him from their own standpoints, although they will grant that generalizations yield useful points of view not otherwise attainable.

Generalizations, nevertheless, are as important as they are difficult, and obscurities can be due to lack of compilations of widely separated, yet related, well known facts as well as to lack of development in special branches of medicine. And the writer has found, notwithstanding opinions of others, that unusual combinations of clinical and scientific data, those which readers find tedious to peruse, are clearing up many difficulties in joint diseases; and that these combinations permit successful direction of treatments when special methods fail.

As a summary it may be said that comparative general studies are important because they furnish points of view which cannot be obtained in other ways, and because there are always a number of different phases to every medical situation that need comparisons. They are difficult because they are subjected, to an exceptional degree, to more or less unfavorable criticisms from all special workers.

Special studies always are desirable to extend special knowledge, and they are easier than comparative ones because they are more independent of other departments.

With present strong tendencies toward specialism obscurities are attributed to lack of development within special branches, when in reality many of them are due to lack of appreciation of unsuspected relationships between apparently widely separated well known facts.

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Some of the same peculiarities observed among advancements in understanding of disease extend to selections of methods and agents used in treatment. Preference is given generally to new kinds of drugs or simple new methods rather than to new combinations of familiar ones. This attitude is to be expected from special workers; and because simple remedies and methods are easier they are likely to be chosen also instead of complicated combinations, although the latter may be based upon much more perfect understanding of underlying pathological conditions.

The writer has been advised in his joint problems by a few clinicians that comparative studies and attempts at refinements of treatments by new combinations and alterations of old methods are not appropriate subjects for original investigation.

Presumably originality is conceived by many to be a matter of accumulation of data that is entirely novel, and that new arrangements of old facts and ideas are thought to be of less con-

sequence. Perusal of recent medical literature shows this notion to be common from numerous new drugs that are proposed, from many descriptions of new special treatments, and from the scarcity of broad, comprehensive studies.

But at the present time persons with chronic joint diseases, who seek medical advice and treatment, are amazed at the variety of things that can be done for them; and it becomes a matter of vital importance to them whom they consult whether they lose their tonsils, teeth, or some of their viscera; or are starved, well fed, dieted, purged, or treated with stomach lavage and colon irrigations; or are put into electric light cabinets, given bakings, electrical and hydrotherapeutic treatments; or are held in plaster casts, abdominal belts and orthopedic appliances; or are subjected to various useful, rather extraordinary, medico-mechanical treatments and exercises; or have their joints opened, washed out, and treated surgically; or only receive drug treatments, blood examinations and vaccine therapy; or are sent to sanatoria, or are allowed to rest peacefully in bed in the open air at home.

While there are no doubts that each variety of treatment just mentioned can be of very great value in selected instances, as each specialist will agree concerning the most favorable of his own cases at least, yet from patients' points of view the list of possibilities looks decidedly formidable. To them there seems to be need of knowing as exactly as possible the relative merits, indications and contra-indications for the various kinds; and this need appears even more urgent than discovery of additional new ones to increase the confusion.

The important peculiarity of progress should be emphasized consequently when great expansion is going on in all special departments, that progress does not consist wholly in expansion; and that simultaneously with increase of knowledge and of varieties of methods, there are going on more or less energetically the reverse processes of decreasing numbers and varieties of remedies and special procedures by selection of best ones and rejection of poorer ones.

Human capacities for using accumulated knowledge and remedies have to be considered in human advancement as well; and progress does not mean solely the amassing of enormous quantities of unclassified data of most varied sorts.

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The main purpose of the study of medicine is the relief of human suffering, although in the wide scope of this study there are some scientific fields that have no direct relation with patients. Scientific workers, for illustration, who spend all of their time in laboratories have as their main object the advancement of science without thought of its applications; and applications are left to clinical specialists and general practitioners.

It becomes a fact of importance, therefore, that clinical specialists, when they grow in excellence in special ways naturally tend to lose their appreciation of other branches, as has been pointed out; and that they may even become very intolerant of each other's points of view.

It also is a matter of consequences that general practitioners are so busy making a living from relatively large numbers of patients that they haven't time to look through voluminous results of laboratory studies. Their source of information upon special subjects is mainly from clinical specialists, and there are very few persons who take as their principal aim the sorting over of accumulated data into useful forms, in order to harmonize contradictory special views, and to establish comprehensive understandings of diseases; and in this way make possible greatest efficiencies in treatments.

Nearly everyone shirks this step in advancement, and the overwhelming majority turn to easier special tasks, letting important final generalizations and comparisons be made in haphazard, careless, incomplete ways, or not at all. By this neglect are lost the practical values of immense numbers of special scientific endeavors.

Broad generalizations and comparisons are found mostly in systems of medicine, textbooks, monographs, and formal addresses before medical organizations. They are derived from long varied experiences of comparatively few well known men; and they are general impressions and ideas which, having accumulated, have made themselves apparent. They have not been sought for, usually, with the diligence and purpose frequently shown in special research.

Why there shouldn't be an important specialty of generalizing created and carried on by a large number of investigators with the enthusiasm and perseverance shown in other specialties is left to readers' considerations. Would active purposeful search into all possible contributing subjects by many persons, with careful comparisons, new arrangements of facts, and condensations of voluminous well known data, yield more comprehensive views than those general impressions which are gained now from long experience without special effort?

It seems to the writer that, with many persons engaged in comparative studies, there would be a thorough turning over of all forgotten and scattered facts of scientific and clinical literature; and that advantages of many purely scientific studies would be appreciated, and such results much more frequently utilized.

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Before citing some general conceptions of arthritis, brief comparisons will be made of clinical and scientific ideas, because their differences should be included among the peculiarities of medical progress.

Careful scientists say that clinical observations should be called clinical impressions, as there are many different ones about each situation depending upon whether the observer is a

surgeon, medical internist, physical therapeutist, etc., etc. Secondly, that clinical theories and integrations are dangerous, and that greatest medical progress has occurred since modern scientific methods have been introduced. Thirdly, that progress should go on step by step from one established truth to the next one; and that it should wait indefinitely if necessary for satisfactory proof of ideas upon which advances are based.

On the other hand, mentioning the same points, clinicians say that clinical impressions should not be condemned, but that they should be made as correct as possible for they always have been, and always must be, essential features of clinical medicine. Secondly, clinicians admit theories and integrations are especially dangerous when impressions, instead of proven facts, are being dealt with; yet point out that these too always have been, and must be, essential features in progress. Thirdly, that direct scientific proofs for clinical ideas very frequently are entirely impossible, but that impressions, notwithstanding, can be correct and often are so, although they cannot be verified. Fourthly, that the element of time, which is relatively unimportant in pure science, is the most important feature in applied medicine.

The apparent antagonism between scientific and clinical points of view are satisfactorily explained by the circumstances that clinicians are compelled to deal with great complexities, with many unproven ideas, and in as brief periods of time as possible. They must do the best they can under these conditions; but otherwise they are governed by the same notions and methods as scientists, and if the latter were bound by clinical limitations they would do as clinicians do.

In conclusion let it be admitted, as careful scientific investigators insist, that it is easier to pull apart into its component elements a structure that is composed of many blocks, than it is to put the blocks back again exactly in their right places to restore the structure perfectly.

But let it be recognised too that rebuilding still is possible when models are at hand for comparisons. Even though the blocks haven't been plainly marked as they have been taken apart, so they can be replaced easily, yet the right way for doing so can be puzzled out by repeated trails, provided there are a sufficient number of other examples to furnish hints and to allow comparisons.

This last method, with an abundance of material in numberless clinical examples of joint disease, is the one the writer has attempted in building up a more accurate comprehensive view of arthritic conditions.

SOME GENERAL CONCEPTIONS OF JOINT DISEASES.

Joint diseases are used to illustrate the value of comparative studies because the writer personally is unable to furnish any other example equally well developed; and it seems that some illustrations should be given to show real results.

All readers are not interested especially in obscurities of articular lesions, and their indulgence is begged in the review of a few general features which follows. The subject lends itself well, however, to this form of study, and it is hoped many will be able to see the value of such attempts, and that they increase proportions of patients who are relieved.

All diseases necessarily are due either to defects among one or more of the normal physiologic influences ordinarily acting upon tissues in healthy conditions; or they are due to defects originating within the tissues themselves; or they are the result of harmful foreign influences occasionally seen in infections, poisonings, injuries and exposures to external causes.

Joint structures maintain their health through normal nervous, vascular and mechanical stimuli that are combined always with each other in variable proportions. As the existence of trophic articular nerves has not been demonstrated these will be disregarded, and effects attributed to them explained by vasomotor changes.

The idea to be retained clearly in mind is the one that joint tissues, which possess vitalities varying from time to time and differently in different persons, are continually acted upon by combinations of influences—mechanical frictions from body motions, pressures of body weight, and numerous favorable and unfavorable vascular stimuli.

This statement can be put into useful form of an algebraic equation as follows, the letters a, b and c representing at times variable positive and negative quantities; and X also having positive and negative values in different instances in consequence.

(a) vascular influences, + (b) mechanical influences, + (c) joint tissue resistances, = x degrees of healthy joint vitality. The equation expanded to include occasional additional situations becomes (a) vascular influences, + (b) mechanical influences, + (c) joint tissue resistances, + (d) occasional harmful external influences, = x degrees of health or ill-health.

This provides a convenient way of remembering in every instance, in special bacterial diseases, in metabolic disturbances, in congenital weaknesses, in severe traumata producing acute inflammations, in treatments with specific remedies, in general hygienic measures, etc., etc., that the algebraic sum of a, b, c and d represents the value of x; and that x never depends upon any single factor independently, however prominent any single cause or treatment becomes.

For example, tubercle bacilli may be brought to a joint in the blood stream, and upon finding lodgment, multiply, and produce tubercular arthritis. The amount of mechanical irritation and the particular degree of vitality of the particular joint at the particular time are contribu-

tory to the development of pathological lesions as well as tubercular toxins. Other constituents also in the blood exert their influences and must be thought of in addition to tubercle bacteria and their products.

It is called tubercular arthritis, but it may be considered also as insufficient vital resistance of tissues, which is so slight that tubercle bacilli are able to gain foothold in consequence of this primary weakness. From such different points of view have arisen confusions and apparently contradictory ideas about the etiology of arthritis, when in reality all are correct and simply deal with different phases of the matter.

It is very common at present to have special blood examinations made for syphilis, gonorrhea and pyogenic infections, and to institute specific treatments without further thought if these tests are distinctly positive. It is also not uncommon to have specific treatments fail, or even do harm, when tests are positive; although at other times with the same positive reactions specific measures appear beneficial.

This error of specialism would occur less frequently if there was correct appreciation always of the ways joints maintain their health or succumb to harmful combinations of influences.

The *second* important matter is the fact that the blood stream, throughout life, has passing through it several ordinarily harmless substances, which are capable of producing characteristic pathological joint changes if they accumulate in too large quantities in circulation.

These substances are urates, calcium, harmless waste products of habitual bacterial residents of the digestive tract, and another ordinary waste product excreted by the kidneys whose identity is not established, but which clinical data suggest is some substance like creatinin. It is possible there may be other common substances in circulation, or deficiencies among vascular constituents, that produce the symptoms of scurvy and rickets, but these will not be considered in this paper.

Food substances in circulation exert their beneficial or harmful influence too, and fat may be deposited beneath synovial linings of joints to such extent that it becomes almost pathological, inducing villous arthritic changes easily when such synovia become pinched more readily in ordinary motions of the body.

When a patient complains of joint trouble and x-rays show hypertrophic bony changes, the natural conclusion is that the cause of the trouble is either in excessive quantities of circulating calcium, or in changes within the tissues themselves. Lowering of tissue vitalities from some more remote cause, past infections commonly, may have led in turn to the obvious local calcareous deposits and bony hypertrophies.

A point to be emphasized is that the striking pathological changes are easily identified while less apparent ones are forgotten. Infectious processes, intestinal toxemias, gouty changes and atrophic ones can take place, too, either simultaneously, previously, or subsequently, in hypertrophic arthritis and may be the cause of symptoms attributed to the latter; for intestinal toxemias and common infections leave no trace of their influence upon the bones at first, and so naturally they are overlooked; yet treatment of hypertrophic arthritis by measures directed toward relief of intestinal toxemias frequently relieves cases that are considered hypertrophic ones.

If further data were needed for proof of the idea that striking pathological changes frequently are accompanied by other types of disease, and that the latter are often passed by unrecognised, it could be readily found in atrophic and hypertrophic changes recorded simultaneously in some x-rays, in gouty deposits that occur together with hypertrophic changes, or in mixed bacterial infections occasionally seen in tubercular joints, etc. The combined nature of these lesions usually is discovered late; and previously they have been designated or treated as simple affections.

The *third* feature brought out by this general conception of arthritis is the fact that normal influences acting in normal degrees at times can be exciting causes of joint changes.

When mild chronic infections, or intestinal toxemias, slowly lower the resistances of joint tissues in long periods of time, patients unconsciously favor such joints; until finally, after some necessary activity such as they previously had been accustomed to, healthy resistances are overcome and pathological symptoms mysteriously make their appearance.

The obscurity consists in the insidious working of the mild vascular irritants without pain or easily recognizable evidence of their action, until they have weakened the weakest articulations to the point the latter succumb to ordinary mechanical stimulations and frictions. The patient, and perhaps the attending physician, are unconscious of this undermining process, and therefore it is classed by them as a type of obscure origin.

Intestinal toxemias and very mild infectious causes, which have brought on pathological symptoms insidiously, may clear up by the time their significance is suspected; and then, as there are no evidences upon examination of harmful fluctuations which previously have occurred, the obscurity is deepened.

It should be remembered that exciting causes are those individual changes which make the algebraic sum of all influences acting upon joints over-balance local resistances. Sometimes they are trivial additions when other combined factors already are nearly sufficient, while at other times exciting causes have to be very striking defects to make the total balance incline toward the side of pathological developments.

And because they may be any one of the normal physiological factors, or any of the external

harmful ones, the importance again is seen of recognising that health and ill-health always depend upon combinations, and that undue emphasis should not be laid upon exciting causes because they may be at times simply usual physiologic influences.

The *fourth* point to be mentioned is the matter of fluctuations among vascular constituents. Harmful effects may be produced by excessive proportions of substances in circulation constantly, or by fluctuating quantities from time to time.

If there are periods of temporary, very great, vascular concentrations of any particular substance; and these times alternate with periods of slight or normal concentrations, it is obvious the harmful influence of the high grades may be overlooked if examinations are made during low phases of the fluctuations.

In order to realize how fluctuations occur, let it be supposed that a quantity of food is present in the digestive canal. The digested products, together with possible harmful substances from intestinal bacteria, start a wave of concentration through the blood stream that begins at the gastro-enteric mucosa and ends at the kidneys and other eliminative organs. There is a temporary rise and fall in vascular proportions depending upon rate and duration of absorption, and also upon the rate and duration of elimination.

If the quantity of material in the lumen of the intestines is small, and absorption is rapid, a short well defined wave is started. If the quantity is large, a long wave, with higher crest, is promulgated through the blood and may be the cause of harmful changes within the tissues, especially if it is repeated at frequent intervals.

If the kidneys fail to remove all before the next wave starts, the latter may reach still higher levels and may be the cause of permanent backing up of substances in the blood.

This has been definitely proven in gout, and presumably it also occurs in intestinal toxemia, for in both there are the same fluctuations in the urine. Uric acid showers alternating with periods of decreased elimination of urates are comparable to wide fluctuations seen in the urine of indican from time to time.

It is not known whether waves of increased concentrations of intestinal bacterial products extend so far as to cause an unusual permanent backing up process in the blood, as in gout; but it is known that there are variable degrees of intestinal putrefactions from time to time, and this fact, combined with very variable findings in the urine, suggest strongly that considerable fluctuations in the blood do occur.

It should be remembered that, while it requires constantly increased proportions of circulating urates to produce pathological symptoms, some other substances may not require nearly as long periods of circulation to produce their characteristic harmful effects.

It is theoretically possible, for example, that creatinin retentions are the cause of atrophic arthritis, although urine examinations repeatedly show normal twenty-four amounts, provided creatinin passes through the system occasionally so that its highest levels exert a transient harmful effect upon the joint tissues before the amounts in circulation subside again.

We know practically nothing about the relative toxicity of retained normal waste products, yet it is extremely difficult to believe there are no differences among them. The evidence furnished by recent advances in understanding of renal functions demonstrate what great and rapid changes in eliminating powers for single substances, such as phenolsulphonephthalein, may take place in pathological conditions; and this evidence, coupled with clinical manifestations of uremia and eclampsia, harmonize much better upon the assumption that there are differences in toxicity of different waste products, than upon the opposite equally theoretical one that there are no such differences.

It is easy to understand eclampsia, uremia, arthritis, gout etc., by supposing that different waste products show differences in effects they produce when retained; and also by assuming that kidneys exert differing selective actions from time to time upon all individual waste substances. When urates are retained gout results. When other substances, which exert a more rapid influence upon tissues, are retained, then eclampsia, uremia, atrophic arthritis, etc., represent the effects of these other retentions. That the kidney exerts a selective action is proven by the urine being unlike the blood; that the selective action exhibits some individual quantitative differences from time to time is obvious from the new functional tests for renal efficiency, and from metabolism experiments in gout, diabetes, etc.

When the full significance of all waste products is better understood presumably some of them will have associated with them, as they circulate in unusual proportions, new qualities unsuspected now when so little attention is paid to features of fluctuations in vascular concentrations.

The *fifth* group of points to be discussed are biological peculiarities of living tissues.

Healthy tissue vitalities depend upon deficiencies and superfluities of food substances, upon chemical and physical environments of the growing cells, and upon alternations of stimulations with periods of rest. Defective alternations are seen in excessive fatigue from over use, and in atrophies from disuse. Vitality also depends upon efficiencies of eliminative functions, upon efficiencies of protective apparatus against harmful foreign vascular influences, and finally upon freedom of tissues from injuries and exposures.

There can be no doubt about the importance of each of these influences, nor is there any question that some of them very frequently are

lost sight of partially, if not entirely, in diagnoses and treatment.

The importance of efficient eliminative functions, and essential relationships between absorptions from digestive canal and outputs by excretory organs have been briefly mentioned. A similar important relationship exists between foci of infection, and the efficiency of the defensive apparatus, as the latter protects the individual from these dangers.

Extensive local infections are compatible with health if defences are unusually good, just as severe intestinal putrefactions may occur without harm, provided the kidneys are very vigorous and quickly remove all harmful substances.

Turning to actions of vascular substances and to all other influences which affect directly the protoplasm within living cells, the biological considerations just mentioned need to be kept in mind while directing therapeutic measures, otherwise treatments become causes of aggravations instead of relief from harmful symptoms. Yet how many persons are there who attempt to ascertain the relative importance of all these biological elements in each case; and on the other hand, how many are looking mainly for an opportunity to apply some specific idea or treatment which happens to be of great interest to them at the particular time?

Although the health of all living protoplasm requires alternations of rest and activity, how frequently this fact is disregarded, or not recognized, in diagnosis and treatment? Do we not all recognize much more fully the indications for beginning special procedures than we do the signs for stopping them, and are there not very numerous illustrations of too long continuance, of special diets, drugs, orthopedic appliances, hydrotherapy, vaccines, etc., etc.?

Failures in treatment, due to failures of remembrance of these biological peculiarities, cannot be improved by new discoveries, but only through avoidance of the same errors in the future.

Why shouldn't there be universal recognition that treatments should be stopped while they are working well, and that they should be repeated again if necessary after an interval, instead of continuing them until fatigue effects become very obvious, then stopping them permanently?

The method of repeated trials is the one used by careful physiologists; also it is employed in titrations of unknown chemical solutions for end points demanded by chemical accuracy. It is observed in readings of scientific physical instruments, and it is the method of careful mechanicians, and therefore why shouldn't the medical profession universally utilize it upon complicated human mechanisms where there is as much need of precision for perfect results as in these other subjects?

There seems to be no good reason why a physician cannot work his way along among unknown morbid conditions when he carefully administers drugs, vaccines, physical therapeutic measures, diets, etc., by watching clinical indications as a chemist does his chemical indicators in titrations of unknown solutions.

And dependence upon hitting exactly right amounts, by single attempts, is likely to be as disastrous in treatments of patients as is the pouring of all the titrating fluid at once into the unknown chemical mixture.

The *sixth* group of features are physiological associations and anatomical arrangements of different organs.

Gout may be thought to have infectious, metabolic or neuropathic origins in different instances, owing to the facts that urates taken in the food, pass through the liver into the general circulation, are eliminated by the kidneys, and that urates formed in the tissues also pass through the blood to be eliminated through the latter channel.

If infections injure the functional capacities of the kidneys so that urates are retained in circulation, then the cause of gout in this instance may be considered to be either the kidney defects which result from the infection, or more remotely to be the infection itself. If nervous factors influence kidneys, liver, digestive organs, or normal physiological functions in any way, causing accumulation of urates through changes in renal function, or, through increased productions, or diminished destruction of urates by the liver, then a nervous origin properly can be assumed.

If internal secretions lead to unusual nervous conditions, as presumably they do at times, then internal secretions may be spoken of as causes of abnormalities among internal secretions, it If some congenital weakness is the original cause still more remotely can be said to be a cause of gout; or farther back there may have been an original infection which upset congenitally weakened glands and started the train of events.

Theoretically, a great many physiological variations may be contributory, directly or indirectly, to gouty accumulations; and it is well to think of gout only as the direct effects produced by excessive quantities of circulating urates upon the tissues; and that such accumulations always are due to combined influences.

Contributing causes of arthritis are innumerable, but direct ones, so far as can be imagined and as have been stated already, are excessive amounts of urates, creatinin or an allied substance, calcium, bacterial products from habitual residents of the gastro-enteric tract, bacterial products from pathogenic bacteria, direct exposures to harmful external physical influences, frictions and pressures of body motions and weight, possibly toxic effects of circulating lead, and finally, poorly understood deficiencies among normal vascular constituents in scurvy, etc.

Many other general features could be enumerated, but enough have been given to show how impossible it becomes, upon the one hand,

for one who undertakes general studies to believe exclusively in surgery, in use of medicines, in physical therapy, in mechanical appliances, or in any single method alone for treatments of joint conditions; and upon the other hand, how he must believe in them all partially and favor extension of each as far as possible.

General principles are vague, difficult to acquire, slippery to remain in mind, yet they are just as essential as special details; and because they are so difficult more time, instead of less than the amount spent upon special features, should be devoted to them to give a proper balance between the general and special sides of every situation. Furthermore, general papers, although not easy to read, ought to have more value than special articles at present because of the poor development of the former and relative over-production of the latter.

Finally, there are no doubts, as demonstrated from actual experiences, that persons with general comprehensive points of view relieve some patients whom physicians with single special methods treat unsuccessfully. Both are successful in some instances and both have failures.

Although accurate comparisons are impossible, it seems that patients, who are relieved, are different in character in the different groups; and that those cured through applications of general ideas constitute the largest lot, and include some from each of many special groups.

The proportion of persons relieved is the final test for all methods; and, although interpretations of results are open to all the objections to which all clinical data is subjected, and in spite of the absence of comparative statistics of reliable nature, yet the writer's impressions strongly favor the belief that general comprehensive understandings, with skillful use of a reasonable variety of reliable methods and therapeutic agents, yield by far the largest proportion of successes. Such impressions are the only data there is available, but it should be remembered that carefully gathered impressions may be correct, although they cannot be proven.

Medical progress now is in a phase of extreme specialism, but it is bound to alternate with, or to be combined, sooner or later, with periods of comparisons.

For a balance is necessary between the two; and when different specialties become so extensive that they perfectly exclude other related phases of each medical situation, then advantages of generalities become more and more obvious, and attention swings back from one point of view to the other. Thus the two phases, although opposite, do not really antagonize each other, but together are constructive and are complementary in nature.

PLAGUE-INFECTED RAT IN SEATTLE.—Report from Seattle, Wash., on Oct. 9, states that a rat recently killed in that city was found to be infected with bubonic plague.

AN ANATOMICAL AND SURGICAL STUDY OF PERICECAL MEMBRANES.*

BY MICHAEL F. FALLON, M.D., WORCESTER, MASS.

WITHIN the past few years various operations have been undertaken for the relief of the frequently obscure syndrome of abdominal symptoms, pain, constipation, gas-distention, and intestinal autointoxication. Formerly, chronic appendicitis was generally held responsible for these symptoms, but since the results of operations for chronic appendicitis were frequently disappointing (30 per cent., Wilms[1]) to surgeons and patients alike because of the continuance of the symptoms, the discussion as to the etiology and operative measures have been directed to other conditions; among them the too restricted cecum (Jackson), and the too movable cecum (Wilms[2]). The disability in these two conditions is said to be due to pericecal and pericolonic membranes.

Although the so-called Jackson membrane and the *caecum mobile* are different entities, they have this in common; that it is claimed for them that they, at times, cause a mechanical interference with the peristalsis of the first part of the large intestine with resulting stasis of its contents, and thus give rise to symptoms, chiefly pain, constipation, gas-disturbance and autointoxication. Surgical methods for the relief of these conditions is thus expressed by an advocate of them: "In such a case with the *caecum mobile,* pericolonic membranes and kinked appendix, I, in some instances, remove the pericolonic membrane, remove the appendix, and fix the cecum and ascending colon well up in the flank."[3]

Jackson[4] describes his membrane as a "new adventitious, vascularized, investing layer of peritoneum covering the ascending colon."

Jackson[4], Pilcher[5], and others state that the membrane, when disabling, is due to inflammatory or infectious changes, originating within the intestine (colitis, stasis).

Flint[6], as a result of investigations in both the fetus and adult, believes that the membrane is congenital, and may take its origin from the omentum, or, it may result from a dragging down of the peritoneum in the descent in the fetus of the cecum from its sub-hepatic position.

Blake[7] said that "the so-called Jackson membrane was always present, and was in fact a normal structure." The writer believes this statement of Blake to be true, and for the following reasons: He has always found this membrane when he has looked for it; it has all the characteristics of a normal, congenital, peritoneal membrane. It is a delicate structure of equal consistency throughout; even, transparent, and with orderly vascularization. It may be traced to the peritoneal plates of the omentum

* Read at the annual meeting of The Massachusetts Medical Society, June 10, 1913.

and may be seen to be continous with them; especially, when an ascending mesocolon is present. But even when the ascending, colon is fused to the parietal peritoneum, the veil can be seen to be continuous with the serous covering of the mesocolon by detaching the fused parietal peritoneum. Here the veil may be seen running under the parietal peritoneum, and to be continuous with the mesocolon. The same membrane envelops the remaining colon having the same characteristics that it has on the ascending colon. This may well be seen on the transverse colon.

Gray[8] says, "The mesentery is seen to be formed of two layers of peritoneum, which surround an intestine completely, except at a posterior line where there is opportunity for vessels, nerves, and lymphatics to enter or return. Two layers of peritoneal connective tissue, which lodge vessels, nerves and lymphatics, constitute a mesentery. The intestine looks as though it had pushed its way into the sac of peritoneum as a finger enters a glove. That comparison is incorrect, for intestine and peritoneum are developed simultaneously."

Hence, the writer believes that the Jackson membrane is a congenital, normal, constant structure, and is not disabling to the cecum and ascending colon, and is not a membranous pericolitis. That there is a definite pericolitis, however, is established. But the pericolitis to be described, has no relation whatever to the so-called Jackson membrane.

In 1910[9] the writer reported a case of pericolitis as follows:

Pericolitis is a patch of isolated, circumscribed, adhesive peritonitis on the outer wall of the colon, and occurs especially at the site of the *flexura coli dextra* or *sinistra*, or on the sigmoid (Virchow[10]).

Historically, it is of interest, inasmuch as it was first described by Virchow, who gave a clear, pathological description of it. He said he found it often, and while he could not speak definitely of its clinical manifestations, he believed that many cases of pericolitis were falsely diagnosed as inflammations of the gall bladder or similar diseases. He ascribed the cause of it mostly to fecal stasis.

The disease and Virchow's description of it were forgotten for almost forty years, until surgical abdominal exploration revealed a number of cases, and these were reported between the years of 1890 and 1900. The entity of the disease became the subject of frequent discussion in German medical literature: some men, *e.g.* Leube, Windscheid, Bittorf, *et al.*, claiming that it was an independent affection, while others, *e.g.* Nothnagel, were skeptical as to its occurrence.

Authentic reports from pathologists, surgeons and internists, however, have been so numerous, that no one, I believe, now doubts the occurrence of pericolitis as an independent disease, and the pathological description of it by Virchow over half a century ago, has never been excelled either in accuracy or in completeness. It is important at times to bear in mind the possibility of this affection since it may simulate various other abdominal diseases, *e.g.* appendicitis, disease of the gall bladder or cancer of the stomach, etc.

Its symptoms are those which one would expect from an isolated, circumscribed patch of peritonitis, *e.g.* localized pain, tenderness, abdominal wall rigidity. The severity of the symptoms naturally depends upon the severity of the lesion, *e.g.* it may be mild and evanescent, or exceptionally, it may be so severe as to cause a diffuse, suppurative fatal peritonitis. The illness may last but a short time—a few days, or it may continue for weeks or months, during which time there may be apparent improvement and relapses. Improvement may and generally does follow without operation. In one of our cases the affection was acute, in the other chronic. A brief description of the latter follows: The patient, a married woman, 42 years old, had, previous to her entrance into the hospital, complained of pain in the right side of the abdomen. Of late the pain was continuous, and it frequently kept her awake all night. The pain was sharp, not crampy; it did not go to the back, and was not dependent on eating. She was at no time confined to the bed, nor was she at any time completely incapacitated by reason of it. She had suffered from obstinate constipation for years.

Examination showed tenderness, and abdominal wall rigidly on pressure in an area the size of the palm of an adult hand, midway between McBurney's point and the right costal margin, nipple line. A diagnosis of high appendix was made. Operation, however, showed nothing wrong with the appendix, or with the gall bladder. The right (hepatic) flexure of the colon, and its omentum, were adherent to the anterior parietal peritoneum over an area the size of the palm of an adult hand. These were freed. The wall of the colon was very much thickened; its serosa abnormally injected and uneven. The other abdominal organs were apparently normal: no other adhesions were found. A piece of the affected tissue was excised for pathological diagnosis, and the pathologist reported:* "Chronic inflammation throughout connective tissue; surface infiltrated with lymphocytes; one end necrotic with foci of lymphocytic infiltration. Chronic inflammation." The patient left the hospital free from her former symptoms, and two months afterward said that she did not have a return of them.

CÆCUM MOBILE.

Wilms[11] claims that a too-movable cecum at times may interfere with peristalsis, and thus cause constipation and pain,—traction-pain. He claims that by cecopexy (fixation of the cecum

* Path. Diag. (Harv. Med. School), No. 10,667.

and ascending colon to the retroperitoneum) the majority of his patients are cured.

The movable cecum is due to the presence of an ascending mesocolon.

Treves[12] says, "A meso-colon may be expected on the left side in 36 per cent. of all cases, on the right side in 26 per cent." Dreyer[13] says that 67 per cent. of autopsies that he had made had a movable cecum, and that it was hardly possible that this condition was pathological and a primary cause of obstruction. The writer examined one hundred subjects in the Harvard Medical School and found an ascending mesocolon in twenty-four of them.

The transverse colon always has a mesentery, at times so long that the transverse colon is in the pelvis. The mesentery of the sigmoid flexure is so long that the ancients described the normal position of the sigmoid to be on the right side of the body.[14] Hence the transverse colon and sigmoid flexure always have a mesentery, and the ascending and descending colon have it so frequently that its presence instead of the fused colon should be regarded as the less common form of attachment rather than as pathological.

From a clinical and surgical standpoint it is profitable to consider the evidence of the surgeons in the German Surgical Congress of 1911, when Wilms read a paper on "Cæcum Mobile." The majority of the surgeons who took part in the discussion, opposed the views of Wilms more or less.[15] Notably, Sonnenburg, who claimed that the movable cecum in itself was not pathological —that there was not sufficient reason for making a clinical entity of the movable cecum, and that a diagnosis of this condition may be made when in reality colitis is present, and that the x-ray diagnosis is not trustworthy.

There is an apparant contradiction in the operative measures applied to Jackson's membrane and to the mobile cecum.

The respective advocates of these conditions claim that the mechanical disability in the one case is due to the too limited movements of the intestines, while in the latter case, it is due to the too free movements. Wilms advises the binding down of the intestine while Jackson advocates the loosening up of the intestine.

William J. Mayo[16] sums up the results of operations in these cases as follows:

"That many of the patients operated on have been greatly benefited cannot be denied, yet if one were to take the case histories and reports of successful treatment by means of such mechanical therapy and put them all in a hat to be picked out at random, one could not determine from the histories of the patients those who had been relieved of symptoms by operating for mobile cecum, for relief of the adhesions, for mobility of the sigmoid, for fixation of the sigmoid, for prolapse of the stomach, and, for that matter, for movable kidney. The histories read alike, but the operations seem to vary with the bias of the operator. Are all of these deductions wrong? Have the profession in regular medicine with their accurate observations no conclusions which depend upon more authentic data? To say that relief of symptoms demonstrates the truth of the opinion is not sufficient unless we grant the same privilege to the mental healers."

There is a great deal of confusion in the various theories as to the cecum and the surrounding membranes being the source of constipation and pain, and in some of these theories a very important physiological fact may be lost sight of, *i.e.* that digestion in man requires the retarding of the food current in the ascending colon. The accumulation in the beginning of the large intestine in itself is not pathological. Sonnenburg,[11] Huntington[17] and Cannon[18] have shown that many of the features of the large intestine instead of being a menace to the well-being of man (Metchnikoff, Lane) are on the contrary most admirably adapted to the completion of his digestion. Food in transit from the stomach to the anus usually requires from 24 to 36 hours, only 6 to 8 of which are occupied by the small, and the remainder by the large intestine.[19] Most of the nutriment is absorbed in the small intestine, but about 50 per cent. of the fluids and 10 per cent. of the solids are absorbed in the first half of the large intestine (Mayo[16]); and here necessarily, because of the character of the nutriment, a longer time is necessary for absorption. Even the anatomical up-hill arrangement of the ascending and transverse colon serves a physiological purpose.

"The splenic flexure of the colon is held high as a mechanical means of maintaining food products as long as possible in the first half of the large intestine. This method of retention is more economic in its operation than a muscular sphincter apparatus would be." (Mayo[16].)

"Even when the cecum is of moderate size or rudimentary as in the cat, prolonged retention of the material delivered by the small intestine is provided for in the reversed peristalsis which prevails in the proximal colon." (Cannon[18].)

"Food rich in cellulose may remain in this region (the cecum) for days undergoing changes which result in its being utilized in the body." (Cannon[18].)

"On the other hand, in carnivorous animals, digestion occurs principally in the stomach and small intestine; the cecum is either rudimentary or absent." (Cannon[18].)

Therefore, the construction of the large intestine in man with its accessory modifications (Huntington[17]) favors the retarding of the food current in its first portion for physiological purposes; and when this retarding amounts to a pathological stasis, with its accompanying symptoms, of pain and constipation, the causes may be sought for elsewhere, and frequently may be traced to faulty habits and neglect of physiological laws. It is a noteworthy fact that this pathological stasis obtains mostly in women: (75%, Wilms[1]), and is frequently associated with gastro-coloptosis. (Rovsing[20].)

Hence, for the present at least, obstinate constipation and its concurrent symptoms, as a rule, should be treated by hygienic, dietary and therapeutic measures. Exceptionally, perhaps, surgery may be necessary, but extreme care should be used not alone in selecting suitable cases for operation, but also in the applying of logical operative measures, lest mutilation rather than amelioration ensue.

RELATION OF PERICECAL MEMBRANES TO APPENDICITIS.

Professor Albrecht's work[21] on the relation of pericecal membranes to appendicitis is authoritative and founded on fact. His investigations were made on the cadavers of 500 children under six years of age. He found to his astonishment that 15 per cent. of these subjects showed malpositions and deformities (kinks and twists) of the appendix, due to these membranes and that these anomalous positions gave opportunity for interference with drainage, and the possibility of future appendicitis. The opportunity for entanglement of the appendix is given by the long distance that the cecum has to travel in its fetal excursion before it finally reaches its permanent position.

The appendix, as a result of these adhesions, may lie on the anterior surface of the kidney, even as high as the upper pole; it may adjoin the under surface of the liver, or may lie on the descending portion of the duodenum or on the fundus of the cecum; it may be attached to the ileum, or may be buried in the pericecal fossæ; it may be covered in whole or in part by the membranes.

Albrecht says that he has not been able to find the retroperitoneal appendix. The appendix may often seem to be retroperitoneal, but, in reality, it is surrounded by the peritoneum and the enveloping peritoneal membrane may bridge over the appendix from peritoneum to peritoneum, and either surrounds the appendix, or has peritoneum underlying it. Surgeons generally corroborate the findings of Albrecht, *i.e.* that interference with drainage is the most common cause of appendicitis. Dieulafoy[22] said, that appendicitis is always the result of the transformation of the canal of the appendix into a closed cavity. Aschoff[22] "without stagnation, no appendicitis." Tyrode[23] says, "when there is inflammation and excessive secretions in the intestine, these may easily pass along, but if the same condition exists in a kinked or constricted appendix, much more severe pressure and inflammation takes place, which may result in an acute or subacute attack of appendicitis." And again, "we feel very little confidence in the recent articles on the hematogenous origin of appendix inflammation." Since, then, congenital pericecal membranes may predispose to appendicitis, "there can be no doubt that such congenital anomalies are hereditary, and consequently may run in families."[21]

In 1910, the writer, as a result of investigations as to family appendicitis, reported that 24 out of 200 patients operated by him for appendicitis were members of families in which one or more members had previously been operated for appendicitis.

A striking example of this family type occurred in the writer's practice during the past year. The patient, a young man, was operated for acute appendicitis. Six members of his family, five brothers, two of whom were physicians, and one sister, had previously been operated for appendicitis. Three of them were operated by Dr. Bottomley. The ages of all at the time of operation were between twenty and thirty. The only remaining member of the family, a sister, has chronic appendicitis. An uncle had peritonitis, resulting from appendicitis. The grandmother died of appendicitis.

Conclusions. The so-called "Jackson Membrane" is a congenital, normal, peritoneal membrane and is not a membranous pericolitis.

It may be confused with the pericolitis of Virchow.

The ascending mesocolon is a less frequent form of attachment of the ascending colon: and the accompanying *caecum mobile* in itself is not pathological.

Digestion in man requires the retarding of the food current in the first half of the large intestine—the physiological stasis. When this stasis is pathological, the causes frequently are faulty habits, and hygienic and dietary, rather than surgical measures, as a rule, are indicated.

Pericecal membranes frequently predispose to appendicitis, and afford one explanation for family appendicitis.

DISCUSSION.

Dr. J. C. Hubbard, Boston: After learning from an abstract the contents of Dr. Fallon's paper I had prepared a discussion but I think these remarks are not worth making now, as it seems to me that Dr. Fallon has covered the subject admirably. I think he has given the proper values to the various membranes, and it seems to me it would be a waste of time to say anything more except to congratulate him upon his paper.

Dr. S. A. Mahoney, Holyoke: The paper of Dr. Fallon has been very illuminating and instructive to me. However, I believe that the entire medical profession will not indorse unqualifiedly, his conclusions, as all are not in harmony on this subject.

I had the pleasure, last month, of attending a meeting in New York, at which I heard Mr. E. G. Schleisinger, who is associated with Mr. Lane in his work at Guy's Hospital. The subject of discussion was "the membranes in the right iliac fossa." He differs from the writer, in that any

of these membranes in that locality are inflammatory. He agrees with the writer in saying that the majority of the membranes down there are entirely physiological. They come into the hands of the surgeon only when they are developed to a pathological degree. He likened them to guy ropes, holding a hollow, overloaded tube from sliding down into the true pelvis. In that they are physiological. When, however, the patient is not successful in passing the intestinal contents, and there is a stasis of these contents, you get symptoms of autointoxication. All these membranes, Mr. Schleisinger maintained, in the beginning are physiological, and, as I say, it is only when they are developed greatly, interfering with the peristalsis, that they become pathological. In the discussion, relative to whether these membranes were inflammatory or non-inflammatory, Mr. Schleisinger said that they were entirely physiological, and non-inflammatory, from the fact that in the beginning all these membranes were avascular. While on the contrary, if they were inflammatory membranes, in the beginning, they would be vascular, later becoming non-vascular.

Not only that, but he claimed that these membranes were always attached to the intestines, opposite the mesentery, and then around the bowel onto the lateral peritoneal wall, fan-shaped.

Mr. Lane has had opportunities for observing these membranes from the time of their very beginning, until they are thick. Always at the beginning they were avascular membranes. The blood vessels never came through the walls of the intestines, but from the lateral peritoneal wall.

He said that a very curious thing was this, that he had never noticed this condition in red-haired persons. He cited an example, in which there was a beautiful "Titian-haired" woman, who came to him for an operation for a Lane kink. At the operation, one of the attendants remarked that it was against his teachings to find this in a red-haired person. At the termination of the operation, he stripped the clothing down, and the pubic hair was black, thus proving his contention that red-haired people are less subject to these conditions than dark-haired.

It is claimed that the pathological part of this could be avoided in ninety per cent. of the cases. That those cases that become surgical, usually become so in consequence either of neglect on the part of the owner of the membranes, or in consequence of poor medical treatment at the beginning. That ninety per cent. are perfectly curable by well advised medical treatment, and only about ten per cent. finally come to the surgeon.

DR. F. B. LUND, Boston: I think this is a very important and interesting subject. It seems to me that we are not so much interested in how these connections develop, as in what they do to our patients when they are there. The fecal current in the large intestine is slow, and it has to be slow on account of the consistency of the intestinal contents; but it has been my experience in a good many operations for intestinal adhesions, that all sorts of adhesions may bind up the small intestine without obstructing it, while almost any bands across the colon cause serious colic and constipation and the general symptoms due to intestinal stasis. Adhesions of the sigmoid flexure to the abdominal wall have caused persistent constipation in patients whom I have been called upon to treat. These cases may be cured sometimes by the simple procedure of removing the band and sewing it together in the opposite direction; sometimes, a short-circuiting operation has been of help in cases where previous attempts at dividing adhesions have been ineffective.

I operated yesterday upon a patient who had had the appendix and gall-bladder operated upon and had obstruction. X-ray showed things coming to a definite end right at the hepatic flexure of the colon. He had lost about forty pounds; examination showed old adhesions, mostly inflammatory, extending across the colon, binding it down and kinking it.

Each of these cases must be treated according to the actual conditions found in it. The symptoms must be very carefully worked out. The surgery should be done by those who have devoted a good deal of attention to this field. It is a difficult field but there is occasionally a brilliant success.

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THE EVOLUTION OF MENTAL HEALING.*

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"The Office of the Physician extends equally to the purification of mind and body; to neglect the one is to expose the other to evident peril. It is not only the body that by its sound constitution strengthens the soul, but the well regulated soul by its authoritative power maintains the body in perfect health."—Plato.

In these words, nearly four hundred years before the Christian era, spoke one of the world's greatest philosophers. Up to his time and for centuries after there was no such thing as a science of medicine. The whole history of its practice, so far as it could be separated from priestcraft and sorcery, indicated the most profound ignorance of all those sciences which we now regard as fundamental for its practitioners. Psychology was an unknown science, at least under that name. Yet here is a man who grasped the truth of what we are now pleased to regard as one of the crowning triumphs of twentieth century medicine.

It has seemed to me that it might be profitable to review the development of the idea that Plato has enunciated in the passage just quoted, which idea is really the central one of modern psychotherapy. In much that I shall have to say there will be nothing new for most of you. There is, however, in the minds of both medical practitioners and laity much haziness as to just what relation mental therapy has to the treatment of bodily ills. Some are disposed to believe that it has no part in the treatment of any condition other than mental; imaginary if you please. There is a disposition on the part of medical practitioners to make light of any interrelations between mental and physical states which they need take cognizance of in treatment, though these very men doubtless recognize and will admit that treatment which they deem appropriate for the condition in question will be materially less efficacious if the patient is mentally depressed. This attitude on the part of the medical profession as a whole is due to a desire to avoid any implication of charlatanism but more particularly is to be laid at the door of the medical schools whose curricula have made no provision for instruction of such a character. It is but natural that the non-medical part of the community who look to the educated physician for their instruction in such matters, finding him either a scoffer or an ignoramus, should either adopt his views or go to the extremes to which an unbalanced enthusiasm has frequently led the founders of most of those cults, the tenets of whose belief rest upon psychic principles. It was Galvani, I believe, who said that "the two classes that impeded him most were the learned and the know-nothings." It certainly has been true of the development of the psychic side of therapeutics that its greatest opposition has come from these two classes.

The medical schools offer courses in therapeutics, in which the student is taught the sources, methods of preparation and the physiological action of numbers of drugs and is told of their applicability to certain diseased conditions but all who have been thus trained will admit that in practice the proportion of such drugs used by those of the widest experience is very small indeed. Furthermore, comparatively few men of large practice in medicine realize, or admit if they take time to consider, how large a part of the good they do is dependent upon the exercise of therapeutic principles, which they received almost no instruction upon from their teachers.

The present day development of interest in psychotherapy is simply a revival in new form, fashioned to suit modern needs, of principles and practices which are very ancient. Psychology is today a science which has been very highly refined. We think we know more of the workings of the mind than we used to do. This is probably true. It is also true that the human mind today is not a different organic substance than it was at the dawn of history. It reacts and is reacted upon. Its behavior in different individuals is susceptible of the same vagaries of which it has always been capable. Present certain types of mind in these days with certain kinds of data and they will treat them as the same type of mind has always treated that kind of phenomena. Present day environment and influences not in existence in the old days may exert some modifying effects upon the mind but the essential characteristics are there now as then.

There has always been a belief that mind and body exerted reciprocal influences upon each other. What more natural than that there should be those who thought on the one hand that the mind could dominate the whole being and on the other that there should be those who denied such an assertion. There must of necessity be at least two camps into which all men are divided. Between these two positions there are those who espouse one side more strongly than the other or who have devised some special creed in an attempt to satisfy their own intellectual cravings. The practice of medicine can not be carried on in an ideally successful manner today unless the merits of this world-old controversy are duly appreciated. That they are being appreciated and this the more fully as time passes, is emphasized by many of the social movements of modern times, which are identified more or less closely with the medical profession.

A study, therefore, of the various phases of the development of the rôle which psychic influences play today in the treatment of disease would seem to offer an interesting field for study.

The early history of the art of medicine is

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replete with the strangest practices. Man was full of superstitions. In his effort to understand the phenomena of life he was constantly groping for answers to the many riddles that Nature was insistently propounding and his awakening intelligence was attempting to explain. At first purely a physical entity, an animal in every sense of the word, endowed with instincts but with very rudimentary reasoning powers, his first quest, after adjusting himself to his physical environment, was doubtless to find an explanation of whence he came and whither he was trending. Such a question propounds itself to us even in these days, coming up out of our subconsciousness unexpectedly and without reason and startling us by its very suddenness and preposterousness but leaving before we have had time to more than pinch ourselves to see if we are really here. With but little else to occupy his mind, what must such feelings have meant to primitive man. It is no wonder that he tried many a profitless experiment and ran up many a blind trail in his search for the highway upon which we, his descendants, find it difficult enough at times to keep. The astonishing thing, as one reads of his wanderings after Truth and compares them with some of the vagaries of our modern search for a better light, is, that *we* have gotten no further after these hundreds of years.

Inspired by his belief in the existence of spirit life and feeling assured that if there were spirits there must be two kinds, one good and the other evil; one capable of rendering service and the other capable of inflicting harm, it was but natural that he should seek to appease the evil and reward the good. It was for this purpose or something akin to it that the amulet came into vogue. This was the earliest recorded attempt of primitive man to satisfy his psychic self in the treatment of diseases both in an endeavor to cure and as a means of prevention. Thus we see that very early in the history of medicine the preventive side was receiving some emphasis. The amulet often only a bit of stone or parchment sometimes of a certain kind, at other times of no particular kind, usually with simple hieroglyphics or later a few meaningless terms written upon it. This was attached in some way to the person and its efficacy in warding off the baneful influences of adverse spirits was firmly believed in. Amulets were of Egyptian and Chaldean origin and the word itself is derived, it is believed, from an Arabic term meaning "to carry." They were regarded by the Orientals as a sort of bond between the Protective Power that surrounded them and the creatures of the earth. The custom spread from the Egyptians, Chaldeans and Persians westward. It was the custom for the Greek athletes to wear them in athletic contests. Origen (A. D. 186) says that at Athens, in his time, the sick commonly wrote certain characters on paper and attached these to that portion of their bodies supposed to be affected. Astrology by furnishing zodiacal characters to be affixed to amulets had much to do with making them popular in the healing of disease. In this use of amulets in the treatment of existing disease as well as on the preventive side of medicine the early peoples were giving evidence of the close association of primitive religious aspiration and the healing art. In those early times, as now, there were those who took advantage of the credulity of the populace and turned to their own advantage, either for pecuniary gain or to establish a reputation, the fundamental tenets of the current beliefs of the times. The study of astrology was merely a phase of the universal reaching out after an explanation of the universe, a desire to understand the mysteries of creation. Its study was abused and what was originally on a par with our own best aspirations became a sordid imposition upon the credulous, as it is even to this day. Astrology, which was primitive astronomy, or closely related to it, became from the earliest times the vehicle for the charlatan to employ in effecting psychic cures among those who consulted him, and the more abounding were the people in superstition, the more amenable were they to psychic suggestion through the medium of those versed in astrological lore. Many plants of medicinal value were so in virtue of their coming to fruition under certain planets and the preparation of the plant for its therapeutic use must be carried out at just such a time with reference to the protecting planet's ascendency. It is easy to see how it was possible to extend the astrological fancies and speculations of the times out over the meagre and unscientific medical data of the day. That we have not lost *all* faith in this phase of ancient medical practice is evidenced by the number of people who even now wear amulets about their necks, rings upon certain fingers and carry horse chestnuts in their pockets, not to mention many other acknowledgments of our belief in the occult.

Closely allied to the use of the amulet was that of talismans. These were supposed to bring good luck, preserve from illness and do many other things for their possessors. Their virtue was acquired through the observance of certain religious rites and ceremonies at the time that the talismanic characters were imparted to the parchment, bit of wood or other material employed for the purpose of conveying the talismanic influence. The chief distinction between the amulet and the talisman seems to have been that the former was provided to meet a particular emergency or exigency, generally to ward off evil, whereas the talisman was something that was carried all the time and exerted a more all-pervading influence both of a positive as well as of a negative character. The principle, however, which led to their use was the same as that which has been described above and indicates the same primitive relation between the inner workings of man's spiritual nature and his belief that there were spirits surrounding

him, but outside of him, whose favor was to be courted in some way. They had the power to influence his bodily functions, to implant in him if he had gone that far in his knowledge, the germs of disease and so far as he knew, these must be treated by spiritual methods, a species of psychotherapy.

A few examples of the uses of the amulet and talisman may not be without interest. There seems to have been few diseases that these tokens were not regarded as advantageous in the treatment of. Ague, calculus, whooping cough, toothache, scrofula, fevers, melancholia, hysteria, plague, headache and gout are among the more commonly mentioned by writers on these subjects in ancient times. Pliny taught for example that the longest tooth of a black dog cured quartan fevers. Pliny is also the author of the following amulet for the preservation of the eyesight:—"Take the tongue of a fox and hang the same about his (the patient's) neck; so long as it hangeth there his sight shall not wax feeble." Lord Chancellor Halton during one of the plague epidemics in England wrote to his friend, Sir Thomas Smith, as follows: "I am likewise, told to recommend my most humble duty to our dear mistress (Queen Elizabeth) by this letter and ring, which has the virtue to expell infectious airs and is to be worn between the sweet duggs, the chaste nest of pure constancy. I trust, sir, when the virtue is known it will not be refused for the value."

As late as 1845 in England an instance is cited of the employment of the corset lacing of the patient's godmother in a case of whooping cough. This was tied about the child's neck as an amulet. Animals, as well as human beings, were protected by their owners from distempers by the use of amulets.

The period of the amulet and talisman extended from the very earliest times down to the beginnings of the Christian era and these tokens were in common use among all primitive people in one form or another. The Jews, the Babylonians, the Egyptians, the Chaldeans, the Hindus, the Chinese and the early Greeks were all given over to these forms of healing. Even the drugs they employed depended for their healing virtue largely upon the rights attendant upon either their preparation or their administration. In other words, their value to the patient lay in the appeal they made to his imagination, *i.e.* they were largely psychic. Healing by magic at the hands of physician and priest was common in this earliest period of medical history as has been shown by various of the Ebers papyri. These bear date of about B.C. 1552. Excavations at Epidaurus show that in Aesculapius' time (500 B.C.) miracle workings were ascribed by him to a demigod. The method of treatment was something on this order. The patients who were usually incurables were brought to Epidaurus laden with sacrifices. They were made to bathe in water from the holy well; certain ceremonial acts were performed over them by the priests of the temple during which they fell into a deep sleep. The son of Apollo appeared to them in their dreams, attended to their ailments and prescribed what sacrifices should be made to restore health. These rights were undoubtedly a species of hypnotic state induced by the priests during which suggestions were made to the sufferers which tended to establish right mental attitudes and to remove faulty associations. This method of treatment became known as "temple sleep" at a considerably later period, at a time when the priests of the temple of Aesculapius found it necessary, because the belief in miracles was beginning to wane, to study how they might sustain the reputation of their patron saint and preserve the revenues of the temple. Large sums of money were often paid for such service. There is a record of a fee of $12,000 having been paid the priests at Epidaurus by one patient.

Belief in demons, the evil spirits who must be propitiated or cast out, was general among primitive people and extended over into mediæval times. Cuttin says that "the Greeks undoubtedly believed in demons, but different from the nations around them, considered the demons to be well-intentioned. Homer (1000 B.C.) speaks frequently of demons, and in one instance in the Odyssey tells of a sick man pining away, "one upon whom a hateful demon had gazed." Empedocles (490-430 B.C.) taught that demons "were of a mixed and inconstant nature, and are subjected to a purgatorial process which may finally end in their ascension to higher abodes." Yet he attributed to them nearly all the calamities, vexations, and plagues incident to mankind. Plato (427-347 B.C.) writes of demons good and bad, and Aristotle (384-322 B.C.), the son of a physician, speaks directly of "demons influencing and inspiring the possessed." Socrates (470-399 B.C.) claimed to have continually with him a demon —a guardian spirit."

The belief in demons necessitated some modification of the treatment of diseases caused by the presence of an evil spirit within the patient and this contingency was met by the introduction of exorcism.

The power of the Christian exorcists was shown by wonderful feats. Demons, which were sometimes supposed to enter animals, were expelled. St. Hilarion (288-371), we are told, courageously confronted and relieved a possessed camel. "The great St. Ambrose (340-397) tells us that a priest, while saying mass, was troubled by the croaking of frogs in a neighboring marsh; that he exorcised them and so stopped their noise. St. Bernard (1091-1153), as the monkish chroniclers tell us, mounting the pulpit to preach in his abbey, was interrupted by a crowd of flies; straightway the saint uttered the sacred formula of excommunication, when the flies fell dead upon the pavement in heaps, and were cast out with shovels!

A formula of exorcism attributed to a saint of the ninth century, which remained in use down to a recent period, especially declares insects injurious to crops to be possessed of evil spirits, and names, among the animals to be excommunicated or exorcised, moles, mice, and serpents. The use of exorcism against caterpillars and grasshoppers was also common. In the thirteenth century a bishop of Lausanne, finding the eels in Lake Leman troubled the fishermen, attempted to remove the difficulty by exorcism, and two centuries later one of his successors excommunicated all the May-bugs in the diocese. As late as 1731 there appears an entry on the municipal register of Thonon as follows: '*Resolved,* that this town join with other parishes of this province in obtaining from Rome an excommunication against the insects, and that it will contribute *pro rata* to the expense of the same.' ''

In the New Testament numerous accounts of the casting out of demons occur showing how prevalent was the belief at that time in this etiology for disease. Treatment based upon such assumptions as to the cause of disease must necessarily be psychic, and the form of what we should call suggestion was an exorcism. These were frequently couched in violent and in many cases offensive language, the more extravagant the terms employed, the more likely was the demon to be dislodged. As an example, I will quote only a portion of one : ''Thou lustful and stupid one,—thou low sow, famine-stricken and most impure, thou wrinkled beast, thou mangy beast, thou beast of all beasts most beastly, thou sooty spirit from Tartarus, thou crocodile, thou lousy swineherd,'' etc. It would seem that no self-respecting demon would care longer to remain the object of such opprobrium. The psychic effect upon the host of demons so exorcised cannot be readily appreciated by us at this day but the effect was doubtless heightened by the surroundings and by the confidence that in that method alone was relief to be had.

The second period in the development of medical science extends from the commencement of the Christian era to about the sixteenth century. Hippocrates, whose time was from 460-375 B.C., did a great deal to relieve the practice of medicine from the trammels of superstition but great as his influence was, it could do but little in those times to cope with the credulity of the people and overthrow the authority of priestcraft. This period was one of absolute lack of progress in medicine and at the door of the church may be laid the blame. Dr. T. T. Munger, in his book ''On the Threshold,'' alludes to the undeveloped state of medicine at this time in the following passage: ''Aristotle outlined philosophy and morals in a way that the world accepts now but he did not know the difference between tendons and nerves. Rome had jurisprudence before it had a physician, using only priestcraft for its healing. Cicero was the greatest lawyer the world has seen but there was not a man in Rome who could have cured him of a colic. The Greek was an expert dialectition when he was using incantations for his diseases. As late as when the Puritans were enunciating their lofty principles, it was generally held that the King's touch would cure scrofula. Governor Winthrop of colonial days treated smallpox and all fevers with a powder made from live toads taken in an earthen pot in the open air.''

The substitution of the names of the saints for the constellations of the zodiac may possibly have marked an advance in psychic influence over disease but nevertheless they stood in the way of any medical progress until after the 16th century had come in.

Before speaking further of this second period of medical history I wish to refer to the subject of charms as being still another phase of the ancients' appeal to psychic methods in the treatment of diseases. The word is of Latin derivation, carmen, a song. The carminitive drugs are soothing in their effect and some of the charms frequently used were incorporated in little songs. They were closely allied to amulets in that they were used to avert evil by counteracting baneful influences. Most anything would do for a charm and nearly every known disease has been treated by them. They were particularly serviceable in nervous disorders. The waters of certain pools or wells which had been consecrated by saints or holy people were regarded as charmed and bathing in such waters was credited with remarkable cures. The entire setting for such cures as were made were entirely favorable for their being effected. Faith to believe that the saint whose aid one sought could effect the cure was all that was needed to bring it about. Paracelsus early in the 16th century said of cures brought about in this way: ''Whether the object of your faith is real or false, you will nevertheless, obtain the same effects. Thus, if I believe in St. Peter's statue as I would have believed in St. Peter himself, I shall obtain the same effects that I would have obtained from St. Peter himself; but that is superstition.''

Having pased into the era of the Christian religion, we leave behind the amulet, the phylactery, the talisman and the charm, all of which as we see brought about whatever benefit they secured to the sufferer by means of suggestion. This was the age of the Crusades when the entire world of that time was engaged in various enterprises of a religious nature and the whole psychic side of mankind was keyed to a high pitch of suggestibility. Instead, therefore, of the above described tokens available for bringing about cures, we find a great traffic in relics procured in the pilgrimages at various holy places. Portions of the true cross, bones of the Saints and Christian martyrs, filings from the chains that bound Peter and Paul when in prison, Christ's and the Virgin Mary's tears, nails from the fingers and toes of the Saints. Pope Gregory I. regarded these iron filings from Paul's chains

as fully as efficacious in the cure of disease as the bones of the saints.

Enormous numbers of people made yearly pilgrimages to the shrines of saints and they did this in place of resorting to any other treatment. St. Dominic, St. Bellinus and St. Vitus were in great renown for the cure of particular diseases. Faith in the efficacy of shrines still persists and patients in great numbers visit Lourdes in France and St. Anne de Beaupre in Quebec annually. In 1908 George Berkin published a book in defense of the Catholic belief in the authenticity of the cures wrought at Lourdes. This shrine has been in existence since Our Lady of Lourdes first appeared in 1858 to three young French girls. One of these girls was highly impressionable or suggestible, and acting through power given her from Our Lady of Lourdes, she was enabled to heal multitudes of people who made pilgrimages to the shrine. From 1867 to 1903 there were 4271 pilgrimages made to Lourdes, totalling 387,000 people; 292 of these pilgrimages came from outside France.

It became easy for kings who governed by divine right to delegate to themselves the power of curing disease by the laying on of hands. King Pyrrhus and Vespasian are said to have wrought cures through the medium of their actual contact with the sufferer. In England the practice commenced with Edward the Confessor and in France with St. Louis. Laurentius, physician to Henry the fourth of France, states the Clovis I, 481, was the first to practice the Royal Touch. It was chiefly serviceable in epilepsy and scrofula. William the Third of England gave up the practice and about this time the populace commenced to question the authenticity to a king's claim to reign through divine right. In an epidemic of smallpox in Naples in 1865 King Victor Immanuel practiced something analogous to the royal touch. This is the last record I could find of a king's exercising this prerogative.

A practice that was closely allied to the king's touch was the hallowing of "cramp rings" which were worn upon the fingers to ward off disease and prevent cramps. For 700 years belief in the royal touch and the efficacy of cramp rings held sway but it is evident that the people, as the general level of their intelligence was raised, realized that these practices could not do all that was claimed for them and consequently they no longer put the faith in them, which constituted their sole virtue.

We now come to a later phase in the development of psychic treatment and that is the theory of magnetism. In the 16th century Pomponatius was the first to declare that there was a means of curing diseases through animal magnetic influence. Von Helmont Kenelon, Digby and Robert Fludd continued along the lines suggested by Pomponatius but it was not until the time of Mesmer (1734) that the theory received its most perfect development. The principle that Mesmer employed was the same as the Aesculapian Priests at Epidaurus used when they induced the temple sleep and is but little different from the methods employed today by those who practice hypnotism. The influence of Mesmer and his school upon the evolution of psychotherapy was simply that they paved the way to a better understanding of the keynote of all psychic influence, and that is suggestion. Mesmer and his teachings were the subject of scientific investigation in France and the report was adverse. He retired to his own country, where he died in 1815. In France, however, though they had repudiated Mesmer and his teachings, have risen up those who have carried its principles to their most practical as well as scientific application. Liebault, Charcot, Janet and Dubois have made practical that which was originally regarded as pure charlatanism.

A later stage in the employment of psychic influences in the healing of the sick characterized some of the revival movements of the 18th and 19th centuries. In the course of these religious movements when the enthusiasm was at its height the revivalists were frequently besought to exert the power of healing which it was thought they must possess as an attribute of their divine power. There were those who wandered about from place to place; those who established homes where patients were housed; some founded metaphysical sects; some anointed with oil, whereas others relied wholly upon prayer. All, whatever their method, employed suggestion as the basis of their treatment. John Wesley (18th century) and Charles G. Finney (1820) both employed at various times in their careers at the height of the religious excitement attendant upon revivals, the power of exorcism to drive out insanity or what was classed at that time as insanity, and reported remarkable successes.

The number of those who have attained some celebrity in the organization of quasi-religious movements, a function of which has always been the relief of bodily suffering, is very great. It will be enough to recall the names of a few of those in modern times. Cullis and Simpson at Old Orchard have held a camp meeting every summer, at which healing under the stress of some sort of psychic uplift has been practised. The Holy Ghost and Us Society organized at Shiloh, Maine, by the Rev. F. W. Sanford has dabbled to a considerable extent in the healing of the sick. The Mormons employed anointing, laying on of hands, prayer, consecrated cloths and handkerchiefs in the treatment of disease. Elder Smith performed numerous well attested cures and even extended his claims to the setting of fractures through prayer and anointing.

Schlatter came to this country from France in 1891 and for a time had quite a following because of his miraculous cures. In Denver, where he attained his chief fame, he would treat as many as 600 cases a day and people by the

thousands often surrounded his house, having come, many of them, from great distances. His method was by prayer followed by the assurance of relief within a certain time.

The name of Dowie and George O. Barnes complete the list of those who attained any particular notoriety in this connection and bring us down to the particular movements of our own times, viz. Christian Science and the New Thought. Both of these movements had their origin in the teaching of Phineas Parker Quimby, 1802-1866. He first became interested in mesmerism about 1840 and later developed a method of mental healing of his own. In his own words, in a nutshell is expressed again the keynote of all psychic treatment in its latter day interpretation:—"My practice is unlike all medical practice. I give no medicine and make no external application. I tell the patient his troubles and what he thinks is his disease; and my explanation is the cure." Mrs. Patterson, later Mrs. Mary Baker Patterson Eddy, was a patient of his for a functional nervous disorder and as a result of her association with him during his treatment, she became so impressed by the truth of what he taught that she became the founder of the present Christian Science Church, having a following of intelligent people who are firm believers for the most part in the truth of the founder's beliefs. To some of us it is difficult to understand a good deal of the text of "Science and Health" but that there is in it the essentials of psychic treatment there can be no doubt and that such treatment can affect directly those conditions which we denominate functional and in many cases bring about a complete change and may even to some extent influence, in an indirect but wholly tangible fashion certain organic troubles, there is no reasonable ground for doubt. Here again without hypnotism the Scientist seeks to implant in the patient right lines of thought and seeks to eradicate all others and this he does by suggestion. "People may become possessed," as someone has said, "without reason of an unalterable conviction." The attempt to fix an idea in the mind without reason may serve as a definition of suggestion. (Bruce.) On such an hypothesis a good deal of the teaching of Christian Science is understandable. Münsterberg after a long psychological analysis of the account of a remarkable cure described to him by a Christian Scientist, takes occasion to comment upon it in the following terms:

"The unprejudiced psychotherapist will be perfectly able to find room for such cures and if it is the duty of the scientific physician to make use of every natural energy in the interest of the patient's health, he has no right to neglect the overwhelming powers of the apparently mysterious states. The psychotherapeutic energies which work for real health, outside of the medical profession form a stream of vast power but without solid bed and without dam—that stream when it overflows will devastate its borders and destroy its bridges. The physicians are the engineers whose duty it is to direct that stream into safe channels, to distribute it so that it may work under control wherever it is needed and to take care that its powerful energy is not lost for suffering mankind."

It is just here that the medical profession has been lacking in taking cognizance of the psychic side of their patients and the founding of all the cults herein referred to has been the direct result of this failure on the part of that body of men upon whom it should naturally have devolved. Perhaps nothing has served to so open the eyes of physicians to their responsibility in this matter as the organization of the Emmanuel movement by Drs. Worcester and McComb. In brief this is an attempt to supply to those who are suffering for want of it, the psychic uplift which will enable them to put themselves en rapport with their environment, to open the channels through which the aid they need, whether physical or mental, may find entrance. In other words, to realize that state which Shakespeare seems to have sensed long before the word psychotherapeutic was known, when he said in substance that "the cure of our ills more often lies within ourselves than rests with Heaven."

Tedious as has been this review of the various manifestations of the appeal to man's psychic nature of an attempt to find relief for his ills it seems to me to bring out at least one prominent fact and that is that an entirely wrong emphasis has been laid by physicians upon that part of their therapeutic armamentarium which deals with psychic treatment. Too much stress has been laid upon physical and drug therapy. A relationship between bodily functions and mental attitudes which has been well recognized by everyone has been ignored when it should have taught us, long before it did, to endeavor to influence the bodily functions through mental suggestions. That the sorcerers, the charlatans, the astrologers and every other sort of fakir should have employed psychic influence, with a modicum of success, constitutes a reproach to the intelligence of a so-called learned profession.

I believe that it is now being so recognized by those to whom it *is* a reproach. We are witnessing the organization of many medico-social movements in these days, the object of which is to give opportunity for the exercise of many means for the alleviation of suffering, which though not perhaps primarily psychic, yet afford an occasion for the employment of psychic influence never before brought consciously into play in the treatment of the diseases in question.

A simple example of this might be cited in the treatment of pulmonary tuberculosis. Formerly the sufferer from this malady was a social outcast. He was transported to regions where climate was relied upon to effect the cure. He was isolated in many cases from all home ties, friends or relatives. He was segregated with others in the same or often a worse condition than himself. The wholly incurable were mixed

in with the probably curable and only the buoyancy of temperament that a merciful Providence supplies to these sufferers made life under such conditions possible for them. We recognize now that the companionship of one's fellows, home surroundings, diversions of one sort or another adapted to the physical capabilities of the patient, combined with those physical features of treatment tending to fortify one's bodily strength are of more avail than *any* change in climate.

A recognition of this principle of treatment in chronic medicine has made it possible to erect the Robert Brigham Hospital, a hospital designed for the study and treatment of any and all chronic diseases and that on a foundation which was to provide a home for incurables. Could anything be more depressing to one who in adult life is overtaken by a disease whose chronic character incapacitates him for work, throws those dependent upon him on their own resources for their support or makes them dependent upon charity and yet is a disease that does not possess the merit of being capable of killing him? And what has been the answer that the medical profession has had to offer to such a sufferer? Only a few drugs producing at best a benumbing effect and, if the physician was honest to himself and his belief, an absolutely bad prognosis. Many a case of this sort has fulfilled the predictions of his medical attendant because that attendant had no idea how to supply him with the psychic treatment that would have enabled him to get the upper hand of his physical ills. The chronic rheumatisms are not all curable by any means in all stages of the disease but many of them are and the psychic part of their management is of as much importance as any other feature.

If I have succeeded in bringing to your attention some inkling of what psychotherapy is in its present-day interpretation, or if I have shown how it is at last coming into its own; how from the dawn of history to the organization of the Emmanuel movement mankind has been attempting to find a rational psychotherapy and has been blocked in its attempt by various causes; if I have contributed in some slight fashion to clear away some of the mists which have so long befogged the understanding of this subject by both laity and medical profession, I shall be content.

Meeting of Railway Surgeons.—The twenty-third annual session of the New York and New England Association of Railway Surgeons was held in New York City on Oct. 22. The address in surgery was made by Dr. Hugh H. Young, of Baltimore.

A Centenarian.—Mrs. Lydia Piper, who died on Oct. 8 at Baldwinsville, Mass., was locally reputed to have been born in 1811.

Reports of Societies.

ASSOCIATION OF AMERICAN PHYSICIANS.

Twenty-Eighth Annual Meeting Held in Washington, D. C., on May 6, 7 and 8, 1913.

(*Continued from page 579.*)

BENZOL IN THE TREATMENT OF LEUKEMIAS.

Dr. Frank Billings, Chicago: The writer reviews the benzol treatment of leukemias as outlined in a publication on the subject by him in the *Journal of the American Medical Association*, Feb. 15, 1913.

The effect of the benzol treatment in the leukemias is shown as evinced by the progress made by patients already reported and by reports upon other patients treated by several clinicians.

DISCUSSION.

Dr. R. C. Cabot, Boston: I can reinforce what Dr. Billings has said; benzol is indeed a two-edged sword. One case, in which I used it, died very promptly; the benzol was not to blame, however; he would have died anyway. In the chronic cases we know what remissions may occur quite independently of treatment. But in view of the striking results obtained by Dr. Billings in a disease for which we have no other remedial agent, we can welcome even a two-edged sword.

Dr. Joseph S. Miller, Chicago: I have had two cases of leukemia in which I used benzol concurrently with x-ray. One of the cases, a man, was much improved. The other, a woman, showed no improvement under benzol alone; then, with x-ray therapy added, there was very marked general improvement. In a recent work, Papenheim has insisted that benzol does not in fact destroy leukocytes; that their disappearance is due to other causes.

Dr. James B. Herrick, Chicago: I have had the privilege of seeing some of these patients treated by Dr. Billings; those who have done so surely must be impressed with the value of benzol in the treatment of leukemia. I have used the remedy in three cases in which some gastric disturbances were produced. In one case in which striking benefit occurred, no improvement followed the use of benzol alone but could be noted at once when very small doses of x-rays were added. This patient was sent home in good condition and with satisfactory blood findings, but two weeks later she suddenly died with symptoms of multiple cerebral hemorrhage. This accident, perhaps, can not be chargeable to the benzol.

Dr. James Tyson, Philadelphia: Was the urine concurrently examined for albuminuria during the use of benzol in these cases? It would seem that the drug is a powerful irritant and apt to do renal damage.

Dr. A. McPhedran, Toronto: It is important to inquire as to the character of the leukocytes rather than their number. I recall a case of

myelogenous leukemia in which under arsenic the leukocytes fell from a high count to 4000; but they were abnormal leukocytes.

Discussion closed by Dr. Frank Billings, Chicago; Dr. Miller quoted Papenheim to the effect that benzol does not destroy leukocytes; I think any one who has studied the blood in these cases would have no doubt that the white cells are actually disintegrated. As to the uric acid output, there is no increase. As to the effect of benzol therapy on the whole blood-making apparatus, it may be said that in all patients showing improvement there was not only an actual fall in the white cells but the red count and the hemoglobin index rise. In myelogenous leukemia there is for the first ten days of treatment a great increase in the white count, but there is a steady decrease thereafter. This is not so in splenic leukemia.

THE VALUE OF THE DIFFERENTIAL LEUKOCYTE COUNT IN DIAGNOSIS OF GLANDULAR ENLARGEMENTS; ALSO, A REPORT OF CULTURAL INVESTIGATION OF HODGKIN'S DISEASE.

DRS. C. H. BUNTING and J. L. YATES, St. Paul, Minn.: Leukemic conditions easily distinguished by blood picture. Differential diagnosis between Hodgkin's disease and tuberculosis of the glands may be aided and in fact established by the characteristic blood findings in each disease. Analysis of 20 Hodgkin's cases shows marked variation in blood picture of early and late cases.

Report of Cultural Investigation of Hodgkin's Disease.

The authors desire to report the occurrence of a diphtheroid organism in cultures upon special media, obtained in three cases.

ERYTHREMIA.

DR. C. L. GREEN, St Paul: Read by title.

SOME CLINICAL APPLICATIONS OF FOLIN'S NEW METHODS OF BLOOD ANALYSIS.

DR. JOSEPH H. PRATT, Boston: Quantitative determinations of the amount of uric acid in the blood in cases of gout. The effect of feeding test amounts of purins on the amount of uric acid in the blood. Tolerance tests. Studies of the uric acid, total non-protein nitrogen and urea nitrogen in the blood in chronic nephritis and in arterial hypertonia. Discussion of results.

DISCUSSION.

DR. SOLOMON SOLIS COHEN, Philadelphia: Does Dr. Pratt feel that his investigations have served to reclaim uric acid from the realm of romance and poesy to the sober domain of scientific lore?

DR. R. M. PEARCE, Philadelphia: We have been using this method of Folin for the study of nephritis. We divided our cases into groups: (a) Non-nephritic group, from which we ascertained that normally the non-proteid nitrogen fluctuates between 15 and 40: the average normal urea content being 0.012 gm. (b) A group of cardio-vascular cases, with no definite renal disturbances. In these the results of analysis were practically the same as in group *a*. There was no hypertension in these cases. (c) A group of chronic parenchymatous nephritis cases; in these we found no great change from the normal. (d) A group of cases of chronic interstitial nephritis: here there was a great increase in the retained nitrogen. (e) A group of arteriosclerotic cases. These, also, showed a great increase in retained nitrogen. And (f) One case of acute nephritis in which there was a great increase in total nitrogen. The method as it worked out in our series helps to support the ideas now current that chronic parenchymatous nephritis is not noteworthy for nitrogen retention, but has more to do with the retention of salt.

DR. E. LIBMAN, New York: Ebstein in our laboratory has found not much difference in the nitrogen retention as between chronic parenchymatous and chronic interstitial nephritis; but he has found a great increase of the globulins in the blood in the former variety of nephritis.

Discussion closed by Dr. J. H. Pratt: Since undertaking this work I have been impressed by the fact that in Boston, at least, gout is a rare disease. I looked over the records of the out-patient department of the Massachusetts General Hospital since 1903, and in some 200,000 cases, I found the diagnosis of gout made only 27 times; when the histories were studied, I felt obliged to rule out four of these. I was taught to recognize gouty tophi at the hands of my great teacher, Sir William Osler, and in the wards of the Johns Hopkins Hospital they were not infrequent. Curiously enough, ever since I have been doing this work, three patients have come into the hospital with typical gouty tophi in their ears.

HEREDITY WITH REFERENCE TO NEOPLASM AS SHOWN BY A STUDY OF 3,000 CASES EXAMINED IN THE PATHOLOGICAL LABORATORY OF THE UNIVERSITY OF MICHIGAN DURING THE YEARS FROM 1895 TO 1913.

DR. A. S. WARTHIN, Ann Arbor: The study has considered the family history of the 3,000 patients from whom the neoplasms were removed. The statistics of family predisposition are given, and it is found that in many instances a surprising prevalence of malignant disease can be made out. Charts are given showing the passage of neoplasms through cancer families; further charts illustrate many instances of what is known as "cancer fraternities." In the cancer families it is shown that they tend to extermination with the third generation, in which generation many members are apt to die of tuberculosis in the precancerous decades, while the remainder die of cancer after the fortieth year.

MULTIPLE CONGENITAL OSTEO-CHRONDROMATA IN ASSOCIATION WITH MUSCULAR DYSTROPHY AND CRANIAL NERVE DEGENERATIONS.

DR. THOMAS R. BOGGS, Baltimore: Case report and lantern slide demonstration. Brief review of the literature on the subject.

DISCUSSION.

DR. R. I. COLE, New York: I would like to ask if there was any evidence of softening of the bones? It is said that exostoses of this sort are apt to occur at the points of insertion of the tendons.

Discussion closed by Dr. T. R. Boggs: The rarefaction of the bones seen in the x-ray plates is not due to a change in the structure of the bone produced by the disease. An item of interest in the clinical study of this case was the fact that, though

extremely emaciated, no thyroid gland could be made out even with the most careful palpation.

DISTURBANCES OF THE HEART BEAT IN THE DOG CAUSED BY SERUM ANAPHYLAXIS.

Drs. G. Canby Robinson and J. Auer, New York: Sensitization was produced by subcutaneous injections of horse serum and during anaphylaxis records were made with the electro-cardiograph. At the same time the blood pressure was read by means of a mercury manometer in the carotid artery. Seventeen experiments were made. In some of the animals the vagi were cut. In others the effect on the cardiac mechanism of sudden lowering of the blood pressure by other means than anaphylaxis was studied. The electro-cardiograms show that definite changes in the cardiac mechanism accompany the anaphylactic state in the dog. These changes are not dependent upon the fall in blood pressure and they also occur after the vagi have been cut. The most striking cardiac disturbances of anaphylaxis in the dog, which electro-cardiograms show, are changes in conduction of the heart beats from auricles to ventricles, partial heart block being caused in some experiments.

DISCUSSION.

Dr. W. G. MacCallum, New York: I would like to ask several questions: (a) Is there after these experiments any morphological change in the bundle? (b) What is the course of the lowered blood pressure? (c) Is there any way of elevating the pressure after it is once depressed?

Discussion closed by Dr. J Auer: I think there are lesions to be found in the bundle, but I feel some diffidence about asserting the fact. There are ways of raising the blood-pressure: barium chloride will increase the pressure very successfully, more so than will atrophine.

ANTITYPHOID VACCINATION IN THE ARMY.

Dr. Frederick F. Russell, U. S. Amy: Vaccination against typhoid was begun in March, 1909, on volunteers from the Medical Corps, Hospital Corps and Army Nurse Corps. The first year, 1,887 persons were vaccinated; in 1910, 16,073.

In March, 1911, compulsory vaccination was ordered for troops on the Mexican border (20,000), and in June, for all recruits, 2,000 to 3,000 per month. In October it was ordered for all persons in the service under 45 years of age. Results are shown in the following table:

TYPHOID FEVER—UNITED STATES, ENLISTED AMERICAN TROOPS.

Year.	Mean Strength.	Absolute Cases.	No. Deaths.	To each 1000 soldiers, of the command, the ratios are: For Cases.	For Deaths.
1901	26,515	250	17	9.43	.64
1902	39,736	341	34	8.58	.86
1903	42,264	246	12	5.82	.28
1904	43,940	247	12	5.62	.27
1905	42,834	153	13	3.57	.30
1906	40,621	230	12	5.66	.28
1907	35,132	124	7	3.53	.19
1908	46,316	136	11	2.94	.23
1909	57,124	173	16	3.03	.28
1910	55,680	129	9	2.32	.16
1911	55,240	44	6	0.80	.11
1912	58,119	15	2	0.26	.03

The vaccine is made from a carefully selected single strain of the bacillus typhosus grown on agar. The first dose is 500 million bacilli, the second and third, given 10 and 20 days later, 1,000 million.

No ill effects have been reported.

The last case of typhoid in the army occurred on December 9, 1912.

DISCUSSION.

Dr. A. C. Abbott, Philadelphia: There can be no division of opinion as to the propriety of the position taken by the Army in this matter; the figures presented by Maj. Russell are convincing to the last degree. The method employed by the Army could be used equally well by any municipality. But what of the personal inconvenience to inoculated persons? Soldiers are usually in the pink of condition; and, moreover, it requires an illness of rather sharp severity to be taken account of by them. The general populace are apt to take a different view of antityphoid vaccination and its occasional reactions. Is there any modification possible to make this method available for general use? My reasons for asking this is that Gay, of California, has devised a way to lessen the reactions following serum inoculation, and it occurred to me that it might be applied to vaccine therapy.

Dr. W. H. Park, New York: Impressed by the results in the Army, we have in New York undertaken to immunize the members of families in which a case of typhoid fever has occurred. But we have not reached the point of forcing it upon those who raise objections.

Dr. W. S. Thayer, Baltimore: What impression has been gained as to the duration of the protection afforded by antityphoid vaccination? And what is Maj. Russell's feeling as to supposed negative phase of Wright? I think I may safely take the liberty of expressing the sense of pride we all feel in the monumental work achieved by Maj. Russell and his co-workers in the Army.

Dr. Geo. M. Kober, Washington, D. C.: I wish to endorse the plea for a more general application of antityphoid vaccination in civil life. If the figures presented here by Maj. Russell are not conclusive, then reason and logic are mere accomplishments. The army is composed, by reason of the average age of the enlisted men, of very susceptible individuals; we should, therefore, expect a high morbidity rate, but we find that universal compulsory vaccination has greatly reduced the rate below the average for civil life. We do not and can not know the duration of the immunity conferred, but we do know it protects for the present and we may at least hope it will be found to protect for life. I think we are backward in pressing this prophylactic measure into civil life. I myself have been inoculated, and I can testify from experience that the resulting slight reaction is not sufficient to cause great inconvenience nor to be a valid objection to the vaccination.

Dr. V. C. Vaughan, Ann Arbor: Since Genner made his first experiments with vaccinia, no better mode of protection against smallpox has been devised than inoculation with the virus of cow pox; and I think that in view of the magnificent results obtained by Maj. Russell with his original vaccine, he is quite right to stick to that vaccine. Notwithstanding the undoubted immunity which can be conferred on the populace by vaccination, we should still stop to see what is the minimum death rate for the typhoid that may be obtained without vac-

cination but with the very best hygiene. At the University of Michigan there are assembled about 5,600 young men and women from all over the State. Since 1884 we have taken special precautions against typhoid fever in that community. The water supply is examined weekly or if necessary, daily; if the colon bacillus is found, notices are sent out requiring the people to boil the water. Strict supervision is maintained over the milk supply. The death rate for typhoid in Ann Arbor for many years has been less than 15 per 100,000; which indicates what may be done by mere sanitation. The frequent migrations of the students bring some typhoid into the community from other parts of the State; and better results could be obtained with a stationary population, as has been done in Munich. I believe that vaccination has been most useful in the Army, and I have not the slightest adverse criticism to make of the admirable work of Maj. Russell; but in a critical study of the statistics I would call attention to two facts: there are no military camps now at all comparable with the camps during the Spanish War; and the year 1912 was not a typhoid year.

DR. M. H. FUSSELL, Philadelphia: I would like to ask Maj. Russell if he regards the commercial vaccines for antityphoid inoculations as perfectly reliable?

DR. A. C. ABBOTT, Philadelphia: It seems to me that the Army Medical Corps has demonstrated absolutely that vaccination will stop typhoid fever; and there ought to be no hesitation or delay about applying this prophylactic measure in civil life, especially if some modification of the vaccine can be devised to lessen the reaction.

DR. GEORGE DOCK, St. Louis: I think it would be unfortunate to have an exaggerated idea go abroad as to the severity of the reactions. Surely enough vaccinations have been done under critical observation to demonstrate that there are no ill effects.

DR. JOHN MCCRAE, Montreal: I wish to ask Maj. Russell three questions: (1) What rules have been laid down governing revaccination? (2) Are there any figures as to frequency of severe reactions after the second inoculation? And (3) Do soldiers who have had typhoid fever need to be vaccinated?

Discussion closed by Maj. F. F. Russell: In answer to the various questions I would say: We have had no evidence of the existence of a negative phase; we have no hesitation to vaccinate contacts. The length of the period of immunity produced is not known. The English experience has been that after two and a half years the immunity of vaccinated troops is no better than others. Our practice is to vaccinate with each enlistment. Our statistics on the severity of reactions are based entirely on the temperature records; the subjective symptoms are not taken into account. Soldiers do not react differently from civilians; in fact soldiers were civilians a few months before. Severe reactions may be followed by loss of weight (which is quickly regained) and by nausea, vomiting and diarrhea. I have not seen a case of albuminuria due to vaccination, but I believe it may occur. I hope some day to see a vaccine which will not produce a general reaction; but we do not know how to make it yet. As a general rule systemic reactions are absent in children and young people. The problem in the Army is very different from that to be met in civil life; military necessity requires us to ignore the few severe reactions. In camps there may always be bacillus carriers and so vaccination must be done for all. What may be done in civil life by sanitation is not a factor in military life, because soldiers may at any time be required to go and to live where there is no sanitation at all. The Ann Arbor typhoid death rate was given by Dr. Vaughan as 15 per 100,000; but the army rate was 3 per 100,000, so that something can be done to improve the Ann Arbor rate. I know of no reason why commercial vaccines should not be reliable. Reactions following revaccination do not differ from those following the primary vaccination. If there is a record on the Army books of a soldier's having had typhoid fever, he is not vaccinated.

(To be continued.)

Book Reviews.

Hygiene and Sanitation. A Text-Book for Nurses. By GEORGE M. PRICE, M.D. Philadelphia and New York: Lea and Febiger. 1913.

Second in importance only to her remedial service in the actual care of the sick, is the public and social service which the trained nurse, especially in district and school work, can render in educating the community in matters of hygiene and disease prevention. Indeed the nurse's didactic opportunities in this respect are even greater than the physician's, for she comes into constant contact with the people and can inculcate her teachings by personal example as well as actual precept. To equip nurses for this public service is the purpose of this volume in the Nurses' Text-Book Series.

Coprostasis: Its Causes, Prevention, and Treatment. By SIR JAMES SAWYER. Birmingham: Cornish Brothers. 1912.

This little volume consists of a *"Sonderabdruck"* of chapters viii to xiii, inclusive, from the fifth (1912) edition of the author's "Contributions to Practical Medicine," and constitutes a pertinent monograph on a subject of perennial importance. Constipation has been appropriately termed "the thief of time and the root of all evil," and medically this statement is as nearly true as any epigrammatic generalization can ever be. Habitual constipation, it is probably not too much to say, is at the bottom of more than half the functional and some of the organic disabilities of the human body. The causes of constipation lie in the seemingly innate but really extrinsic and easily evitable fallacies of civilization. These causes, and the principles of their treatment, Dr. Sawyer thoroughly realizes and expounds in the first four chapters. The fifth chapter is a useful note on *lumbago coprostatica* as a form of backache; and the sixth on the use of *unguentum ranunculi ficariae* in the treatment of hemorrhoids. The book as a whole should be of stimulative interest and value to general practitioners and to medical students.

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NEUROTIC SCHOOL CHILDREN.

It has been estimated that there are in the United States some 300,000 feeble-minded persons.[1] The problem of the best way to deal with these has been increasingly engaging the attention of all students of the subject. In previous issues we have outlined the general scope of the plans so far presented which seem to carry with them some hope of ultimate success.[2] The gist of all these has been the prevention of reproduction of the tainted strains. In order to produce a race of supermen the reproduction of every type of mental unfitness would have to be prevented. Such a public policy, while theoretically possible, is of course at the present stage of our civilization purely utopian. It is, however, not amiss to encourage all well directed efforts in this direction. With this end in view, we desire to call attention to another phase of mental unfitness which could possibly be largely eliminated by wholesale preventive measures undertaken by the public school authorities. For, if feeble-mindedness is in a large proportion of cases to be detected and segregated through the coöperation of the public schools, it is no less true that insanity itself may often be detected in its very incipiency by paying strict attention to the neurotic child. A large proportion of the insanities rest upon a purely defective constitutional makeup. The great point is to be able to recognize this defect early and to take measures which will effectually correct it wherever possible. When this is impossible, and the tendencies are so markedly pathological as to give no hope of complete correction, then the child who is the victim of such an unfortunate heredity should be segregated when the age of puberty arrives, so that all danger of reproduction of the inherently insane stock may be avoided.

As pointed out by Clark[3] the neurotic child group is the embryo storehouse of the adult psycho-neuroses and the near-invalidism of later life. Furthermore, this group is not a negligible one in point of numbers. According to this author it will equal that of the feeble-minded. If Clark is correct in his belief that there are so many essentially neurotic children amongst us, it follows that his plan for the founding of psychologic clinics in connection with the public schools is entirely within the bounds of reason. He thinks that such a clinic should include in its records: "(1) a definite statement of the specific defects of the abnormal behavior of the children in the normal grades and a list of the false adaptation to the standards, (2) a careful research of the family life and environment which may have contributed its share in the causation of the child's nervousness, (3) intelligent judgment, will and ethical tests, and last but more important still, a complete psychoanalysis of the inner life of the neurotic child."

By some such plan as this, two principal things might be accomplished. First, we could learn much about the natural history of insanity, because we would be able to study the great majority of our constitutional mental inferiority cases in their very incipiency. Second, we would be able to recognize many mild psychoses in time to get the child's mind off its unhealthy track, and thus prevent the development of a genuine insanity in later years.

It would seem that some such scheme as that outlined by Clark might accomplish what is claimed for it, provided it could be put upon a working basis. In order to be successful it would require the coöperation of the parents, and it is quite conceivable that a complete psychoanalysis of the inner life of the neurotic child might be open to serious objections. Then again it would be a much more difficult and delicate procedure to conduct the investigations into the heredity of such cases than into those of the feeble-minded, because in the latter there is a special mental deficit which is more or less obvious, even to the parents, and concerning which

they can be easily led to converse, whereas in the case of the neurotic child the ground would have to be trodden most delicately in order to avoid offense and thus defeat the object sought for. It may be questioned, moreover, whether the neurotic child would be especially benefited by being singled out for an inquiry into his mental conditions. While these objections would perhaps be difficult to overcome, much information might be secured and prejudice disarmed by tact. For instance, whatever the ultimate aims of such clinics might be, in speaking to the lay public, the psychoanalysis of the inner life of the child should be minimized and allowed to win its way on its individual merits rather than be encouraged as a universal practice before its application might seem to be needed. Then again, in order to gain the confidence of the people and to accomplish the greatest good, the work of the school neurologist should be placed upon as broad a basis as possible. The present school physician does not confine himself to the detection of any one physical defect or disease, to the exclusion of others. He sees that the school room is in a general sanitary condition, and endeavors to correct the conditions which give rise to eye strain, physical deformities, mouth breathing, and so forth, as well as to detect these conditions themselves. His work is preventive and applies to the physically normal as well as to those who are already abnormal or diseased. The work of the school psychologist or neurologist should be placed upon similar broad lines, emphasizing the need of general sanitation and a healthy mental atmosphere. In this way opposition of parents would be reduced to a minimum, for there could be no valid objection offered to efforts which were meant to maintain the mental atmosphere of the school in such a state of purity that the best chances to be and remain normal would accrue to all alike. Shorn of any objectionable features which would inevitably arise, were the work regarded solely as a means of detecting mental abnormalities, the establishment of psychological clinics as an integral part of our public school system would become in due time a distinct advantage to all concerned.

REFERENCES.

[1] BOSTON MEDICAL AND SURGICAL JOURNAL, Editorial, Concerning the Sterilization of the Unfit. April 10, 1913, vol. clxviii, No. 15. p. 548.

[2] *Ibid*, also Editorial, The Expectation of Life Among the Feeble-minded. May 15, 1913, vol. clxviii, No. 20, p. 738.

[3] L. Pierce Clark, The Need of Psychologic Clinics in Connection with the Public Schools. Archives of Pediatrics, March, 1913.

PRESENT METHODS OF DISINFECTION.

THE New York City Department of Health in its August *Bulletin,* indicates admirably the changes that sanitary science has made in disinfection methods since the days when a medical inspector fumigated a railway car supposed to be impregnated with yellow fever virus, by passing rapidly through it with some smoking contrivance in his hands; since a saucer containing a carbolic solution placed in the sick room was considered a prophylactic against diphtheria, measles or scarlet fever. Our knowledge of recent years regarding typhus fever (for the transmission of which only the body louse is responsible), malaria, cholera and typhoid has rendered fumigation, at any rate, superfluous. Nor is diphtheria in all probability directly communicable through the air, but (states the *Bulletin*) only by contact of the buccal or nasal mucosa with the diphtheria virus. One is perfectly safe in entering the sick room of a diphtheria patient or the ward of a diphtheria hospital if he does not come in contact with the secretions from the upper air passages of such patients. Neither scarlet fever nor measles is in all probability transmitted through the desquamation, and measles is contagious only during the first few days of the disease.

With such advance in the knowledge of infection have come more rational methods on the part of health authorities for dealing with this phenomenon. For instance, London, maintaining hospital accommodations for ten thousand sufferers from infectious disease, and treating nine-tenths of them in its hospitals, pays hardly any attention to measles. The disease is not even notifiable, because it is considered to be contagious during its first days only; and by the time the report is received and the case placed under surveillance the damage has been done. For the same reason disinfection is not done after measles. The only cases the London authorities consider occur in the schools, where they are immediately removed. The authorities hold even since only one-half the cases are seen by physicians, that statistics obtained through the reporting of cases of measles are absolutely valueless. In Providence, R. I., under Dr. Chapin's able leadership, disinfection and fumigation after diphtheria, measles and scarlatina have long been abandoned, with no increase in the number of secondary cases; indeed, the secondary cases of scarlet fever occur-

ring in the families directly exposed is surprisingly small. The Metropolitan Department of Health has found secondary cases to occur in less than four per cent. of those persons who came directly in contact with scarlet fever. Undoubtedly fumigation and disinfection will destroy bacteria; but it is very doubtful, in the absence of a suitable culture medium, whether the germs of many of the infectious diseases can retain their vitality for any length of time after leaving the patient's body; and as a matter of fact, the most effective disinfection is performed by air and sunlight. Disinfecting the dejecta of sufferers from typhoid fever, and of the mouth and nose secretions of diphtheria sufferers is of course sound; but since drying destroys the vitality of many bacteria, fumigation and disinfection after recovery are only really necessary for germs resistant to the drying process.

Thus, in accord with the modern conception of infection and of methods of transmission, and by reason of a report of Dr. Hermann M. Biggs, the general medical officer of New York City's Department of Health, some important modifications in policy were in 1912 decided on, with regard to disinfection in measles and diphtheria. In the latter, whilst fumigation after recovery was abandoned, the bedding was, however, removed to the disinfection station and sterilized. But when the patient died or was removed to a hospital during the height of the disease, it was considered possible that fresh discharges containing living bacteria might be present in the sick room—wherefore fumigation was done. A similar procedure was used in cases of measles except that the goods were not removed for disinfection after death or recovery. In scarlet fever fumigation was, as before, done after recovery, death or removal; and the infected bedding sterilized. In July last the department decided that, on account of the practical absence of danger from bedding used by the patient, its removal after diphtheria, scarlet fever, measles, cerebrospinal meningitis and poliomyelitis should be discontinued. In exceptional instances, where physicians or members of the family insist on bedding being sterilized, this will still be done by the Department. Where adequate fumigation cannot be done by reason of the nature of the premises, bedding will be removed after the termination of these diseases, and also after smallpox cases.

The New York Department of Health has issued also new regulations relating to exclusion from school of children manifesting infection. For these regulations we must refer the reader to the important *Bulletin* mentioned.

MEDICAL EDUCATION IN THE UNITED STATES.

At the time of the Seventeenth International Congress of Medicine this summer, there was also held in London an International Conference on Post-graduate Medical Education. Before this conference Dr. Graham Lusk, of Cornell University Medical College, presented a report on "Medical Education in the United States," which has just been published in a recent issue of *Science*.

After sketching the history of American medical schools, Dr. Lusk contrasts the methods and problems of the first two years of modern medical education, which are essentially of the laboratory, and of the second two years, which are essentially clinical. The greatest crux of medical schools is perhaps the reconciliation and harmonization of these two complementary elements, which should be in perfect accord yet are so often at variance. The solution of the problems of clinical teaching probably lies in the virtual control by each medical school of a group of affiliated hospitals. Yet the question still remains not satisfactorily answered whether a medical school should or can successfully undertake to make itself also a centre of research; whether it ought not rather to consider teaching its principal function, and select the members of its faculty for their excellence as teachers rather than as investigators, leaving the important work of research to specially endowed institutions where no routine teaching is done and where appointments are made solely for original merit and genius in scientific investigation.

Dr. Lusk considers that the various agencies for public welfare in the United States have had a salutary reflex influence on the progress of medical education. He cites in particular the work of the Carnegie Foundation, and of the Council on Medical Education of the American Medical Association. He advocates also a common federal standard for licensure to practise medicine. Probably the millennium will not come sooner in medical education than in other departments of human activity; but there is good evidence of progress towards it, and that

is the most hopeful note of Dr. Lusk's admirable report.

THE COST AND SUPPLY OF RADIUM.

THE immense cost of radium has hitherto made its use almost prohibitive, except in large centres of wealth or in specially endowed institutions. During the current year, however, owing at first to competition and to improved methods of production, there has been a slight decline in the market price of radium salts. In January, 1913, the price of radium bromide in Germany was $105 per milligram. In April it sold in New York for $90, and in July at Vienna for $50. This decrease is also partly explained by the increasing use in Germany of mesothorium as a substitute for radium or in mixture with it, the cost of mesothorium being only about $32.50 per milligram.

The recent discovery of radium-bearing ore in the United States may, by increasing the world's production of radium, still further materially reduce its cost. This ore, which is known as carnotite, was discovered by two French prospectors in Montrose, San Miguel, and Dolores counties, Colorado. It is a bright yellow mineral, occurring in interstices between grains of sandstone, and in the cracks of rocks. Small, secondary nuggets are sometimes also found. The principal deposit is in the Paradox Valley of Montrose County.

This valuable mining property has been largely controlled by the Standard Chemical Company of Pittsburg, which has already begun the extraction, preparation, and sale of radium salts. It is estimated by assayists that the Colorado vein of carnotite should produce about 8,000,000 pounds of uranium, which in turn will yield 900 grams of radium, equivalent to about 4 pounds of pure radium bromide. At the present rate of production, this should more than double the world's present annual output of radium, and should still further contribute to diminishing its cost, unless the latter is artificially maintained by combinations of capital.

MEDICAL NOTES.

BURNING OF A SANATORIUM.—A fire of unknown origin on Oct. 14 gutted the Edgemere Sanatorium at Govans, a suburb of Baltimore. Two of the eighteen patients perished in the flames, and one nurse was seriously burned, while assisting the remainder to escape.

HONORARY DEGREES AT BIRMINGHAM.—On the occasion of the recent meeting of the British Association for the Advancement of Science, at Birmingham, the University of Birmingham conferred its honorary degree of LL.D. on Dr. Svante August Arrhenius, director of the Nobel Institute at Stockholm; on Madame Curie, director of the physical laboratory at the Sorbonne; on Dr. Franz Karl Julius Keibel, professor of anatomy at the University of Freiburg; and on Dr. Robert Williams Wood, professor of experimental physics at Johns Hopkins University, Baltimore.

INFECTIVITY AND FERTILITY OF LEPERS.—The United States Public Health Service has recently published (Bulletin No. 61) a series of studies upon leprosy, being six papers by members of the service stationed at Molokai. Dr. George W. McCoy, in two of these articles, notes statistically the relative non-infectivity of leprosy, except in the conjugal relation, and also that the fertility of male lepers is materially reduced, whereas that of females does not appear to be impaired.

INDIAN MEDICAL RECORD: SPECIAL TUBERCULOSIS NUMBER.—The *Indian Medical Record* announces that, considering the prevalence, mortality, and rapid progress of tuberculosis in India, it has decided to bring out its December, 1913, issue as a "Special Tuberculosis Number." This Special Number will contain contributions from many who have devoted some time to the investigation of this disease.

DECREASE OF TUBERCULOSIS IN PRUSSIA.—In a recent issue of the *Zeitschrift für Tuberculose*, Dr. M. B. Franckel has presented statistics showing the decrease of tuberculosis in Prussia during recent years. In 1876 the total urban mortality in that country was 27.6 per 1000 and the rural mortality 24.6. The urban mortality from tuberculosis in the same year was 3.6, and the rural 2.8. In 1909, the total urban mortality in Prussia was only 18.0, the rural was also 18.0; and the tuberculosis mortality figures were 1.8 and 1.3 respectively. In other words, the gen-

eral death-rate of Prussia fell one-third in 33 years, and the tuberculosis death-rate one-half.

Yellow-Fever in Mexico.—Report from Washington, D. C., on Oct. 14 states that yellow fever is prevalent in Carman and Campeche, Mexico. The number of cases is not given.

BOSTON AND NEW ENGLAND.

Massachusetts Association of Boards of Health.—A regular quarterly meeting of the Massachusetts Association of Boards of Health, held at New Bedford, Mass., on Oct. 9, was attended by 60 members from other cities and towns. The meeting was devoted particularly to the inspection and study of the local garbage destruction system. Professor W. T. Sedgwick also described, in an address, the new school for health officers recently established by Harvard University in conjunction with the Massachusetts Institute of Technology.

Award of John Harvard Fellowships.—The John Harvard Fellowships in the Harvard Medical School for the present year were formally awarded on Wednesday afternoon, Oct. 15. An address was given by Professor Ernst, after which awards of the Fellowships and of Honorable Mention were made by the Dean. Following the presentation of Fellowships an informal reception was held in the students' room.

Infectious Diseases.—Infectious diseases reported to the Boston Board of Health for the week ending October 14, 1913: Diphtheria 37, of which 1 was non-resident; scarlatina, 25, of which 6 were non-residents; typhoid fever, 30, of which 3 were non-residents; measles, 12; tuberculosis, 50.

The death-rate of the reported deaths for the week was 13.33.

NEW YORK.

Hospital Enlargement.—The new wing of the Misericordia Hospital, on East 86th Street, was dedicated on October 13 by Cardinal Farley. This addition makes the institution, next to St. Vincent's, the largest Roman Catholic Hospital in the city. The new wing is a six-story brick building, 196 by 136 feet, with a capacity of 100 beds. It contains a model operating room, and has a fine roof garden.

Mental Defective Exhibit.—There is now being held at the Metropolitan Life Insurance building an exhibit relating to mental defectives, and each day in connection with it there are conferences and addresses. On October 13 Dr. H. A. Knox of the U. S. Public Health Service, who is stationed at Ellis Island, spoke on the subject of immigration and defectives, and in the course of his remarks said that many aliens who survive the mental tests required by the Government, and are admitted to this country, are likely to have defective progeny who will in time become the inmates of the prisons, almshouses and hospitals for the insane. As Ellis Island a physician is called upon to examine 300 persons an hour, and of 10,000 immigrants who arrived last month, while 800 were "held up," but 134 were deported. The officials must be absolutely certain of the abnormal mental condition of those ordered deported, or serious complications may ensue, and in many instances the alien receives the benefit of the doubt. New York, he said, urgently needed a clearing house for mental defectives, and for the permanent maintenance of such an institution the Board of Estimate and Apportionment has been asked to make an appropriation of $40,000. On October 14 the principal speaker was Dr. David Weeks, superintendent of the State Village for Epileptics at Skillman, N. J.

Fund for Volturno Survivors.—The Red Cross Emergency Relief Committee, of which Robert W. deForest is chairman, has charge of the raising of a fund for the care of survivors of the Volturno disaster arriving in New York. The first subscription to the fund, one of $5,000 from Jacob H. Schiff, was received on October 14.

Bequests to Hospitals.—Among the charitable bequests in the will of the deceased New York merchant, Benjamin Altman, are $100,000 to the Mount Sinai Hospital, half of which is to go to the department of nervous diseases and half for the general purposes of the institution, and $25,000 each to St. Luke's Hospital, the German Hospital and Dispensary, the New York Eye and Ear Infirmary, and the Lincoln Hospital. Mr. Altman's magnificent art collection, which is valued at $15,000,000 and among the paintings in which are no less than thirteen Rembrandts of exceptional quality, is left to the

Metropolitan Museum of Art if certain simple conditions are complied with. One of the executors is Dr. Bernard Sachs, neurologist to Mount Sinai Hospital, who for many years had been Mr. Altman's personal physician.

Mrs. Louisa Minturn, of New York, widow of John W. Minturn, founder of the Hospital for Scarlet Fever and Diphtheria Patients, who died recently, left a bequest of $15,000 to that institution.

Among the charitable bequests in the will of the late Samuel J. Silberman of New York are $5,000 to the Beth Israel Hospital, $3,000 to Mount Sinai Hospital, $1,500 each to Lebanon Hospital and the Montefiore Home and Hospital for Chronic Invalids, and $1,000 each to the Hospital for Deformities and Joint Diseases, Har Moriah Hospital, and the National Jewish Hospital for Consumptives at Denver.

Typhoid Fever.—It is reported by the State Health Department that a limited outbreak of typhoid fever recently occurred at Ashokan Dam, in the Catskills, among some carpenters employed in connection with the new water supply for New York City. All the cases were among the residents in one boarding house, whence they were removed to the hospital of the construction company; and it was found that adequate precautions were being taken to prevent the spread of the infection either to other employees or residents in the construction camp or to the sources of water supply now being impounded for the Catskill system. Investigation showed that infected milk was responsible for the outbreak, as all the patients had used milk furnished by a farmer who had been ill for some time with so-called "malaria," but a test of whose blood presented a positive Widal reaction.

Exhibit of State Department of Health.—At the state fair this year the State Department of Health had an entirely new exhibit, which was divided into three sections: Home and farm sanitation, care of the baby, and the child's health at school. The last named section was also shown at the International Congress on School Hygiene in Buffalo. In connection with the exhibit the department managed a model day nursery, which became extremely popular.

New Consultant on Oral Hygiene.—Dr. W. A. White, who for some time past has been lecturing on oral hygiene in the public schools, has been officially appointed consultant and lecturer on this subject to the State Department of Health, and will now devote all his time to the advancement of this branch of public health work. It is announced that the annual conference of the health officers of the state will be held this year at Utica, in the week of November 16-22. In accordance with the precedent which proved so successful last year, a "public health week" will be arranged in connection with the conference, with addresses in the churches on Sunday, daily talks in the schools, and public meetings for various sections of the community in the evenings.

Current Literature.

Medical Record.

October 4, 1913.

1. Wolbarst, A. L. *Colliculitis, or Disease of the Verumontanum.*
2. Bachman, R. A. *Venereal Prophylaxis—Past and Present.*
3. *Doty, A. H. *Antityphoid Vaccination.*
4. *Wallace, C. M., and Child, F. S. *Extract of the Pituitary Body of the Ox in the Treatment of Rheumatic Arthritis.*
5. Erdman, J. F. *The Colon: Its Malignancies.*
6. Bryant, F. A. *Stuttering and Its Treatment.*
7. Lapenta, V. A. *An Unusual Case of Appendicitis (Retrocecal) Associated with Rare Anatomical Anomalies.*

3. Doty deprecates the wide use of typhoid vaccine as a prophylactic. In the army and navy it is necessary because soldiers and sailors are transferred from place to place, and often unavoidably exposed to bad sanitary conditions. The efficiency of the service must be maintained and it is the duty of the medical corps to do everything possible to protect the enlisted men against infections. Antityphoid vaccination, however, should be strictly confined to the army and navy and to other groups of persons who need special protection against typhoid fever.

4. Wallace and Child present a preliminary paper on the use of pituitary extract (ox) in the treatment of rheumatic arthritis. They report ten cases treated by intramuscular injections. All of these showed lessened pain and swelling, increased motion of the joints, and improvement in the general condition. The bowels were stimulated almost to diarrhea. Blood pressure was elevated during and after treatment and some of the patients complained of slight headache, vertigo and nausea. [L. D. C.

New York Medical Journal.

October 4, 1913.

1. Keyes, E. L., Jr. *Ultimate Results of the Cheatwood Operation for Retention of Urine.*
2. Lewisohn, R. *A New Principle in Esophagoscopy.*
3. Konkle, W. B. *The Eternal Medical Verity.*
4. Spangler, R. H. *Eosinophilia Produced by Hypodermic Injection of Crotalin Solution.*

5. Hays, H. *The Use of the Pharyngoscope by the General Practitioner.*
6. Sobel, J. *Pediculosis Capitis Among School Children.*
7. Clendening, L. *The Use of the X-ray in the Diagnosis of Diseases of the Chest and Abdomen.*
8. Brooks, H. *Concerning the Etiology of Hypertrophic Pulmonary Osteoarthropathy.*
9. Braunstein, J. E. *Two Cases of Luetic Keratitis.*

The Journal of the American Medical Association.

September 27, 1913.

PART ONE.

1. *Jordan, E. O., and Carlson, A. J. *Ozone: Its Bactericidal, Physiologic and Deodorizing Action. Special Article.*
2. *Sawyer, W. A., Beckwith, H. L., and Skolfield, E. M. *The Alleged Purification of Air by the Ozone Machine.*
3. *Cabot, R. C., and Emerson, H. *Causes, Types and Treatment of Diarrhea in Adult Life.*
4. McClanahan, H. M. *Report of a Case of Acute Nephritis in an Infant with Congenital Heart Disease.*
5. Grulee, C. G. *The Nature of Ileocolitis from an Etiologic Point of View.*
6. Stokes, W. R., and Stoner, H. W. *Isolation of the Typhoid Bacillus from Milk Which Caused a Typhoid Outbreak.*
7. *Albert, H. *The Treatment of Diphtheria Carriers.*
8. Otis, E. F. *Diseases of Porto Rico.*
9. *Weil, R. *The Effects of Colloidal Copper and the Therapeutic Criteria in Human Cancer.*
10. Phillips, J. *Skin Rashes Following the Administration of Atophan.*
11. *Harris, M. L. *Nerve-Blocking as a Substitute for General Anesthesia in Surgical Operations.*
12. Von Jaksch, R. *Manganese Toxicosis.*
13. Downey, J. W. *Report of a Case of Monocular Paralysis of the Accommodation Due to Lues.*

1. Jordan and Carlson have proved experimentally that ozone as a germicide is of little practical value. As small amounts are injurious to human beings, large enough amounts to be of any germicidal value would be distinctly harmful. Ozone has no place in room disinfection. It is not an actual deodorizer, as claimed by manufacturers of ozone machines. The bad effects on man are primarily on the respiratory tract.

2. Sawyer and his associates are even more emphatic than Jordan and Carlson in condemning ozone machines and believe they should be forbidden in schools, offices and other places where people remain for a considerable period of time.

3. Cabot and Emerson in an interesting paper on diarrhea in adults, find that rest in bed is by far the best form of treatment. Purgation with castor oil comes second, together with starvation. Change of air benefits many cases, showing the large psychic element.

7. Albert believes that diphtheria bacilli in carriers lodge in the tonsillar crypts, and has found that the application of a 5 to 10 per cent. solution of silver nitrate on a flexible applicator to the tonsillar crypts is of greatest efficiency. In addition a mild nasal spray and mouth wash of some such solution as Seiler's or hydrogen peroxide is used.

9. Weil, using the exact technic of Loeb and treating twelve cancer cases, finds no destructive action of colloidal copper on tumor tissue. Chemical analysis of two tumors removed after treatment failed to reveal the presence of copper, while in a liver removed at necropsy it was present in large amounts. Albuminuria, hemoglobinuria and phlebitis often resulted.

11. Harris has had so much success from nerve-blocking in major operations, such as goitres, glands of the neck, plating of fractures, hernias, appendectomies, gastro-enterostomies and practically all abdominal operations, that he believes this method of anesthesia will soon mark the passing of general anesthesia. [E. H. R.]

PART TWO.

EYE, EAR, NOSE AND THROAT.

1. Woods, H. *Three Ophthalmic Questions: Optometry, Conservation, Education.*
2. Lancaster, W. B. *Physiologic Optics the Basis for Teaching Clinical Ophthalmology.*
3. Sattler, R. *Some Modern Viewpoints of Glaucoma.*
4. Schoenberg, M. J. *Experimental Study of Intra-Ocular Pressure and Ocular Drainage.*
5. Zentmayer, W. *Hydrophthalmos, with a Histologic Report of Two Cases, One of Which Presented a Congenital Coloboma.*
6. McMullen, J. *Trachoma: Its Prevalence and Control among Immigrants.*
7. Schereschewsky, J. W. *Trachoma Among the Indians.*
8. Stucky, J. A. *Trachoma Among the Natives of the Mountains of Eastern Kentucky.*
9. Howe, L. *Temperature of the Conjunctiva.*
10. Weidler, W. B. *Bleparochalasis. Report of Two Cases with the Microscopic Examination.*
11. Shahan, W. E. *Equivalent Values in Spectacle Lenses.*
12. Wilder, W. H. *Metastatic Ophthalmia. Report of Three Cases, One of Which Resulted in Recovery of Vision.*
13. Walter, W. *Phlyctenular Ophthalmia and Episcleritis. A Study of the Bearing of the Newer Research on Their Etiology as the Basis of a Scientific Therapy.*
14. Walker, C. B. *Topical Diagnostic Value of the Hemiopic Pupillary Reaction and the Wilbrand Hemianopic Prism Phenomenon.*
15. Green, H. C. *Preventable Blindness. A Challenge to the Professions.*

The American Journal of the Medical Sciences.

September, 1913.

1. *Riesman, D. *A Lobar Form of Bronchopneumonia of Long Duration, Occurring in Children and Young Adults.*
2. Foote, E. M. *The True Value of Operation for Cancer.*
3. *King, H. M., and Mills, C. W. *Therapeutic Artificial Pneumothorax.*
4. Keene, F. E., and Laird, J. L. *The Diagnosis of Tuberculosis of the Kidney.*
5. Hertzler, A. E., and Gibson, E. T. *Invagination of Meckel's Diverticulum Associated with Intussusception: Report of a Case, with a Study of Recorded Cases.*
6. Price, G. E. *Spinal Gliosis Occurring in Three Members of the Same Family, Suggesting a Familial Type.*
7. *Judd, C. C. W. *The Technic of Abderhalden's Pregnancy Reaction.*
8. Seymour, N. G. *Seven Cases of Cervical Rib, One Simulating Aneurysm.*
9. Leopold, S. *The Polyneuritic Form of Acute Poliomyelitis: a Clinical and Pathologic Study.*
10. Jennings, A. H., and King, W. V. *An Intensive Study of Insects as a Possible Etiologic Factor in Pellagra.*

1. Riesman calls attention to a not uncommon condition in children and young adults in which with slight constitutional symptoms there are signs of consolidation of one lobe of a lung, of more or less long duration, but ending in recovery. It is undoubtedly often overlooked from omission of careful physical examination. When the physical signs are discovered tuberculosis is commonly suspected, but the usual situation of the bronchopneumonia in the lower lobes and its favorable course assist in its indentification.

3. King and Mills report their experience with therapeutic artificial pneumothorax in 16 cases. They feel that the treatment should be limited to cases which have progressed unfavorably under ordinary treatment; and it is to this class that their cases belonged. After describing the history of the method and the technic employed, the cases are reported in detail. Of the total of 16 cases, 2 showed marked and apparently permanent improvement, 6 showed temporary or slight improvement, in 1 case hemorrhages were apparently controlled, in 1 case of lung abscess no improvement followed, while in 6 cases, on account of pleural adhesions, collapse of the lung could not be effected.

7. Judd describes the pregnancy reaction of Abderhalden and the technic of its performance with certain original modifications which simplify its practical application. The reaction is based upon the fact that foreign substances of the nature of enzymes are produced in the blood plasma, having the power of acting upon the foreign substance which has caused their production. Placental tissue produces in the blood a substance of this sort, not otherwise present, which seems to have the specific property of inducing proteolysis in placental tissue *in vitro*. The test is therefore performed by incubating serum from the patient with prepared placental tissue, with certain precautions, and testing for resulting products of proteolysis in the dialysate by means of the biuret reaction. The results of the reaction in the author's hands have been highly encouraging.

[F. W. P.]

THE ARCHIVES OF INTERNAL MEDICINE.

SEPTEMBER, 1913.

1. *FROTHINGHAM, C., JR., FITZ, R., FOLIN, O., AND DENIS, W. *The Relation Between Non-Protein Nitrogen Retention and the Phenolsulphonephthalein Excretion in Experimental Uranium Nephritis*
2. LAMB, A. R., AND PATON, F. W. *A Case of Vegetative Endocarditis Caused by a Hitherto Undescribed Spirillum (Spirillum Lurati, N. S.).*
3. SOPER, W. B. *A Case of Spirillum Infection.*
4. *STADTMÜLLER, N., AND ROSENBLOOM, J. *Studies on Sulphur Metabolism. I. The Urinary Sulphur Partition in Various Diseases.*
5. *GREENWALD, J. *The Reaction of Salomon and Saxe as a Diagnostic Test for Carcinoma.*
6. *MURLIN, J. R., AND BAILEY, H. C. *Further Observations on the Protein Metabolism of Normal Pregnancy.*
7. BROWN, W. H. *The Renal Complications of Hematin Intoxication and Their Relation to Malaria.*
8. *HARRISON, F. C. *On the Use of Pituitary Extract in Obstetrics.*
9. *SWIFT, H. F., AND ELLIS, A. W. M. *The Treatment of Syphilitic Affections of the Central Nervous System with Especial Reference to the Use of Intraspinous Injections.*
10. FRIEDMAN, J. C., AND HAMBURGER, W. W. *The Value of Edestin and Peptone in the Diagnosis of Cancer of the Stomach.*

1. Frothingham and Fitz and Folin and Denis report results of further studies of experimental nephritis in rabbits. They find that the excretion of phenolsulphonephthalein in the urine and the amount of non-protein nitrogen and urea in the blood vary during the course of the nephritis, returning to normal as healing takes place. The degree of variation agrees on the whole with the amount of destruction demonstrated histologically in the kidney. The amount of phenolsulphonephthalein excretion shows the renal function at the moment, while the amount of non-protein nitrogen and urea in the blood is rather a measure of an accumulating difference between the amounts of waste nitrogen produced in the metabolism and the amounts eliminated by the kidneys. The duration of the condition is therefore an important factor in this test.

4. Stadtmüller and Rosenbloom studied urinary sulphur partition in various diseases, especially diabetes and carcinoma. The lowest average total sulphur excretion was found in carcinoma, as was also the lowest average neutral sulphur excretion. The proportion of the neutral sulphur to the total sulphur in this disease is considerably higher than normal. Eight out of nine cases of diabetes studied showed an increased excretion of neutral sulphur, both absolute and relative. The writers conclude that it is not safe to diagnose a malignant tumor on the basis of neutral sulphur or daily total sulphur excretion.

5. Greenwald tested for the urinary reaction described by Salomon and Saxe as characteristic of carcinoma. The reaction depends on the supposed presence in the urine of such patients of a sulphur containing substance which does not yield inorganic sulphate on treatment with dilute hydrochloric acid but which on subsequent treatment with hydrogen peroxide is oxidized, with liberation of inorganic sulphate. Barium chloride is used to detect the presence of this sulphate. In a series of 28 cases the writer found no differences between the urines of patients with carcinoma and other diseases and normal individuals in the amount of barium sulphate, either absolute or relative to the total sulphur precipitated by the procedure of Salomon and Saxe. He therefore concludes that the test is of no value in the diagnosis of carcinoma.

6. Murlin and Bailey report on further studies of the protein metabolism of pregnancy. They find that in normal pregnancy and puerperium the percentage of ammonia nitrogen in the urine varies little from the normal (4 to 6%) except for one or two days after delivery, when it is slightly increased. High ammonia nitrogen occurs in normal cases, due to bladder contamination. The percentage of total nitrogen eliminated as urea by a pregnant woman in the last month is somewhat lower than from a non-pregnant woman, due largely to the retention of nitrogen for growth of the fetus and placenta. Ammonia nitrogen, for this reason, may range as high as 12%, without unfavorable symptoms, and after severe catharsis may reach 17%. Absolute values are, therefore, much more reliable than percentages. The creatinin coefficient is much lower in the pregnant than in the non-pregnant, the total purin nitrogen is slightly higher than normal, and the amino-acid nitrogen is slightly increased.

8. Harrison reviews the literature on the use of pituitary extract in obstetrics and reports four cases which he saw himself. He believes that the remedy is of great value in overcoming uterine inertia during the second stage of labor, its effect being prompt and almost certain after the soft parts are well dilated. For delivery of the placenta its use is accompanied by the danger of tetanus uteri and retention and in post-partum hemorrhage it is not very reliable.

9. Swift and Ellis discuss the treatment of cerebrospinal syphilis by intraspinous injections of the patient's own blood serum obtained shortly after intravenous injection of salvarsan. They report ten cases (eight of which were tabetics) treated in this

way and demonstrate the therapeutic effect, with tables showing the Wassermann reaction and the cell count and globulin content of the cerebrospinal fluid at frequent intervals during treatment. They feel convinced that this form of treatment has a definite antispirochetal and curative effect and that its combination with intensive intravenous treatment is indicated where specially intensive treatment is required, as in rapidly advancing tabes or paresis, or where the disease has resisted other forms of treatment. [L. D. C.]

THE JOURNAL OF INFECTIOUS DISEASES.

MARCH, 1913.

1. *KASTLE, HEALY, AND BUCHNER. *The Relation of Calcium to Anaphylaxis.*
2. FISHBEIN. *Isoagglutination in Man and Lower Animals.*
3. DAVIS. *Interagglutination Experiments with Various Strains of Sporothrix.*
4. *STOWELL, HILLIARD AND SCHLESINGER. *A Statistical Study of Streptococci from Milk and from the Human Throat.*
5. CURTIS. *A Motile Curved Anaerobic Bacillus in Uterine Discharges.*
6. *MEYER. *The Conjunctival Reaction for Glanders (Ophthalmic Test).*
7. DICK. *Fusiform Bacilli Associated with Various Pathological Processes.*
8. KRUMWIEDE AND PRATT. *Fusiform Bacilli: Isolation and Cultivation.*
9. POOR AND STEINHARDT. *Two Methods for Obtaining a Virus of Rabies, Freed from the Cells of the Host and from Contaminating Organisms, and the Application of These Methods to Other Filterable Viruses or Glycerine-Extracts.*
10. *KING, BAESLACK AND HOFFFMANN. *Studies on the Virus of Hog Cholera.*
11. DEWEY. *Tuberculosis of the Stomach with Extensive Tuberculous Lymphangitis.*
12. SHERMAN. *The Behavior of the Tubercle Bacillus Toward Fat Dyes. Studies on the Biochemistry and Chemotherapy of Tuberculosis.*
13. CORPOR. *Intra-vitam Staining of Tuberculous Guinea-pigs with Fat-soluble Dyes.*

1. Intraperitoneal injections of calcium lactate in animals, given in isotonic solution, caused a marked decrease in anaphylactic power. This was most marked when egg-white was used subsequently. In this way a mortality in dogs of nearly 90% was reduced to 20%. The practical importance of such experiments is suggestive.

4. The authors never failed to procure streptococci either from throats or from milk no matter how fresh the latter was. It seems impossible to classify in a satisfactory manner streptococci by other means than by the fermentative reactions.

6. The serum test for glanders, under ordinary circumstances the most reliable test for that disease, is markedly interfered with by previous injections of mallein. The agglutination tests, when 1:8000 is taken as a positive reaction, were positive in 74.5% of clinically positive cases. On the other hand, the reaction was positive in 2.6% of healthy horses examined. The ophthalmic reaction is most easily performed, two drops of a 5% solution of mallein serum, freshly prepared, being introduced into the eye. The results are reliable and are of great help in diagnosis. The complement fixation reaction can alone be used independently and is best used as a substantiation of the rapid findings of the ophthalmic reaction.

10. The authors found spirochetes so frequently in the blood of animals infected with hog cholera by means of the dark field examination, that they suggest that this organism is a causative factor of the disease, although they are able to fulfil only the first of Koch's laws. [L. H. S.]

JOURNAL OF MEDICAL RESEARCH.

MARCH, 1913.

1. *MALLORY, HORNOR, AND HENDERSON. *The Relation of the Bordet-Gengou Bacillus to the Lesion of Pertussis.*
2. SMITH. *Morphological Changes in Tissues with Change of Environment.*
3. MCFARLAND AND ANDERS. *The Morbid Histology of the Cardiac Nervous Ganglia.*
4. MCFARLAND AND MCCONNELL. *The Immunizing Effect on Guinea-pigs of Small Doses of Diphtheria Toxin.*
5. LYALL. *Meningitis in an Infant Caused by the Typhoid Bacillus.*
6. JONES. *An Outbreak of an Acute Disease in Adult Fowls, Due to Bact. Pullorum.*
7. JONES. *The Value of the Macroscopic Agglutination Test in Detecting Fowls That are Harboring Bact. Pullorum.*
8. *WEIL. *The Nature of Anaphylaxis and the Relations between Anaphylaxis and Immunity.*
9. CUMMINS. *The Leucocytic Inclusions of Döhlé.*

1. Mallory has shown that the Bordet-Gengou bacillus is not a secondary invader in whooping cough, but is actually a causal factor. All of Koch's laws have been satisfied in this respect. The organism has been recovered from the respiratory tract of such cases, has been insolated in pure culture and has been shown to produce in animals lesions of a similar pathological nature to those found originally.

8. Weil concludes that there is a definite and striking relationship between anaphylaxis and immunity. "The immunized animal is potentially anaphylactic. His body cells possess anchored immune bodies, but are protected by those in circulation." The same antibodies exist in both conditions, but differ only in their disposition; those in anaphylaxis chiefly in the cells, in immunity in the serum. [L. H. S.]

THE LANCET.

AUGUST 23, 1913.

1. *MACKENZIE, H. *An address on Tuberculin Treatment. General Survey.*
2. *ABBE, R. *The Use of Radium in Malignant Disease.*
3. OLIVER, T. *The Prevention and Curative Treatment of Industrial Lead Poisoning.*
4. TUCK, G. L. *Investigations into the Relationship of the Tarbagan (Mongolian Marmot) to Plague.*
5. PIPER, J. E. *The Presence of Acetone Bodies in the Urine and Their Clinical Significance.*

1. Mackenzie in this article discusses the subject of tuberculin treatment in general, with special reference to Koch's original investigations, the tuberculin reaction, and its use in diagnosis and as a therapeutic agent, the natural course of tuberculous disease, the results of tuberculin treatment and the methods of administration. He believes that tuberculin is still on trial and that its use must be confined to those skilled and experienced in the subject.

2. Abbe describes his results with radium in malignant disease, the types of cancer in which radium treatment is of particular value and the methods of administration. He believes it to be definitely established that under correct dosage radium causes a retrograde degeneration of the malignant tissue cells. [J. B. H.]

AUGUST 30, 1913.

EDUCATIONAL NUMBER.

There are no original articles or addresses in this issue. [J. B. H.]

BRITISH MEDICAL JOURNAL.

AUGUST 30, 1913.

1. *RIVIERE, C. *A Lecture on Modern Methods in the Diagnosis of Phthisis.*
2. CODD, J. A. *The Nomenclature of Tuberculin Doses.*
3. JONES, R. *A Difficult Diagnosis in an Insane Person.*
4. SIMPSON, J. W., AND THATCHER, L. *The Treatment of Congenital Syphilis by Salvarsan.*
5. FORBES, A. M. *The Physiological Treatment of Pathological Scoliosis by Rotation.*
6. *EVANS, A. J. *Acute Pancreatitis: Its Causes, Symptoms and Treatment, with a Description of Three Cases.*

BRITISH MEDICAL ASSOCIATION.

SECTION OF CLIMATOLOGY AND BALNEOLOGY.

7. PALEY, F. J. *Introductory Remarks.*
8. TYSON, W. J., ET AL. *Discussion on Sea Bathing.*
9. WOOD, N. *Discussion on International Aspects of British Health Resorts.*
10. WOODCOCK, H. DEC. *A Criticism of Methods of Treating Phthisis by "Climate."*
11. ACKERLEY, R. *Massage in Fibrositis and Other Painful Conditions.*
12. GORDON, W., AND THOMPSON, W. F. *The Distribution of Cancer Cases in Two Registration Districts of Northeast Cornwall.*
13. BUCKLEY, C. W. *The Rationale of the Plomlières Douche.*
14. HOBHOUSE, E. *The Climate of Brighton in Relation to Disease.*
15. BROWN, D. D. *Panniculitis.*

1. Riviere, discussing the diagnosis of phthisis, emphasizes the more important points, among which he places topographical percussion, *i.e.* comparing the same regions on the two sides; tidal percussion, *i.e.* percussion at beginning and end of full inspiration and expiration, radiography and finally, tuberculin. He mentions briefly the anti-formin method of sputum examination, and more complex laboratory methods. Finally, he emphasizes the value of old and well tried methods.

6. Evans in a general article takes up the subject of acute pancreatitis as to symptoms, diagnosis, and treatment, with illustrative cases. [J. B. H.]

MÜNCHENER MEDIZINISCHE WOCHENSCHRIFT.

No. 34. AUGUST 26, 1913.

1. SCHLAGINTWEIT, E., AND STEPP, W. *Pancreatic Secretion in Secretory Disturbances of the Stomach as Observed in Dogs with Fistulae.*
2. *BEYER, W. *The Intravenous Use of Anti-diphtheritic Serum.*
3. MEIROWSKY. *Observations on Living Spirochetae.*
4. KAMMERER, H. *The Anti-trypsin of Blood Serum.*
5. *FABIAN, E. *The Treatment of Lymphosarcoma.*
6. GUNDERMANN, W. *A Common Anomaly of the Lower Thoracic Vertebrae.*
7. ABDERHALDEN, E., AND FODOR, A. *Ferments Protective to Milk Sugar in the Serum of Pregnant and Nursing Women.*
8. FOERSTER, R. *The Psychology of Evidence Given by Patients in Accidents.*
9. SPECK, W. *Noviform in the Treatment of Wounds.*
10. DURLACHER. *Critical Observations in Regard to the Premature Delivery of a Patient Having a Rachitic Pelvis and Bicornate Uterus with One Cervix.*
11. TÖBBEN, M. *Kuhlenkampf's Anesthesia in Neuralgia of the Brachial Plexus.*
12. VOELCKEL, F. *The Recognition of Diphtheria Bacilli by V. Drigalski and Bierast's Method.*
13. SEELIGMANN, L. *The Influence of Rays and Intravenous Chemotherapy on Inoperable Carcinoma of the Uterus.*
14. FIESSLER, A. *Legal Requirements for a Practising Physician. (Conclusion.)*

2. Beyer, in order to compare the effect of diphtheria antitoxin when given intravenously or subcutaneously, studied a series of cases from the same epidemic having as nearly as possible identical clinical symptoms. Half the cases received antitoxin subcutaneously and half intravenously. The first group were given 1000-3000 units and the second 500-1000. The temperature and local condition of the disease were recorded in each case.

Beyer concludes that when the serum was given early in the disease by the intravenous method, the temperature appeared to return to normal somewhat sooner than when it was given subcutaneously, but if given late there was no difference. Antitoxin intravenously or subcutaneously had the same effect on the local condition of the throat.

5. Fabian defines lymphosarcoma as a malignant tumor composed of cells of the lymphocytic or lymphoid series imbedded in a more or less definite connective tissue reticulum. The diagnosis can be made by microscopic examination alone, although blood examination and serological and tuberculin tests should be made to rule out leukemia, syphilis and tuberculosis. The greatest difficulty in differential diagnosis rests between lymphosarcoma, Hodgkin's disease and pseudo leukemia.

For treatment of the first condition radical extirpation of the tumor is indicated so long as it is technically possible. Analysis of cases so treated shows that the outlook is much less favorable when the tumor originates in a lymph gland instead of in the lymphoid tissue of some organ. In generalized lymphosarcoma there is a peculiar tendency to partial healing and relapse. In such cases treatment with arsenic, x-rays, radium or Coley serum should be pursued energetically, but a guarded prognosis should be made. [R. F.]

No. 35. SEPTEMBER 2, 1913.

1. *BERGER, H. *The Presence of Spirochetae in Animal Experiments from the Brains of Paralytics.*
2. v. DUNGERN, AND HALPERN. *Complement Fixation Tests with Cerebro-spinal Fluid in Carcinoma.*
3. ABDERHALDEN, E., AND SCHIFF, E. *Further Progress in the Knowledge of the Specificity of Protective Ferments. The Reaction of the Serum of Pregnant Rabbits Toward Various Organ Extracts.*
4. ZINK. *Does Laryngeal Tuberculosis Afford a Contra-indication to Treatment by Collapsing the Lung?*
5. GEIGEL, R. *Pauses in Audible Breathing.*
6. *BENNECKE, H. *The Treatment of Severe Sepsis by Intravenous Infusion of Large Amounts of Normal Human Serum after Previous Bleeding.*
7. KLEINSCHMIDT, P. *The Technic of the Radical Operation for Inguinal Hernia.*
8. LUNCKENBEIN. *The Treatment of Malignant Tumors.*
9. HERRLIGKOFFER, C., AND LIPP, J. *Recent Clinical Experience with the Efficacy of the Dürkheimer Maxquelle.*
10. KIRCHNER, K. *The Use of Coryfin (the Ethylglycocolic Ester of Menthol) in Ear Diseases.*
11. GORN, W. *Studies with Leptynol.*

12. Schnée, A. *Reduction of Weight by Schnée's Electrical "Degrassator."*
13. Kantorowicz, A. *A Case of Actinomycosis of the Maxilla Originating from the Teeth.*
14. Heinemann, O. *A Mistaken Diagnosis of Carcinoma Owing to a Large Salivary Calculus.*
15. Bles, C. *Köhler's Disease.*
16. Raab, O. *The Technic of Withdrawal of Blood for the Wassermann Reaction.*
17. Tiegel, M. *A Pus Basin with a Handle.*
18. Plotkin, G. *The Specificity of Ferments to Placenta in Pregnancy.*
19. *In Memory of Dr. Benedict Schelle.*
20. Fischer, A. *"Social Hygiene" and "Social Medicine."*

1. Berger has punctured the brains of twenty patients having general paralysis, removing small cylinders of the brain tissue. Suspensions of this were made in sterile salt solution, which were injected into the left testicles of large rabbits. The animals were killed four months after inoculation, and examined histologically and by the Levaditi method for syphilitic changes and for the presence of spirochetae. In seventeen rabbits the findings were negative. Three rabbits, however, showed positive results, consisting of gummatous like foci in the testicle, in which a few spirochetae were demonstrated.

Berger concludes that these experiments confirm Noguchi's findings in the brains of paralytics and prove that spirochetae found therein are not only living, but are able to produce local syphilitic processes.

6. Bennecke reports five cases of very severe sepsis which were treated by removal of about 300 c.c. of blood and by subsequent intravenous injection of from 210-480 c.c. of normal human serum. This was done on the assumption that by bleeding, toxines were removed, and by the injection the fluid loss was made up with the addition of anti-bodies present in the normal serum. Three cases recovered at once, after being nearly moribund. Two cases died, one of which showed a slight but distinct improvement after the treatment. In neither case at autopsy was there evidence of hemolysis.

Bennecke concludes that this treatment in his cases was of undoubted value, partially by its influence on the circulation analogous to an injection of physiological salt solution, and partially by bio-chemical reactions analogous to injections of adrenalin. Whether the anti-bodies in the normal serum had a beneficial effect, is speculative. [R. F.]

Obituary.

REGINALD HEBER FITZ, M.D.

Dr. Reginald Heber Fitz, who died of chronic gastric ulcer on Sept. 30 at Brookline, Mass., was born in Chelsea, Mass., on May 5, 1843. He obtained his preliminary education at the Chauncy Hall School, Boston, and received the degree of A.B. from Harvard in 1864 and that of M.D. in 1868. During his last year in the Medical School, he served as house physician at the Boston City Hospital. After two years of study in Europe, chiefly with Virchow at Berlin, he returned and settled in the practise of his profession at Boston.

Dr. Fitz's native intellectual brilliancy, augmented by his excellent and stimulative training, speedily won him recognition. At first his interests and work were chiefly in pathology. In 1871 he was appointed microscopist to the Massachusetts General Hospital and instructor in pathological anatomy at the Harvard Medical School. In 1873 he became assistant professor, and in 1879 Shattuck professor of pathological anatomy. As a pathologist, his method, thoroughness, and technic won admiration from all; and as a lecturer he early displayed the masterly understanding and systematic exposition by which his instruction was distinguished.

Meantime, as physician to the Boston Dispensary from 1871 to 1882, Dr. Fitz was developing his capacities as a practitioner, and accumulating the clinical experience of which later he was to make such brilliant use. He had already contributed numerous papers, many of them to the Boston Medical and Surgical Journal, on various pathologic subjects. In 1886 he presented before the Association of American Physicians his memorable paper on "Perforating Inflammation of the Vermiform Appendix,"[1] in which he correlated and explained for the first time the clinical picture and the pathologic processes of appendicitis. His description of this disease has become one of the classics of medicine.

The history of the controversy which followed Dr. Fitz's paper has been editorially referred to in the issue of the Journal for Oct. 9. Though his views were not immediately accepted by all, however, the soundness of his principles and reasoning and the originality of his work were soon recognized, and in 1887 he was appointed visiting physician to the Massachusetts General Hospital. His opportunity was now abundant to pursue the coördinated clinical and pathologic studies in which his genius showed its greatest ability. In 1889 Dr. Fitz delivered before the New York Pathological Society his paper on "Acute Pancreatitis," the second of his notable contributions to medical knowledge. His masterly analysis of this complex clinico-pathologic problem was received almost immediately as the work of an authority, and in the same year he was elected a Fellow of the American Academy of Arts and Sciences.

Other distinctions came deservedly and soon. In 1892 Dr. Fitz became Hersey Professor of the Theory and Practise of Physic, and in this position reached the climax of his efficiency as a teacher. His lectures were terse, vigorous, lucid, and models of flawless didactic exposition. In his clinical exercises, his cross-examining method and keen forensic style were as illuminating as they were stimulative to students, to whom his personality was a perennial inspiration.

In 1892, also, Dr. Fitz was elected an associate fellow of the College of Physicians of Philadelphia, and in 1893 an honorary member of the Medical and Chirurgical Faculty of the State of Maryland. In 1894 he became president of the

[1] The abstract of this paper, as it appeared in this Journal in the issue of July 8, 1886, is reprinted on another page.

Association of American Physicians. In 1900 he was elected a corresponding member of the Schlesische Gesellschaft für Vaterländische Kultur, and in 1904 an honorary fellow of the New York Academy of Medicine. In 1905 Harvard College awarded him her highest academic distinction by giving him the honorary degree of LL.D. In conferring this degree President Eliot described Dr. Fitz as "skilful and acute diagnostician, much trusted consultant, sagacious contributor to the progress of medicine," phrases that, as usual, could not be improved as a summary of his character and work.

In 1907 Dr. Fitz was elected a corresponding member of the Gesellschaft für Innere Medizin und Kinderheilkunde of Vienna, and in the same year served as president of the Congress of American Physicians and Surgeons. In 1908 he retired from his professorship and from his hospital, and devoted himself thereafter to the private practise of his profession.

Dr. Fitz was a member of the American Medical Association, a Fellow of The Massachusets Medical Society, a member of the Suffolk District Medical Society, of the Massachusetts Medical Benevolent Society, of the Medico-Legal Society, of the Boston Society of Medical Sciences, of the Boston Medical Library, and of the Boston Society for Medical Improvement. He was a vice-president of the Harvard Medical Alumni Association. Dr. Fitz rendered abundant service to his community, to medical education, and to the progress of human knowledge, and has died in the fulness of years and honor. He is survived by his widow, by one daughter, and by two sons, one of them also a physician.

Miscellany.

PERFORATING INFLAMMATION OF THE VERMIFORM APPENDIX, WITH SPECIAL REFERENCE TO ITS EARLY DIAGNOSIS AND TREATMENT.*

ABSTRACT OF A PAPER BY REGINALD H. FITZ, M.D., BOSTON.

A HISTORICAL statement was made of the origin of the terms typhilitis, perityphilitis, and perityphilitic abscess. The want of exact agreement as to what was understood by these terms was emphasized. Attention was called to the importance of bearing in mind that in the vast majority of cases, the primary disease was an inflammation of the cecal appendix. The term appendicitis was preferred to typhilitis, as avoiding the possibility of a misunderstanding, and as localizing the disease in its usual place of origin.

The paper was based upon an analysis of two hundred and fifty-seven cases of unquestionable perforating ulcer of the appendix, and of two hundred and nine cases diagnosticated as typhilitis, perityphilitis, and perityphilitic abscess. In the latter series, the diagnosis was clinical, not anatomical.

The important features in the etiology of appendicitis were considered, also the limitations as to sex and age. It was found that the disease occurred most frequently among previously healthy youths and young adults, especially males; that a fecal concretion or foreign body was present as a local cause in more than three-fifths of the cases. Attacks of indigestion and acts of violence, especially when indirect, were exciting causes in one-fifth of the cases. The action of these causes was favored by a constipated habit, or by congenital or acquired irregularities in the position and attachment of the appendix.

The first characteristic symptom of a perforating appendicitis was found to be a sudden severe, abdominal pain. This occurred in eighty-four per cent. of the cases, and usually in the right iliac fossa, where tenderness could always be found, even when the pain was referred to some other locality. The pain was attributed to the actual perforation or the detachment of fresh adhesions.

Fever was the next characteristic symptom and occurred in the course of twenty-four hours. Finally came the swelling, which made its appearance in the course of three days.

The chief source of danger from the appendicular peritonitis arose from its becoming generalized. Such a result followed most frequently between the second and fourth days. More than two-thirds of the patients died during the first eight days and two-thirds of these between the fourth and eighth days inclusive.

The question of a differential diagnosis was then discussed. The termination in resolution was referred to. It was considered to take place in about one-third of the cases as approximately determined from the recorded cases of typhilitis and perityphilitis. Even resolution might be undesirable since the number of cases of recurrent disease is considerable, and might have been prevented by appropriate treatment.

The reader recommended at the outset, the opium treatment with rest and a liquid diet, the food being given in small quantities, frequently repeated. If it became evident that general peritonitis was imminent at the end of twenty-four hours after the sudden intense pain the appendix should be exposed and removed. Usually the symptoms were not so urgent that the appearance of the swelling could not be awaited. Although Willard Parker advised that the abscess might be opened as early as the fifth day, the practice has been to operate at a later date. Forty-seven per cent. of the cases were operated upon in the second week and twenty-six per cent. after the third week.

More favorable results in the future were to follow the earliest possible opening of the swell

* Reprinted from the BOSTON MEDICAL AND SURGICAL JOURNAL, for July 8, 1886.

ing. This in most instances was at the outset, a sac formed by a circumscribed peritonitis. It was usually present on the third day of the disease, dating from the pain, its first marked characteristic symptom. Negative results from a diagnostic puncture did not contraindicate the operation.

SOCIETY NOTICES.

The annual meeting of the Oxford Home for Aged People will be held at the residence of Miss Ada L. Joslin, Oxford, at 3 p. m., Oct. 23, 1913, to act on the following articles:—

Article 1. To choose all necessary officers for the year ensuing.

Article 2. To transact any other business that may legally come before said meeting.

EDWIN L. BARTLETT, *Clerk.*

It is very desirable that there be a full attendance.

SUFFOLK DISTRICT MEDICAL SOCIETY.—The stated meeting will be held at Boston Medical Library, 8 The Fenway, Saturday, Oct. 25, 1913, at 8.15 p. m.

Paper by Dr. Richard P. Strong, Professor of Tropical Medicine.

"The Harvard Expedition to South America" illustrated with lantern slides.

Business: Election of nominating committee, election of auditing committee, amendment to By-Laws.

Refreshments after the meeting.

HORACE D. ARNOLD, M. D., *President.* WALTER C. HOWE, M.D., *Secretary.*

THE HARVEY SOCIETY.—The second lecture will be delivered on Saturday, Oct. 18, at 8.30 p. m., at the New York Academy of Medicine, 17 West 43d Street, by PROF. ADOLPH SCHMIDT, University of Halle. Subject, "Severe Anemia in Gastro-intestinal Diseases."

THE NORFOLK DISTRICT MEDICAL SOCIETY.—A stated meeting of the Society will be held at Masonic Temple, 171 Warren Street, Roxbury, Tuesday, Oct. 28, at 8 P. M. Business: The election of a member to the Nominating Committee. Communication: "Suggestive Treatment in the Diseases of Childhood," William W. Howell, M.D. Discussion by Edward W. Taylor, M.D., and Charles D. Knowlton, M.D.

Refreshments after the meeting.

The Censors will meet at Masonic Temple, Roxbury, Thursday, Nov. 13, at 2 P. M., for the examination of candidates.

BRADFORD KENT, M.D., *Secretary,*
798 Blue Hill Ave., Dorchester.

MASSACHUSETTS MEDICAL BENEVOLENT SOCIETY.—The annual meeting of the Society will be held in Sprague Hall, Boston Medical Library, on Thursday, Oct. 30, at 5.30 P. M.

By order of the President,

GEORGE B. SHATTUCK, M.D.

ROBERT M. GREEN, M.D., *Secretary.*

THE NEW ENGLAND PEDIATRIC SOCIETY.—There will be a combined meeting of the New York State Pediatric Society, the New York Academy of Medicine, the Philadelphia Pediatric Society, the New Jersey Pediatric Society and the New England Pediatric Society at the Boston Medical Library on Saturday, Nov. 8, 1913, in John Ware Hall, at 8.15 P. M.

The Following papers will be read:

"On the Bacteriological Diagnosis and Treatment of Alimentary Disease." By Ralph Vincent, London, Eng.

"Investigations in Vulvovaginitis by Means of the Female Urethroscope." By Dr. John F. Sinclair, Philadelphia.

"Active Immunization in Diphtheria by Toxin-Antitoxin Mixture." By Dr. William H. Park, New York.

"The Position of the Stomach in Children." By Dr. James Warren Sever, Boston.

The members of the Suffolk District Medical Society are cordially invited to attend this meeting.

JAMES S. STONE, M.D., *President.*
FRITZ B. TALBOT, M.D., *Secretary.*

PUBLIC OPERATING DAY, BOSTON CITY HOSPITAL.

Beginning November 1, the public operating day at the Boston City Hospital will be changed from Saturday to Friday of each week.

NOTICE.

Wednesday Clinics, Psychopathic Hospital, 74 Fenwood Road, 12 M. to 1 P. M. Topic of the month, "Diagnosis of General Paresis."

RECENT DEATHS.

DR. CHARLES EUGENE MICHEL, who died on Sept. 29, at St. Louis, was born in 1833. He served throughout the Civil War as a surgeon in the Confederate Army.

DR. LEONARD B. ALMY, who died recently at Norwich, Conn., was born in 1851. He received the degree of M.D. in 1873 from Yale. He was a member and at one time president of the Connecticut State Medical Society. He is survived by two daughters.

DR. WILLIAM ANDERSON MITCHELL, who died on Sept. 26 in Brooklyn, N. Y., was born at White Plains, N. Y., in 1843. After graduating from Columbia College, he served throughout the Civil War in the Seventh New York Regiment. He then took his degree in medicine at the Yale Medical School. He is survived by two daughters and by three sons.

DR. FRANK PETERS, who died on Oct. 1 at Great Barrington, Mass., was born in 1853. He is survived by his widow and by one son.

DR. JAMES M. SIGISMUND, who died recently in New York City, was born in Ireland in 1838. After graduating from Trinity College, Dublin, he migrated to the United States, and served thoughout the Civil War as a lieutenant and surgeon in the Thirteenth Massachusetts Infantry Regiment.

DR. EDNA TERRY, of Port Jefferson, L. I., died recently in China, where she was working as a medical missionary. She received her degree in medicine from Boston University.

DR. CARL J. M. WILLICH, of Brooklyn, N. Y., died from cancer of the throat on September 24. He was born in Hamburg, Germany, in 1851, and was graduated from Bellevue Hospital Medical College in 1893.

DR. EDWIN BAYARD HARVEY, a Councilor of the Massachusetts Medical Society, died at his home in Westborough, Sept. 28, 1913, aged 79 years.

DR. E. E. GORDON, of Cairo, Ill., died in that city, September 18. He was graduated from the Long Island College Hospital in 1894, and at the time of his death was visiting physician to the Kings County Hospital and physician-in-chief of the Samaritan Hospital.

DR. FRANK BUSZARD, F.R.C.P., F.R.C.S., who died at Dallington, Northamptonshire, England, on Sept. 14, was born in 1839. He was connected for over 40 years with the Northampton Hospital, in which he was one of the early pioneers of hospital reform. He is survived by his widow, by two daughters, and by one son.

DR. JOHN GREEN CURTIS, of New York, who died on Sept. 20, was born in 1844. He was emeritus professor of physiology in the College of Physicians and Surgeons, Columbia University.

DR. LOUIS KUTTNER, who died in Berlin on Oct. 5, was born in 1866. He was a founder of the Empress Frederick Institute for Medical Research, and superintendent of a division of the Virchow Municipal Hospital.

DR. EDWIN CANDEE BALDWIN, since 1900 chief bacteriologist at the New York quarantine station, died on Oct. 3, at the age of 48 years. He was graduated from the University of Rochester in 1893 and from Bellevue Hospital Medical College in 1896. Previous to his appointment at Quarantine, Dr. Baldwin was engaged for some years in research work in the laboratories of the New York City Health Department. At the time of his death he held the additional appointment of pathologist to St. Vincent's Hospital of the Borough of Richmond, at West New Brighton, Staten Island.

DR. WILLIAM A. SCHENK died on September 28 at Flemington, N. J., in the house where he was born, 87 years ago. He was graduated from the medical department of New York University in 1848, and for a number of years practised in Sidney, Australia. He returned to Flemington in 1867.

DR. RICHARD F. STONE, of Indianapolis, Ind., died in that city on Oct. 3.

RESIGNATION AND APPOINTMENT.

PROFESSOR EARLE B. PHELPS has resigned from the Faculty of the Massachusetts Institute of Technology, and from the staff of the Sanitary Research Laboratory in that institution, to accept a position as professor of chemistry at the United States Hygienic Laboratory, U. S. Public Health Service, Washington, D. C.

CHANGES IN THE MEDICAL CORPS, U. S. NAVY.

September 15, Assistant Surgeons W. C. Espach, A. E. Younie, and J. F. X. Jones, Commissioned Assistant Surgeons in the Medical Reserve Corps from August 18, 1913.

September 18, Passed Assistant Surgeon G. B. Trible, detached from Naval Hospital, Washington, D. C., and ordered to the *Solace*.

September 19, Surgeon E. J. Grow, to Naval Hospital, Washington, D. C.

Passed Assistant Surgeon E. W. Phillips, to Marine Recruiting Station, Chattanooga, Tenn.

Passed Assistant Surgeon C. C. Grieve, detached from *North Carolina* to home; wait orders. Commissioned Surgeon from Jan. 12, 1913.

Assistant Surgeon C. P. Lynch, detached from Naval Recruiting Station, St. Louis, Mo., to Naval Medical School, Washington, D. C.

September 25, Medical Director Passed Assistant P. A. Lovering, placed on retired list of officers of the Navy from September 29, 1913. In accordance with Section 1444 of the revised statutes, age 62 years.

Surgeon G. F. Freeman, detached from Naval Dispensary, Washington, D. C., and ordered to *North Carolina*.

Surgeon F. M. Furlong, from *New Jersey* to *Connecticut*.

Surgeon G. L. Angeny, from Norfolk Yard, to *New Jersey*.

Surgeon J. H. Iden, from *Connecticut* to Naval Hospital, Annapolis, Md.

Surgeon R. B. Williams, from Naval Hospital, New York, to Receiving Ship, at Norfolk, Va.

Surgeon C. G. Smith, to Naval Hospital, Brooklyn, N. Y.

Surgeon H. O. Shiffert, from Naval Academy, Annapolis, Md., to Navy Yard, Station, Portsmouth, Va.

Passed Assistant Surgeon D. H. Noble, from Navy Yard, Philadelphia, Pa., to *Connecticut*.

Passed Assistant Surgeon A. H. Allen, from *Connecticut* to Navy Yard, Philadelphia, Pa.

Passed Assistant Surgeon N. T. McLean, from Naval Hospital, Newport, R. I., to Pacific Reserve Fleet.

Assistant Surgeon H. E. Jenkins, from *Rhode Island* to home.

Surgeon N. J. Blackwood, from Naval Hospital, Canacao, to fleet surgeon, Asiatic Fleet.

Acting Assistant Surgeon J. E. Heatley, appointment revoked.

The following Acting Assistant Surgeons, Medical Reserve Corps, U. S. Navy, have been ordered to Naval Medical School, Washington, D. C., for course of instruction:

Guthrie McConnell, H. A. Tribou, S. E. Crawford, R. L. Crawford, A. E. Younie, W. C. Espach, Frederick Ceres, Louis Lehrfeld, C. E. Treibly, W. B. Hetfield, J. B. Helm, W. W. Hargrave, T. A. Fortescue, F. H. Haigler, H. V. Connett, A. E. Beddoe, C. R. Baker, W. S. Wentzel, O. C. Foote, Howard Priest, J. D. Babbitt, and C. S. Stephenson.

September 27, Medical Director L. W. Curtis, from Naval Recruiting Station, Boston, Mass., to Naval Hospital, Newport, R. I.

Surgeon H. D. Wilson, to Naval Recruiting Sta., Boston, Mass.

Surgeon R. T. Orvis, from Las Animas to Newport Hospital.

P. A. Surgeon J. A. Bass, from Naval Recruiting Party, Erie, Pa., to Naval Academy, Annapolis, Md.

P. A. Surgeon H. W. B. Turner, from Naval Training Station, San Francisco, Cal., to Naval Hospital Pudget Sound, Washington.

P. A. Surgeon W. N. McDonell, ordered home to wait orders.

Act. Asst. Surgeon S. W. McEwan, from Naval Recruiting Station, Cincinnati, Ohio, to Naval Recruiting Station, St. Louis, Mo.

Sept. 29, Surgeon R. W. Plummer, from Naval Recruiting Station, Detroit, Michigan, to the *Hancock*.

P. A. Surgeon R. B. Henry, from Naval Hospital Annapolis, Md., to the *Rhode Island*.

P. A. Surgeon W. G. Steadman, from the *Georgia* to Naval Recruiting Station, Detroit, Michigan.

BOOKS AND PAMPHLETS RECEIVED.

Essentials of Pathological Chemistry, by Victor C. Myers, M.A., and Morris S. Fine, Ph.D. The Post Graduate, New York.

The Use of Opium in Gangrene by George W. Gay, M.D. Reprint.

A Treatise on the Diseases of Women for Students and Practitioners, by Palmer Findley, B.S., M.D. Lea & Febiger, 1913.

Diagnosis of Malignant Tumors of the Abdominal Viscera by Professor Rudolph Schmidt. Rebman & Co., 1913.

Studies in Cancer and Allied Subjects from the Departments of Zoölogy, Surgery, Clinical Pathology and Biological Chemistry. Vol. III. The Study of Experimental Cancer. Vol. I. The George Crocker Special Research Fund, Columbia University.

Leprosy and the Knife, by E. S. Goodhue, M.D. Holualoa, Hawaii. Reprint.

Orthopedics in Medical Practice by Prof. Adolf Lorenz and Dr. Alfred Saxl. William Wood & Co. 1913.

Specific Treatment of Disease by William E. Kernan, Boston.

A Manual of Otology, by Gorham Bacon, M.D. Lea and Febiger. Philadelphia, Pa.

Modern Ophthalmology by James Moores Ball, M.D. F. A. Davis Company, Philadelphia, Pa.

Public Health Reports. Vol. xxviii, No. 37, September 12, 1913. Washington, D. C.

Original Articles.

THE TREATMENT OF SCOLIOSIS.*

BY ROBERT W. LOVETT, M.D., BOSTON.

The presentation of a critical review of the modern treatment of scoliosis presents peculiar difficulties. The affection has been for many years the subject of extended and sometimes bitter discussion, but no weight of authority has been great enough, and no proof of achievement convincing enough, to unite surgical opinion. In a recent review of the literature of the subject, made as a preliminary to writing this report, it has seemed almost impossible to believe that the authors were discussing the same subject, so wide has been the divergence of opinion. This may be partly accounted for by the fact that the term 'scoliosis' is loosely applied to include two different affections, and partly because scoliosis seems to have been regarded, in the past at least, as an affection quite by itself, to which the general principles governing the treatment of other deformities were not applicable.

Under the existing conditions, therefore, it seems best to start with a somewhat elementary definition of our subject, and to proceed from this to a consideration of the basic principles governing our treatment. This method of procedure has been chosen because assertions based on clinical experience and on theory, published results, mechanical studies, pathological examinations, and new methods of technic, all exist in abundance. Further accumulation of these would seem to be probably less useful than a consideration and analysis of the principles upon which treatment rests, in the hope of securing possibly a better agreement on fundamentals as the basis of a more satisfactory superstructure.

Definition. We must first, therefore, arrive at a perfectly definite understanding of the terms to be used. The term scoliosis is a Greek word dating from the time of Hippocrates, meaning a bending, twisting or curving, and is used as synonymous with lateral curvature of the spine or its equivalent in other languages.

When we speak of scoliosis or lateral curvature of the spine as an entity we are really classing together two main groups which should be kept separate, or at least separately identified.

Varieties. These groups are (1) postural or functional scoliosis, and (2) structural or organic scoliosis. The other names given to the two different varieties by various authors vary widely, and the line of cleavage between the two groups in literature is ill-defined and variable. But as a matter of fact the division between the two is clearer than between most functional and organic affections of the same structure or organ.

In the first named variety, the postural, the patient has a structurally normal spine, but stands with the spine curved to the side owing to some defect in lateral balance due to some trifling anatomical bodily asymmetry, to be discussed later. The curve disappears on lying down, and the x-ray shows no structual changes.

In the second named variety, the structual, the vertebral column is primarily affected, and the lateral curve is due to this asymmetry of the structures composing the spine. The curve does not disappear in recumbency, and the x-ray shows structural changes.

To call both of these varieties by one name, scoliosis, leads to confusion and contradiction, to widely differing statements as to ætiology, and to marked divergence of views with regard to treatment and its results. If we grouped together all sprains and joint fractures under the term of 'fractures' without regard to the presence or absence of bone injury, our classification and our treatment of these injuries would become confused, contradictory, and unsatisfactory.

In order to make the matter perfectly clear in the present discussion, therefore, let us designate as 'false' scoliosis the postural variety, and as 'true' scoliosis the structural variety, so that in the consideration of ætiology and treatment we may not be grouping under one name two conditions essentially different.

True scoliosis constitutes our real problem, of course, but in order to make that part of the subject perfectly clear, we must first discuss and remove from our field the less important question of false scoliosis.

FUNCTIONAL SCOLIOSIS.

We come then first to a brief consideration and definition of the minor form, functional scoliosis. This variety is also spoken of as postural or total scoliosis, faulty attitude, or, best of all, false scoliosis, a term used by some of the more recent German writers.[1]

Diagnosis. The identification of this variety is simple, and its diagnostic characteristics are four:[2]

(1) The spine forms a single lateral curve, in 90 per cent. of the cases convex to the left, for which predominance no satisfactory explanation has been given.

(2) In the ordinary standing position the left shoulder is carried higher than the right in left curves, and vice versa. This is because the bend to the left separates the ribs on the left, which carries the left side of the shoulder girdle higher than the right.

(3) In the standing position the right side of the shoulder girdle is twisted back in relation

* Read at the seventeenth International Medical Congress, London, August 6-12, 1913.

to the pelvis, and the left twisted forward in left curves, and vice versa. This is because there is no such spinal movement as a pure lateral bend, and every lateral bend is accompanied by a twist. This twisting of the shoulder girdle in a horizontal plane is an expression of this fact. Any bend of the spine convex to the left in the upright position is and always must be accompanied by a twist of the shoulder girdle backward on the right.[3]

(4) If the patient stands and bends forward from the hips until the trunk is horizontal the right side of the back will be slightly higher than the left in left curves, and vice versa. That is, the twist backward as seen in this position, in this type of scoliosis, occurs on the concave side of the lateral curve instead of on the convex, which is the case in the structural type. This is because the backward twist of the right side of the shoulder girdle, spoken of in the preceding section, is carried over into the forward bend position as a prominence upward of the right side of the back.

This phenomenon has been much discussed under the names of 'reverse rotation,' 'retrotorsion,' 'concave-sided rotation,' 'and paradoxical scoliosis,' but it is really nothing but the natural forward bent position of any patient with left functional scoliosis. The phenomena of functional scoliosis may all be produced by having a normal child stand with one leg on a book, causing obliquity of the pelvis.

It may be desirable to repeat for the sake of clearness the four signs which designate functional or false scoliosis. In left curves they are a curve of the whole spine to the left, a high left shoulder, the shoulder girdle twisted backward on the right, and in forward bending the right side of the back is slightly higher. They are the diagnostic signs, and the absence of any one of the four will generally invalidate the diagnosis.

Functional curves remain as such or they may change to mild structural curves. There is no evidence that they are spontaneously outgrown. The ætiology of false scoliosis will be discussed with that of real scoliosis in order to avoid repetition.

Treatment. Cases of false scoliosis in the matter of treatment being a muscle problem, yield to muscle treatment—that is, they are amenable to gymnastics, and the prognosis for complete recovery under efficient treatment is favourable. The treatment consists in substituting a correct for a faulty attitude, which is accomplished by a set of exercises much like the 'setting up drill' of the army recruit. If stiffness to one side exists it is easily remedied by unilateral bendings.

Having thus identified this condition, which has done so much to fog the whole question of scoliosis, we may for the present leave it aside and pass to the consideration of structural scoliosis, which constitutes our real problem.

STRUCTURAL SCOLIOSIS.

As synonyms for this name there are in common use the terms true, real, organic, fixed, bony, osseous or habitual scoliosis, or rotary lateral curvature of the spine.

As distinguished from the functional variety which has just been described, the structural variety is characterized by a change in the structures of the spine and thorax, manifested by a lateral curve of the spine associated with a turning of the vertebral bodies of each curved region toward the convexity of the lateral curve. This latter is the 'rotation' of scoliosis. We are dealing no longer with the persistent malposition of a structurally normal spine, but with a spine deformed by structural alterations in bone and soft parts.

This turning of the vertebral bodies to the convex side of the lateral curve is made evident by a backward prominence of one side of the thorax or lumbar region in the standing position, and still more evident as an upward prominence of that side in the forward bent position, and is to be accepted in even slight degree as evidence of the existence of true or structural scoliosis. The pathological changes associated with this grade of scoliosis, with which you are perfectly familiar—the wedge-shaped and twisted vertebræ, the compressed intervertebral disks, the deformed and displaced ribs, and the contracted soft parts—constitute factors that we must take into serious account in formulating our treatment.

Ætiology. Before proceeding to the discussion of treatment of this form, some mention of the ætiology of both forms, in so far as it bears on treatment, must be made, because in this regard much confusion has been caused by the failure to separate the two conditions.

Functional or False Scoliosis is apparently caused by the faulty attitudes of children sitting and standing at school and at home, by some trifling anatomical asymmetry in legs, pelvis, spine, or skull, causing asymmetrical balance, by unequal vision or hearing, by occupations necessitating distorted positions, and by similar causes.

Structural or True Scoliosis in the matter of ætiology is very differently regarded in the last few years from what it was formerly, and the idea that practically all cases are due to static causes, to school positions and the like, has been extensively questioned. Insomuch as this matter bears directly on treatment, it must receive consideration.

Structural or true scoliosis may be roughly classed as being either mild, moderate, or severe. In the mild cases the deformity, although perfectly characteristic, may be so slight that we can easily concede that the changes present are no more than we might expect to find in a spine

of normal resistance which had been held laterally curved during a part of the period of growth. These cases are most often the outcome of functional scoliosis, and are often spoken of as static.

In the remaining cases, however, the cases of moderate and severe degree, the changes are so marked or severe that we cannot regard them as the result of growth of a normal spine column held asymmetrically, but must look for an additional cause. Such causes are to be found most often in (*a*) congenital anomalies of the spine or its appendages, (*b*) empyema, (*c*) infantile paralysis, and (*d*) rickets. In addition to these there is a class of cases where the deformity is so severe that one must assume a diminished individual resistance of bone to deforming causes, and yet evidences of rickets are not to be found. Some writers would assume in all such cases the existence of rickets to explain such cases, but in the absence of the accepted diagnostic signs of that affection it seems fairer to admit the fact, and assume an undefined weakness of bone for which we have as yet no name.

The practical outcome of the foregoing statement is that in the opinion of the writer one may assume that a short leg, *e.g.* will cause asymmetry in standing and postural or false scoliosis, and in some cases will cause mild degrees of true scoliosis, but that it is not a competent cause of moderate or severe scoliosis in an individual *with normal bones.* If the bones, however, on account of rickets or because of some similar condition not at present recognized, do not possess normal resistance, a short leg or any similar condition may be in such cases a competent cause of scoliosis of high degree.

This bears directly on the question of school as a cause of true scoliosis, and the views expressed are largely in accord with those of the majority of the recent German writers who participated in the discussion of the subject before the German Orthopædic Association.[4]

Treatment. In taking up for discussion the question of the treatment of true or structural scoliosis, it becomes evident that this condition has escaped that careful analysis which would have led to the application to it of those sound surgical principles which aid and guide us in the treatment of similar conditions in other parts of the body. There has not been the direct attack on the essential deformity that has been made on knock-knee, bow-legs, club-foot, wry-neck, and similar deformities. Until recently the treatment has been an indirect, intermittent, and long-continued effort to remedy a bony deformity by muscular means. A surgeon would be thought very much behind the times who to-day endeavored to correct bony knock-knee or congenital club-foot by muscular exercise, yet many an up-to-date surgeon does not hesitate to advocate gymnastic exercise as the sole treatment of a bony deformity equally severe. The excuse for the use of gymnastic treatment under these conditions would be the fact that the results obtained by it were so very satisfactory that the practical outcome justified us in disregarding sound theory. But proof is wanting that this is the case.

Gymnastic treatment in apparatus is, however, advocated as the sole treatment for all cases by such an eminent authority as Schulthess[5], and treatment by gymnastics and braces by an authority of such great weight as Lange[6], but neither of these men has published, nor so far as I know has claimed, such results as claimed and published by Wullstein[7], Schanz[8], Sever[9], Abbott[10], myself[11] and others. Nor do I know of the publication elsewhere of results from gymnastic treatment which are convincing as to the efficiency of the treatment in moderate and severe cases. Still, one must not pass too lightly over the opinions of such weighty authorities as Schulthess and Lange, and must allow due weight to them.

If one makes no distinction between false and true scoliosis, and classes every lateral deviation of the spine as scoliosis, if he thus groups false and true scoliosis together and treats all cases by effective gymnastics, the proportion of successful results will be large because of the predominance of the milder cases in almost any group. But if one uses the gymnastic treatment in a group composed wholly of moderate and severe cases of structural scoliosis, the results will be widely different from those of the first group. In this failure to separate the two varieties much of the contradictory evidence with regard to the results of treatment has arisen.

The reason for the unsatisfactory character of the results of gymnastic treatment alone in moderate and severe scoliosis is easily to be found in the fact that we are facing in it a bone problem, with which is associated a muscle problem of secondary importance. We have chosen to regard it in the past as a muscle problem, to be met by muscular therapeutics. We have expected muscular contractions and the positions induced by them to loosen up a spine in parts curved, stiffened and deformed by bony distortion. Moreover, assuming that we could accomplish this loosening up, we have expected the muscles to take up at once the task of holding this loosened up spine in the median line against oblique superincumbent weight, and in spite of unilateral bone deformity.

These expectations have not been reasonable, and consequently have not been fulfilled. The former, the loosening up of the spine, is far the easier of the two to accomplish, and many a case of fixed scoliosis has been made irreparably worse by being made more flexible by exercise and manipulation without the development of muscular strength to hold the improved position. Such cases sag into a worse position than before on account of their increased flexibility.

Let us harbor no illusions as to what we are accomplishing by gymnastics in these cases.

Tradition has governed us long enough. Gymnastics are of the greatest value in the milder cases and in the after-treatment of all cases. Let us not expect, however, by gymnastics alone to affect materially severe curves. Nor if we could loosen them up could we hold them straight by muscular effort until the bone had been reshaped in its growth. That gymnastic exercises given in apparatus which effectively locates the movement and the force would be likely to yield much better results is evident.

Treatment by Braces. The treatment of moderate and severe scoliosis by braces or corsets alone needs hardly to be discussed in these days. It is manifestly impossible to crowd to the side and to untwist a deformed and stiffened vertebral column by an appliance which merely has for a hold on the pelvis, for its base of support, a narrow space between the trochanter and the iliac crest. That such braces and corsets are still advertised and sold by instrument makers, and that they are bought by ignorant parents and applied to scoliotic children to their great detriment, is known to you all.

It is not to be disputed that such braces and corsets have a distinct use in connection with gymnastic treatment, in the after-treatment of forcible correction, and in supporting adults who are beyond the age for active treatment by other means.

Under the conditions specified the choice between a removable jacket, a corset, or a brace, will be determined by the facility of the surgeon with each.

Forcible Correction. From the time of the elder Sayre, who advocated for scoliosis the application of plaster jackets applied in mild suspension, in several papers between 1875 and 1885, there had been sporadic attempts at the use of continuous mild corrective force in the treatment of scoliosis. Dating from the work in 1896 of Calot[13] who advocated at that time the use of forcible correction in the treatment of Pott's disease, these attempts became more forcible. Schanz[13] published in 1900 an account of an efficient technic in suspension, and reported results in 1902. In 1901 I reported results and described a technic where the patient lay on the face during the application,[14] and there were other papers written at about this time, but the great impetus to the treatment by forcible correction came from Wullstein,[15] who read a paper at the International Medical Congress in Paris in 1900, and who published his experiments, method, and results in 1902. He showed experimentally that bony scoliosis could be produced in young dogs who were kept for some months in a bandage inducing a lateral curve of the spine, and by the use of plaster-of-Paris jackets applied to scoliotic patients in an improved position, induced by the use of traction and lateral pressure, both of high degree, he secured results that were better than any previously reported. The work attracted much attention, and markedly modified the whole point of view with regard to "forcible correction," which began to gather a body of adherents whose number has steadily increased.

As a persistent advocate of forcible correction since 1901[16] I may be regarded as a partisan, but I turned to forcible correction only after many years of experience with the gymnastic treatment and because of its inadequacy as I saw it in my own practice and in that of others, and in the last twelve years as I have contrasted the results of forcible correction in moderate and severe scoliosis with those of gymnastic treatment I have seen no reason to change my views.

The object of the corrective jacket being to force the spine into the best obtainable position, and in that position to apply a retentive plaster jacket, it becomes pertinent to inquire in what position and by what technic the best corrected position may be obtained.

The four positions which are to be considered are with the patient suspended and lying on the face, side or back.

Application in Suspension. Sayre's jackets were applied with the patient suspended by the head with the heels lifted from the ground, and he claimed[17] for them nothing more than support in an improved position. The jackets were removable, and exercises were done daily. The treatment was too mild to be effective, and although extensively used was not followed by very successful results.

Wullstein's method was also a suspension method, but he used 250 pounds of traction, and to secure this, the patient was strapped by the thighs to a revolving and tilting stool and lateral pressure was secured by pads running in from an upright frame on horizontal rods. These pads were incorporated in the jacket. Much greater force was used than ever before, and although unpleasant symptoms from pressure arose at times, the results were so good that the method was extensively used, and is still much in vogue on the continent of Europe.

Schanz used head suspension applied to the patient standing with the ankles strapped to the floor. The jacket was applied in strong traction, and as the plaster was setting, the surgeon's shoulder was pressed against the convexity, while his arms encircled the pelvis.

Advantages and Disadvantages of Suspension Positions. The use of strong traction in the length of the spine tends to straighten the lateral curves and to diminish the rotation, but without added lateral pressure sufficient correction is not obtained. Moreover, traction in the length of the spine makes it resistant to side displacement from lateral pressure, as a stretched spine is less easily displaced to the side than a slack spine. Wullstein found that he must diminish the traction on the head to get the best results from side pressure.

But the upright position is the one in which the patient will wear the jacket; the technic of

application is in this position the simplest, access to the shoulders and neck is easy, and the lower part of the jacket can be accurately fitted to the pelvis. Under these conditions a close-fitting and presentable jacket can be most easily applied by this method.

Application Lying on the Face. The prone lying position had been advocated for the use of intermittent stretching in scoliosis prior to the introduction of forcible correction by several authors,[18] and was adopted by me when I first began the method. It has been used somewhat by others, and offers certain advantages.

In this method the patient lies on straps or a hammock running from end to end of a gas-pipe frame. The thighs are either flexed or extended. From the sides of the frame, cloth bands or metal pads on rods exert side pressure as desired, and rotation is controlled by the oblique pull of bands or by other metal pads.

Advantages and Disadvantages of the Prone Position. The spine in this position is slack and easily displaced to the side and twisted, and the back is in view of the surgeon during the application, enabling him to see just what correction is being accomplished. But jackets applied by this method are clumsy, as it is difficult to fit the pelvis accurately, especially if the thighs are flexed, access to the chest and shoulders is not easy, and the front of the jacket is concealed from the surgeon's view.

Application Lying on the Side. A method has been devised by Rich[19] in which the patient lies on the side and is suspended by a sling passing around the convexity of the lateral curve, other slings hold the head and pelvis, and rotation is controlled by an oblique pull. The jacket is applied as a figure eight bandage, with the upper turn embracing the root of the neck, the lower turn the pelvis, and the crossing coming over the convexity of the spinal curve.

Advantages and Disadvantages of the Side Lying Position. The chief advantages of this position consist in the fact that the patient is suspended, and thus all parts are easily accessible. The figure of eight bandage fulfils admirably the mechanical requirements, and the body weight is utilized to straighten the spinal curves. The method is not applicable, except to children.

Application of Jackets Lying on the Back. Forcible jackets were applied by Z. B. Adams and R. T. Taylor with the patient lying on the back, but the method was not extensively adopted, although the access to the patient was easy and the results were good. It did not differ essentially from the prone lying position. In Taylor's method the spine was hyperextended, and in Adams's the patient lay flat.

Much interest has been manifested in a method described by Abbott,[20] in 1911, in which the patient lies on the back with the spine flexed during the application of the jacket. In reading the original presentation of the method one must make allowances for the natural enthusiasm of the originator, but the method apparently possesses distinct advantages which must be discussed.

The patient lies on the back with the spine decidedly flexed, the back being supported by a slack hammock running from end to end of a gas pipe frame. This hammock is longer on one edge than on the other, the tighter side coming under the backward rotation of the chest. Corrective side pressure is secured by cloth bands running in from the side of the frame to pelvis, axilla, and apex of curve. Backward pressure on the side of the thorax rotated forward is secured by means of a broad band running from the side of the frame, over the front of the thorax and then directly down from the forward rotated side of the thorax. The legs are slung in a position of flexion on the trunk with knees extended. The low shoulder is raised toward the top of the frame by a band, and similarly the forward shoulder is pulled down toward the floor. The pelvis is also rotated as desired by similar bands. A large conical felt pad is placed over the concave side behind and immediately removed when the jacket has hardened, to leave a window which reaches from the middle line behind to the axillary line in front, and from near the top of the jacket to the waist line. The jacket is left high under the low shoulder so that the arm cannot be brought to the side, and is carried up well in front of the forward shoulder.

Forbes has advocated the application of jackets with the patient lying on the back with the spine flexed and with a physiological scoliosis on the side reverse to the curve, induced by rotating the thorax toward the side of the deformity by means of the arms. In this corrected position a plaster jacket is applied and the plaster fenestrated. The method is apparently effective but still *sub judice*.[21]

Advantages and Disadvantages of the Flexed Position Lying on the Back. Lying in the position just described the spine feels to the hands more plastic and flexible than in the other positions, especially with regard to the correction of the rotation. By flexion, the articular processes are unlocked from each other,[22] a condition which must make the spine more plastic, and it is known that in the forward bent position a scoliotic spine becomes somewhat straighter.[23] The latter fact is probably because the vertebral surfaces most deformed are those which are habitually in contact in the upright position, and in flexion new and less deformed surfaces come into contact. In a similar way bony knock-knee disappears with flexion of the knee, being strictly a deformity of the joint surfaces in contact in extension, and not of those in contact in flexion.

Jackets as applied by this method, however, are unsightly and uncomfortable, the patient is obliged to walk with the trunk flexed, the arm cannot be brought to the side, and to allow the cutting of the large window the jacket must be made very heavy. The essentials of the method seem to consist in strong side correction made to the flexed spine, with the attempt made to rotate the forward side of the thorax back, using the prominent side behind as a fixed point.

Summary of Conclusions as to Methods. That the suspension position can produce remarkable results has been shown by Wullstein and Schanz, that the prone lying position can bring about satisfactory results has been shown by Sever and myself, and that the flexed back lying position is attended by apparently effective correction has been shown by Abbott. It is probable that the particular technic employed is of less importance, as to the final result, than the skill and experience of the surgeon, the amount of force used, and the efficiency of the after-treatment. But after a trial of all methods it seems to the writer as if the method of Abbott offered on the whole distinct anatomical advantages and the greatest ease of correction, but the method must be regarded as being to a certain extent still *sub judice.*

The Use of Windows in Jackets. For some years it has been the custom with many surgeons to cut away the jacket over the collapsed side of the thorax behind and sometimes diagonally opposite in front, in order to allow the collapsed parts to expand through these windows. This allows the expansion of the collapsed parts through the force of respiratory effort, and affords a space into which they may be crowded by pads inserted diagonally opposite.

The Use of Pads in Jackets. An effective supplementary procedure in the use of corrective jackets consists in the insertion of pads, preferably of felt, of increasing thickness between the jacket and the convexities. The use of these implies, of course, that windows must exist opposite where the pads are to be inserted. Such pads have been generally inserted to push forward diagonally against the rotation in the back, but this is in effect to push against the end of a closed oval ring, and although effective, is apparently less corrective, as shown by Abbott, than to push back against the front rotation, using the rotated part in the back as a fixed point on which to turn the thorax back into the larger window left over the concave side behind. Pads of increasing thickness are to be inserted every few days, and when there is no room for further pads a new jacket must be applied.

Mechanical Objections to All Corrective Jackets. In applying force to correct the lateral curve and rotation of the scoliotic spine we cannot apply such force directly to the spine, but we must apply the corrective pressure to the ribs. The ribs are loosely attached to the spine, and are, moreover, rather easily distorted themselves by pressure. We, therfore, must do without that direct application of force to the affected structure which we possess in the treatment of most deformities.

Secondly, to exert effective side pressure one must be able to press laterally not only against the apex of the lateral curve, but to exert counter pressure in the other direction at the top and bottom of the curve,[24] and this we cannot do by pressure against the thorax in high dorsal curves because we cannot reach as high as the top of the curve. To attempt to secure a higher level of side counter pressure against the root of the neck is to pull against soft structures overlying a nerve plexus, where strong pressure is not tolerated, nor can side pressure be exerted on the lumbar spine, consequently corrective jackets are not satisfactory in lumbar curves or in curves whose apex is as high as the upper dorsal region. In lower dorsal and dorsolumbar curves they find their best application.

Thirdly, forcible jackets, by fixation and pressure, cause atrophy of the muscles of the trunk and spine, and this fact has been much insisted on by the opponents of the method. But when the time has come to begin the after-treatment, such atrophy is quickly recovered from by the use of gymnastics and massage, and by the gradual rather than the sudden discontinuance of the support when the proper time comes.

That such jackets will prove detrimental to the general health is a fear which is not supported by facts, for the improved posture and the restoration of the viscera to a more normal position are more than enough to counterbalance the discomfort and the handicap of the jacket, in the great majority of cases. A gain in flesh and improvement in the general condition may, as a rule, be predicted from the application of a proper jacket.

Finally, the danger to life from the application of jackets may practically be disregarded. Alarming symptoms have arisen and in a few instances deaths have occurred as a result, but in these cases the use of force has been too great. With the use of judgment and moderate force no real danger can be incurred.

After-Treatment. The application of the forcible jacket is but the beginning of a long treatment; this first jacket is reinforced by pads until no more can be inserted, when a second jacket is applied and padded in the same way, and perhaps a third jacket may be advisable if it seems that further correction is to be obtained. After the removal of the second or third jacket, which will be at least two or three months after the application of the first, some retentive jacket or brace will be necessary to hold what has been gained, and this must be removable in order to allow it to be taken off so that the patient may

do exercises daily. Such exercises must be mechanically sound, vigorous, and given in sufficient dosage to develop the muscles which have been atrophied by the prolonged fixation, and in order to develop a set of muscles strong enough to maintain a correct position in standing. Such exercises must be continued for a long period, and the jacket gradually discontinued. If jacket and exercises are stopped too early a relapse will occur.

The period of active treatment will occupy from one to two years, and in cases due to infantile paralysis much longer.

Permanence of Results. As to the permanence of results, it can only be said that it is an accepted fact that bone in its growth follows the line of least resistance, and that growing bone can be reshaped, as evidenced in the treatment of club-foot, that the writer has shown by the x-ray that the bony curve may be materially straightened by jackets,[25] and finally that Schanz[26] has produced evidence that clinically so far as watched the results were permanent in the cases presented.

Such is a summary, from my point of view, of the present status of the treatment of scoliosis. Water can rise no higher than its source, and a summary cannot be more definite than the subject summarized. We have added to our resources in the last ten years the forcible jacket, and in so far we have gone forward. Let us hope that in the next ten we may find a better agreement among orthopædic surgeons as to the relative values of different treatments, and be able to record as great progress as we can already look back on in the matter of the treatment of congenital dislocation of the hip and infantile paralysis.

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CERTAIN OBSERVATIONS UPON TWO HUNDRED CASES OF GASTRIC DISEASE.*

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WE surgeons believe that today most cases of chronic and gastric duodenal ulcer, and all cases of stomach cancer, are best treated by surgical measures. At some future time I intend reporting in detail the histories, the surgical treatment, and the results of the 200 cases of disease of the stomach that have been under my care. At this meeting I wish to direct attention to certain things which have interested me in the study and care of these cases of gastroduodenal symptomatology. I hope that these observations may prove interesting, and perhaps helpful, to those concerned with the varied problems of gastric surgery.

The majority of these cases have been studied in the Medical Service at the Massachusetts General Hospital. One hundred and thirty-eight cases, or over eighty per cent., I have operated upon. There were forty-nine cases of malignant disease. There were seventy-two cases of chronic ulcer. There were seventeen cases of congenital stenosis of the pylorus; three of these cases of infantile stenosis were almost starved to death when operated upon—they died following the operation. The other fourteen cases are living and well.

There were two deaths among seven perforated ulcer cases. Of the sixty-five non-perforating ulcers three died. There was one death among the forty-nine cancer cases.

In the last one hundred and three operations there was one death. There were no cases of post operative pneumonia. The anesthetic in each case was ether, administered by the drop method, at the hands of a skilled nurse anesthetist. Occasionally gas was administered before giving the patient ether. There were no cases of vicious circle. There have been no jejunal or gastro-jejunal ulcers following operation in this series. The evidences of shock following these operations have been absent. There has been no case of postoperative hemorrhage. The course of the case immediately following operation has been uniformly smooth. My assistants, and I, have been impressed by the quiet, uneventful convalescence in these cases. I do not believe that Crile's anoci-association method is applicable as a routine. There are selected cases, undoubtedly, in which it is applicable.

The above experience leads me to regard the ordinary plastics upon the stomach, duodenum and upper bowel, when done under controlled conditions, as comparatively safe operations.

The mortality following the operations in this series is comparatively low. This low mortality

* Read at the annual meeting of The Massachusetts Medical Society, June 10, 1913.

is due to several facts. The operation was done aseptically, bloodlessly, with little trauma in handling and sponging, with no exposure of adjacent parts, with mechanically-perfect suturing, without tension upon the parts involved, with anatomical nicety, with carefully conducted anesthesia, with painstaking care for details, and with celerity. Plastic operations upon the stomach done under the above conditions are bound to be followed by a low mortality, barring surgical calamities like pulmonary embolism, unexplainable infection, the slipping of a ligature, or a pneumonia.

The low mortality which surgeons are able to attain in this group of diseases develops the confidence of the medical practitioner in surgical measures. The medical practitioner is likely to entrust the proper cases of stomach and duodenal disease to surgery because of the low mortality.

The increasing absence of the disagreeable and dangerous sequelae of operation likewise tends to inspire the physician with trust in surgical measures in suitable cases.

The lower mortality and the diminishing postoperative sequelae are two notable and comparatively recent achievements of gastric surgery, certainly, in this community.

SYPHILIS.

I am impressed in reviewing these cases by the part which syphilis plays in the etiology of chronic stomach disease. In several cases a positive Wassermann reaction and a history of syphilitic infection have made it seem almost certain that the stomach lesion was luetic.

Syphilis of the stomach is more common than generally has been supposed. It is a tertiary manifestation. A multiplicity of lesions are possible. These lesions may be a gumma tumor, or ulcerations in the stomach wall involving the mucosa, or adhesions extending from the stomach to neighboring organs. Syphilis of the central nervous system with symptoms of gastric crises may confuse the picture, when only the spinal fluid will show evidences of the infection. The symptoms of syphilis of the stomach may resemble chronic ulcer—or even cancer—differing from ordinary ulcer in their lack of regularity and persistence. In all of my suspected syphilitic cases there have been many peritoneal adhesions.

I believe that the Wassermann reaction should be tried upon every case of gastric disturbance with chronic ulcer symptoms. If there are no mechanically-obstructive symptoms and the Wassermann test is positive, then antisyphilitic treatment should be used. Failure of the treatment should be followed by surgical measures. Of course, in the case of obstruction, even if syphilis is present, ordinary surgical measures should be employed at once.

The surgeon should arrive at a diagnosis independently of the medical practitioner, who, naturally, first sees the gastric patients. The patients who eventually find their way to the surgeon for treatment of chronic dyspepsia form only about from ten to fifteen per cent. of those suffering from dyspeptic symptoms.

The patients in my series sought medical advice for various reasons: Because of vomiting, because of hemorrhage, because of pain and distress following food, because of increasing weakness, and because of inability to work at the usual occupation, and all of them came because medicine failed to cure.

The cases of dyspepsia which the surgeon sees have proved rebellious to drugs and diet. Hence the surgeon is apt to have a low opinion of medical treatment. There are, no doubt, cases of ulcer which heal under medical care. I believe, however, that there are many cases of chronic ulcer whose symptoms are ameliorated by medical treatment, but which do not heal. These are the cases who, after years of invalidism and recurring attacks, may be and are cured by operation. The average duration of symptoms in my series of cases in the chronic ulcer group was seven years; in the cancer group three and one-half years. Many individual cases were of much longer duration.

I have made mistakes in diagnosis in the following cases—

Diagnosis of gastric ulcer in twelve cases proved to be adhesions in one case, no pathology in three cases, syphilis, but not of the stomach, in one case, leioma in one case, and appendicitis in six cases.

A diagnosis of duodenal ulcer in three cases proved to be Lane's kink and appendicitis in one case, sarcoma of the stomach in another, and appendicitis in the third.

A diagnosis of carcinoma of the stomach in two cases proved to be gastric ulcer in one case and duodenal ulcer in the other case.

In one doubtful case a diagnosis of stomach, gall bladder or appendix disturbance proved to have no visible pathology.

There were, therefore, nineteen diagnoses which were not established. And there were included in these mistaken diagnoses four cases which were found to have no pathology. In any case in which no pathology was found, it is, of course, possible that a lesion existed and that it will become more apparent later, in a renewal of symptoms, or it may be discovered at some future operation. The study of these cases without apparent pathology will be, therefore, worth while.

Diagnosis. I have been most assisted to a diagnosis of chronic ulcer by a carefully-elicited story of the onset and course of the symptoms. Definite pain in the stomach region has been the most constant symptom. The hunger pain, so-called by Moynihan, has been found to be associated so frequently with ulcer on the gastric side of the pylorus that I am inclined to think that it is not diagnostic of duodenal ulcer. As a matter of fact there is little practical use in

the preoperative differential diagnosis between chronic duodenal and chronic gastric ulcer.

One examination should not suffice for the HCl test, for the blood test or for the stasis test. The real value of these examinations can be determined only by repeated tests, especially in cases of doubtful diagnosis.

In the absence of other causes for hemorrhage, blood in the gastric contents and in the stool suggest ulcer or cancer. A very severe hemorrhage is oftenest associated with ulcer. A dribbling of blood in the bowel, occult blood in the stool, suggests ulcer or cancer. The finding of blood in the stomach contents or in the stool is not essential to the diagnosis of ulcer. Hypersecretion suggests ulcer.

I find in my series several cases in which even with definite gastric symptoms and hemorrhage, hemorrhage being perhaps the chief sign—that at operation no pathology was discovered.

In a man past middle life a sudden onset of persistent gastric symptoms suggests cancer. The earlier ulcer symptoms, which are so often found antedating the cancer symptoms, may have been forgotten and so thought not to have existed.

X-ray. There is no doubt in my mind that the value of x-rays following a bismuth meal in suspected cases of chronic ulcer and cancer, is very great indeed. I am positive, moreover, that constancy in the variation from normal as determined by repeated x-rays is essential to a diagnosis. The single x-ray plate has little value. Fluroscopic examination combined with the plate method gives the maximum evidence. Departures from the normal motility of the stomach, irregularity in the outline of the stomach wall, variations from the normal position of the stomach, evidences of pathology outside or inside of the duodenum—all may be determined today with such accuracy by the skilled Roentgenologist that I believe every case of suspected gastric and duodenal lesion should have complete x-ray examination.

I have taken the following attitude toward chronic ulcer cases before operation: All cases showing stasis should be operated upon at once. A posterior, no-loop gastroenterostomy is the preferable operation. Every case which has had a month to six weeks of the best medical treatment in bed and has relapsed and remained uncured should be operated upon.

I believe that plastics should be done on the stomach only in the presence of definite demonstrable pathology. At operation only those chronic ulcers should be excised which can be readily removed. If excision is undertaken it should be through the entire transverse diameter of the stomach. This will give a better functional result than when the ulcer is simply excised from the stomach wall. If an ulcer is simply cut from the stomach and the stomach deformed by suture then a posterior gastroenterostomy should be done. The motility of the stomach is sufficiently impaired in some cases to make this a good general rule. An ulcer on the anterior wall of the duodenum may be excised, but it is hardly necessary.

If the ulcer is duodenal a thorough folding in of the peritoneum and duodenal wall should be done, followed by a posterior gastroenterostomy. This has been wrongly called "infolding of the ulcer." The ulcer is really everted into the bowel.

Ulcers away from the pylorus, if not resected, will probably heal more quickly if a posterior gastroenterostomy is done. Bile and pancreatic juice gain access to the stomach and bathe the ulcer in an alkaline medium which facilitates healing.

I am not yet convinced that the likelihood of cancer developing upon ulcer is so great that I would resect every accessible ulcer from the stomach. Very many ulcers will never become cancerous, for all ulcers are evidently not potentially malignant.

Kocher has re-examined eighty patients demonstrated at operation to have had chronic ulcer (1890-1912), and none of these cases in 1912 has developed carcinoma. Seventy of these cases had had gastroenterostomy done and ten were resected.

I believe resection may be preferable, in certain selected cases, if it can be done easily and with little additional risk. The mortality rises, however, in a large series from one or two per cent. for posterior gastroenterostomy to eight to ten per cent. for partial gastrectomy. The difference in percentage is to be reckoned with without a doubt.

It is impossible at times for the surgeon to tell at operation whether the tumor is that of cancer or ulcer alone. If the tumor is at the pylorus and extends both into the stomach and into the duodenum, it is probably ulcer, for cancer of the pylorus is most unusual. When the surgeon is in some doubt and the tumor is removable it should be removed. I have noticed in cases of ulcer that there is a red dimpling over the surface of the peritoneum covering the ulcer—minute red spots appear to gentle sponging with gauze. Whether this is constant for ulcer I am not prepared to say. It is suggestive.

CANCER.

Cancer of the stomach when seen by the surgeon is either curable or it is incurable. The curable cases are rarely seen. They should be operated extensively and thoroughly. It is hoped by the advocates of the frequent removal of chronic ulcer that thereby the cure of incipient cancer may be increased. In only about eight per cent. of my series was it feasible to attempt partial gastrectomy. I have been very much impressed by the few cases in this series of gastric cancer suited to radical operation. It is well to study the signs of inoperability. Resection of cancer of the stomach should not be done if there is great weakness of the patient.

if there are evident metastases, if there is free fluid in the abdominal cavity, if there are cancerous adhesions to neighboring parts, and if the disease cannot be readily reached, that is, if the disease is inaccessible.

The size of the cancer tumor may bear no relation to the curability of the disease.

Gastroenterostomy is a poor palliative measure in cancer of the stomach. The length of life secured is but about four months. It is better, if practicable, to resect as a palliative measure, and rid the patient of a sloughing mass of cancer, not being content simply with a posterior or anterior gastroenterostomy. The length of life is longer after palliative resection than after palliative gastroenterostomy, even more than double as long.

The end results of the surgical treatment of chronic ulcer in my series, so far as they have been obtained, are most encouraging. Pyloric obstructive cases are cured in the majority of cases. Duodenal ulcer cases are almost all cured. Ulcer in the body of the stomach away from the pylorus are benefited and many cases are cured.

It is an interesting fact that the cases of gastric symptomatology which at operation had no gastric pathology, but had an appendectomy done, are very generally well.

I believe that these obstinate chronic ulcer cases which have resisted medical treatment, should, after operation, continue to have medical treatment and a regulated diet. I believe that such cases should be led to expect necessary treatment for at least one year after the operation. The operation should be looked upon as only one therapeutic measure instituted by the surgeon in conjunction with medical therapeutics for a disease the etiology of which is still unknown. The results of surgery in the group of chronic ulcers has certainly been very satisfactory.

The details of the results following surgical treatment in my series of cases I hope to have the pleasure of reporting at some future time.

The diminishing surgical mortality, the few painful operative sequelae, the encouraging results from surgical treatment—all make me optimistic that the physician will entrust more and more of the difficult gastric cases to the care of the surgeon.

DISCUSSION.

DR. F. B. LUND, Boston: We are to be congraulated upon having such a thorough and entirely adequate presentation of the position in surgery of ulcer of the stomach as Dr. Scudder has given us. He has certainly left very little for anybody to say in discussion in the way of disagreeing with either the character of his work or with his conclusions. This subject in surgery is one which has interested me for a great many years, and in which I have done a considerable amount of work.

The medical cure of chronic ulcer of the stomach, I think we can all agree is a rarity. These ulcers may heal, but the condition is not altered by the healing of the ulcer. By enlarging the pylorus or by a gastroenterostomy, certain conditions, either mechanical or chemical, are altered so that the ulcer not only heals but remains healed. The first rough surgery that we did fifteen or twenty years ago was for perforations of the stomach. On account of improved technic, our results in perforation are better now.

The second kind of cases that almost invariably did well when operated upon were strictures of the pylorus. Then duodenal ulcers almost always healed; then it was found that chronic ulcers of the stomach which were at some distance from the pylorus did not heal so well. The adoption of the no-loop gastroenterostomy improved enormously our results by doing away with the vicious circle.

Now a point of the greatest importance, to which Dr. Scudder alluded, is the difficulty of making the differentiation between chronic ulcer and cancer of the stomach, and determining in a given case what action the surgeon shall take.

Gastroenterostomy has a mortality of perhaps from 2 to 5 per cent.; excision for cancer where you must go wide beyond the margin of the stomach, from 8 to 10 per cent. The induration which attends a chronic ulcer may be indistinguishable from that of a cancer. Cancer almost never starts in ulcer of the duodenum, and here we are almost always safe in depending upon infolding of the ulcer and gastroenterostomy. The condition is different where we are dealing with saddle ulcers on the lesser curvature at a distance from the pylorus. They sometimes are very slow to heal, or do not heal at all, after a gastroenterostomy. We have here to consider the ability of our patient to stand an operation of greater length. We ought not to undertake the excision unless the patient is in good condition to stand it; and, also, these ulcers sometimes do heal after a simple gastroenterostomy. Excision for chronic ulcer of the stomach if very small need not be as extensive as excisions for cancer. If you are excising the stomach for a large saddle ulcer, then it is wise to take out a complete sleeve of the stomach as you would in a partial gastrectomy for cancer. If you have simply excised this great ulcer, what have you left behind? You have left the stomach as it was before, except for increased deformity, and you have a long line of freshly sutured wound which may produce another ulcer. A gastroenterostomy should be done to prevent any trouble which may come from the deformity and to decrease the liability of recurrence.

Adhesions which sometimes deform the stomach follow after gastroenterostomy. The ends of the pylorus remaining open, the food has two avenues of exit; part goes each way, and indigestion results. This is reduced by measures

which close the pylorus. Infolding of ulcers at the pylorus is efficient, and it is not necessary to excise these ulcers. If infolding has not been succesful and the patient suffers from the opening remaining patent, the only way to put a stop to his symptoms is to do a second operation and to divide entirely the pylorus, turning in the duodenal and pyloric ends.

Dr. D. F. Jones, Boston: In regard to stomach diseases, I want to say that I agree entirely with what Dr. Scudder has said in his paper.

Then to supplement his paper in a way, it may be of interest to you to report a few cases that have been done for a number of years; cases of gastroenterostomy for duodenal ulcer. I have had time to get reports back from twenty-nine cases, all having been done from two years to nine years. Of these cases, there were two which died. One case was due to persistent vomiting, and the other was an empyema which refused to be operated upon. He was an old man of sixty-eight years, and had an infection of the pleura or lung, probably from embolus. He went home at the end of five weeks, refusing operation, and died. The case of persistent vomiting, I think, would not have died at the present time. There are twenty-seven cases living and well. Of these the reports are that they are all very much improved. I cannot say with Moynihan, that they are absolutely well, because very few admit that they are absolutely relieved of their symptoms, and I think that if any of us will look over his cases and get a personal examination, he will find that very few patients will admit that they are absolutely well. One of the worst cases, a professor at Harvard, and therefore an intelligent man, thought he was not very much improved. I had a letter from him only two days ago, in which he said that while he was not entirely well, he would willingly go through the operation again, for the relief he had gotten from it. The others were very much improved, and have written very grateful letters, and many of them came in to see me to let me know how well they were. In spite of that, if you question them, you will find that they are very glad to cover up little defects and tell you they are well, while as a matter of fact they do have a few symptoms referable to the stomach. All of my cases have gained weight, and are very much improved in every way.

Now as to the technic, Dr. Scudder says that by carrying out the technic very carefully, he thinks that everyone can get good results. It is very simple—the mere suturing of the jejunum to the stomach—but it seems to me there is more than that. It is the ability to place the jejunum in such a way that it will not kink, either at the inlet or the outlet. I have seen the jejunum placed in every possible way, vertically, transversely, obliquely, the current in the jejunum with and against that in the stomach, and even with the outlet at the highest point of the stomach opening, with the outlet exactly on the grater curvature, and an inch and a half above it; they have all done well because they did not happen to kink at either the inlet or the outlet. I am convinced that the calamity of vicious circle is due to a kink at the inlet or outlet, and not to the length of the jejunal loop, or the method of placing the jejunum on the stomach. This kink at the outlet is due, I believe, not infrequently to a short mesentery of the jejunum, which tends to pull upon the jejunum at the outlet, and thus shut off the outlet.

In regard to gastric ulcer, I am convinced that excision of the ulcer alone, is an operation of very little value. A rather difficult operation has been performed to get rid of an ulcer and the resultant scar, but a longer scar is left and nothing is done to get rid of the cause of the ulcer.

If anybody can tell me how you improve the patient's condition by taking out an ulcer of that size, then I will admit that it is good. If you are going to excise the ulcer, I believe that gastroenterostomy is necessary. To prove that gastric ulcers do get well under various treatments—I have heard from the following patients: one excision of the ulcer alone had a perfect result; one excision of the ulcer with no relief whatever; one infolding of ulcer, patient relieved for over two years; two cases of gastroenterostomy for saddle ulcer, with perfect relief. In one case the ulcer was so extensive that I could not do a posterior gastroenterostomy, so I closed the abdomen. That was four years ago, and the only condition left is the morphine habit, the patient being absolutely relieved of her symptoms.

Dr. E. A. Codman, Boston: There are a few things I should like to say about Dr. Scudder's cases. It has fallen to me to follow Dr. Scudder in doing the stomach cases at the hospital, and although the numbers of my cases are very much fewer than Dr. Scudder's, my mortality is already higher. Now, I have seen Dr. Mayo and Dr. Moynihan do a good many cases each, of gastroenterostomy, and I have never seen the operation more skilfully done than by Dr. Scudder.

There is one serious criticism, however. He tells us that he had one death in cancer of the stomach. Now I feel that an operator as skilful as he is should have a larger death rate and should have attempted to do gastrectomy on a larger proportion of these stomach cases, for as he says, there is very little relief from gastroenterostomy in cancer of the stomach.

Somebody must forge the way in doing gastrectomy. Even if there is a metastasis in the liver or other parts of the body, it gives a much longer period of relief than gastro-enterostomy. I have seen relief for four years where there were obvious cancerous glands left, and I am sure that in a series of this kind the mortality should be at least as high as ten per cent., because more and more desperate cases should be attempted.

I think it is only fair to the patient to try the faintest possibility of removing the disease.

DR. T. W. HARMER, Boston: The detection of stasis is important. Failure of the unaided stomach tube (regardless of the posture of the patient) to reveal stasis, which is demonstrable by the bismuth meal and Roentgen ray is a not infrequent experience. This has led Dr. Walter J. Dodd and myself to observe by the fluoroscope the courses taken by stomach tubes in a number of cases. In some, the tip of the tube reached the most dependent portion of the stomach. In others, the tip curved to one side immediately upon leaving the esophagus and became impinged against the stomach wall. With the passage of more tube, with the tip so fixed, a dependent loop of the tube developed in the lower portion of the stomach until finally the tip slipped upward. Stomach tubes are commonly kept coiled. The tube acquires a tendency to curve, and we believe it is the tendency so acquired which is responsible for its deviation from a straight course after emerging from the lower end of the esophagus. If the curve of the tube accommodates itself to the curves of the stomach wall, and if the tip does not become impinged against the stomach wall, the tip will reach the most dependent portion of the stomach. Deductions will be correct. If, however, the curve of the tube does not accommodate itself to the curves of the stomach wall and the tip becomes impinged against the stomach wall, the tip may not reach the most dependent portion of the stomach. Deductions will be incorrect. The tip may only skim the surface of the residuum. The degree of stasis will be underestimated, but analysis of the contents may reveal stasis. In some cases, however, even considerable amounts of residuum may entirely escape detection by the unaided tube. In cases of ptosis the degree of displacement may be underestimated and an insufficient amount of tube passed. Failure to recover gastric residuum with an unaided stomach tube from a fasting stomach or after the ingestion of a test meal cannot be accepted as conclusive evidence of the absence of gastric stasis.

DR. MURPHY, St. Louis: I hesitate to bring in a note of discord as regards the efficiency of gastroenterostomy with a patent pylorus. Now the cases that I have seen, unless there was a mechanical obstruction of the pylorus, have not done well permanently with gastroenterostomy. We have come to believe that in these cases with nonobstructing ulcers, we ought to do a resection of the ulcer-bearing area of the stomach, and a gastroenterostomy and that with nonobstructing ulcers of the duodenum, a complete section across the pyloric end of the stomach, together with gastroenterostomy.

Among other points that Dr. Scudder made, there is one that, it seems to me, more and more the men who are doing gastric surgery will agree with most heartily; that is, there is a very low mortality in these cases. I would also agree with his opinion that syphilis is not infrequently associated with these stomach lesions.

There is another point that interested me, and that is the possibility of overlooking these small ulcers. I have had two experiences recently in which, without the positive statement of the x-ray men that the ulcers were there, I should have overlooked small ulcers, one in the fold of the pylorus, and the other on the lesser curvature at some distance from the pylorus.

In cases without pyloric obstruction that do well with gastroenterostomy, I should feel that they belonged to the class mentioned by Dr. Jones, which do well in spite of everything.

DR. SCUDDER. There is just one matter that I want to speak of and that is the employment of jejunostomy in a certain group of cases. It seems to me that jejunostomy has come to stay. It is a surgical procedure of considerable value in a selected group of cases. Whenever an individual is unable to stand any prolonged operative procedure upon the stomach on account of great loss of blood and because of great weakness, jejunostomy may be very helpful. I have in mind one case which will illustrate what I mean. A man came to the hospital in a weak, emaciated condition, and was bleeding from the bowel. It was thought that he had duodenal ulcer. A few days' rest in bed resulted in a little improvement in his condition. Subsequently, however, he ceased to improve. Operation was done and a jejunostomy performed. There was found to be a tumor in the stomach wall. It was evidently impossible to remove this tumor by partial gastrectomy as the man's condition would not warrant it. The jejunostomy enabled the man to take nourishment, the symptom of vomiting disappeared, he gained in flesh and in strength, and at a subsequent time the tumor was removed successfully. Such a case as this illustrates the value of jejunostomy. I believe that this procedure has also a very definite place in the treatment of chronic ulcer in the case of individuals very much run down, jejunostomy being used as a preliminary step in the surgical procedure for ulcer.

THE FARMER AND THE HYGIENIST.

BY PAUL W. GOLDSBURY, M.D., WARWICK, MASS.

THE farmer of today is quite a student of hygiene in looking out for the welfare of his stock and crops. He learns much by practice and experience of the simple laws of physics, a little something about bacteria and a good deal of moths, pests of all kinds, worms and parasites. He must know how to treat the soil, to make the best use of sunshine and rain, and how to meet any new kind of plague which might endanger the life and best development of his corn or cattle. If the ground is in any

sense suitable for a particular kind of crop, if it receives proper attention before and sufficient cultivation after being seeded, if a vigorous quality of seed is used and if further the plants springing from these receive timely attention, the yield from such a piece should prove satisfactory in an ordinary season. The ambitious farmer seeks for both abundance and quality in the returns for his labors and money investment.

The physician of the future will have to take many lessons from the farmer. The laboratory has much to teach as to bacteriology, the hospital a great deal as to pathology, but all of this sort of teaching must have a great amount of mulling and mixing by practical experience in the great world outside. The school room and the college do instruct and cover the main principles of physics and physiology, but one must live and work out in the open, with the sun, and wind and rain, must follow the waxing and waning of the seasons, and see at close range the life spring and develop from the soil, in addition to being a close observer along the ordinary channels and highways in order to wholesomely fix such principles.

In hilly New England a garden in the valley will show frostbite two weeks earlier than a neighboring one on high land. The coldest air sinks to the lowest point, and so there may be a difference of ten degrees in the temperature of the air at the foot of an ordinary hill as compared with that near the top. This may mean perhaps the blasting of blossoms and the loss of an apple crop. A novice began planting a garden a whole month earlier than the experienced farmers, his neighbors. A late frost came along and severely blasted one corner and the side farthest from his house. The nearness of some large trees and the presence of a large wooden structure had moderated the air, had protected the plants from freezing. This man happened to have had scientific education and his experience gave him a very vivid illustration of the play of nature and physics.

While the medical profession has been letting bacteriology occupy the front of the stage for a generation, and has been studying toxins, serums, and whatever it could employ to artificially counteract and destroy their effects, the farmer too has been studying all the little pests which cut down his crops and using all sorts of antidotes to destroy them. The farmer's concern, however, relates pretty much to the welfare of a vegetable plant fixed for life into the soil where set, whereas the physician's concern is for the health of a human plant with legs or with the power to move about. A tree, vine or plant must sustain itself in the ground where the seed was first dropped; a man is supposed to have the capacity to migrate from the point where his life began. The farmer has been studying not only all the parasitic enemies which might light upon or make their way into his particular charge, but what the character of the surroundings are and what they should be, or, in other words, if he cannot contribute something to the soil where he sows a seed he finds a different soil in which to set it. In addition to a study of invading host, the farmer must be a student of the integrity of the seed, the sky, the air, the soil; the life with which he is concerned must have a potential quality and sustaining environment.

Sprays and powders are employed in agriculture as are physics and drugs in medicine. On the one side there is soil enrichment, fertilizer feeding, deep plowing, free cultivation and rotation of crops, on the other hand there are tonics, stimulants, diets, vacations, recreations and sports and sanatoriums. Temporary changes and the mere counteracting of poisons in the welfare of human or plant life is not enough. The term physician is a limiting one, consorts too much with those ideas of "physics" and "drugs," medicines and bugs. The physician is an ever ready servant in time of trouble, accident and need, but his vision must more and more accommodate itself to the broader horizon of the hygienist. The latter should occupy himself at all times in a study of an adjustment of climate, environment, work and recreation to the needs of the individual or the welfare of the race. He should be encouraged to employ his especially trained faculties to anticipate future demands as well as be the handy man for emergencies and physical injuries.

The agricultural school laboratory helps the farmer conquer climate. A kind of corn, say, is bred there that will ripen in the short season of the North. Crops supposed to be limited to certain parallels of latitude are made to grow further North or South. This is done through experimentation with their seeds, a strengthening or hardening of the breed. The engineer diverts water courses through the desert, cooperating with the farmer to make the desert blossom as the rose. A practical understanding of a simple principle of physics—that of capillary attraction—suggests to the modern tiller of the soil the necessity of keeping the top soil a loose dust mulch about his plants, the interstices too coarse for capillary flow. The roots of the plant are down deep enough to be continually fed from beneath by the water in the ground, the evaporation of moisture in the earth is diverted as far as possible through the plant—there is no waste from its exposed surfaces. If the top layers of the earth are for two seasons kept so that no plants or weeds will seed in and grow, so that the usual evaporation from the surface of the ground be interfered with, then such ground must be collecting more moisture, enough possibly to grow a crop in the third season. Dry farming is possible where the season's rainfall is insufficient to nourish a crop each season, but is accumulated and conserved by checking the evaporation from the ground for two seasons and then putting in seed the third one. Enough moisture has been held

back and stored to abundantly supply the needs of a crop one season out of three. In the islands about Puget Sound seed raising has become such a profitable line of farming that the land brings very high prices. The soil has rich mineral elements and the shores furnish valuable fish and shell waste for fertilizer. These seeds when subjected to chemical test seem to possess no special virtue, no higher mineral content than those grown from plants in ordinary soil and still they do possess some inherent vigor which cannot be determined microscopically or otherwise. Such seed are found to be dependable. Necessity then has compelled a search for an integrity in the seed, has looked for a soil that would feed it, or has so sought to work and add to it that a vigor of fruitage would obtain.

Animal breeding, the sireing, the damming, has long prevailed in one profession; eugenics as a science is late upon the field. For a study of the causes of infant mortality we find the formation of societies to confer upon the subject of "Milk and Baby Hygiene." The demand for pure milk persists till the consumer is concerned with the light, air, room, as well as the cleanliness of the home of the cow. The model dairy, the temporarily popular dairy of the day is according to the current standards of hygiene a more wholesome dwelling place than the tenement of the immigrant, and yet the run-down and oppressed human stock from Southeastern Europe, in spite of these unfavoring surroundings, finds some tonic to stimulate and revive itself.

The seasoned farmer serves his cow with humaneness even where his stable falls below the legal requirements; the enthusiast bred in hothouse science and seeing the demand for better milk, keeps model stables, and yet his cows fall a victim to tuberculosis. His training has not developed the patience to "sense" the old cow. She does not stand well "business pressure," but does appreciate kindness and little amenities which no mere hireling milker can give. Cleanliness, experience to understand and appreciate the cow's viewpoint should be the first factors considered in keeping down the bacterial count. As the farm must be suited to the topography of the land, so what man can get from the cow must be in accord with what she can easily give. The laboratory endeavors to set standards in the interests of the milk consumer and employs a meagre number of health officers to act as policemen to look after these matters. There is too great a chasm between the consumer and the producer, and their relations become strained. The best bred stock are especially susceptible even under scientifically correct standards; they miss something in the way of treatment and they break down under the pace set. A man with both a head and a heart and who really lives in the country will be moderated by nature's generous expanse there, will not force the cow, but will know the gait she best likes to take. This milk question shows the need of horse sense. The breeder has developed the stock, and the dairyman has been forced to care for them according to certain patterns. The physician may here know what should be, but he will have to learn a great deal from the farmer as to how to bring it about. The farmer is an old hand at breeding and raising, he has the broadest sort of field in which to benefit by science. The physician is an old hand at prescribing in the line of medication and treatments, but as a practical hygienist he is a newcomer. The terms eugenics and euthenics are of recent birth.

How little account is taken of the cost of some jumps in the haste of civilization. To pass within two minutes from sunny Arizona to bleak Labrador is analogous to the stress upon the skin in leaving a heated apartment in New York City on a January day for the outside air. The skin may not seem to feel it or the mind to perceive the contrast from the dry heat to the humid cold and yet there is a marked difference in the temperature and moisture percentage of the air and the interior, the delicate organs and functions of the body should be protected from these changes. There are like contrasts in the summer, moving from the dry sunshiny air into damp or chilling living rooms. Sudden changes are like whips upon the skin and the weak parts of the body feel the force of such blows. Germs are always at hand to make their fight at the weak spot and so we may understand the part these changes play in ordinary colds or rheumatic attacks, in pneumonia or typhoid.

The farmer has to figure on what will do well in the lowland and valley with its dampness and occasional frosts and he has to plant something different upon the hilltop, sensitive to frosts, but needing more sunlight and able to flourish in spite of droughts. The physician has to keep his rheumatic cases away from dampness, his nervous cases have to avoid dry atmospheres, are soothed by soft moist ones.

The seashore, the mountains, the lowlands, the arid plains all suggest obvious atmospheric differences; those of the cellar, the garret, the first or the fifth story of buildings, the indoors or the out may not be so manifest. In a study of the effect of environment, clothes, clothing, and even bedding should not be overlooked. The texture, the color, the weight, the pressure, the snugness, the fit of whatever covers or protects the body influence its functioning power, alter the real atmospheric environment of the skin. If the physician feels that the milk question is so important that he is concerned with the barn of the farmer where it is produced, he sooner or later comes to know a great deal affecting this product favorably or unfavorably. The farmer of today has to make a study of soil and environment. The hygienist of today, realizing the play of what is about the body to what is within it, must make a care

ful analysis of these surroundings, whether they are gases, liquids or solids. The white clothes are worn in the warm zones because less heat is absorbed. Khaki or other colors are worn to alter the effect of burning sun rays. It is very easy to see that clothing may increase the heat over the whole or over parts of the body, but the harm done by clothing in increasing and varying the humidity is not so plain. For one part of the skin to sweat more than another part is to subject that part to the chance of being chilled either by rapid evaporation or by a general lowering of temperature. When the clothes are off the body, the air is the same all over the skin, there are practically no variations in the temperature or moisture at a given moment, so the body gets an even air-bath. Clothes are a body protection in more senses than one, but at the same time they do interfere with the tonic afforded to the skin by nature's atmospheric changes and the pure qualities of the air. The ordinary man is wedged into day or night garments and bedding all the time; he lives in the same rooms, at the same bench or in the same surroundings day after day. The farmer stirs and loosens the soil about the roots or foot of a plant and gives the rest sunshine or shade and an even exposure to air and moisture. The hygienist must coöperate with the architect and tailor to improve the environment of the human plant. There is much new in these fields for the nurse and the student of domestic science.

The physics of temperature and humidity, the physiology of the functioning skin in relation to these atmospheric conditions has much of increasing interest to the student. Elderly people in the North dread the cold winters and wish to escape them by temporary or permanent residence in the South. These may be the same who complain through a hot spell of how the "heat takes hold of one." They may not realize the why of the increased work put upon the skin in its normal attempt to reduce body heat by evaporation, and of course if the air is high in moisture or humidity, the skin works against great resistance in throwing this moisture off. The even temperatured arid heated rooms of winter may develop a sort of neurotic condition from low humidity.

Interest has already been awakened in a concern for purer foods, and the milk consumer has directed his agents after the farmer producer. It is to be hoped that thes agents will come to know more and more the farmer's viewpoint and recognize more of his wide-ranged wisdom. The gardener thins his plants and the horticulturalist picks off some of the blossoms and some of the fruit when small on the tree in order to give what is left a better show. One of the greatest problems of the day is to get people back on to the land to reduce the cost of living. Why should it not be possible to put people where there is room and nourishment to grow and better themselves? The immigrant does not always replant himself in the best soil, why should not the hygienist have his part in resetting the human plant? The depopulating of the country is due in part to the fact that the farmer cannot avail himself in any practical and humane way of skilled counsel and engineering help to get by the multitude of problems he has to face. The scientist must mix more with the farmer; he must leave the carefully graded and artificially endowed laboratory more often for nature's unlimited and expanding one. The hygienist should nourish an acquaintance with any cultural activities which will help to promote the life and vigor of the human plant.

THIRD NOTE ON THE PERSISTENCE OF AGGLUTININS FOR BACILLUS DYSENTERIAE IN THE DANVERS HOSPITAL CASES.*

BY M. M. CANAVAN, M.D., BOSTON,

Formerly Assistant Pathologist to the Danvers State Hospital, Now Pathologist to the Boston State Hospital.

In 1908[1] there was a study of agglutinins in the Danvers dysentery cases, comprising comparative and serial tests with Shiga and Flexner-Harris strains of bacillus dysenteriae. In 1910[2] a further note on serial agglutinins of the same cases was made. The present communication is therefore the third note on persistence of agglutinins in the same group of cases.

The technic employed has been in each communication the same and for clearness is here given.

METHOD.

The blood is most easily collected in wide-mouth tubes, glass tubing of 0.6 cm. bore and 6 cm. in length being employed. These are sealed at one end, the other end flared by heat and pressure. (They may be used repeatedly if carefully cleansed and sterilized each time.)

The hand of the patient is soaked in warm water for 5 to 10 minutes, dried quickly and one of the fingers then punctured with a blood lancet. The blood will in most cases drip readily into the expanded end of the tube, rapidly filling it. When the blood is hard to obtain by reason of poor superficial circulation, such devices as putting an elastic band at the base of the finger, prolonging the bath, etc., may be resorted to. Having filled and labeled the tube, cover it with a rubber cap and set aside for a few hours.

Remove cap and gently separate blood from sides of tube to facilitate clotting. When the serum is separated into a clear zone about the clot, the dilutions of the serum may be made. For this, sterile pipettes graduated to 1-20 ccm.,

* Being Contribution from Danvers State Hospital, No. 34, 1913.

thin glass tubes 10 cm. long by 1 to 1½ cm. in diameter, test-tube racks, and 0.6% salt solution are required.

We found that blocks of wood 32 cm. long, 6 cm. wide and 4 cm. deep with places for 20 tubes, were more convenient than the ordinary test-tube racks.

The suspension of the organism is next prepared. This is done by adding a small quantity to begin with of 0.6% salt solution to an abundant 18-hour agar slant culture and rubbing it up to a smooth paste. More of the salt solution is then added until about 1.5 or 2 ccm. of an even emulsion are obtained.

For the routine agglutinations, stock cultures of the Shiga and Flexner organisms were used with three dilutions of the patient's serum—viz: (a) A dilution of 1 to 20. (b) A dilution of 1 to 40. (c) A dilution of 1 to 80. The method of procedure is now as follows:

Label the tubes with the organisms, the serum and the dilution and place them in the test-tube holder. Put into tube "Flexner (a)," 3.8 ccm. NaCl; "Flexner (b)," 0.5 ccm. NaCl "Flexner (c)," 0.75 ccm. NaCl. Put into "Shiga (b)," 0.5 ccm. NaCl; "Shiga (c)," 0.75 ccm. NaCl.

Into "Flexner (a)" which contains 3.8 ccm. NaCl (as above), place 0.2 ccm. serum. The dilution is, therefore, 1-20 and the amount 4 ccm. From this 0.5 ccm. is placed in "Shiga (b)" and 0.25 cm. of "Flexner (a)" is placed in "Shiga (c)" and "Flexner (c)." The remainder is then divided with "Shiga (a)." There are now two complete sets of diluted serum 1-20, 1-40, 1-80. One cubic cm. 0.6 salt solution is used for every set as a control. With a sterile pipette, draw up one of the prepared suspensions and place three drops into each of the corresponding tubes as well as into the control tube. With a fresh pipette, repeat for the other organism. Shake the tubes, stopper with cotton and place on ice. At the end of 18 to 24 hours, they are withdrawn from the refrigerator and observations upon the reaction made.

OBSERVATIONS.

	Shiga Type.			Flexner Eype.		
	1-20	1-40	1-80	1-20	1-40	1-80
No. 87						
Oct., 1908	+	+	+	+	+	+
Feb., 1909	0	0	0	+?	+?	0
Mch., 1909	++	0	0	+	0	0
Jan., 1910	+	0	0	0	0	0
Apr., 1910	+	+	+	0	0	0
Dec., 1911	0	0	0	0	0	0
No. 90						
Oct., 1908	+	0	0	+	+	+
Feb., 1909	++	++	+	0	0	0
Mch., 1909	+	+	0	0	0	0
Jan., 1910	+	+	+	0	0	0
Apr., 1910	+	+	+	0	0	0
Dec., 1911	+	0	0	0	0	+
No. 99						
Oct., 1908	++	++	++	0	0	0
Feb., 1909	+	0	0	+	+	0
Mch., 1909	++	0	0	+	0	0
Jan., 1910	+	+	0	0	0	0
Apr., 1910	+	+	+	0	0	0
Dec., 1911	0	0	0	0	0	0
No. 101						
Oct., 1908	+	+	+	0	0	0
Feb., 1909	0	0	0	+	+	0
Mch., 1909	0	0	0	+	0	0
Jan., 1910	0	0	0	0	0	0
Apr., 1910	0	0	0	0	0	0
Dec., 1911	0	0	0	+	+	+
No. 107						
Oct., 1908	0	0	0	0	0	0
Feb., 1909	0	0	0	0	0	0
Mch., 1909	0	0	0	+	+	+
Jan., 1910	0	0	0	0	0	0
Dec., 1911	+	+	?	0	0	0
No. 108						
Oct., 1908	++	++	++	0	0	0
Feb., 1909	0	0	0	0	0	0
Mch., 1909	0	0	0	+	0	0
Jan., 1910	0	0	0	+	0	0
Apr., 1910	0	0	0	0	0	0
Dec., 1911	+	+	+	0	0	0
No. 116						
Oct., 1908	0	0	0	0	0	0
Feb., 1909	0	0	0	++	++	++
Mch., 1909	0	0	0	0	0	0
Jan., 1910	0	0	0	+	+	0
Apr., 1910	+	+?	0	0	+?	0
Jun., 1910	0	0	0	+	+	0
Dec., 1911	0	0	0	0	0	0

The number of cases has grown progressively less, for of the 38 first serially studied but 8 are left; tranfers, deaths, resistiveness and other causes have made the entire original group of cases impossible, but those available are here presented.

No. 124, an employee who had dysentery 15 years previous to 1910, gave a very positive reaction in dilutions of 1 to 80 (Flexner type) but in 1911, 16 years after the attack, gave a positive reaction only in dilution 1 to 20 with the same type. No. 90 has at no time been entirely negative and gives a history of having had a severe attack 20 years before the epidemic of 1908 in which he participated, but at no time has there been a recurrence since the last-named date: The agglutinative property of the serum at 1 to 80, and not 1 to 20 nor 1 to 40, suggests the previous hypothesis—(1) of "Pro-agglutinoid zones." Nos. 90, 101, 107, 108 and 116 show reappearance, either direct or crossed, of the agglutination reaction for bacillus dysenteriae; that any are positive at this time, three years after the infection, seems remarkable since the clinical course of the disease is much

more mild than in typhoid, in which the agglutinations are reported to persist in possible proportion to the severity of the disease and the amount of immunity produced. If we accept the hypothesis, conclusion No. 6, 1909, that the Flexner strain is a normal inhabitant of the intestine, an explanation is made, but if Shiga is purely a parasite the hypothesis of a cryptogenic or an unrecognized subsequent attack seems necessary to explain Nos. 107, 108 and 116.

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[1] A Study of Agglutinations in Danvers Dysentery Cases; Comparative and Serial Test with the Shiga and Flexner-Harris Strains of Bacillus Dysenteriae. E. T. F. Richards, A. H. Peabody, M. M. Canavan. Boston Med. and Surg. Jour., vol. cixi, No. 20, Nov. 11, 1909.

[2] The Persistence of Agglutinins for B. Dysenteriae in Danvers Hospital Cases Together with a Series of Conglutination Tests. M. M. Canavan. Boston Med. and Surg. Jour., vol. clxiii, No. 5, pp. 150, 227, Aug. 4, 1910.

FURUNCULOSIS OF THE EXTERNAL AUDITORY CANAL. THE USE OF ALCOHOL AS A VALUABLE AID IN TREATMENT.

BY OLIVER A. LOTHROP, M.D., BOSTON,

Clinical Assistant, Massachusetts Charitable Eye and Ear Infirmary; Assistant Otologist, Massachusetts General Hospital.

Furuncles of the external auditory canal do not differ in pathology from boils in other parts of the body. They are caused by an infection of the hair follicles. This infection may be predisposed by a discharge from the middle ear passing over the canal, by picking or scratching, by the removal of cerumen, by an unclean speculum, and by sea bathing. Because the thin, sensitive skin of the meatus is firmly adherent to the underlying cartilage, any infection here is extremely painful. The inaccessibility of the parts makes satisfactory treatment unusually difficult.

Ordinarily, the diagnosis in an uncomplicated case is easy. When associated with mastoiditis and there is edema of the tissues, the exclusion of mastoiditis is very difficult at times. Usually one finds tenderness on manipulating the auricle and there is marked tenderness on pressure in front of the tragus. On examination the cartilaginous canal will be found very sensitive to the speculum, and its lumen will be encroached upon by one or more swellings of the wall. The pressure of a probe will elicit tender points where the furuncles are located. If the middle ear is normal the hearing will not be much impaired, provided the swollen walls do not touch and there is no cerumen or discharge to obstruct the sound waves. In later stages the infection may involve the deeper tissues about the canal and there will be edema behind or in front of the auricle.

The usual treatment has consisted of hot douches, wicks of carbolized glycerine and one or more incisions in the canal.

When one considers the etiology of the infection, it becomes evident that prevention must accompany treatment of any existing furuncle. The cartilaginous canal is beset with an infinite number of hair follicles, any number of which can be infected by pyogenic bacteria from the discharges of the first boil or by a continuous bathing of pus from a discharging middle ear.

The main object of the treatment with alcohol is the constant sterilizing of the pus and canal wall, thus preventing re-infection. The technic is as follows: The canal is cleaned of cerumen, desquamation, discharge, foreign bodies or polyps. A wick is now inserted into the canal, nearly to the drum membrane, completely filling the lumen. If there is no discharge cotton is used. If there is a discharge a gauze wick is used. If the canal lumen is partly closed by one or more distinct "ripe" furuncles, these should first be incised and the pus evacuated. Any incision should be carefully made into the center of the furuncle for, if this is not done, the pus does not escape and the patient is not relieved. In addition, there is danger of infecting a new area, and a perichondritis sometimes results from trauma to the cartilage. A probe point will often help to locate the center of a furuncle.

After being inserted snugly into the canal, the wick is saturated with alcohol, plain or with boric acid, and the patient is instructed to keep the wick wet by dropping alcohol upon it at frequent intervals. The wick should be removed daily by the physician and a fresh one inserted. Whenever a pocket of pus can be located it should be incised. After incision, the alcohol should be applied before the patient recovers from the anesthesia. The alcohol smarts on freshly cut or abraded surfaces with the first application, but gives very little discomfort at later applications.

Not only does the antiseptic action of the alcohol prevent more infection, but the saturated wick acts as a small poultice to the canal. If the inflammation has spread to the surrounding tissues, a poultice of a dilute sulpho-naphthol solution over the auricle may be added to the above treatment.

Following this treatment by wicks saturated with alcohol, some of the early mild cases become abortive without surgical incisions. If the pain is severe and no pus can be definitely located it is better to administer an internal sedative and wait for the boil to become "ripe" and the pus to localize, rather than to make incisions at random. The canal should be moistened with alcohol for a time after apparent cure to insure against an immediate return of an infection.

Asiatic Cholera in India.—Recent report to the United States Public Health Service notifies the presence of Asiatic cholera on Oct. 15, at Kerena, Karonga, India.

Clinical Department.

ON THE TREATMENT OF DELIRIUM TREMENS BY THE SUBDURAL INJECTION OF SODIUM BROMIDE.

BY S. P. KRAMER, M.D., CINCINNATI, OHIO,

Surgeon to the Cincinnati Hospital.

DURING the past two years we have been using a form of treatment for delirium tremens in the wards of the Cincinnati hospital that has given us such brilliant results that the author deems it worthy of publication.

Pathologically delirium tremens presents a classic picture of cerebral edema. The amount of cerebro-spinal fluid is increased to such an extent that one can readily withdraw through lumbar puncture 50 to 60 cubic centimeters. In a previous publication* it was shown that this fluid is exceedingly toxic. Its injection into dogs brings on a rapid fall in blood pressure. It has been known that the withdrawal of cerebro-spinal fluid in cases of delirium tremens produced a temporary improvement which lasted for a few hours. What was sought for was some form of medication which might be directly introduced into the sub-arachnoid cavity after the withdrawal of the toxic fluid, which would counteract the edema and act as a sedative. After some experimentation on the lower animals with various salts we found that sodium bromide would answer this purpose. It was found that a sterile one per cent. solution of sodium bromide might be injected into the spinal canal of animals without immediate or remote harm to the nervous system of the animal. We then applied this knowledge to the treatment of our cases of delirium tremens. We have used the treatment in a series of twenty cases and can vouch for the safety and efficacy.

The technique of the treatment consists in the withdrawal of cerebro-spinal fluid through lumbar puncture in amounts as great as possible, namely 50-60 cubic centimeters. The same amount of a sterile one per cent. solution of sodium bromide is injected with a syringe. There is absolutely no danger from increased subdural pressure. This amount and even as high as 80 cubic centimeters of fluid have been injected into the sub-dural cavity in an interval of one minute without the least sign of increased intra-cranial pressure. This salt, that is the sodium bromide, is not toxic to the nervous system. The potassuim salt must not be used since it is slightly irritating.

The patients as a rule show an immediate improvement, a lessened delirium within a few minutes after the injection. This immediate improvement however disappears after a short time, to be followed in from 12 to 15 hours by a permanent disappearance of the delirium. Occasionally after a few days there may be a relapse which is usually controlled by a repetition of the injection. I add histories of a few of our more recent cases.

* Brain: Vol. xxxiv, 1911, p. 39.

CASE 1. M. D., colored woman, aged 35, was admitted to the west surgical service Dec. 12, 1912, with a Pott's fracture. She was intoxicated on admission. The next day she was wildly delirious, jumped out of bed and tore off the dressings. She received morphia and hyoscine hypodermatically, as well as chloral and bromide by mouth every four hours up to the afternoon of Jan. 2, 1913, with no effect on the raging delirium. At 2 p. m. on Jan. 2, 1913, a spinal puncture was made, liberating 50 c.c. of spinal fluid under high pressure and 40 c.c. of a sterile 1% solution of sodium bromide was injected into the subdural canal. At 8 a. m. the following day the patient was quiet, free from delirium, and remained so up to the time of her discharge six weeks later.

CASE 2. J. B., male, aged 34, a sign painter, alcoholic, was admitted to the south surgical service July 16, 1913, with a fracture of the astragalus and ilium on the left side, the result of a fall from a scaffold. Five days after admission, July 21, 1913, he developed a well-marked delirium tremens requiring a restraining sheet. On July 21, at 1.30 p. m., a lumbar puncture was made, 40 c.c. of clear fluid removed and 40 c.c. of 1% solution of sodium bromide injected. Twelve hours later the patient was rational, free from delirium and remained so up to the time of his discharge.

CASE 3. J. B., aged 41, alcoholic, a bookkeeper by occupation, was admitted to the south surgical service July 14, 1913 with the following history. He had been a hard drinker for 20 years.

While in his room with his wife he suddenly became delirious and thought there were several people trying to get him and in his endeavor to escape he sprang out of the second story window, his head striking the curb. Thinking this a good opportunity to kill himself he ran into the woodshed, seized an axe and beat his head vigorously, inflicting numerous scalp wounds. He also tried to cut his throat with a piece of window glass. On admission he was delirious and raging. After dressing his wounds a lumbar puncture was made and 25 c.c. of clear fluid were removed followed by the injection of 25 c.c. of a 1% solution of sodium bromide. Twelve hours after the injection his delirium subsided, he became perfectly rational and remained so up to the time of his discharge, July 17, 1913.

CASE 4. A. R., male, aged 36, teamster by occupation, a heavy drinker, who had had repeated heat strokes in previous years, was admitted July 2, 1913, at 6.30 p. m. While sitting in the third story window of his home he became dizzy, fell out and landed on the ground below. He became unconscious and was sent to the hospital. On admission he was semi-conscious, his breath strongly alcoholic. He had sustained a fracture of the left olecranon and the right wrist. The scalp was cut over the left eye but there was no fracture of the skull. At eleven o'clock that night he developed delirium tremens and was delirious all night. At 10 o'clock the next morning a spinal puncture

yielded 60 c.c. of cloudy fluid (containing a few blood cells); 60 c.c. of 1% sodium bromide solution was injected. For an hour after the puncture he was quiet but became delirious again remaining so for 17 hours. He then cleared up, became rational and clear and remained so for two days. July 7, 1913, he was again slightly delirious and another spinal puncture was made withdrawing 25 c.c. of fluid and injecting 25 c.c. of bromide solution. Fifteen hours after the second injection he became rational and clear and has remained so up to the present time. On July 19, 1913, the olecranon was bone-plated and the patient has made an uneventful recovery from the operation with no sign of recurrence of delirium.

Reports of Societies.

ASSOCIATION OF AMERICAN PHYSICIANS.

TWENTY-EIGHTH ANNUAL MEETING HELD IN WASHINGTON, D. C., ON MAY 6, 7 AND 8, 1913.

(*Continued from page 614.*)

ON THE DIAGNOSIS AND TREATMENT OF MEDIASTINO-PERICARDITIS.

DR. GEORGE DOCK, St. Louis: The object of this paper is to show the value of some comparatively new signs, such as diastolic rebound of the heart, limited motion of the diaphragm and altered type of respiration and to advocate a wide use of operations to relieve the heart's action (cardiolysis).

DISCUSSION.

DR. A. MCPHEDRAN, Toronto: This report brings out a number of features I had not thought of and which I have never seen suggested; the effect of the respiratory movements upon the pulse, for example. I would concur in Dr. Dock's statement that the operation of cardiolysis is undeservedly neglected.

Discussion closed by Dr. George Dock: Dr. McPhedran's observations on the case cited are important. The conditions described are often seen at autopsy, and it is frequently remarked that the adhesions present could not have sufficed to cause interference with the heart action; but there are many indications that the interference may be much greater than is apparent.

Thursday, May 8th.

HYPERTROPHIC PULMONARY OSTEOARTHROPATHY.

DR. HARLOW BROOKS, New York.

THE ETIOLOGY OF HYPERTROPHIC PULMONARY OSTEOARTHROPATHY.

DR. HARLOW BROOKS, New York: (With a report of five additional cases).

THE DIAGNOSIS OF PULMONARY ABSCESS.

DRS. G. W. NORRIS and H. R. LANDIS, Philadelphia: The paper is based on a study of sixty-six cases. Acute abscess of the lung is generally of metapneumonic origin, but may follow some acute inflammatory condition of the lung itself. Acute abscesses may be single or multiple. Single abscesses most commonly follow some acute pulmonary affection, or the lodgment of a foreign body in the lung, while multiple abscesses occur most frequently as the result of metatasis from a suppurating point in other parts of the body.

DISCUSSION.

DR. M. H. RUSSELL, Philadelphia: X-ray examination for lung abscess may give equivocal information. Last year I had a case of pulmonary abscess in which the x-ray plate left me in a quandary as to whether I was dealing with a consolidation or a collection of fluid; and a second case came to my notice just before leaving home in which the same doubt arose.

DR. E. LIBMAN, New York: I have studied a number of cases of pulmonary abscess and have reached a few conclusions which I believe to be of value. Lung abscess after pneumonia is not often a true abscess; the condition is due to the necrosis of the pneumonia with later breaking down of the tissues. There is great diagnostic value in a necrotic odor to be detected in the breath; rather early in the course of lung abscess, this sign can be elicited by having the patient give a hard cough. Another important sign is the appearance of an effusion over the abscess. When with a high temperature and the signs of effusion, an exploratory tap finds sterile fluid, one may conclude almost certainly that there is an underlying abscess.

DR. GEORGE DOCK, St. Louis: An x-ray plate should always be made when lung abscess is suspected; a solitary abscess may thus be shown very well. We have had several cases in which definite localization was accomplished by skiagraphy. Bearing out Dr. Libman's statement, I recall one case in which there was distinct fetid odor to the breath before pus appeared in the sputum.

DR. F. T. LORD, Boston: I think there are three main symptoms which are most important: (1) A shadow in the x-ray plates; (2) Elastic fibres in the sputum; and (3) Circumscribed dulness.

DR. P. K. BROWN, San Francisco: In a number of cases of lung abscess I have noted the fetid breath as a prominent symptom. Failure to locate the abscess in one case was explained later by taking stereographic plates. I think the use of stereoskiagraphy in all cases is desirable.

Discussion closed by Dr. G. W. Norris: I merely wish to add that when the signs of pulmonary abscess are strongly suggestive, surgical intervention should be invoked before an irremediable destruction of lung tissue takes place.

THE CLINICAL PICTURES OF CASES OF SUBACUTE BACTERIAL ENDOCARDITIS THAT HAVE SPONTANEOUSLY BECOME BACTERIA-FREE.

DR. E. LIBMAN, New York: In an earlier communication it was established that a number of

cases of subacute bacterial endocarditis became bacteria-free before coming under clinical observation. Four clinical groups were pictured. The writer has now seen altogether twenty-four cases of this kind and has obtained autopsy material in sixteen cases. In nearly every case the diagnosis was correctly established clinically.

The later studies indicate that it is better not to describe separate clinical groups, as many cases represent combinations of two or more types. There were, therefore, described five prominent clinical features, one or more of which may be found present in a given case. The differential diagnosis of such cases and the pathological features were briefly touched upon.

DISCUSSION.

Dr. Henry Sewall, Denver: Does the temperature curve have any distinctive features in these cases?

Discussion closed by Dr. E. Libman, New York: The temperature is not high in these cases; it is much lower than in acute forms of endocarditis. Signs of endocardial mischief, with low temperature and pigmentation of the face, are the distinguishing features of the clinical group under consideration.

A CLINICAL STUDY OF HYPERTENSIVE CARDIOVASCULAR DISEASE.

Dr. Theodore C. Janeway, New York: A statistical study of a group of 459 private patients with blood pressure of 165 millimeters and over, observed during the past ten years, whose histories could be followed up to June 1, 1912. Studies especially with reference to the prognostic significance of particular symptoms and of the height of the blood pressure, both as regards life and type of death. A study of the sex incidence of high blood pressure. A discussion of these cases, together with a number of selected hospital cases coming to autopsy, as indicating certain clinical groups, with their probable relation to the anatomical types of arterial and renal disease.

DISCUSSION.

Dr. R. C. Cabot, Boston: Out of the many points of interest suggested by this valuable contribution, I wish to remark upon the fact that three deaths from pernicious anemia were recorded. We would hardly meet with so many among an equal number of average people.

Dr. Henry Sewall, Denver: I wish Dr. Janeway would indicate whether he belives that the pulse pressure gives any information of prognostic value? Personally, I feel that this has some clinical importance.

Dr. Jos. L. Miller, Chicago: Have Dr. Janeway's patients who lost weight also lost their appetite? I have felt that in these cases some fault of metabolism is operative. Do Dr. Janeway's patients show a tendency to a gradual increase of blood pressure? I have not found this to be usual? I think we should always keep in mind that nervous factors, such as grief or anxiety, will often produce a striking temporary rise of pressure.

Dr. W. S. Thayer, Baltimore: Such a report as this just presented by Dr. Janeway may be of immense value in the hands of the profession as a means of allaying the fears of the public as to the danger of increased blood pressure.

Dr. Henry Jackson, Boston.: I for one am very glad to hear these statements made by Dr. Janeway. There is great satisfaction in knowing that high pressures may be safely maintained for a long time. The results of Dr. Janeway's study seem to confirm my feeling that a falling pressure, in a hypertensive case may be a serious prognostic portent.

Dr. C. F. Hoover, Cleveland: I am interested in the headaches that appear with arterial hypertonus. Such headache may have one of three explanations: (1) It is a toxic headache, due to renal insufficiency; this is infrequent alone, perhaps; or (2) it is due to cerebral ischaemia; or (3) it is due to cerebral hyperaemia. If in a case with fibrosis of the cerebral vascular system, there is an intercurrent loss of splanchnic hypertonus, headache and weakness will result from cerebral ischaemia. In cases of the third variety, in which, in the absence of cerebral fibrosis, there is cerebral hyperaemia, the headache will be increased by the administration of nitroglycerin, but may be relieved at once by inducing nausea. It is possible for complete suppression of urine to result from hypertension of the renal system. This was shown by the case of a patient brought into the hospital in coma, which was thought to be uraemic. He was anuric for a number of hours, but after treatment with packs he began to secrete urine which on examination was found to be entirely normal. Later this man became anuric again, went into coma and died.

Dr. A. McPhedran, Toronto: It is interesting to know the details of the behavior of the blood pressure in any given patient; it is apt to be so variable. Were one or many observations of the pressure made in Dr. Janeway's cases? Are there any observations recorded in the full paper as to the value of the nitrites in reducing pressure?

Discussion closed by Dr. T. C. Janeway, New York: No mention of the pulse pressure was made in the paper because within the years covered by the series of cases the method of auscultatory estimation of the diastolic pressure has come into use and exact comparison could not be made. The cases mentioned as dying of anaemia had "progressive" anaemia, not "pernicious" anaemia as understood by Dr. Cabot. These cases belong with the loss of weight cases; there are two groups of these: (1) those losing weight from a slow terminal anaemia; and (2) the elder arteriosclerotic group, among whom the loss of weight is due to failure of nutrition dependent on sclerotic changes in important organs. One important cause of loss of weight in certain cases is achylia gastrica with anaemia. There are two groups of hypertensive cases: (1) Pure arteriosclerosis; and (2) presenile sclerosis. When a sclerotic nephritis is superadded upon arteriosclerosis the pressure begins to rise and the prognosis becomes increasingly bad. A falling blood pressure in a patient who has had a pressure habitually high is of bad omen. The headache problem is very involved, and no attempt was made to discriminate between the kinds of headache occurring in this series. But those cases in which headache, independent of renal insufficiency, was a prominent symptom gave signs of disease of the cerebral vessels. Such headaches are not relieved by nitroglycerin. As to the nitrites, there are few cases which will not respond to this group of drugs;

much depends upon the dosage employed as the response is very variable. A few cases will not respond at all. The statistics given in the paper are based on all sorts of cases, observed once or many times over a period of eight or nine years; and they will have to be taken for what they are worth.

THE ACTION OF DIPHTHERIA TOXIN ON THE ORGANS OF CIRCULATION.

Dr. Wm. G. MacCallum, New York: An attempt was made to determine whether diphtheria toxin acts directly upon the heart or upon the vasomotor apparatus by means of an apparatus previously described, and so constructed as to eliminate the influence of the vasomotor apparatus upon the circulation.

DISCUSSION.

Dr. S. J. Meltzer, New York: Of great importance is the statement of Romburg and his coworkers (though it is not accepted in full) that the effect of diphtheria poisoning is not paralysis of the vasomotor center, but paralysis of the vasomotor apparatus. I have made some experiments to determine whether in diphtheria the adrenal glands are injured. Clinicians have held that there is evidence that at first the adrenals are stimulated and then injured: that there is a preliminary rise of blood pressure and then a fall. My experiment was to remove the superior cervical ganglion from an animal; after an injection of adrenalin dilatation of the pupil occurred. In such an animal poisoned with adrenalin, no such change in the pupil occurred: if anything there was a slight contraction.

Discussion closed by Dr. W. G. MacCallum, New York: The paper of Romburg emphasizes the fact that blood pressure, depressed by diphtheria poisoning, cannot be increased by ordinary stimulation, but may be increased by injections of barium chlorid. Much has been said in support of the idea that injury to the adrenal bodies is responsible for the symptoms of diphtheria poisoning, but the argument has not been well sustained.

SECONDARY TUMORS OF THE LUNG AND PLEURA.

Dr. James B. Herrick, Chicago: Post-operative recurrences of malignant tumors often cause symptoms that bring the patient to the physician rather than to the surgeon. This is also true when the primary growth is hidden or relatively symptomless. Certain features of these cases are considered, especially as concerns secondary tumors of the lung and pleura. Illustrative histories are cited.

THE INFECTION OF THE BRONCHIAL GLANDS AND THEIR RELATION TO THE PROCESSES IN THE LUNGS.

Dr. Philip K. Brown, San Francisco: The paper presents the results of animal experiments in which stained tubercle bacilli were variously introduced with a view of demonstrating the usual route of lung invasion. The x-ray studies of early pulmonary tuberculosis showing evident extension from tracheo-bronchial glands. Illustrated by lantern slides.

DISCUSSION.

Dr. Theobald Smith, Boston: An observation from a study of spontaneous tuberculosis in animals may be of interest in this connection. Twenty years ago studies showed that in animals the primary tuberculous infection is always in the lymphatics, whether of the chest or of the abdomen. There is one central gland in the thorax which is most often infected and probably always by inspiratory infection; secondary infection from this gland is by the blood stream. I do not remember but one case in which there was any evidence of a retrograde infection of the lungs from the glands. In cattle there is no relation between cervical gland infection and lung infection.

Dr. P. K. Brown: I wish to ask Dr. Smith if secondary infection from the central thoracic gland referred to is always by the blood stream, how does he account for local lung infection in such cases?

Dr. Theobald Smith: The gland referred to in cattle drains the large lobes of the lungs and is most often infected; when infected material escapes from the gland into the blood stream, miliary tuberculosis, of course, results. When local lung infection occurs together with infection of this gland, it is assumed that the lung invasion is the result of a second, new infection from without.

Dr. Brown did not add to the discussion.

REPORT OF STUDIES ON PNEUMONIA.

Drs. Cole and Dochez, New York: Pneumonia is due to a number of varieties of pneumococci with specific biological characters. The severity of the disease is related to the variety of organisms concerned, methods of determination in the individual case of the variety of organism causing infection. Report of the production of immune sera to several of these varieties. The mode of action of such immune sera; possibility of the action being partially antitoxic. Report of studies concerning the nature of the toxin in pneumonia.

DISCUSSION.

Dr. V. C. Vaughan, Ann Arbor: The readiness with which the pneumococcus breaks up with the liberation of a poisonous substance is shown by Dr. Cole's work. We have in our laboratory some pneumococcus germ substance, in the form of a pearly, white powder, which has been kept for seven years. Seven years ago it killed guinea-pigs in a dilution of 1 in 40,000; and now it kills in a dilution of 1 in 40,000. The poison is probably liberated through the agency of an intracellular ferment.

Dr. C. S. Bond, Richmond, Ind.: What were the ages of the patients reported as successfully treated?

Discussion closed by Dr. R. I. Cole: One patient was a boy 12 years of age; the others were adults between 20 and 60 years old.

RECURRENT PNEUMONIA.

Dr. W. F. Hamilton, Montreal: A case report with review of several attacks and reference to the literature on such cases.

ON A LOBAR FORM OF BRONCHOPNEUMONIA, OF LONG DURATION OCCURRING IN CHILDREN AND YOUNG ADULTS.

DR. DAVID RIESMAN, Philadelphia: There is a form of pulmonary disease occurring in children and young adults, rarely in older persons, the chief symptoms of which are a mild, protracted fever and cough, the latter, however, not being present in all cases. The physical signs, quite out of proportion to the mildness of the symptoms, are found to involve the lower lobe of one or the other lung, not of both, and consist chiefly of slight impairment of the percussion note, harshness of the breath sounds, and a shower of fine crackling râles. The condition is usually of long duration, sometimes extending over many weeks, during which the physical signs scarcely change. In one of the cases typhoid fever was suspected, in most of the others tuberculosis. The affection is not tuberculous in nature, and all the cases reported have ended in complete recovery. It is looked upon as a lobar form of broncho-pneumonia.

DISCUSSION.

DR. R. C. CABOT, Boston: Was there an autopsy in any case in Dr. Riesman's series? Were any tapped? In the absence of such proof, how does Dr. Riesman know he was not dealing with pleurisy with a small effusion, or with thickening and no effusion?

DR. S. J. MELTZER, New York: Dr. Riesman stated that he had found the pneumococcus in his cases of broncho-pneumonia; this agrees with the findings of others. In my own work, I have found the pneumococcus in well defined cases of lobular pneumonia, but more careful search has revealed streptococci also. The essential difference between the two forms of pneumonia is the difference between infection by the pneumococcus alone and infection by the pneumococcus associated with streptococci. And here is where the finding of fibrin is an important point; in other words, in the lobular form of pneumonia the frame work of the lung is involved; in the lobar form the frame work is not involved.

DR. F. T. LORD, Boston: In pressure types of broncho-pneumonia, the disease ends with small losses of pulmonary tissue; it may be that the residual pulmonary change caused by these necrotic pockets may be responsible for the signs noted by Dr. Riesman.

DR. JOSEPH D. MILLER, Chicago: There are not a few such cases as these reported by Dr. Riesman. Such cases are described by Leichtenstern, who formerly thought that they were of influenzal origin, but later found the pneumococcus present in the sputum.

DR. J. B. LEATHES, Toronto: I have seen only one case similar to Dr. Riesman's cases. Whether the original distribution was lobular or lobar is not known, but a consolidation was present, as shown by x-ray. This condition persisted for over six months, with showers of râles to be heard over the affected area; the whole illness was afebrile. Sputum examination showed typical pneumococci in pure culture. All the signs finally cleared up without any residue.

Discussion closed by DR. DAVID RIESMAN: There were no autopsies in my series, because the patients all recovered. I would say to Dr. Cabot that there may have been pleurisy to account for the signs; but my reason for believing that the condition described was pneumonia is that there was no changes in the physical signs for weeks or months, and if there was any change in the fremitus it was increased. There were not enough sputum studies to show whether there were any streptococcus cases in the list. As to the tissue losses, there were no evidences of such losses after recovery.

THE ETIOLOGY AND PATHOGENESIS OF BRONCHIECTASIS.

DR. C. P. HOWARD, Iowa City: Clinical incidence: 4 cases among 898 admissions to University Hospital of Iowa.

Fowler's classification of causes.

Illustrative cases with skiagrams. Case 1, foreign body; cases 2 and 3, pleuropneumonic fibrosis; case 4, fibrosis due to tuberculosis(?).

Common underlying conditions are bronchitis and cough.

Pathogenesis: (1) Direct pressure of stagnating secretion; (2) concentrated air pressure; (3) extra bronchial traction; (4) inflammation of bronchial wall; (5) defective innervation and loss of tone; (6) constitutional or hereditary weakness; (7) Ewart's theory of faulty distribution of space between air tubes and pulmonary tissue.

DISCUSSION.

DR. F. T. LORD, Boston: The pathogenesis of bronchiectasis is always an interesting question. There are three theories extant: (1) a bronchial theory, (2) a pulmonary theory, and (3) a broncho-pulmonary theory. From a series of autopsies in Boston certain suggestive clues have been found. I wish to mention one only. In once case it could be demonstrated that around the bronchiectatic cavity there was no evidence of involvement of pulmonary tissue at all. There had been some degenerative disturbance of the bronchial wall alone, capable of making the dilatation possible.

DR. W. G. MACCALLUM, New York: The importance of bronchial obstruction in the etiology of bronchiectasis is admitted, of course; but the statement that dilatation is produced by the expiratory pressure increase accompanying coughing with the glottis closed requires scrutiny. The idea that such pressure increase could be applied at any one point seems inconceivable to me. An alternative explanation suggests itself. In cases of bronchial obstruction with stasis of secretion there is a certain obstruction to inspiration, but inspiration is accomplished by muscular action which will overcome the obstruction, while expiration being accomplished merely by the elastic recoil of the chest does not overcome the obstruction, so that there is a gradual imprisonment of air in the obstructed bronchus, with gradual increase of intra-bronchial pressure until it is sufficient to overcome the obstruction. This localized increase of pressure being continued long enough will finally produce permanent dilatation of the bronchus.

DR. S. J. MELTZER New York: Twenty years ago I advocated the idea that coughing against an obstruction in the air may produce distention of the obstructed bronchus. The mechanism I had in mind is as follows: With each cough there is a deep inspiration, the inspired air being under equal

pressure under equal distribution; but with an obstructed bronchus, back of the obstruction there is at once a portion of the bronchial tree under negative pressure, and conditions are favorable for dilatation.

Dr. J. A. Capps, Chicago:—The paper is a timely one; important because some of the recently advanced therapeutic measures have been disappointing. This is notably true of vaccine treatment, as might be expected in view of the mechanical changes underlying the whole condition.

Dr. W. G. MacCallum, New York: It is obvious if a bronchus is obstructed, that the region ventilated by it will be in a state of negative pressure in inspiration; but this would render the region liable to compression rather than dilatation, when subjected to the force of an obstructed cough.

Dr. C. F. Hoover, Cleveland: From experience in measuring the ventilation of dogs' lungs with the Zundt apparatus, I have found that the negative pull may be measured when stenosis of either the inspiratory or expiratory tube is produced. With an expiratory stenosis the volume of the lung is increased.

Discussion closed by Dr. C. P. Howard: Of all the theories as to the pathogenesis of bronchiectasis, that of William Ewell is the most scientific, viz., a faulty distribution of air space caused by stricture of air tubes. The most important therapeutic suggestions are: the search for foreign bodies by x-ray examination in every case of bronchiectasis; or, failing to find a foreign body, to employ the bronchoscope and seek to dilate strictures.

(*To be continued.*)

Book Reviews.

Outlines for Case Taking and Routine Ward and Laboratory Work. By George Dock, A.M., M.D. Ann Arbor, Michigan: George Wahr. 1913.

These outlines, based on Strümpell's *Leitfaden*, have been used by the author as guides for case-taking in the medical clinic of the Washington University. In this second edition various additions and improvements have been made, notably in the neurological section. The work should maintain its success and reputation as a useful pocket manual for students in clinical medicine.

Transactions of the American Pediatric Society. Twenty-Fourth Session. Edited by Linnaeus Edford La Fétra, M.D. Volume xxiv. Chicago: American Medical Association. 1913.

This volume contains the proceedings and papers of the annual meeting of the society at Hot Springs, Virginia, in May, 1912. There are twenty-five papers, among which are to be noted particularly those by Dr. John L. Morse, on "Maltose in Infant Feeding"; by Dr. Charles P. Putnam, on "Feeble-Minded Children"; and by Dr. Francis G. Benedict and Dr. Fritz B. Talbot, on "Some Fundamental Principles in Studying Infant Metabolism."

Essentials of Pathological Chemistry. Including Description of the Chemical Methods Employed in Medical Diagnosis. By Victor C. Myers, M.A., Ph.D., and Morris S. Fine, Ph.D. New York: The Post-Graduate Medical Journal. 1913.

This thin volume, consisting of a series of articles reprinted from The Post-Graduate Medical Journal, was intended by its authors primarily as a laboratory guide for graduate students in pathologic chemistry. Its method is based on the belief that "an adequate appreciation of normal physiologic functions is a necessary prerequisite to an intelligent conception of pathologic chemical processes, especially since the latter may be regarded as deviations from the normal. Accordingly each chapter consists "of a resumé of the subject with which it deals, followed by directions for laboratory tests. The arrangement of the chapters follows the course of the various food materials through the body." There is a brief appendix of valuable laboratory suggestions, and several blank pages for laboratory notes. The book, which aims to present the latest methods and knowledge from the recent literature, should be useful not only to students but to practitioners who desire a summary of the various applications of modern biochemistry to medical diagnosis.

Diagnosis of the Malignant Tumors of the Abdominal Viscera. By Professor Rudolph Schmidt, Professor of Medicine in the University of Innsbruck. Authorized English Version. By Joseph Burke, Sc.D., M.D. New York: Rebman Company. 1913.

This work is intended to aid the general practitioner, to whom such cases usually come in the first instance, in the early diagnosis of malignant abdominal neoplasms. The first or general part, constituting one-sixth of the book, deals with clinical and laboratory methods of physical examination, history taking, and symptomatology. The second, or special part, constituting a third of the book, deals with the special signs and diagnosis of carcinoma of the respective abdominal organs. The third part consists of 194 illustrative case histories. The book contains much valuable material, though different in method of approach from that to which the average American mind is accustomed. The translation is not flexible or idiomatic, but apparently in the main accurate. The book seems hardly likely to appeal particularly to practitioners in this country.

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THE PUBLIC HEALTH OFFICER.

IT has been well recognized, for a decade past at least, that in any community's public health officer lies the crux of its sanitary condition. If he is inefficient or pliable in the hands of interests—social, political, or otherwise—there will be little or no preventive medicine done in that community. If he is fearless and competent, holding the public health to be the supreme law, his fellow citizens will find him far the best investment they have ever made. One great evil in this relation is that the public health officer has heretofore generally been a practitioner in his town or village, dependent for his support on the very people in whose homes it might become his duty to introduce measures such as would make them his enemies. In places where the health officer's official salary is less than that of the dog-catcher, such an officer might indeed become remiss in his duties.

The modern conception of what a health officer should be is well expressed in *The Medical Officer,* of London. Such an officer gives up his whole time to public health work—a requirement without which every civilized community should not rest content. Nor yet should the would-be public health officer contemplate embracing this service until he has had some experience of general practice. Every specialist in public health should first of all become a general practitioner. For the former should be conversant at first hand with the latter's difficulties. Otherwise there will be little mutual sympathy—the result being that the health officer is handicapped because he is in an isolated position, unable either to claim or to obtain the help of his brother practitioners at times when such assistance will be most valuable—perhaps indispensable.

It is not that the successful general practitioner will necessarily make the most successful medical officer of health; for the one has to deal with individuals and the other with bodies of men, and only those who have gone through the mill know how much more difficult is the latter task. The most successful public health administrators sense the psychological moment when to launch schemes for the public good; they feel the public pulse before they propose measures that may meet with opposition; and should occasion arise they will postpone such proposals until tension has been lessened and more favorable opportunity has presented itself. Such action may not altogether laudably be termed tactful, but the term is correct if tact is considered "a nice perception in seeing and doing exactly what is required under the circumstances." Such perception is not acquired in the schools and can be obtained only by experience, by mixing with men, studying their characteristics and taking into account their weaknesses. And the prospective public health officer should find association for some months with an older medical officer of health. Thus would he learn many things not found in books and in lectures, not the least important being how to carry on a comparatively frictionless correspondence with property owners and others.

While emphasizing the need of administrative qualities in a medical health officer, the importance of professional qualifications must not be minimized. The advising medical health officer stands in the full glare of public and professional opinion, and if he is not exceptionally well equipped professionally his influence will be immaterial. He must be able to support his proposals before all comers, and that with uncontrovertible evidence. In no other walk of life is knowledge more truly power. The right knowledge must be gained in the first place in the medical schools; and the medical health officer must throughout his whole career add to it by attending conferences of his colleagues, by the perusal of the current literature, and most of all, by patient and continuous observation on his own part.

A LESSON FROM THE ARMY.

It is a remarkable record which Major R. B. Miller, of the medical corps, and late sanitary inspector of the division, recently reported (*Journal of the American Medical Association*) concerning the five months of camp life in Texas of the Second Division of the United States Army. The results, as shown by the sick rate, have been better than in any other camp the army has ever had. For the five months from March 1 to July 31 there was not a single case of typhoid or paratyphoid fever among the personnel of the camp. Malaria and dysentery were practically absent and, with the exception of a short outbreak in one brigade, after an absence of a week from its regular camp, there was comparatively little diarrhea. The constantly noneffective rate from all causes was 1.14 per cent., of which 0.20 per cent. was due to injury, making the average from sickness 0.94 per cent. With a constant mean strength of 11,373 men, there were, during the five months, sixteen deaths, ten of which were due to injury and but six to disease. This record is indeed most gratifying, and reflects no little credit on the medical officers in charge.

The principal sanitary requirements for a camp of this kind Major Miller gives as follows: 1. An ample supply of pure water. 2. An efficient system of excreta disposal. 3. Protection of the command against typhoid and smallpox by vaccination. 4. The prevention of soil pollution. 5. The prevention of dissemination of disease by flies and mosquitoes. 6. Means of insuring personal cleanliness. 7. Prophylaxis against venereal disease. He very properly suggests that, with certain modifications in detail, the sanitary measures which were found so successful in the army in Texas could be quite largely employed by the civil population in small towns and rural communities. At present, the enforcement, or even recommendation, of prophylaxis against venereal disease by the health authorities of such communities is out of the question, and the time is scarcely yet come when immunization from typhoid fever, however suitable and desirable it may be, can be successfully advised for the general public. For the present, at least, in guarding against typhoid, we must still depend upon the protection afforded by a rigid supervision of the water and milk supplies and other sanitary precautions which are now well understood. The various other measures which were of service in preserving the health of the troops, or similar measures suited to local conditions, can certainly be adopted with advantage in civil life.

The general public has begun to appreciate the desirability of exterminating flies as far as possible, and the account of the war against these insects carried on at the camp is very interesting. Mosquito breeding was partly controlled by draining and oiling, but as with the amount of labor which could be devoted to this purpose, and the funds available for it, it was impossible to do away with the pests entirely, officers and men were required to sleep under mosquito bars, and all cases of fever, of whatever nature, were immediately placed in screened wards in the field hospital. In this connection it is a pleasure to recall the excellent work which Dr. A. H. Doty accomplished in ridding Staten Island of mosquitoes during the last few years of his residence there as health officer of the port of New York. Formerly both mosquitoes and malarial fever were proverbially prevalent, at least in some portions of the island, but as the result of his well directed and persevering efforts a remarkable improvement as regards both was brought about. The same might be done in many other communities, by the uniform employment of simple and efficient methods with equal energy and hygienic zeal.

ANTHROPOLOGICAL LABORATORIES.

The immigration laws, besides protecting us from the diseased physically and mentally, furnish the greatest anthropological laboratories in the world. There is no other condition under which so many individuals, of nearly every race and people, pass under the scrutiny of medical men. If this scrutiny resulted only in the detection of disease and defect, then the medical men engaged in that work would be untrue to the instinct of research, which should dominate every man of that profession. Some of this work has already been commenced by the medical men engaged therein, and the resulting information will be a by-product of almost as much value as the product for which these plants were established.

The influx of people into this country represents every race and every variation,—and in

large numbers. The delegation of more medical men to this work of anthropological measurements will result in by far the most complete compilation of data on this subject, and will be of inestimable value to the world. These data would give a clearer insight into the changes that took place in the physical conformation of the races to the present time. Our knowledge on this subject is very superficial and meagre, indeed, because of the lack of any very complete measurements.

The present races have come down to us in their present forms as the result of the mixture, chiefly through migrations of one kind or another, of the ancient races. In all likelihood, there is now no such thing as a racially pure people. Even the Jews, who consider themselves racially unadulterated, have mixed either through actual crossing or constructively, through the influence of environment. Indeed, Boas called attention to the latter condition by demonstrating that after residence in this country of aliens for a generation or two, even without intermarriage, the shapes of the skulls of even such racially characteristic peoples as the Italians and the Jews changed to conform to the prevailing types existent here. Anthropological measurements would, therefore, determine the results, physically, of racial intermixture. We could more nearly determine, by analogy at least, what, if any, admixture of alien blood is desirable to maintain the integrity of our racial character,—if indeed, that is as desirable as it is desired. The measurements of races known to have intermixed freely would furnish the comparisons—we might learn the desirable from the undesirable. It would be interesting to learn whether a crossing of native blood with that of races having a much poorer physique would affect our own standard in like manner, or whether crossing with the blood of the known sturdier races would tend to improve the native standard. Besides, these measurements would furnish standards for each race, which would be an important contribution to science, as well as of practical utility as a standard in work where physique is an important factor.

In this way every large port of entry becomes a government anthropologieal laboratory, which would serve, besides, as a training school for anthropologists. And finally, the work would result in important contribution to a science which is yet in its infancy, but which is soon to come into its own.

MEDICAL NOTES.

GIFT BY A PHYSICIAN FOR MEDICAL EDUCATION.—It is announced that the late Dr. Gavin Paterson Tennent, of Glasgow, has bequeathed to the University of Glasgow the sum of £25,000 "to be applied for such object or objects in connection with the faculty of medicine as the trustees may determine."

PUBLIC HEALTH IN TASMANIA.—The recently published ninth annual report of the British Department of Public Health states that Tasmania has the greatest relative natural increase of population among civilized countries. During the quinquennium of 1906 to 1910 the excess of births over deaths per 1000 of mean population was 18.37. The total death-rate for 1911 was only 10.1, the infant mortality 74 per 1000 births, and the death-rate from tuberculosis only 0.84.

QUARANTINE IN THE CANAL ZONE.—A recently published bulletin of the Panama Canal Commission contains an order for the administration of maritime quarantine regulations in the Canal Zone, Colon, and Panama, after the opening of the canal.

"The bill of health that must be filled out and certified to by the masters of all vessels entering the canal requires not only a complete description of the vessel but a certificate as to the source of its food and water supplies, the sanitary history of the officers and crew and of the passengers, the sanitary history of the cargo and effects of those on board, the sanitary condition of the ship and a certification that none on board is ill of or has been exposed within two weeks to yellow fever, cholera, dysentery, smallpox, typhus fever, plague or leprosy."

A NEW OCCUPATION DISEASE.—The possibility of a new occupation disease is raised by the recent statement that wireless telegraph operators frequently present a symptom complex characterized by anemia, headache, and anorexia. It has been already suggested that the condition is due to hyperozonization of the air by the use of high frequency alternating currents. A similar condition, it is said, has been observed among workers at high-tension electric plants.

UNIVERSITY OF CINCINNATI MEDICAL COLLEGE.—It has been announced by the board of trustees of the University of Cincinnati that on

Oct. 7 Dr. Christian R. Holmes of that city was appointed dean of the University of Cincinnati College of Medicine, formed by the recent amalgamation of the Ohio-Miami Medical College and the Clinical and Pathological School of the Cincinnati Hospital. The new Cincinnati General Hospital, and several special hospitals will be available to the institution for clinical instruction.

"The Book-Keeping of Humanity."—At the annual conference last May of the health officers of the state of Indiana at Indianapolis, an address was made by Dr. Louis I. Dublin, of New York, on "The Registration of Vital Statistics and Good Business," in which he emphasized the economic value and importance to the community of accurate and reliable vital statistics. Such registration has been aptly termed the book-keeping of humanity and is as essential as in the conduct of any business. "Nothing less than a most efficient system of accounting is now tolerated in any line of modern business, and surely the most important business, that which is concerned with the physical welfare of all, should not be satisfied with anything less."

BOSTON AND NEW ENGLAND.

Poliomyelitis in Wakefield.—During the past week three new cases and one death of poliomyelitis were reported in Wakefield, Mass., making a total of six cases at present in that town. Four of these are in a single tenement house which has been ordered quarantined. The local Hurd school has also been closed.

Typhoid Fever in Providence.—An outbreak of typhoid fever has recently developed at Providence, R. I., among members of a delegation of 300 persons who attended the recent Perry Centennial. Up to Oct. 17 four deaths had occurred from the disease. The epidemic is believed to have originated from an infected water-supply at Buffalo, N. Y.

Smallpox in Connecticut.—Report from Danielson, Conn., on Oct. 18 states that for the past few weeks smallpox has been epidemic in that town. There are believed to have been over 80 cases, all of a mild character, of which 28 are still under observation.

Northeastern Dental Association.—The annual convention of the Northeastern Dental Association was held at Hartford, Conn., from Oct. 14 to 16. At the closing session the following officers were elected for the ensuing year: President, Dr. Edgar O. Kinsman, of Cambridge, Mass.; secretary, Dr. Charles F. Kreppel, of Forest Hills, Boston; and treasurer, Dr. David Munson, of Burlington, Vt.

Treatment of Tuberculous School-Children.—A joint meeting of the Boston Board of Health, the School Committee, and the trustees of the Consumptives' Hospital Department was held last week to consider means of coöperation in dealing with the problems of tuberculosis among children. Mr. McSweeney, chairman of the trustees, described the recent opening of the new Hospital for Consumptive Children at Mattapan. He recommended the division of all school-children into three groups.

"The first group will include children who have demonstrable tuberculosis. As soon as a child is found to be in this class, it should be turned over to the hospital department and cared for either at Mattapan or elsewhere under the supervision of the hospital department.

"The children of the second group would be provided for at the fresh air rooms, or preventorium. Mr. McSweeney recommended that this be extended as the demand becomes apparent in the future.

"The children of the third group, either normal or suffering from defects which the hygiene course might remedy, would be wholly under the authority of the school department, and be subjected to examinations only by the school medical inspectors."

Infectious Diseases.—Cases of infectious diseases reported to the Boston Board of Health for the week ending Oct. 21, 1913: Diphtheria, 41, of which 2 were non-resident; scarlatina, 23, of which 4 were non-resident; typhoid fever, 28, of which 1 was non-resident; measles, 18; tuberculosis, 62, of which 3 were non-residents.

The death-rate of the reported deaths for the week was 14.25.

NEW YORK.

Whooping Cough Camp.—At a meeting of the trustees of St. John's Guild, held October 21, it was decided to open a "whooping-cough camp" on the Helen C. Jouillard, the floating hospital boat of the guild, to be operated in association with the City Health Department. It will be in charge of Dr. John L. Baker, of

the department, and a feature of the work will be instruction of mothers in the care of their children.

OPENING OF BARNIER SOLARIUM.—The fine new Barnier solarium of the Methodist Episcopal (Seney) Hospital in Brooklyn was formally opened on October 20. It is the gift of Mrs. E. Barnier Shaw as a memorial of her parents, Mr. and Mrs. John J. Barnier.

VERDICTS AGAINST MILK DEALERS.—On October 19 at Binghamton, Justice Gladding of the Supreme Court directed a verdict for $16,800 to be entered in an action brought by the State of New York against two New York milk dealers for skimming the cream from the milk at their establishments. In February, 1911, a similar case resulted in a verdict of $50 a can on 336 cans of milk. The judgment was sustained by the Court of Appeals, and it was on this finding that the present verdict was based.

The constitutionality of the amended sanitary code of the New York State Department of Health was established on October 21, when, at Albany, the Court of Appeals affirmed a sentence of fine and two days' imprisonment in the case of an employee of a large milk company who had been found guilty of having uncleansed milk bottles in his possession.

TRAUMATIC CANCER.—Another interesting cancer case has been on trial, and on October 19, in the New York Supreme Court, a jury rendered a verdict of $7,000 damages. The suit was brought by a child's nurse against the 13-year old son of an architect of New York City, on the ground that in 1910, when he was ten years old, he had struck her in the breast, and, in consequence of the blow, cancer, necessitating a serious operation, had resulted. A curious feature of the judgment is that it does not involve the parents of the boy, but only himself; and as he is not personally possessed of any property, it cannot now be enforced. It is stated, however, that if while still a minor he should inherit or otherwise come into the possession of property, the $7,000 could be collected; while if he has nothing till he begins to earn a living, what he earns can then be attached.

LOWEST WEEKLY DEATH-RATE ON RECORD.—Commissioner Lederle announced today that the death-rate for the week ending Saturday, October 18, was 11.20 per 1000 population, which is the lowest weekly death-rate that has ever been reported in the history of the city, the next lowest being that for the week ending June 28, 1913, when the rate was 11.48.

Last week there were 1153 deaths and a rate of 11.20 as compared with 1243 deaths and a rate of 12.53 for the corresponding week of 1912. In other words, there were actually 90 fewer deaths than for the corresponding week of last year and, if the increase in population be taken into consideration, this would be equivalent to a decrease of 137 deaths and 1.33 points in rate.

The following causes showed a decreased mortality: Scarlet fever, whooping cough, typhoid fever, diarrheal diseases under five years of age, lobar and broncho-pneumonia. The causes showing increases were diphtheria and organic diseases of the heart. The mortality from pulmonary tuberculosis and Bright's disease and acute nephritis was about the same as that of last year.

The mortality of infants under one year fell from 273 deaths to 229, a decrease of 44 deaths; that of children under five years of age from 372 to 319, a decrease of 53. Between the ages of five and sixty-five years there were 32 fewer deaths, and over sixty-five years of age there were 5 fewer deaths.

Current Literature.

MEDICAL RECORD.

OCTOBER 11, 1913.

1. COLLINS, J. *The Modern Treatment of Tabes.*
2. BEER, E. *The Use of Tuberculin in the Diagnosis of Obscure Conditions in the Genitourinary System.*
3. AUSTIN, C. K. *The Paroxystic Attack of Metatarsal Pain (Morton's Metatarsalgia).*
4. SKILLERN, P. G. *The Rational Treatment of Acne Pustulosa, with Special Reference to the Bacterins.*
5. STEWART, I. M. *Social Service in Hospitals and Dispensaries.*
6. *RUECK, G. A. *A Study of the Bacteriemia in Pneumococcus Infection of the Rabbit.*
7. HOLLAND, A. L. *A New Method for Detecting Occult Blood in Gastric Cases.*
8. SIMS, H. A. *A Method of Preparing Nerve Tissue for Microphotography.*

9. Bulkley, K. *Small Self-Retaining Retractor for Superficial Dissections.*

6. Rueck made an experimental study of Pneumococcus infections in rabbits. He could find no definite evidence of a retarding influence of high temperature on the growth of pneumococci in the animals. A temperature of 105° to 106°, which arrests pneumococcus growth in the test tube and may inhibit its growth in rabbits' tissues, does not necessarily diminish bacteriemia. [L. D. C.]

New York Medical Journal.

October 11, 1913.

1. Quimby, A. J. *Differential Diagnosis of the Appendix by Aid of the Roentgen Ray.*
2. Boston, L. N., and Ulman, J. F. *Movements of the Two Halves of the Chest in Disease.*
3. Kirby-Smith, J. L. *Tubercular Leprosy in a Negress.*
4. Clendening, L. *The Use of the X-ray in the Diagnosis of Diseases of the Chest and Abdomen.*
5. Telfair, J. H. *Vagitus Uterinus.*
6. Miller, D. T. *Intravenous Injection of Salvarsan and Neosalvarsan.*
7. Neary, J. B. *Physicians in English Literature.*
8. *Rosenberg, J. *The Value of Immunized Milk as a Prophylactic and Cure for Typhoid and Tuberculosis Infection.*

8. Rosenberg presents a preliminary report of some researches on the value of immunized milk as a prophylactic and cure for typhoid and tuberculous infection. He finds that cows and goats can be immunized against tuberculosis and typhoid fever without any ill effects. During and after immunization the milk remains wholesome. The immunized milk is shown by laboratory tests to contain agglutinins, precipitins and bacteriolysins, and in practice it lessens liability of infection. The drinking of six ounces for five alternate days affords protection against typhoid and tuberculous infection. It must be taken on an empty stomach. The writer believes that immunized milk has curative as well as prophylactic value and that it may abort an incipient infection. [L. D. C.]

The Journal of the American Medical Association.

October 11, 1913.

1. *Janeway, H. H. *Gastroscopy.*
2. *Satterlee, G. R., and LeWald, L. T. *One Hundred Cases of Water-Trap Stomach.*
3. Mills, R. W. *Points of Value in Roentgenoscopy of the Gastro-Intestinal Tract.*
4. Blanchard, W. *The New Immigration as It Affects Orthopedic Surgery.*
5. *Gellhorn, G. *Local and Spinal Anesthesia in Gynecology and Obstetrics.*
6. *Babcock, W. W. *Spinal Anesthesia in Gynecology, Obstetrics and Abdominal Surgery.*
7. *Reynolds, E. *Further Points on the Sterility of Women.*
8. Fishbein, M. *Functional Test (Phenolsulphonephthalein) of the Kidney in Scarlet Fever.*
9. Orr, H. W. *Results Obtained in the Non-Surgical Treatment of Tuberculosis of the Joints.*
10. Lord, J. P. *The Whitman Operation for Talipes Calcaneus Paralyticus.*
11. Beer, E. *The Relative Values of the Roentgen Ray and the Cystoscope in the Diagnosis of Vesical Calculi.*
12. Dick, G. F., and Rothstein, T. *A Streptococcus Producing Symptoms of Chorea in a Dog.*
13. Herrick, W. W. *A Scarlatiniform Rash from Atophan.*

1. Janeway demonstrates what he believes is an easy and practical method of gastroscopy and urges its further employment.

2. Satterlee and LeWald describe water-trap stomach, which they believe is embryonic and developmental in its origin. It can and should be distinguished from gastroptosis with or without dilatation. It occurs most frequently in women, but as frequently in nulliparas as in multiparas. It is frequently diagnosed wrongly as ulcer of the stomach or duodenum. Its exact diagnosis is impossible without the aid of roentgenoscopy.

5. Gellhorn finds from extensive experience that by the injection of novocain into the cervix it is possible to perform a number of minor gynecologic operations without danger or discomfort, and that the treatment of incomplete abortion has been considerably improved by local anesthesia. This method the author thinks offers a promising outlook for the management of cases at or near term. The author then goes on to discuss interestingly spinal anesthesia and its advantages. He is a strong believer in it use.

6. Babcock's paper on spinal anesthesia should also be read with Gellhorn's. This author states that it should not be considered a universal anesthetic. Even when skilfully administered, it is probably more dangerous than a transient or light narcosis under ether or nitrous oxid-oxygen, but safer than a prolonged narcosis with complete relaxation under ether or nitrous oxid-oxygen. Spinal anesthesia causes an earlier and more marked fall in blood pressure than other anesthetics, and should be considered in conditions of marked hypotension. It has many distinct advantages.

7. Reynolds interestingly describes reasons for sterility in women, existing (1) in too acid vaginal secretion, (2) abnormal cervical secretion, (3) abnormal tubal secretion, and (4) anomalies of the ovaries. [E. H. R.]

The Lancet.

September 6, 1913.

1. Hawthorne, C. O. *An Address on the Present Position of Post-Graduation Medical Education in the United Kingdom.*
2. *Jones, R. *Pain and Sleeplessness, Their Remedies Apart from the Consideration of Local Sedatives or Anesthetics.*
3. *Blandy, G. S. *A Contribution to the Study of Pellagra in England.*
4. Cole, J. W. E. *Notes of a Case of Pellagra.*
5. Gilford, H. *The Effects of the Ductless Glands upon Development.*
6. v. Soubrotitch. *Miliary Experiences of Traumatic Aneurysms.*
7. Choldecott, J. H. *The Value of Anoci-Association (Crile).*

2. Jones discusses the various causes of pain and sleeplessness and the remedies to be used, local and general, according to the circumstances. The article contains much practical information.

3. Blandy reviews the subject of pellagra in England and presents eleven cases with excellent photographs. [J. B. H.]

September 13, 1913.

1. Lodge, O. *A Presidential Address on Continuity.*
2. Nicolson, D. *Mind and Motive: Some Notes on Criminal Lunacy.*
3. Ballance, C. A. *Remarks on the Treatment of Brain Tumor.*
4. Scheult, R. *Rupture of Spleen; Splenectomy; Recovery.*
5. Layton, T. B. *Anesthesia in Acute Inflammations of the Mouth and Pharynx.*

6. *LILLINGSTON, C. *Avoidance of Sudden Death from the Induction of an Artificial Pneumothorax.*
7. HENRICI, A. T. *Degeneration of the Nucleus Lentiformis, Associated with Cirrhosis of the Liver.*
8. GUTHRIE, L. *Did Napoleon Bonaparte Suffer from Hypopituitarism (Dystrophia Adiposo-Genitalis) at the Close of His Life?*
9. RIDEAL, S. *Suggested International Test for Disinfectants.*

6. Lillingston, in a brief article, reviews the reported cases of sudden death following a pneumothorax operation and discusses the various causes of death in these cases. Among these he mentions gas embolism and pleural reflex. He gives a list of ten "dont's" which are of practical value to those interested in this subject. He concludes that most cases of sudden death from the induction of an artificial pneumothorax are due to errors in technic.

[J. B. H.]

BRITISH MEDICAL JOURNAL.

SEPTEMBER 6, 1913.

EDUCATIONAL NUMBER.

There are no original articles in this issue.

[J. B. H.]

SEPTEMBER 13, 1913.

1. NICOLSON, D. *An Address on Mind and Motive; Some Notes on Criminal Lunacy.*
2. *COLLIE, J. *Malingering.*
3. *JORDAN, A. *Report on Urinary Antiseptics.*

BRITISH MEDICAL ASSOCIATION.

SECTION ON PHARMACOLOGY, THERAPEUTICS AND DIETETICS.

4. WHITE, W. H. *Introductory Remarks.*
5. *WALKER, J. W. T., ET AL. *Discussion on Urinary Antiseptics.*
6. BARBOUR, H. G. *The Pharmacology of Body Temperature.*
7. *WILLCOX, W. H., ET AL. *Discussion on the Use and Abuse of Hypnotics.*
8. HARZ, A. *The Acid Child in Relation to Errors in Diet.*
9. WINSLOW, H. F. *Errors in Dietetics.*
10. *MUTHER, C. *Continuous Antiseptic Inhalation in the Treatment of Pulmonary Tuberculosis.*

2. Collie discusses the general question of malingering with a few illustrative cases, with special reference to the national insurance act. He does not believe that all malingering is the outcome of deliberate wickedness. Great allowance must be made for the personal equation. Moral responsibility even among the highly educated is a variable quantity.

3. Jordan, in his report on urinary antiseptics, concludes as follows: Acid sodium-phosphate increases the acidity of the urine to an extent more than double the normal; benzoates do this to a less degree. Growth of staphylococci is aided by alkalinity and delayed by acidity. To a small extent the case is the reverse with B. coli. The degree of the antiseptic power of urotropin, helmitol and others is proportionate to the acidity of the urine. Sandalwood oil is a bad general antiseptic, bezoin and salicylic and boric acid fairly efficient. Uva ursi is a good antiseptic. Urotropin should always be given with acid sodium phosphate, and only when the urine is acid or can be made so or is inert. Sandalwood oil is always worth trying in a cystitis due to the staphylococcus alone.

5. Walker, in an elaborate investigation of urinary antiseptics discusses, among other things, the formaldehyde series, the effects of varying the reaction of the urine, the effects of an alkaline urine upon urinary infections, the causes apart from the reaction of the urine which influence the efficacy of antiseptics, and whether or not urinary antiseptics have a selective action. He believes that in B. coli infections the poison should first be neutralized with alkalies and then when symptoms have subsided the urine should be made acid and antiseptics given. If the urine is acid urotropin should be given alone.

7. Willcox in a practical and systematic manner discusses the various hypnotics according to groups, giving doses and indications where each is of especial value and where they are dangerous. The paper is of distinct value to all practitioners.

10. Muther, always an enthusiastic supporter of the continuous antiseptic inhalation method of treating pulmonary tuberculosis, reviews the subject once more and reports cases. In his opinion the "a, b, and c" of treatment of this disease consists of, (*a*) aerotherapeutics, (*b*) breathing and graduated exercises, and (*c*) continuous inhalation. These he describes in detail. Rest, in this country considered a most important, if not the most important factor, is only mentioned incidentally. [J. B. H.]

MÜNCHENER MEDIZINISCHE WOCHENSCHRIFT.

NO. 36. SEPTEMBER 9, 1913.

1. SWIFT, H. F., AND ELLIS, A. W. M. *The Combined Local and General Treatment of Syphilis of the Central Nervous System.*
2. RESCHAD AND SCHILLING-TORGAU, J. *A New Transitional Form of Leukemia and the Evidence for the Classification of Its Cells.*
3. FAUSER, A. *Serology in Psychiatry.*
4. HOLZKNECHT, AND SGALITZER, M. *Papaverin in Roentgenological Differential Diagnosis between Pylorospasm and Pyloric Stenosis.*
5. *SCHREIBER, E. *Salvarsan and Neosalvarsan.*
6. BORNSTEIN, A. *The Metabolism of the Insane.*
7. BRUNO, J. *The Etiology of Infantile Paralysis.*
8. FUNK, C. *Progress in the Experimental Production of Beri-beri During* 1911-1913.
9. WEBER, H. *An Extension Table for the Reduction of Congenital Dislocation of the Hip.*
10. WALKHOFF. *The First Observation in the Biological Action of Radium.*
11. HARTMANN, E. *Tuberculin Treatment in Ambulatory Cases.*
12. SCHREIBER, E. *The Quantitative Estimation of Cholesterin and Oxycholesterin According to the Method of Autenrieth and Funk.*
13. MENZER. *The Bacteriological Examination of Urine in Acute and Chronic Nephritis.*

5. Schreiber has given neosalvarsan to a large number of cases in concentrated solution; 75 gms. in 10 c.c. of salt solution have been given once a week intravenously over long periods of time. The general reaction has been no more marked than when the drug was given in more dilute solution; there has been no local reaction, no irritation to the intestinal mucous membrane, and no resultant exanthemata. These results confirm the observations of Duhot, Ravaut, Strauss, Stern and others. Schreiber concludes that this method of injection makes neosalvarsan a practical drug for general practice.

[R. F.]

NO. 37. SEPTEMBER 16, 1913.

1. *BENEDEK, L. *Skin Tests with Noguchi's Luetin in Dementia Paralytica.*
2. JAKOB, A., AND WEYGANDT, W. *Experimental Syphilis of the Nervous System.*
3. MEIROWSKY. *Observations on Living Spirochetae. Part II.*
4. MAYER, W. *Abderhalden's Serum Test in Psychiatry.*

5. Pribram, H. *Non-dialysable Urinary Constituents.*
6. Eisler, F., and Lenk, R. *Radiological Studies on the Relation of the Nervous System to Motor Function of the Stomach.*
7. Dietl, K. *Arsenregenerin and Regenerin.*
8. Hübschmann. *Traumatic Perforation of a Meckel's Diverticulum.*
9. Baer, J. *Vesico-vaginal Fistula Closed Intravesically.*
10. Hoffman, J. *Seasickness and Hypnosis.*
11. Sutherland, W. D. *A Method for Precipitation Tests in Medico-legal Practice.*
12. *Swift, H. F., and Ellis, A. W. M. *The Combined Local and General Treatment of Syphilis of the Central Nervous System. (Conclusion.)*

1. Benedek used Noguchi's luetin reaction in 82 cases of dementia paralytica, 10 cases of dementia precox, and 3 cases of lues cerebri. .07 c.c. of luetin with .03 c.c. normal salt solution were injected intracutaneously according to Noguchi's technic. The tests were recorded as strong, medium, weak or negative, according to the local reaction. A few torpid reactions occurred.

Of the dementia paralytica cases, 80% were positive, controlled by the dementia precox cases, 90% of which were negative. The three cases of cerebral lues showed so much more strongly positive reactions as to make Benedek, despite the small material used, feel that this disease could be differentiated from general paresis by this test. Benedek believes that his observations confirm in a certain respect the work of other authors who have found the most marked cutaneous reactions in cases of tertiary syphilis.

12. Active syphilis of the brain and cord can be recognized with surprising accuracy; during life by a cerebrospinal fluid giving a positive Wassermann reaction and characterized by showing a mononuclear pleocytosis and increased globulin content, after death by the presence of spirochetae in the tissues. Up to the present time anti-luetic treatment has been more effective in syphilitic meningitis than in the end stages of tabes or dementia paralytica, probably because in the former condition the most intensive changes are peri-vascular and therefore drugs in the circulation can reach the affected parts, while in the latter, lesions are found in vascular poor parts which are relatively impenetrable to medication as used at present.

Flexner has shown in purulent meningitis that the best results are obtained by injection of therapeutic sera directly into the sub-arachnoidal space. Salvarsan, either alone or diluted with normal serum and so injected, produces too violent a reaction to be given in this way. It is known that the serum of patients treated with salvarsan is of great therapeutic value in congenital and secondary lues, and that media impregnated with such serum grows the spirochetae less readily than normal serum. For these reasons Swift and Ellis have treated 32 cases of cerebral syphilis in the following way.

The patients were given salvarsan or neo-salvarsan intravenously. An hour later 40 c.c. of blood was withdrawn, allowed to clot and centrifuged. On the following day 12 c.c. of serum was pipetted off, diluted with 18 c.c. of normal saline, heated for one-half hour at 56° C. and then allowed to run into the sub-arachnoidal space under slight pressure. The clinical course of the patients so treated was followed as well as changes in the cerebrospinal fluid and Wassermann reaction.

Of this series, 3 cases showed no change. In 72%, however, the Wassermann reaction became normal or markedly diminished and the cerebrospinal fluid grew nearly normal. Many of the patients showed distinct subjective improvement.

Swift and Ellis do not consider that this method of treatment is a substitute for usual methods, but merely an aid. In combination with the intravenous therapy it is of especial advantage where intensive treatment is indicated or in cases where desired results are not obtained without it.

Swift and Ellis emphasize that treatment should be continued as long as the cerebro-spinal fluid gives evidence of a specific pathological process in the nervous system. [R. F.]

Wiener Klinische Wochenschrift.

No. 31. July 31, 1913.

1. Byloff, C. *The Position and Function of the Diaphragm.*
2. Wassing, H. *Ducts of the Hypophysis.*
3. *Zacheri, H. *The Prevalence of Uterine Sarcoma.*
4. Rollett, H. *Intrauterine Miliary Tuberculosis.*
5. Levi, E. *Empyema Pulsans Interlobes.*
6. Kneucher, A. *Ethyl Chloride Anesthesia in Dental Surgery.*

3. Recent investigation has shown that sarcoma of the uterine wall is commoner than was formerly thought,—this may be due in part to the fact that tumors hitherto diagnosed in gross as benign are shown to be malignant on microscopic examination. The author cites a case of primary sarcoma of the uterine wall with findings at operation and post-operative history. [F. S. K.]

No. 32. August 2, 1913.

1. v. Berman, E. *Vascular Reflexes.*
2. Brandwiener, and Urch, O. *Contribution II on Gonorrhea.*
3. *Zumburch, L. *Intravenous Injection of Neosalvarsan with Syringe.*
4. Pollak, R. *Diphtheria after Puncture of the Ear Lobule.*
5. Purjesz, B., and Perl, O. *Ptyalin-Content of Saliva.*
6. Vrijhoef, H. *Hirschsprung's Disease.*

3. The intravenous injection of neosalvarsan by means of a syringe offers advantages which the author believes should give it precedence over other methods. The chief advantages are rapidity of treatment and simplicity of apparatus, a syringe, needle and sterile glass being needed. Untoward symptoms are as infrequent as in the gravity method if dilute solutions are used. The conclusions are drawn from 149 cases with 337 injections. Precautions after injection are the same as in any other method: rest and observation for at least twenty-four hours. [F. S. K.]

No. 33. August 14, 1913.

1. Urstein, M. *The Importance of the Abderhalden Reaction in Psychiatry and the Co-relation between the Sex Organs and Other Organs with Internal Secretions.*
2. Somogyi, R. *The Vago-Tonic Pupillary Phenomenon.*
3. *Dergant, F. *Ether Irrigation for the Peritoneal Cavity after Perforative Peritonitis.*
4. Huzar, W. *Acute Luetic Polyarthritis in the Late Stage of Syphilis.*
5. Kollaritis, J. *Should the Patient Know He Has Tuberculosis?*

3. The author believes that irrigation of the peritoneal cavity with sulphuric ether is an advance in the treatment of perforative peritonitis. From 50 to 400 grams of ether is used, poured into the cavity after removing as much pus and fibrin as possible. Two cases are cited so treated, one a perforated duodenal ulcer operated 54 hours after rupture, the other traumatic rupture of the bowel operated 87 hours after rupture. Both showed pus and fibrin. Both recovered. [F. S. K.]

No. 34. AUGUST 21, 1913.

1. BUETTNER, W. *Changes in the Activity and Corresponding Variations in the Avidity of the Luetic Virus Toward Anti-syphilitic Remedies.*
2. DEUTSCH, F., AND KOHLER, R. *Serological Investigations with the Abderhalden Dialysis Method.*
3. BIACH, M. *Reinfectio-Syphilitica after Three and One Half Months.*
4. WOLF, A. *Angioma of the Urethra as Cause of Severe Hemorrhage.*
5. WINKLER, J. *An Inflatable Pneumatic Pessary. A Colostomy Apparatus with Pneumatic Guard Ring.*

No. 35. AUGUST 28, 1913.

1. GOBIRT, J. *Acute Necrosis of the Pancreas.*
2. DELYANNIS, K. *Rational Extension of the Therapy of Diphtheria.*
3. v. CZYHARZ, E. *Radiological Behavior of the Pericardium.*
4. TROTTA, G., AND CANTIERI, C. *Two Cases of Suppuration in Malta Fever Which Simulated Potts' Disease.*
5. SALOMON, H. *Dietetic Therapy of Urticaria.*

REVUE DE MÉDICINE.

MARCH, 1913.

1. DE VERBIZIER, A. *New Researches upon the Presence of the Tubercle Bacillus in the Circulating Blood.*
2. JOB, E. *Infections with B. Paratyphosus B.*
3. PIERY, M., AND MANDOUL, A. *Tuberculous Inflammations of the Large Intestine. Tubercular Colitis and Pericolitis.*
4. PIC, A. *Tuberculous Inflammation.*

1. De Verbizier has capitulated the statistics of former workers upon the subject of the presence of the tubercle bacillus in the circulating blood. The positive findings vary between 32 and 100% of those cases attempted. The latter is the result of attempts on 312 individuals by Rosenberger, in all of which instances he was successful. The findings of Kurashige are fully as striking. He has had 155 positive cases from 155 trials. Many instances revealed the organism in individuals apparently well, as well as in those suffering from advanced tuberculosis. The author has investigated the blood in fifteen cases by the methods employed by Kurashige and by Schmitter. He has searched with the greatest care many slides, but in no instance was he able to find and identify a single tubercle bacillus. [L. H. S.]

REVUE DE CHIRURGIE.

AUGUST, 1913.

1. *QUÉNU, E., AND GATELLIER, J. *Review of the Treatment of Old Fractures of the Patella.*
2. *GORSE, P., AND DUPUICH, A. *Pulmonary Tuberculosis and Surgery.*
3. *TANSINI, I., AND MORONE, G. *Splenomegaly.*

1. The authors have collected from the literature 60 reported cases of old fracture of the patella operated upon prior to 1893, and 71 since 1893. To these they add three from their personal experience, and review at length the details of operative technic.

2. The authors review the surgery of pulmonary tuberculosis, considering successively interventions affecting the lung itself, operations for mobilizing the rigid thorax, and procedures for producing collapse of the lung. They quote combined statistics from 16 different sources, showing alleged cure in 47 and great improvement in 72 of a total of 301 cases of phthisis treated by artificial pneumothorax. There were in this series three deaths from operative accident. They conclude that pneumothorax is a beneficial procedure which should be more extensively practised in phthisiotherapy, and not reserved for desperate cases. There is an alphabetic bibliography of 166 titles.

3. As a contribution to the study and treatment of chronic splenothrombotic splenomegaly, the authors report in full two cases of splenomegaly with hepatic cirrhosis in the ascitic period, which were treated by splenectomy and Talma's operation, with apparent cure. From a clinical and pathologic study and discussion of these cases, they reach the following conclusions:—

(*a*). There is an anatomo-clinical syndrome, characterized especially by splenomegaly and anemia, which is attributable to chronic thrombo-phlebitis of the spleen.

(*b*). Clinically the disease may present the characteristics of primary splenomegaly.

(*c*). The radical treatment of this condition is splenectomy, associated with omentopexy, when there is also hepatic cirrhosis.

(*d*). The blood modifications after such splenectomy do not differ from those observed after splenectomy for other splenic affections.

(*e*). The results of surgical intervention may be complicated by febrile states attributable to uncertain causes. [R. M. G.]

SEPTEMBER, 1913.

1. BROCQ, P., AND BELOT. *The Bloody Treatment of Vicious Ankyloses of the Knee. (To be continued.)*
2. *ROUBACHOW, S. *The Theory and the Operation of Freund in Pulmonary Emphysema.*
3. VENOT, A., AND PARCELIER, A. *Primary Carcinoma of the Jejuno-Ileum. (Conclusion.)*
4. POTEL, G., AND VEANDEAN. *The Surgery of Tumors of the Spine and Cord. (Conclusion.)*

2. Roubachow discusses Freund's theory of emphysema, describes the technic of his operation for it, and, from a discussion of 76 cases, which he tabulates from the literature, concludes:—

(*a*) That the dilated and rigid thorax plays an important part in the clinical picture of emphysema and affects the course of the disease.

(b) This dilation is secondary to the pulmonary condition, and forms a link in the vicious chain of its causation.

(c) Resection of the costal cartilages by Freund's operation mobilizes the thorax, relieves the emphysema, and is free from danger.

Of the 76 cases thus treated, 51 were cured. There is an excellent alphabetic bibliography of 106 titles. [R. M. G.]

ANNALES DE L'INSTITUT PASTEUR.

JULY 25, 1913.

1. HAUMAN-MERCK, L. *Contribution to the Study of the Microbic Alterations of the Organ Charnus of Plants.*
2. KORACZEWSKI, N. *Dialysis of Maltase.*
3. MARTIN, L., AND PETTIT, A. *Nephritis and Hepatic Cirrhosis in the Rabbit Subjected to Lactic Alimentation.*
4. *LORIS-MELIKOY, J. *Anaerobes in Typhoid Fever.*
5. WOLFF, M. J. *Some New Properties of the Catalyser Called Peroxydase.*
6. DEJUST, L. H. *Technic for Quantitating Glucose in Fecal Material.*
7. *LEVADITI, C., MARIE, A., AND BANKOWSKI, J. *Treponema in the Brain in General Paralysis.*

4. This author, working under the direction of Metchnikoff, has studied the action of the anaerobic bacteria in regard to what relation they play in typhoid fever. He has isolated several of the anaerobes of the intestinal tract and has studied experimentally the result of their injection into animals. The B. satellitis and B. perfuigens show from this work a very marked action upon the lymphoid tissue, more marked in fact than that produced by the typhoid bacillus. He is inclined to view typhoid fever as a double process. One part consists in a septicemia produced by the typhoid bacillus and the other part a necrosis produced chiefly in the ileocecal part of the intestine by the slowly proteolytic anaerobe B. satellitis.

7. These authors, following the method of Noguchi and Moore, have studied the brains of 32 cases of general paresis, some of long standing, and only found spirochetes in 3 of them, or about 10%. They then worked out a method of looking over more of the convolutions in the fresh state by the ultramicroscopic method of Fontana, and in nine cases obtained positive results in 88% of their cases. They feel that this work confirms Noguchi's findings and settles the question of the pathogenesis of general paralysis.

[C. F., Jr.]

Miscellany.

EARLY MEDICAL HISTORY OF HYDATID MOLES.

A Viennese correspondent of the *Medical Press and Circular* has recently abstracted from an article by Dr. Kropiwriscki, of Breslau, the following account of the early medical history of hydatid moles.

"The term *mola* has descended to us from the Father of Medicine himself, through the intermediate linkage of Aristotle and Galen. But definite ideas on the subject of the present thesis are of quite modern growth, indeed. It took more than 2,000 years, from the date of the vague reference of Hippocrates, and the more definite indications of his junior contemporary, Diocles of Carystos, to arrive at the scientific pathological views of Virchow—which were curiously foreshadowed by the latter Greek observer. Erotianus, who wrote a commentary on Hippocrates in the time of Nero, had made suggestions regarding the genetic presence of degenerate chorionic villi which were misinterpreted by subsequent medical writers, and thus allowed to pass into oblivion. The Arabs, as representatives of the apostolic succession, in medicine, extended the application of the term *mola* to all uterine tumors, inclusive of those of the walls of the matrix. In the recognized works on medical history too much credit is given to Schenk of Gräpenberg, for the original description of the hydatid mole. He appears, indeed, to have been the first to employ the term *mola aquea;* but in his description he evidently confuses this with other uterine tumors. The oldest genuine description of the hydatid mole that has descended to us is certainly that of Etius of Amida, who occupied a distinguished position at the Court of Justinian in the early part of the fifth century. He also gave a fairly accurate account of the symptoms, and pointed out the frequency of the coincident presence of edema. The fact of occasional coincidence with the condition of hydrops uteri leads us to suspect that Etius sometimes confused this and other conditions of profuse watery discharge with the genuine mole.

"Christopherus a Vega and Valleriola recorded their respective observations: and, a few years later, Ludovicus Mercatus, Physician-in-Chief to Philip II, of Spain, gave a brief account of the mole in his great work, 'De Morbis Mulierum Communibus.' In 1618, Carolus Piso referred the origin of the mole to 'semen infecundum et crudum.' Nicolas Tulpius followed with a description of two cases in his 'Observationes Medicae,' under the heading of 'Hydrops Uteri'—with the added comment that some called such 'mola aquosa.' Vallisnerius published an illustrated description in 1690, and formulated (in a letter to Malpighi) the view that hydatid moles originated from the placenta. Malpighi discussed the subject further in his own works, and indicated that the mass of the hydatids in molar pregnancy was referable to the position of the chorion. Nearly at the same time, Ruysch published illustrated accounts of such cases, in which usually the whole— and in one instance a portion—of the originally normal placenta had been changed into masses of watery vesicles."

It was only with the advent of the microscope, and the development of histology, that the true nature of hydatid mole was demonstrated, and some of the shrewd guesses of antiquity as to its origin were confirmed.

POLIOMYELITIS IN VERMONT.

In the quarterly bulletin of the Vermont State Board of Health for September, 1913, is published the following account of last summer's epidemic of poliomyelitis in that state:—

"On July 25, Dr. S. E. Darling, health officer for Hardwick, Vt., reported to the secretary of the State Board of Health, that there were in his town three cases that he suspected were infantile paralysis. The inspector of the board visited Hardwick July 26 and confirmed the diagnosis. The date of onset of the first case was July 12, and by August 23 the number of cases had gradually increased to eleven. On August 23 Dr. C. S. Caverly, president of the State Board of Health, held a conference at Hardwick with the health officer and physicians of that town, together with the health officers of the nearby towns of Cambridge, Johnson, Wolcott, Hyde Park, Morrisville, Elmore, Walden, Woodbury, Cabot, Danville, Stannard, Craftsbury, St. Johnsbury, and Greensboro.

"Dr. Caverly called especial attention to the uncertainty in regard to the manner in which the disease is spread and urged the importance of closing up every possible avenue of infection, recommending close quarantine for four weeks and also urged a vigorous campaign against flies and dust, and further recommended that the general sanitary conditions of the town be improved to the best possible extent. Dr. Caverly cautioned the health officers of the neighboring towns to be on the alert looking for the disease to follow the railroads and especially the streams.

"At the present writing there have been 16 cases in Hardwick, 2 in Wheelock, 1 in Walden, 1 in White River Junction, 1 in Lyndon, 1 in Danville, 1 in Westmore and 1 in Burlington, making 24 in all. A more detailed description of the epidemic will appear in a future bulletin."

It is interesting to recall that it was Dr. Caverly who some years ago described the first recognized and reported epidemic of poliomyelitis in this country.

DISTRICT NURSING IN WALES.

A MEETING of the South Wales Nursing Association was held recently at Tregeyb, Llandilo, Carmarthenshire.

"The superintendent gave a favorable report of the nurses working under the auspices of the South Wales Nursing Association in the county, and stated that several new district nursing associations were being formed in the county, so that further nurses would be needed next year.

"The members of the committee undertook to make it known in their districts that a certain number of free trainings would be available for suitable candidates. They also considered the position of the numerous districts where nurses cannot be established at present owing to lack of funds for their support, and decided to ascertain what grants would be obtainable towards the maintenance of nurses.

"The question of school nursing was discussed, and the committee was unanimously of the opinion that the employment of district nurses was much to be desired for this important work where the local conditions were favorable.

"Satisfaction was expressed that the Welsh National Memorial had decided to give grants to nurses working under the auspices of the Welsh associations under suitable circumstances."

This report seems of interest as representing the progress in the establishment of a system of district nursing among the poor in the more remote districts of Wales.

Correspondence.

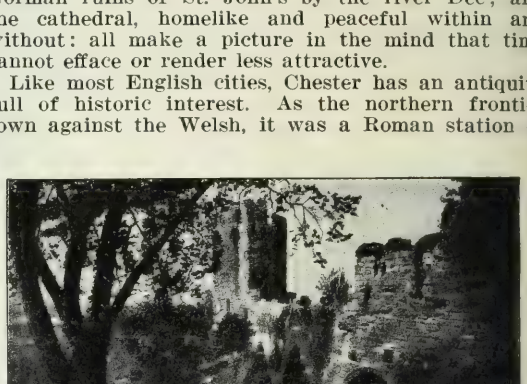
CHESTER AND ITS MEDICAL HISTORY.

(From Our Foreign Correspondent.)

CHESTER, ENGLAND, 15 September, 1913.

Mr. Editor: The charm of Chester is always the same, no matter how many times the visit to it be repeated. Most Americans form their first and most lasting impressions of England from Chester, and many see it again as their last English city before sailing for home. But whether one see it in the first enthusiasm of arrival or in the sadness of farewell, it appeals always to the same emotions of interest and affection. Its warm, red sandstone walls, weatherworn and footworn; its ancient towers and gates; its old, carved, oak-timbered Elizabethan houses; its rows of arcaded shops; the ivy-grown Norman ruins of St. John's by the river Dee; and the cathedral, homelike and peaceful within and without: all make a picture in the mind that time cannot efface or render less attractive.

Like most English cities, Chester has an antiquity full of historic interest. As the northern frontier town against the Welsh, it was a Roman station of



THE WALLS OF CHESTER.

great importance. Here for many years was the headquarters of Caesar's famous Twentieth Legion. Indeed the present English name of the town represents the later Saxon abbreviated equivalent for its Latin name, Castra Legionum. After the Conquest, William gave the city to his nephew, the gallant nobleman and warrior, Hugh Lupus, ancestor of the present Duke of Westminster. Lupus fortified Chester and defended it successfully against Welsh incursions; and his family remains to-day in large part its owner, patron, and benefactor.

During the successive vicissitudes of Chester's history, many traces and memorials of its older civilizations have become buried under its accumulating detritus, and in recent years antiquarian research and excavation have brought to light numerous unique and priceless objects, particularly of Roman and Graeco-Roman origin. Nearly all of these are now collected in the Grosvenor Museum. Among them is a stone altar dedicated, according to its Greek inscription, by Hermogenes, a physician, probably to Asklepios:

Ἑρμογένης ἰατρὸς βωμὸν τόνδ' ἀνέθηκα

History is silent as to the identity of this Hermogenes; but evidently he was a physician serving with the Roman forces, and it has been suggested even that he may have been the personal physician of the Emperor Hadrian.

The medieval medical history of Chester, which was reviewed some while ago in the *British Medical Journal*, presents several other names of interest. One of these was John Leche, royal physician to

Edward III and Richard II. The Cheshire Rolls contain the following entry referring to him under date of January 17, 1382:

"Grant to John Leche, the King's Surgeon, by the King, of an annuity of £10, to be received out of the issues of the Mills of Dee, in lieu of a like annuity granted to him by Edward, Prince of Wales."

Kings in those days, it appears, sometimes had their favorites among physicians; and an annuity of £10 was, for the times, no unprincely gift.

In later times the guild of barber surgeons established itself in Chester, and its records are extant as far back as 1606. In 1648 there is record of a violent outbreak of plague in the city about midsummer, in consequence of which the company of surgeons omitted its annual festivities that year. Over two thousand persons died in this epidemic, and the streets were so deserted that grass grew in the highways.

It was not until a century later, however, that Chester became possessed of a hospital. The Chester Infirmary was founded in 1755 and opened in temporary quarters in 1756, with a staff of four physicians, four surgeons, and a house apothecary. The present building of the Infirmary, just within the city walls, was erected in 1761, to accommodate one hundred patients, and though since several times enlarged and wholly reconstructed, remains to-day as efficiently serviceable to the needs of its community as it has been for a century and a half.

In 1767 there became associated with Chester Infirmary, as one of its staff, Dr. John Haygarth, a physician whose name is justly famous in the history of medicine as in that of his adopted city. He was born at Garsdale, Yorkshire, in 1740, and was educated at the Sedbergh Grammar School and at St. John's College, Cambridge, receiving the degree of M.B. in 1766. He completed his medical studies at Edinburgh and London with such distinction that he was immediately selected for appointment to a vacancy as physician to the Chester Infirmary. Here he began that diligent and painstaking clinical study of febrile diseases, of which the testimony still exists in the minute autograph manuscript records in Latin of over 10,000 cases from his private practise and a much larger number of hospital patients.

A century before the discovery of the bacterial causation of disease, he seems to have grasped the real nature of infection, and the possibility of its prevention by isolation. In 1774 both small-pox and typhus were extensively epidemic in Chester. Haygarth made a statistical study of the mortality from these two fevers, which he presented in January, 1777, in a paper before the British Royal Society. He expressed his belief that the spread of these and other febrile diseases was due to direct contact between the sick and the well, and strongly urged a policy of isolation in their treatment. He wrote:

"If a regulation could be universally adopted of immediately removing out of the family such of the poor people as are seized with fevers, it is evident that the most salutary consequences would follow. Reasonable objections might be made to receiving such patients into the general infirmary, even into separate wards, lest the infection should spread through the whole house. But might not this and every other objection be obviated by erecting, on the ground which adjoins and belongs to the infirmary a building to be divided into spacious, airy, separate apartments, where patients affected with fever might be received at any day?"

Like all the world's leaders, Haygarth was enlightened beyond his time, and in the effort to establish his modern method of quarantine, had to meet not only the ignorant opposition of the people, but the orthodox intolerance of his own profession, which categorically declared fevers due to an atmospheric miasm, and the attempt to prevent them useless and foolish.

Nothing daunted, Haygarth, with the zeal and instinct of the true prophet, continued to preach his doctrine stalwartly, until his eloquence and reasoning began to win converts among the thinking laity. Finally, on March 16, 1778, as a result of his labors, a general meeting was held of the citizens of Chester, at which was formed a "Society for Promoting Inoculation and Preventing the Casual Smallpox in Chester," the prototype and forerunner by a century of all our many modern lay societies for the study and prevention of disease.

Backed by this popular organization, Haygarth set to work with renewed vigor. Regular meetings of the society were held, the nature and purpose of inoculation were explained to the people, days for free public inoculation were established, and inspectors were appointed to go among the poor and urge inoculation upon those who had not already received it. The result was inevitable. Smallpox, steadily declined in Chester, and in March, 1781, just four years after the foundation of the society, not a single case of smallpox occurred in the city. Haygarth's triumph was complete. Similar societies were organized in Liverpool and Leeds, and in 1782 the Royal College of Physicians of Edinburgh appointed a committee to investigate the subject.

In 1784, Haygarth summed up his experience in his most famous paper, "An Inquiry How to Prevent the Smallpox," in which he concluded that "smallpox never was known to be produced by any other cause than infection," and that "smallpox may be prevented by keeping persons liable to the distemper from approaching within the infectious distance of the variolous poison till it can be destroyed." His paper was translated into French and German and had a wide and beneficial circulation.

Despite the success of inoculation in reducing the incidence of smallpox, however, Haygarth still fully realized the importance of concurrent isolation to prevent its spread, and the discovery of vaccination by Jenner in no way weakened his opinion and his position. The public and the profession were now much readier to listen to his views. Already in 1783 he had prevailed upon the trustees of the Chester Infirmary to set aside the entire attic story of the hospital for the reception of infectious fevers, thus finally establishing the first isolation ward in any hospital. Special nurses were detailed for the care of these cases, and the linen of the fever patient was disinfected by boiling and washed separately from that of the other patients in the institution. Moreover, Haygarth had grasped the importance of fresh air in the treatment of infections, and had his isolation ward specially ventilated "by nine windows, constantly open during the day, nor are they all closed at night." In an age which potently believed in the dangers of fresh air, and habitually shut all windows fast at night, this free ventilation must have been regarded as a perilous medical and hygienic heresy. But the isolation ward went on and demonstrated the soundness of Haygarth's views; for not only was the mortality of cases there far lower than that of those treated in their homes, but during the first sixteen years of its operation, not a single other patient of the hospital became infected with any of the epidemic contagions.

The successful demonstration of Haygarth's theories became complete. In 1791 the Syndic and Council of Health of Geneva invited his aid in establishing a similar preventive work in that city; and the British Royal Society, which had formerly scorned his views, now elected him a Fellow. In this year also his advice was sought relative to the establishment of a quarantine hospital against the plague at the port of Liverpool. In 1796, as a result of the example of Chester Infirmary, a fever ward was opened at Manchester, and in 1801 at Guy's and at St. Bartholomew's in London. Haygarth applied his principles not only to smallpox, typhus, and plague, but to other infectious fevers. In 1797, he visited the United States and delivered an address before the College of Physicians at Philadelphia on "The Prevention of the American Pestilence," in which he ex-

pressed the fullest confidence that measures of isolation would effectually suppress yellow fever.

In 1798 Dr. Haygarth resigned his position at the Chester Infirmary, and removed to Bath, where for twenty years he enjoyed a large and lucrative private practise. His pen was not idle during this period, either, for he published numerous pamphlets, among them one in 1800 "Of the Imagination as a Cause and as a Cure of Disorders of the Body"; in 1805, "A Clinical History of the Acute Rheumatism," and "A Clinical History of the Nodosity of the Joints"; and in 1810 a "Synopsis Pharmacopoeiae Londinensis." He was also interested in public affairs, and wrote on the importance of free schools and the need of provident institutions for savings. He lived in Bath to the good age of 87, and dying there on June 10, 1827, was buried in the parish churchyard of his native town in Yorkshire.

Though he was born and died elsewhere, the name and work of Dr. Haygarth remain indissolubly associated with the medical history of Chester, and should be among its most treasured memories. To us to-day the principle of isolation in the treatment and prevention of infectious disease seems self-evidently simple, but so are most great principles when once some genius has opened the world's eyes to them; and like all great principles, it had to be fought for till people were convinced, against their will, of its truth. The man who undertakes to assail the fallacies of his day always has such opposition to encounter as befell Dr. Haygarth. It is pleasant to realize that his labor bore such early and enduring fruit. And in bidding farewell once more to this venerable city, with its rich memorials of ages and civilizations long since passed away, it is not least pleasant to recall that here was written by one of our profession that early chapter in the history of preventive medicine, the modern science which in the old world and in the new has already done more to increase the value and liveableness of human life than has any other single mode of progress since Christianity began among mankind.

PEREGRINUS NOVUS.

SOCIETY NOTICE.

HARVEY SOCIETY.—The third lecture of the current series will be given at the Academy of Medicine on Saturday evening, Nov. 1, by Dr. Charles V. Chapin, of Providence, R. I., on "The Air as a Vehicle of Infection."

NOTICES.

NEW YORK SKIN AND CANCER HOSPITAL.—The governors of the New York Skin and Cancer Hospital announce that Dr. L. Duncan Bulkley will give a fifteenth series of "Clinical Lectures on Diseases of the Skin" in the out-patient hall of the hospital on Wednesday afternoons, beginning November 5, 1913, at 4.15 o'clock. The lectures will be free to the medical profession, on the presentation of their professional cards.

CHARLES C. MARSHALL,
Chairman of Executive Committee.

HISTORICAL CLUB OF THE HARVARD MEDICAL SCHOOL.—The first meeting is to be held in the Amphitheatre of the Peter Bent Brigham Hospital, Tuesday evening, November 4, at 8. p. m.

"A Lister Letter of 1868," Dr. Cushing. "Documents Relating to the Early History of Syphilis," Dr. Streeter. "Remarks on Albrecht von Haller," Dr. Cannon.

The meetings are open to the medical profession.

WM. J. KERR, M.D., *Secretary.*

APPOINTMENTS.

PROF. CARL VOEGTLIN, of Johns Hopkins University, has been appointed as professor of pharmacology in the Hygienic Laboratory, U. S. Public Health Service, to succeed Prof. Reid Hunt, now head of the department of pharmacology at Harvard University.

DR. JOSEPH MOORE, of the staff of the Manhattan State Hospital for the Insane, on Ward's Island, has been appointed first assistant physician at the State Hospital for Insane Criminals at Matteawan.

LONG ISLAND COLLEGE HOSPITAL.—The Board of Regents of Long Island College Hospital, Brooklyn, have appointed DR. H. SHERIDAN BAKETEL, of New York, and DRS. ROBERT I. BULL AND PHILIP M. SCHAFFNER, of Brookyn, instructors in genito-urinary diseases in that institution.

DR. GEORGE V. N. DEARBORN, of the Tufts Medical and Dental Schools, has been appointed Consulting Physiologist to the Forsyth Dental Infirmary.

RECENT DEATHS.

DR. GEORGE DRURY, who died on Oct. 20 at Brooklyn, N. Y., was born in 1857. He received the degree of M.D. in 1878 from the Long Island Medical College, at which he was for several years subsequently a lecturer. He was a member of the Kings County Medical Society. He is survived by his widow, three daughters and one son.

DR. SOLOMON FISCHEL, who died at New York on Oct. 19, was born at Budapest, Hungary, in 1870.

DR. CHARLES E. GOLDSBOROUGH, of Hunterstown, Pa., died there on Oct. 20. He served throughout the Civil War as a surgeon in the Union Army.

DR. JUST LUCAS-CHAMPIONNIÈRE, who died of angina pectoris at Paris on Oct. 22, was born in 1843. He was a member of the Academies of Medicine and Surgery of the Institute of France.

DR. EDITH E. KEISKER, of Philadelphia, died in that city on Oct. 24 of scarlet fever contracted in her work as a school physician. She is survived by her husband and by one child.

DR. ALBERT BLODGETT WEYMOUTH, who died recently at Lahaina, Maiu, Hawaii, was born in Medford, Mass., in 1839. He received the degree of A.B. from Harvard College in 1860, and that of M.D. in 1863 from the Bellevue Hospital Medical College, New York. He practised his profession in Maplewood and Malden, Mass., until his retirement in 1893. So far as is known, he leaves no surviving relatives.

BOOKS AND PAMPHLETS RECEIVED.

The Doctor in Court, by Edwin Valentine Mitchell, LL.B. Rebman & Co., New York.

Minor and Operative Surgery including Bandaging by Henry R. Wharton, M.D. Philadelphia, Pa.

Hospital of the Protestant Episcopal Church in Philadelphia. Vol. 1. Medical and Surgical Reports of the Episcopal Hospital.

Some Immunity Reactions of Edestin. The Biological Reactions of the Vegetable Proteins. III. Benjamin White and Oswald T. Avery. Reprint.

Pycnogonida from the Coast of California with Descriptions of Two New Species by Harry V. M. Hall. Reprint.

Studies on the Locus of Antibody Formation by Frederick P. Gay and G. Y. Rusk. Reprint.

En Experimental Study of Poison Oak by Edward von Adelung, M.D. Reprint.

Relative Frequency of B. Coli Communior in Contaminated Water, by J. G. Fitzgerald. Reprint.

Agglutination of Encapsulated Bacteria by J. G. Fitzgerald, M.D. Reprint.

Address.

PROGRESS AND PROBLEMS IN PREVENTIVE MEDICINE.*

BY M. J. ROSENAU, M.D., BOSTON.

Professor of Preventive Medicine and Hygiene, Harvard Medical School.

THE Massachusetts General Hospital has long been a hospital of hospitals, a teacher of teachers, a physician to physicians. It has a proud heritage from the past that is also a heavy responsibility for the present. Its ideals have extended beyond the walls of the institution, for in addition to administering to the sick, it has taken an active part in the history of American medicine, and it has been a model that has been copied far and wide. Its many achievements on the side of science, its humanity as expressed in its social service work, and its long list of notable sons, have placed it in the forefront of Hotels Dieu.

We are here to celebrate the birthday of the chief among these achievements—the first public demonstration of surgical anesthesia. Three score and seven years ago John Collins Warren operated upon Gilbert Abbott under the deep sleep of ether administered by William Morton. We are again met to recall the deeds and the men conspicuously associated with the Massachusetts General Hospital; and to dedicate ourselves to the task of adding further drops of knowledge to the unceasing stream of blessings which continue to flow as a result of the event we celebrate anew today.

These blessings have been rich and varied, for they not alone made modern surgical practice possible, but they opened up fields of experimental biology in hitherto unsuspected and rewardful directions. It was about the time that this precious gift was given to suffering humanity that Darwin helped us throw away the crutches of traditional authority on which we limped, that Huxley clearly defined man's place in nature, and Pasteur unraveled the secrets of fermentation and infection. These important conceptions and discoveries marked the opening of an era unparalleled in the history of the world for steady and substantial progress in every branch of human endeavor.

Each generation retells the story of past achievements in its own way. The use of ether for the relief of pain has become one of those twice told tales which it is a pleasure to recall and an honor to relate. The story itself, however, full as it is of human interest and dramatic elements, will not here be repeated, for it seems more to the purpose to consider some of the progress which in no small part was made possible by the introduction of the experimental method as exemplified in the discovery of ether and its application as an anesthetic.

* Delivered at the Massachusetts General Hospital on Ether Day, Oct. 16, 1913.

A CONSTRUCTIVE PROGRAM.

Formerly hygienic and sanitary measures were based almost solely upon a negative program. This was necessarily so because we had to await the exact observations of Pasteur before the sanitary sciences could be placed upon a sound basis of fact. The old books of hygiene were full of fads and fancies. By the old books I do not mean ancient times, the books which were regarded as authority when I was a medical student. The whole sanitary system was then a vague or confused jumble and an uncertain guide. The system was an assemblage of sanitary dont's. We were told what not to do, in order to avoid infection, or to improve our bodily vigor. When the sanitarian of yesterday did depart from this negative program and ventured to give counsel of a positive character, it turned out to be mostly guesswork and very often wrong.

When I was a boy they told me not to catch cold, but they could not tell me what to do in order not to catch cold, and if they did it was mostly poor advice. Thus I was taught to fear the night air, whereas now we know that the air by night is cleaner than the air by day in that it contains less dust and fewer bacteria; our common sense confirms the observation that the night air in itself contains no injurious qualities. Patients with tuberculosis, and even pneumonia, are freely exposed to the health-giving tonic properties of the cool night air.

There must be many present who have heard about the noxious emanations and poisonous miasmata wafted mysteriously in the night air, to fret and plague us. This notion that the night air is harmful was a logical conclusion drawn from the observations made from time immemorial that malaria stalks by night. The reason for this is quite clear to us now since we know that the malarial mosquito, like the tiger, prowls at night in search of its quarry. In warm malarious regions the misinformed folk close all the shutters of the house very tightly at nightfall in order to keep out the dreadful malarious miasm, thus imperfectly guarding against mosquitoes, and at the same time favoring the spread and development of tuberculosis, which is especially rife in the tropical belt. I have often observed that when one of these benighted people sallies forth into the night air he throws a scarf over his mouth and nose in order to filter out the poisonous effluvia from the air he is breathing. At the same time I have seen large ferocious anopheles mosquitoes freely biting the hand that held the scarf in place.

Furthermore, when I was a boy I was swathed in flannels and partially parboiled in overheated schoolrooms; my vasomotor tone was so relaxed by this coddling that it could not respond

promptly to aid my heat-regulating apparatus in an effective manner. My nasal mucosa was soggy and sensitive. Therefore, I was susceptible to colds and was taught to fear drafts. We now know that colds are caught from other persons having colds, just as diphtheria is contracted from diphtheria. Arctic travelers exposed to all the rigors ordinarily supposed to produce colds do not suffer from these ailments until they return to civilization and become infected by contact with their fellowmen. It is not the engineer in the cab who catches cold so much as the passengers in the crowded, stuffy, overheated and dusty Pullmans.

The term "common colds" is used here to mean the acute infections of the mucous membranes of the upper respiratory passages. It does not include the many acute and chronic congestive inflammatory states due to reflex mechanical or chemical irritants to which these parts are directly exposed and to which they often become exquisitely sensitive.

In brief, then, we are now able to tell people that the way to guard against common colds is primarily to avoid other people having colds, and to cultivate hygienic habits that will lessen the chances of the infection reaching the mouth and nose; secondarily to improve bodily vigor so as to increase our resistance to infection. It should be carefully kept in mind, however, that general physical vigor is no certain safeguard against most of the infections to which flesh is heir. The strong and robust are too often stricken down in the prime of life with scarlet fever, diphtheria and even with pneumonia, tuberculosis or typhoid fever, or some other infection of our long repertoire.

It is very much easier to tell a person what to avoid than to teach him what to do. We need constructive lessons in hygiene as well as in ethics. Seven of the commandments of the decalogue are negative. Almost all secular laws are negative. Jurists, learned in the philosophy of the law, tell us that it is important that laws should be thus limited so as to permit independence of action. The law may properly state what a person may not do, but it should be careful in dictating what he must do. In hygiene and sanitation, however, we cannot be satisfied with this negative program, for we now have sufficient knowledge to teach and guide the people in the positive art of hygienic living. Even the law, when applied to preventive medicine, recognizes this principle. "The liberty secured by the Constitution," says the Supreme Court of the United States, "does not impart an absolute right in each person to be at all times and in all circumstances wholly freed from restraint. Real liberty for all could not exist under the operation of a principle which recognizes the right of each individual person to use his own, whether in respect to his person or his property, regardless of the injury that may be done to others."

As soon as the sanitary sciences took a proud place among the exact sciences (with due apologies to the mathematicians) the art of preventive medicine had its birth. Preventive medicine is an art based upon many sciences. It is an art that has reached the satisfactory stage when we are able to foretell many natural events in the epidemiology of disease with an accuracy not dreamed of by the prophets of old.

Other sciences and their arts have passed through the same evolution that is so evident in the history of sanitation. All science in its infancy and immaturity flounders and crawls in a negative nursery. The dawn of a positive program foreshadows the day of useful achievements. Sanitary science has graduated from the kindergarten stage of negation and is now passing into the grammar grade of assertion. We are now witnessing a remarkable renaissance in every science, resulting in a transitional period of progress which characterizes the promising though perturbing period in which we live. When the history of this period is written the historian will be embarrassed with a wealth of material progress along every line of human endeavor, but "when earth's last picture is painted, and the tubes are twisted and dried," one achievement will stand out clearly above all the rest, and that one is the conquest of disease.

SOME HYGIENIC FALLACIES.

The new hygiene has given us an entirely different conception of many of the factors that enter into health and disease. It has exploded many a world-old fallacy. We know, for example, that there is practically no more danger from sewer gas than the farmer subjects himself to on his manure pile. The old bugaboo of sewer gas dies hard. People have always believed and still naturally cling to the notion that anything that smells bad must be detrimental to health. Science has demonstrated that our sense of smell is a poor sanitary guide. It is certainly absurd to accuse the emanations from defective plumbing of being the source of diphtheria, typhoid fever, scarlet fever, sore throat, or any other infection.

Fomities or inanimate things were formerly supposed to play a large rôle in the transmission of infection. We know that in fact this occasionally happens, especially with diseases spread through discharges from the mouth and nose. Instead, however, of accusing letters, books, umbrellas, walls, furniture, merchandise, and other unlikely things, which were formerly disinfected or destroyed, we now think of objects recently moistened with saliva, such as drinking cups, pencils, toys, towels, as well as food, fingers and flies. Yellow fever was believed to be transferred by a great variety of objects—coffee sacks, mattresses, a tress of hair, cigarettes smuggled in the false bottom of a trunk, were all accused of starting epidemics before the researches of Reed, Carroll, Lazear and Agramonte. Many of our former sanitary practices now seem absurd in the light of present-day knowledge.

While quarantine officer in Havana, I disinfected, in accordance with the government regulations, and by order from my superior officers in Washington, every letter that left the island, as well as great quantities of wearing apparel, and other articles suspected of carrying the virus of yellow fever. I even used to disinfect the ballast of wooden vessels, and in the case of rock ballast, dipped every stone separately into a tub of bichloride of mercury for fear that some small facet would escape purification. Again, while quarantine officer in San Francisco, before the knowledge that rats and fleas are the chief agent in the spread of plague, I used to disinfect great quantities of foodstuffs and merchandise, which was the best we knew in those days. I well remember how the merchants objected to having certain Chinese fruits dipped in formalin. When, however, we discontinued the process as useless there was still greater objection because the merchants had discovered that the formalin treatment helped to preserve some of these perishable goods for a considerable period of time.

Many a person obeys the call, "back to nature" with direful results, for when he gets into nature's solitude he thinks he can disregard nature's laws. Sanitary habits are quite as important in the wilds as in the tenements. It especially grieves the heart of the sanitarian to note how frequently people contract typhoid fever at country, mountain or seashore resorts. The excess of typhoid fever in the autumn now goes by the special name of "vacation typhoid." The unsanitary conditions found in many sparsely settled communities temporarily occupied during the summer season often challenge the conditions found in military camps during the bow and arrow age. Before people leave the sanitary security of a well-guarded city for vacation grounds, they should demand a bill of health from the health officer.

Sometimes science will change our views in a revolutionary manner, but these altered views may not materially change the practice of our art.

Thus our entire conception of ventilation has changed, owing to the fact that we now do not believe that fresh air is particularly necessary in order to furnish us with more oxygen or to remove the slight excess of carbon dioxide. It is plain that it is heat stagnation that makes us feel so uncomfortable in a poorly ventilated room rather than any change in the chemical composition of the air. It has been made perfectly clear from the work of Flugge that one of the chief functions of fresh air is to help our heat-regulating mechanism maintain the normal temperature of the body. It is necessary to have some 2000 to 3000 cubic feet of air an hour to maintain our thermic equilibrium—just the amount that was formerly stated to be necessary to dilute the carbon dioxide and supply fresh oxygen. The practice of ventilation, therefore, has not altered so much as has our reason for attaching importance to clean, cool, moving air, which has completely changed.

One of the fallacies that has fallen is the relation of the air to the spread of infection. The virus of most communicable diseases was believed to be in the expired breath, or exhaled as emanations of some sort from the body. These emanations were said to be carried long distances,—miles—on the wind. The easiest, and therefore the most natural way, to account for the spread of epidemic diseases was to consider them as air-borne. Nowadays the sanitarian pays little heed to infection in the air except in droplet infection, and the radius of danger in the fine spray from the mouth and nose in coughing, sneezing and talking is limited to a few feet or yards at most. The more the air is studied the more it is acquitted as a vehicle for the spread of the communicable diseases.

It was a great surprise when bacteriologists demonstrated that the expired breath ordinarily contains no bacteria. Most microörganisms, even if wafted into the air soon die on account of the dryness, and especially if exposed to sunshine. The relation of the air to infection is nowhere better illustrated than in the practice of surgery. At first Lister and his followers attempted to disinfect the air in contact with the wound by carbolic sprays. Now the surgeon pays no heed to the air of a clean operating room, but ties a piece of gauze over his mouth and nose, and also over his hair, to prevent infective agents from falling into the wound from these sources.

A similar revolution is recorded in almost every chapter of the great book of preventive medicine. With this increase of knowledge has resulted a corresponding increase in efficiency. We are now enabled to apply our preventive measures with an assurance of success not hitherto possible. It is quite easy to work in the midst of a raging cholera epidemic without contracting the disease; this was clearly shown in Hamburg in 1892. It is still easier to nurse and attend patients with smallpox without taking the infection. A well-screened yellow fever hospital is the safest place in an outbreak, as was demonstrated during the last epidemic in New Orleans in 1905. It is quite practical with bacterial vaccines to raise our immunity to typhoid fever, plague, and a number of other infections. Furthermore, the methods of a clean hygienic life are better understood than formerly.

Milk is responsible for outbreaks of typhoid fever, scarlet fever, diphtheria, septic sore throat, and is also responsible for a certain amount of tuberculosis and infantile diarrhea. These facts make it quite certain that many diseases formerly attributed to pollution of the soil, to effluvia from broken drains, or some other indeterminate cause, were in reality due, in part at least, to impure milk. Milk, then as now, must have been a factor for the spread of the agents of infection. It took a long time to find out that these infections may be transmitted in

milk and that the danger may be neutralized by such a simple, harmless and efficient process as pasteurization.

Many people delude themselves with the false hope that there is some drug to cure every disease. The specific remedies may be counted on the fingers of our hands. Very few therapeutic agents rival quinine for malaria, salvarsan for syphilis, or antitoxin for diphtheria, and even these must be properly administered in order to obtain satisfactory results. The common belief that there is some drug that will cure every disease is fostered by unscrupulous persons who boldly advertise "sure cures" for rheumatism, pneumonia, cancer, tuberculosis, diabetes, and Bright's disease. These fallacies quickly disappear when people become better informed as to the limitations of the pharmacopeia—quackery will then be less prosperous.

Many other fallacies are fostered. The ozone myth is one of them. Ozone is an irritating and poisonous gas. It conceals faults in ventilation while not correcting them. Ozone will destroy mammalian life more quickly than it will destroy bacterial life, hence it has no useful disinfecting power in occupied rooms. The sanitarian classifies ozone as a poison, not as a purifier, and believes that the recent ozonizing machines advocated for offices, schools, theatres, and other places, are mischievous.

All those who have given thoughtful study to the pure food situation as it now exists are agreed that the pure food question is an economic rather than a health problem. To discuss this and other fallacies would require endless time. Only a few are mentioned as examples.

A deeper insight into the causes and method of transmission of disease has robbed infection of the terror with which the dread of epidemics once staggered mankind. For graphic descriptions read Defoe's "Journal of the Plague Year," or S. Weir Mitchell's "A Red City." It is difficult for those who have not witnessed the panic of a fever-stricken city to realize the terror, the flight, and the paralysis of trade, all due to a helplessness and hopelessness, the result of ignorance. Knowledge has, therefore, given us confidence that has conquered a fear of infection as supernatural and has mastered a superstitious dread of its mysteries. This conquest is one of the milestones which marks the advance of mankind.

CONQUEST OF THE FEAR OF THE SUPERNATURAL.

It is difficult to measure the advance made by mankind; in fact, it is even doubted whether man has made any real progress since the dawn of written history. I am optimistic enough to believe that man has made great strides physically, mentally and spiritually. Physically, man is better off on account of a better understanding of the world in which he lives. Mentally, he is superior to his remoter ancestors on account of a clearer understanding of truth and how to find it, and both these facts have greatly influenced the spiritual yearnings that distress every soul.

We no longer personify everything about us with a childlike anthropomorphism, although there is still a universal tendency among mankind, as pointed out nearly one hundred years ago by David Hume, whose philosophy gains strength with advancing age, to conceive all beings like ourselves, and to transfer to every object those qualities with which we are familiarly acquainted. We now look out into the world unafraid, and with a faith born of a knowledge of nature and her laws. The scientific spirit has freed us from the trammels of tradition; we are permitted to question, invited to doubt and today we boldly investigate, even with public approval, forbidden subjects of yesterday.

It is so plain to us now that the length of a vibrating string determines the sound it produces that it is difficult for us to put ourselves in the place of those who formerly thought that they heard the voice of Eolus. We know the lightning is not the wrath of Jove, the eclipse is not a shadow of portending evil, and the wind "bloweth where it listeth" on account of differences in weight between cold and warm gases. Knowledge has begotten wisdom, and wisdom has given us confidence that would have been regarded as rashness, if not impiety, in other days.

Best of all, perhaps, is that definite information concerning the agents of infection which at one stroke has taken them out of the supernatural.

The influence of some supernatural power with reference to disease still lingers in the minds of many who take the fatalistic attitude that if we are going to be sick we are going to be sick, and nothing that man can do will avert it. The very names of a number of diseases give sanction to this belief. Thus erysipelas was long called St. Anthony's fire, and scrofula the King's evil. Chorea is still called St. Vitus's dance. Persons with epilepsy or insanity were believed to be possessed of the devil, and many charms were worn to guard against the evil spirits, and many strange devices were used to dispossess them. There is an account of the plague in Rome about the time of Esculapius in which it is related that great fires were built in the streets, and a great noise was made in order to frighten away the demons. The plague, in fact, soon ceased, but we are now inclined to think it was because the continued fires and alarum scared away the rats rather than the evil spirits.

The fatalism that still binds the minds of men was well shown in the hookworm campaign. The greatest barrier met with in eradicating hookworm disease was the prejudice and ignorance of the people and profession. Until this was overcome the measures to help the infected people were fruitless.

A knowledge of the natural history of disease has drawn the teeth of many an ancient mythical dragon. Certain diseases recur annually like the deciduous plants. We have our annual

crop of typhoid fever just as we have our annual crop of thistles; we have tuberculosis perennially just as we have evergreen firs and balsams. The appearance and disappearance of some diseases can be predicted with the same certainty as the seasonal appearance and disappearance of plants. Epidemics of measles in Richmond, Va., have been foretold with the same certainty as the decline of water-borne typhoid fever in Pittsburg.

Formerly, when yellow fever broke out in our Southland, the fever-stricken city was paralyzed both with fear of the disease and with the terrors of a shotgun quarantine. Now, yellow fever cases arriving at Havana are fearlessly carried through the city in a screened ambulance to Las Animas Hospital. We need no longer fear plague, typhus fever, relapsing fever, and other maladies in the way they once terrorized a less informed and less sanitary age.

The definite knowledge concerning most infections and the natural laws governing their transmission has given us a confidence that has properly robbed these diseases of the supernatural dread which once invested them. We know that the inscription, "Died by the grace of God" on many a tombstone, should read, "Died by the disgrace of infected milk"—or polluted water, or some other preventable factor.

Every scientific discovery contributes to the physical, intellectual and moral betterment of the world, but the discoveries in preventive medicine have made the lot of man so much easier, and this life so much safer, that he has more time than ever to think of his neighbor and to share his blessings with him. More than this, preventive medicine has quickened the coming of the brotherhood of man, for it has pricked his conscience in an extraordinary way.

A SANITARY CONSCIENCE.

One of the most remarkable developments of this age in which we live is the awakening of a sanitary conscience. It is a new thought in the mind of many a man that the care of the body and cleanliness of surroundings is a very considerable factor in the comfort, safety, and even the life and health of his fellowmen. The sense of moral goodness which comes from a clean and hygienic life is part of the doctrine of sanitary righteousness. Preventive medicine teaches that we must not only safeguard our own bodies against infection, and keep our own surroundings clean for our own sakes, but quite as much for our neighbor's sake. It teaches the lesson of the unselfishness of community interest and has been a potent biological factor which underlies the present trend towards socialism. One man alone cannot fight the fight against the common foe—infection; it takes the combined and intelligent coöperation of the community.

One of the best instances that comes to mind is the case of vaccination for smallpox, which was the first and remains one of the great achievements in preventive medicine. Vaccination affords a very high degree of protection to the individual and a well-nigh perfect protection to the community. Vaccination and revaccination systematically and generally carried out will completely erase smallpox from a nation. In other words, while the individual protection is not always perfect, the communal protection is absolute. To remain unvaccinated, therefore, is selfish, in that by so doing a person steals a certain measure of protection from the community on account of the barrier of vaccinated persons around him. In England the Conscience Clause permits many persons to remain unvaccinated because the law exempts persons whose religious scruples forbid compliance therewith. Our own Supreme Court wisely forbids any such exemption in states having vaccination laws.

No man has the right to endanger his fellowmen with infection any more than he has the right to endanger him with physical injury. The Supreme Court of Minnesota, Dec. 23, 1910, in the case of a water-borne outbreak of typhoid fever, held that "the state is liable if damages can be proved." This decision places the responsibility where it should be. Citizens are evidently as much entitled to reasonable sanitary protection as they are to police protection, or to protection from accidents at grade crossings. It is a fortunate day for preventive medicine when the principle is recognized that sanitary negligence is just as culpable as the negligence which fails to place a red flag by day or a red lantern by night to guard against a pitfall in the public highway. Returning again to vaccination, we find that the experience of over one hundred years clearly demonstrates its benefits, and we see that Germany has taught the world how to apply the known facts. If the entire world would follow the example of Germany then Thomas Jefferson's prophecy to Jenner that "future nations will know by history alone that the loathsome smallpox has existed and by you has been extirpated," would soon be fulfilled. Sanitarians know that it would be much simpler to render smallpox extinct than it was to stamp out yellow fever from the Canal Zone.

In the case of rabies we have another instance in which the sentiment of selfishness of man permits his fellows to suffer from preventable disease. A better understanding of the facts would soon make it plain that death from hydrophobia is as unnecessary as death from an unprotected cogwheel. England has eliminated rabies, and Australia has kept it out through muzzling ordinances and quarantine on dogs. Muzzling temporarily inconveniences the dogs, but in the end protects dogs as well as man and other animals from this communicable infection.

The laws of biology have a direct bearing upon our daily life, and a correct understanding of these laws helps us not alone to a longer and healthier, but to a better life. Many ethical questions that trouble our complex age can also

be solved by an intelligent understanding of biology, just as many material questions relating to health and disease depend upon a deeper insight into the medical sciences.

All enduring progress must be based upon morality, but our very interpretation of morality, as it influences our conduct of life and our relations to our fellowmen, is based upon, and guided in no small degree by a correct understanding of the world about us. It is plain to the student of biology that the rich harvest of facts garnered by the experimental method in all the fields of science during recent years has gradually but inexorably impressed itself upon the changing code of ethics of all civilized nations. The criminal of yesterday derided and jailed is the patient of today sent to the hospital for treatment; the vicious individual or the incompetent moron is not now regarded as deserving the finger of scorn so much as he is entitled to the humanity that recognizes the condition as one of imperfect protoplasm, caused by a natural limitation due perhaps to hereditary faults in his ancestors; the insane are no longer laughed at as bewitched, but treated with a consideration and humanity based upon a clearer understanding of their diseased states. How different all this is from the time audiences roared at the antics of King Lear as a comedy character, and people visited Bedlam as a source of amusement. A drunken character on the stage is no longer greeted with peals of laughter, but with a feeling akin to sorrow and disgust. We no longer declaim that all men are created free and equal, for we know that they are bound by their protoplasmic makeup, and unequal in their powers and responsibilities.

The responsibility of individuals and the limitations of an imperfect human machine are much clearer to us than formerly. Infection is no longer regarded as a punishment for sin, or even sin itself, much less a supernatural visitation, but simply a conflict between two beings, one the host and the other the parasite. In one sense this conflict, though less obvious, is not essentially different from the conflict between a rattlesnake and his prey. The battle between host and parasite results in a reaction in the host and this reaction we call an infectious disease. The various elements which make up this conflict, such as the mode of attack of the parasite and the means of defense of the host, have been carefuly studied. A sharp defense on the part of the host will sharpen the claws of the parasite in accordance with the laws of the survival of the fittest, and thus increase the reaction or the intensity of the disease. If the parasite is unduly aggressive and virulent, and thus kills its host too quickly, it defeats its own object, for the parasite is in the position of the rats on a ship. It serves small purpose to scuttle the ship unless there is some means of passing to another ship. The mode of transference of the parasite is therefore of vital importance to the parasite, and of great practical concern to the host. The infectious diseases, then, represent only one phase in a complex series of events in which parasite and host are interrelated, not only as rats on a ship, but as seed and soil.

The cornucopia of preventive medicine is not overflowing but is filling up with blessings of various sorts. One of the most important when gauged by practical results is a better understanding of the sources of infection and their modes of transference. It is much more important for the health officer to know the ways in which the virus is transmitted from one person to the next than to know the causes of disease. Thus with yellow fever we are enabled to prevent it or check an epidemic, although still ignorant of its cause.

SOURCES OF INFECTION AND MODES OF TRANSFERENCE.

There are two great sources of the communicable diseases of man, viz: man himself, and the lower animals. Most of the communicable diseases of man, especially those which occur in epidemic form, are peculiar to man. This is the case with typhoid fever, cholera, leprosy, malaria, yellow fever, syphilis, mumps, measles, scarlet fever, typhus fever, infantile paralysis, cerebrospinal fever, smallpox, chickenpox, relapsing fever, dengue, and even tuberculosis in large part. It is quite true that some of these infections may be communicated to the lower animals under experimental conditions, but they do not, as a rule, occur in them under natural conditions. In other words, most of the communicable diseases from which man suffers are specific; the degree of specificity varying slightly with the different infections.

It is, therefore, plain that man is the great source and reservoir of human infections. Man is man's greatest foe in this regard. The fact that most of the communicable diseases must be fought in the light of an infection spread from man to man is one of the most important advances in preventive medicine. This new thought has crystallized out of a mass of work in the sanitary sciences during the past decade from researches upon tuberculosis, typhoid fever, cerebrospinal meningitis, and other communicable diseases. Formerly sanitarians regarded the environment as the main source of infection. We now know that water, soil, air and food may be the vehicles by which the viruses of the communicable diseases are sometimes transferred—that is, they are media of conveyance rather than sources of infection. Most of the microörganisms causing the communicable diseases of man are frail and soon die in our environment, as in the air, soil, or water. Most of them are obligate pathogens and cannot or do not grow or multiply in our environment.

From the lower animals, particularly the domesticated animals, man contracts a number of

infections. Thus we contract rabies from dogs, plague from rats, glanders from horses, trichinosis from hogs, malta fever from goats, anthrax and foot-and-mouth disease from cattle, tuberculosis, in part, from cattle; tapeworms and other animal parasites from the meat of fish, fowl, and mammals. Various skin parasites are also contracted from the lower animals, as ringworm from cats. The number of diseases, however, contracted from the lower animals, and the extent of their ravages are notably less than those contracted from man himself.

The knowledge that most infections are spread rather directly from man to man combines the forces of sociology with those of preventive medicine. The task of preventive medicine is thereby rendered much more difficult from the fact that the control of most infections depend upon the control of man himself. The elimination of smallpox, and that still worse plague, the great pox, illustrates the well-known principle in preventive medicine that it is much more difficult to control a disease transmitted directly from man to man than a disease transmitted by an intermediate host or one contracted from the lower animals, or one transferred to us from our environment. We have a certain amount of control over our surroundings, and we have dominion over the lower animals, but the control of man requires the consent of the governed. Thus it is easier to stamp out yellow fever than to control typhoid fever. It is easier to suppress malaria than tuberculosis, rabies than influenza, trichinosis than syphilis. Cattle appear to be mutely thankful when protected by inoculation against blackleg or anthrax, but man rebels against one of the best of all specifics—vaccination against smallpox. The fact that man is the chief source and reservoir of most of his own infections adds greatly to the scope and difficulties of public health work, and often makes the prevention of disease depend upon social changes. In this sense preventive medicine has become one of the important factors in sociology.

The agents of infection may take various routes of transference from man to man or from animal to man. These routes are spoken of as the modes of infection, the modes of transference, or sometimes as the vehicles of infection. Formerly they were spoken of as the "channels of infection," but now we restrict that term to the special channel by which the infection enters the body. Thus the channel of infection in tuberculosis may be the respiratory tract, the digestive system, or the skin; whereas the mode of infection is from tuberculous sputum, either by direct contact, by droplet infection, or through milk or some other medium of conveyance.

The modes of transference may be grouped, for convenience, under three general heads: (1) direct, (2) indirect, and (3) through an intermediate host. In the great majority of cases, however, the virus is transferred more or less directly by what is now known as contact infection. In many instances the virus is transferred indirectly through water, food, soil, air, etc. In a large group of diseases the transfer is through an intermediate host which furnishes the growing list of insect-borne diseases. The above facts bring out a significant distinction between hygiene and sanitation.

HYGIENE VERSUS SANITATION.

We now know that purifying water and pasteurizing milk will decrease but will not delete typhoid fever. Residual typhoid fever must be fought in the light of an infection spread from man to man, that is, in the light of a contagious disease. It has often been said that typhoid fever is infectious but not contagious. There is much mischief in that statement, for it is clear that typhoid is both contagious and infectious, or, as we prefer to say, communicable. These words, "contagious" and "infectious" are popular terms lacking precise definition, and the distinction serves no useful purpose. Contagious diseases may be infectious and infectious diseases may be contagious. The distinction is artificial and should be dropped.

Modern science teaches that tuberculosis is both contagious and infectious, but not hereditable, as was formerly supposed. Tuberculosis is an example of a disease that must be fought along both hygienic and sanitary lines, that is, hygienic living to improve the resistance against the infection and sanitary habits and surroundings to diminish the chances of contracting the virus.

A distinction is therefore growing up between the old terms "hygiene" and "sanitation," which are the Greek and Latin equivalents for health. More and more are we limiting the word "hygiene" to the person, and "sanitation" to the environment. Hygiene is personal, sanitation impersonal. Thus we speak of the hygiene of the school children, but the sanitation of the school buildings. We speak of the sanitation of the Panama Canal Zone, but the hygienic condition of the workers. Before the present renaissance of the sanitary sciences these two terms, "hygiene" and "sanitation" were used more or less interchangeably. The distinctions are growing necessary as a result of our enlarged knowledge.

CLEANLINESS THE HEART AND SOUL OF SANITATION.

Although science has shown the increased importance of a personal hygiene, it has not diminished the value of impersonal sanitation. Environment has been shown to have very little to do with the spread of a large number of diseases, of which scarlet fever, diphtheria, whooping-cough, measles, smallpox, syphilis, mumps, cerebrospinal fever may be taken as examples. In view

of these facts there has been a tendency on the part of some health officers to exaggerate the importance of the person in the transfer of disease, and to neglect the environment. There is a large and important group of diseases in which the care and cleanliness of our surroundings are of great concern. This class is represented by those infections spread by the alvine discharges, such as typhoid fever, cholera, hookworm disease, dysentery, and others caused by intestinal parasites. These diseases were formerly called "filth diseases." That term is dying out since the domination of a personal hygiene over sanitation. At one time the conception of the filth diseases reached the dignity of a special name—the "pythogenic theory"—first propounded by Murchison in 1858. Although Murchison's conceptions were quite wrong, we should not forget that typhoid fever is really a filth disease—at least a filthy disease, because every case means that a short circuit has been established between the discharges from one person and the mouth of another.

The mistake should not be made that simply because dirt does not breed disease it may be neglected, because the filthy garbage can does not emit diphtheria it may be tolerated, and because the foul odors from decomposing organic matter do not carry with them the effluvium of any known disease, they may be permitted. No mistake could be greater. Cleanliness is still next to godliness and is just as important from the standpoint of personal hygiene as ever. Cleanliness of mind and body, cleanliness of home and surroundings, cleanliness of city and country, cellar and garret, wharf and shop, markets and roads, cleanliness of the air we breathe, water we drink, food we eat, and habits we cultivate, are the substantial foundation blocks for an enduring structure of preventive medicine. The dearly bought experience of the ages has taught mankind the lesson that cleanliness makes for health, while the reverse encourages disease. Only two years ago a well directed and energetic sanitary campaign practically abolished typhoid fever from Yakima County, Washington, where the disease was unduly prevalent, simply by a "general cleaning up." This demonstration was one of the great object lessons in modern sanitation that has not been given the attention it deserves.

Our conception of cleanliness has greatly changed with our advance in knowledge of the kinds of dirt, the degree of dirtiness, and the nature of these dangers. We can no longer be satisfied with visible or esthetic cleanliness, but must insist upon biological cleanliness. A tetanus spore upon the shining blade of a surgeon's knife makes that instrument filthy, whereas many such spores on the skin of a chicken may be harmless when ingested. We cannot see the infection upon the common drinking cup, upon the roller towel, upon the point of a pencil that has just been moistened with saliva, or in water, milk, or food, although we well know the danger of such invisible "dirt" that these objects may harbor.

It requires a bacteriologist to tell the difference between clean dirt and dirty dirt. We lack a sixth sense, or microscopical eye to see and distinguish the harmful germs. Furthermore, cleanliness, in the modern understanding of the term, involves the absence of flies, fleas, mosquitoes, bedbugs, lice, rats, mice, and all sorts of vermin. We must therefore practice scrupulous cleanliness and educate the people to the biological meaning of this term. Long experience has taught the lesson that cleanliness offers a mode of protection against disease, that clean surroundings are apt to be free from infection, and that clean food is apt to be safe food.

Before the rise of a personal hygiene the health officer was a general scavenger. His chief duty was to abate nuisances, collect garbage, inspect plumbing, and look after pesthouses and lazarettos. The sanitarian now knows that rubbish, manure, and organic wastes of all kinds are not sources of infection, although they may favor the spread of infection. Vermin breed and feed where dirt of this nature is tolerated. Rubbish in vacant lots, or back yards, in alleys, in cellars, garrets, and other places may, therefore, be taken as an index of the failure to appreciate the modern teachings of hygiene and sanitation. One of the most pernicious results of dirt is dust. Dust is irritating and injurious. Dusty roads, dusty houses, and dusty workshops mean dirt and neglect. Some kinds of dust are more trying than others, but all kinds are injurious.

Fresh air and sunshine are natural aids to cleanliness. They destroy infection and purify surfaces. As surface disinfectants, fresh air sunshine and cleanliness rate higher in the opinion of most sanitarians than the germicidal gases used to fumigate a room.

The subject of cleanliness cannot be left without a word about decency as applied to hygiene and sanitation. The health officer is no longer swayed by sentiment, but guided by facts. Nevertheless, sentiment cannot be disregarded in sanitation any more than we can banish music, or beauty of form and action from the heart of man. The sanitarian frowns upon many things which he knows may not be particularly harmful. If dried figs contain a few worms they pass muster, but if they contain many they are condemned for decency's sake; the other day our State Board of Health condemned a lot of foodstuffs that had been in cold storage over a year, not because they thought the food particularly harmful, but an unnecessary practice and one fraught with potential danger, however slight, in other words, contrary to public decency. Much meat is condemned not because particularly harmful, but people object to it on sentimental grounds. When prices soar higher and we become flesh hungry as some European nations now are, we will use many food animals

that are now condemned. We now no longer think it decent to drink water containing sewage, even though boiled. Filtration will strain out the infection but will not eliminate the dissolved chemicals. It took mankind a long time to awaken to the fact that the inexpressibly nasty habit of drinking water polluted with sewage was not only not nice, but dangerous. In Italy the signs in the railroad carriages read, "For hygiene and decency do not spit." The moral is obvious.

It would be impossible for the present-day sanitarian to improve upon the oft-quoted sentence, "cleanliness of the person is the threshold to cleanliness of the soul, and hence the door to righteousness." We need only to refer to the Levitical laws to become impressed with the fact that the practical value of cleanliness is not a new thought. Thus we read in Deuteronomy "thou shalt have a place also without the camp whither thou shalt go forth abroad, and thou shalt have a paddle upon thy weapon and it shall be when thou shalt ease thyself abroad thou shalt dig therewith, and shalt turn back and cover that which cometh from thee." This is an instinctive act among animals, and may be seen daily in the habits of the domestic cat. Even wild animals take the greatest pains not to foul their nests, yet how different it often is with men in a civilized state. Formerly man literally lived on a dung heap. If the above primitive injunction concerning camp sanitation had been followed by our troops in the Spanish-American war it would have saved thousands of cases of sickness and deaths from typhoid fever. The statistics show that about one-third of our entire command in that war contracted this filth disease and largely because proper precautions were not taken concerning the disposal of excreta. During the recent flare-up in Mexico our troops were concentrated on the border near San Antonio in Texas. This command, known as the Texas Manoeuvre Division, consisted of about 20,000 officers and men, and among them were only two cases of typhoid fever. This was in part due to the fact that practically all the officers and men were vaccinated against typhoid, but this alone by no means explains the freedom from the disease, for in addition the camp was a model of cleanliness and sanitation.

Concerning bacterial vaccines, a warning is necessary. The sanitarian welcomes every specific therapeutic agent as he welcomes anything that helps check the prevalence of the communicable diseases. He doubts, however, the advisability of artificially raising immunity by means of bacterial vaccines as a wise measure for the population at large. Persons who have to visit a city during a typhoid outbreak, or physicians, nurses and ward tenders in the typhoid wards of hospitals, or travelers in a country where typhoid is endemic, or soldiers in a camp, or persons unduly exposed, should protect themselves with typhoid vaccine. The immunity thus produced, however, does not permit them to heedlessly disregard the rules of sanitation and hygiene. The sanitarian believes that it would be much better to fight typhoid and also tuberculosis along the lines of hygiene and sanitation, even though it may take a long time to conquer these infections, but once conquered along these lines the victory will be enduring.

SANITARY ISOLATION.

Sanitary isolation is an impossibility. Any system of quarantine that attempts to protect with a Chinese wall is doomed to fail. Massachusetts might today free itself of measles or tuberculosis, but tomorrow it would become reinfected from neighboring states. Infection flows from the country to the city, therefore no city is safe with infected suburbs, or especially with infection upon the drainage basin from which the water supply is obtained, or upon the milk drainage area. Germs are social climbers and find their way into the palace on the plaza or the castle on the crags. We can place a social guard at our front door, but there is no sanitary watchman to protect the back door. A typhoid bacillus does not ride up with a footman and livery and announce his call with his name emblazoned on a visiting card. He may come unannounced into the best ordered house in a bottle of milk, or in the person of a housemaid or workman. So long as slums are permitted and crowded tenements are tolerated, those who live on the boulevard are not safe.

Man's protection of his fellowmen has, therefore, become a matter of individual concern. It is not only a question of self-preservation, but the health and happiness of those near and dear. Man's sanitary duty to his fellowmen answers the question, "Am I my brother's keeper?" Formerly each individual or each community heedlessly allowed its sewage to run into the stream, without a thought of those who drank the water below. Cities upon lakes emptied their sewage into the lake and took the diluted sewage at another point close by. Today a man's sanitary conscience should not allow him to defile the stream. If his sanitary conscience does not prick him, then the sanitary police should compel him to have a due regard for the rights and safety of others.

The discovery of carriers has increased the difficulty of sanitary isolation. In many diseases carriers are more numerous than the cases. Thus from 2 to 4% of all cases of typhoid fever become carriers. In cerebrospinal fever the carriers outnumber the cases 10 to 1. It is believed that the missed and abortive cases of infantile paralysis are much more numerous than the paralytic cases so easy to recognize. The carrier problem has greatly complicated the program and renders the process of eliminating certain infections complex and difficult.

There is, however, reason to believe that the time will soon come when carriers will be cured,

and, better still, we know that many of them can be prevented by early recognition of the case and intelligent isolation of the patient. Every case of infectious disease known is a case neutralized, and experience teaches that the number of carriers diminishes in a community *pari passu* with the decrease in the number of clinical cases. Isolation with all its imperfections and disappointments will continue to remain an important measure to check the spread of infection.

Sanitary engineering works, especially those involving disposal of sewage and wastes, purification of water or drainage of land, require a large outlay of money. The expenditure, however, is economical in the light of the benefits derived. The sanitarian knows no greater extravagance than the false economy in matters of this sort. Communities are gradually awakening to the fact that these things pay. A healthy city attracts trade and travel, and people are now rightly demanding a clean bill of health from communities with which they have personal commerce. "Public health is purchasable; within natural limitations a community can determine its own death-rate." It seems strange that such an intangible and mysterious quality as health, long regarded as a gift of God, should become a commercial article to be bartered in our legislature halls.

Legislators often do not heed the demands of the few for a number of reasons. Science has run ahead of public health administration by leaps and bounds, so that there has been more than the usual lag in the diffusion of the new knowledge. Again it is difficult for legislators to winnow the wheat from the chaff out of the harvest of novelties, half truths, theories and speculations that fill the barns of the experimenters. Furthermore, science deals only with cold facts and will have nothing to do with emotions, intuitions, instinct or other categories that philosophers make so much of. The very fact that science limits itself strictly to facts that may be measured or weighed is at once its strength and its weakness. Man is not simply made up of a material aggregation of matter, and therefore the discovery of a method of preventing or curing disease cannot always be applied immediately. There are many complicating factors between the discovery of a new fact and its practical application. For example, we have sufficient information to stamp out hookworm disease, malaria, beriberi, and many other afflictions, but they continue and are likely to continue to decimate the ranks for many generations to come. When Ronald Ross had worked out the life history of the malarial parasite in the mosquito he broke out into song:—

"I know this little thing
A myriad men will save.
O Death, where is thy sting,
Thy victory, O grave."

But although we know the cause of malaria, its mode of transmission, and although we know how to prevent it and even possess a cure, the disease still counts its victims by the hundreds of thousands annually.

Tuberculosis offers another illustration in which many complicating factors have made its control a sociologic and economic rather than an exclusively medical question. We can preach and teach all we want about the importance of fresh air, sunshine, good food, rest and recreation, but until justice takes the place of charity, many of these things will remain beyond the ability of most men to purchase. The rich man can determine his hours of work and play, can travel in quest of change and climate, can afford nourishing food, well cooked, and can readily obtain many other hygienic necessities that were formerly regarded as luxuries. The poor man must accept conditions much as he finds them, and if overwrought and underpaid he cannot effectively guard against tuberculosis. In this sense the rich man can purchase health and life itself, and in this sense tuberculosis and also infant mortality have become class diseases. Science has pointed the way; it remains for society to apply the remedy.

It has been made plain that it is going to take a long time to greatly diminish the prevalence of tuberculosis and other infections. Patience therefore, is one of the virtues that the health officer must possess and teach.

TRAINED LEADERSHIP.

Health administration in this country lags largely for want of trained leadership. The call to public health is loud and clear. Preventive medicine is the watchword of the hour, and the people are asking, "If disease is preventable, why is it not prevented?" They are not satisfied with promises, but demand results; this is as it should be. It is now recognized that the orthodox training leading to the degree of M. D. does not necessarily fit a man for the position of health officer. The average practitioner learns little concerning vital statistics, sanitary engineering, water purification, sewage disposal, disinfection, forensic medicine, and the making and breaking of health laws. The public health officer looks upon disease in the large, and is less interested in the individual case, which is the chief concern of the practicing physician. The health officer looks upon disease with an eye to preventing its spread—in order to do so he must know its mode of transmission. The practicing physician, on the other hand, looks upon disease with a view to affording relief or cure, and his principal interest, therefore, is in diagnosis and treatment. The public health officer must also be a specialist. Public health administration is, indeed, a profession which bends its knee to none, so far as ideals and service are concerned.

The administration of public health matters

has sometimes failed or has been in large degree unprofitable by reason of being out of balance with other problems that press in upon the community life. Technical features are sometimes allowed to overshadow or obscure the essential humanitarian motives. A well-developed sense of values, and the right kind of attitude toward the common welfare are quite as essential in the equipment of a health officer as technical knowledge and ability.

It must not be understood that the health officer is concerned only with stamping out the communicable diseases. There are many preventable defects which may be reached, especially in school children, and there is the general conduct of life which makes not only for longevity but for maximum efficiency. The present-day health officer must also concern himself with the problems of heredity and eugenics. He must further concern himself with questions of immunity, and must make every effort to help the conditions which menace work-people. Industrial hygiene and the diseases of occupation form a large and important chapter in the volume of preventive medicine. Furthermore, the people must depend upon the health officer to guard the quality of the food, including the purity of the milk, and the cleanliness of the water which they consume. The health officer must, therefore, be familiar with the sanitary sciences in addition to the medical sciences, both of which, in the broad biological sense, underlie the foundation of successful health administration.

In order to meet this demand for trained leadership, Harvard University and the Massachusetts Institute of Technology have established a School for Health Officers. Other universities, notably Pennsylvania, Wisconsin, and Michigan have likewise established courses to train men to officer the public health army.

Politics have been the curse of health administration in this country. Politics and sanitation do not mix. It is important to divorce the two. Only those should be appointed to the position of health officer whose training adequately prepares them for the work. Such persons should be given compensation commensurate with their great responsibility, and the tenure of office and other conditions should be attractive so as to induce competent men to enter and build up the profession.

It is pleasurable enough to recount the progress of the sanitary sciences, but amid all the great achievements we are not blind to the fact that many problems remain unsolved. Cancer and pneumonia still defy us—for how long who can say?—for many workers in many workshops are attacking these and other pathological puzzles with unremitting zeal. That they will be solved, and solved by the experimental method, is the firm conviction of those who are on the firing line.

The power we now possess to diminish or even conquer some of the communicable diseases has entirely overshadowed the importance of the non-communicable affections. It is quite as important to guard against organic disease of the heart, kidney, liver or brain as it is to guard against typhoid fever, tuberculosis, or smallpox. Furthermore, the object of preventive medicine is not alone to prevent infection or the premature occurrence of the degenerations which inevitably come with advancing years, but seeks to give each individual the maximum daily efficiency during his allotted lifetime. It is perhaps even more important to live efficiently than to live long. He who does nothing all his days but care for his body so as to prolong his life may neglect many material obligations and moral responsibilities. Therefore euthenics has become an integral part of the program of preventive medicine. In brief, the object of preventive medicine is not alone to live longer, for it serves little purpose to live longer if, at the same time, we cannot live healthier, happier and better lives.

In reviewing the successes of science we are not blinded by the glare of its glories. The progress has been satisfying, even brilliant, but only the surface has been scratched; our ignorance of life and its laws remains abysmal. A clear knowledge of what we do not know is quite as important as a knowledge of what we do know. Formerly it took a bold man to peep into the darkness; now many a Columbus sails the unchartered seas with undaunted spirit, hoping to find a new continent, even though only searching a new route.

The limitations of the human mind, as well as the delinquencies and defects of the human body, are brakes upon the wheels of progress.

The student of preventive medicine frankly faces the fact that the mass of mankind is diseased, ignorant, and unmoral. He has dedicated himself to the task of helping to cleanse, teach, and regenerate.

Preventive medicine dreams of a time when there shall be enough for all, and every man shall bear his share of labor in accordance with his ability, and every man shall possess sufficient for the needs of his body and the demands of health.* These things he shall have as a matter of justice and not of charity. Preventive medicine dreams of a time when there shall be no unnecessary suffering and no premature deaths; when the welfare of the people shall be our highest concern; when humanity and mercy shall replace greed and selfishness; and it dreams that all these things will be accomplished through the wisdom of man. Preventive medicine dreams of these things, not with the hope that we, individually, may participate in them, but with the joy that we may aid in their coming to those who shall live after us. When young men have visions the dreams of old men come true.

* These concluding sentences are paraphrased from Victor C. Vaughan's admirable address on the "Philosophy of a Scientist," *Science*, Aug. 23, 1912, N. S. vol. xxxvi, No. 921, p. 225.

Original Articles.

THE SURGICAL TREATMENT OF PULMONARY TUBERCULOSIS.

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WHEN a case of pulmonary tuberculosis persistently fails to recover, a decision must be made as to whether recovery can be obtained by medical measures or whether it will be necessary to resort to surgery. We are in the same position that all physicians find themselves when confronted with the problem of whether it is best or not to turn the case over to a surgeon. When tuberculosis of the lungs ceases to be amenable to medical treatment the life of the patient depends upon our recognition of this fact just as it does in a mastoid abscess or appendicitis or when a benignant changes to a malignant condition.

We are inclined to believe that good care and good climate and good medical advice are about all we can do for a patient with tuberculosis of the lungs, and if he does not get well it is simply because he cannot, not because we have not done everything that could possibly be done. We regard these cases as inevitably fatal and we say "that was a progressive case from the start." This comfortable conviction that the patient dies because it was a progressive case, relieves the doctor from all responsibility, but it is not especially useful in saving lives. The belief that medical aid is all that we can offer these cases is costing many lives every day, and this fatalistic attitude of mind must give way to the recognition of the imperative need of recognizing the danger of delay and the necessity for calling in surgical aid. All physicians know only too well that many cases with favorable prognosis nevertheless fail to recover, and slowly but surely go from bad to worse. The cardinal point in the treatment of pulmonary tuberculosis must be the careful estimating of the probabilities for recovering, and when recovery under medical treatment seems improbable then no time must be lost, because in tuberculosis of the lungs, as in all other surgical conditions, the day may come when it is too late. The recognition of the progressive nature of a case brings with it the responsibility of advising surgery, and if we do not recognize this responsibility, and go on waiting and dilly dallying and fooling away the patient's life, then we are just as much to blame as if we had failed to recognize a typhoid perforation.

When a lung will not heal it may be compressed by injecting nitrogen into the pleural cavity until enough pressure is obtained to drive the lung up into the smallest possible space. In this way the lung is emptied of its contents as you would squeeze water out of a sponge, and while it is thus held firmly compressed a connective tissue infiltration starts from the walls of the injured vessels and bronchi and converts the tuberculous lesions into sound, durable scars. It takes about a year to insure this anatomical recovery, but when it is obtained there is no encapsulation of dangerous materials and no danger of a relapse, for the lung is clean throughout, and after it re-expands the breath sounds are smooth and normal. We have been using this method in our sanatorium for over three years with most gratifying results, and recoveries in forty per cent. of hopelessly advanced cases far beyond the reach of medical aid.

Sometimes these cases come to us too late and we cannot produce a pleural cavity or compress the lung because of pleural adhesions. These cases beyond the reach of an artificial pneumothorax may be saved by a Wilms or Sauerbruch operation, which obtains the compression of the lung by a resection of the ribs and transmission of atmospheric pressure to the surface of the lung. Under local anesthesia an incision is made in the paravertebral region, starting at the first or second rib and extending downward to the tenth or eleventh, resecting a little more of each succeeding rib, so that the incision curves forward like a fishhook or the posterior curve of a Schede. This resection of the ribs allows the ends to approach each other in a straight line, and the convexity and arch-like principle of the chest wall is destroyed. By the removal of the arch of the thorax the pressure of the atmosphere is transmitted through the straight lines to the periphery of the lung. Expansion of the lung is accomplished by the transmission of atmospheric pressure through the bronchi and the absence of all counterbalancing pressure at the periphery of the lung because it is kept off by the arch of the chest wall. As soon as this arch is destroyed and atmospheric pressure is applied to the surface of the lung this inequality of pressure between the bronchial system, and the periphery of the lung is abolished, and the lung lies balanced between two pressures, flaccid and inert. With the removal of the ribs the action of the inspiratory muscles is weakened and the lung is not held out closely against the chest wall but retracts and draws up close together to the hilum, thus shrinking and compressing all spaces, whether normal or pathological. Thereafter the lung lies collapsed and heals by connective tissue infiltration just as it does in an artificial pneumothorax and for the same reasons. Sauerbruch's method has enabled him to save twenty per cent. of cases beyond the reach of an artificial pneumothorax and some of them were desperate enough with tuberculous empyemas and wretched general condition.

Cases that cannot be helped by an artificial pneumothorax or a Sauerbruch because the cavity is too far up in the apex to be affected

may be saved by Baer's operation, which has succeeded when both the other methods have failed. Baer resects the second rib, works the costal pleura free with the finger and directly compresses the cavity by tamponing. This method is new but already brilliant results have been obtained. There is a great necessity for the cooperation of physicians and surgeons in tuberculosis work. The problems are surgical in their nature and demand study. Unfortunately this imperative necessity is not felt either by physician or surgeon and in the United States we are making no efforts to advance this work. In Europe some of the leading surgeons are attempting the salvation of these cases and trying to work out the technic. Tuberculous empyema is in crying need of help and there are many other conditions equally in need. The necessity for relinquishing medical and grasping surgical aid must first be felt before we can make any progress. The fundamental principle is always the same, and is the collapse or shrinkage or compression of the lung. Many patients do not know they have tuberculosis until it is too late even for an artificial pneumothorax, and it is a long and tedious process requiring a year or more for its completion, and it is attended with some danger. It succeeds because it compresses the lung and if we could obtain this compression permanently by one effort we should be saved an incredible amount of work and expense. During the last two years we have come to feel very strongly in our work with artificial pneumothorax that all the good results could be obtained in a much simpler and safer way if we could establish a permanent opening into the pleural cavity. When once this opening was established we could introduce nitrogen at will and maintain the intrathoracic pressure with mathematical precision if we had a tube leading into the pleural cavity and covered externally with a removable cap. If this could be done without the production of a fistula or infection of the cavity we should have many signal advantages over our present methods. The distention of the pleural cavity is sometimes great enough to cause bulging of the weak spots in the mediastinal pleura and consequent crippling and embarrassment of the other lung. The nitrogen is a foreign body, it takes up space in the thorax, it alters the negative pressure upon which the successful mechanism of the thorax depends, and it interferes with the action of the other lung, the return circulation and the gastrointestinal circulation. It forces the diaphragm down, impedes the expansion of the other side of the thorax and creates many difficulties that have to be overcome in order to obtain results. By transmitting atmospheric pressure to the periphery of the lung until the intrabronchial pressure was balanced, we could prevent the expansion of the lung simply by destroying the principle upon which it depends. The lung would collapse but there would be no distention of the pleural cavity, no pressure upon the return circulation, no interference with digestion, no crippling of the other lung. In every way this condition would be far less trying than the compression of the lung with a closed pleural cavity. The mechanical conditions are different and much less trying to the patient than an artificial pneumothorax. This method could be used in cases of bilateral involvement when the better lung was hardly able to stand the strain of a pneumothorax. Rochelt and Tiegel and many others have shown the gradual healing of the tissues around a tube inserted for permanent drainage in empyemas. If the tissues would heal around a tube large enough to transmit pressure adequately then we would obtain at one sitting and with little or no pain all the advantages of an artificial pneumothorax. We could obtain at will all degrees of pressure and maintain the lung in a collapsed or compressed state as seemed best and after an anatomical recovery, the gas could be absorbed and the lung allowed to reexpand the same as in an artificial pneumothorax. We have abundantly proven in experiments with animals that this transmission of atmospheric pressure to the periphery of the lung amply suffices to collapse it and that a permanent opening may be maintained without danger for an indefinite time. Dr. Stevens T. Harris suggests using a lead tube because of its well known encysting properties and that it be inserted through a rib and not through an intercostal space. The costal pleura would not be subjected to the constant motion in the intercostal spaces and the straight line of the tube would be preserved through the rib and the tube not swung by the respiratory motions. Carson in 1822 showed how the lung of a rabbit could be collapsed by an opening made into the pleural cavity. Our experiments prove his ideas to be correct and now all that remains is to apply to human tuberculous cavities these fundamental principles upon which all the advanced work for tuberculosis is based. After Carrel's superhuman results it would seem as if some one could work out the technic. We regret exceedingly that we have not the clinical material for this work.

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ORTHOPEDICS AND THE SANATORIUM.*

BY HERBERT J. HALL, M.D., MARBLEHEAD, MASS.

THE psychoneurotic girl who has her medical treatment at home is usually a long way from recovery. The ground practitioner does not get ahead with her. The neurologist often fails. Parents and friends commonly misunderstand the situation and succeed in making matters worse. A simple reason for this failure lies in the fact that the neurasthenic patient is usually a composite, demanding the combined good judgment of several branches of medicine, to say nothing of a moral management that is almost beyond the medical field. For such patients there should be a kind of clearing-house where the various specialists may be consulted and where the treatments of diverse sorts may be coordinated and correlated under really favorable conditions. The hospitals do this coordinating for the acute illnesses and the benefit to the patients is all the time more evident. It remains for the sanatoria, or their equivalent, to meet the more extended needs.

Unfortunately the sanatoria have not always been equal to such high requirements, but conditions are changing, and with more liberal policies already in force, these institutions are becoming increasingly valued and respected factors in modern medicine. This beginning reform can be finally brought about by two methods. The men in the various specialties may get together and establish a new order of sanatorium under the leadership and direction of their own assistants, or they may invade the present institutions and make them virtually their own. It is good economy to make use of existing material if such material is amenable to necessary change. I believe that we shall see the existing institutions changed, where change is needed, to meet the new requirements.

In my short sanatorium experience I have been especially impressed with the value of outside assistance, and especially of orthopedic assistance, in the management of the various types of nervous exhaustion. I find that I cannot make adequate progress with my cases until I correct, or partly correct, the faulty attitudes—the drooping bodies that are so common in nervous illness. Whether the lax joints and flabby muscles are cause or effect; whether they are part of a congenital defect or the expression of an acquired weakness, the need of correction is the same and the benefit of correction is very great. Orthopedic practice and the sanatorium have at this point an absolutely common interest. It is therfore important that these two branches of medicine should come to understand each other as perfectly as possible.

As for orthopedics, those of us who had our hospital experience twenty years ago, find it increasingly hard to keep up with the new progress. There is a very new understanding of bodily balance and poise. Important relationships hitherto unsuspected are recognized between visceral sags and the common nervous symptoms. Orthopedics has invaded general medicine in a most audacious way. It is a surprising and significant thing to know that by persistence in a corrective posture, dyspeptic symptoms and malnutritions may be made to disappear. It is, to say the least, disconcerting to preconceived ideas to find that the blood pressure may be lowered and the mental condition improved by lifting a stomach and a colon that have hung too low. The knowledge acquired from continued orthopedic research and practice is making the work of general medicine and of the sanatorium a more precise and effective thing.

On the other hand, the sanatoria have much to give in return for their orthopedic and other medical assistance.

The extreme sensitiveness of the neurasthenic patient will not infrequently bring discredit upon the most accurate and scientfic treatment unless this treatment is handled as is rarely possible under home conditions. Here the sanatorium may be of the utmost service, especially to the orthopedist, hurried as he must be in a busy practice, and impatient as he must be of uncertain progress. Let us take, for instance, a patient with the common symptoms and anatomical deviations of a visceral ptosis. Such a patient may be so intolerant of restraint—I do not mean psychically sensitive altogether, but physically—that even a light back brace cannot be worn and the ordinary corrective exercises result in temporary collapse.

My own slow following of orthopedic trails in connection with sanatorium work has made me very hopeful of future institutional results in such difficult cases, if we are wise enough to avoid the danger of hurry and of too direct attack.

Whatever has actually happened physically to these highly sensitive neurasthenic patients, the muscular and mental energy has run very low. Each effort, no matter how slight, is made under mental and physical protest. Instead of attempting to correct at once the manifest physical faults by orthopedic apparatus or other means, I believe it is wise for such patients to be given a few days to a few weeks of pretty complete rest cure with all the accessories of darkened room, frequent feedings, massage and electricity, with no demand whatever upon the initiative. In severe cases this course is necessary, but it need rarely extend over a considerable period. Such a beginning establishes the confidence of the patient and furnishes an excellent background for further procedures.

After a while, in favorable cases, it will be possible to take up corrective exercises and to institute postural and direct medical measures with some chance of success. At Marblehead

* Read at a meeting of the Boston Orthopedic Club, April 14, 1913.

we have begun direct treatment in cases requiring postural change, by the use of a simple device which I have called the floor pad. This consists of a thin and narrow mattress laid upon the floor and made available as a corrective apparatus by bundles of sticks or wedges of wood placed underneath in such a way as to modify the bodily curves of a person lying upon it. With this pad it is possible to maintain correction or over-correction of lateral or faulty antero-posterior curves for hours together with little tax upon the patient's strength.



Fig. 1.

Showing position which relaxes tense spinal muscles and makes gravity help to unload the distended or prolapsed stomach and colon.



Fig. 2.

Same as Fig. 1 but without a pillow. A less comfortable but more quickly effective position.



Fig. 3.

Using the floor pad to widen the costal angle and to lift up on viscera through diaphragmatic attachments.

The very important item of the mental attitude, and to some extent the physical condition as well, may often be gradually changed by the acquirement of a wholesome objective interst. It will be easily appreciated that an objective interest is not to be provided along with the milk and eggs for the neurasthenic patient. You cannot command it even in a sanatorium, but you may get it if you know human nature and if you can be patient. In this connection the work cure with its careful but well conducted excursions into the realms of real life, has, in my experience, the greatest possibilities. You may be amused and interested to know that many of my patients are beginning their work cure by making bricks out of wet sand and cement. Young girls, incapable of prolonged exertion, are sitting up in bed making bricks for a few minutes at a time. At first blush, making bricks in bed is not a highly interesting thing, but these patients know each stroke of the little tamping mallet means strength for arm and hand and for the controlling nervous system. They know that short shifts of work, too short to bring the old fatigue, will some day, through persistence, make possible the more sustained and complex efforts of life. But something else they know, though further incentive is usually unnecessary. They know that these bricks will some day become part of a house, a charitable dormitory perhaps, for other invalids less fortunate who may in turn win their way back to health and efficiency by such a gradual development of strength and endurance.

In the development of the work cure I have employed hand-weaving under the best of skilled leadership. This delightful craft has wonderful possibilities for the individual development and an additional charm of personal gratification in colors and textures. It has also the strong appeal of work for the common good because all the weaving is so well done that it may be sold at good prices for the support of such patients as need assistance.

I want to emphasize especially the possibilities and the advantages of combining a fine vital interest like this with simple orthopedic measures in the handling of depressed, overtaxed, and physically relaxed people who cannot ordinarily gain under such casual treatment as may be given at home or in the physician's office. Such auxiliaries as the work cure are possible in connection with sanatoria and hospitals everywhere. The patient may easily become a part of a new industrial system which is likely in time to ameliorate chronic illness to a very considerable extent.

In the real work cure we do not make paper dolls to pass away the time. That is fine for children, but thinking people, understanding people, must have something better.

When the patient begins to trust his own hands and mind; when, under careful guidance, he begins after months or years of idleness to produce good things of money value; it is certain that fundamental changes for the better are taking place in body and mind. There will at least be an improved foundation upon which to base further treatment.

Health is almost as complex as disease. Every practitioner knows that a life without aim or ambition is a sick life no matter what may be done for it medically or surgically. The sanatoria, and the hospitals for that matter, may go a long way toward preparing patients for adequate treatment, and a long way beyond that by bringing new interest into life and a justified hope to those who, but for remunerative work, must remain idle and perhaps dependent. Doubt and fear are closely interrelated with physical impotency. I have seen the work cure clear away these obstructions and make life free and unafraid even in the face of incurable disease.

Progress is being made along these lines. Various institutions are feeling their way toward adequate work with all that it implies. It is a long step ahead that they are taking, but the sanatoria need more than that. The men of the various specialties, but especially the neurologists and the orthopedists, must make the exist-

ing sanatoria a part of their system or they must create a new institution which will meet the new requirements. The new sanatorium must concern itself with the rebuilding of the whole life of the patient. Nothing less will finally suffice.

HEREDITARY CHOREA WITH REPORT OF A CASE.

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Historical. The first account of hereditary chorea was published in Dunglison's *Practice of Medicine,* edition of 1842[1], and was a letter from Dr. Charles O. Waters, of Franklin, N. Y., to Professor Dunglison briefly describing this disease which he called megrims. He alluded to the disease as "a singular affection somewhat common in the Southeastern portion of the State." Some think that he referred to Easthampton, L. I., others to Westchester County, N. Y.

Dr. Waters reported several cases, and summed up the disease in the following sentences: "It consists essentially in a spasmodic action of all, or nearly all, the voluntary muscles of the system—of involuntary and more or less irregular motions of the extremities, face and trunk,—there is a manifest impediment in the powers of speech—the disease is markedly hereditary—these involuntary movements cease entirely during sleep—this disease, very rarely, makes its appearance before adult life and attacks after forty-five years of age are also very rare—when once it has appeared it clings to its victim till death—the first indications of its approach are spasmodic twitchings of the extremities, generally of the fingers, which gradually extend and involve all the voluntary muscles."

"This derangement of muscular action gradually induces a state of more or less perfect dementia—this disease is not attended by any unusual pain in the head—the appetite and the digestion are good—the bowels costive."

Summary. First, "it rarely occurs before adult age." Second, "it never ceases spontaneously." Third, "when fully developed it wants the paroxysmal character."

Dr. Waters was born in Franklin, N. Y., in 1816, and received his medical education at the Columbian University (now the George Washington) and at the Jefferson Medical College. He did not practice medicine in the East but located in Iowa where his time was divided between the practice of medicine and the ministry. He formerly entered the Presbyterian ministry as a licentiate in 1860 but was never ordained. He died in 1892. It is thought that he wrote his article on hereditary chorea when he was on a visit to his father at his old home, Franklin, N. Y.

Attention was next drawn to this disease by Dr. Charles R. Gorman[2] of Luzerne County, Pa. In 1848 in an "inaugural dissertation" before the Faculty of the Jefferson Medical College. Dr. Gorman was born in Barkamstead, Conn., in 1817 and graduated from the Jefferson Medical College. He died in 1879. His address was referred to in Dunglison's *Practice,* 3rd edition, 1848, p. 218. His cases were supposed to have been located in Wyoming County, Pa. He did not describe the disease and did not report the number of cases which he observed. He stated that it prevailed in other portions of the country. According to him it seemed to be circumscribed by neighborhood boundaries, and to have been confined to sections of country, the inhabitants of which were intimately connected in their social or business relations. In conclusion he said, "may not the cause exist in the influence the moral is known to exert over the physique—sympathy of imitation?"

On Nov. 17, 1863, Dr. Irving W. Lyon[3] who was at that time House Physician of Bellevue Hospital, prepared a paper on this disease which was printed in the *American Medical Times,* Dec. 19, 1863. He was born at Bedford, N. Y., in 1840. He received his M.D. from the University of Vermont in 1862, and from the College of P. & S. (Columbia) in 1863. He died in 1896. Dr. Lyon called this disease migrims, (a very inexpressive term) giving the history of three cases. He cites one instance in which chorea was shown to have occurred in a famlly through five successive generations and in different persons of the same generation. One of his cases was in Fairfield County, Conn., (at or near Greenwich) and two were in the Bedford region of New York. He spoke of its hereditary transmissibility, and stated that it consisted of the irregular action of the voluntary muscles when stimulated by the will. He also stated that it was marked by an obstinate chronicity and was confined almost exclusively to certain families.

By far the most thorough description of the disease was made by Dr. George Huntington[4] of Pomeroy, Ohio, in an essay read before the Meigs and Macon Academy of Medicine, at Middlefort, Ohio, Feb. 13, 1873, and afterwards printed in the *Medical and Surgical Reporter,* April 13, 1872.

Dr. Huntington was born at Easthampton, L. I., graduating in medicine from the College of P. & S. (Columbia) in 1871. After assisting his father (who was also a physician) for a time at Easthampton he went to Pomeroy, Ohio, and while there wrote his paper on hereditary chorea. In 1874, he settled in La Grangeville, Dutchess County, N. Y., where he remained until 1901 when he was compelled on account of ill health to go to Asheville, N. C.

In 1903, his health was sufficiently restored to permit him to return to Dutchess County, and

settle at Hopewell Junction where he is now engaged in general practice. He refers to many cases in his father's and granfather's practice, but mentions only three of his own, all of which were located at or near Easthampton.

Although hereditary chorea had been recognized at least thirty years before, and had been described superficially by three other physicians, it is to Dr. Huntington that credit must be given for his thorough and scientific description of this disease which now bears his name. Little improvement has been made on his description, and later writers on the subject have been able to add little to his terse description embodied in a few lines.

For the benefit of those readers who have never read Huntington's original description and who have not access to libraries containing it, I include in this article his description in full.

After reading a general paper on the subject of chorea in childhood, he devoted the latter part of the article entirely to what he termed hereditary chorea. The original text is as follows:

"And now I wish to draw your attention more particularly to a form of the disease which exists, so far as I know, almost exclusively on the east end of Long Island. It is peculiar in itself and seems to obey certain fixed laws. In the first place, let me remark that chorea, as it is commonly known to the profession, and a description of which I have already given, is of exceedingly rare occurrence there. I do not remember a single instance occurring in my father's practice, and I have often heard him say that it was a rare disease and seldom met by him.

"The hereditary chorea, as I shall call it, is confined to certain and fortunately a few families, and has been transmitted to them, an heirloom from generations away in the dim past. It is spoken of by those in whose veins the seeds of the disease are known to exist, with a kind of horror, and not at all alluded to except through dire necessity, when it is mentioned as 'that disorder.' It is attended generally by all the symptoms of common chorea, only in an aggravated degree, hardly ever manifesting itself until adult or middle life, and then coming on gradually but surely, increasing by degrees, and often occupying years in its development, until the hapless sufferer is but a quivering wreck of his former self.

"It is as common and is indeed, I believe, more common among men than women, while I am not aware that season or complexion has any influence in the matter. There are three marked peculiarities in this disease: (1) Its hereditary nature. (2) A tendency to insanity or suicide. (3) Its manifesting itself as a grave disease only in adult life.

"1. Of its hereditary nature. When either or both the parents have shown manifestations of the disease, and more especially when these manifestations have been of a serious nature, one or more of the offspring almost invariably suffer from the disease, if they live to adult age. But if by any chance these children go through life without it, the thread is broken and the grandchildren and great grandchildren of the original shakers may rest assured that they are free from the disease. This, you will perceive, differs from the general laws of so-called hereditary disease, as for instance in phthisis or syphilis, when one generation may enjoy entire immunity from their dread ravages, and yet in another you find them cropping out in all their hideousness. Unstable and whimsical as the disease may be in other respects, in this it is firm; it never skips a generation, to again manifest itself in another; once having yielded its claims, it never regains them. In all the families, or nearly all in which the choreic taint exists, the nervous temperament greatly preponderates, and in my grandfather's and father's experience, which conjointly covers a period of seventy-eight years, nervous excitement in a marked degree almost invariably attends upon every disease these people may suffer from, although they may not when in health be overnervous.

"2. The tendency to insanity, and sometimes that form of insanity which leads to suicide, is marked. I know of several instances of suicide of people suffering from this form of chorea, or who belonged to families in which the disease existed. As the disease progresses the mind becomes more or less impaired, in many amounting to insanity, while in others mind and body both gradually fail until death relieves them of their sufferings.

"At present I know of two married men whose wives are living, and who are constantly making love to some young lady, not seeming to be aware that there is any impropriety in it. They are suffering from chorea to such an extent that they can hardly walk, and would be thought by a stranger, to be intoxicated. They are men of about fifty years of age, but never let an opportunity to flirt with a girl go past unimproved. The effect is ridiculous in the extreme.

"3. Its third peculiarity is its coming on, at least as a grave disease, only in adult life. I do not know of a single case that has shown any marked signs of chorea before the age of thirty or forty years, while those who pass the fortieth year without symptoms of the disease, are seldom attacked. It begins as an ordinary chorea might begin, by the irregular and spasmodic action of certain muscles, as of the face, arms, etc. These movements gradually increase, when muscles hitherto unaffected take on the spasmodic action, until every muscle in the body becomes affected (excepting the involuntary ones), and the poor patient presents a spectacle which is anything but pleasing to witness. I have never known a recovery, or even an amelioration of symptoms in this form of chorea; when once it begins it clings to the bitter end. No treatment seems to be of any avail, and indeed now-a-days

its end is so well known to the sufferer and his friends, that medical advice is seldom sought. It seems at least to be one of the incurables.

"Dr. Wood, in his work on the practice of medicine, mentions the case of a man, in the Pennsylvania Hospital, suffering from aggravated chorea, which resisted all treatment. He finally left the hospital uncured. I strongly suspect that this man belonged to one of the families in which hereditary chorea existed. I know nothing of its pathology. I have drawn your attention to this form of chorea, gentlemen, not that I considered it of any great importance to you, but merely as a medical curiosity, and as such it may have some interest."

The following is a report of my case:

Helen R. Admitted to the Westport Sanitarium, Nov. 2, 1912.

Family History. The disease was introduced into the R. family through Elizabeth F. who was born in New York City. She married Richard R. A sister of Elizabeth named Margaret had the disease, and before her death became insane. Their mother was a Miss F. and was born in Greenwich, Conn.

Margaret F. married Mr. D. and had two daughters, Margaret and Caroline. Margaret married Mr. W. and had one daughter. Neither Mrs. W. nor her living, unmarried daughter have ever shown any signs of the disease. Caroline married Mr. M. and bore two children, a son and a daughter, neither of whom developed the disease. Caroline became quite insane before her death but did not show choreic symptoms.

Elizabeth R. who introduced the disease had eleven children in all. Twins and three other children died when they were very young. Three sons and three daughters, grew to be adults. The eldest son, F., died of the disease. He had three daughters; Margaret and Lydia are living, normal and healthy. Margaret was the first born and Lydia the eighth. The youngest is living with the disease developed to its final stage; she is so helpless that she cannot feed herself.

The next son, Richard, also had the disease. He had three daughters. Bessie died at fifteen, showing signs of the disease; Francis at twelve, showing no signs of chorea. The one living is the patient Helen R.

The youngest son, James, who had the disease, left a wife and children, all of whom died. Three of the children died in childhood, between the ages of three and eleven years. The two youngest died at the same time of diphtheria. The oldest son, Robert, died of typhoid fever at twenty-three years of age, showing no symptoms of chorea.

Katherine, the youngest daughter and youngest child of Elizabeth F., married Mr. D. in 1874. She developed the disease most severely of any of the family and died in Jan., 1913, aged 63 years. The first symptoms of chorea were noted when she was about forty years of age, immediately after the birth of her last child. The nervous twitching of the fingers may have occurred prior to that time but the informant did not recall having observed them. Six children were born to her. One child died in infancy. Five are living, two sons and three daughters. The eldest is thirty-four and the youngest is twenty-two; at the present time none of them show the slightest signs of the disease.

The Mrs. R. who introduced the disease into the family, died of erysipelas and chorea. Her eldest son, Floyd, died in Bloomingdale Asylum, Richard, her second son, the father of the patient, was supported by a relative and never placed in an institution. He died of Bright's disease and chorea. Her youngest son, James, died in the Morristown (N. J.) State Hospital.

The disease did not attack the children of Elizabeth F. until they were forty years or over. The disease attacked the children of the sons, Floyd and Richard, when they were about twenty-three to twenty-five. So far as could be ascertained there were no consanguinious marriages among these families.

Personal History. The patient was born of American parentage in New York City, Sept. 14, 1879. No accurate information could be obtained about her birth, diseases of her childhood, or her menstrual history. Typhoid fever was the only disease since she became a woman. Informant stated that she was single, and a member of the Episcopal church. She had studied at home under the direction of her father (who also had the disease) and afterwards attended the Northfield Seminary for two years. She also prepared to do typewriting. She has a religious mania and about two years before admission, entered St. Faith's Episcopal Training School for Sisters, New York City, but was obliged to leave on account of not being desirable. There was no history of the use of drugs or alcoholic liquors. She was said to have been addicted to the habit of masturbation for several years. This is her first admission here and she has been in no other institution. She had led a very solitary life—living alone—because her parents and sisters were dead, and she had no one to care for her. An uncle had been making her an allowance for a number of years. She apparently gave her money to the church and pawned her clothes for necessities.

She lately became interested in a church and went to the early communion services every day of the week. She insisted on being a sister but they did not care to have her. She showed irritability and quick temper and was easily offended. One day before being admitted here she went out into the street and attracted a lot of children who teased her. Just what happened is not exactly known but the mother of a little child that was in a baby carriage declared that the patient was so cruel to this little child, that she had her arrested, and there were several witnesses ready to testify that she had abused the child. She had a disagreement with the only girl friend that she had, and quarrelled on the slightest provocation. She has always had a very violent temper and would fly to her room in a rage at some very slight and perfectly unintended remark to hurt her feelings and remain in her room with her door locked for ten or twelve hours. She has done this since she was fifteen years of age when she visited her aunt. She is extremely obstinate and self-willed, which is a symptom of the disease shown by every member of the family that has had chorea. She is suspicious of every one except her uncle. The chief characteristic of the disease mentally seems to be intense prejudice that is quickly aroused, and when once aroused it will last indefinitely. She has lost all sense of truth-telling.

On Admission. When admitted the patient was found on examination to be a slender, poorly-nourished young woman in fair physical condition, and no physical abnormalities were noted. Choreic movements of the face, hands and arms were noticeable. Weight, one hundred and four pounds. Informant said that there was a history of the loss of weight in recent years. Gait was limping and speech characteristic, complexion sallow, light grey eyes, brown hair. Her breath was fetid and there was a history of constipation.

The informant says that her choreic movements were first observed about seven or eight years before admission, and that masturbation was noticed four or five years ago.

Since Admission. The choreic movements seem to manifest themselves most plainly in her shoulders, arms and face. The left side of her body seems to be more involved than the right; her shoulder is higher, she does not use her hand as freely and limps slightly with her left foot. Her gait is somewhat shuffling and the toe of her left shoe sometimes catches in the carpet. On account of choreic movements she often upsets her ink, spills water, and drops food on her clothing. She has not been seen masturbating since her admission although it has been suspected. She is irritable, peevish, and seclusive. She prefers to remain in her room alone, closes the door and will not consent to go to the dining room for her meals and they are served in her room. She will not associate or talk with other patients or with the nurses. On a few occasions when the writer was making his morning rounds, and tapped at her door she asked to be excused.

She attempted to assault another patient because she would not leave her room. She has shown her temper on several occasions when interfered with by the nurse who wanted to put her room in order, or when it was necessary to collect her linen for the laundry. She will not go out for exercise because she wants to go alone, but spends her time in reading, writing, and praying.

She has a religious mania (if it may be so called). Soon after her admission she was permitted to go to church alone. When the services were over instead of returning to the sanitarium she started to New York City and travelled as far as a neighboring city, where her inquiries and strange conduct attracted the attention of the police who telephoned us and we sent for her. Although she begs to go to church she will not go with an attendant, and will not attend our Sunday services in the sanitarium. When others are singing hymns at the piano, she appears and requests silence. She will not be frank and open but is always suspicious and secretive. She takes her baths regularly, has a good appetite, and sleeps well, but is constipated and will not take medicines. She is very changeable in disposition, tells falsehoods, has a faulty memory and her finer sensibilities are blunted. She uses poor judgment and has no insight into her condition. So far as we have been able to observe she has no hallucinations or delusions, and has shown no suicidal tendencies.

In a letter to a relative she upraided him for sending her to the sanitarium, and refers in it to "her call" to the sisterhood. The following is a copy:

"WESTPORT, CONN.

"Dear Uncle K—:

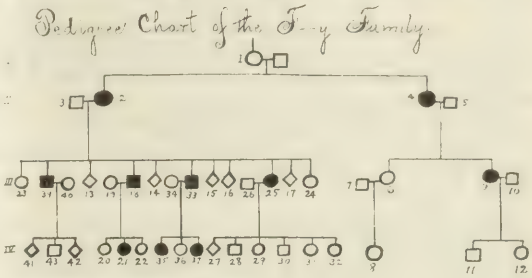
"My statement may have seemed overdone, but it was only a simple setting forth of an evident fact, and had you done as I suggested 'asked him to show you,' your letter could have been with the Strong-Place proposition instead of against it. Don't you see, dear, as he appeared to and called the Saints of old, so he appears to and calls those women whom it is the Father's good pleasure shall serve Him as sisters, and stays with them until the Divine Will is accomplished, but if they do not rise up and follow He is grieved and leaves them forever. He has appeared to me in this way, and I beg you tenderly, lovingly, not to force me to send him away.

"Affectionately (signed) H. R."

"Wednesday.

"P. S. You will be sick with disappointment when you finally see the effects and results of Westport on me. Why not be sensible and give it up now? H. R."

The handwriting of the choreic patient was almost as characteristic as that of the general paretic.



The circle represents a female.
The square represents a male.
The diamond represents sex unknown.
Black circles or squares represent those afflicted with Huntington's chorea; the white ones those not so afflicted.

1. Miss F——s.
2. Elizabeth F——y.
3. Richard R——g.
4. Margaret F——y.
5. Mr. D——s.
6. Margaret D——s.
7. Mr. W——n.
8. Miss W——n.
9. Caroline D——s.
10. Mr. M——n.
11. Mr. M——n.
12. Miss M——n.
13, 14, 15, 16 and 17 sex unknown.
18. Floy R——g.
19. Mrs. F. R——g.
20. Margaret R——g.
21. Miss R——g.
22. Lydia R——g.
23. Miss R——g.
24. Miss R——g.
25. Katherine R——g.
26. Mr. D——s.
27. Sex unknown.
28. Mr. D——s.
29. Miss D——s.
30. Mr. D——s.
31. Miss D——s.
32. Miss D——s.
33. Richard R——g.
34. Mrs. R. R——g.
35. Bessie R——g.
36. Frances R——g.
37. Helen R——g.
39. James R——g.
40. Mrs. J. R——g.
41 and 42. Sex unknown.
43. Robert R——g.

In conclusion I desire to call attention to a few additional facts about this patient. No suicidal tendencies have been observed. Her choreic symptoms developed when the patient was about twenty-six years old. This is much younger than the average age when choreic symptoms appear. I have endeavored to prepare a chart of the family along Mendelian lines to accompany this paper. A somewhat complete bibliography of books and articles on this disease published in the English language completes the paper.

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Reports of Societies.

ASSOCIATION OF AMERICAN PHYSICIANS.

TWENTY-EIGHTH ANNUAL MEETING HELD IN WASHINGTON, D. C., ON MAY 6, 7 AND 8, 1913.

(Concluded from page 651.)

ARTIFICIAL PNEUMOTHORAX.

DRS. LAWRASON BROWN AND A. K. KRAUSE, Saranac Lake: A brief résumé of a case of pulmonary tuberculosis of a severe ulcerative type which was treated with sanatorium methods for some time without results, then was subjected to treatment with artificial pneumothorax with temporary quiescence of the disease. Spontaneous pneumothorax occurring, tuberculous empyema set in, but the patient died from an acute involvement of the opposite lung. Pathological report of the findings.

DISCUSSION.

DR. F. T. LORD, Boston: It is clear from the cases cited by Dr. Brown, that the resulting pleurisy in spontaneous pneumothorax shortens the life of the individual. Of course, artificial pneumothorax is produced under aseptic conditions, but the fact just advanced has deterred me from applying the method.

DR. W. G. MACCALLUM, New York: What is Dr. Brown's idea as to the cause of improvement attributed to this mode of treatment? Rest and pressure would have obviously good effects upon the diseased lung, but what other factors are engaged? There are so many conflicting ideas among the various modes of treating this disease; some have for their object the increase of activity of the circulation in the lung; some, as this method, probably interfere with the circulation. What effect upon the amount of movement of the collapsed lung does the pneumothorax have? What effect on the local circulation? What effect on the movements of the opposite lung?

Discussion closed by DR. LAWRASON BROWN: There has been done no work, so far as I know, to enable one to answer exactly Dr. MacCallum's questions. The diminution of lymphatic drainage from the compressed lung probably has much to do with the improvement noted in cases in which the method has been used. The greatest danger attending the use of the procedure is the liability to hasten the progress of the disease in the opposite lung.

THE PRESENT STATUS OF THE TREATMENT OF PULMONARY HEMORRHAGE.

DR. V. C. VAUGHAN, JR., Detroit: In addition to the general measures employed in all cases of internal hemorrhage many drugs have been advocated as possessing a specific effect in the control of pulmonary hemorrhage. In the majority of cases the bleeding will subside in the course of a few days under absolute rest, control of cough by opiates, application of ice to the chest wall and the use of calcium chloride. Among drugs two classes may be of use: (1) Those which lower the pressure in the pulmonary circuit and (2) those which increase the coagulability of the blood. The author has seen benefit from the nitrites only in one instance following profuse repeated hemorrhages and where a marked depression of the respiratory movements followed the administration of the drug. Good results have been obtained following the use of pituitary extract, which in animals has been shown to lower the pressure in the pulmonary while maintaining that of the systemic circulation. The therapeutic procedure of the greatest value in checking constantly recurring hemorrhage, with no tendency to clot formation, has been the employment of fresh rabbit or horse serum.

DISCUSSION.

DR. M. H. RUSSELL, Philadelphia: I have had a single case similar to those cited by Dr. Vaughan. In March I attended a man who had a most intractable pulmonary hemorrhage. After the usual forms of treatment had proved inefficacious, I used pituitrin, with no benefit. Then I gave him an injection of 10 c.c. of normal horse serum, with immediate and permanent cessation of the hemorrhage.

Discussion closed by DR. V. C. VAUGHAN, JR.: Clewes and Bush have prepared a serum powder, soluble in water and very permanent; this may be used very successfully. They say that they have never seen it give rise to symptoms of sensitization, but I have seen urticaria follow its use.

ON SOME ANGIONEURAL ARTHROSES COMMONLY MISTAKEN FOR GOUT OR RHEUMATISM.

DR. SOLOMON SOLIS COHEN, Philadelphia: Arthralgias and effusions in and around the joints (*arthroses, periarthroses, pararthroses*), the true nature of which is rarely recognized, are among the various manifestations of that condition of the organization, found in certain persons only, which the writer described in 1885 as *Vasomotor ataxia,* and later as *Ataxia autonomica;* and to which the names of *Vascular instability, Vasomotor inco-ordination, Exudative diathesis; Angioneurotic diathesis; Vagotonic* and *sympathicotonic states,* etc., have since been applied by others. One striking form has been known since 1845, and has more recently received the name of *hydrops articulorum intermittens or h. a. periodica*). This, as well as the less well defined and more frequent angioneurotic swellings in and around the joints, is commonly mistaken for gout or rheumatism, particularly when occurring in gouty, lithemic, or myalgic subjects. In afebrile cases, the chief elements in diagnosis are the recurrent tendency of the affection, the family and personal history, and the characteristic signs of constitutional peculiarity exhibited by the patient. Sometimes, however, fever is present, and the diagnosis may be difficult. In the absence of authoritative bacteriologic and other laboratory tests for rheumatism (infective polyarthritis) the chief point to be relied upon is the temperature curve, which may be utterly capricious, or exhibit certain more or less well defined phases, or even a distinct periodicity. Marked increase of eosinophiles or a disproportionately low polynuclear count favors the diagnosis of angioneural disturbance. As a rule, salicylates are less efficacious than in true rheumatism, but they are not without palliative influence and the "therapeutic test" is not conclusive. Treatment must be individualized. Its chief elements are rest (local, and sometimes general), regulation of diet, elimination, antisepsis, special medication (angiotaxic or symptomatic) if needed, and during convalescence the administration of roborants or hematinics.

COMMENTS ON THE BROADER ISSUES OF THE PSYCHOANALYTIC MOVEMENT.

DR. JAMES J. PUTNAM, Boston: Read by title.

A CLINICAL STUDY OF A CASE OF PHOBIA.

DR. MORTON PRINCE, Boston: Read by title.

THE COLLOIDAL GOLD REACTION IN THE DIAGNOSIS OF SYPHILITIC AND OTHER LESIONS OF THE CEREBRO-SPINAL NERVOUS SYSTEM. DEMONSTRATION OF THE VARIOUS REACTIONS AND REPORT OF CASES.

DRS. BERTRAM W. SIPPY AND A. M. MOODY, Chicago: Object of paper is to attract attention to a new diagnostic reaction; to record our experience with it and to further its more general application to the diagnosis of disorders of the cerebro-spinal nervous system.

Under certain fixed conditions all pathological cerebro-spinal fluids giving a positive Nonne, give also a positive gold reaction. The reaction is qualitative to a high degree. The spinal fluids of syphilitic and parasyphilitic processes, such as syphilitic meningitis, paretic dementia and tabes, react in a group and very differently from the fluids derived from non-syphilitic processes, such as epidemic, suppurative and tuberculous meningitis, brain tumor, hemorrhage, etc. Gold reaction even more qualitative and constant than the Wassermann reaction.

Apparently a characteristic reaction in cases of paretic dementia. Reaction present in very earliest stages of paretic dementia, tabes and other luetic meningeal involvement; luetic iritis. Our series show constant reaction also in congenital syphilis.

DISCUSSION.

DR. R. C. CABOT, Boston: Has the reaction been tried with blood serum?

DR. B. W. SIPPY, Chicago: Yes; but it is not so delicate as with the spinal fluid.

DR. C. F. HOOVER, Cleveland: What relation does the reaction bear to the cellular content of the subarachnoid fluid?

DISCUSSION closed by DR. B. W. SIPPY, Chicago: The agreement between the findings of the colloidal gold reaction and the evidence obtained from examining the cellular content of the spinal fluid is fairly constant.

PNEUMONIC HEMIPLEGIAS.

DR. C. F. WITHINGTON, Boston: Waiving the commoner forms of gross central lesion which may produce hemiplegia in the course of a pneumonia, the paper considered those cases in which transient aphasias and other paralyses, and even complete and universal hemiplegias may occur from toxic influences and with slight or no anatomical lesion in the brain.

Cases cited where with extensive hemiplegia no lesion was found at autopsy, and also when with alarming symptoms of paralysis suggestive of septic thrombosis a quick and complete recovery was made closely following the resolution of the pneumonia. Such cases are rare and most likely to occur in young people. Difficulties of diagnosis and great importance from the prognostic viewpoint. Prognosis probably not worse than that of the underlying pneumonia.

DISCUSSION.

DR. J. A. CAPPS, Boston: Is it possible that the changes in the circulation in the brain may be explained as due to reflex disturbances originating in the pleura and occasioned by the pneumonia? Of course the phenomena may have been due to the toxemia of pneumonia, but very peculiar circulatory effects may follow irritation of the parietal pleura. Russell, of London, has reported reflex circulatory disturbances caused by irritation of the pulmonary nerves; and Lewis and I have done experiments in which with irritation of the parietal pleura, reflex phenomena, even to the production of unconsciousness, have been produced. But why do none of these disturbances arise in pleurisy?

Discussion closed by DR. C. F. WITHINGTON, Boston: That pneumonia may produce peripheral vascular disturbance is well known, and I had attributed my cases to that cause.

Book Reviews.

London Public Health Administration. By W. McC. WANKLYN, B.A. (Cantab.), M.R.C.S., L.R.C.P., D.P.H., F.R.S.M. London: Longmans, Green, and Company. 1913.

Of recent years London, the largest city and one of the most densely populated in the world, has become distinguished, despite its climate, for its low death-rates, the relative good health of its inhabitants, and the efficiency of its public health administration. This small volume, the summary of a larger work upon which the author is engaged, aims to present in convenient form for reference a conspectus of this administration, showing the principal authorities concerned, their origin, services, powers, and *modus operandi.* The book constitutes an admirable tabular statement and guide for those engaged in study or inspection of public health work and methods.

Minor and Operating Surgery. Including Bandaging. By HENRY WHARTON, M.D. Eighth edition, enlarged and thoroughly revised, with 570 illustrations. Lea and Febiger. 1913.

This well known and popular manual has grown to 700 pages. It is, on the whole, an extremely satisfactory book. We could wish for more space and more detail upon the great subject of anesthesia, particularly more concerning its recent advances, and the same is true of transfusion and the many modifications of its technic. The section of bandaging is the best of the many we have seen in print. There are a large number of new and good illustrations, and the old favorites are viewed again with pleasure. Some of the operative measures are dismissed with rather scant attention, but on the average, descriptions are adequate. It is a book to be recommended.

The Surgical Clinics of John B. Murphy, M.D., at Mercy Hospital. June, 1913, and October, 1913.

These two volumes seem to the reviewer to be of exceptional interest. Eighteen subjects appear in Number 3 (June) and 21 in Number 4. In the latter number there also appeared an article by Dr. Philip Kreuscher upon "Vaccine and Serum Therapy," a series of x-ray plates beautifully illustrating the "blood supply in and around joints," and a talk by Dr. Norman Bridges upon appendicitis. Dr. Bridges was present at Dr. Murphy's original operation for appendicitis, said to be the first one done in America.

The articles, as usual, cover a very wide range; the presentation is the same as in preceding volumes. These two numbers maintain the standard set from the beginning by Dr. Murphy.

Report of the Commissioner of Education for the Year Ended June 30, 1912. Volumes I and II. Washington: Government Printing Office. 1913.

This annual report of the United States Commissioner of Education, Mr. P. P. Claxton, contains the usual mass of valuable data, investigation, and discussion on educational topics, with statistics and special reports from the various divisions of the bureau. Of particular interest to physicians are the chapters on "The Physical Welfare of School Children" and on "Typical Health-Teaching Agencies of the United States." Under the former heading, the subjects discussed are medical inspection, open-air schools, school lunches, sex instruction, and quiet zones around schools. The important subject of education in sex hygiene is temperately treated, but without more definite conclusions than that improvement on present methods is earnestly to be desired. The method of the physician in giving such instruction is criticized as being "too pathologic and wanting in sympathy and moral direction." Of organizations for social purity and the teaching of sex hygiene, eighteen are enumerated and their methods described. Among these are the Boston School of Eugenics and the newly established Reed College, of Portland, Oregon. As a matter of fact, probably the chief good which will ultimately result from the present agitation on this important subject will be the gradual enlightenment of the adult public on the matter of venereal diseases and the proper conduct of the sexual life.

The second volume of the report consists largely of statistics. Those dealing with medical education show that in the year 1911-12 there were in the United States 18,452 students of medicine, 7190 of dentistry, 6,163 of pharmacy, and 32,389 pupil nurses. Like its yearly predecessors, the report is a repository of much information of general and special value to the public and to students of education.

The Treatment of Infantile Paralysis. By Oscar Vulpius, M.D., Professor Extraordinary at University of Heidelberg. Translated by Alan H. Todd, M.B.B.S., B.Sc. (London) House Surgeon, Guy's Hospital; late resident surgical officer, Royal National Orthopedic Hospital. With introduction by J. Jackson Clarke, M.B. (London), F.R.C.S. New York: William Wood and Company, 1912.

The author is an orthopedic surgeon of wide personal experience and evidently closely familiar with the work of other men in Europe and America. The critical review of the various attempts which have been made to solve the many problems of poliomyelitis would alone make the book of great value. Professor Vulpius expresses definite opinions, frequently at variance with those of other noted authorities, but there is an evident attempt at fairness in his discussions and a judicial attitude is usually maintained. The work of his associate, Stoffel, on the anatomical arrangement of the special nerve bundles, having individual functions within the same nerve sheath, is potentially of great value. We are inclined to believe, however, that Volpius's optimism as to the results likely to follow even very skilfully performed nerve transplantation operations for the restoration of function of the paralyzed muscles is hardly warranted by the clinical results. We believe the work to be almost in the experimental stage and hardly to be advised until these able surgeons now working on the problem can lay down more definite rules of procedure likely to be attended with successful results. We differ from him in his estimate of the value of medico-mechanical treatment in many cases of paralysis of the shoulder. He hopes for little from the method, and is enthusiastic over the results to be obtained from arthrodesis. The remarkable cases reported by Dr. Bucholz, head of the medico-mechanical department of the Massachusetts General Hospital, would certainly seem to make wise the trial of this method before resorting to surgery and stiffening the joints. Vulpius believes that after a year no further regeneration of the nerves may be expected. Many cases, however, are on record in which, either by more perfect coördination, or as a result of correct training of apparently completely paralyzed muscles, entirely new movements are gained years after the acute attack. The book is a distinct contribution to orthopedic literature, well illustrated, and very readable. No small credit is due to the translator.

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UNIFORM HOSPITAL MORBIDITY STATISTICS.

IN its budget for 1914 the New York City Health Department has asked for an appropriation for the purpose of extending the work of its bureau of records, and if this should be granted it purposes to inaugurate a system of hospital morbidity reports in accordance with a plan which has been worked out by Dr. C. P. Bolduan, of the department. The merits of the plan, aside from its simplicity, consist, it is stated, in the following facts: First. Various hospitals are not compelled to adopt any particular system of nomenclature. Second. Valuable morbidity statistics can be obtained through the voluntary coöperation of several hospitals. Third. The amount of labor required on the part of the hospitals is very small. The plan provides for the filling out of "discharge certificates," resembling death certificates, on the discharge of each and every patient from a hospital, which would record certain social data concerning the patient, data concerning the mode of admission, length of stay, condition on discharge, and also the diagnosis, including complications as well as the main cause of illness. Likewise for the prompt transmission of such certificates to a central bureau, where they would be tabulated and their data analyzed. In order to make the returns from the various hospitals available for comparison the nomenclature employed in the certificates would be translated into the terms of a standard nomenclature, for which purpose the Bellevue classification is suggested.

It is sincerely to be hoped that this plan will be carried into successful operation in New York, and also that at no distant day similar methods may be adopted generally, not only in cities but smaller communities as well. The information thus afforded would be of great practical advantage, particularly in leading to the control of certain diseases which are almost never directly fatal, yet the occurrence of which is of extreme importance to the public. As the *Bulletin* of the New York Health Department points out, except in the case of certain notifiable diseases, public administrators have no ready means of learning the prevalence and distribution of diseases other than through an analysis of death certificates. Inasmuch as a large proportion of cases of illness are treated in hospitals, it follows that these institutions ought to constitute a valuable source of information regarding the occurrence of a great variety of diseases. Students of public health have, therefore, repeatedly turned to hospital reports as sources of morbidity statistics; but, unfortunately, the reports have as a rule proved worthless for their purpose, chiefly on account of the fact that scarcely any two hospitals employ the same system of nomenclature for diseases. In a paper read at the recent annual meeting of the American Public Health Association at Colorado Springs Dr. Bolduan urged the adoption of some such method for securing hospital morbidity statistics as that here outlined, and we learn that in the discussion which followed it was generally agreed that the proposed plan was both simple and practicable, and should be put into operation. The outcome of the matter was that a resolution was unanimously passed in which the association recommended the enactment of laws prescribing the manner of keeping the morbidity records of all institutions for the care of the sick, and requiring the filing of transcripts of so much of such reports as may be necessary for statistical purposes with the proper registration officials of the several jurisdictions in which such institutions are located.

DR. MARK AKENSIDE.

SUNDAY, November 9, will be the birthday anniversary of Dr. Mark Akenside, one of the few

distinguished physicians of history who has also won distinction in literature. In his day he was a well-known practitioner of London, and his poetry was much read and praised by Alexander Pope and Dr. Johnson. Yet such is the instability of medical and literary reputation, that Akenside is now almost forgotten both as a poet and as a doctor.

Mark Akenside was born at Newcastle-on-Tyne, England, on Nov. 9, 1721, the son of a butcher. He at first studied for the Presbyterian ministry at Edinburgh, but after two years abandoned theology for medicine. Proceeding to Leyden, in 1741, he pursued his medical studies at that University, from which he received his doctor's degree in 1744.

It was apparently during his residence in the Netherlands that he composed his most familiar poem on "The Pleasures of Imagination," perhaps consoling himself therewith for the realistic drudgery of his professional education. The piece was published in 1744, the year of Akenside's graduation, by Dodsley, who paid the author £100 for it. It made an immediate success, and went through several editions within few years. To our modern taste, it is a rather frigid effort in conventional blank verse, but was then considered a masterpiece of style and thought. There is little of medical interest in its text; indeed, Akenside's tastes and point of view seem to have been chiefly philosophic and classical. One is reminded of his professional affiliations only by occasional passages such as that describing a convalescent:

> "Fair is the face of Spring
> To every eye; but how much more to his
> Round whom the bed of sickness long diffus'd
> Its melancholy gloom!"

On first returning to England from Holland, Dr. Akenside settled in practise at Northampton, where he published in 1745 a volume of odes, which were on the whole of inferior quality, and met with little success. In 1746 he removed to Hampstead and in 1748 to London. Whether discouraged by the reception of the odes, Akenside seems from thenceforth largely to have given up writing verse, except for revising his previous work, and devoted himself almost exclusively to medicine.

At first his professional success was small, and he was forced to depend on an annual subsidy of £300 from Mr. Jeremiah Dyson. He turned his attention to medical composition, and wrote in prose on dysentery, the lymphatics, and white swelling of the joints. Finally he was appointed physician to St. Thomas' Hospital, where he delivered a series of Goulstonian lectures on anatomy, and in 1759 the Harveian Oration. His fame as a consultant rapidly spread, and in 1761 he was appointed physician to the Queen. For nine years he lived to enjoy his popularity, but in 1770 died of a "putrid fever."

Akenside was one of those probably with more taste for letters than for medicine, with little real genius for either, yet with sufficient talent to succeed better than the average at both. Like Gray, he is in literature a man of a single poem, yet unlike Gray that one was not of the first excellence. It is interesting today to remember him not as a great poet, but as an able physician to whom literary diversions brought increased reputation and doubtless much contentment and solace.

TWO MUNIFICENT GIFTS TO MEDICAL EDUCATION.

Within the past fortnight have been announced two munificent gifts to medical education in the United States. An anonymous donor, believed to be Colonel Oliver H. Payne, of New York City, has given the sum of $4,000,000 to Cornell Medical School as an endowment fund, the income of which is to be devoted annually to the maintenance of the school. Almost simultaneously the Rockefeller General Education Board of New York has voted to the Johns Hopkins Medical School the sum of $1,500,000, to be known as the "William H. Welch Endowment for Clinical Education and Research," the income to be used in paying to instructors such salaries as shall make them financially independent of receipts from private practise. In announcing this latter gift, Mr. F. T. Gates, chairman of the board, said:

"Since the opening of the Johns' Hopkins Medical School, in the early nineties, it has been universally conceded that the teaching of the underlying medical sciences, namely, anatomy, physiology, pathology and pharmacology, must be placed in the hands of men devoting their entire time to teaching and research in their subjects. As the clinical branches are more extensive and more complicated than the above mentioned underlying sciences, the medical faculty of the Johns Hopkins University have become convinced that it is fully as important that the clinical subjects should be cultivated and taught

by men freed from the distraction involved in earning their living through private practise.

"The trustees of the Johns Hopkins University and the Johns Hopkins Hospital and the medical faculty of the Johns Hopkins University united in requesting of the General Education Board funds that would enable them to reorganize the departments of medicine, surgery and pediatrics, so that the professors and their associates in the clinic and the laboratories should be able to devote their entire time to their work.

"In making the gift, the General Education Board has placed absolutely no restriction upon the freedom of any of these men. They will henceforth be in position to do any service that either science or humanity demands. They are free to see and to treat any one, whether inside or outside the hospital, but they will accept no personal fee for any such service. It is not expected that this radical innovation in medical teaching will deprive the Johns Hopkins Medical School or the students in the Johns Hopkins Medical School of such advantages as are still to be gained from the services of other men who are practitioners of medicine and surgery.

"In the conduct of the dispensary, in the teaching of students and in the cultivation of the specialties, men simultaneously engaged in practice will to some extent continue to be utilized."

These two great endowment gifts, of the type which medical education most needs in this country today, will be gratefully welcomed, not only by the institutions which they benefit, but by every member of the profession. The Rockefeller gift, by its express terms, represents a recognition by the board of the principle that clinical, as well as laboratory, teachers should receive an adequate living salary in return for their service to their school, leaving them free, in the case of schools controlling affiliated hospitals, to obtain clinical experience without the distraction of private practise. This gift goes far towards establishing in this country, on a somewhat different basis, positions of a kind analogous to those of professors in the large state university medical schools of Germany, Austria, and Switzerland.

THE INTERNATIONAL CONGRESS ON TUBERCULOSIS.

THE eleventh International Congress on Tuberculosis was held in Berlin from October 22 to 25, inclusive. Representatives were present from twenty-two nations. The United States delegates were Dr. Livingston Farrand, of New York; Dr. Henry Barton Jacobs, of Baltimore; and Dr. Stephen Maher, of New Haven, Conn. The sessions met in the halls of the Prussian Diet, under the presidency of M. Léon Bourgeois. The address of welcome was made by the imperial vice-chancellor, Clemens Delbrouck. The principal topics of discussion were the clinical and pathologic phenomena of human tuberculosis, the surgical treatment of pulmonary tuberculosis, the influence of insurance on the control of the disease, and the constitution of schools for tuberculous or susceptible children. Leading addresses were made by Dr. Hans Much, of Hamburg; Dr. F. Bamberger, of Vienna; Dr. Louis Renon, of Paris; Lee K. Frankel, of New York; Frederick L. Hoffman, of Newark, N. J.; Drs. Wilhelm Koch, Kaufmann, Franz, and Behla, of Berlin; Dr. D. J. Heymanns, of Ghent; Dr. Léon Bernard, of Paris; and Dr. von Glasenapp, of Arolsen, Germany.

This congress, like its predecessors, the first of which was held also at Berlin in 1902, represents the organized professional intelligence of the world, engaged in studying the problems of the commonest serious physical disease of mankind. The first decade of the existence of this organization has seen notable advance in the knowledge and treatment of tuberculosis. It is sincerely to be hoped that this second decade, just begun, may produce even greater progress in its control and eradication.

MASSACHUSETTS MEDICAL BENEVOLENT SOCIETY.

AT the annual meeting of the Massachusetts Medical Benevolent Society, held in Boston last week, Dr. George B. Shattuck was re-elected president, Dr. George W. Gay vice-president, and Dr. William L. Richardson treasurer for the ensuing year. Dr. Elbridge G. Cutler, Dr. George M. Garland, and Dr. Abner Post, were elected to the board of trustees.

On previous occasions we have called attention editorially to the importance of the quiet work of relief which is being continuously done by this society of doctors, and which from its nature does not seek publicity. In no class of the community is needed service during personal or family illness freely and mutually rendered as among physicians; and physicians should feel

that they can rely, as no others can, on their professional brethren for other assistance and support in time of misfortune, adversity, or disaster. Such service should be one of the highest obligations and honors of the profession to perform, both individually and through this Society, which, to discharge this duty, must have the support and contribution of every individual.

PARALYSIS DURING ANTIRABIC TREATMENT.

The weekly report of the United States Public Health Service for October 24, 1913, contains a paper by Dr. H. E. Hasseltine, reporting two cases of paralysis during the course of antirabic treatment at the Hygienic Laboratory in Washington, D. C. In both patients the paralysis was generalized, but was worst in the legs, appearing in one case 13, in the other 19 days after the beginning of treatment. There was associated pyrexia in one case, none in the other. Both patients recovered after several weeks. Dr. Hasseltine refers to a few other similar cases that have been reported, and discusses various theories as to their causation. He is inclined to believe this transitory paralysis a phenomenon of anaphylaxis from injection of rabbit's cord tissue. He urges all practitioners and institutes to report such cases in full, in order that complete data may be gathered.

MEDICAL NOTES.

Smallpox in Australia.—Reports recently received in Boston state that smallpox has been for some time and still continues extensively epidemic in Sydney, Australia.

A Living German Centenarian.—Report from Frankfurt, Germany, through Berlin on Oct. 29, states that there is still living at the village of Dormowo, in the district of Meseritz, in Prussian Poland, a woman who remembers seeing Napoleon's army on its march to Moscow in 1807. This woman, Hedwig Stavne, is said to have been born on Oct. 15, 1794, at Pleschen, on the Russian frontier. She has been a goose-herder all her life, and still pursues that occupation despite her progressive physical infirmities.

Clinical Congress of Surgeons of North America.—The fourth annual session of the Clinical Congress of Surgeons of North America will be held next week in Chicago, from Nov. 10 to 15 inclusive. The program will include daily clinics in general surgery and in all the surgical specialties from 8 a. m. to 5 p. m. There will be eight literary evening sessions, at which scientific papers will be read and discussed. A large attendance is expected.

Academy of Ophthalmology and Oto-Laryngology.—The annual meeting of the American Academy of Ophthalmology and Oto-Laryngology was held last week at Chattanooga, Tenn. At the closing session on Oct. 28, the following officers were elected for the ensuing year: President, Dr. J. M. Ray, of Louisville, Ky.; secretary, Dr. L. M. Francis, of Buffalo, N. Y.; treasurer, Dr. S. H. Large, of Cleveland, Ohio; councillor, Dr. Allan Greenwood, of Boston. It was voted that the meeting of the society in 1914 shall be held in Boston.

Dr. Gorgas in South Africa.—It is announced that upon the completion of the Panama Canal, Col. W. C. Gorgas is to visit the Transvaal, for the purpose of investigating means for the prevention of pneumonia, which is exceedingly prevalent in the South African mining camps. Dr. Gorgas is expected to sail from New York about the first of December.

Award of Warren Triennial Prize.—It is announced that the Warren Triennial Prize of $500, for 1913, has been awarded to Dr. Arrigo Visentini, instructor in pathology at the Royal University of Pavia, Italy, for original research on the "Function of the Pancreas and Its Relation to the Pathogenesis of Diabetes."

International Pharmacopoeial Bureau.—At the recent International Congress of Pharmacy at The Hague, a commission was appointed, consisting of representatives from Great Britain, Germany, France, the United States, the Netherlands, Belgium, and Switzerland, to consider the formation of an international pharmacopoeial bureau for the unification of all pharmacopoeias.

Eugenics in Switzerland.—Report from Berne, Switzerland, on Oct. 25, states that the

Swiss Society of Public Utility for Women has established a bureau for the medical examination and certification of women for matrimony.

PLAGUE-INFECTED RATS AT SEATTLE.—Report from Washington, D. C., on Oct. 23 states that, during the current month, seven plague-infected rats have been killed along the water-front of Seattle, Wash. Fumigation of all ships at this port has been ordered.

SERUM TREATMENT OF TYPHOID FEVER.—An unverified press report from San Francisco on Oct. 25 describes the successful treatment by Dr. George R. Carson of typhoid fever by the injection of blood-serum from a convalescent patient. By this means, it is said, the course of the disease is shortened and its complications avoided. Dr. Carson's report was presented at the recent annual convention of Pacific Coast Railway Surgeons. Its publication in medical literature will be awaited with interest.

BOSTON AND NEW ENGLAND.

POLIOMYELITIS IN CONNECTICUT.—Report from Wallingford, Conn., on Oct. 28 states that two cases of acute poliomyelitis have recently occurred in that city, as a result of which the local Choate preparatory school has been closed.

TYPHOID FEVER IN PROVIDENCE.—Report from Providence, R. I., on Oct. 27 notes the continuance of the epidemic of typhoid fever in that city among persons who attended the recent Perry Centennial celebration at Put-in-Bay, Ohio. Already over 40 cases and 5 deaths of the disease have occurred.

THREE LIVING CENTENARIANS.—Mrs. Sarah A. Dike, of Pittsford, near Rutland, Vt., is said to have been born in May, 1813.

Mrs. Oppoline Rheault, of Pittsfield, Mass., is said to have been born on Nov. 2, 1813, at St. Edward de Gentilly, Quebec. She has several children and many living grandchildren.

Mrs. Eliza Van Bramer, of Pittsfield, Mass., is said to have been born in June, 1812.

LECTURES ON ANIMAL DISEASES.—There is at present in progress at the Harvard Medical School a course of free public lectures on "Diseases of Animals," given at the request and with the co-operation of the Massachusetts Society for the Prevention of Cruelty to Animals. The dates and subjects of the remainder of these lectures, which are given at 4 p. m., are as follows:—

November 9. "The Relation between Human and Animal Tuberculosis," Professor Theobald Smith, of Boston.

November 16. "Protection of Animals from Infective Diseases," Dr. Charles H. Higgins, of Ottawa.

November 23. "The Diseases and Care of Poultry and the Pig," Dr. Austin Peters, of Boston.

November 30, "The Diseases and Care of the Dog and the Cat," Dr. Arthur W. May, of Boston.

December 7. "The Diseases and Care of the Horse and the Cow," Dr. F. H. Osgood, of Boston.

December 14. "Rabies and Glanders," Dr. Langdon Frothingham, of Boston.

December 21. "The Relationship between Human and Animal Diseases in the Tropics," Professor R. P. Strong, of Boston.

CAMBRIDGE HOSPITAL LEAGUE.—On Oct. 24 and 25 a sale was held in Cambridge, Mass., for the benefit of the Cambridge Hospital League, an association which does annually a large amount of social service and charitable relief work among the poor of that city. It is believed that over $1000 was realized.

HOSPITAL BEQUEST.—The will of the late H Isabel Ireson, of Lynn, Mass., which was file for probate at Salem, Mass., on Oct. 29, con tains a bequest of $5000 to the Lynn Hospital.

INFECTIOUS DISEASES.—Cases of infectious dis eases reported to the Boston Board of Health fo the week ending October 28, 1913: Diphtheria 45, of which 1 was non-resident; scarlatina, 2 of which 1 was non-resident; typhoid fever, 14 measles, 9; tuberculosis, 38, of which 2 were no resident.

The death-rate of the reported deaths for th week was 13.05.

NEW YORK.

AMERICAN RADIUM DEPOSITS.—At the Ame ican Mining Congress in Philadelphia it w

announced on Oct. 23 by Dr. C. L. Parsons, chief of the division of mineral technology of the U. S. Bureau of Mines, that the greatest radium deposits in the world had been purchased by Dr. James Douglas of New York and Dr. Howard Kelly of Baltimore, to be utilized for the benefit of humanity in the alleviation and cure of cancer. The property consists of twenty-seven mining claims of mining land in Paradox Valley, Colorado, stated to contain the richest radium-bearing ore deposit known to science. Dr. Parsons said that the bureau of mines had evolved an entirely new process for extracting radium, which would materially reduce its cost, and he also made the announcement that radium clinics would shortly be opened at the General Memorial Hospital, New York, and at Dr. Kelly's hospital in Baltimore.

Prison Reform.—The first report by the New York State Commission on Prison Reform was made public on Oct. 26. It is largely based on the recent personal study by the chairman, Thomas M. Osborne, who, in the guise of a convict, spent a week in Auburn Prison and went through the entire routine, including punishment in the "dungeon" for refusing to work. The report includes a number of recommendations for the improvement of sanitary, as well as other conditions.

Health Department Announcements.—The City Health Department, in its *Weekly Bulletin*, makes several important announcements. Patients suffering from surgical tuberculosis are to be admitted for the first time to the municipal tuberculosis sanatorium at Otisville, Orange County, provision for a certain number of such cases having been made there. Patients who require little surgical treatment will be preferably selected, as those with glandular involvement, those undergoing treatment by means of mechanical appliances, and post-operative cases are considered most suitable for this institution. Early in November 100 patients are to be admitted to the new Sea View Hospital for pulmonary tuberculosis on Staten Island, and those desired are patients who have been found to be unsuitable for Otisville or Ray Brook, in the Adirondacks, but for whom favorable results may be expected with proper treatment. The *Bulletin* states that it is gratifying to know that the plans for the administrative control of venereal diseases developed by Dr. H. M. Biggs, have again received endorsement, and quotes a resolution adopted at the recent International Medical Congress in London calling on the governments of all the countries represented in the congress where such notification does not already obtain, to institute a system of confidential notification of cases of syphilis. Having mentioned that similar action was taken by the American Public Health Association at its annual meeting in September, it goes on to say: "Judging by the extent to which physicians are making use of the Wassermann Laboratory, recently established by the Department of Health, and also by the increasing attendance at the diagnostic clinics, there is reason to believe that we shall soon have as well organized and effective supervision of the venereal diseases as we have at present of tuberculosis. In this connection it is also gratifying to note that many physicians are reporting their cases of venereal diseases."

Hospital Bequest.—Herman C. Van Post of New York, who died recently, left $170,000 to charitable and benevolent objects, and one of the bequests in his will was $50,000 to St. Luke's Hospital

Corrosive Sublimate Poisoning.—There has just been a case of fatal poisoning by corrosive sublimate in New York of similar character to the one of Mr. Walker of Macon, Ga. The victim was Isaac Levy, a retired merchant and father of eleven children, who in the night took mercury tablets in mistake for "headache tablets." In this instance a far larger quantity of the bichloride was swallowed (between 27 and 30 grains, as against 7 grains), and although treatment was not commenced until three hours later and the patient was a much older man, he survived for a slightly longer time—seven and one-half days.

Anniversary of New York Laryngological Society.—The New York Laryngological Society, which was founded in 1873, will celebrate the fortieth anniversary of its organization during the latter part of the coming November. The event is especially interesting, from the fact that it was the first society of its kind to be established, the earliest to imitate its example, either in Great Britain or in Europe, following

it by more than ten years. Twenty-five years ago the society was merged into the Academy of Medicine, becoming the Section of Laryngology and Rhinology. A formal meeting at the Academy of Medicine has been arranged at which addresses will be offered and a bronze tablet and other memorials commemorating the occasion will be presented.

PHYSICAL EXAMINATION OF SCHOOL-CHILDREN.—An editorial in a recent issue of the New York *Times* states that in 1912, owing to the insufficient number of school medical inspectors, only 287,469 of the 825,000 pupils in the city schools received proper physical examination. This year there are 867,000 pupils, and the Department of Health has asked for an increased appropriation to provide more inspectors. It is estimated that over 426,000 of these children have defective teeth.

BLINDNESS FROM WOOD ALCOHOL.—The New York Committee for the Prevention of Blindness has recently issued an illustrated folder (No. 11) on wood alcohol as a cause of blindness. The poisonous nature of wood alcohol, and the dangers of its use in the trades, are explained. The committee is also endeavoring to secure legislation to require the proper labelling of wood alcohol, to prevent its use as an adulterant, and to protect workmen against the danger of inhaling its fumes.

CHINESE RED CROSS.—An interesting account of the establishment of the Red Cross Society in China, in which he personally took an active part, was given by the Right Rev. Logan H. Roots, Protestant Episcopal Bishop of Hankow, in an address on Oct. 26. When the recent fighting commenced, the authorities at Hankow requested of the bishop that the physicians of the Missionary Hospital should care for the wounded. This was readily acceded to, and in the next six weeks some three hundred soldiers were received into the hospital—the beginning of the Red Cross work. The care of the sick and wounded by the hospital staff excited great interest in medical and hospital work, and it was found necessary to start another hospital in Wu Chang. When an appeal was made for funds, among the first to respond were the General of the Chinese army and the new Vice-President of the republic, the latter contributing $2,000.

Current Literature.

MEDICAL RECORD.

OCTOBER 18, 1913.

1. *FULLER, E. *The Cure Through Genito-urinary Surgery of Arthritis Deformans and Allied Varities of Chronic Rheumatism.*
2. WING, L. A. *The Scope of Radiographic Methods from a Clinical Viewpoint, with Some Illustrative Cases.*
3. BERNSTEIN, E. P., AND HORWITT, S. *Syringomyelia, with Pathological Findings.*
4. FRIEDMAN, G. A. *A Hitherto Undescribed Form of Polycythemia, and Its Possible Relation to Duodenal Ulcer, Chronic Pancreatitis and a Disturbance of Internal Secretions (Adrenalin).*
5. VINTON, M. M. *Medical School Inspection and the General Practitioner.*
6. IVEY, R. R. *The Wassermann Reaction Among the Negro Insane of Alabama.*

1. Fuller believes that many chronic disorders are due to sclerosis or some other pathologic condition of the seminal vesicles, and he has performed the operation of seminal vesiculotomy on several hundred patients, sixty-nine of which were cases of arthritis deformans or some other form of chronic rheumatism. Eight of these he now reports in detail. Remarkable results were noted after incision and drainage of the seminal vesicles. [L. D. C.]

NEW YORK MEDICAL JOURNAL.

OCTOBER 18, 1913.

1. DERCUM, F. X. *The Clinical Forms Presented by Nervous Syphilis.*
2. WOLBARST, A. L. *The Report of Seven Cases of Syphilis Apparently Cured with One Injection of Salvarsan.*
3. PALEFSKI, I. O. *New and Improved Duodenal Instruments and Technic of Speedy Intubation of the Normal Duodenum.*
4. MACWHINNE, A. M. *The Teeth and Their Relation to the Eye.*
5. BARLETT, C. J. *Pyelitis in the Adult.*
6. GLUECK, B. *The Mentally Defective Immigrant.*
7. BARNES, F. M., JR. *General Paralysis in the Negro.*
8. MANN, C. N. *Report of a Case of Retropharyngeal Abscess in an Adult.*
9. KAUFMAN, B. *A New Method of Diagnosticating Masturbation in Girls.*

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

OCTOBER 18, 1913.

1. CHAPIN, H. D. *Radiographic Studies of the Gastro-intestinal Tract in Infants.*
2. *MORSE, J. L. *Use of the Roentgen Ray in the Diagnosis of Obscure Abdominal Conditions in Infancy and Childhood.*
3. GAENSLEN, F. J. *Disarticulation of the Knee Joint.*
4. *POLAK, J. O. *A Study of the End Results of the Baldy-Webster Operation.*
5. SAULS, K. L. *Is Membranous Dysmenorrhea Caused by Endometritis.*
6. *ROWNTREE, L. G., AND BAETJER, W. A. *Radium in Internal Medicine; Its Physiologic and Pharmacologic Effects.*

7. GOODMAN, A. L. *Rupture of a Mediastinal Lymph Node into the Bronchus.*
8. ZAHORSSY, J. *Roseola Infantum.*
9. COKENONER, J. W. *Joint Disease Due to Infection from Other Parts of the Body.*
10. ELY, L. W. *The Injection Treatment of Tuberculous Joints.*
11. MONTGOMERY, D. W. *Varicose Veins as Described by Haly Ablas.*
12. PEARCE, R. M. *Negative Results with the Ninhydrin Reaction as a Test for Amino-Acids in the Serum of Nephritics and Others.*
13. MANZAN, P. J. *Passage Through Gastro-enteric Tract of Black Headed Pin Without Symptoms.*
14. JONES, G. I. *Hepatic Abscess (Non-amebic) and Gastro-intestinal Myiasis.*

2. Morse believes the Roentgen rays to be of the greatest value, not only in determining the time required for the emptying of the normal infant stomach, but also in determining the presence and nature of pathologic abdominal conditions which cannot be diagnosed accurately by any other means. He illustrates his article with plates and excellent type cases which demonstrate clearly the great value of this method of diagnosis.

4. Polak, analyzing 576 cases of abnormally placed uteri operated by the Baldy-Webster technic, finds the following results: 202 cases have anatomically perfect pelves, 160 have had complete relief of all symptoms. There were 174 unsatisfactory results. These are as follows: Some have been demonstrated at secondary operations. Lateral version from unequal development of the ligaments. The sigmoid may become adherent to the point of suture of the ligaments, as may also both ovaries, causing a painful mass posterior to the uterus. In 32 cases there was failure and relapse of the uterus into its former malposition; 26 patients had thrombosis of pelvic veins extending down to the saphenous; 22 women have aborted since operation; 42 in all became pregnant, only 4 relapses followed labor. The author, however, believes that in cases with a small uterus and equally developed ligaments it is the operation of choice and should be highly satisfactory in general.

6. Rowntree and Baetjer review the literature on radium and its usages. Uric acid output seems to be increased by its use and its use in gout is unmistakably beneficial. Taken internally it is excreted rapidly by the lungs. Radium is given as emanation, in the form of baths, subcutaneous injections, local applications as compresses, internally as a drink, as inhalation. Results in arthritis deformans, muscular rheumatism, gout, neuralgia, neuritis, lumbago and tabes have been so far encouraging as to warrant further extensive trial, the authors believe.

[E. H. R.]

JOURNAL OF INFECTIOUS DISEASES.

SEPTEMBER, 1913.

1. *CHAPIN. *Variations in Type of Infectious Disease as Shown by the History of Smallpox in the United States* 1895-1912.
2. DARLING. *Equine Piroplasmosis in Panama.*
3. POOR AND STEINHARDT. *A Study of the Virus of Rabies Freed from the Cells of the Host and from Contaminating Organisms.*
4. MOON. *The Organism of Rabies and Experiments in Its Artificial Cultivation.*
5. LEDERER. *The Relation of Nitrates to the Putrescibility of Sewage.*
6. *TORREY. *Brilliant Green Broth as a Specific Enrichment Medium for the Paratyphoid-Enteritides Group of Bacteria.*
7. *DICK AND BURMEISTER. *The Toxicity of Human Tonsils.*
8. TUNNICLIFF. *A Spirochete Associated with Infections of the Accessory Sinuses.*
9. TUNNICLIFF. *An Anaerobic Organism Associated with Acute Rhinitis.*
10. TUNNICLIFF. *An Anaerobic Bacillus Isolated from a Case of Chronic Bronchitis.*
11. STEINHARDT, ISRAELI AND LAMBERT. *Studies on the Cultivation of the Virus of Vaccinia.*
12. HARRIS AND LANGFORD. *The Complement-Fixation Test (Gay's Modification of the Besredka Method) in the Differentiation of Acid-fact Bacilli.*
13. *MCCLINTOCK AND HUTCHINS. *The Treatment of Tetanus.*
14. *KOLMER, WILLIAMS, AND RAIZIRS. *A Study of the Typhoid-Colon Group of Bacilli with Special Reference to Complement-Fixation Reactions.*

1. Chapin describes a type of smallpox which has been found very generally throughout the United States during the last seventeen years. In many instances it was possible to trace the migration of the disease from abroad, across the borders and from state to state. Although thousands of deaths have resulted from hundreds of thousands of cases, the form of the disease is in the most part mild. Such fatalities were due in many instances to intercurrent infections, to heightened susceptibility of individuals and also to an increased virulence of the virus. It seems evident that there exist in this country today two distinct types of the disease. The "classical type" is fortunately relatively rare, while more often the mild form of the disease is encountered. The severe cases, arising in epidemics of the mild variety, are few in number and this type does not persist, but tends to revert to the original form. On the other hand, outbreaks of the "classical" disease, when imported, are stamped out and do not tend to degenerate into the milder form. In spite of the frequency of this disease there have been very few real outbreaks.

6. Torrey employs the following medium as a selective enrichment for the paratyphoid-enteritides group of bacteria. To neutral meat-peptone broth, with 1% glucose, enough Grübler's brilliant green is added to render the final dilution 1:6,600. This mixture tends to inhibit the growth of other fecal bacteria, while the paratyphoid-enteritides group is not checked. This medium has been found more efficient than Loeffler's malachite green.

7. Dick and Burmeister find that extracts of human tonsils are very toxic to animals, especially when the predominating organism is hemolytic streptococcus.

13. McClintock and Hutchins have made a detailed study of the treatment of tetanus in 50 guinea-pigs, 30 dogs and 10 sheep. Amputation of the affected member is of no value in checking the disease, after the manifestation of symptoms. Anti-tetanic serum alone has a definite, although usually insufficient, curative effect. The authors consider the exhaustion, found in fully developed cases, was due to muscular contractions. These are held in check best by injections of chlorbutanol in oil. The presence of large quantities of tetanus toxin in the blood an appreciable period before the first appearance of symptoms, indicates the crying need of its earliest recognition, by some means at present unknown.

14. The authors have studied the cultural characteristics, fermentation and acid reaction and finally agglutination and complement-fixation reactions of the typhoid-colon group of bacilli. Gas and acid production in litmus sugar solutions and in neutral broth are carefuly noted in tables. An absolute differentiation between members of this group is possible by this means, better than by serological methods. The complement-fixation reaction is probably next in value for this purpose, possessing finer points of differentiation than the agglutination reactions. As a practical procedure the fixation reaction is too complicated and time consuming. [L. H. S.]

THE LANCET.

SEPTEMBER 20, 1913.

1. HOPKINS, F. G. *The Dynamic Side of Biochemistry.*
2. JONES, J. H. *The Necessity for International Reforms in the Sanitation of Crew Spaces on Merchant Vessels.*
3. COLE, S. W. *The Detection of Small Amounts of Glucose in Urine.*
4. *GORDON, J. L. *The Incidence of Inherited Syphilis in Congenital Mental Deficiency.*
5. O'CONOR, J. *The Treatment of Cholecystitis by Cholecystectomy.*
6. APPERLY, R. E., AND HASTINGS, S. *Ether Anesthesia in Nose and Throat Operations.*
7. GILROY, J. *Three Cases of Infantile Convulsions.*
8. KEMP, D. C. *Ovarian Cyst Exposed per Vaginam During Delivery by a Midwife.*
9. KEITH, J. *New Methods of Ventilation.*
10. OWENS, J. S. *Methods of Measuring Atmospheric Pollution by Suspended Matter.*

4. Gordon finds as a result of his researches that a syphilitic infection is associated with a considerable number of cases of congenital mental defect and that in most cases the infection is caused by inherited syphilis, which plays an important rôle in the causation of mental defects. In most of such cases the syphilis can only be detected by a positive Wassermann reaction. [J. B. H.]

SEPTEMBER 27, 1913.

1. CAMERON, H. C. *The Causes of the Failure of Women to Nurse Their Infants at the Breast.*
2. *FRENCH, H. C. *Syphilis: Its Dangers to the Community and the Question of State Control.*
3. FRASER, H., AND FLETCHER, W. *The Bacillus Leprae: Has It Been Cultivated?*
4. MCINTOSH, J., AND FILDES, P. *The Pathology of the Condition Known as Parasyphilis.*
5. TURNER, D. *Radium Rays in the Treatment of Hypersecretion of the Thyroid Gland.*
6. FRASER, J. *The Treatment of Umbilical Hernia in Children by the Subcutaneous Elastic Ligature.*
7. JOHNSTON, J. E. L. *A Note on Helminthiasis in Bassa Province, Northern Nigeria.*
8. CARWARDINE, T. *Suppurating Endothelioma of Meckel's Diverticulum Simulating Appendicitis.*
9. PATON, L. *Indications for Operation on Cerebral Tumor from the Point of View of the Ophthalmic Surgeon.*
10. RENTON, H. F. *An Unusual Case of Cerebral Abscess.*
11. MYLVAGANAM, H. B. *A Case of Advanced Carcinoma of the Cervix Uteri Containing Twins.*
12. ERSKINE, M. *A Case of Rheumatic Arthritis Treated with Rheumatism Phylacogens.*

2. In a paper presenting much statistical data on syphilis and its state control, French summarizes his ideas on the subject as follows: Confidential medical notification of the disease. The effectual control of openly practised prostitution by adequate police measures for irreclaimable prostitutes. The rigid suppression of "procureurs," "sonteneurs," and the cadet system. The protection of orphan children and minors and the suppression of begging in the street by children under twelve years of age. The suppression of loitering and solicitation in the streets by women, or men acting on their behalf. The provision of free voluntary evening dispensaries. Removal of disorderly persons from the towns. The control of diseased merchant seamen. Circumcision of male infants. Punishment by fine or imprisonment for concealing disease. Marriage of syphilitics discouraged by law under ten years from date of contracting the disease. [J. B. H.]

BRITISH MEDICAL JOURNAL.

SEPTEMBER 20, 1913.

1. HOPKINS, F. G. *An Address on the Dynamic Side of Biochemistry.*
2. CHOLMELEY, W. F. *Abdominal Surgery.*
3. CHILDE, C. P. *Suggestions for the Technic and Performance by a New Method of Wertheim's Abdominal Pan-Hysterectomy.*
4. MCGANN, L. *A Case of Carcinoma of the Pelvic Colon, Ovarian Tumor, and Appendicitis, Necessitating Repeated Abdominal Section.*
5. MITCHELL, A. B. *Three Successful Operations for Perforative Typhoid Fever.*
6. IRWIN, S. T. *Operation for Intussusception Complicated by Measles and Pneumonia.*
7. BUCKLEY, J. P. *True Total Enucleation of Two Hydatid Cysts from the Same Liver.*
8. DANES, W. T. F. *A Method of Operating for Radical Cure of Inguinal Hernia.*

BRITISH MEDICAL ASSOCIATION.

SECTION OF LARYNGOLOGY, RHINOLOGY AND OTOLOGY.

9. HUTCHISON, A. J. *Introductory Remarks by the President.*
10. MILLIGAN, W., ET AL. *Discussion on the Technic and After-treatment of the Radical Mastoid Operation.*
11. TILLEY, H. *A Discussion on the Care of Patients after Operations on the Nose and Naso-pharynx and the Complications of These Operations.*
12. RICHARDS, C. *Rhinoscleroma.*
13. O'MALLEY, J. F. *Suggestive Points of Analogy between Oto-sclerosis and Arthritis Deformans.*
14. HETT, S. *The Anatomy and Comparative Anatomy of the Palatine Tonsil and Its Rôle in the Economy of Man.*
15. HILL, W. *Tracheal Administration of Anesthetics.*

SEPTEMBER 27, 1913.

1. *ROWNTREE, C. *A Lecture on the Operative Treatment of Inoperable Cancer.*
2. STURROCK, W. D. *The Reaction of the Blood Serum as an Aid to the Diagnosis of Cancer.*
3. MARSH, J. H. *Sarcoma of the Uterus.*
4. WHITEHOUSE, B. *The Autoplastic Ovarian Graft and Its Clinical Value.*
5. REID, R., AND CALWELL, W. *Notes of a Supposed Case of Pellagra.*

BRITISH MEDICAL ASSOCIATION.

SECTION OF DISEASES OF CHILDREN INCLUDING ORTHOPEDICS.

6. *POYNTON, F. J., ET AL. *Discussion on Affections of the Heart in Childhood.*
7. NICOLL, J. H. *The Surgery of Childhood: A Plea for the More Extensive Use of the Out-Patient Department for Operations in Children.*
8. MUMFORD, A. A. *Cardiac Efficiency from the School Point of View.*
9. OPENSHAW, T. H., ET AL. *Discussion on the Choice of Methods in Dealing with Paralytic Deformities in Children.*
10. *LOCKWOOD, C. B., ET AL. *Discussion on the Diagnosis and Treatment of Acute Abdominal Inflammation in Children.*
11. SMITH, J. S. K. *The Necessity for Selection and for Skilled Supervision in the Treatment of Spinal Deformities by Exercise.*
12. BANKART, A. S. B. *The Treatment of Acute Poliomyelitis (Infantile Paralysis).*

1. Rowntree discusses palliative operative measures in inoperative cancer of various parts of the body, with illustrative cases, technic, etc.

6. Poynton, speaking of the prevention of cardiac disease in childhood, urges that every measure be taken to prevent rheumatism by instructing the parents of rheumatic children as to proper precautions, teaching school teachers in regard to the subject; further care of the throat and the enucleation of diseased tonsils; special hospitals for children and a careful study of rheumatism in general looked upon from the standpoint of an infectious disease.

10. This paper on the diagnosis of acute abdominal inflammation in children is a carefully prepared review of the cardinal signs and symptoms, clearly presented, and twenty-eight illustrative cases. [J. B. H.]

Münchener Medizinische Wochenschrift.

No. 38. September 23, 1913.

1. Wacker, L., and Hueck, W. *Cholesterinemia and Experimental Atherosclerosis.*
2. *Werner, R. *The Results of Chemical and Physical Means for Treatment of Cancer.*
3. Meseth, O. *Thorium-x in Internal Medicine.*
4. Hugel. *Radium and Mesothorium in the Treatment of Deafness and Tinnitus.*
5. Krukenberg, H. *A New Method for the Use of Radium.*
6. Lampé, A. E., and Fuchs, R. *Serological Studies in Health and Disease by Abderhalden's Dialysis Method. The Specificity of Protective Ferments. (Third communication.)*
7. Ehrnamm, R., and Wolff, H. *The Blood Serum in Gout.*
8. *Credé, B. *The Treatment of Peritonitis by Antiseptics.*
9. Baer. *Lithotripsy of a Walnut-sized Stone and Subsequent Extraction of a Hairpin from the Bladder of a Seven Year Old Girl.*
10. Pollac, S. *A Cause of Appendicitis.*
11. Hamburger. *The Diagnosis of Measles by Blood Examination.*
12. Neuwirth, K. *Pituitrin During the Period of Dilatation.*
13. Herzberg, E. *A New Uterine Forceps.*
14. Krabbel. *Bernhard Bardenheuer.*

2. Weiner in a careful paper describes his results in the treatment of tumor by electricity and by the use of radium, thorium and x-rays alone and in combination. For details, the reader is referred to the original article.

8. Credé has treated general peritonitis as follows: The peritoneum is opened and drained in several directions with silver gauze. The cavity is disinfected by douching with twenty to fifty grams of 2% collargol solution. To combat general sepsis, dry gauze tampons are inserted containing 2-3 .05 grams collargol tablets. These are absorbed through the thoracic duct in a few hours, thus getting into the general circulation and acting like an intravenous injection. Of 67 cases thus treated, the mortality was 8%. [R. F.]

No. 39. September 30, 1913.

1. Ranke, K. E. *The Tuberculosis of Different Ages.*
2. *Thannhauser, S. J., and Pftizer, H. *Experimental Hyperglycemia in Man from Intravenous Injections of Sugar.*
3. Rotky, H. *The Diastase of Feces.*
4. Ylppö, A. *Icterus Neonatorum and Bile Pigment Secretion in the Fetus and Newly Born.*
5. Keller, R. *Tests for Ovarian Function.*
6. Kabanow, B. T. *The Diagnosis of Gastro-intestinal Diseases by Abderhalden's Dialysis Method.*
7. *Schwarz, E. *The Stimulation of Growth in Vegetable and Animal Tissues by Roentgen Rays*
8. Schmerz, H. *An Improvised Hot Air Apparatus.*
9. v. Heuss, R. *The Ambulant Treatment of Varicose Veins and Especially of Ulcers of the Leg, by Adhesive Binding.*
10. Heidenhain, A. *A Few Remarks on Mental Haziness.*
11. Rosenthal, E. *The Anti-tryptic Content of Blood Serum.*
12. Bass, R. *The Blood Serum in Gout.*
13. Fichera, G. *Experimental, Histological and Clinical Observations on Malignant Tumors.*
14. Lampé, A. E., and Fuchs, R. *Serological Investigations in Health and Disease by Abderhalden's Dialysis Method. Studies on the Specificity of Protective Ferments. (Third communication; concluded.)*
15. Rabow, S. *Professor Louis Bourget.*
16. Nassauer, M. *The High School for Physicians and Patients.*

2. Thannhauser and Pftizer made blood sugar determinations by Bang's method in a series of control and pathological cases. After the normal figures were found, the patients were injected intravenously with 500 c.c. of 7% grape sugar solution. Blood sugar estimations were made during the injection, at the end of it, every five minutes for fifteen minutes, at the end of one hour, four hours and every twelve hours. In all cases the sugar injection was well borne. In normal and in chronic nephritis cases the blood sugar regained normal figures fifteen minutes after injection. In diseases of the liver, a hyperglycemia without glycosuria persisted for an hour. In severe diabetes mellitus the hyperglycemia persisted for considerable time after injection, while in moderate cases it returned to normal as rapidly as the control cases. Thannhauser and Pftizer offer no explanation for these findings.

7. It is known that Roentgen rays have a preventive action on tissue growth, yet that x-ray carcinoma develops in a large number of people exposed. Schwartz reports a series of experiments made to determine whether an acceleration of growth may occur in tissues submitted to small dosage of the ray energy.

In plants, Schwartz found that a very small x-ray exposure to the seeds had a stimulating action on growth. Eggs of the ascaris megalocephala redeveloped more rapidly after short x-ray exposure. Granulating wounds which were half covered with lead and exposed healed more quickly in the uncovered area. Finally parallel excoriations were made in rabbits' ears, one of which was given a mild x-ray exposure. This healed more rapidly than the control. Schwartz concludes that x-rays of small intensity have, undoubtedly, a stimulating influence on animal growth. [R. F.]

The Sei-I-Kwai Medical Journal.

September, 1913.

1. Moriyasu. *Amebic Dysentery in Korea.*
2. Kurita. *On the Horseshoe Kidney.*
3. *Mayeda. *On the Use of Pyramidon in the Treatment of Typhoid Fever.*
4. *Akasa. *On a New Kind of Tree-Frog.*
5. Sewaki, H. *Animal Experiments with Urea-Seleniosum.*
6. Sewaki, H. *On the Remarkably High Percentage of Positive Pirquet Reaction Among School-Children.*
7. Nagayama, T. *Influence of Theine on Protcid Digestion.*
8. Kimoto, Y. *Value of Hepatoxin as an Analgesic.*

3. From his experience with 143 cases, Mayeda believes that Pyramidon is of great value in the treatment of typhoid fever.

4. Akasa describes a new species of tree-frog, found in the forests of Kyoto, and discusses the segmentation of its eggs and of amphibian eggs in general. [R. M. G.]

Obituary.

SIR JOHN BATTY TUKE, M.D., F.R.C.P.E., LL.D., D.Sc., F.R.S.E.

DR. JOHN BATTY TUKE, who died of gout on Oct. 13 at Balgreen, Gorgie, Edinburgh, was born in Beverly, Yorkshire, on Jan. 9, 1835. He obtained his preliminary education at Edinburgh Academy, and received the degree of M.D. from the University of Edinburgh in 1856. He immediately went to New Zealand, where he became a surgeon in the colonial troops, and from 1860 to '63 served as senior medical officer in the Maori war.

Returning to Scotland in 1864, Dr. Tuke was appointed assistant physician at the Royal Edinburgh Asylum, and began there the work as an alienist, which occupied the remainder of his professional life. From 1865 to '73 he served as medical superintendent of the Fife and Kinross Lunatic Asylum. In 1874 he returned to Edinburgh again as visiting physician to the Saughtonhall Asylum, later known as New Saughton Hall, and began his extensive private practise as an alienist in that city. In the same year he was appointed Morrison lecturer in the Royal College of Physicians of Edinburgh, of which he had become a Fellow in 1871. From 1887 to 1912 he represented that body on the General Medical Council, and was its president in 1898.

With the growth of Dr. Tuke's experience and reputation, other honors came deservedly upon him. In 1896, he received the degree of D.Sc., from Trinity College, Dublin; in 1898 he was knighted; and in 1900 he was elected to Parliament for the dual university constituency of Edinburgh and St. Andrews. He was also a Fellow of the Royal Society of Edinburgh, a member and president of the Medico-Chirurgical Society of Edinburgh, and for many years a director of the Edinburgh Royal Maternity Hospital.

Vigorous, aggressive, and robust of physique, Dr. Tuke combined energy, determination, tenacity of purpose, and sound judgment in all his professional and public activities; and his happy temperament enabled him to maintain always a wholesome, clearheaded optimism. As an alienist, his opinions were respected and widely sought by his colleagues, and in politics his character and abilities gave him power and influence to a considerable degree.

Dr. Tuke retired from public life in 1910, and at his country estate devoted his last years to outdoor interests and sports. He is survived by his widow, by a daughter, and by three sons, one of whom bears his name and is also a physician.

Miscellany.

THE AMERICAN COLLEGE OF SURGEONS.

PRESENTED BY THE BOARD OF REGENTS OF THE COLLEGE.

WHAT is the American College of Surgeons why should it be, what does it intend, what has it done? This note is in answer to these often asked questions.

American surgery at its best is the best surgery of today, but the average of surgery in this country is not only far below this standard but below even a reasonable standard. This condition of affairs is largely the result of general failure to appreciate the qualifications and conditions needful for good surgery. The very fact that surgery has so advanced in recent years has tended to loss of perspective. Just because the art has advanced, its practitioners must be held to a stricter accounting of fitness and of results attained. The profession has been no more to blame than the lay public, perhaps; certainly the vast multiplication of small hospitals, an important factor, is not to be laid at the doctor's door, but before the public shall win to a wise perspective, the physician and surgeon must lead the way. The time seems ripe for something like a standardization of surgery,—some understanding of the responsibilities of surgical work, some recognition of the difference between surgical work and medical practice, some definition of the special training and experience that a doctor should have before he undertakes the responsibilities of the graver operations of modern surgery. Today is the day of specialization in all lines of endeavor. No one should be more really a specialist than a surgeon.

The American College of Surgeons, about to hold its first formal convocation, is the expression of an attempt to bring about the setting of a standard for surgery in this country, and to work for a gradual raising of this standard. The intent is to establish the standard, to begin with by recognizing those men now in practice whose training, experience and character entitle them to be considered specialists in surgery or in the strictly surgical specialties.

This choice must be independent of affiliation with different schools of practice, or with whatever institutions or groups of men—a choice based on individual fitness alone. The new college is fortunate in its absolutely democratic origin.

In November, 1912, at a session of the "Clinical Congress of Surgeons" in New York—a body of men having no cohesion save their common interest in surgery,—a democratic and open, not a selective body—it was proposed and voted that the presiding officer appoint a committee to consider the feasibility of such a co

ege, the committee to act wholly independently. The president appointed ten of those present, men from all over the country, with Canada represented. After consideration, this committee presented its plans to representative groups of active surgeons in a score of large cities all over the country, and, since these plans met approval, the groups of men from these cities were asked to go to Washington last May, to meet and to proceed to organize. Accordingly, in May, 1913, three hundred and fifty men, from Toronto to New Orleans, from Boston to San Francisco, and from most of the large towns between, met with the committee, organized the college, adopted a constitution and by-laws, elected officers and laid plans for the future.

Much of the work of the College was vested in a Board of Regents, fifteen in number, elected at that time. In the selection of candidates for admission the regents are supported by a Central Committee on Credentials, with separate sub-committees for each state and province. At the convocation of the American College, Nov. 13, next, to be opened by the president of the Royal College of Surgeons of England, Sir Rickman Godlee, the fellowship will be granted to nearly a thousand men from the States and Canada, carefully picked from among many applicants representing, we believe, the best in surgery and surgical specialties. The movement has so far met with a gratifying response and interest. Other Fellows will be admitted, after scrutiny, for a year to come. After that, it is the intention to admit by examination only.

In time this scheme will result in the formation of a body like the Royal College; in time the standard set will be more definite and will tend to rise steadily. No standard of academic examination could be applied to those now in active service. Those who have acted for the college can only ask the profession and the public to believe that they have used their best judgment in choosing among those who have asked to join in this movement. It has been no light task; it cannot have been done perfectly; it has often been done against personal friendships as well as in spite of prejudices;—those responsible have done the best they could or knew in their attempt to pick men really qualified. There has been criticism—there will be more criticism. There are two special points of attack, first, because the college is to be a "Guild." Perhaps it is, in a sense, but always an open guild, open to all who can show fitness, wherever they come from. Second, because it excludes men who, though not specialists, are doing good work in surgery. There are such men, but the college does nothing to them, the failure to include them means merely that they are not, with few exceptions, the men best fitted to do the work in raising the standards that this college has set for its task. As for the practitioner of medicine, we believe that our action will help thim to gain once more the position which is not always granted him today, that of the trusted adviser of the family, and we believe that he will be the gainer if his patients learn not to demand work of him outside his chosen field. The field of medicine offers a field not smaller or less worthy than that of surgery; they are merely not the same field.

MEETING OF THE AMERICAN COLLEGE OF SURGEONS.

On the evening of Nov. 13, 1913, will be held the first formal meeting for the conferring of fellowships on the members of the American College of Surgeons.

Sir Rickman Godlee, the president of the Royal College of Surgeons of England, will deliver the principal address and extend, officially, greetings to our new organization from the councillors of the Royal College of Surgeons.

President J. M. T. Finney will deliver the presidential charge and formally confer the fellowships on all members of the organization who have qualified. Honorary fellowships will be conferred on a small number of foreigners and Americans whom the Board of Regents have selected as worthy of such distinction.

Every qualified member of the organization should make an effort to be present at this convocation, as the Board of Regents is anxious to make the occasion one of impressiveness and dignity in keeping with the far-reaching importance of the organization.

About thirteen hundred applications for fellowship in the American College of Surgeons have been filed with the secretary. Of this number of applicants only about ten hundred have fulfilled all the requirements in filing their application blanks.

The Board of Regents approved about four hundred men at its Minneapolis meeting. Three hundred additional have been favorably passed upon by the General Committee on Credentials and will be recommended to the regents for final approval at their next meeting in October.

Too many of the applicants have been careless about filing their preliminary papers. This causes delay in consideration of the prospective Fellows' availability by the Committee on Credentials and hence surgeons are urged to complete and file all declarations and other papers as early as possible.

There is an inclination on the part of some men to take it for granted that certain groups of members should be exempt from filing declaration blanks and giving data and references. The regents have ruled that all applicants shall file the same papers and be submitted to the same scrutiny before they can be recommended for fellowship.

The work of scrutinizing each application and verifying all references on the part of the Committee on Credentials takes much time, hence,

prospective Fellows must not become impatient if the announcement of their acceptance is delayed.

BACTERIAL COUNT OF MILK.

INFORMATION has come to the Department of Agriculture that persons representing certain milk dealers are circulating the statement that the U. S. Department of Agriculture has abandoned all bacteriological examination of milk as a test for its cleanliness and fitness for human consumption.

The department, therefore, has issued the following statement of its position:—

1. All statements that the department has abandoned, or will abandon, the bacteriological examination of milk shipped in interstate commerce as a means of determining its cleanliness and fitness for human consumption are without foundation. While the department has not fixed any specific bacteriological count as a standard in the enforcement of the Food and Drugs Act, it does use bacteriological examinations in reaching its conclusions, and will continue to use these methods irrespective of what action any association may take. The department has never stated that it will not use such methods.

2. The only change in policy in the department in regard to bacteriological examinations has been to discontinue basing prosecution upon the bacteriological examination of a single sample. It now collects a number of samples at different times and examines them bacteriologically. If the bacteriological examination shows that the milk is not clean, but is not a serious menace to health, and the bacteriological deviation from clean milk is a small one, the department, through the Bureau of Animal Industry, endeavors to teach the dairyman how to produce clean milk. If he then neglects to take measures to make his milk clean and safe for human consumption, the department, by taking action in the case of milk shipped in interstate commerce, endeavors to force him to bring his milk to a point of safety and food excellence through prosecutions under the Food and Drugs Act.

SOCIETY NOTICES.

The next regular meeting of the WORCESTER DISTRICT MEDICAL SOCIETY will be held Nov. 12, 1913, at 4.15 p. m., in G. A. R. Memorial Hall, 55 Pearl Street, Worcester. The general subject will be Syphilis and the program has been arranged by Dr. O. Draper Phelps.

1. "Obscure Diagnoses in Specific Disease," Dr. J. H. Cunningham, Boston.
2. "Serum Reactions," Dr. Roger Kinnicutt, Worcester.
3. "Sero-Salvarson by Lumbar Puncture in Nerve Diseases," Dr. B. T. Burley, Worcester.
4. "Salvarsan in Syphilis," Dr. Geo. A. Dix, Worcester.

The Censors will meet at 2 p. m., Thursday, Nov. 13, 1913, in the Lecture-room of the Worcester Public Library for the examination of candidates for membership. Candidates please bring their diplomas.

ERNEST L. HUNT, M.D., *Secretary.*

BARNSTABLE DISTRICT MEDICAL SOCIETY.—A quarterly meeting will be held at the Central House, Sandwich, Mass., at 10.30 on Thursday, Nov. 13, 1913. Paper by Dd. E. E. Hawes on "Disease-Carrying Insects."

P. F. MILLER, M.D., *Secretary.*

NOTICE.

Wednesday Clinics, Psychopathic Hospital, 74 Fenwood Road, 12 M. to 1 P. M. Topic for the month "Alcoholic Mental Disease."

RECENT DEATHS.

DR. ISABEL CHAPIN BARROWS, who died on Oct. 2 at Croton-on-Hudson, N. Y., was born at Irasburg Vt., in 1845. She was educated at Adams Academy Drury, N. H., and obtained the degree of M.D., from the New York Women's Medical College. She served for a time in India as a medical missionary, and later practised her profession at Washington, D.C.

DR. ALFRED F. NIEDERMEIER, for a number of years chief surgeon at the New Work terminal of the Pennsylvania Railroad, died on October 23 at Mercer Hospital, Trenton, N. J., in consequence of infection contracted four months ago while operating on a patient in New York. Dr. Niedermeier was graduated from the medical department of the University of Pennsylvania in 1900, and had his residence in Trenton.

DR. JOSEPH A. STITES, health officer of Springfield N. J., died from cerebral apoplexy on October 22, in his 62d year. He was born in New York and was graduated from Bellevue Hospital Medical College in 1875. He was serving as surgeon on the Holland American Steamship *Amsterdam* when the passengers and crew of the sinking steamer *Nile* were rescued by that vessel in mid-ocean, and for his efficient care of the survivors received a medal from Queen Victoria.

DR. HENRY NATHAN LONGFELLOW, of Roxbury, who died of Hodgkin's disease on Oct. 31 at Georgetown Mass., was born at that town in 1871. He received the degree of Ph.G. from the Massachusetts College of Pharmacy in 1890, and that of M.D. in 1904 from the Harvard Medical School. He was a member of the American Medical Association, a Fellow of The Massachusetts Medical Society, and physician in the dermatologic department of the Mount Sinai Hospital, Boston.

DR. GEORGE W. SPEARS, of this city, died in Boston on Oct. 30. He graduated from the Boston University Medical School in 1876.

CHANGES IN THE MEDICAL CORPS, U. S. NAVY FOR TWO WEEKS, ENDING OCT. 25, 1913

P. A. Surgeon F. E. Porter, detached: Port Royal Disciplinary Barracks to Asiatic Station.

P. A. Surgeon H. W. Smith, detached; *Montgomery* to home, W. O.

P. A. Surgeon D. G. Sutton, detached; Naval Academy, Annapolis, Md., to the *Montgomery.*

Asst. Surgeon H. E. Jenkins, to Disciplinary Barracks, Port Royal, S. C.

Medical Inspector E. S. Bogert, detached; Navy Yard, N. Y., to Naval Medical School, Washington D. C.

Surgeon J. R. Dykes, detached; *Pittsburg* to Mare Island Hospital, treat.

Original Articles.

THE NUTRITION OF ANEMIC AND TUBERCULOUS CHILDREN.*

BY EDWIN A. LOCKE, A.M., M.D., BOSTON.

Peculiar importance attaches itself to our knowledge of the nutritive needs of children in the case of those affected with tuberculosis in early years, for at this period, even more than in adults, nutrition of the individual is of paramount importance. In the case of tuberculous and anemic children we have to deal not alone with an impoverished condition but must also furnish material for a growing organism. Moreover the nutritive needs vary to a far greater degree than in adult life in accordance with many factors. The first essential then is the selection of a diet appropriate to the age and diseased condition. In order to exercise precise control over the diet in such cases it is obviously necessary to have a very definite idea of the requirements of the normal child.

* Read by title at the Fourth International Congress on School Hygiene, held in Buffalo, August 25-30, 1913.

NORMAL REQUIREMENTS IN CHILDHOOD.

Unfortunately there is no accepted dietary standard for this period either with respect to the total twenty-four hour needs, or the proportion of individual constituents. Medical literature contains surprisingly few reports of exact investigations in this field and practical experience has given extremely variable results.

Among the available figures giving the total food values and grams of the several nutrients according to the age period Camerer's (Camerer: Der Stoffwechsel des Kindes, Tübingen, 1894, s. 60) classical table is probably the most reliable, as it is based on most careful observations made on his own children for a long period. It is arranged to show the total grams of each type of food in twenty-four hours according to age periods.

TABLE I.

GIRLS.

AGES.	2-4	5-7	8-10	11-14	15-18	21-24
Average weight in kilos	12.7	16.6	22.3	31.9	41.0	44.5
Total grams food	1183	1402	1638	1723	1612	1990
Grams protein	46	50	60	68	60	67
Grams fat	39	30	30	44	35	71
Grams carbohydrate	117	182	221	270	219	242
Grams water	957	1120	1315	1322	1273	1586

BOYS.

AGES.	5-6	7-10	11-14	15-16	17-18
Average weight in kilos	18.0	24.0	34.0	52.8	59.4
Total grams food	1517	1699	1909	2314	2378
Grams protein	64	67	86	102	100
Grams fat	46	32	34	73	83
Grams carbohydrate	197	251	262	287	302
Grams water	1200	1333	1510	1810	1850

Observations by Hasse (Sophie Hasse: Untersuchungen über die Ernährung von Kindern im Alter von 2 bis 11 Jahren, *Zeitschr. f. Biologie*, B. 18, 1882, s. 553) show:—

TABLE II.

AGES.	Protein. Grams.	Fat. Grams.	Carbohydrate. Grams.	Total. Calories.
2 years 6 mos.— 3 years 5 mos.	56.45	46.13	134.44	1211.7
3 years 6 mos.	50.76	37.52	204.96	1397.4
4 years 9 mos.— 5 years 6 mos.	64.64	58.61	171.88	1514.8
8 years 9 mos.— 9 years 4 mos.	81.77	86.07	218.82	2037.9
10 years 6 mos.—11 years 3 mos.	87.75	108.72	255.96	2420.3

Uffelman (Uffelman: quoted by Hasse, *loc. cit.*) combined his own figures with those of Camerer and gives the following as normal requirements:

TABLE III.

AGES.	Protein. Grams.	Fat. Grams.	Carbohydrate. Grams.	Total. Calories.
1 year 6 mos.	42.5	35.0	100.0	909.8
2 years	45.5	36.0	110.0	972.4
3 years	50.0	38.0	120.0	1050.4
4 years	53.0	41.5	135.0	1156.8
5 years	56.0	43.0	145.0	1224.0
8-9 years	60.0	44.0	150.0	1270.2
12-13 years	72.0	47.0	245.0	1736.8
14-15 years	79.0	48.0	270.0	1877.3

Herbst (Herbst: Beiträge zur Kenntniss normaler Nahrungs mengebei Kindern, *Jahrb. f. Kinderheilkund.*, N. F. 46, 1898, s. 245) publishes the following averages as the results of a study of six children between the ages of two and fourteen years.

TABLE IV.

AGES.	Body. Weight in Kilograms.	Protein. Grams.	Fat. Grams.	Carbohydrates. Grams.	Total. Grams.
Boys.					
2 years 3½ mos.	150.0	54.4	62.2	134.2	1352
4 years 4 mos.	15.5	58.1	58.1	138.8	1347
9 years 10 mos.	27.5	62.2	68.7	227.0	1860
Girls.					
10 years 9 mos.	43.15	61.4	70.4	250.9	1973
12 years 6½ mos.	47.5	69.3	85.8	211.8	1951
14 years 6 mos.	49.87	70.7	71.4	225.5	1878

Steffin (Steffin: Ueber Ernährung in kindlichen Alter jenseits der Saüglingsperiode, *Jahrb. f. Kinderheilkunde,* N. F. 46, 1898, s. 332) gives a child of from four to seven years a diet containing an average of 95.49 grams protein, 92.55 grams fat and 197.99 grams carbohydrate, representing a total of 2061 calories.

Baginsky's (Baginsky: *Lehrbuch der Kinderkrankheiten,* 1902, s. 53) figures for afebrile children between the ages four and nine are 102.81 grams protein, 75.59 grams fat, and 363.46 grams carbohydrates or 2615 calories; for those from nine to fourteen, 122.43 grams protein, 88.45 grams fat, and 451.74 grams carbohydrates, or 3176.68 calories.

The averages given in the above tables on the whole show fairly constant and uniform results, that is, a gradually increasing number of calories as well as grams of protein, carbohydrate and fat, proportional to the age. Individual cases, however, present striking deviations from the average. All authorities agree that these variations are largely due to the difference in body weight, and it has been conclusively shown that the physiological requirements vary according to the body weight and not necessarily in accordance with the age. Children of different ages, but of the same body weight require approximately the same quantity of nutriment, while children of the same age but of varying size necessitate different standards. Figures then for the nutritive needs according to age are of value only when taken in relation to the body weight. Values are usually expressed as so many grams or calories per kilogram of body weight at different ages.

For convenience in comparison I have combined in a single table such averages obtained by some of the best observers on children of nearly uniform ages:

TABLE V.

Author	AGES.	Protein Grams per Kilo.	Fats. Grams per Kilo.	Carbohydrate Grams per Kilo.	Calories.
Camerer					
	1½ to 2¼ yrs.	4.4	4.0	8.9	91.7
	3 to 4 yrs.	3.4	3.1	7.7	74.3
	5 to 5¾ yrs.	3.5	2.5	11.0	82.7
	8½ to 9¼ yrs.	2.7	2.1	9.2	68.3
	10½ to 11¼ yrs.	2.9	2.0	11.5	77.6
Hasse					
	2¼ yrs.	3.9	2.8	15.5	105.6
	2½ to 3¼ yrs.	3.6	2.9	8.5	76.6
	3½ yrs.	2.9	2.2	11.8	80.7
	4¾ to 5½ yrs.	3.8	3.5	10.2	90.0
	8¾ to 9 1-3 yrs.	2.6	2.8	7.0	65.4
	10½ to 11¼ yrs.	2.2	2.7	6.5	60.8
Herbst					
	2¼ yrs.	3.6	4.2	9.0	90.7
	4 1-3 yrs.	3.8	3.8	9.0	87.8
	9¾ yrs.	2.3	2.5	8.3	66.7
	10¾ yrs.	1.4	1.6	5.8	44.4
	12½ yrs.	1.5	1.8	4.5	41.3
	14½ yrs.	1.4	1.4	4.5	37.2
Steffen					
	1 yr.	6.6	6.0	5.9	107.1
	2 yrs.	5.6	5.5	6.5	100.8
	3 yrs.	5.6	5.3	8.8	108.3
	4 to 7 yrs.	5.3	5.1	11.0	114.3
Uffelman					
	2¼ yrs.	4.1	3.0	8.8	80.8
	4¼ yrs.	3.6	2.9	8.9	78.2
	10½ yrs.	2.6	1.8	8.2	61.0
	14¾ yrs.	2.0	1.2	7.1	48.5

A comparison of table 5 with tables 1 to 4 demonstrates at once the fallacy of expressing the nutritive needs according to age without reference to the weight. Whereas the absolute number of calories as well as the quantity of protein, fats and carbohydrates increase rapidly from the younger to the older, as shown in tables 1 to 4, reference to table 5 shows a nearly constant relative decrease in all. This relative decrease in each case will be discussed in detail later.

In attempting to establish a dietary standard, whether for the child or the adult, it should always be emphasized particularly that we can only determine rather wide limits between which there is a considerable margin of safety. This applies to the total fuel value of the diet as

well as to the relative amounts of the various kinds of food. Individual factors, such as the amount of body activity, state of nutrition, demands for heat, sex, age, and others, necessitate a wide latitude in the choice of an appropriate diet for the individual. Experience proves that especially in children there is a high degree of adaptability on the part of the organism to variations in the quantity and kind of food. Our concern is largely by the application of the standard diets or averages, as it were, to make sure that the individual is not under nourished, and on the other hand, that a burden is not put on the organism by a diet of too high value or one improperly balanced as to the proportion of the several constituents. More care is often necessary in the selection of a diet in disease than in health.

With the exception of Steffin, all the authors quoted in table 5 present figures for the calories per kilogram of body weight, which decrease steadily from infancy on. This is in accordance with the law of Rubner, that animal metabolism is directly proportional to the size of the body surface. In other words, the caloric needs expressed in accordance with the unit of weight is proportional to the body surface. Smaller children have a surface area which in proportion to the weight is greater than that of larger ones. Rubner proved that increased requirements in those with relatively large surface area is due to the increased loss of heat on the surface. His results are based on the results of careful metabolism experiments on two boys of approximately the same age and height, but one thin and the other fat. Because of the relatively greater body surface the thin boy required 52 calories per kilo, the fat boy only 43.6 calories to maintain normal nutrition. The apparent deviations from Rubner's law sometimes seen are due to conditions of general nutrition, amount of work and so forth, which independently influence the needs for nutriment.

No absolute standard of calories per kilo for the different ages can be established, but probably the combined averages for approximately the same ages given in table 5 are a safe general standard.

Age.	Calories per Kilo.
2 years	94
4 years	82
8 years	67
10 years	61
14 years	43

The question of the percentages of protein, fats and carbohydrates constituting a normal diet for the child, according to age and weight, is much more difficult to settle than the total calories, and is unquestionably subject to far greater variations which may be considered within normal limits. Equally good results may be observed in the dietary of children from the use of widely different combinations of the three types of nutrients. Such variations as are shown in table 5 may be partially explained by the difference in the places where the observations were made, the social condition of the families studied and the general development of the children.

Nearly all authors find that the ratio of animal to vegetable food decreases from the younger to older children (see table 5), that is, with the development of the child, the diet becomes richer in vegetable food and poorer in total protein. Camerer's ratio of 1 : 2.2 for younger children is generally accepted.

Since the functioning body tissues are nitrogenous, it is obvious that during the period of growth the protein foods are the most essential, because the protein of the food must not only repair tissue waste, as in adults, but in addition, answer the demands for tissue growth also. Protein is of both animal and vegetable origin and can be supplied to the body from either source, though in childhood not with good results if derived solely or largely from the latter. Meat contains roughly 15 to 25 per cent. protein, fish 17 to 20 per cent., milk 3.3 per cent., eggs 13 per cent., cheese 20 to 30 per cent., bread of various kinds from 5 to 10 per cent., crackers 9 to 12 per cent., beans 7 to 22 per cent., peas and lentils 25 per cent., nuts 6 to 30 per cent., and chocolate 13 per cent.

Under ordinary conditions at least one-half of the protein of the child's diet, and in adults one-third, should be of animal origin. It is doubtful if it will ever be possible to determine exactly the amount of protein necessary to the growing child. If an amount of fats and carbohydrates necessary to meet all the needs for heat and energy is supplied, the growing organism can maintain nitrogen equilibrium on a surprisingly small amount of nitrogenous food. The protein is, however, very readily oxidized in the young (estimated as 90-92 per cent. absorbed) and probably a considerable per cent. of the energy developed should be from this source. On the other hand an excessive quantity of protein food not only may upset the digestion but puts an unreasonable tax on metabolism, especially as a result of the increased work of excretion of the end products of nitrogen metabolism. The figures for protein of Steffin (table 5) are probably too large.

In children of the school age the protein furnished by milk, meat and eggs is to a considerable degree supplemented by vegetable protein. Sommerfeld (Pfanndler and Schlossmann: The Diseases of Children, 1908, Vol. I, p. 427) has compiled the following table, giving in percentages the sources from which protein should be derived at different ages:

TABLE VI.

FROM.	2-4 Yrs.	5-7 Yrs.	8-10 Yrs.	11-14
Milk, per cent	42	28	18	9
Meat and eggs, per cent.	36	39	42	45
Vegetables and leguminous plants, per cent.	22	33	40	46

The various standards differ widely in the amount of fat given. In general, fats are well

metabolized by children (unless excessive, 92 to 94% being absorbed) and the relative amount to a considerable extent seems to be a matter of indifference. Table 5 shows for all authorities a constantly diminishing number of grams per kilo with increasing years, although the amounts vary within rather wide limits. Fats are less essential to the diet than either of the other food constituents and may be largely or even entirely replaced by an isodynamic amount of carbohydrate (100 grams fat equal 232 grams starch or 234 grams cane sugar) or vice versa. Fat is more essential, however, when the diet is deficient in protein (Rubner) and when a considerable amount of fat is given the protein need is materially lessened.

The ability of the individual to metabolize fats is subject to greater variations than in the case of protein and carbohydrates. This is especially true of children and many can digest and absorb but a small amount. Fortunately the degree to which the fats are digested can readily be determined by examination of the stools. Those forms easiest of digestion are the fluid or those with a low melting point, and the forms best adapted to children from five to fifteen years are butter, milk fat, cheese, meat fat and olive oil.

Few evils as a rule attend even extreme reduction of the fats and they may be classed together as moderate disturbances of general nutrition. The commonest ill effects of an excessive quantity of fats are various disturbances of the gastro-intestinal tract. These more usually occur in delicate individuals or those debilitated by disease, especially in children when, in an effort to improve nutrition, the fats are largely increased.

As a rule then, the fats may be given healthy children in accordance with very flexible standards depending on circumstances, usually not under one or two grams, and seldom over four per kilo. It should always be kept in mind that a gram of fat has more than twice the heat value of either protein or carbohydrates when metabolized, and therefore fat is of immense value when it is desired to increase the total calories.

Tables 1 to 4 all show an almost constant increase in the total grams of carbohydrates with succeeding ages and with few exceptions proportionately greater than in the case of the protein and fats. Table 5 likewise, as in the case of the other two nutrients, shows on the whole a relative decrease, though more irregular and less marked. In the early years (table 5) one-quarter to one-third of the total calories are furnished by the carbohydrates, while in the oldest children at least one-half are derived from this source. The carbohydrates are then a most important element in the diet of children, but like the fats are subject to great variations. They may to a very large extent be replaced by fats and protein, but if reduced too low there is always grave danger of acid intoxication with its attendant serious results. In children it is usually safe to regard 50 to 80 grams per diem as the minimum carbohydrate requirement. Much less commonly in children than in adults are evil effects observed as a result of a too great increase in the proportion of carbohydrate foods, but if they are present they take the form of gastric disturbances due to the great amount of cellulose ingested or to acid fermentation. For the ages under discussion the best forms are the various kinds of bread, crackers, well cooked cereals, rice, macaroni, thoroughly cooked vegetables and selected fruits.

REQUIREMENTS OF ANEMIC AND TUBERCULOUS CHILDREN.

I shall consider these two conditions as one in discussing the diet indicated since the condition in each is in many respects essentially identical. The tuberculous children usually suffer from more or less anemia and the anemic are frequently tuberculous, though not recognized as such; in both the most important condition is one of impoverished health.

The difficulties in defining strict standards of diet for the normal child, mentioned above, become much greater when the attempt is made to lay down rules governing the nutrition of the sick child. We have to consider in such a task not only the physiologic standard, but also the individual factors and the nature of the disease. The tuberculous child is on the whole less active than the well child, and in so far metabolizes somewhat less food in the form of energy, but other factors combine to far outweigh this slight decrease. The tuberculous child, because of the greater or lesser degree of emaciation, has a surface area proportionately greater than the well nourished, and thus at a given age requires a relatively larger diet. He has more tissue to build besides providing resistance to an exhausting disease. If treated properly he is living in the open air both night and day, and during the winter months especially, thus increasing the expenditure of energy in the form of heat. To further complicate the last, we have to deal in many cases with definite gastro-intestinal disorders or general lowered vitality which limit the powers of digestion and absorption.

In the afebrile, ambulatory cases, who are under a regime of open air treatment, a judicious selection of the food with supervision in eating, makes it possible without serious difficulty to give a very satisfactory diet.

So great is the variation in weight and development in this class that the age is of hardly any significance in many instances, and in my own work I have arranged the diets almost entirely with respect to size. The body weight of the tuberculous child of ten years is frequently the same as that of a well child of six.

A very important guide in regulating the diet is the weight curve, which should follow a steady upward course. In favorable cases the curve shows a much more rapid rise than in

TABLE VII.

Age	Sex.	Body Weight in Kilograms.		Calories. Total.	per Kilo.	Average. per Kilo.	Grams. Protein per Kilo.		Grams. Carbohydrate per Kilo.		Grams. Fat per Kilo.	
7	M.	19.1	Average.	2933	153.5	Average.	5.5	Average.	19.0	Average.	5.7	Average.
7	F.	19.6	21.0	2888	147.3	140.0	5.2	5.1	18.4	17.4	5.4	5.1
7	F.	20.9		2830	135.4		4.9		17.4		4.7	
7	M.	24.5		3039	124.0		4.7		14.9		4.7	
8	M.	19.1		2962	155.1		5.8		18.9		5.8	
8	F.	23.6	24.5	2921	123.7	125.9	4.4	4.7	15.6	15.5	4.5	4.6
8	F.	26.4		3212	121.6		5.0		14.6		4.4	
8	F.	29.1		3007	103.3		3.6		12.8		3.9	
9	F.	25.0		3080	123.2		4.2		15.6		4.5	
9	F.	23.6	26.6	2870	121.6	113.5	4.2	4.0	15.4	14.5	4.4	4.1
9	F.	29.1		3066	105.3		3.7		13.6		3.7	
9	F.	28.6		2976	104.1		3.9		12.6		3.9	
10	F.	23.2		3132	135.0		4.6		17.8		4.7	
10	M.	27.3		3441	126.0		4.5		15.6		4.7	
10	F.	24.1		2934	121.7		5.0		15.0		4.3	
10	F.	27.7	27.5	3291	119.1	118.1	4.7	4.4	15.0	14.9	4.1	4.2
10	M.	29.6		3487	117.8		4.0		15.4		4.1	
10	F.	28.6		3058	106.9		4.2		13.1		3.9	
10	F.	31.8		3190	100.3		3.6		12.6		3.6	
11	F.	18.6		3086	165.9		6.3		20.6		6.0	
11	F.	26.4	27.5	2919	110.5	118.5	4.0	4.4	13.7	14.8	4.1	4.2
11	M.	31.8		3193	100.3		3.6		13.0		3.5	
11	M.	33.2		3230	97.2		3.7		11.8		3.4	
12	F.	17.3		2698	156.0		5.7		19.1		5.7	
12	F.	28.6	31.4	2982	104.2	105.1	3.6	3.7	13.7	13.2	3.5	3.8
12	F.	38.2		3238	84.6		3.0		10.3		3.0	
12	F.	41.4		3126	75.5		2.6		9.2		2.9	
13	M.	28.6		3874	135.4		4.5		17.3		4.9	
13	F.	24.1		3107	128.9		4.6		16.7		4.4	
13	M.	30.9	33.8	3295	106.6	105.3	4.0	3.7	12.6	13.4	4.1	3.7
13	F.	36.8		3511	95.4		3.3		12.3		3.4	
13	F.	40.0		3450	86.2		3.1		11.1		3.0	
13	F.	42.3		3355	79.3		2.9		10.3		2.6	
14	F.	40.0	40.0	2983	74.5	74.5	2.6	2.6	9.3	9.3	2.7	2.7
15	M.	55.5	55.5	3263	58.8	58.8	2.1	2.1	7.3	7.3	2.2	2.2

health, gains of from one to even three pounds in one week sometimes being observed.

Any gastro-intestinal symptoms should always be carefully looked for as they are apt to be the earliest signs indicating over-feeding. Whenever possible the stools should be examined as a routine at regular intervals, for in this procedure we have a very reliable and exact means of measuring how completely the system is utilizing the diet prescribed.

The experience on which the diet given below is based was gained at the Boston Hospital School at Franklin Park (Locke: A Report of Dietary Studies Made at the Franklin Park Hospital School for Tuberculous Children. Proceedings of the Sixth Congress of the American School Hygiene Association, 1912.) The general physical condition of the children was under the constant observation of a trained nurse and the diets under the strict supervision of an expert dietitian. Careful attention was given to every detail regarding the diet and in all cases figures are based on actual weighings of the individual dietaries. Although close attention was given to providing an adequate diet, in every case the amount eaten was left almost entirely to the appetite of the child, no forced feeding in any sense being undertaken.

The children were to a considerable extent divided into groups to facilitate the study of the effects of various types of diet on the weight and general nutrition. The most exhaustive observations were made on a group of children daily for five months (October to February), thirty-five in all completing the full time with a record of regular attendance. These results have been selected as most fairly representing the average type of diet used in the Hospital School. The children in this group ranged from seven to fifteen years in age and comprised twenty-five girls and ten boys. All were definitely tuberculous but afebrile.

An especial effort was made to furnish food such as can be provided in the homes of the poor and at the lowest possible cost. The dietary was made up chiefly of milk, cocoa, sugar, selected sweets, syrups, dried fruits, bread, crackers, cereals, dried beans, rice, macaroni, spaghetti, simple nutritious puddings, butter, nutritious soups, fish (with simple sauces, chowders, etc.),

meats (mainly the most inexpensive kinds), vegetables and fruits (usually cooked).

A sample day is:

BREAKFAST.

Cocoa, 2 cups.
Bread, 3 slices (3 x 4 x ½ inch.).
Butter, 2 balls.
Stewed prunes, 3 with juice.

DINNER.

Creamed codfish, 3 heaping tablespoonsful.
Mashed potatoes, 2 heaping tablespoonsful.
Milk, 1 glass.
Banana, 1 average size.
Bread, 1½ slices.

SUPPER.

Milk, 2 glasses.
Graham crackers, 5 crackers.
Cream cheese, 1 cubic inch.

This represents roughly 100 grams protein, 100 grams fats, 266 grams carbohydrates, or a total of 2400 calories.

The average results in the group of thirty-five cases mentioned, arranged according to age, is given in Table VIII.

The table at first glance indicates a rather constant decrease in the total number of calories and calories per kilo of body weight, but closer examination shows many exceptions and on the whole a considerable variation. The grams of protein, fats and carbohydrates fall almost equally with the increasing ages.

Table VIII, in which the same results are grouped according to the body weight in kilograms presents a much more regular picture and emphasizes the importance of the principle laid down earlier in this paper, namely, that the diet of the child should be chosen with reference to the body weight rather than to the age. The average number of calories per kilo of body weight fall with extraordinary regularity from 155.5 for the child of seventeen to nineteen kilos, to 58.8 at 55.5 kilos. These figures are so much larger than those for the normal child that they appear to need justification. In the first place a diet of this strength was found necessary to bring about the desired improvement in general nutrition and increase in body weight, and the children ate only as much as their appetites prompted. Furthermore, it must be remembered that the group was made up of tuberculous children, suffering from marked general debility in most instances, many much under weight, and all were living constantly in the open air with

TABLE VIII.

Body Weight in Kilograms.		Age.	Average.	Sex.	Calories per Kilo.	Average.	Grams. Protein. Per Kilo.	Average.	Grams. Carbohydrate. per Kilo.	Average.	Grams. Fat per Kilo.	Average.
17.3		12		F.	156.0		5.7		19.1		5.7	
18.6		11		F.	165.9		6.3	5.7	20.6		6.0	
19.1	17-19	8	9	M.	155.1	155.5	5.8		18.9	19.2	5.8	5.7
19.1		7		M.	153.5		5.5		19.0		5.7	
19.6		7		F.	147.3		5.2		18.4		5.4	
20.9		7		F.	135.4		4.9		17.4		4.7	
23.2		10		F.	135.0		4.6		17.8		4.7	
23.6		8		F.	123.7		4.4		15.6		4.5	
23.6	20-24	9	9.1	F.	121.6	127.2	4.2	4.6	15.4	16.1	4.4	4 5
24.1		10		F.	121.7		5.0		15.0		4.3	
24.1		13		F.	128.9		4.6		16.7		4.4	
24.5		7		M.	124.0		4.7		14.9		4.7	
25.0		9		F.	123.2		4.2		15.6		4.5	
26.4		11		F.	110.5		4.0		13.7		4.1	
26.4		8		F.	121.6		5.0		14.6		4.4	
27.3		10		M.	126.0		4.5		15.6		4.7	
27.7		10		F.	119.1		4.7	4.2	15.0	14.4	4.1	4.1
28.6	25-29	13	9.9	M.	135.4	114.8	4.5		17.3		4.9	
28.6		10		F	106.9		4.2		13.1		3.9	
28.6		9		F.	104.1		3.9		12.6		3.9	
28.6		12		F.	104.2		3.6		13.7		3.5	
29.1		9		F.	105.3		3.7		13.6		3.7	
29.1		8		F.	103.3		3.6		12.8		3.9	
29.6		10		M.	117.8		4.0		15.4		4.1	
30.9		13		M.	106.6		4.0		12.6		4.1	
31.8	30-34	10	11.25	F.	100.3	101.1	3.6	3.7	12.6	12.5	3.6	3.7
31.8		11		M.	100.3		3.6		13.0		3.5	
33.2		11		M.	97.2		3.7		11.8		3.4	
36.8	35-39	13	12.5	F.	95.4	90.0	3.3	3.2	12.3	11.5	3.4	3.2
38.2		12		F.	84.6		3.0		10.8		3.0	
40.0		13		F.	86.2		3.1		11.1		3.0	
40.0	40-44	14	13.0	F.	74.5	78.9	2.6	2.8	9.3	9.9	2.7	2.8
41.4		12		F.	75.5		2.6		9.2		2.9	
42.3		13		F.	79.3		2.9		10.3		2.6	
55.5	55.5	15	15.0	M.	58.8	58.8	2.1	2.1	7.3	7.3	2.2	2.2

several periods daily of active exercise. We saw no reason to consider the diet too large. There were no gastro-intestinal or other symptoms suggesting over-feeding. Neither did we see any ill effects from the rather high protein content of the diet. The ratio of the nitrogenous to the non-nitrogenous food was almost the same in all groups, ranging from a minimum of 1 : 4.37 in the first to a maximum of 1 : 4.59 in the fifth. This high ratio for the ages five to fifteen was found to give better results than a diet with a lower one.

The grams of carbohydrate per kilo of body weight, especially for the younger children, although considerably above the figures usually given, diminish in about the same uniform manner. Exactly the same may be said of the fats.

To many the diet prescribed at the Hospital School will seem of unreasonably high value, but our experience with the class of cases treated was very definitely that such a maximum gave the most satisfactory results.

It would easily be possible to discuss many variations of the diet given above and adapted to special conditions, but in this brief paper it does not seem necessary to do more than to lay down general principles of feeding, leaving the choice of the particular type and caloric value to be determined in accordance with the needs of the individual case.

CARCINOMA OF THE RECTUM.*

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The advance made in the treatment of cancer of the rectum, seems unusually slow, when compared with the treatment of cancer in other regions of the body. This is no doubt due to the difficulties of operative procedures in this region, and to the fact that cases are seen so late in the course of the disease.

In malignant disease, the generally accepted rule is to remove the growth by as wide a margin as possible, and all lymphatics that can be removed. We no longer remove the wedge-shaped piece of lip for epithelioma, but dissect the glands from the neck as well. We not only remove the breast, but dissect the axilla; yet in carcinoma of the rectum, we are told that the disease is only slightly malignant, therefore it is useless to remove the mesentery.

Mr. Edwards[1], before the Royal Medical Society in January, 1911 said, "My chief object is to enter a protest against the performance of an unnecessarily severe operation with a heavy mortality, in cases attended with but little risk to life, and which moreover entail no crippling of the patient." He further says, "I cannot agree with those who advocate the abdomino-perineal method, any more than with those who for a small and limited carcinoma of the breast, would remove all but the ribs."

Mr. F. T. Paul[2] of Liverpool, in the *British Medical Journal* for July 27, 1912 said: "Why should we undertake an extensive excision of the mesentery for the removal of glands which in all probability are not infected."

Mr. Edwards says that "so far as he knows" 50% of his 81 cases operated upon are alive, and Mr. Paul says, that of 28 cases operated upon in private practice in ten years, 8, or 28% are alive three years or more after operation. The statements of these gentlemen, as of many others, are very consoling, but their reasoning and statistics are rather difficult to understand, when carefully prepared statistics from many sources and from large clinics, making an aggregate of several hundred cases, show that the average percentage alive after three years, is 16%. Even this percentage gives a false impression, as it is a well recognized fact that only from 25 to 50% of the cases which present themselves to the surgeon are operated upon. In other words, from 4% to 8% of the cases which present themselves to the surgeon, are alive three years after operation. This seems scarcely worth while when it is a well recognized fact that nearly that many patients live for three years without operation.

We are not going to discuss with these gentlemen the question as to whether the abdomino-perineal method is worth while or not, but we do say that in the face of these statistics, it is absurd to speak of carcinoma of the rectum as a condition "which is attended with but little risk to life, and which moreover entails no crippling of the patient." Nor can we see the point of the statement recently made by a prominent New York surgeon, when he said very complaisantly, that he had come to look upon adeno-carcinoma of the rectum, as a very benign disease.

Peterson and Colmers[3] have shown that a very large percentage of the cases of simple adeno-carcinoma live at least three years after operation, even though they have a recurrence. Granted that they do, why should that deter us from attempting to save these patients who are condemned to die, in from one to three years, and with no hope of executive clemency?

The surgeon is the only one at present, who can do anything for these patients, and it is therefore our duty to make some effort in their behalf. We must recognize, to be sure, that in these conditions we shall probably not prolong life very much if we do not cure the patient, unless there is hemorrhage or obstruction.

When we consider the question of comfort of the patient, we must remember that the operation is not comparable to the removal of the breast for carcinoma, for that usually gives the patient from one to three years of comfort, even if it does recur.

* Read before the combined meetings of the Suffolk District Medical Society, and the Boston Medical Library, March 19, 1913.

Operation upon carcinoma of the rectum, usually means multilation with an iliac or sacral anus, or leaking from the line of anastomosis, if resection is done.

In spite of Mr. Edwards' and Mr. Paul's complaisant feeling in regard to carcinoma of the rectum, there must be some reason or reasons for the statistics I have just quoted, that is 65% of inoperable cases, 16% of three year cures, and 16% immediate mortality.

Let us put these figures in a little different way. At the present time, if we continue to go on as we have, if 100 patients present themselves with carcinoma of the rectum, to a surgeon, 65 of them must be sent away as inoperable. Of the remaining 35 who will be operated upon, 16% will die immediately following the operation, and 16%, or 5.60 patients will be alive at the end of three years, and at the end of ten years, probably not more than two or three will be alive.

To consider definite figures, there were 127 cases which entered the Massachusetts General Hospital between 1902 and 1912. Of these, 91, or 72% were inoperable for a radical operation, but had a colostomy or curettage, had no operation, or refused operation. Of the 90 operated upon, 36 by a radical operation, and 54 by a palliative operation, 16, or 17.7% died before leaving the hospital. Of the 127 entering the Massachusetts General Hospital 85 cases were followed, and of these there were 12, or 14%, alive more than three years after operation.

Of the 36 patients who underwent a radical operation, 8, or 22%, were alive 3 or more years after operation, while only 5, or 13.8%, were alive without recurrence, 3 or more years after operation.

How can there be any argument as to the need of improvement in these statistics; how can we go on complaisantly saying that carcinoma is a benign disease, that it remains local for a long period, and that the mesenteric glands are probably not infected in this or that case?

A protest against some particular operation, because the mortality is too high, or because the results are not sufficiently good to warrant using it, can be understood, but to express the opinion that there is no particular need for improvement, is absurd.

Perhaps the first and most important cause of our very bad results, is the late recognition of this condition, not only by the patient, but by the physician. To be sure the symptoms are very slight, and make very little impression. Perhaps the most frequent and most important symptom is bleeding, but unfortunately there are internal hemorrhoids which bleed, and almost everybody knows this. In the great majority of cases therefore, it is taken for granted that the blood is from hemorrhoids.

Mayo[4] states that 10% of the cases in their clinic, had recently been operated upon for hemorrhoids, and if that many had been operated upon, a large majority of all must have been treated for hemorrhoids.

Seventy-five per cent. of the cases entering the Massachusetts General Hospital in the last two years had been treated for varying periods for hemorrhoids. Is this a necessary state of affairs, or is it reasonable that it should continue?

Bleeding from the rectum need not necessarily lead to operation, but it should always demand a rectal examination. If nothing is felt by the finger after a thorough bimanual examination, then the sigmoidoscope which will permit examination of the whole rectum, and lower sigmoid, should be used.

This rectal examination is the one thing above all others, which is neglected at present, and it is the one thing that will ever give us more than 35% of operable cases of cancer of the rectum.

The community needs education along this line in order that they may appreciate that bleeding from the rectum, while it means a fissure or hemorrhoids, in the great majority of cases, may mean malignant disease at any age. To wait for a foul discharge, or pain, usually means waiting until the condition is inoperable. And when we speak of inoperable cases at the present time, we do not mean simply that the finger will not reach above the growth, the evidence required a few years ago.

At present the location and size of the growth have nothing whatever to do with the question as to whether it is operable or not. Today, to prove that a case is inoperable, it is practically always necessary to open the abdomen, and to make the cases inoperable, there must be metastases in the liver, iliac glands, glands in the mesentery of the sigmoid, aortic glands or a growth actually involving the peritoneum, the urethra, bladder, ureters, or great vessels of the pelvis.

It will be seen that many cases are now considered operable, which were distinctly inoperable, a few years ago.

This should be remembered in studying the statistics of different periods. In the period from 1880 to 1895, the perineal operations were used very largely, and of course limited operations to the low, and easily reached carcinomata, therefore probably not more than 20% were operated upon. In the next period, from 1898 to 1910, the Kraske operation was largely used; this brought a much larger number of cases to operation, and because a more extensive operation, more extensive growths were removed.

In the last period, from 1910 to the present time, we have a somewhat lower percentage of mortality, with the posterior operations, but the higher mortality of the more extensive combined abdomino-posterior method, brings up the average. The percentage of three-year cures is about the same, in the last two periods. But while the percentage of cures remains the same, the number of cases operated upon is nearly doubled in the last period, over the first, and at least 10% more in the third, than in the second.

In other words, instead of 4 patients out of 100 alive for 3 years or more, we now have 8 alive for the same period. Not much to be proud of but still an improvement.

It will be appreciated then, that the condition of the patients entering the Massachusetts General Hospital in the last two years, gave little encouragment for better results, when 58% were shown to be absolutely inoperable after exploratory operations, and that not more than 26% gave any hope at all of a permanent cure, because of glandular metastases and the extent of the disease. The average duration of time between symptoms and hospital visit of the Massachusetts General Hospital cases in the last one and a half years, was ten months.

It is easily understood then, that the great obstacle to more permanent cures, is the long period before operation is undertaken.

It is stated by all, that adeno-carcinoma of the intestine, pentrates the wall of the bowel late and produces metastases late. This is shown by the fact that these patients live from one to six years with simple palliative operations. And Hausman, as quoted by C. H. Mayo, states that of 112 cases dying of carcinoma of the intestine, it was still localized in the intestine in 50%. Is it not evident therefore, that earlier operation means a great increase in the percentage of permanent cures?

There is one factor which is seldom reckoned with in considering the possibility of permanent cure, that is the histological characteristics of the growth.

Peterson and Colmers[3], after going over a very large number of specimens both microscopically, and macroscopically, and then following up the patients after operation, divided the carcinomata into three groups, as follows:

1. Adeno-carcinoma,
   - (a) simple
   - (b) papillary
   - (c) micro-cystic
   - (d) gelatinous
2. Solid Carcinoma,
   - (a) alveolar
   - (b) diffuse
   - (c) gelatinous
3. Mixed Form,

Paul divides them into:

- (1) The large soft fungating "encephaloid" type.
- (2) The small hard "scirrhous" type.
- (3) The infiltrating "colloid" type.

It is interesting to note the results of the 125 cases followed by Peterson and Colmers.

There were 16.8% cured (for 3 years) all of the adeno-carcinoma group, and all of the first three varieties of this group, that is, the simple, the papillomatous, and the microcystic.

Almost all the solid forms recurred within a year. The adenomatous forms lived for three or more years to a very large extent.

All solid and all gelatinous or colloid forms *always* recurred. These facts are substantiated by almost all writers upon this subject.

It is evident from the statistics, that there would be very little use in operating upon a late case of the scirrhous or colloid variety.

The above facts concerning the late recognition of cancer of the rectum, are appreciated by all, but what we wish to call to your attention, is a more extensive and for that reason what I believe to be a more rational operation, at least from an anatomical point of view. We will therefore call your attention to a few anatomical facts.

It is generally understood at the present time that the rectum is that portion of the colon extending from the muco-cutaneous border to the top of the third sacral vertebra, that is, the fixed portion of the bowel. The so-called first portion of the rectum is really the lower end of the sigmoid, and is derived from the hind gut. The so-called second portion is the ampulla, and the so-called third portion, derived from the ectoderm, is lined with epithelium, and is the anal canal. The true rectum, therefore, is really the second portion of the rectum, as formerly divided. It has no mesentery, and only a small portion is covered with peritoneum.

The blood supply to the rectum may be divided into three groups:—

1. The superior hemorrhoidal artery, which is the terminal branch of the inferior mesenteric, the main supply.
2. The middle hemorrhoidals, which are comparatively small vessels, arising usually from the anterior branch of the internal iliacs, and the lateral sacrals from the external iliacs.
3. The inferior hemorrhoidal arteries, arising from the internal pudics.

The lymphatics, which are of far greater importance, follow in a general way these three systems of vessels, but they have not been worked out entirely satisfactorily as yet.

By combining the work of many men we are able to work out the lymphatic drainage in a fairly satisfactory manner. Perhaps the most recent work is by Braziew,[6] but unfortunately it is in Russian, and not obtainable at present.

The main lymphatic channels undoubtedly follow the course of the three systems of vessels. Braziew for the first time shows that there are sacral lymphatic vessels, which start, (1) in the posterior portion of the para-rectal plexus, and (2) from the region of the insertion of the levator ani, to the bowel. These sacral lymphatics empty into the lateral sacral glands, and glands above the promontory.

Braziew says, therefore, that the spread of carcinoma varies in the upper and lower rectum. That is, in the lower rectum it may spread laterally into the lateral sacral glands, and upward. In the upper rectum it spreads only upward.

Lymphatics of the anal canal empty primarily into the inguinal glands, but they also anastomose with the lymphatics of the lower rectum.

Handley has shown by his picro-carmine stain, carcinoma cells in the bowel wall six inches above the growth, and Fagge has demonstrated a metastatic growth in the anal canal from a growth in the ampulla.

Braziew states that if the lower border of the growth is not more than 5 cm. (2 inches) above the anus, the whole region below the growth must be considered affected, that is, the whole rectum, anus, sphincter, and levators must be removed.

Miles[7] divides the lymphatics into three zones: (1) zone of downward spread, *i.e.* perineal skin, ischio-rectal fat, and external sphincter; (2) zone of lateral spread, which includes the levators, retro-rectal lymph nodes, lymph nodes in relation to branches of the internal iliacs, prostate, base of bladder, posterior vaginal wall, and base of broad ligament; (3) zone of upward spread, *i.e.* the peritoneal floor of the pelvis, pelvic meso-colon, para colic lymph nodes, and a group of glands at the bifurcation of the left common iliac artery.

Miles mapped out these three zones from the recurrences following four series of cases, the operation in each succeeding series being more extensive than in the preceding.

The fact that these metastases took place after an operation, in which the bowel above the growth was brought down to the skin in each case, vitiates this work to a very great extent, we believe. If it were not for this, the work would be most convincing, and would make one feel quite positive that it is necessary to remove the whole rectum, sphincters, levators, the ischio-rectal fat, and a wide area of skin in *every* case of cancer of the rectum.

Certainly after going over these carefully reported cases of Miles, one is impressed with the fact that it is difficult to excise too large an area.

As W. J. Mayo says, "operation for cancer has two principal objects: (1) complete removal of the local focus, with such adjacent tissue as might possibly be affected, and (2) the removal to as great an extent as possible, of the tributary lymph nodes."

To accomplish these objects, a more extensive operation than the posterior operation, as usually carried out up to the present time, must be done.

Operations in use up to the present have been very largely posterior operations, of which there are three types with many slight variations:—

1. The Harrison Cripps operation, for carcinoma of the anal canal, which consists in excising the anal canal, sphincters, and lower end of the rectum, without any attempt to pull down the portion of the rectum left. This operation is the least severe of any (about 5% mortality).

2. The perineal operation, of which the Quenu-Tuttle operation is the best type.

3. The sacral operation, usually spoken of as the Kraske operation, in which the coccyx alone, or the coccyx and fourth and fifth sacral vertebrae are removed.

Of all the posterior operations this, or some modification of it, is the only one which can, it seems to me, be considered to be much more than a palliative operation. As carried out by Hochenegg it has given excellent results, 20% of five-year cures, and when compared with the combined operation, gives a moderately low mortality, 18.9%, while in private practice I understand Hochenegg's mortality is only 9%.

It is not necessary at this time to go into the minute details of these operations. It must be evident to all that any extensive dissection or thorough removal of the glands is impossible in the perineal operations, and that while the field is somewhat enlarged in the sacral operations, the main lymphatic channels which run upward along the superior hemorrhoidal and inferior mesenteric vessels, cannot be reached beyond the promontory.

These operations do not give an opportunity to explore the abdomen for metastases in the liver, and distant glands, and therefore many unnecessary operations are carried out with no increase in comfort to the patient.

It is a well recognized fact that in many cases which seem favorable for operation locally, have metastases in the liver, or distant glands.

It must be admitted that Hochenegg has perfected his technic to such an extent that his results in the sacral operations are comparable to any results reported from any other operation, that is, 20% of five-year cures, with a mortality of 18.9%.

While the perineal and sacral operations do not permit the ideal extensive operation, which theoretically at least, ought to be done, they must be resorted to in the old, the feeble, and the obese. The mortality in such cases, even with the posterior operation, is high, but the combined abdominal and posterior, gives such a high mortality percentage, it cannot be considered.

If then we get but 16% of three-year cures, and a mortality of 16% in the posterior operations, what can we do to improve this in the way of operation?

In 1883 Czerny advocated the abdomino-perineal route but with few followers. Kraske states that König did the first operation in 1882. At various times the operation has been tried ever since; but the tremendous immediate mortality has prevented surgeons from using it to any great extent.

Theoretically the operation is ideal, but practically the mortality has been so high most surgeons have balked at it. We have, therefore, little clinical evidence as to the value of this operation in increasing the percentage of cases alive over three years.

W. J. Mayo says,[8] "We are much encouraged by our results in the last two years." And there is little more definite than this.

Miles[9] has operated upon 42 cases, 17 of which

died. Of the 25 remaining cases, 4 have recurred, and of the 21 left, 4 are alive over four years, 3 over three years, 2 over two and one-half years, 2 over two years, and 10 have been operated upon less than two years.

These results compared with his results from the posterior operations, 58 cases with 55 recurrences, look very favorable.

The so-called combined or abdomino-perineal operation, consists of two distinct steps:—

First Step. Abdominal incision, which gives an opportunity for a thorough exploration of the whole abdominal cavity, and thus frequently prevents further operative procedure, because of metastases in the liver, extensive glandular infection or involvement of some organ.

If there is no contra-indication to the operation, the sigmoid is sectioned, the incision carried down through the mesentery to the inferior mesenteric artery, which is tied by two ligatures and cut. The lower sigmoid and rectum are then dissected from the sacrum, the peritoneal leaves dissected from the sides of the rectum, leaving all fat attached to the rectum. The ureters are found and isolated, after which all fat and glands in the pelvis are separated from the pelvic walls and vessels by blunt dissection. In other words, the rectum, perirectal fat, with all glands in the pelvis, from the iliac vessels down to the hollow of the sacrum, and the mesentery of the sigmoid with the inferior mesenteric artery, are dissected en bloc. The rectum is then separated from the bladder, after which the distal end of the sigmoid is dropped into the pelvis, and the peritoneal flaps brought together over it. The proximal end is brought out through the wound and attached there for a permanent colostomy. The abdominal wound is closed, and the patient put on to the table, on the right side, or in the reversed Trendelenburg position, as recommended by Mayo.

Second Step. The anus is closed by a suture or ligature, an incision made about it, and the dissection carried up to meet that made in the abdomen. The whole mass is then brought out through the perineal wound.

There are so many variations upon this operation that I will not attempt to go into them, but I will simply mention those details which have appealed to me as essential.

There seems to be some discussion as to whether the abdominal incision should be median or left rectus. Considering the difficulty of the dissection in the pelvis, particularly in males, and the length of incision required to do this dissection and tie the inferior mesenteric high, there can be little doubt but that the median incision is preferable in every way. The end of the intestine can easily be brought about through a stab wound in the left rectus, for the colostomy.

In the abdomen, after the decision is made to operate, the first step is to tie off the inferior mesenteric artery close to the aorta. The mesentery of the sigmoid is then separated from the posterior wall, and the rest of the dissection carried out as above. The reasons for this are:—

1. To get all the lymphatics along the superior hemorrhoidal and inferior mesenteric artery, and especially the gland which is generally present at the junction of the inferior mesenteric with the aorta, as stated by Moynihan.

2. To leave the vascular arches which will supply that portion of the bowel it is desired to leave.

3. To give an almost bloodless dissection of the pelvis.

At this point let me impress upon you that the whole mesentery and all the fat in the pelvis is to be removed, instead of carrying the dissection along close to the bowel.

Section of the bowel is left until all the dissection is completed. Kraske believes in sectioning the bowel at once, because of the greater ease in carrying out the pelvic dissection. We believe that this is not true if the inferior mesenteric is tide high, and the dissection begun at this point.

If a permanent colostomy is to be made, the bowel is sectioned with the cautery, the proximal end brought out through a stab wound in the left rectus and the distal end dropped into the pelvis. The peritoneal flaps are then brought together over it. If the end of the sigmoid is to be brought down through the sphincter or an end-to-end suture is to be done, the outer leaf of the mesentery of the descending colon is to be freed sufficiently to allow the sigmoid to be brought down without tension. Section of the bowel is carried out through the posterior wound.

Great care must be used not to injure the vascular arches close to the bowel, as the entire blood supply of that portion of the bowel to be brought down, is dependent on them.

Let me make it plain here that sufficient bowel can be brought down, no matter how extensive the growth, by cutting the outer leaf of peritoneum along the descending colon to the splenic flexure, and freeing the splenic flexure. A sufficient blood supply will be maintained by the arches from the superior mesenteric.

Below, I believe that a sacral operation is much superior to the perineal, because (1) it gives a much better exposure; (2) permits a much wider extirpation of the surrounding tissue, and a more careful dissection of the bowel from the urethra, prostate and bladder, in the male; (3) it gives an opportunity to do an end to end suture, if that method is to be used.

Personally I prefer to get along with removal of the coccyx, or to make a Tuttle bone flap, including the coccyx, and fourth and fifth sacral vertebrae.

Because of the pain of which patients complain following the Tuttle bone flap operation, due, we believe, to cutting the gluteal attachments, and the posterior sacral nerves, we have come to believe that the von Heinecke method of dividing the coccyx and fifth sacral vertebra

longitudinally, and a transverse division of the fourth sacral vertebra, will give the same exposure with less discomfort.

The reason for leaving the sacrum and coccyx is to give support to the pelvic viscera and intestines. Several of the gentlemen who saw Hochenegg's cases, report seeing several tremendous herniae bulging in the posterior cicatrix.

Mayo says that removal of the coccyx and fourth and fifth sacral vertebrae makes no difference, but we believe that they give a valuable amount of support, which it is important to keep.

If we are to get as wide a dissection as possible, the sacral method must be used, and in low lying carcinomata it is essential to get a wide dissection, removing the sphincter, ischiorectal fat and levator ani muscles.

The operation of choice then is, I believe, an abdomino-sacral, rather than an abdomino-perineal operation.

This operation is, of course, too long and severe a one for many patients to stand. We have, therefore, determined upon a two-stage operation in a few of the cases. This consists in:—

First Stage. The same procedure as in the previous operation, up to the point of closing the abdomen, that is, the inferior mesenteric is tied just below its junction with the aorta. The mesentery of the sigmoid is separated from the posterior wall, the ureters identified, and the rectum, with all the pelvic fat, is separated in one mass down to the tip of the coccyx posteriorly, while anteriorly it is separated from the bladder, or vagina. After separating the bowel in this manner, it is held forward and the peritoneal flaps brought together behind it. Instead of dropping the sigmoid back into the abdominal cavity, the upper portion is brought out through a rectus incision, and a Lilienthal colostomy done, great care being used not to injure the vascular arches in the mesentery.

After twenty-four hours, the colostomy is opened and the distal portion cleansed by frequent washing, both from below and above.

Second Stage. After five to seven days, the sacral portion of the operation is carried out as in the single stage operation. The sigmoid is cut off as high as possible in the pelvis, and the proximal end inverted and left as an appendage to the colostomy, as recommended by Mayo, in his two stage operation. I have carried out this two stage operation with excellent immediate results in two cases.

If the carcinoma is sufficiently high to make a resection and suture desirable, or if it is desired to bring the end of the sigmoid down through the sphincter, the inferior mesenteric should be tied in the usual way, and the whole sigmoid and rectum freed from the posterior wall and pelvis, as in a single stage operation.

The peritoneal flaps, which have been turned back, are then sutured together close about the freed rectum, and the abdomen closed. In from four to seven days, the posterior operation is carried out, the growth and a sufficient length of rectum above and below the growth is excised with the whole inferior mesenteric artery, and the fat surrounding it. An end-to-end suture is then done or the end of the sigmoid is brought through the sphincter.

There is not the slightest danger, we believe, from necrosis if care is taken to avoid injury to the vascular arches. The bowels move as freely, and as comfortably, as if no freeing up had been done. At the end of four or five days, or even a week, the adhesions formed are not sufficient to cause much inconvenience. In bringing down the bowel, which has been freed, suture is more difficult because of the thickened and hardened mesenteric fat.

Dahlgren,[10] in the *Zentralblatte für Chir.*, for March 29, 1913, page 1, describes a two-stage operation quite similar to the one above described, but with the essential difference that he ties the sigmoidal branches central to the vascular arches, instead of tying the inferior mesenteric artery. That this is an important difference will, we are sure, be appreciated. If the sigmoidal branches alone are tied off, the inferior mesenteric artery still holds the sigmoid, like a bow-string, from being drawn down into the sacral wound, while double ligature and section of the inferior mesenteric with freeing of the mesentery, permits the bowel to be easily drawn into the sacral wound, and with it the main lymphatic channels of the rectum are secured.

The second stage should be performed under spinal anesthesia.

The two stage operation, as generally carried out, was very uncertain because: (1) of the danger of necrosis of the distal portion, after section of the bowel; (2) it did not permit one to tie off the inferior mesenteric close to the aorta, and therefore the main lymphatic channels of this artery were not removed above the promontory.

In the plan we have presented, the danger of necrosis of the distal portion of the bowel is avoided, and the inferior mesenteric artery may be tied off at the aorta, thus permitting the whole lymphatic system of that vessel to be removed. The tied-off distal end of the inferior mesenteric can be easily brought into the sacral wound.

There is a theoretical objection to this operation which may be of some importance, *i.e.* carcinoma cells may be carried through the lymphatics and poured into the pelvic cavity, through the open lymphatics, during the period of waiting for the second stage. Aside from this objection, we believe that this two-stage operation will be of great value in cases of old and feeble patients, or those in whom there has been marked obstruction.

The question of a permanent colostomy is a very important one, and we are convinced the only rational method in the great majority of cases is to make a permanent colostomy, through

the left rectus. It is essential, we believe, in all cases in which the growth is within three inches of the anus. Braziew says two inches. It will give the best opportunity for permanent cure and the lowest immediate mortality in all cases in which the combined operation is used.

In those cases in which the growth is three or more inches from the anus, an effort may be made to retain the sphincter, by bringing the end of the sigmoid down and doing an end-to-end suture, or by pulling the sigmoid through the sphincter.

The objections to restoring the canal are that the danger of sepsis from leaking fecal matter is much increased, and the danger of leaving infected tissue is very great. The temptation to section the bowel close to the growth in order to have more bowel for the anastomosis, is almost too great.

There is one other objection to leaving the sphincter, that is, the extensive dissection in this region is very likely to leave the sphincter paralyzed, and as Mayo has said, an iliac anus is preferable to a normal anus without sphincteric control.

Küpferle states that of 20 cases of suture, 8 were continent, 10 continent for solid feces, and 2 were incontinent.

Bloodgood and Moynihan both say that the sphincter should be left more frequently.

The discomfort of an iliac anus is, we are sure, much exaggerated in the minds of those of us who do not have to have one. I have been astonished to see the good grace with which the patient of average intelligence accepts it and is apparently happy.

Paul of Liverpool,[2] and many others who do rectal work, are very positive in their statements as to the exaggerated idea as to the discomfort most patients have.

As to the question of a colostomy, as a first stage of an excision of the rectum, the two-stage operation which I have described above, gives us this. In those cases in which a combined operation is to be done, a colostomy alone as a primary operation is only very rarely necessary, as the bowel may be opened at once.

In those long obstructed, a preliminary colostomy to allow the patient to recuperate, is essential.

In the operations for cancer of the rectum, I wish to call your attention to one very important and striking feature. I have now done two Kraske, and three combined abdomino-sacral operations under spinal anesthesia, and have been forced to believe that this is a very important factor in these operations in blocking shock. The patients upon whom I did the Kraske operations were both old, sixty-eight and sixty-nine, and very feeble. The pulse of either did not vary ten beats during the operation.

The third case was a worn out old man of sixty-six, upon whom I did the combined operation.

The fourth, a man of forty-five, a combined operation. In this case the pulse rate was increased about twenty beats, due, we believe, to hemorrhage.

The fifth was a man of sixty-eight, the operation a two-stage operation, the first part under ether, the sacral part under spinal anesthesia. The most extraordinary thing, however, was the appearance of the patients the following day. It would have been difficult for any one to have told that any serious operation had been done.

We are convinced that spinal anesthesia is essential in the combined abdomino-sacral operation, if we are to keep our mortality down.

Now that we have discussed the operation which I believe to be the best for those in good enough condition to stand it, what have I to offer you in the way of proof that it is worth while?

I am sorry to say that we have very little for permanent results, as the operation has not been used sufficiently long.

As to immediate results, we can only say that we are hopeful. At present, so far as known, the results are:

Mayo	14 cases,	5 deaths, 35%
Wallis		40%
Miles	42 cases,	17 deaths, 40%
Hartman	4 cases,	1 death, 25%
Kraske	10 cases,	4 deaths, 40%
Rotter	25 cases,	11 deaths, 44%
Jones	11 cases,	4 deaths, 36%

We do not ask you to accept the combined abdomino-sacral operation as final, as we have no statistics to prove that it is going to give a much larger percentage of permanent cures, but anatomically the operation seems rational, and some operation is necessary which will give us more than 16% of three-year cures.

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ARTIFICIAL PNEUMOTHORAX IN THE TREATMENT OF CHRONIC INFECTION OF THE PLEURA AND LUNGS.*

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Among the many complications associated with pulmonary tuberculosis none are productive of greater physical changes within the chest that vitally influence the termination of

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the affection than spontaneous pneumothorax. The occurrence of partial or complete collapse of the ruptured lung is rapidly followed by a modification of the respiratory sounds in both sides of the chest and acute cardiac strain with dilation of the right ventricle. The immediate result, where the sound lung and right heart cannot care for the demands made upon them is a fatal one. More often than otherwise, however, the phthisical lesion, through its stimulation of fibroid tissue and pleural adhesions, may effectually limit the extent of the pneumothorax or resist its rapid advance and the circulatory changes are brought about with sufficient slowness to allow of complete compensation. A moderate body of air in the pleural cavity may bring about more or less complete collapse of one or more lobes, a marked lessening of the flow of blood and lymph and cessation of respiratory activity. This series of changes is followed in corresponding sequence by the diminution of absorption of toxic products, as a result of rest of the diseased lung and the expedition of fibrous tissue formation. The small or transient pneumothorax could hardly be expected to bring about any decided change in the condition of the infected lung, but when its force is exerted over a considerable area for some time the result is beneficial. Carlson, Adams, Sale and other observers have noted the good results which not infrequently followed this complication.

The action of pleural effusion or sterile pyothorax on the lung is much the same as that produced by air compression. The accumulation of fluid within the chest, while much slower and thus less dangerous, may continue until pulmonary collapse is complete or until that point is reached where further encroachment upon the lung is prevented by fibroid consolidation or the restraining action of adhesions. The advent of one of these complications has often marked the beginning of the retrogression of an otherwise unfavorable infection.

The therapeutic application of intrathoracic pulmonary compression in the treatment of phthisis, while not of very recent date, is only just beginning to be appreciated.

Artificial pneumothorax is subject to the same limitations as are those diseases producing spontaneous compression within the thorax. Its successful use will, therefore, depend upon the choice of such thoracic conditions as allow of lung compression and the maintenance of a constantly compressing force in that region which will directly bear upon the active lung process.

CLINICAL APPLICATION OF PNEUMOTHORAX.

Unilateral cases of phthisis, relatively free from evidence of old pleuritis, recurrent pleurisy with effusion, and certain cases of lung abscess and bronchiectasis of not too long standing offer the greatest field for its clinical application. In pulmonary tuberculosis the range of the selection of cases is limited only by the ability of the patient to take the treatment and the object the operator has in view in giving it. If arrest or apparent cure of the disease is the ultimate object, then the treatment in most cases must be limited to those showing unilateral signs and without much fibroid tissue formation. If relief of one or more troublesome symptoms is the result sought then any case of pthisis where the heart action is good and the pleural cavity is not obliterated may be treated.

Recurrent pleurisy with effusion may probably be shortened in its course and the damaging action of pleural adhesions lessened by the withdrawal of the effusion and the compression of the lung lymph spaces by nitrogen. In abscess of the lung and bronchiectasis compression should be exerted from below upwards to allow for drainage. The chronicity of such cases does not often allow of a complete arrest of the process, but frequently much can be done in modifying the symptoms.

Few incipient cases of phthisis have so far been reported as treated with pneumothorax. It would seem best for the present on account of the complications to which the nitrogen treatment is subject to exclude all early cases from the treatment except such as are rapidly advancing under the best of sanatorium conditions. Early cases, however, may show remarkable improvement in a few weeks with a total loss of activity of the process in the lung as the result of artificial collapse.

The advanced case should never be refused treatment because the collapse of the lung is thought to be impossible without the effort being made. Often the most unpromising case, as judged by all physical signs, may give very little trouble in regard to pleural capacity. The condition of the myocardium and the extent of the disease may, however, prevent the use of nitrogen. The condition of the heart should be such as to be able to care for a readjusted pulmonary circulation, and should be strong enough not to readily dilate should pleural shock occur. While the advanced unilateral case is considered the one of choice for artificial pneumothorax, the great majority of those treated will be bilateral. If the second lung shows a limited amount of apical involvement with little activity, the effect of the treatment may be beneficial to both lungs. When the second lung shows an active process even of limited extent the effect of the treatment may be to rapidly extend this process. I have seen one such case. A basial process in the least affected side nearly always precludes the use of nitrogen compression. The increased respiratory activity thrown upon the lower lobe of the untreated lung will tend to advance the disease in this location. Occasionally, subsequent to the arrest of a case of phthisis by artificial pneumothorax, the untreated lung may take on an active pro-

cess after the cessation of treatment on the other side. In such instances if the first lung is able to carry on respiration the active lung may be compressed, provided this is done with care and the amount of compression slowly increased. Where tubercular pyothorax or effusion complicate phthisis the compression thus exerted should not be interfered with unless the fluid is invaded by pyogenic organisms. In such cases the withdrawal of the fluid and compression of the lung with nitrogen should first be tried before an open chronic thoracic sinus is established.

The selection of the point of injection is secondary in importance only to the selection of the case to be treated. In the routine case the lower dorsal surface offers the best location. The majority of cases of phthisis begin at the apices and advance downward and in these cases the pressure will first be exerted upon that portion of the lung most recently invaded and which gives rise to the symptoms. The respiratory activity of the diseased lung will be most rapidly retarded by pressure exerted at the base. In this region also there is apparently less danger of producing pleural shock than nearer to the root of the lung and collapse of the lower lobe gives less distress from pressure. In cases of abscess of the lung, and bronchiectasis, which most commonly occur in the lower lobe, compression can also be most favorably exerted by thoracentesis in the lower part of the chest. In the selection of the point of injection the presence of adhesions must always be considered. Where physical examination shows the lung to readily expand with inspiration, with the descent of the lung borders and a resonant note on percussion, in most instances the lung will be free. X-ray examination is, however, all important here to prevent failure in many cases where physical signs give no indication of adhesions. No case should be undertaken without such an examination where it is possible, to supplement auscultation and percussion with it. In this way frequently a few bands may be avoided which would otherwise negative all effort toward the successful production of a pneumothorax.

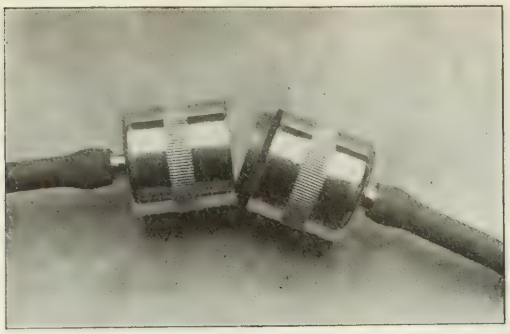
METHODS.

At the present time two methods are in vogue in the production of artificial pneumothorax. The incision method of Brauer has so far failed to maintain its place against the simpler puncture method of Forlanini. The latter, on account of its simplicity, its greater freedom from complicating emphysema and not being one of greater danger is now largely in use in this country. With either method, however, constant pressure from nitrogen upon the lung should be maintained. Certain operators prefer to fairly rapidly increase the amount of nitrogen injected and at the same time prolong the interval between injections. This routine has the disadvantage of allowing an irregular rate of absorption of the nitrogen and an inconstant positive intrathoracic pressure. More preferable is the method of giving small amounts of nitrogen at an interval of a day or two, thereby steadily increasing the force exerted upon the lung and making up by the frequent re-introduction of nitrogen for an uncertain rate of absorption of the gas. The complete collapse of the lung in most cases if of any duration, in either phthisis or abscess of the lung, is generally impossible, but in a large proportion sufficient collapse can be obtained to give good results. It is often remarkable to see how small an area of pneumothorax will favorably influence the pulmonary condition. Often even in an advanced case, where not more than a few hundred c.c. of nitrogen can be tolerated the advance of the trouble is checked thereby, and even arrested when apparently only a small amount of pulmonary tissue is reached. The failure to get improvement or to prevent a relapse in a given case is often due to too early allowing of re-expansion of the lung. Collapse should be maintained until all evidence of active disease has disappeared from the lung for several weeks and then the rate of re-expansion should be a slow one. In recent pleurisy with effusion, an amount of nitrogen two-thirds in quantity of the amount of fluid withdrawn should be introduced and this amount should be maintained within the chest. As the re-accumulating effusion diminishes in amount less and less compression will be necessary. In bronchiectasis the collapse of the lobe affected should be continued until adhesions prevent its re-expansion.

INTRATHORACIC CONDITIONS.

The conditions existing within the thorax, both as regards positive or negative pressure and lung movement, can be learned by the use of the manometer control. The closer this instrument is followed the more safely will the operation of artificial pneumothorax be performed. It is never advisable to allow an inflow of nitrogen into the chest unless an excursion of one and one-half to two c.c. in the water column is obtained with respiration.

In many cases valuable information may be learned by the action of the manometer at the first injection. Where little excursion occurs, the lung is generally in close proximity to the chest wall or tied down to it. Where a marked negative reading appears, as is commonly the case, the lung has often been carried away from the chest wall by the retractive action of fibrous tissue. Occasionally, where a cavity has occurred near the area selected for injection, the pleural space may be entirely obliterated and the puncturing needle may enter the cavity without causing any symptoms. In such instances the manometer readily varies without any persistent tendency to either positive or negative pressure. Nitrogen, if allowed to flow



Metal cell.

in, runs with suspicious rapidity, and this together with the metallic taste complained of by the patient and subsequent lack of signs of a pneumothorax will tell the operator what has occurred. If a small cell containing menthol, or some other equally noticeable drug, through which nitrogen is allowed to flow, is inserted in the apparatus, prompt recognition of the passage of nitrogen out through the mouth may be obtained. Knopf speaks of the danger of entering a cavity on account of carrying its septic contents into the pleural space and chest wall. In two or three cases in which I have personally done this no subsequent infection has occurred. The danger of infecting the pleural cavity in this way is, I believe, a minor one, as the parietal and visceral pleura must be adherent in order to make this readily possible. When the needle enters the lung substance very little effect is noticeable on the manometer from respiration. If the patient moderately inflates his lungs with the needle in the lung no corresponding excursion occurs and it is never safe to introduce nitrogen until it is obtained. The danger of air embolism is much over estimated, and in some four years' work with this method I have never seen a case. Furthermore, experiments on animals would seem to show that only exceptionally can it be brought about even when the effort is made to produce it. The amount of nitrogen which may be given to a patient at one time will depend largely upon the amount of positive pressure shown by the manometer, accompanied by definite symptoms on the part of the patient. Where the needle enters a small pleural pocket and this is filled with nitrogen, pleural pain and positive pressure will rapidly occur. In those cases where adhesions are old and firm, no symptoms may follow even vigorous efforts to introduce nitrogen, as shown by a marked positive pressure. If, however, the inflammatory condition of the pleura is of shorter duration, positive pressure may be succeeded by atmospheric or even negative pressure as the adhesions give way under the advancing gas, and it may fail to again rise, even with large amounts of nitrogen. It is well not to force such a case too rapidly, especially at the first injection. Perseverance under those conditions which at first may seem hopeless will in time allow of an extensive pneumothorax and often good results. The danger of rupturing the lung and producing pleural hemorrhage by the giving way of adhesions, is a very rare one and as far as I am aware none have been reported. When the treatment is well under way, at the close of each injection the manometer should register a slight amount of positive pressure, thus showing that a certain amount of force is exerted upon the lung. Subsequent injections should be large enough or given often enough, so that at least, atmospheric pressure is maintained in the chest. In this way alone can the collapse and re-expansion of the lung, continually recurring, be prevented.

The changes brought about following the introduction of nitrogen are not only demonstrable by physical signs, but also pathologically. Clinically the use of the x-ray has in many instances served to give a much clearer idea of the actual conditions within the chest than could be obtained in any other way. Not only can the area of consolidation with cavity formation be marked out, but the location and density of adhesions traced. The position of a body of nitrogen with its effect upon the lung obtained by this means is of utmost value to the clinician. Often the plate will show a limited body of the gas markedly compressing that portion of the lung in contact with it. All possible locations and singular situations are at times taken by a pneumothorax. The diaphragm may be greatly depressed by the gas or it may extend in a thin sheet over a considerable portion of the lung, showing no great depth at any one point, or a series of pockets of varying size and shape separated by adhering bands may occur. Now and then where the lung is united to the chest wall by many adhesions as the gas burrows in among them the lung may collapse before it, leaving numerous outstanding strands extending through the air cavity. I have seen one patient in whom the tension on pleuro-pericardial adhesions was so great following a pneumothorax as to produce great cardiac embarrassment and necessitate its withdrawal.

Physical examination will demonstrate changes according to the extent of the pneumothorax and the existing thoracic conditions. The loss of pleural and at times of pulmonary râles in the area of compression is quite striking. In the incipient lesion one injection alone may permanently obliterate all pulmonary moisture. This is produced by the limitation of air movement in the compressed area and the collapse of the alveoli. The signs of amphoric respiration and a cracked pot note on percussion, in cases of pulmonary abscess or phthisis, may cease to be demonstrable after compression. Extensive modification of the physical signs in the compensating lung is often noticeable. These changes, as has been pointed out, are due to the enforced activity of the second lung, and when a pneumothorax of any extent is established

they nearly always occur. The demonstration of an artificial pneumothorax may at times be difficult. Often a modified tympanitic note on percussion is all that can be obtained to locate the presence of nitrogen even where a large quantity has been given. A diaphragmmatic pneumothorax or one film-like in type give little in the way of characteristic signs.

If a body of gas is under tension, few characteristic signs are present and the coin sign is often absent. The pathological anatomy of the collapsed lung has been studied by Graetz, Sangman and Forlanini. They all have noted the increased tendency to fibrosis, and in certain situations where collapse has been complete, alveoli and even bronchi may be almost overgrown by fibrous tissue. The effect on the lymphatic and pulmonary circulation of compression is prompt and lasting. As the lung is more and more compressed the circulating blood diminishes proportionally and the lymphatics that are not obliterated by fibrous tissue, dilate.

Perhaps the most noteworthy observation is the fact that although alveoli may be firmly pressed together for months, there is little tendency to adhesion of their walls, and if re-expansion occurs they readily resume their function. This is of great importance as in many instances where the lung is allowed to re-expand it is an added protection to it to have aeration re-established. Pathologically, the end sought is obtained by the infiltration of tubercular tissue by connective tissue with its accompanying permanent restrictive action.

COMPLICATIONS.

Much has been said in regard to complications which may follow the production of artificial pneumothorax. The most important one is the pleural shock from irritation of the pleura upon the introduction of the aspirating needle. In spite of all precautions in endeavoring to cocainize the pleural surface this may occur. The one fatality that I have seen was due to this cause. The symptoms are a sensation of pressure in the chest or in the vicinity of the heart, cyanosis, shallow respiration of the gasping type, with a very rapid faint heart beat and dilatation of the pupils. It comes on without warning, and may pass off again in a very few minutes, with retraction of pupils, improvement in the pulse and deepening of respiration. Sometimes before this stage occurs the color of the lips will be alternately blue and very pale. Some patients are apparently very much more susceptible than others and the introduction of the needle in the vicinity of the root of the lung is more likely to bring on the shock. The one case in which I have seen this complication survived the first attack and some months later succumbed to a second, as it was followed by cardiac dilatation. I consider this complication the most important one among those associated with this operation.

Pulmonary embolus is very infrequent and by controlling the injection of nitrogen with manometer readings this can almost always be avoided. It has occurred, however, even with so careful an operator as Brauer, and may leave a hemiplegia from the localization of nitrogen in the brain. Pulmonary hemorrhage from injury to the lung is also infrequent, even where a violent spasm of coughing may drive the lung against the needle point.

By far the most common condition following pleural inflation is the accumulation of effusion. This generally comes on after several inoculations, and may at first be so small in amount that even the x-ray will fail to detect it unless the patient is in the upright position when examined. Where injections are very frequent and small amounts of nitrogen are given at a time it is more likely to occur than where the interval is of some duration. Examination of the fluid will occasionally show the tubercle bacillus to be present. Now and then, either from lack of careful technic or from extension of pyogenic organisms through the lung substance, the fluid may become contaminated and pyothorax become established. This is almost always a serious condition. Where the fluid accumulates in any amount it seems best to withdraw it and to keep the lung well compressed with nitrogen. In my own work I have seen very few effusions of any amount. Occasionally spontaneous pneumothorax may supplement an artificial one by the giving way of the lung substance. This may or may not be of serious import according to conditions present. If tension upon a thin walled cavity results in breaking it, the contents may escape into the pleural cavity with resulting pyothorax. In most cases fibrous tissue prevents this. Where the Brauer method is used for the initial introduction of the gas, not infrequently the wound shows a low grade of sepsis. I have never seen an infection of the chest wall following the puncture method.

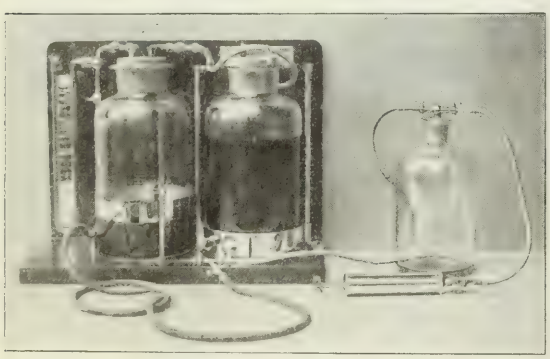
Subcutaneous emphysema commonly occurs where nitrogen is under considerable tension in the chest. Its presence is troublesome, but not serious unless it perforates the costal pleura and invades the mediastinum. In such a case the symptoms give cause for anxiety.

In pulmonary tuberculosis complicated by a tubercular condition of the kidney the use of artificial pneumothorax is generally precluded on account of the danger of suppression of urine. If it is used at all it should be done with great care.

The rapidity with which the lung may collapse is of importance in order that the load thrown upon the right ventricle may not be too suddenly increased. The ready inflow of nitrogen into the thorax with the rapid increase in the signs of pneumothorax and the failure of the manometer to indicate any degree of positive pressure all indicate that the lung is steadily retreating. I have seen one case of tempo-

rary right sided cardiac dilation from too rapid collapse of the lung. It is maintained that collapse and later re-expansion of compressed pulmonary tissue sooner or later tends to spread the disease through such uninvolved lung as a result of its lowered vitality following the treatment. This is merely one more argument for as complete collapse of the lung as possible, and its maintenance in such condition until all activity has ceased.

In a series of five cases that I have followed, in which a pneumothorax was produced about three years ago, where, while the general condition was greatly improved and the disease brought to a standstill, although all activity had not disappeared, the subsequent history has shown an extension of the disease into the re-expanded portion of the lung. The protection accorded the untreated side through an abundance of blood and air has prevented any development of active disease there. In pleurisy with effusion, after the withdrawal of the fluid, the tendency of the compressed lung is to slowly re-expand until it is re-compressed by re-accumulation of serum stimulated by the presence of the tubercle bacillus. The injection of nitrogen will maintain the lung at the point to which it has been carried by the effusion, and while it will not prevent the recurrence of the fluid it will help to diminish its quantity and therefore aid in a more rapid recovery.



Pneumothorax apparatus connected for aspiration and inflation.

In cases of lung abscess or bronchiectasis unless the nitrogen injected is restricted by adhesions the lung substance about such a process will be driven in upon the infiltrated area, and even the cavity itself may be occasionally compressed into a smaller compass. Not infrequently, however, especially in the older processes on account of the extensive inflammatory reaction, little can be accomplished.

RESULTS.

Two years ago in conjunction with Dr. Robinson, I reported a series of twenty-eight cases treated by artificial pneumothorax. Of this number some eight cases had either shown an entire arrest of an active process or were approaching that condition. The other twenty cases had secured relief of symptoms to a greater or less degree. Of these arrested cases, six are in excellent condition today. One has died, through no fault, however, of the method but on account of the ignorance of the patient, and one has within the last year shown an extension of the old process into the previously collapsed area of the lung. These few cases may, therefore, be added to an already growing number of cases of pulmonary tuberculosis that have not only been arrested temporarily, but also probably permanently by artificial pneumothorax.

During the past four years I have been enabled to treat a fairly large number of cases of pulmonary tuberculosis by means of nitrogen compression. Some of these have been under treatment primarily for the relief of one or more symptoms, such as persistent cough, or hemoptysis. In the great majority, however, the object of the treatment has been to arrest an advanced active process. In the larger number of cases reduction in temperature, relief of cough, diminution of expectoration and an increase of body weight have occurred. In several cases where the character of the disease was of a chronic toxemia with an advanced pulmonary lesion, the results of the compression of a portion of the active lung has markedly diminished toxic absorption. Improvement in circulation, gain in weight and increase of strength followed, even where the extent of pneumothorax was limited.

In one case of pyothorax secondary to an advanced tubercular process of the lung, in which the pus was withdrawn and the fluid replaced by nitrogen no results were obtained on account of the dense unyielding condition of the consolidated lung.

In cases of pulmonary tuberculosis complicated with a secondary infection, results have been fairly good only where collapse of the lung has been extensive. The compression of a portion of the lung tends merely to diminish the amount of sputum and reduce temperature. The action of pyogenic organisms is not checked and lung destruction slowly advances.

In the unilateral cases of active tuberculosis, not only relief of symptoms, but arrest of the disease has been obtained. The time required to accomplish this has varied with the extent and activity of the disease treated. The tendency in most instances is to lengthen the interval of injections too rapidly and even stop them altogether before permanent arrest is assured. With artificial pneumothorax as with other methods of treatment of tuberculosis, relapses occur and a renewal of the treatment may be necessary. Thus, after allowing the lung to re-expand and to begin the formation of new adhesions, it may be quite difficult and may require considerable patience to again re-collapse it. Nitrogen may have to be forced in under considerable water pressure in order to separate the pleural surfaces even in those cases where the first series of treatments have uniformly been carried out

without difficulty. After establishing a moderate pneumothorax the lung generally collapses more rapidly from this point onward than with the first few injections. The same difficulty also arises in treating those patients who are not systematic in following up the treatment, and allow weeks to intervene between injections.

In a few cases of pulmonary tuberculosis, where the pulmonary process has been extensive in one side and inactive in the other, during the series of injections renewed activity may occur at the margin of the old inactive process. In such cases continued compression merely aggravates the focus of the disease, and it is often wisest to desist entirely in the treatment or at most to maintain only a moderate pneumothorax. Occasionally it has been possible to arrest the disease in one half of the chest and later, after allowing this lung to re-expand, to compress the second, which has shown evidence of activity. A few such cases have occurred among those reported by German observers. In such instances as I have seen, in which the second lung has become actively involved, the condition of the patient was not such as to allow of any extension of the method.

It has been the experience of some operators, after having established a pneumothorax in one side, to have pulmonary hemorrhage occur from the untreated lung. This has been due to the increase of pulmonary circulation through a portion of lung previously damaged by disease which has given way under increased tension. Such difficulties are fortunately infrequently met with, and where the amount of bleeding is at all extensive may preclude any further use of nitrogen. Sometimes it may be thought desirable to remove a portion of the amount of nitrogen injected into the chest on account of cardiac symptoms following a well marked collapse of the lung. Where no more than atmospheric pressure has been produced within the chest-cavity suction may be necessary to remove any appreciable quantity. This, however, is rarely necessary.

After some experience with the method of artificial pneumothorax in the treatment of pulmonary pneumothorax, one is struck with the relatively small number of those afflicted that are really suitable cases for this treatment. Well marked or advanced strictly unilateral cases are not especially common even in large clinics for pulmonary tuberculosis, and some observers believe that such cases are always bilateral. If this type of case is strictly adhered to the results obtained where the method is carried out conscientiously will be uniformly good, and the percentage of patients markedly improved or even arrested will be as large as 40% or 50%. If, on the other hand, as is the tendency with most men, almost any otherwise hopeless case in which satisfactory compression can be obtained, is given a chance of obtaining relief at least from persistent symptoms, the results will not be brilliant, and I believe not more than 5% or 10% possibly of such cases will be arrested. Artificial pneumothorax will be of real aid in the chronically recurring tubercular pleural effusion, and in some cases of bronchiectasis and pulmonary abscess in which the inflammatory conditions to be met are not too extensive. But even if this group of diseases may be benefited by the use of this method, its field in the treatment of diseases of the chest will still, I believe, be relatively a narrow one. It is most applicable where the patient is under the supervision of hospital or sanatorium management, and has failed to do well with the older and well established methods.

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THE BETTER TRAINING OF NURSES IN INSANE HOSPITALS.

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Training schools for nurses have been in operation in insane hospitals for upwards of thirty years. In the beginning, they were of necessity modelled on training schools in general hospitals, and have practically continued along the lines on which they were started.

As time has gone on, the best of the general hospital schools have become more and more highly organized. Take the Massachusetts General Hospital, for instance, where the course is three years, and according to Washburn and Burlingham "The minimal educational requirement is a four years' high school course, or a good equivalent, also a knowledge of elementary chemistry, anatomy, physiology and bacteriology."

While it is true that all the general training schools do not set as high a standard as the Massachusetts General Hospital, yet some of them do, and more and more will, as time goes on, for nursing is a profession demanding thorough preparation.

When we turn to the insane hospital school, we see that it occupies quite a different field and the divergence is sure to become more marked as mental disease is better understood. We shall find that the treatment of the insane is far more complicated than that of persons sick with bodily disease. It would be a simple matter if the

patient entering the insane hospital could be put to bed, given medicine, baths, massage, plenty of good food, and so restored to health, but we are going to have a different conception of mental disease. Dr. Joseph Collins has well said that: "The majority of nervous ailments are social in their origin and social in their implication. It is incumbent on us, the people, to devise methods for the efficient administration of the social elements of *each* case. . . The obligations to think of him and treat him (the individual) as a social element become greater rather than less."

Now what I believe we are going to do in the insane hospital is to develop the care of the patient on the social side. He must be segregated as an individual from the moment he enters the hospital and be followed through its wards, and after he goes home. His social relations in all directions must become a matter of interest to the state. On what is done for him on the social side will largely depend the cure and future prevention of his attack. The treatment of the patient in the hospital will depend more on studying him as a man than as a case. He must be approached and followed up as a human being in trouble dependent on our efforts to restore him to happiness. The nurse is the one on whom will fall much of the burden of the practical part of this work. She must, by gentle methods, know how to approach the patient's mind; she must know how to sympathize, soothe and cheer; she must be full of expedients to occupy and divert; she must help to renew weakened social relations and to restore the patient to society as a useful worker and not a broken down wreck.

To teach nurses to perform these various functions, quite a different training is necessary from that of the general hospital training school, and I believe the time has come to make material modifications in our courses of study. Insane hospitals cannot and should not expect to turn out nurses to take care of all kinds of cases of sickness in the community at large. They should carry on special schools to train nurses for the care of mental cases in particular. Even with a few months' service at a general hospital, the insane hospital nurse is not fitted to compete with the graduates of the best training schools. She is not the master of an art, but a novitiate. The only thing she really knows is the general care of an inmate of an insane hospital. It is wrong to send out a nurse so superficially trained. No wonder Miss MacKenzie, the superintendent of the Victorian Order of Nurses of Canada, says with some feeling: "The age is past when we should tolerate in the name of nursing anything but the real article. We have had demonstrations in almost every country of the great mistake of having for any class of sick people half-trained nurses." In my opinion, a number of subjects should be wholly eliminated from the curricula. Efforts should be concentrated on teaching nurses the plain, every-day duties involved in the care of the mentally ill. These, when rightly understood, require intelligence and character, and few nurses have a thorough comprehension of them, partly because they have been imperfectly educated. They acquire in the training school a smattering of many things, instead of a mastery of any one subject.

In addition to the duties to which I refer, occupation and diversion should be studied and applied throughout the entire course. The nurse's social relation to the patients will require unending emphasis every day of every year, for just at this point the great mass of girls entering hospital work have had no early training, and many of these of necessity lack the gentleness, sympathy, patience, and perception so important for successful treatment of the insane. Sick nursing of a simple and practical kind should be incidentally learned. There is no time, or necessity, for its scientific and theoretical study.

As far as possible, instruction should be placed in the hands of competent supervisors or head nurses and not in those of the medical staff, for the latter are usually over-burdened with routine duties and teaching nurses is more than should be expected of them. Class work should be reduced to a minimum, for while it has the look of real school work, it may not be half as helpful to the nurses as instruction in the wards, and it is a bad thing to take them away from their duties and in any way lessen the amount of attention to the patients, which is apt to be too little rather than too much.

I am strongly in favor of placing the whole nursing system of a public insane hospital in the care of women. For the care of excited men a few male nurses will be necessary to assist the women. I believe men do not as a rule make good nurses, and for the small wages paid by the state it is almost impossible to obtain first-rate men. Occasionally when the right kind of man is employed, he cannot be held. Making a poor man into a good nurse by putting him through a training school, I believe impossible. The best way to solve the problem is to steadily increase the number of women in the male wards until they dominate the situation.

The ideal course to be aimed at in the insane hospital training school should extend over three years. The first year students should do the housework in the wards and learn how to make patients physically comfortable. This would be a probation year and would determine whether the nurse had the right stuff in her to make a success. The second year would find the nurse free from most of the purely routine housemaid's duties, giving her more time for such study and occupational work as might be desirable. She would also be taught some of the duties of a companion and the practical care of patients sick in bed, the latter work being done under careful supervision. The third year, while still giving much of her time to the care

of the patients in the wards, particular emphasis would be laid on the social service point of view. A competent teacher, herself trained in the same field, would give instruction. The nurse should pay frequent visits to the families of patients, and learn from actual experience that the patient in the hospital requires the same kind of individual attention he would receive if he were the only one in his own home.

Hitherto, with the large number of patients in the wards and the inadequate number of nurses, there has been insufficient time during the training school course to do all the duties well. The mere ward work has been enough to occupy all the time of the meagre corps of nurses, yet their studies have also required considerable time. With the best intentions in the world, there have been few opportunities to carefully think out and put into practice what might be done for the patient on the human side. In the ideal three years' course the nurse will be trained how to approach the patient and gain his confidence and be made to feel that her duty is not done if she has not succeeded in accomplishing this in a fair number of cases. She must, however, be given the time and opportunity, as well as the special training, otherwise she cannot be blamed if she misses the point of the training.

In all three years, but especially in the second and third, considerable time must be allowed for the study and practice of a variety of occupations. In the third year, the nurse must be able to apply what she has learned to the teaching of patients herself under proper supervision. Games and simple physical exercises must also be brought to the nurse and passed on by her to the patients.

It may be gathered from what has been briefly said above that the nurse must have time off from the wards, both in the second and third years. This is true, for service in the wards alone is not sufficient to give the nurse an all round knowledge of what mental disease is, and also what occupational treatment it requires. The criticism will at once be made that what is proposed will deplete the number of nurses on the wards and necessitate a larger corps, and hence a greater expenditure of money by the state. No doubt this is true, though in the end it may not prove to be so. We should not expect that all state hospitals would be able to introduce the ideal training already outlined, for some years to come, for a change from a two to a three years' course could not at once be introduced.

Nurses of any kind are at present hard to find, and many fall out of the training school from time to time, so that graduating classes are often pathetically small. In the beginning, only one or two of the leading hospitals perhaps in each state would be able to undertake the ideal three years' course. This might be done in part in the psychopathic department of the hospital, should there be one, where opportunities and facilities might be better for the social training side of the work than in the main hospital. The first year the training of the ordinary state hospitals could be followed, and such nurses as were efficient and ambitious enough could then continue the work in the psychopathic department. The state hospital would still have a two years' course, but gradually its curriculum could be modified in keeping with the principles of training outlined above.

It is probable that there would always be some nurses who would never get farther than the end of the two years' course. These nurses might continue as hospital attendants, but would not be graded as high as the nurses taking a full three years' course. They would, to some degree, correspond to grade B as laid down in the recent report by a special committee to the American Hospital Association and might be called "certified mental nurses." A certain number of them, no doubt, would do work in the general community of a less skilled kind and at a less price than the grade A or "registered and trained mental nurses."

While nurses in the ordinary state hospitals for some years perhaps cannot be secured without the payment of wages, as at present, those taking the advanced course should be paid comparatively little. The same principle should apply to them that applies to nurses in general hospital training schools, namely, that they are being taught a profession, and there is no more reason why they should be paid than students studying the medical profession, for instance. In time, this principle should be applied to all nurses who intend to make nursing a profession. It may always be right to allow a small amount for uniforms, but farther than this, there should be no money allowance. Wages, as such, should not be paid.

Should the expense of the system of training suggested prove to be greater than the present one, the end justifies the means, for the nurses trained as proposed, will in the course of time be an important factor in what is done for cases of mental disease, or threatened cases, in their own homes. They will frequently be instrumental in keeping patients *out* of the hospital. At no distant day, the average medical practitioner, as a result of improved methods of instruction in mental diseases in the medical schools, will make a diagnosis of impending mental trouble before the border-line has been crossed. At this point the nurse, trained as above outlined, will prove of the greatest value and will, in fact, often be the means of actually arresting an attack. Should this consummation not be achieved, she will be able, far better than at present, to cope with the patient intelligently in his own home, provided the symptoms are not indicative of danger to himself or others.

The better training of insane hospital nurses is a matter of vital importance to the state, as it may result in materially reducing admissions to the state hospitals. At the present time many old people, feeble-minded young persons, cases

of organic brain disease, and cases with mild symptoms are received because, supposedly, they cannot be taken care of at home. Most of these cases could be reached through the psychopathic department, which should be a part of every one of our state hospitals. Many of them would be out-patients and their home care could be undertaken by the hospital nurses undergoing training as above suggested, under the general supervision of the medical staff and head nurses.

Progress in the economic care of the insane should come in future years in part through the care of a larger proportion, than at the present, in the general community. But before this can be accomplished, we must have the means of reaching back from the hospital to the family and trying to see what can be done for the patient first of all—out of the hospital. Such work as this, no doubt, will be done in part independently, but as the hospital is the centre of expert knowledge and experience, it should exert a powerful influence in helping the public to adopt the best means of dealing with the entire question of the care of the insane. The writer believes the specially trained nurses may become of great help in solving the problem.

Clinical Department.

A CASE OF ORTHOSTATIC ALBUMINURIA TREATED BY EXERCISE.

BY HENRY J. FITZ SIMMONS, M.D., BOSTON.

From the Orthopedic Clinic of the Children's Hospital.

IN reading the literature and the case reports of orthostatic albuminuria one is compelled to remark the different factors which are given prominence in the etiology of this condition. The report of the following case is made with no desire of placing it in any of the usual classifications, nor to describe it as one of any special type. It is reported because I believe it represents a true case of orthostatic albuminuria which was improved and possibly cured by a system of exercises built around the knowledge, that in this case certain positions of the erect spine caused an increase of the amount of albumin excreted in the urine.

E. T. Girl, eight and three-fourths years. Entered the medical out patient department of the Children's Hospital in January, 1913. At that time the history obtained from her mother was as follows:—

Her father, mother, one sister and four brothers were living and well. Three children had died in infancy from causes unknown to the examining physician. The mother gave a history of one miscarriage during her second pregnancy. There had been no known exposure in the family to tuberculosis nor malignancy.

The patient had been born at full term without the aid of instruments or anesthetics. She had been breast fed for twelve months, after which, it was evident from the mother's account, that she got good food in proper amounts. During her first year she was perfectly well, except for acute bronchitis, from which she fully recovered. At the age of three she had measles. She has escaped the other diseases common to childhood, and up to the time of her present illness has always been a well child.

For the past three weeks the little girl has had sharp pains in the abdomen, nearly every day. These attacks come as frequently as three or four times a day, and have no relation to the ingestion of food. The pain seems to be referred to the region of the umbilicus. At no time has the mother noticed spasm of the abdominal muscles nor tenderness. Previously, and during the last three weeks, the child's appetite has been poor and the general health as usual. The diet has been good with the exception, possibly, of too much candy. The mother states that the child has been sleeping well and has been without complaint, except for persistent constipation. This constipation has been relieved by the frequent use of licorice powder.

Physical examination showed a bright, well developed and nourished girl, apparently not in pain. She answered all questions intelligently. Her skin was clear and her mucous membranes clean and of good color. Pupils were equal and reacted to light and distance. No enlargement of superficial lymph-nodes was found. The tongue was clean and her teeth excellent. The throat examination showed no abnormalities. Her lungs were normal in all respects. The heart was very carefully examined and found to be normal in size and position, and without murmurs. Her abdomen was soft and without tenderness, being easily and painlessly palpated. No enlargement nor derangement of the abdominal contents was found. The extremities were normal, as were all her reflexes. She seemed a normal child, save that she stood with increase in the curve of her lumbar spine. She had a marked lumbar lordosis, with some forward sagging of the abdomen.

On entrance the hemoglobin was 90%; leucocytes, 14,000; polynuclears, 70%; lymphocytes, 30%. The urine at 9.30 a. m. had traces of albumin, but was otherwise negative.

The urine at 2.15 p. m. was normal in color, clear, neutral in reaction. Albumin, slight possible trace; contained no sugar nor acetone. The sediment showed a few squamous vaginal cells with rare leucocytes, and no casts.

The second day the urine was normal in color, clear, with a specific gravity of 1012 and contained no sugar, but had very slight possible trace of albumin. The sediment showed squamous cells, but was otherwise negative.

The third day the child was put to bed for four hours and the urine following showed clear, neutral, with albumin only very slightest possible trace; then the child was allowed to be up for two hours and the urine showed clear and neutral reaction, and contained very large trace of albumin, ¾% by Esbach test. The child was then taken off her feet and placed in wheel chair for one hour. The urine following showed clear, neutral in reaction, containing only a slight possible trace of

albumin. After this the child was kept quiet in bed and the albumin disappeared from the urine. She was then allowed to be up and about the ward and the urine repeatedly showed a large trace. All abdominal pain has disappeared since entrance and her bowels are now regular in function, licorice powder being necessary at times to preserve this regularity.

On the eighth day of her observation the child was in bed with a pillow under the lower dorsal vertebrae, this increasing the lumbar lordosis with the child in the horizontal position. The urine following was clear, neutral in reaction and showed a very slight trace of albumin. The same day when in bed without a pillow, the urine showed clear, neutral in reaction, and only showed the very slightest possible trace of albumin.

On the ninth day the child was allowed to get up and walk about the ward in a position called for clearness, No. 1. This position is obtained by passing straps over the shoulder and down the back so that the head, cervical, dorsal, and lumbar vertebrae are all bent backwards, increasing the lumbar lordosis. After position No. 1 the urine showed a very large trace of albumin. The position of the patient was then changed into that of No. 2. In this position the lumbar lordosis is decreased by passing the straps down the front of the trunk in the reverse to that in which they were in position No. 1. In this position a very slight trace of albumin was obtained. Renal function test performed on this day showed normal, 45% being excreted one hour after the injection of the phenolsulphonephthalein.

From the eighth day until the discharge from the hospital the patient was kept on a minimum proteid diet or on the usual house diet. There was no change in the albumin excreted, just as much being found with the low proteid as with the high proteid diet.

The patient left the hospital on the tenth day, but has been seen at intervals and the urine examined. It was found by the method of Jehle, as described in the *Wiener-Klinische Wochenschrift*, Feb. 27, Vol. 26, page 109, that raising the foot upon a stool so that the thigh was flexed to right angles with the trunk and kept in this position, caused no change in the amount of albumin excreted in the urine. Jehle believes that this position, decreasing if not obliterating the lumbar lordosis as it does, has a direct action upon the relaxation of the perinephritic tissue. Although this test was tried several times nothing definite was observed.

Here was a child apparently normal except that when she assumed her usual erect position her kidneys excreted albumin. From the observations made upon children with chronic constipation, where the condition was cured by exercise, the writer had noticed that decrease in the lumbar lordosis was coincident with a lessening of the complaint. Exercises were, therefore, commenced and carried on vigorously. All muscular exertion which tended to lessen the lumbar lordosis was encouraged, while all positions which increased it were forbidden. These exercises were definitely arranged, first to increase the muscle power of the abdominal walls. Particular attention was paid to the recti, superior and inferior obliques and the transversalis. These exercises for muscle power were carried on simultaneously with instructions in "muscle control." Muscle control, the writer feels, is very important, since by this means the patient has not only the power to hold a given position, but assumes this position first consciously during the training of certain muscles, then unconsciously. From this unconscious assumption of this position she passes into a condition in which she assumes a proper attitude, not occasionally, but continually. This condition was obtained by insisting during all the exercises, of a concentration upon the exercises, and the absolute exclusion of all other thoughts or actions. At first there was some difficulty in obtaining the concentration desired, but the little patient was of unusual intelligence, and an explanation of the importance of doing what we desired and in the way desired soon gave the result for which we have been seeking. The urine was examined once a week for three weeks. The first examination showed a normal urine, with the exception of a slight trace of albumin; the second week it was normal, with the exception of the slightest possible trace of albumin; the third week showed a normal urine in all respects. From then until six months had elapsed from the time the child had been admitted to the hospital wards, the urine has been examined frequently without any trace of albumin having been found. The child appears the same as on entrance, with the exception that now her standing position is perfect. Her lumbar lordosis being now normal for a child of her age and conformation. This improvement in the erect posture the child unconsciously maintains, and with the persistency of this correct attitude the child has ceased to have albuminuria.

The literature on this subject has not been very profuse. W. Arnold examined forty-four patients with chronic tubercular disease of the skin, eight with psoriasis, thirty-three with syphilis, to determine the prevalence of orthostatic albuminuria in these conditions. The findings were negative in the cutaneous affections, but in early and still untreated syphilis, orthostatic albuminuria was encountered almost as frequently as in the early stages of tuberculosis. The discovery of orthostatic albuminuria is, therefore, not to be regarded as a sign of incipient tuberculosis, unless syphilis can be excluded. He adds that orthostatic albuminuria seems to be the manifestation of a chronic infection or intoxication and is not of specific importance. The case under consideration, as far as modern methods of diagnosis could show, had neither incipient tuberculosis nor any form of chronic infection or intoxication.

V. Gonoletsky reports that he lightly compressed, massaged or shook the sagging kidney in thirty-five patients with nephroptosis. He also tested the effect of various positions in eighteen patients with scarlet fever and twenty-seven with other acute infections. The results of these he tabulated and compared. They showed that traumatic injury plays no part in the causation of orthostatic albuminuria. He states it is rare in nephroptosis. It does not develop unless there is functional infection weakening the organism at the period of its most intensive growth. Injury of the kidney from toxic elements and temporary over-strain from the

erect position which makes greater demand upon the energy. These factors are sufficient, he believes, to explain orthostatic albuminuria without incriminating lordosis as the main element. There was definitely no disease of the kidney in this case. The child had never suffered from an acute infectious disease. The most careful inquiry into the child's condition at the onset of the known albuminuria failed to reveal any condition which would lead one to believe that there was any functional impairment of the kidney at that time or that any abnormal demand was being made upon the nerves, vessels or muscles of this section of the child's anatomy.

Frankel examined twenty-one children with spinal disease and found eight free from any trace of albuminuria, while it was evident in the others. In twenty-two other children with albuminuria he found only eight without some amount of spinal deformity. Among other points learned from this research is that the total acidity increased in the children with albuminuria induced by lordosis, unless the children were given beforehand a dose of four grs. sodium bicarbonate. It is possible, he says, that the elimination of albumin in these cases is due to abnormal production of acid. It might be wise to give an alkali occasionally in addition to the hygienic treatment and tonics to combat the constitutional weaknesses. Some of the children were pale and restless and complained of headache; all improved under alkali.

Frankel's observations upon these children were not the observations made upon this isolated case. The urine has never been acid, the child has never been pale, restless or complain- of headache, yet before treatment was well instituted had a marked lordosis of the spine, with albuminuria.

K. Dietl calls attention to the importance of vasomotor instability as a factor of equal moment with lordosis in the production of orthostatic albuminuria. The lordosis may cause stagnation in the renal vessels and thus induce albuminuria, but a sound vasomotor system is generally able to compensate for this. Consequently when a person with orthostatic albuminuria has his vasomotor toned up, the albuminuria may subside in spite of the persistency of the lordosis. Viewing this case in relation to the above remark of Dietl, as far as it was possible to observe, there was no definite trouble with this little girl's vasomotor system. If the decrease in the amount of albumin excreted was due to what Dietl calls a toning up of the vasomotor system, this must have been done by some agent and in a manner unknown to the writer.

P. Stiller claims that the phenomena observed by Jehl (which have been mentioned before) namely, that induced lordosis is liable to cause albuminuria in previously healthy children, is a manifestation of the universal asthenia to which Stiller long ago called attention. This asthenia is the basis upon which the orthostatic albuminuria develops, as is also the narrowing of the upper aperture of the chest—all are the consequence of the general asthenia characterized by the tendency to sagging of the viscera, nervous dyspepsia, neurasthenia, of both volitional and involuntary nervous system—motor, sensory and secretory disturbances of the stomach. This constitutional inferiority is responsible for albuminuria. In the case under discussion the writer could discover no evidence of this all-including condition called by Stiller "universal asthenia." This patient presents no abnormal narrowing of the upper aperture of the chest and no sagging of the viscera except what one would expect in the increased lordosis which was the only prominent symptom present.

In a series of cases of orthostatic albuminuria selected at random, M. H. Bars and H. Wessler observed that a considerable number presented evidence of relative cardiovascular insufficiency. These symptoms, they say, in a great majority of cases, are not associated with any hypertrophy or dilatation of the heart. On the contrary, the heart, in many cases, is smaller than normal, nor does it show any evidence of weakness or dilatation after exercise. Although the hearts do not dilate after exercise, a certain number failed to become smaller under these conditions. This failure to contract may, perhaps be looked upon as a restriction of the cardiac response. After exercise our case showed what might be considered normal enlargement which returned to normal size upon resting and in no way discernible showed cardiovascular insufficiency.

V. C. Rowland, writing as late as December, 1912, summarized the modern view of orthostatic albuminuria as an increased permeability to the serum albumin of the blood due to vasomotor instability with low pulse pressure, and this in turn being due to a relatively undeveloped state of the cardiovascular system at a time of rapid growth of the body, and further that various mechanical factors, such as lordosis, probably influenced the condition.

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PIG-SKIN FOR HUMAN GRAFTS.—An unverified press report on Nov. 2 states that Dr. C. S. Venable, of San Antonio, Tex., has successfully employed the skin of young pigs in grafts on human beings. This is said to have been described in a recent communication before the Medical Association of the Southwest.

Reports of Societies.

AMERICAN ELECTRO-THERAPEUTIC ASSOCIATION.

Twenty-third Annual Meeting, Held in New York City, September 2, 3 and 4, 1913.

The president, Dr. F. Howard Humphris, of London, England, in the chair.

PRESIDENT'S ADDRESS.

Dr. Humphris discussed the relation of electro-therapeutists to each other, to their professional colleagues and to the public at large. He urged careful study and modesty, and the recognition of the fact that electro-therapy was but a segment in the great chain of scientific discoveries. Electro-therapeutists should not trespass outside the bounds of their own specialty. Their duty to the public at large could be summed up in the one great word "honesty."

REPORT OF COMMITTEE ON INDUCED CURRENT, INCLUDING ALTERNATING AND HIGH FREQUENCY CURRENTS AND APPARATUS.

Dr. Frederic de Kraft of New York said that so much mystery seemed to be attached in the minds of many as to the action of high frequency currents, and more especially to the heat effects attending their passage through the body, that it seemed not inopportune to inquire into the matter somewhat in detail. It had long been an established fact that every electric current warmed the conductor through which it passed. The resistance which the current encountered in its passage through a conducting medium was to a large extent responsible for the conversion of a part of the electrical energy into warmth. Last year he had spoken of a new series multiple spark gap. The sparks in this were discharged unmuffled in the open air. With this method the silver points were rapidly oxidized. After many experiments, he had induced the manufacturer to exclude the air, and in the new series multiple spark gap the sparks occurred practically in a vacuum. Low frequency alternating currents had electrolytic properties. With currents of very high frequency no electrolytic effect was noticeable The warming effect of auto-condensation was different from that obtained by any other artificial method. It occurred from within, in the interior of the body, in which every single cell participated. As a result of the heating of the blood and muscles the entire heat regulating apparatus of the body was exercised, probably brought about by a direct stimulation of the sympathetic nervous system. The blood rushed to the surface of the body and venous congestion was relieved. Anemia of the splanchnic area ensued. Visceral congestion was relieved. After this subsided the blood stream returned again to normal channels, and diseased organs and areas received a fresh supply of oxygenated blood.

PHOTOTHERAPY AND APPARATUS.

Dr. Herbert F. Pitcher of Haverhill, Mass., said there had been nothing new in the way of apparatus reported during the past year. Helio-therapy had received some attention in the manner of treating laryngeal tuberculosis and tuberculous glands. The red light had been used in the treatment of pleural effusions. Of the many methods used in the treatment of alopecia, the ultra-violet light was one of the most cleanly and convenient. Fluorescence in the tissues was a question which had not been satisfactorily solved, and he suggested the systematic trial of the method in the treatment of diseases amenable to all forms of light.

STATIC CURRENT AND APPARATUS.

Dr. Fred H. Morse of Boston said that much more work was being done with the static current than for several years past. The improvement in apparatus and some new modifications of the older methods of application came in the line of marked advancement. For instance, the multiple spark gap advanced by Dr. Bishop, the pencil brush discharge electrode for producing a violet spray from the positive side of the machine, without a possible chance of getting the hitherto unpleasant spark, advanced by Dr. de Kraft, and the increased efficiency of the positive brush discharge, where a many pointed metal electrode is attached to the positive side of the machine, the patient holding the negative electrode, a powerful anode spray being produced, which is applicable in the treatment of joint affections, inflammations of the middle ear, and in various cutaneous diseases, the efficiency being greatly increased by interposing a multiple spark gap in the circuit on the positive side.

ROENTGENOLOGY.

Dr. G. E. Pfahler of Philadelphia reviewed the advances made during the past year in Roentgeno-therapy and x-ray diagnosis.

MECHANICAL VIBRATION THERAPY, EXERCISE THERAPY AND APPARATUS.

Dr. Mary Arnold Snow of New York said the therapeutic application of mechanical vibration had been greatly broadened during the past year by its use in cases of high blood pressure and in the treatment of splanchnic neurasthenia.

A PLEA FOR THE SCIENTIFIC TEACHING OF ELECTRO-THERAPEUTICS.

Dr. William Benham Snow, New York, N. Y.: There are three distinct features of electricity characteristic of its employment in art, commerce, and medicine: (1) electrolytic, (2) thermic, which includes light production, (3) mechanical. Employed with a distinctive recognition of these peculiar effects, the currents best adapted for each are respectively, the constant current for the electrolytic effects, the static currents for the mechanical effects, and the high frequency current of d'Arsonval and Tesla for the thermic effects.

The constant current may be employed for other effects, but it is essentially the current employed for the removal or destruction of redundant or neoplastic growths by the method of Gautier, Massey and others.

The static current possesses peculiar qualities capable of producing tissue drainage, removing the infiltration from swollen glands, joints and other

structures as no other measure will. The action by which this is accomplished is purely mechanical and largely due to its high voltage and diffusion, and to its peculiarly energetic effect in producing tissue contraction, when, by the induction of intrinsic activity in the structures of a part the products of inflammation or defective metabolism are expelled and circulation reëstablished.

The high frequency current produces the thermic effects by heating the tissues, and particularly so when passed between electrodes placed at opposite sides of the body or part. This is accomplished without the production of any electrolytic action whatever, and may be regulated to the tolerance of the patient and employed with practical safety for the induction of local hyperemia and restoration of local metabolism in the field through which it passes. Several currents, as the sinusoidal, induced and constant currents, produce mechanical effects which are valuable in selected cases by special technic. The constant current is the only current capable of causing electrolysis. While other currents produce heat, the high frequency current is the choice in all cases for the production of thermic effects with hyperemia.

From this point of view the choice of electrical methods to meet definite therapeutic indications is placed upon a scientific basis, which is demonstrable and readily understood by the beginner. No one should presume to use electricity as a therapeutic agent without understanding the methods and indications for its employment,—how, when and where to use it. Otherwise success is impossible, because the element of dosage, which includes time, current strength and method of employment are vitally important.

EMPHYSEMA, ALLIED CONDITIONS AND THEIR TREATMENT.

DR. ERNEST KINGSCOTE, Portman Square, London, W.: Increase of the chest excursion and reduction of the hyperresonance in emphysema is obtained by a new method of exercise consisting of first binding a large towel tightly around the lower ribs during forced expiration, then taking three very slow forced inspirations in succession, breathing through the nose. The manoeuvre is repeated three times a day for three months. Improvement is noticeable in a week.

Between the emphysematous cavities are millions of disused air cells with all their elastic tissues intact. By means of these exercises the disused air vesicles are once more brought into action, and as they expand they gradually squeeze up the emphysematous cavities and the patient becomes once more endowed with movable elastic lungs. This opens the door to the treatment of a number of otherwise intractable conditions, such as asthma, angina pectoris, diabetes, tuberculosis, chronic dyspepsia, myxedema and the goitres, all of which are characterized by stasis of blood in the brain and abdominal organs. The brain and the abdomen depend largely on the expansion of the upper thorax for getting rid of their venous blood. Therefore the increase in the chest excursion by the method described is of vital service combined with other methods. Improvement is noticeable within a week.

APPENDICITIS: ITS TREATMENT AND PREVENTION.

DR. S. ST. JOHN WRIGHT, Akron, Ohio: The anatomical similarity of the appendix and the colon with its circular and longitudinal muscles leads the writer to believe that the appendix may be kept in normal condition by the frequent use of the slow sinusoidal current. The necessary apparatus costs less than an appendectomy, can be made fool proof, and may safely be used by almost anyone. The daily use of this current is recommended instead of the incessant use of laxatives, and it is considered best to have the patient install the apparatus in the home and use it regularly.

IONIC MEDICATIONS A NEGLECTED TREATMENT IN AMERICA.

DR. F. B. GRANGER, Boston, Mass.: This paper outlines basic rules for the correct polarity and choice of drugs in ionic medication, giving the best percentage strength of solutions and of current strength. The results of experiments and of clinical work are given in detail.

THE CONTINUOUS CURRENT AND SOME OF ITS ADVANTAGES AS A THERAPEUTIC AGENT.

DR. FRANCIS B. BISHOP, Washington, D. C.: When applied to nerve centers or nerve tracts the functions of distant organs are readily influenced by the constant current. All physiological functions of the body are associated with definite body electrical currents and those currents are absolutely necessary to the proper action of all such functions. In disease the body currents of the affected part become weaker. Any form of stimulation applied to a muscle or nerve or to the surface of the body produces body currents proportional to the degree of stimulation and to the physiological activity of the tissues. The effect of treatment by any physical agent depends upon its power to stimulate the activity of these body currents. The constant current has par excellence the power to supplement the action of the normal body currents. Numerous diseased conditions were cited wherein its use was particularly recommended.

OSTEOSARCOMA OF THE INFERIOR MAXILLA. A CLINICAL REPORT.

DR. F. C. TICE of Roanoke, Va., reported a case diagnosed clinically as osteosarcoma of the inferior maxilla successfully treated by the x-ray.

A PLEA FOR THE MORE EXTENSIVE USE OF THE SINUSOIDAL CURRENT.

DR. FRED H. MORSE of Boston read this paper. In the treatment of certain pathological conditions results obtainable by the sinusoidal current differed considerably from what was to be obtained by the static, galvanic, faradic or high frequency current, or any of their modifications or combinations. Owing to the character of the current, it was possible to use a considerable amount of current and produce vigorous muscular contractions on both voluntary and involuntary muscles without the usual painful effects that would result from the galvanic, faradic, static or induced currents. It was very useful in the treatment of dilated stomach, with or without gastroptosis. In any place where the faradic or static currents were indicated and could not be tolerated, we had in the sinusoidal current an agent of greater value than was generally understood or appreciated by the great majority of physicians.

DEFORMING ARTHRITIS AND INTESTINAL STASIS.

Dr. A. B. Hirsh of Philadelphia said that physicians trained in physical treatment methods had with such full satisfaction relieved or cured chronic arthritis with enteric torpor, that it came rather as a surprise to learn that the intimate etiological relation thought to exist between the two symptom groups was now being denied by some authorities. Their position seemed to rest on laboratory studies rather than on clinical results. Until more dependable tests were found, the conflicting views of authorities as to the diagnosis of urinary extractives in arthritis must make the physical therapist continue to depend on the presence of indicanuria and on the fractional proportion between the conjugate and preformed sulphates as guides to intestinal proteid putrefaction, both as the cause of the joint trouble and as indications for its treatment. Other sources of infection should not be overlooked. The treatment included regulation of the bowels, a suitable dietary, exercises, hygiene, artificial support of ptosed abdominal organs, and the application of the static sparks to the joints for the removal of abnormal deposits and to the muscles for the relief of spasm.

SOME IDEAS PERTAINING TO ELECTRO-THERAPEUTICS.

Dr. Anthony Bassler of New York said he seriously questioned the advisability of a great quantity of the literature that had been advanced in connection with electro-therapeutics, because some of it had hampered the progress of the specialty in the estimation of the best men in medicine. Numerous articles had appeared in which a large series of a certain line of cases were mentioned where the diagnosis was stated without as much as a qualifying symptom justifying the diagnosis. How could we ever hope to arrive at a definite opinion of the value of any measure of therapeutics unless the very closest minutiae had been employed in the diagnosis, and all of the methods of treatment described. Instead of adopting the enthusiastic standard, the standard of work, experience and personal questioning should be installed, and such statements as were made should be accompanied with the reasons for the diagnosis and matters pertaining to the treatment.

CURABILITY OF CERTAIN SO-CALLED INCURABLE CHRONIC DISEASES BY MODERN METHODS.

Dr. Byron S. Price of New York said that chronic non-infectious diseased conditions had long filled a conspicuous place in the list of "incurable diseases." In these conditions oxidation was always below par, stasis existed, and hyperemia, if present, was of the venous or congestive type. The result tended to one of scar tissue production, as in spinal cord lesions, arterio-sclerosis, chronic interstitial nephritis, chronic neuritis, etc. This class of cases required some means of direct tissue cell stimulation for the production of oxidation and elimination of waste. These diseases had been left without hope of cure until William J. Morton conceived and made possible the application of the high frequency currents in their treatment. The indications were to end or modify the toxin production, and to eliminate as rapidly as consistent the waste products already retained in the tissues.

THE USE OF THE SERIES SPARK GAP ON THE STATIC MACHINE IN ROENTGEN THERAPY.

Dr. George E. Pfahler of Philadelphia described an addition to the muffler of the static machine which introduced a series spark gap on either the positive or negative side of the circuit. It answered the requirements of being able to adapt the spark when the machine changed its polarity; it was noiseless; it could be adjusted from an adjoining room; and it did not furnish a path for leakage of current.

FOOD AS A FACTOR IN THE CAUSATION AND CURE OF DISEASE.

Dr. J. W. Torbett of Marlin, Texas, read this paper. The balanced ration from the true standpoint of caloric needs of the body was not commonly followed by either doctor or patient. The high protein diet, so largely used now formed more toxic products, overworked the thyroid, liver and kidneys more than any other diet, and thereby invited infections and the sequelae following infection in the form of arthritis, nephritis, arterio-sclerosis, neurasthenia, neuritis and many other chronic diseases. One of the greatest factors then in the cure and prevention of such diseases was the adoption of a balanced ration of clean, well-prepared, nutritious, low protein food, laxative enough in character because of the cellulose and fruits to maintain intestinal drainage without irritation and give at the same time proper nutrition. The doctor should be the leader of this movement in educating the people through his patients by precept and example as to the great importance of dietetics from the standpoints of economics, as well as the cure and prevention of disease, to the end that they may know how to maintain health on a balanced, varied ration for the least amount of money.

THE INDICATIONS AND CONTRA-INDICATIONS OF ELECTRO-THERAPY IN GYNECOLOGY.

Dr. H. F. Pitcher of Haverhill, Mass., said that after treating diseases of the pelvic organs for over thirty years he had yet failed to find a remedy which would replace electro-therapy in many of the diseases of women. Pelvic diseases in which he had found electro-therapy as the remedy of choice were amenorrhea, dysmenorrhea, menorrhagia, ovarian congestion and inflammation, chronic catarrhal and exfoliative endometritis, endocervicitis, chronic metritis, subinvolution, and the absorption of adhesions and exudates as the results of old inflammatory troubles.

ELECTRICAL MASSAGE.

Dr. C. O. Files of Portland, Me., read this paper. By electrical massage by means of the hand of the operator the value of the massage was vastly intensified and the field of its use greatly broadened. In the anemic condition introducing many wasting diseases this modality has proved its efficacy. Static electricity had been useful in this class of cases, but electrical massage had secured speedier and more brilliant results. There was no form of electricity that could be compared with electrical massage in hastening circulation and giving strength to muscles.

THE STORAGE ELEMENT IN THE THERAPEUTICS OF THE CONSTANT CURRENT.

DR. ALFRED T. LIVINGSTON of Jamestown, N. Y., related the case of a man on whom he had applied the constant current at frequent intervals and for long periods of time, in which there seemed to be a storage of electricity. A test was made and demonstrated that this was the case.

The following officers were elected for the ensuing year:—

President, Dr. George E. Pfahler, Philadelphia; Vice Presidents, Dr. Albert C. Geyser, New York, Dr. Frank B. Granger, Boston; Dr. J. W. Torbett, Marlin, Texas; Dr. William L. Clark, Philadelphia; Dr. Fred C. Tice, Roanoke, Va.; Treasurer, Dr. Emil Houel, New York; Secretary, Dr. J. Willard Travell, New York; Registrar, Dr. Frederick M. Law, New York.

Book Reviews.

The Doctor in Court. By EDWIN VALENTINE MITCHELL, LL.B. New York: Rebman Company. 1913.

This volume, by a member of the Massachusetts bar, is not a work on medical jurisprudence but an "attempt to put briefly and in high relief the general principles of law relating to the medical profession, and the reasons for those principles." It deals not so much with the subject of expert testimony, as with the legal relations of every physician to his patients, his civil and criminal responsibilities, and the nature of the testimony which any physician may by virtue of his profession be called upon to give before the courts. The book should, therefore, be of valuable assistance to all practitioners not already familiar by experience with legal procedure. The text is much illuminated by the citation of 233 appropriately illustrative cases.

Materia Medica; Pharmacology; Therapeutics; Prescription Writing. For Students and Practitioners. By WALTER A. BASTEDO, Ph.G., M.D. Illustrated. Philadelphia and London: W. B. Saunders Company. 1913.

This new work on the most ancient department of medicine represents the author's lectures on the subject at Columbia University. Its aim throughout is therapeutic and practical, rather than theoretical and pharmacologic. The first part deals with general considerations, the second with drugs and their actions, and the third with prescription-writing. The book is illustrated with sixty well-chosen plates or cuts. It should prove a useful contribution to the text-book literature.

Anatomy, Descriptive and Applied. By HENRY GRAY, F.R.S. New (English) edition, thoroughly revised and re-edited, with the Basle anatomical nomenclature in English. By ROBERT HOWDEN, M.A., M.B., C.M., professor of anatomy in the University of Durham, England. pp. 1407, with 1126 illustrations.

New (American) edition, thoroughly revised and re-edited, with the ordinary terminology followed by the Basle anatomical nomenclature. By EDWARD ANTHONY SPITZKA, M.D., director of the Daniel Baugh Institute of Anatomy and professor of general anatomy in the Jefferson Medical College of Philadelphia. Oct. 1502 pages, with 1225 illustrations. Philadelphia and New York: Lea and Febiger. 1913.

The two new editions of Gray's Anatomy before us, although of essentially the same size and contents, differ in certain details. The English edition, a new American edition revised from the eighteenth English edition, is edited by Robert Howden, and is particularly characterized by the use of an English version of the B. N. A. The editor believes that the B. N. A. nomenclature is destined eventually to supplant the older and more familiar terminology and he has, therefore, taken the step of using the international nomenclature to the exclusion of the time-worn terms usually employed. The new American edition, revised and re-edited by Edward A. Spitzka, adheres to the old nomenclature and introduces B. N. A. terms in parentheses following the ordinary terminology. We are inclined to think this latter method is the more desirable. It is peculiarly difficult to change by drastic methods a terminology entrenched by years of use, whereas it has time and again been shown that a gradual substitution of an older by a newer and better method is entirely practicable.

Little need be said of the character of this book. It remains in spite of many worthy competitors a standard student text-book, and so long as it receives the able editing which is characteristic of these two volumes it is likely to remain at the head of books of its type. The illustrations have been improved, and an effort has been made to demonstrate the practical bearings of descriptive anatomy through brief descriptions of certain processes of disease. The books are admirably printed and retain approximately the size and general appearance which has characterized them for many years past. The arrangement of the subject matter in the English and American edition is not the same, but the general scope of the two volumes is such that they may be regarded as entirely interchangeable.

THE BOSTON
Medical and Surgical Journal

THURSDAY, NOVEMBER 13, 1913.

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DOES SANITATION PAY?

THE best way to prove the value of modern sanitary methods among us would be to show what wonders have been accomplished by them far away from home. To get the Mississippi Delta made healthful and habitable for the white man, it should help to tell how Gorgas has converted the erstwhile pestilent Panama Zone into a rival of Palm Beach as a winter resort, how he has since done the same epic feat at Guayaquil, and has been called to do it again in South Africa. To get medical school inspection established in Potts Hollow, it were best to explain what school hygiene has done for our fellow citizens in Hawaii. To eradicate hookworm anemia in Jones's Four Corners it ought to suffice that such anemia has years ago disappeared from Porto Rico. That Squedonk can be got rid of mosquitoes and malaria can be demonstrated by the fact that the Philippines are today under as good, if not better sanitary control than are, in general, our Southern states. "In the period of hardly more than a decade," said President Taft "that we have been responsible for our people in the tropics we have made more progress in the discovery of methods of prevention and cure of tropical diseases than all other countries have made in the past two centuries." And all this has been the result of science backed by authority—military authority. Many American communities have sanitary methods that are not backed by any kind of authority; in many others there is authority but lack of scientific acumen, and there is no public health in any of those places.

Besides the governmental authority by which communal sanitation is accomplished, the demands of commerce have been very potent. Medical Health Officer E. W. Hope, of Liverpool, has declared that pounds, shillings and pence have been the mainstay of sanitary progress. Of course, this is only partly true; it were difficult indeed to imagine that such men as Gorgas, Koch, Manson, Rods and Shiga have held any such consideration supreme. And yet it is so that those infections which have interfered with business—typhus, smallpox cholera, yellow fever, the dysenteries and the malarias—have been the first to disappear from the world's great trading stations; and they are now practically extinct in those ports where mercantile interests would be in jeopardy or suffer interruption by the detention of vessels and cargoes. International quarantines have been established of course, from humane motives, but very largely also as a help to business. There are those indeed who say, that when it comes to our government's interest in preventive medicine, the hog stands the better chance than the human, because he happens to be an animal of commerce. In parts of the Amazon territory preventive medicine is more effectively applied than in some of our states, because enterprisers understand that sanitation is essential to profitable business development; and have accordingly made the doctor paramount. A medical fledgling just out of hospital is fully empowered to apply inexorably the principle by which the workers can assuredly be kept well; with his quinine pill in one hand and his gun in the other the worker is left no choice; he takes the pill and keeps healthy or he forthwith makes his way back to Para. Of course the company loves the worker, and all that, as the whole world knows, but it realizes too that a sick man cannot effectively and gainfully gather rubber.

Adequate prophylaxis against almost all the infections to which the American people may be prone has now been evolved by medical science; all that remains to be done is to apply the knowledge. As soon as it is realized that vast economic interests are involved in the tuberculosis problem the elimination of that disease from human experience will be a matter of but a generation or so; it were easier, medically speaking, to banish tuberculosis than smallpox, a disease now practically extinct. Just as soon as it is understood that typhoid fever, the American infection, stands for an outrageous and most

foolish money waste, that disease will pass into the nosological junk shop. The same will apply to pneumonia, the black plague, alcoholism and so on. In our Southland the light is now being seen with reference to the hookworm disease; and erstwhile "lazy men's" communities are being transformed into prosperous and healthy ones by the simple expenditure of 77 cents to the individual cure.

Of course business has not been the only mainspring of sanitary progress. And yet it should be considered that altruism is an essential element in sound and wholesome business. People who are doing business legitimately are simply busy helping one another, attending to mutual needs and comforts. And the point is well to make that any community wanting to be prosperous and to do business with the rest of the world has got to have or to get a reputation for salubrity. And any community that strives to hide its lack of sanitation will ultimately, by the distrust such duplicity creates, ruin its business outlook. The best advertisement, for any town is a clean bill of health, issued by authorities of standing and tried character.

THE DEATH OF MARY THE FIRST OF ENGLAND.

ONE of the most interesting clinical histories among the monarchs of England is that of Mary the First, familiarly known as "Bloody Mary" on account of the persecution of Protestants under her reign. Its interest centres chiefly in the fact that it is the only one of these histories which was primarily gynecological.

Mary Tudor, who was born at Greenwich Palace on Feb. 18, 1516, was the only surviving child of Henry VIII and Catharine of Aragon, his first wife and legitimate queen. Like her younger half-brother, afterwards Edward VI, she was mentally precocious, and at the age of nine was proficient in music and in the Latin tongue. As a girl she suffered much from dysmenorrhea and scanty menstruation. She was several times betrothed to various different foreign princes, but did not marry until she was 38 years of age. She was proclaimed queen at Norwich on July 13, 1553, a week after the death of Edward VI; crowned at Westminster on Oct. 1 of the same year; and married at Winchester on July 25, 1554, to Philip II of Spain.

In due season after this it was believed tha she was pregnant, a supposition for which her habitual menstrual irregularity easily gave oc casion. But the abdominal enlargement, which gave further verisimilitude to this pseudocyesis proved in fact to be due to an ovarian cyst The mortification and disappointment associated with this episode combined with the physical discomfort of her disease to make the remainder of Mary's life miserable. The surgery of the time dared do nothing to relieve her. As the tumor grew she became progressively more cachectic. Finally, in September, 1558, she became infected with "the new burning ague," apparently a virulent influenza, then epidemic in England; and of this, as a terminal ailment she died on Nov. 17, 1558. Her physician was Dr. Caesar à Dalmariis, a naturalized Italian.

Mary's life was one of bitter vexation and disappointment. It was she whose grief at the loss of Calais was so great that she declared its name would be found written on her heart. Like that of Edward VI, her death was one that probably might well have been prevented by modern medical science. Like him, too, she died too soon to give her name to the age of unsurpassed literary and political brilliance that was so soon to follow under her half-sister, Queen Elizabeth.

PHENOMENA OF THE FRENCH BIRTH-RATE.

THE falling French birth-rate from time to time receives editorial comment in various medical and popular publications, but, like most natural phenomena, seems nevertheless to continue its course unaffected. Recently some new aspects of the situation have been pointed out which give fresh interest to this familiar topic.

Hitherto some consolation and excuse for the diminishing birth-rate have been derived from the fact that the death-rate was falling too. But statistics published in Paris on Oct. 26 show that during the first six months of 1913 the total number of deaths increased 11,875 over the corresponding period of 1912. With a falling birth-rate and a rising death-rate France would be badly off indeed. Moreover, as another critic has pointed out, a falling death-rate means merely the prolongation of inefficient lives, and does not at all relieve the military and economic stress on the vigorous adult class.

It has also been held that the decline of fer-lity showed largely among the well-to-do and ·istocratic. But at Montreaux-les-Mines, a own of socialist laborers, the birth-rate has ·tually fallen from 37 to 1% within a few ·ars.

Again it has been supposed that declining opulation means childless families. As a mat-r of fact, among 11,317,434 married couples France, only 1,805,744 are childless, whereas 967,571 have only one child, and 2,661,978 ly two children. It is not so much the sterile milies, as those who restrict offspring, to which e decline of population is due.

The depopulation of France progresses very ariously in different districts. In the Midi, in ormandy, in the Alps, in the Rhone valley, and Provence there is a slow but steady loss; in ers the loss is more rapid. In Seine-Inférieure d the eastern industrial cities there is a slight in. Brittany alone, of all French provinces, ems unaffected by the general tendency and ows a normal and steady growth of popula-on. Doubtless this is due to the almost urely Keltic composition of its population. ndeed, perhaps the whole question is largely cial. It would be not surprising if the prolific eltic and Semitic stocks, with their consequent gh survival value, ultimately replaced in rance the Frankish and Latin elements with hich we have hitherto associated the national nius.

MEDICAL NOTES.

Plague in Japan.—Report from Yokohama, apan, states that two cases of bubonic plague ere discovered in that city on Oct. 29. The edical officer on duty at the local American nsulate has issued instructions to agents, own-s, and masters of vessels touching at that port observe special precautions against infection their craft by rats.

Hookworm Disease Among Immigrants.—wing to the extensive prevalence of uncinaria-s in Asia, it is believed that many immigrants ntering the United States through Pacific ports ·ing with them this undesirable infection. Re-ort from Washington, D. C., on Nov. 3 states at quarantine officials have been directed here-fter to inspect for this disease, and to hold such ersons for treatment before admission.

The American Association of Immunologists.—This society was organized on June 15 at Minneapolis, Minn., with forty-one charter members, all of whom have been pupils of Sir Almroth E. Wright of London. The objects of the society are as follows:—

To unite the physicians of the United States and Canada who are engaged in the scientific study of immunology and bacterial therapy.

To study the problems of immunology, and to promote by its concerted efforts, scientific research in this department.

To spread a correct knowledge of vaccine therapy and immunology among general practitioners.

The officers temporarily chosen are as follows:—

President, Gerald B. Webb, M.D., of Colorado Springs, Col.; vice-president, George W. Ross, M.D., of Toronto, Canada; treasurer, Willard J. Stone, M.D., of Toledo, Ohio; secretary, Martin J. Synnott, M.D., of Montclair, N. J.

A council of five members was also selected whose duty it will be to manage the affairs of the society in the interim.

London Death-Rates in September.—Statistics recently published show that the total death-rate of London for September, 1913, was 13.3 per thousand inhabitants living. Among the several districts and boroughs the highest rate was 22.5 in Shoreditch, a densely populated eastern slum, and the lowest was 7.9 in Hampstead, an open suburb on the north.

Two British Centenarians.—James Creedy, who died at Bridgewater, England, on Oct. 13, is said to have been born in March, 1811.

Susannah Harris, who died recently at Shipley, near Wolverhampton, England, is said to have been born on July 12, 1812, at Inkberrow, Worcestershire.

Smithsonian Institution Hodgkins Fund Prize.—In October, 1891, Thomas George Hodgkins, Esquire, of Setauket, New York, made a donation to the Smithsonian Institution, the income from a part of which was to be devoted to "the increase and diffusion of more exact knowledge in regard to the nature and properties of atmospheric air in connection with the welfare of man." In furtherance of the donor's wishes, the Smithsonian Institution has from time to

time offered prizes, awarded medals, made grants for investigations, and issued publications.

In connection with the International Congress on Tuberculosis, held in Washington, Sept. 21 to Oct. 12, 1908, a prize of $1,500 was offered for the best treatise "On the Relation of Atmospheric Air to Tuberculosis." Memoirs having relation to the cause, spread, prevention, or cure of tuberculosis were included within the general terms of the subject.

The Committee on the Award of the Hodgkins Prize, offered in connection with the International Congress on Tuberculosis held in Washington in September-October, 1908, for the best treatise on "The Relation of Atmospheric Air to Tuberculosis," has recently announced its recommendation that the prize be equally divided between Dr. Guy Hinsdale of Hot Springs, Virginia, and Dr. S. Adolphus Knopf, of New York City. In 1894 the Hodgkins Prize was awarded to Baron Royleigh and Prof. William Ramsay for their discovery of argon.

Large Purchase of Radium.—Report from London on Oct. 30 announces the recent purchase by the London Radium Institute of 2000 milligrams of radium for £30,000, a rate corresponding to about $75 per milligram. This is said to be the largest single purchase of radium ever made, and equivalent to about one-third of the world's expected output for 1913.

Award of the American Medicine Gold Medal.—It is announced that the American Medicine Gold Medal for 1913 has been awarded to Dr. Milton J. Rosenau, professor of preventive medicine and hygiene in the Harvard Medical School. In 1912 this medal was awarded to Dr. William C. Gorgas.

BOSTON AND NEW ENGLAND.

Memorial Meeting to Dr. Reginald Heber Fitz.—In the amphitheatre in Building D of the Medical School buildings of Harvard University on Longwood Avenue, Boston, there will be held on the evening of November seventeenth at 8.15 o'clock, a Memorial Meeting to the late Reginald Heber Fitz, Professor Emeritus of the Theory and Practice of Physic. Addresses will be made on that occasion by W. W. Keen, Professor Emeritus of Surgery in the Jefferson Medical College in Philadelphia; Charles W. Eliot, President Emeritus of Harvard University; Henry P. Walcott, Chairman of the Board of Health of the State of Massachusetts and Chairman of the Board of Trustees of the Massachusetts General Hospital; William Sydney Thayer, Professor of Clinical Medicine, Johns Hopkins University, Baltimore; and William T. Councilman, Shattuck Professor of Pathological Anatomy, Medical School, Harvard University. General medical public invited.

Diphtheria in Lynn.—Five cases of diphtheria were reported last week among pupils of the Aborn School, Lynn, Mass., which in consequence was closed for the rest of the week.

Deaconess Home for Aged Women.—The new Deaconess Home for Aged Women, situated near the Deaconess Hospital, Concord, Mass. was opened to the public on Nov. 2 and formally dedicated on Nov. 3.

Poliomyelitis in Massachusetts.—During the month of September, 1913, a total of 124 new cases of poliomyelitis were reported in Massachusetts. Of these, 15 were in Lawrence, 11 in Waltham, 10 each in New Bedford and Brockton, 8 each in Haverhill and Quincy, and 6 in Boston.

A Persistent Centenarian.—A year ago we chronicled with interest the supposed 101st birthday anniversary of Mr. Charles Boileau, of Salem, Mass. It is a pleasure to record that he has survived the vicissitudes of another year, and on Nov. 3 celebrated his 102nd anniversary.

Infectious Diseases.—Cases of infectious diseases reported to the Boston Board of Health for the week ending November 4, 1913: Diphtheria, 34, of which 3 were non-residents; scarlatina, 3; of which 2 were non-residents; typhoid fever, 2; of which 3 were non-residents; measles, 13; tuberculosis, 69, of which 1 was non-resident.

The death-rate of the reported deaths for the week was 14.25.

NEW YORK.

Gifts to Columbia University.—Among the gifts to Columbia University announced at the monthly meeting of its board of trustees, on Nov. 3, were the following: $7,500 from Dr. Charles Wood McMurtry to meet the cost of the new equipment for the dermatological department

he Vanderbilt Clinic; $1,500 from an anonymous donor, as an addition to the cancer research fund to be devoted to the special purpose of radium investigation; $905 from Prof. Edwin B. Cragin to meet the cost of new equipment in the gynecological department of Vanderbilt Clinic. On the nomination of the medical faculty, Dr. James W. Jobling was at this meeting appointed assistant professor of pathology, in succession to the late Dr. Hugh Angus Stewart. Dr. Jobling, who at different times has been director of the serum laboratory in Manila and associate in pathology at the Rockefeller Institute, has since 1909 been director of the Morris Institute for Medical Research in Chicago.

MIDWIVES IN NEW YORK.—Realizing that the standard required for midwives, although now higher than formerly, is still much lower than generally in Europe, the City Board of Health has passed a resolution requiring that, in addition to other qualifications, midwives must in the future present diplomas or certificates showing that they are graduates of a midwifery school before permits to practise will be issued to them.

BETTER BABY CONTESTS.—Since July 1, 1912, some twelve "better babies contests" have been held in the city by various social organizations, most of which are connected with the Babies' Welfare Association, and in every instance the physicians and nurses of the division of child hygiene of the Health Department, as well as those of the infants' milk stations, have cooperated by canvassing the immediate neighborhood and by informing mothers as to the nature of these contests and their locations. Three contests were held in October of this year, and the department has expressed the confident expectation that such contests will prove an important addition to the methods already employed for the reduction of infant mortality.

HEBREW CONVALESCENT SOCIETY.—At the annual meeting of the United Hebrew Charities, held on Oct. 30, it was announced that by the first of the year plans will be formulated for the establishment of a colony for convalescents, especially those recovering from tuberculosis.

RED CROSS GIFTS.—At a meeting of the New York chapter of the American National Red Cross Society held on Oct. 31 it was announced that the gifts of $100,000 each from James A. Scrymser and Jacob H. Schiff and an annual endowment of $2,000 from Mrs. Whitelaw Reid had been received for the society. Some time since, the $500,000 endowment fund which President Taft appointed a committee to collect in New York was completed by the contribution of $100,000 by the late J. Pierpont Morgan.

CORNERSTONE OF NEW DISPENSARY.—The cornerstone of the new building for the dispensary of the Hospital for Deformities and Joint Diseases was laid on Nov. 4, and among the speakers at the ceremonies were Dr. A. Jacobi and Reginald H. Sayre. Many congratulations were received by Dr. Henry W. Frauenthal, the founder and head of the institution, at which more than 40,000 patients have been treated during the present year.

OTISVILLE SANATORIUM. — In August last Health Commissioner Lederle addressed a communication to the president of the Board of Education of New York City in which he stated that there were at Otisville Tuberculosis Sanatorium of the Health Department, 134 patients between the ages of four and seventeen, and as it was impossible, with existing facilities, to give adequate instruction to these children, it had occurred to him that among the large number of public school teachers there were some affected with tuberculosis, and that it might be possible, if the plan should meet with approval, to detail the necessary number of such teachers to the sanatorium, where they would receive proper treatment and at the same time earn their salaries in instructing the patients. This communication was referred to the committee on elementary schools, by whom the matter was brought to the attention of the board of superintendents, and as the latter recommended the proposed plan, the Board of Education, on Oct. 8, ordered the establishment of three classes at the sanatorium, as an annex to Public School No. 14, Manhattan.

NEW MEDICAL DIRECTORY.—The fifteenth volume of the Medical Directory of New York, New Jersey, and Connecticut, just issued by the New York State Medical Society, shows a slight increase in the number of licensed physicians in these states as compared with last year, though only in New York has there been a gain. The

figures are as follows: Total number in the three states, 17,858; 1912, 17,764; New York state, 13,777; 1912, 13,696; New Jersey, 2,685; 1912, 2,674; Connecticut, 1,396; 1912, 1,394; New York state, outside the city of New York, 6,350; 1912, 6,331; New York City, 7,427; 1912, 7,365. Of the different boroughs of the city, Manhattan and the Bronx show a gain of 64, Brooklyn a loss of 7, Queens a loss of 4, and Richmond a loss of 1.

REDUCTION OF INFANT MORTALITY.—The committee on reduction of infant mortality of the New York Milk Committee has issued a statement calling attention to the fact that in the last five years New York has achieved a greater reduction than any of the other ten largest cities in the country. In 1912 the infant mortality was 105.3 per 1000 births, as against 144.4 in 1907. On account of these remarkable figures, the committee says, it was predicted at the beginning of this year that the limit in this respect had been practically reached for some time to come, and the prediction seemed justified by the comparatively poor returns for the first quarter of the year. Since then, however, there has been a marked improvement, and at present there has been a further reduction for the year of 6.2 points. Should the decrease continue at the average rate of the last ten months, the record for 1913 will be 97.1. The work of the Babies' Welfare Association is highly praised, and the necessity for continued activity on the part of the various agencies contributing to the reduction of infant mortality urged.

VITAL STATISTICS FOR SEPTEMBER.—The mortality during the month of September, 1913, reached a lower point than that of any previous September in the history of the department, with the exception of the month of September, 1912, the death-rate in the latter being 12.11 as against 12.13 during the former, corresponding to an increase of 6 deaths.

Comparing the mortality by individual causes, we find that of the past month presented the following decreases as compared with the same month in 1912, making allowance for the increase in population: typhoid fever 28, malarial fever 3, tuberculosis of the lungs 10, other tuberculous diseases 36, acute bronchitis 7, lobar pneumonia 4, other respiratory diseases 10, diarrheal diseases under five years of age 154, appendicitis 11, homocides 5. The mortality from measles and from suicide is the same for the two months under comparison. On the other hand, the following causes showed increases: scarlet fever 2, whooping cough 10, diphtheria and croup 2, cancer 18, cerebro-spinal meningitis 9, organic heart disease 74, broncho-pneumonia 18, cirrhosis of the liver 2, Bright's disease and nephritis 13, congenital debility 22, old age 8, sunstroke 3, other accidental causes 10.

Current Literature.

MEDICAL RECORD.

OCTOBER 25, 1913.

1. OETTINGER, B. *A Case of Pseudobulbar Paralysis Presenting Facial Spastic Movements Simulating Laughter.*
2. STEIN, J. B. *Early Rhinoplasty.*
3. CRAIG, C. B. *Mild Manifestations of Syringomyelia with Report of Three Cases.*
4. LEVY, I. H. *The Roentgen-Rays in the Diagnosis of Diseases of the Stomach.*
5. HOLLINGWORTH, L. S. *The Frequency of Amentia as Related to Sex.*
6. HAGEMANN, J. A. *The Tonsil—a Vestigial Respiratory Organ.*

NEW YORK MEDICAL JOURNAL.

OCTOBER 25, 1913.

1. ELIOT, E., JR. *The Legal Responsibility of the Surgeon and Practitioner which the Use of the X-ray Involves.*
2. FISHBERG, M. *Percussion of the Pulmonary Apices.*
3. ROSENBERGER, R. C. *Oral Sepsis and Its Possible Dangers.*
4. BEATTIE, W. J., AND MYERS, E. E. *A Clinical Report on the Value of Turtle Tuberculin in the Treatment of Tuberculosis.*
5. ROSENBLOOM, J. *On Testing Urine for Indican.*
6. NEUHOF, S. *Intravenous Injections of Theobromine Sodium Salicylate.*
7. PISKO, E. *Skin Diseases in School Children.*
8. KRAUSS, F. *The Differential Diagnosis of Some Ordinary Eye Diseases.*
9. ZIGLER, M. *A Plea for More Intensive Mercurial Medication in Syphilis.*
10. WILENSKY, A. O. *A Note on the Treatment of Fractures Near the Wrist-Joint with Especial Reference to Colles's Fracture.*
11. SCHMIDT, A. *Severe Anemia in Gastrointestinal Diseases.*

6. Neuhof has used intravenous injections of the bromine sodium salicylate in several cases of cardiorenal disease, three of which he reports in some detail. He has found the procedure practicable and efficient. It is particularly indicated, he says, in uremia, in the anuria of cardiovascular renal disease and in some types of primary renal disease where internal administration is impossible and quick diuretic action is necessary. It may be of benefit in some types of uremia accompanying eclampsia.

[L. D. C.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

OCTOBER 25, 1913.

1. *CRILE, G. W. *Some Newer Methods of Reducing the Mortality of Operations on the Pelvic Organs.*
2. *GRAVES, W. W. *Can Rabbits Be Infected with Syphilis Directly from the Bloods of Paretics? Observations on the Recognition of the Virus in the Later Periods of the Disease.*
3. *WILLIAMS, ANNA W. *Cultivation of the Rabies Organism.*
4. HARRIS, D. L. *Clinical Report of Seven Cases of Hydrophobia Together with a Case Clinically Similar with Recovery, Following the Injection of Quinine.*
5. *MAGNUSON, P. B. *Holding Fractures with Absorbable Material—Ivory Plates and Screws—A New Method.*
6. MCGRATH, B. F. *A Discussion of Various Anesthetics and Methods: Experimental Observations.*
7. ORR, H. W. *The Relation of Politics to the State Care of Crippled and Deformed.*
8. SHAFFER, N. M. *The Orthopedic Surgery of Fifty Years Ago, with Some Reminiscences and Conclusions.*
9. SOUTHARD, E. E., AND CANAVAN, M. M. *Bacterial Invasion of Blood and Cerebrospinal Fluid by Way of Lymph-Nodes. Findings in Lymph-Nodes Draining the Pelvis.*
10. HIRST, B. C., DICKINSON, R. L., AND DELEE, J. B. *Report of the Committee on the Treatment of Puerperal Fever.*
11. HALL, P. M. *Some New Minnesota Laws on Tuberculosis.*
12. ALEXANDER, R. M. *An Inexpensive Efficient Sputum Cup.*
13. MATLACK, J. G. *Detachable Scalpel Blade.*
14. AUER, C. *Fracture of Anterior Superior Spine of Ilium from Indirect Violence.*
15. CHAPMAN, L. *Treatment of Boils.*

1. Crile's article is a review of his principle of noci-association and adds nothing new for those amiliar with this technic.

2. Graves affirms from experimental evidence that abbits can be infected with the virus of syphilis rom the blood of general paretics and he believes hat in the so-called latent syphilitics the living virus s always present.

3. Williams raises the question as to the probaility that the rabies organism can be cultivated. urther work is needed to affirm it.

5. Magnuson cites the following as advantages of ory plates and screws in the open treatment of fracures. Ivory is absorbed when in close contact with livg healthy bone. It does not loosen as do other materials when inserted into bones, and it does not proace necroses or softening in the bone immediately contact with it. [E. H. R.]

THE AMERICAN JOURNAL OF THE MEDICAL SCIENCES.

OCTOBER, 1913.

1. *PAINTER, C. F. *The Influence of Skeletal Defects, Congenital and Acquired, upon the Body in Health and Disease.*
2. *FRIEDENWALD, J., AND BAETJER, F. H. *The Value of X-Ray Examinations in the Diagnosis of Ulcer of the Stomach and Duodenum.*
3. *PUSEY, W. A. *The Present Situation in Syphilis.*
4. *BROOKS, H. *The Heart in Syphilis.*
5. SKILLERN, P. G. *Syphilis in the Etiology of Fibrous Osteitis.*
6. HEWLETT, A. W. *A Case of Strychnine Poisoning.*
7. *ALLYN, H. B. *Insufficiency of the Pulmonary Valve.*
8. MATTHES, M. *The Training of Students in Internal Medicine at German Universities.*
9. DORRANCE, G. M. *A Study of the Normal Coagulation of the Blood, With a Description of the Instrument Used.*
10. LA ROQUE, G. P. *Chronic Ulcer of the Pylorus (Duodenal and Gastric) Secondary to Appendicitis, Colitis, Bile Tract Infection, and Other Foci of Infection Within the Area Drained by the Portal Vein.*

1. Painter discusses conditions in which anatomical defects, either congenital or acquired, may cause symptoms, with special reference to abnormal relations of the lower vertebrae, sacrum and pelvis and to visceral ptoses. He lays stress upon the increasing degree to which anatomical abnormalities are believed to cause derangements of function not only in the structures immediately concerned but also in neighboring organs.

2 Friedenwald and Baetjer report twenty cases of gastric and duodenal ulcer in which the conclusions from the clinical and from the x-ray findings, drawn independently, were closely parallel. The characteristic x-ray features of duodenal ulcer they believe to be hypermotility of the stomach and duodenum, and the appearance of a vacant area in the duodenum which may correspond to the ulcer. In gastric ulcer the characteristic features are retention of contents, attributed to pyloric spasm, with evidence of hypermotility represented by a tendency to hour-glass formation. Duodenal ulcer can be excluded by the absence of its x-ray characteristics but gastric ulcer can not be excluded with the same certainty. Differentiation between gastric and duodenal ulcer can be readily made, and evidence can be had as to the progress of healing of duodenal ulcers.

3. Pusey's article is a carefully considered critical discussion of the permanent value of advances in our knowledge of syphilis, especially the salvarsan treatment. His conclusions, strikingly conservative, are as follows: Salvarsan has real dangers, remote, but, when they occur, serious. There is no reason to believe that salvarsan will lesson the occurrence of parasyphilitic nervous affections, and some ground for fear that it may predispose to them, except in those cases where it cures the disease. It is a powerful symptomatic remedy. In cases in which vigorous treatment is begun before the generalization of the disease there is strong ground for believing that syphilis can be aborted; this possibly applies to a few early cases with secondaries. In all other cases in the secondary period its "curative" use may do more harm than good. Stress is laid upon the importance of hygienic measures to increase the patient's resistance.

4. Brooks reports, in a study of fifty autopsies in cases of syphilis, the occurrence of lesions of the epicardium in 28, of the myocardium in 44, of the coronary arteries in 35, and of the valves in 74%. He concludes that involvement of the heart is frequent in syphilis, and may develop early in the infection. The symptoms and signs may be purely circulatory. In treatment mercury and salvarsan are preferably combined, with iodine as an adjuvant, continued until a permanent negative Wassermann is attained. Subsequent to this the treatment should be along circulatory lines.

7. Allyn has made an interesting summary of reported cases of disease of the pulmonary valve and adds two original cases with autopsies. With few exceptions cases of pulmonary insufficiency have been associated with mitral stenosis. Clinically the cases may be divided into two groups, those occurring in the course of general infective processes, without definite symptoms pointing to the heart, and a more numerous class with symptoms of cardiac insufficiency. The chief physical sign is the presence of a diastolic murmur in the second left interspace trans-

mitted downward along the left sternal margin, often accompanied by a thrill, associated with evidence of enlargement of the right ventricle. An "audible capillary pulse" is described associated with the inspiratory breath sounds. (The absence of the pulse changes and other signs of aortic insufficiency should be mentioned.) [F. W. P.]

THE LANCET.

OCTOBER 4, 1913.

1. LUKIS, C. P. *The Medical Needs of India.*
2. HANDLEY, W. S. *Medicine as a Liberal Education.*
3. HEWETT, J. P. *The Work of the Medical Profession in India.*
4. HAY, J. *Two Cases of Auricular Flutter.*
5. MACKINNON, M. *Hemiplegia Following Syphilis with Special Reference to a Case of Double Hemiplegia and Pseudo-Bulbar Paralysis.*
6. FRENCH, H. C. *Syphilis: Its Dangers to the Community and the Question of State Control.*
7. HOWARTH, W. G. *Foreign Bodies in the Air Passages.*
8. BONNER, W. P. *Acute Epididymo-orchitis Due to Bacillus Coli.*
9. PATERSON, P. A *Neuroma-Myoma of the Mesentery.*
10. JARDINE, R. *The Retraction Ring as a Cause of Obstruction in Labor.*
11. THOMSON, J. W. *Tuberculosis of the Uterus.*

BRITISH MEDICAL JOURNAL.

OCTOBER 4, 1913.

1. LUKE, C. P. *The Medical Needs of India.*
2. HUNTER, W. *The Problems of University Medical Education in London: Two Years' Experience of Concentration.*
3. SHERRINGTON, C. S. *An Address on the Provincial School of Medicine and the Provincial University.*
4. ROLLESTON, H. D. *Two Unusual Cases of Liver Abscess.*
5. STEVENSON, E. S. *Splenomegaly.*
6. EMRYS-JONES, F. *Report on Two Hundred Cases of Ringworm Treated by X-Rays.*
7. THOMSON, D. *Preliminary Note on Bed-Bugs and Leprosy.*

BRITISH MEDICAL ASSOCIATION.

SECTION OF MEDICINE.

8. *GARROD, A. E., ET AL. *Discussion on Non-Diabetic Glycosuria.*
9. *LUFF, A. T., ET AL. *Discussion on Fibrositis and Muscular Rheumatism.*
10. KING, P. *Differentiation in Chronic Joint Affections.*
11. *BROADBENT, W. *The Heart as Affected by the Stomach.*
12. *MACKINNON, M. *Some Observations on the Arterial Pressure in Thoracic Aneurysms.*

8. Garrod presents a clear description of the various forms of non-diabetic glycosuria and its various causes. He discusses previous work done on this subject, presents illustrative cases and urges further investigation. Hutchison, Turner, Cammidge et al discuss the subject.

9. Luff describes the pathology of what he calls fibrositis or muscular rheumatism. As to etiology he considers cold, dampness and wetness, extremes of heat and cold, local injuries, absorption from the alimentary tract, tonsillitis and pharyngitis, influenza and "colds." He describes the forms of the condition such as muscular rheumatism fibrosis of joints, etc. The treatment which he describes is local ar general.

11. Broadbent in a short paper describes how distended stomach may affect the heart and alter th course and produce symptoms in various forms heart disease.

12. Mackinnon concludes from his researches blood pressure in aneurysms that in such cases bloo pressure is usually normal; in 65% of cases there a difference in the two arms which in 30% of cas is a valuable aid to diagnosis. Reduction of bloo pressure helps symptoms. Potassium iodide does n reduce the pressure but does relieve pain. The low the pressure, providing the pulse is regular and normal rate, the better the prognosis.

[J. B. H

THE PRACTITIONER.

SEPTEMBER, 1913.

1. WILLCOX, W. H. *The Treatment of Anemia.*
2. MAXWELL, R. D. *Gynecological Emergencies.*
3. *OLDFIELD, C. *Some Pelvic Disorders in Relatio to Neurasthenia.*
4. ADAMS, J. E. *Intestinal Obstruction.*
5. KER, C. B. *Recent Literature on Typhoid Feve*
6. PRIESTLEY, J. *Review of Literature on Publ Health.*
7. REEVE, E. G. *The Treatment of Phthisis Nascent Iodine Administration.*
8. *COPPOCK, H. *The "Rest" Treatment of Pulm nary Tuberculosis.*
9. CHARLES, J. R. *The Pathology of Migraine.*
10. SOMERVILLE, W. F. *Calcareous Deposits in Bloo Vessels.*
11. WHITE, J. A. H. *Cotton-Seed Extract and Pitu tary Extract During Lactation. (Including a Account of a Case of Triplets Entirel Breast-fed for Seven Months.)*
12. SHAW, G. *A Case with Comments. Acute Abdo men on Board Ship.*
13. WILLIAMS, T. A. *Tabes with Unusual Distribu tion of Deep-Pain Loss.*
14. NICHOLSON, F. *A Further Case of Rat-Bite Di ease.*

3. Oldfield believes that pelvic disorders have n specific action in causing neurasthenia and tha greater care is necessary before, during, and espe cially after, operation in order to present post-opera tive neurasthenia. In every case the surgeon shoul seek the advice of the physician before operating o neurasthenics with gross disease and on cases with out demonstrable physical signs.

8. Coppoch urges rest in the treatment of phthisi He gives the general outlines of treatment and crit cises the "work treatment as it is generally carrie on."

[J. B. H.

OCTOBER, 1913.

1. *DE KEATING-HART. *Researches on the Pathogen esis of Cancer.*
2. LAYTON, T. B. *Abnormal Sensations in the Phar ynx.*
3. *PATTERSON, N. *Remarks on the Diagnosis an Treatment of Various Conditions Met with i the Naso-Pharynx.*
4. DIGHTON, A. *The Functional Tests of the Laby rinth and Their Value in Diagnosis.*
5. WILSON, W. *Nasal Catarrh—Acute and Chronic*
6. CARGILL, L. V. *Recent Work in Ophthalmology.*
7. DORRELL, E. A. *The Diagnosis and Treatment o Some Common Eye Diseases.*
8. THURSFIELD, H. *Recent Work in Children's Dis eases.*
9. FRESHWATER, D. *Premature Loss of Hair an Hygiene of the Scalp.*
10. GUTHRIE, D. J. *Some Common Types of Alopecia*
11. *BEVERS, E. C. *Some Conditions which Mimic th Acute Abdomen.*

12. Stedman, H. *Chronic Appendicitis.*
13. Barton, G. A. H. *Anesthesia-Jottings at the Congress.*
14. Kay, J. A. *A New Ovum and Its Miracidium.*

1. The writer takes up and considers the various theories as to the pathogenesis of cancer—parasitic, cellular and irritative and after a detailed study of the last—the irritative theory—concludes that this is the only one which embraces all the known facts in cancerous etiology.

3. Patterson in this general review of the subject, considers the diagnosis and treatment of adenoids, choanal polypi, enlarged turbinates, naso-pharyngeal fibromata, malignant growths, syphilis and others.

11. Bevers recites some interesting cases among which were cases of renal colic, hysteria and others which simulated an acute abdominal condition.

[J. B. H.]

Edinburgh Medical Journal.

September, 1913.

1. Traquair, H. M. *Contribution to the Study of Bitemporal Hemiopia.*
2. *Fleming, R. A. *Anti-Mortem Thrombosis in the Right Heart and Pulmonary Arteries as a Cause of Death in Lobar Pneumonia.*
3. *Wilkie, B. P. D. *Duodenal Diverticula and Duplication of the Duodenal Wall.*
4. Haultain, F. W. N. *Some Rare Uterine New Growths.*
5. Mathewson, G. D. *Conduction Defects in the Heart.*
6. Renton, J. Z. *Obstruction of the Bowels.*
7. Cathcart, C. W. *Appliance for Extensions of the Limb in the Operative Treatment of Fractures.*
8. Young, J. *Medicine and the Poetic Muse.*

2. Fleming believes that in order to prevent cardiac and pulmonary thromboses every case of croupous pneumonia should be treated early and continuously by cardiac stimulants. Bleeding should not be performed except in rare cases of engorgement of a dilated right heart. He discusses the general subject of anti-mortem thrombosis and the previous investigations on it. In pneumonia he emphasizes the need of carefully watching the veins of the neck and of increasing stimulation on the slightest engorgement.

3. Wilkie in a long article profusely illustrated with excellent plates, discusses the subject of duodenal diverticula and concludes that diverticula of the second and third parts of the duoednum are of congenital origin; in the first part of the duodenum three types of diverticula are met with, the congental, the ulcer diverticulum and the acquired wide mouthed diverticulum of the duodenal vestibule. Congenital duplicature of the duodenal wall may occur either along with or independently of diverticula; it is probably due to the persistence of a condition normally found at an early period of foetal life and is in fact but a mild degree of that arrest of development which in its most pronounced form is met with in cases of congenital atresia of the duodenum.

[J. B. H.]

October, 1913.

1. Hart, D. B. *On the Duration of the Interval between Insemenation and Parturition.*
2. Philips, R. W. *Post-Graduate Instruction of Tuberculosis Medical Officers.*
3. Haultain, F. W. N. *Notes on Some Cases of Eclampsia Treated by Veratrone.*
4. Miller, A. G. *Can the Urinary Bladder Empty Itself?*
5. Rainy, H. *Report on the Work of the Clinical Medicine Research Laboratory, Royal Infirmary, Edinburgh.*
6. Creswell, C. H. *The Incorporation of Surgeons of Edinburgh. Their Early Association with the Royal Infirmary.*

Deutsche Medizinische Wochenschrift.

No. 33. August 14, 1913.

1. Marchiafava, E *Pernicious Malaria.*
2. *Küpferle and Bacmeister. *The Effect of X-Rays on Experimental Tuberculosis of the Lungs.*
3. St. Szecsi. *Lucidol, a New Fixation Fluid.*
4. Fraenkel, E., and Gumpretz, F. *Abderhalden's Reaction in Tuberculosis.*
5. Küster, E. *Aseptically Reared Goats.*
6. Blum. *The Anatomy of the Lacrimal Secretory Fibres and the Gustatory Fibres.*
7. Katz, L., and Leyboff, M. *X-Ray Estimations of the Cardiac Area in Wrestlers.*
9. Klein. *Mesbe in Tuberculosis of the Lungs.*
10. Spaeth, F. *Caesarian Section for Premature Separation of a Normally Located Placenta.*
11. Menzer. *Psoriasis as a Constitutional Disease.*

2. From their work with rabbits the writers conclude that it requires large doses of the hard rays to exert any curative influence on tuberculous lesions in the lungs. The beneficial results from such treatment are not due to destruction of the tubercle bacillus, but to increased formation of scar tissue about the tuberculous focus. In only one case were the writers completely able to destroy the tuberculous focus.

[C. H. L.]

No. 34. August 21, 1913.

1. Kaasowitz, M. *Rachitis.*
2. Meinhold, G. *Physiology and Pathology of the Thymus.*
3. v. Möllendorf, W. *Passage of Stains Through the Intestine After Subcutaneous Injection.*
4. Söderland, G. *Primary and Isolated Actinomycosis of the Salivary Glands.*
5. Kowarsky, A. *Technic for Determining the Sugar Content of Small Amounts of Blood.*
6. Trinchese, J. *The Nature of the Wassermann Reaction.*
7. Nowakowski. *The Treatment of Fever in Phthisis.*
8. Ebbinghaus, H. *Epiphysitis Tibiae Dissecans Traumatica in Youth.*
9. Hartung, E. *Technic for Paraffin Injections.*
10. Rühl, K. *Phenolcamphor in the Treatment of Venereal Ulcer.*

Münchener Medizinische Wochenschrift.

No. 40. October 7, 1913.

1. Küttner, H. *Congenital Pyropocephalus.*
2. Veraguth, O., and Seyderhelm, R. *A New Method for Quickly Changing an Abnormal Leucoyte Count.*
3. *Rosenow, G. *The Treatment of Leukemia with Thorium-X.*
4. Deycke, G., and Altstaedt, E. *A Year's Treatment of Tuberculosis by Deycke and Much's Method.*
5. Kienböck, R. *Some Difficulties in Diagnosis of Rudimentary Diaphragmatic Hernia.*
6. Hirz, O. *Comparative Pharmacological Studies in Uzara and Opium.*

7. TRAUTMANN. *The Technic for Extra-Capsular Extirpation of the Tonsils.*
8. *SIPPEL, A. *The Treatment of Myoma of the Uterus by Roentgen-Rays.*
9. FUCHS, A. *Animal Experiments on the Specificity of Proteolytic Protective Ferments.*
10. WEBER, A. *The Value of Sero-Therapy in Tetanus.*
11. HAHN, B. *The Intravenous Use of Melubrin.*
12. RUHL, K. *How Can the Appearance of the Urine in Thompson's Two-Glass Test, Give Positive Information?*
13. WINDESHEIM. *The Treatment of Severe Anemia.*
14. NASSAUER, M. *The High School for Physicians and Patients.*

3. Rosenow draws conclusions as to the value of Thorium-X in leukemia, aleukemic lymphomata, and pernicious anemia based on a considerable series of cases. The dosage used corresponded to five-tenths of a milligram of radium bromide and was given intravenously every six or eight days. Four cases of leukemia and two of aleukemic lymphomata are reported in detail.

Thorium-X has one advantage over x-rays. No special instrument is necessary, and an exact dosage may be given. By repeated injections, it is possible to get a decreased leucocyte count in leukemia, but even in the most favorable cases, no more can be accomplished by its use than by x-rays. Several cases became refractory to Thorium which then responded to the x-ray, while no cases which did not react to x-ray were benefited by Thorium. No positive results in the treatment of aleukemic lymphomata and pernicious anemia were observed.

On the whole, thorium is no more active than x-rays in the treatment of these diseases and often produces no effect.

8. Recently various observers have reported good results in the treatment of myoma of the uterus by x-rays. The exposure has been intensive or mild. Sippel believes that the latter method is preferable since possible harm may occur from intensive treatment.

Sippel feels that usually an operation should be performed in this disease. The main field for x-ray treatment of the condition is in those myomata which lead to severe enough bleeding to contra-indicate immediate removal. In such cases the x-rays can prevent bleeding and even produce recession of the tumor. But it must be remembered that the disease is not removed.

On the whole, a number of patients with myoma of the uterus may be benefited by x-rays if carefully and intelligently given. Operative treatment must not be overlooked. The future will determine whether x-rays are more valuable in malignant myomata of the uterus than in slow-growing benign tumors.

[R. F.]

WIENER KLINISCHE WOCHENSCHRIFT.

No. 36. SEPTEMBER 4, 1913.

1. *SCHINDLER, O. *Radium and Mesothorium in the Treatment of Malignant Tumors.*
2. PURJESZ, B. *Sugar Content of Blood Under Normal and Pathological Conditions.*
3. VOLK, R. *"Subcutaneous Sarkoids."*
4. GOODMAN, C. *Arterio-Venous Anastomosis in Incipient Gangrene.*
5. FISCHL, F. *Electrical Accidents.*

1. Summarized under next number. [F. S. K.]

No. 37. SEPTEMBER 11, 1913.

1. RIEHL, G. *Radium and Its Therapeutic Value in Dermatology.*
2. FISCHL, F. *The Resistance of Local Foci of Spirochetae Against Combined Treatment of Lues.*
3. HYNEK, K. *The Theory of the Effect of Styptics.*
4. FRÜHWALOR, V. *Mucous Cyst of Nasal Septum with Post-operative Hydrorrhea Nasalis.*
5. *SCHINDLER, O. *Radium and Mesothorium in the Treatment of Malignant Tumors.* (*Concluded.*)

5. The author makes the following general observations on the treatment of malignant tumors with radium and mesothorium:—

1. Radium may be used in all cases of operable or inoperable epithelioma of the skin preceding operation. If desired results are not obtained operation may be resorted to. The end results of radium therapy in these cases as compared with surgical treatment are at least of equal value as regards permanence of cure and freedom from symptoms—in regard to functional and cosmetic results radium results far exceed surgical results.

2. In all cases of operable carcinoma, especially those of mucous membranes and glands, radium treatment should be preceded by as complete as possible extirpation of the tumor and regional lymph glands. Preliminary radium treatment of the field of operation might be of value. In all cases, however, there should be immediate post-operative treatment with radium or mesothorium alone or combined with x-ray to increase the chance of permanent cure.

3. In certain operable cases which necessitate a mutilating operation, intensive ray treatment of primary focus with concomitant surgical cleaning out of regional lymph nodes seems advisable.

4. In certain operable cases in which operation is inopportune on account of the general condition of the patient a "clinical cure" may be obtained by rays. This treatment should be followed by operative treatment and post-operative treatment. [F. S. K.]

No. 38. SEPTEMBER 18, 1913.

1. *LEITNER, F. *The Early Diagnosis of Gastric Cancer.*
2. GEBER, H., BENEDEKE, L., AND TATAR, K. *The Occurrence of Spirochetae in Dementia Paralytica Progressiva.*
3. DEUTSCH, H. *The Abderhalden Dialysis Method. I. Contribution: Destruction of Thymus Tissue with Normal Tissue.*
4. BASSENGE, R. *A Filter Apparatus for Radium Treatment.*
5. RIEHL, G. *Radium and Its Therapeutic Use in Dermatology.*

1. The author draws the following conclusions: 1. The Rahmen-Grafe method for early diagnosis for gastric cancer is of no value.

2. Since owing to the presence of pancreatic juice and bile which are haemolytic in the contents of the small intestine which may readily be regurgitated into the stomach, and since the test depends on hemolysis, it can be seen that such regurgitation defeats the test.

3. In cases where the stomach contents showed no demonstrable amounts of trypsin or bile the gastric juice is only slightly or not at all haemolytic.

4. The high iodine-index is also referable to regurgitation from the small bowel and, therefore, as of little value in the early diagnosis.

5. The intensity of the bile-pigment reaction and the trypsin digestion as an indication of regurgitation on the one hand, and the hemolytic action as shown by the iodine-index of the stomach-contents on the other hand show a fairly constant parallel relation.

[F. S. K.]

Miscellany.

HARVARD MEDICAL ALUMNI ASSOCIATION.

The Harvard Medical Alumni Association will hold a reception on Friday afternoon, Nov. 14, 1913, at the Harvard Medical School and the neighboring hospitals. All members of the Association are cordially invited.

At the Medical School, from 2 to 4 p.m., the laboratories of the Departments of Anatomy, Physiology, Comparative Physiology, Biological Chemistry, Bacteriology, Pathology, Comparative Pathology, Neuropathology, Preventive Medicine and Hygiene, Pharmacology, and Tropical Medicine, and the Warren Museum will be open to the inspection of the members, who will be received by the heads of the departments or their representatives.

The following demonstrations will be held:—

1. Physiology (Building C-I): "A Graphic Method of Recording Coagulation of Blood." Drs. W. B. Cannon and W. L. Mendenhall. Room 302. 2 to 4 p.m.

"Quantitative Determination of the Sensory Threshold in Human Subjects." Dr. E. G. Martin. Room 307. 2 to 4 p.m.

"The Electrocardiogram with the String Galvanometer." Dr. A. Forbes. Room 310. 2 to 4 p. m.

2. Comparative Physiology (Building D-I). "The Nutrition of the Heart through the Vessels of Thebesius." Dr. W. T. Porter. Room 352. 3.30 p.m.

3. Bacteriology (Building D-I): "Studies of Spirochaetes." Dr. S. B. Wolbach. Room 393. 3 p. m.

"Description of Methods of Teaching in the Department of Bacteriology." Dr. H. C. Ernst. Room 346. 3.30 p.m.

4. Neuropathology (Building D-II): "The Wassermann Reaction and Other Tests Used in the Clinical Testing Laboratory." Room 103. 2 to 4 p.m.

"Methods Used in the Analysis of Brains for the State Board of Insanity." Room 104. 2 to 4 p.m.

5. Preventive Medicine and Hygiene (Building E-II): "Methods of Determining Bacteria in Air." Dr. L. W. Hackett. Room 336. 2 to 4 p. m.

"Laboratory Method in Analysis of Water, Sewage, and Milk Required of Each Student." Dr. E. G. Birge, Room 236. 2 to 4 p.m.

"Methods of Studying Ventilation, with Special Reference to Submarines." Dr. E. W. Brown. Room 227. 2 to 4 p.m.

"New Apparatus in the Experimental Study of Pneumonia." Dr. F. B. Grinnell. Room 335. 2 to 4 p.m.

6. Tropical Medicine (Building D-I). "The Etiology of Verruga Peruviana, Oroya Fever, Uta, and Other Tropical Diseases." Dr. R. P. Strong. Room 245. 2 to 4 p.m.

7. Cancer Commission (Building D-I): Demonstration of Radium and Its Products. Dr. W. Duane. Room 233. 3 p.m.

HOSPITALS.

The following hospitals recently built near the Medical School will be shown to visiting Alumni by members of their staffs or will offer special demonstrations:

Psychopathic Hospital (74 Fenwood Road): Clinical Demonstration: Types of Dementia Praecox. Dr. E. E. Southard. 2 to 3 p.m.

Peter Bent Brigham Hospital (opposite Administration Building): Inspection of Wards and Laboratories. 2 to 4 p.m. Clinic in the Amphitheatre. Dr. H. A. Christian and Dr. H. Cushing 2.15 to 3.15 p.m.

Rotch Memorial Building (Infants' Hospital): Inspection. Dr. T. M. Rotch. 2.30 p.m.

Huntington Memorial (Cancer Hospital): Inspection. Dr. E. E. Tyzzer. 2.30 p.m.

Children's Hospital (Longwood Avenue): Inspection. Drs. R. W. Lovett, J. M. Stone, and J. L. Morse. 3.30 p.m.

From 4 to 4.30 there will be an informal reception in the Administration Building by officers of the Association and members of the Faculty.

Light refreshments will be served in the Administration Building from 4.30 to 6 p.m.

Correspondence.

FASTING AFTER FEASTING.

Boston, Oct. 18, 1913.

Mr. Editor: The therapeutic fasting in fevers is a precious and life-saving treatment. I would no more think of feeding a fever-patient than of denying food to a starving creature. For some time the papers have been telling us of an epidemic of typhoid fever among the members of the State Delegation to the Erie Centennial, and today we learn that the fourth victim has succumbed to the disease. The difference between therapeutic fasting, meaning, of course, fasting for cure, on the one hand, and disease-producing feasting, on the other, is well illustrated in the history of this jolly party. If they had been so situated as to have absolutely nothing to eat during their trip none would have had any fever, and none would have died. If they had eaten wisely and lived actively none would have been sick. When they first began sickening, a brief fast of three or ten days would have put every last one of them on "Easy street" and in shape to go about his business in health. During the past 30 years something like a million and a half (1,500,000) deaths have occurred in this country from "typhoid fever," a loss to the nation of a billion and a half dollars ($1,500,000,000), reckoning each life at $1000. Not one of these deaths has occurred in my busy practise during all these thirty years, with the exception of a few cases that have come to me in practically moribund condition after a period of the prevailing treatment (forced-feeding and drugging) under other attendants. Of the hundreds of fever cases in my practise starting out just as do all "typhoids" every last one has been aborted by therapeutic fasting and hydrotherapeutic treatment all easy and simple as it is rational and curative.

Charles E. Page, M.D.

CHANGES IN THE MEDICAL CORPS, U. S. NAVY, FOR THE WEEK ENDING NOV. 1, 1913.

October 24, Medical Inspector G. T. Smith, ordered to the Navy Yard, Washington, D. C.

Medical Inspector L. W. Spratling, detached; Washington Yard, to Naval Recruiting Station, Atlanta, Ga.

Surgeon J. D. Manchester, commissioned surgeon from September 29.

P. A. Surgeon J. B. Pollard, detached; Naval Recruiting Station, Atlanta, Ga., to await orders.

Asst. Surgeons M.R.C. ordered to Naval Medical School, Washington, D. C., for instruction. W. E. Bradbury, H. L. Hawwarth, Daniel Hunt, H. R. McAllister, T. A. Ratcliff, commissioned from October 2, 1913.

Assist. Surgeon Rexwald Brown, M.R.C., commissioned from October 3, 1913.

P. A. Surgeon C. B. Camerer, commissioned from March 28, 1913.

Asst. Surgeon J. B. Bostick, M.R.C., commissioned from Oct. 4, 1913.

Assistant Surgeons C. A. Costello, J. J. Kaveney, L. H. Roddis, commissioned Assistant Surgeons M. R.C., from Oct. 10, 1913.

NOTICE.

PRESBYTERIAN HOSPITAL AND DISPENSARY AT TSINANFU, NORTH CHINA.

Tsinanfu is the capital of Shantung Province. It is a city of about 100,000, and lies on the Hwang Ho River, 300 miles south of Peking. Railway lines connect it with Peking, Weihsien, Tsingtau, and Tientsin.

Shantung Province is densely populated—683 persons to the square mile. It contains over 38,000,000 people—more than the combined population of Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, Pennsylvania, and New Jersey.

The first hospital was opened in 1892. The Boyd Hospital for Women was opened in1899. The patients of both now number over 9,000 yearly.

The medical college of Shantung University is located here.

Many are already at work who have been trained in foreign methods, and thus qualified to teach the principles of sanitation and right living while aiding the unfortunate victims of disease.

This hospital has been closed periodically for the last three years owing to ill-health of the physician in charge. An experienced woman doctor is needed at once to carry on the work.

The woman required should have had thorough medical training and considerable experience in practice. She should possess a sound constitution and good health, good sense, ability to work harmoniously with others.

Adequate support, including salary, traveling expenses, living quarters, etc., is provided through the Board of Foreign Missions of the Presbyterian Church in the U. S. A.

Correspondence may be addressed to Wilbert B. Smith, Candidate Secretary, Student Volunteer Movement for Foreign Missions, 600 Lexington Avenue, New York City.

SOCIETY NOTICES.

THE BOSTON SOCIETY OF MEDICAL SCIENCES.—The next meeting of the Boston Society of Medical Sciences will be held in the amphitheatre of Building D of the Harvard Medical School on November 18, at 8.15 P.M. The following papers will be presented:

Dr. W. B. Cannon. "Critical Function of the Adrenal Medulla in Pain. Asphyxia, Fear and Rage." Twenty minutes.

Dr. Harvey Cushing. "Hibernation and the Pituitary Body." Fifteen minutes.

Dr. S. B. Wolbach. "Distribution and Morphology of Spirochetae Duttoni and Spirochaeta Kochii in the Tick (*Orinthodorus Moubata*)." Ten minutes with lantern slides.

Dr. S. B. Wolbach and Mr. C. L. Binger. "The Cultivation, Life Cycle and Filterability of a Free Living Spirochaeta." Presented by Mr. Binger with lantern slides. Twenty minutes.

Mr. C. M. Gruber. "The Effect of Adrenalin on the Fatigue Threshold." Fifteen minutes.

Dr. Emil Goetsch. "The Pars Anterior in Relation to the Ductless Glands." Fifteen minutes.

CLEAVELAND FLOYD, M.D., *Secretary.*

BRISTOL SOUTH DISTRICT MEDICAL SOCIETY.—The semi-annual meeting will be held in the rooms of the Chamber of Commerce, corner of Pleasant and South Main Streets, Fall River, on Thursday, November 13, at 5 p. m. The following papers will be read:

"Vaccination Efficiently Performed," E. F. Cody, New Bedford.

Discussion, opened by George W. Gay, Boston.

"Symposium on Tuberculosis."

a. "Early Diagnosis," John B. Hawes, 2d, Boston.

b. "Sanatorium Treatment," S. Coolidge, Lakeville.

c. "Joints and Spine," W. R. MacAusland, Boston.

d. Discussion, opened by A. S. MacKnight, Fall River.

Candidates for admission will meet the Censors at the same place at 3 p. m.

A. J. ABBE, M. D., *Secretary.*

NEW ENGLAND BRANCH OF THE AMERICAN UROLOGICAL ASSOCIATION.

There will be a meeting of the Society at The Boston Medical Library on Tuesday evening, November 18th, at 8.15.

PROGRAM.

1. Demonstration of specimens, instruments and reports of cases.

2. Symposium. "The Diagnosis and Treatment of Lesions of the Kidney Other Than Those Due to Tuberculosis and Calculus."

(*a*) "Pyogenic Infections of the Upper Urinary Tract," Dr. A. L. Chute.

(*b*) "Treatment of Movable Kidney with or without Infection by Posture," Drs. Hugh Cabot and Lloyd T. Brown.

(*c*) "The Roentgen Determination of Certain Renal and Ureteric Variations and Disorders," Dr. Percy Brown.

Discussion.

R. F. O'NEIL, *Secretary.*

CENSORS' EXAMINATION.

THE CENSORS OF THE SUFFOLK DISTRICT MEDICAL SOCIETY will meet to examine candidates for admission to the Massachusetts Medical Society at 8 The Fenway, on Thursday, Nov. 13, 1913, at 2 p. m.

Candidates, who must be residents of the Suffolk District, or non-residents of Massachusetts, should make personal application to the Secretary, and present their medical diplomas at least three days before the examination.

For further particulars, apply between 2 and 3 p. m. to

WALTER C. HOWE, *Secretary,* 303 Beacon Street.

RECENT DEATH.

DR. ALEXIS M. LEON of New York died on November 2. He was born in New York City in 1857 and was graduated from Manhattan College in 1875 and from the College of Physicians and Surgeons in 1878. He afterwards served as interne at the City Hospital, Blackwell's Island, and at the time of his death was attending physician to St. Francis' Hospital.

Original Articles.

FURTHER STUDIES FROM THE BOSTON FLOATING HOSPITAL ON INTESTINAL DISTURBANCES IN INFANTS.

OBSERVATIONS ON SUMMER DIARRHEAS IN CHILDREN. 1911.*

BY ARTHUR I. KENDALL AND ALEXANDER A. DAY,

of Northwestern University Medical School, Chicago,

AND

EDWARD P. BAGG, JR.,

of the Massachusetts General Hospital.

From the Boston Floating Hospital and the Department of Preventive Medicine and Hygiene, Harvard Medical School.

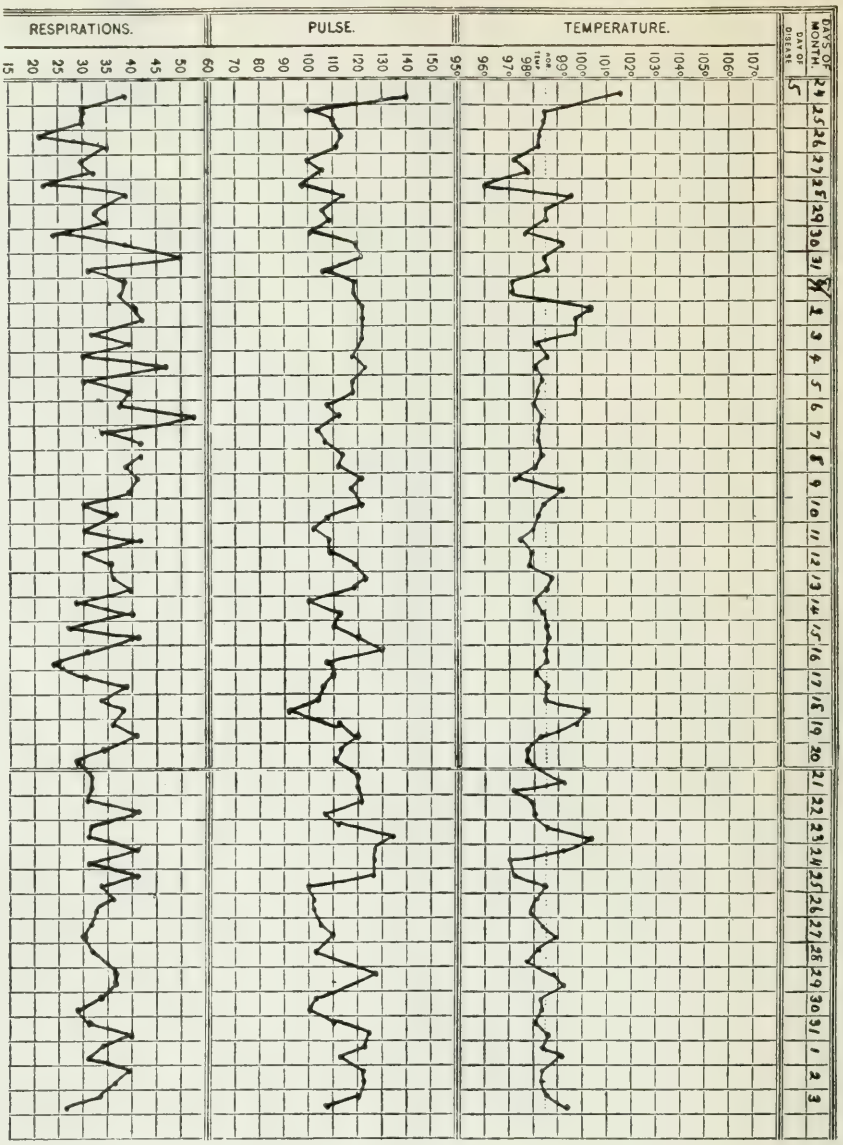
In spite of the immense amount of work done with a view toward unravelling the mystery of the etiology of summer diarrhea in infants and young children, little real progress has been made, the problem remaining for the most part as obscure today as it was to the earliest investigators. Broadly speaking, three theories have been advanced to explain these intestinal disturbances. It is a well-known fact that these diarrheas are most common during the warmer months. Consequently many observers have attributed them to the continued high temperature. Others have associated these conditions with improper feeding. The feeding theory, as our knowledge has increased, has expanded to include not only improper food *per se,* but also ptomaines, and more recently, products of bacterial action, as well as the abnormal break-down which food itself may undergo in the intestinal tract. The most recently developed is the microbic theory. Attempts have been made to associate specific organisms with specific syndromes. The possibilities of bacterial symbioses have not been thoroughly investigated. The supporters of the microbic theory are by no means in accord in associating the same organisms with a given syndrome, although in the most severe cases there is closer agreement. The German school, led by the late Escherich, have contributed largely to our knowledge of the association of the streptococcic group with these diarrheas; many Americans following the work of Shiga and the work of the Rockefeller Institute, have paid considerable attention to the group of the dysentery bacilli, while still other investigators have considered certain organisms, which are ordinarily regarded as saprophytes, as etiological factors. In looking over the literature one can scarcely fail to be impressed with the diversity of the organisms which have been associated with clinically indistinguishable complexes; this is particularly so in the milder cases. The situation is further complicated by the well attested fact that in epidemics individual cases may vary greatly both in intensity and duration. Confusion due to overlapping of symptoms renders difficult the establishment of a correct bacteriological diagnosis, or possibly the correct bacterial associations, except in the severe and striking cases.

The first two weeks of the past season of the Boston Floating Hospital (June 29 to Sept. 15, 1911) were remarkable for the exceptional and continued high temperature, and yet the admissions during this period and the two weeks following were not above the average for previous years. This is not to be construed as evidence for or against heat as an etiological factor in intestinal disturbances because the relatively small number of cases considered here does not permit of any generalization in this respect. Again, the difficulty of obtaining accurate accounts of feedings of most of the infants prior to admission precludes similar deductions in regard to the etiological relationship of improper feeding. The bacteriological data reported here are derived from examinations of the stools from 146 cases, together with clinical and post-mortem observations. The results will be discussed from the point of view of the occurrence of specific types of organisms.

Dysentery bacilli were found in 12.3 per cent. of the cases, a remarkable contrast to the occurrence of the previous season, when they were isolated from 39 out of 52 cases of severe diarrhea, or 75 per cent. This would seem to indicate that the epidemic tendency of the year 1910 did not recur in 1911. A majority of the 18 cases in which these organisms were found showed neither a characteristic syndrome nor typical post-mortem lesions, in contradistinction to last season's observations. Nine of the 18 cases died; of the 9 that survived, 3 showed no symptoms that could not be explained by faulty feeding. They were apparently carriers. Two of these carriers were twin brothers, and the astonishing fact is that one of them consistently showed the Shiga type and the other the Flexner type of the dysentery bacillus. The "Shiga" twin was also a paratyphoid beta carrier. This anomaly was further accentuated because each twin had considerable numbers of streptococci, organisms of the mesentericus group, and yeasts. The third carrier showed besides the Shiga bacillus, streptococci, *B. mesentericus* and *B. alkaligenes.* Heretofore the presence of the dysentery bacillus, paratyphoid bacillus or even considerable numbers of streptococci would have sufficed to have established a probable diagnosis. In these cases all of these organisms were simultaneously present without producing noteworthy symptoms. The chart and history of one of these cases is reproduced on page 742. (R. H.) (Fig. 1.) As a precautionary measure, these carriers were kept aboard the boat until their stools showed no dysentery

* Received for publication Sept. 5, 1913.

FIGURE 1.
R. H.

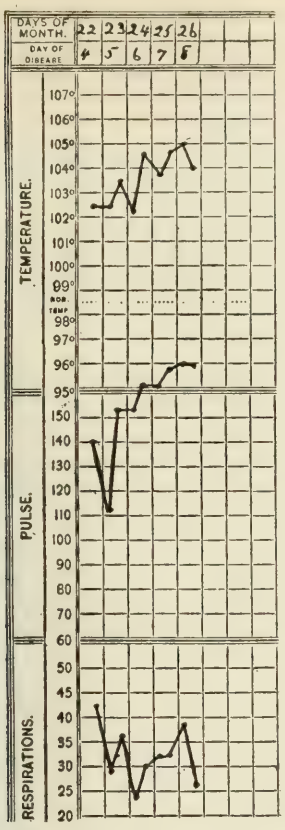


bacilli, which explains their long sojourn there. Of the six remaining non-fatal cases, four were severe, one was mild, and one discharged against advice, practically moribund. Five of these harbored Shiga bacilli, one the Flexner type. Five had streptococci, three *B. mesentericus,* two *B. pyocyaneus,* one the Morgan bacillus, and *B. pyogenes foetidus.* One of the five fatal cases deserves mention. This patient, E. M., a girl of five years, entered with marked prostration after an illness of three days, characterized by obstinate vomiting and bloody diarrhea; five days later she died. Shortly after her admission the Shiga bacillus was isolated from her stools, and two days before death a blood culture was taken by Dr. Beth Vincent, from which the Shiga bacillus, paratyphoid beta, the Morgan bacillus, *B. alkaligenes,* and streptococci were recovered. This finding was so remarkable that these cultures were repeatedly studied and their identity established beyond question. It would appear that in this instance there was a very unusual and general invasion of the blood stream; inasmuch as this phenomenon occurred at least two days prior to death, it can scarcely be considered as the invasion which not infrequently is said to immediately precede death. Since this observation was made, Darling and Bates (*American Journal Medical Science,* January, 1912, vol. clxiii, No. 1) have reported the isolation of the Shiga bacillus from the circulating blood of a fatal case of dysentery. For chart of E. M. see next page. (Fig. 2.)

Twenty-three of the series of cases showed organisms belonging actually to the paratyphoid group. Of these, one was the alpha type, six the beta, while fourteen were of the type originally described by Morgan, and known as Ba-

FIGURE 2.

E. M.



cillus No. 1 of Morgan. Both the Morgan bacillus and the paratyphoid bacillus were isolated from three of the twenty-three cases. The essential cultural difference between the Morgan bacillus on the one hand, and the paratyphoid alpha and beta on the other is that the former does not ferment mannite with the production of acid or gas, while both the latter form both acid and gas in this medium. Furthermore, the Morgan bacillus forms less gas and less acid in dextrose than do the paratyphoids. Eight of these cases died; two were discharged against advice and two were unrelieved at the end of the season. Seven of the eight fatal cases harbored the Morgan bacillus, and from three of these Shiga bacilli were recovered. Streptococci were found in seven of the fatal cases. The remaining associated bacteria were less significant, and may be found in the table. (Fig. 3.) Two of these cases were brothers, one of whom died; he showed large numbers of streptococci, pyocyaneus and yeast in addition to the Morgan bacillus. The survivor had no noteworthy organisms other than the Morgan bacillus and paratyphoid beta.

The streptococcus was found more frequently than any other organism, being culturally demonstrated in 78 out of the 146 cases. Since these microörganisms are found frequently in the stools of normal infants as well as in milk,

FIGURE 3.

Case No.	Paratyphoid Bacillus Type.	Associated Organisms. Dysentery	Streptococcus	Proteus	Alkaligenes	Pyogenes-foetidus.	Fluorescent	Subtilis	Yeast.
1	Morgan								
2	Beta	s						+	+
3	Morgan		+			+		+	+
4	Morgan	s	+					+	+
5	Morgan		+					+	+
6	Morgan		+					+	+
7	Morgan Beta		+				+		+
8	Morgan								
9	Beta Morgan		+				+		+
10	Beta	s	+						
11	Morgan Beta		+			+			
12	Alpha		+			+			
13	Morgan		+	+	+				+
14	Beta Morgan	s					+		
15	Beta	s	+	+					
16	Morgan	s							
17	Beta					+			
18	Beta							+	
19	Beta		+						
20	Morgan								
21	Morgan		+						
22	Morgan		+						
23	Morgan		+	+					

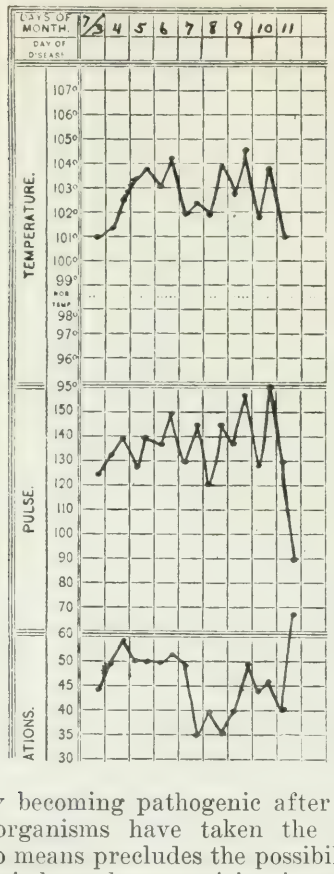
this is perhaps not surprising; in fact, nearly 50 per cent. of the streptococcic cases showed little or no symptomatology other than might be explained by dietary indiscretions. From the remaining cases it would be unjustifiable to eliminate the streptococcus as a possible etiological factor. Of the total number of cases (78) 34 died, one was moribund, and four were discharged unrelieved. The symptomatology of streptococcus enteritis as described by various German investigators presents no characteristics of specific diagnostic value to differentiate this disease from these other acute infections which we are considering. The chart on page 744 is typical of a severe case of streptococcus enteritis with perforation. (F. C.) (Fig. 4.)

The most significant associated organisms in these cases of streptococcus enteritis were dysentery and paratyphoid bacilli, as well as Morgan bacilli. A complete list of these associations, together with the clinical complications, will be found in the table, page 746. (Fig. 5.)

It should be stated that the most important of these clinical complications were nephritis and pyuria. Three of the fatal cases died of septicemia; four of the severe cases and three of the mild showed otitis media. In four of the severe cases and two of the mild, cardiac dilatation was demonstrated.

These observations would seem to be in accord with Dr. Theobald Smith's statement that streptococci are to be regarded in a sense as "organisms of the diseased state." That is to say, the intestinal streptococci occur commonly in the alimentary canal as "opportunists," not in-

FIGURE 4.
F. C.



frequently becoming pathogenic after more aggressive organisms have taken the initiative. This by no means precludes the possibility of the streptococci themselves acquiring invasive properties.

The following autopsy protocols illustrate two types of streptococcic infection, the former being the strictly enteric type, while the latter was the septicemic type:—

Protocol of G. H.

Macroscopic: Intestines—distended with gas.

Liver—large, and heavy for size of subject.

Gastro-intestinal tract,—small, shallow, punched out ulcers with slightly raised borders (2 mm.) throughout large intestine, more marked in region of transverse and descending colon; superficial lymphatics between ulcers slightly hyperplastic and red, appearing as raised areas on the generally congested mucosa.

Microscopic ulcerative colitis; albuminous degeneration of myocardium; fatty infiltration of liver; acute parenchymatous nephritis; acute congestion and hyperplasia of spleen.

Pathological diagnosis: Acute broncho pneumonia; ulcerative colitis.

Protocol of J. P.

Macroscopic: Heart, right side distended, with slight excess of free fluid in pericardial cavity.

Gastro-intestinal tract,—mesenteric lymph nodes slightly enlarged; serosa intact; mucosa of stomach and small intestines normal.

Large intestine: (specially sigmoid and rectum) mucosa slightly thick, bright red, covered with mucus, numerous superficial hemorrhagic erosions, dark pink and evenly distributed, on section somewhat soft and of similar color.

Microscopic: Liver, extensive fatty infiltration throughout.

Spleen: Marked albuminous degeneration.

Adrenals: Cellular vacuolization.

Colon: Superficial ulcerations over solitary lymph follicles, which show cloudy swelling of the reticular cells.

Mesenteric lymph nodes: Acute hyperplasia, cloudy swelling of cells of the recticulum and germinative centres.

Pathological diagnosis: Broncho pneumonia; mucus colitis; acute parenchymatous nephritis.

Streptococci were isolated from the blood and various organs two hours after death (spleen, liver, kidneys and intestines).

In several instances streptococci were isolated from the urine, which had been collected through catheters with appropriate precautions.

Two hundred and eighty-three cases were examined for the gas bacillus, of which number 33 were positive. Three of the series died. Of the latter, one died after discharge from the hospital, the second was complicated with measles, and the third by severe pyelonephritis. It is therefore not justifiable to attribute the cause of death in these cases to the gas bacillus. Twenty-nine of the 33 cases were discharged cured, while one still harbored the organism in demonstrable numbers at the end of the season. During the previous summer 293 cases were examined, with a morbidity of 22, while the only fatality recorded was complicated by pneumonia. As a routine procedure all tests for the gas bacillus were incubated for at least forty-eight hours, provided a positive reaction was not obtained in less time. Judging from the clinical findings, those tests which were positive in eighteen hours or at most twenty-four hours were much more significant than those which developed more slowly. The gas bacillus not infrequently occurs in moderate numbers in normal adults, less frequently in artificially fed children, consequently the above morbidity is not surprising.

It is a well established fact that organisms belonging to the mesentericus or subtilis group have a very wide distribution in nature. These organisms form highly resistant spores with great readiness, and these spores, which are found in dust and hay, eventually find their way into milk in considerable numbers, thence into the alimentary tract. The spores of these organisms are easily demonstrated in feces, and in fact, not infrequently complicate tests for the gas bacillus. In one instance they were found in milk and subsequently were recovered from the feces of a child who had drunk the milk. The organisms isolated from the milk and feces were identical morphologically, culturally and chemically. Spiegelberg (*Jahrb. f. Kinderheilk.*, Vol. xlxix) was able to isolate spore-forming organisms of this group from the intestinal tract of children and from milk. The

strong peptonizing action of organisms of this group recalls the work of Flügge (*Zeit. f. Hyg.*, Vol. xvii, 1894), and others who have attempted to produce diarrheal disturbances in young animals by feeding these bacteria, particularly in kittens and puppies, with somewhat conflicting results. Ardoin (*Thése de Paris*, 1898, p. 78) reports the case of a five months' breast-fed infant who developed a marked diarrhea four days after the ingestion of cow's milk; he found *B. mesentericus* in overwhelming numbers in the feces. These organisms were highly virulent for guinea-pigs. More recently, Vincent (On Acute Intestinal Toxemia in Infants, 1911) has fed young kittens with milk containing large numbers of organisms of the mesentericus group, apparently producing profuse diarrhea and signs of intense toxemia from which many of the kittens died.

It would appear from observations made by one of us (Kendall, *Journal Medical Research*, 1910, Vol. xvii, p. 164, and 1911, Vol. xx, p. 145) that not infrequently the organisms of the mesentericus group act symbiotically with B. coli, producing far greater decomposition in milk than either organism alone could accomplish, and that this bacterial destruction of the milk may be a factor in these cases. It is a significant fact that this *mesentericus-coli* combination is practically always met with in those cases in which the mesentericus group is prominent in the feces.

In 18 of the 146 cases studied during the past summer a noteworthy variant of *B. mesentericus* was encountered. Briefly, the variation consisted in the partial suppression of the proteolytic activities. In addition, spore formation appeared to be inhibited to a very considerable degree; in fact, sporulation for the most part, even on artificial media was noted only after several subcultures had been made. This temporary suppression of spore formations has been described in detail for a similar organism of the same group (Kendall, *Journal Biological Chemistry*, 1909, Vol. v, p. 419). Many of the cases in which these organisms were isolated were considerably more severe than corresponding cases in which the mesentericus alone was found; in fact, in one case (J. P.) the bacilli were recovered from the heart blood, kidneys, liver and spleen, as well as the large and small intestines within two hours after death. This by no means, however, is conclusive proof that the organisms are invasive, for it is impossible to rule out postmortem excursion.

In another case (M. H.) the bacilli were isolated from a catheter specimen of urine, as well as from the feces. It seems scarcely justifiable, in view of the small number of observations on the occurrence of this organism, to do more than call attention to its association with certain cases exhibiting rather marked toxemia.

B. mesentericus was recovered in noteworthy numbers from 33 cases; 4 of these cases showed in addition the modified form of the organism. The association with other organisms does not permit of the establishment of a distinct clinical entity; the evidence so far as it goes is neither for nor against this possibility.

Other microörganisms were encountered in a number of instances: yeast in 27, *B. alkaligenes* in 5, *B. proteus* in 8, *B. pyogenes foetidus* in 11, and *B. pyocyaneus* in 5. As might be expected, *B. bifidus* and organisms of the acidoduric group were found in a considerable number of cases—the former in 41, the latter in 30.

The prevalence of yeast deserves comment. Of the 27 cases in which it was found, at least one terminated fatally because the acute distention mechanically inhibited respiration. It is more than likely that yeast was the causative agent, for when the abdomen of the patient was compressed there was a copious discharge of gas with a characteristic yeasty odor and yeast cells were predominant in the feces

SUMMARY.

In spite of the excessive and protracted heat of the past summer, the number of admissions and the severity of the cases was not above that of the previous summer. It is not justifiable, therefore, to assign extreme heat as the etiological factor in the causation of these summer diarrheas. Again, it is impossible in most cases to distinguish between improper feeding *per se* and improper feeding as a predisposing factor to bacterial infection.

The microbic theory of disease is too firmly established to need further discussion. This year, however, it was shown that one or more organisms which hitherto would have been deemed sufficient to establish a satisfactory diagnosis, were repeatedly recovered from certain individuals in whom there was no suspicion or past history of infection. In a majority of these cases it would appear that these organisms occurred in the host as harmless saprophytes rather than as pathogens. Furthermore, the summer's observations show conclusively that blood, pus and mucus, so common in intestinal infections in children, is not pathognomonic of any specific organism. Several cases, which prior to death were diagnosed as bacillary dysentery because of excessive amounts of blood, pus and mucus at autopsy showed no demonstrable lesions of the intestinal tract which would account for the blood and pus; indeed, the cause of death could not be ascertained either ante or post mortem.

The universal experience of the past has been that the Flexner cases far outnumber the Shiga cases; last summer the Shiga cases exceeded in number the Flexner cases.

In view of the fact that paratyphoid bacilli are somewhat widely distributed in nature, it is not surprising that they were met with in a number of the cases. It is impossible in the cases mentioned here to measure their etiological importance. It is interesting to note

in this connection that the typhoid bacillus was not found in a single case.

As for the streptococcus, which was found in such large numbers, the diagnosis was made in many of the cases by exclusion, no other significant organisms having been found. This does not mean that other organisms might not have furnished the conditions which enable the streptococci to increase abnormally. It would not be justifiable, however, to exclude the streptococcus from the list of pathogenic bacteria, after taking into consideration those cases which showed such distinctive lesions at autopsy. Even during life the organisms were recovered in a number of cases from urine drawn with sterile catheters.

Our observations show that the gas bacillus causes trouble—some or even severe diarrhea in children, yet it is of itself rarely the cause of death.

The occurrence of organisms of the mesentericus group has been discussed. Our findings are not extensive enough to warrant any specific statements. The same holds true for the various other organisms which have been mentioned.

CONCLUSIONS.

The striking fact brought out by the summer's work is that in every case of infantile diarrhea studied (with the exception of the few fermentative diarrheas) there was a general conformity in bacterial type of the intestinal flora, which was uniformly proteolytic in character. This proteolytic flora forms a striking contrast to that of normal children of similar age, in which the putrefactive activities are minimal. Superimposed upon this proteolytic background various of the well known intestinal pathogens may stand out conspicuously. In the past the isolation of such organisms has sufficed to establish the diagnosis; it now appears that such is not necessarily the case, inasmuch as one or more of them may be present without the production of noteworthy symptoms. On the other hand, cases are met with in which these organisms cannot be found, yet show blood, pus and mucus in the stools, and severe toxemia. In these latter cases the flora has been found to be proteolytic in character.

FIGURE 5.

STREPTOCOCCUS ENTERITIS.

SEVERE.

Number.	Outcome	BACTERIOLOGICAL: B. Alkaligenes	B. Dysenterii Shiga	B. Dysenterii Flexner	B. Proteus	B. Pyogenes Foetidus	B. Mesentericus	B. Mesentericus Modified	Acidoduric Organisms	B. Bifidus	B. Welchii	B. Pyocyaneus	Yeast	B. Paratyphoid A. B.	B. Paratyphoid Morgan	CLINICAL: Septicemia	Pyemia	Furunculosis	Acute Cardiac Dilatation	Pneumonia	Infantile Atrophy	Premature	Sudden Death	Distention	Otitis—Media	Conjunctivitis	Peritonitis	Congenital Livers	Streptococcuria	Pyuria	Nephritis
1	D									1						1											1				
2	D			1					1																						
3	D			1				1																1							
4	D							1					1												11			1	1		
5	D						1	1	1																						
6	D				1			1						1												11					1
7	D										1																				1
8	D		1							1				1	1																
9	D		11				1							1	1	1															
10	D							1					1			11															

FIGURE 5. (*Continued.*)

MARKED.

Number.	Outcome	BACTERIOLOGICAL. B. Alkaligenes	B. Dysenterii Shiga	B. Dysenterii Flexner	B. Proteus	B. Pyogenes Foetidus	B. Mesentericus	B. Mesentericus Modified	Acidoduric Organisms	B. Bifidus	B. Welchii	B. Pyocyaneus	Yeast	B. Paratyphoid A. B.	B. Paratyphoid Morgan	CLINICAL. Septicemia	Pyemia	Furunculosis	Acute Cardiac Dilatation	Pneumonia	Infantile Atrophy	Premature	Sudden Death	Distention	Otitis—Media	Conjunctivitis	Peritonitis	Congenital Livers	Streptococcuria	Pyuria	Nephritis
11	D						1												1												
12	D																													1	1
13	D						1																	1							
14	D					1		1															1								
15	D							1	1	1			1	1	1									1	11						1
16	D	1			1		1						1		1				1				1		1						1
17	D						1																								1
18	D																														
19	D						1			1									1												
20	MO		11																												
21	R						1			1																			1		

UNCLASSIFIED.

Number.	Outcome	BACTERIOLOGICAL. B. Alkaligenes	B. Dysenterii Shiga	B. Dysenterii Flexner	B. Proteus	B. Pyogenes Foetidus	B. Mesentericus	B. Mesentericus Modified	Acidoduric Organisms	B. Bifidus	B. Welchii	B. Pyocyaneus	Yeast	B. Paratyphoid A. B.	B. Paratyphoid Morgan	CLINICAL. Septicemia	Pyemia	Furunculosis	Acute Cardiac Dilatation	Pneumonia	Infantile Atrophy	Premature	Sudden Death	Distention	Otitis—Media	Conjunctivitis	Peritonitis	Congenital Livers	Streptococcuria	Pyuria	Nephritis
22	D			11									1																		
23	D						1						1																		
24	D		11				1																								
25	U*																								1						
26	?*						1						1																		

MODERATE.

Number.	Outcome	BACTERIOLOGICAL. B. Alkaligenes	B. Dysenterii Shiga	B. Dysenterii Flexner	B. Proteus	B. Pyogenes Foetidus	B. Mesentericus	B. Mesentericus Modified	Acidoduric Organisms	B. Bifidus	B. Welchii	B. Pyocyaneus	Yeast	B. Paratyphoid A. B.	B. Paratyphoid Morgan	CLINICAL. Septicemia	Pyemia	Furunculosis	Acute Cardiac Dilatation	Pneumonia	Infantile Atrophy	Premature	Sudden Death	Distention	Otitis—Media	Conjunctivitis	Peritonitis	Congenital Livers	Streptococcuria	Pyuria	Nephritis
27	D												1						1	1											1
28	D						1	1	1														1								
29	D																						1								

FIGURE 5. (*Continued.*)

MODERATE. (*Continued.*)

		BACTERIOLOGICAL.																CLINICAL.														
Number.	Outcome	B. Alkaligenes	B. Dysenterii Shiga	B. Dysenterii Flexner	B. Proteus	B. Pyogenes Foetidus	B. Mesentericus	B. Mesentericus Modified	Acidoduric Organisms	B. Bifidus	B. Welchii	B. Pyocyaneus	Yeast	B. Paratyphoid A. B.	B. Paratyphoid Morgan	Septicemia	Pyemia	Furunculosis	Acute Cardiac Dilatation	Pneumonia	Infantile Atrophy	Premature	Sudden Death	Distention	Otitis—Media	Conjunctivitis	Peritonitis	Congenital Livers	Streptococcuria	Pyuria	Nephritis
30	D						1		1														1								
31	D						1	1																							
32	D					1	1	1		1			1		1									1							
33	U*						1	1					1																		
34	IO																														
35	I		1									1																			
36	R																														
37	R						1																					1		1
38	R					1			1				1																1	
39	R	1				1															1									
40	R					1			1	1					1															
41	R				1										1															
42	R									1							1											1	1	
43	W						1						1																	1
44	W						1																							
45	R						1										1													
46	W						1		1	1																				

MILD.

		BACTERIOLOGICAL.																CLINICAL.														
Number.	Outcome	B. Alkaligenes	B. Dysenterii Shiga	B. Dysenterii Flexner	B. Proteus	B. Pyogenes Foetidus	B. Mesentericus	B. Mesentericus Modified	Acidoduric Organisms	B. Bifidus	B. Welchii	B. Pyocyaneus	Yeast	B. Paratyphoid A. B.	B. Paratyphoid Morgan	Septicemia	Pyemia	Furunculosis	Acute Cardiac Dilatation	Pneumonia	Infantile Atrophy	Premature	Sudden Death	Distention	Otitis—Media	Conjunctivitis	Peritonitis	Congenital Livers	Streptococcuria	Pyuria	Nephritis
47	D																						1								
48	D						1														1	1				1					
49	D									1																			1	1	1
50	D																			1										1	
51	D									1										1											1
52	D								1	1										1											
53	UO						1														1										1
54	U*						1								1				1							1				1	
55	IO	1	1				1	1	1	1															1						
56	RO					1	1		1					1																	
57	IO						1																								1
58	R						1																					1			1

FIGURE 5. (*Continued.*)

MILD. (*Continued.*)

Number.	Outcome	BACTERIOLOGICAL. B. Alkaligenes	B. Dysenterii Shiga	B. Dysenterii Flexner	B. Proteus	B. Pyogenes Foetidus	B. Mesentericus	B. Mesentericus Modified	Acidodurie Organisms	B. Bifidus	B. Welchii	B. Pyocyaneus	Yeast	B. Paratyphoid A. B.	B. Paratyphoid Morgan	CLINICAL. Septicemia	Pyemia	Furunculosis	Acute Cardiac Dilatation	Pneumonia	Infantile Atrophy	Premature	Sudden Death	Distention	Otitis—Media	Conjunctivitis	Peritonitis	Congenital Liver	Streptococcuria	Pyuria	Nephritis
59	R						1																								
60	R						1						1																		
61	R										1						1								1						
62	R						1						1																	1	
63	R		1				1	1		1			1	1																	
64	R			1						1			1																		
65	R						1			1			1																	1	
66	R						1	1	1	1																					
67	R									1			1																		
68	R					1			1	1				1											1					1	
69	R					1			1					1																	
70	R						1																	1							
71	R									1	1																				
72	R				1	1		1							1																
73	R																													1	
74	W						1						1												1						
75	W												1																		
76	W						1			1								1	1	1										1	
77	W																														
78	W						1				1																				
Totals		3	7	4	4	7	40	15	14	21	4	1	21	7	9	3	3	1	6	5	3	1	6	5	7	4	1	1	5	12	14

D: Dead.
W: Well.
*: At end of season.
M: Moribund.

O: Discharged against advice.
I: Improved.
R: Relieved.
?: Unknown.

SAPROPHYTISM, PARASITISM AND PATHOGENISM.*

BY ARTHUR I. KENDALL, CHICAGO

From the Department of Bacteriology, Northwestern University Medical School.

THREE rather unusual cases occurred among the babies sent to the Boston Floating Hospital during the summer of 1911, cases in which it was difficult, or even impossible, to correlate satisfactorily the bacterial findings with the clinical picture. These three babies harbored consistently perfectly typical dysentery bacilli, and other bacteria commonly regarded as pathogenic, yet their symptoms were so mild and atypical of bacterial invasion that they were very properly regarded clinically as cases of improper feeding. There was not the slightest suspicion of dysentery (for they presented none of the characteristic dysenteric symptoms) and their accidental discovery was the result of the policy of examining so far as possible each patient at least once to determine the types of bacteria represented in the intestinal flora.

Two of these cases were twins, both boys, aged seven months. Both had the same history on admission: moderate diarrhea and vomiting, neither of which symptom was realized after they were placed in the wards. Their trouble began directly after the unusually hot weather

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of the summer of 1911, and persisted for four days prior to their admission. A diagnosis of acute intestinal indigestion was made, and they received appropriate treatment, under which they promptly began to gain. There was some mucus, but neither blood nor pus in their movements, which were grayish in color, soft and foul smelling. The movements numbered from two to five per diem; shortly after admission they were reduced to one to three per diem. There was slight fever (101°), and a slight nasal discharge on admission, but no prostration in either case. One twin had a hoarse, croupy cough, which soon cleared up.

Two days after admission, dysentery bacilli were found in their movements, the Shiga type in one, the Flexner type in the other. These organisms persisted consistently for six weeks, at the end of which time both patients were discharged, apparently free from these organisms. No attempt was made to study the agglutinating power of their blood, partly because of the press of other work, chiefly because of the notorious irregularity with which agglutinins are present even in cases of dysentery.

These cases were so unusual that particular care was exercised in studying the associated organisms, and the "Shiga" twin was found to have in addition many paratyphoid bacilli of the beta type, yeast and streptococci, while the "Flexner" twin harbored yeast, streptococci, and considerable numbers of an organism almost certainly to be regarded as the Morgan bacillus, first described by Morgan in England, but not reported in this country up to the present time. The above mentioned organisms, dysentery bacilli, paratyphoid bacillus, and Morgan bacillus were perfectly typical in every respect, and the dysenteric organisms agglutinated typically with appropriate specific sera in high dilution.

Ordinarily, the isolation of dysentery bacilli, paratyphoid bacilli, or even large numbers of streptococci would have sufficed to establish a satisfactory diagnosis, yet in spite of the presence of all these bacteria, the patients were clinically cases of improper feeding. It should be stated that neither of these patients gave a history of previous illness, and their tender age is rather against the possibility of a previous attack of dysentery, since they were born in January, when intestinal diseases are at a minimum. It was impossible to determine with definiteness when they were first fed artificially.

The third case was four and one-half months old, a boy, having a previous history of diarrhea and vomiting of several days' duration, with blood, pus and mucus in the movements for three days prior to admission. When this patient was admitted to the wards, blood and pus were never seen. The child slept well prior to admission, and was not prostrated. The temperature on admission was 101°, and this persisted with slight variation until a double paracentesis was performed. The temperature then returned to normal. The movements were from two to four per diem, being soft, but not otherwise distinctive in appearance or consistency. The day after admission, Shiga bacilli were found, and they persisted until the patient was discharged, at the close of the season, seven weeks later. Besides the Shiga bacilli, Morgan bacilli were found, and they also persisted during the few weeks the case was under observation. This patient, like the twins, was apparently suffering from improper feeding and responded readily to treatment.

The problem is to properly classify these cases. The correct solution of this problem would be of more than academic importance to clinical and preventive medicine.

Aside from an improper bacterial diagnosis, which is unlikely in view of the consistent, successive isolations of the various pathogenic bacteria mentioned above, three possibilities remain to explain the situation.

1. The patients were immune both to the dysentery bacilli and the other associated pathogenic bacteria. If this be the case, these bacilli must be regarded as innocuous parasites in these non-immune hosts; that is to say, the babies are bacilli carriers.

2. The cases were mild dysenteric cases. If this be so, it is necessary to assume that the associated organisms commonly deemed pathogenic, were either innocuous, or at best very inactive.

3. The organisms were non-virulent, and were present as a part of a somewhat abnormal fecal flora, in which case they might be assumed to be innocuous for the average non-immune into whom they might find their way.

The evidence for each possibility:—

1. The patients were immune. This possibility in common with others, is incapable of proof or disproof. The facts are that these children were weaklings, puny and with but little physical stamina. They were born in the winter months, when intestinal diseases of bacterial origin are at a minimum, and prior to the period of hot weather when they became sick there was practically no time when diarrheal diseases were prevalent, or even common, in Boston. The cold spring and the sudden onset of hot weather rather tends to minimize the possibility of previous infection. Bearing this in mind, it becomes less probable that immunity was due to a previous attack. Immunity to all the pathogenic organisms represented in their flora would be justly regarded as a very unusual condition in the light of present day ideas on this subject.

2. The cases were mild dysentery cases. This possibility is not at all improbable; it still leaves the question of the paratyphoid bacilli unsolved, and while there is certain evidence which would seem to indicate that paratyphoid bacilli were not uncommon in the normal intestinal tracts of animals, and possibly man, the dismissal of these organisms without considering the possibility of their being pathogenic is at present unwarranted. This is particularly true if the babies are regarded as being mild dysen-

ery cases, because they would be already weakned by the invasion of one organism, and theoetically more likely to succumb to the simulaneous activity of another. The association of he streptococcus in relatively significant numers also is not wholly in accord with this possiility, since the streptococcus is very frequently secondary invader following in the footsteps, s it were, of bacteria, such as the dysentery acillus, commonly regarded as invasive. In the resent cases the streptococcus was not noticebly active, although present in abnormal numers.

3. The possibility that the bacilli were 'avirulent'' or of a low degree of virulence, while ot ordinarily considered in discussing carriers, leserved special mention. It is usually assumed, acitly at least, that carriers are dangerous to thers because their pathogenic bacilli are at east able to infect the average non-immune in whom they may happen to obtain a footing. This postulates that the bacilli possess and maintain 'virulence'' of a constant minimal level; this s not in accord, wholly, with what is known of acterial parasitism and pathogenism. A brief discussion of the salient features of pathogenism nd parasitism will make this point clear.

It is necessary to define at the start three hases of bacterial association which are frequently confused.

Saprophytism: Saprophytic bacteria are those ubsisting upon dead organic matter.

Parasitism: Parasitic bacteria are those living n living organic matter.

Pathogenism: Pathogenic bacteria are those which produce disease in living plants and animals.

Both parasitic and pathogenic bacteria, theoetically, become saprophytic when the host dies; nd parasitic bacteria become pathogenic if they nterfere with the well-being of the host, while, conversely, pathogenic bacteria become paraitic if they cease damaging their host. The imits between parasitism and pathogenism are ot sharply defined, but the distinctions outlined bove are sufficiently exact for the purposes of his discussion.

Professor Theobald Smith has outlined a thery of parasitism, or more correctly, pathogenism as it is related to bacteria, as follows: 'Pathogenic bacteria in their life history preent three well marked phases: entry into the ost, temporary multiplication therein and escape to another host. Each step in this life ycle must be carefully and deliberately worked ut in the evolution of parasitic (pathogenic?) icroörganisms and each demands a special echanism adapted to the purpose.'' Again, The tendency of all invading microörganisms n their evolution toward a more highly paratic state is to act solely on the defensive while ecuring opportunity for multiplication and scape to another host. By tendency is meant a eneral slow movement through long periods of me.''

This practically is equivalent to stating that those pathogenic organisms which produce abrupt, acute disease, automatically but slowly tend to become modified in this respect, so that eventually they either sink to the level of parasites, or else strengthen their defensive powers at the expense of their offensive weapons. The acute disease in the course of time would on this hypothesis tend either to become more chronic or to gradually disappear.

While it is undoubtedly true that pathogenic bacteria must accomplish the three phases mentioned above, the same is true for any organism, pathogenic or parasitic, which depends upon man or upon any animal for its host. Any organism, in other words, which requires a living host for its continued existence, must reach its host, multiply therein, or thereon, and eventually escape directly or indirectly to other hosts.

Parasitic bacteria do not actually invade the body as a rule; they are found on the skin, or mucous membranes which are a direct communication with the outside world. Pathogenic bacteria present a somewhat more complex cycle than this, because they must not only reach their host; they must also locate an atrium which they must actually penetrate. This distinction, then between parasitism and pathogenism depends largely upon the fact that pathogenism involves the actual invasion of the host, directly or indirectly, with the causation of reciprocal activities between host and invader. Parasitism does not imply invasion; the parasitic bacteria normally multiply on their host without causing appreciable harm. The factor penetrability, therefore, is an important one in discussing pathogenism. The mechanism of penetrability varies greatly in different bacteria, and certain types may be recognized. Penetrability resolves itself into two distinct factors,—the permeability of the host, and the penetrancy of the microbe.

The permeability of the host, which is expressed ordinarily as ''resistance,'' is sufficient to overcome ordinarily the penetrancy of the organism. This is clearly indicated in the morbidity statistics of diseases in which the causative agents are widely disseminated. In certain diseases of childhood, notably measles, the ratio permeability-penetrancy is somewhat in favor of the virus of measles in non-immune communities. If the statistics of tuberculosis are correct, here again the host is relatively frequently invaded, for it is stated that about 90% of adults coming to autopsy in Germany showed healed tubercles. The discussion of the results of penetration of the host by specific organisms does not properly belong here.

To recapitulate, parasitic bacteria must fulfil three separate and distinct requirements in order to perpetuate the species, provided their life cycle is such that habitually but a limited excursion outside the host is possible for them. They must reach the host, multiply at least temporarily therein and escape to other hosts, other-

wise the cycle is broken and that particular strain dies out. Those forms which live habitually as parasites upon the surface of the body, the upper respiratory tract, the gastro-intestinal tract or other mucus membranes opening freely to the exterior are able to meet these requirements successfully and readily. These organisms are usually harmless to their host, although under special conditions they may actually invade the body and become temporarily pathogenic. Such temporary invasion leads to diseases of endogenous origin; they are usually sporadic in character and do not ordinarily reach epidemic proportions. The abrupt, often fatal termination of such invasion, associated with a temporary exaltation of the virulence of the organism is usually not of lasting benefit to the strain, since the descendants of these transiently virulent organisms cannot readily escape to other hosts in sufficient numbers to insure the perpetuation of the species with the maintenance of the abnormal degree of virulence. The sudden acquisition of virulence (which includes both the power of penetration on the one hand, and the ability to maintain an independent existence in the presence of opposition on the part of the host on the other) is dependent upon conditions which appear to arise *de novo* in one host, but which are not repeated in succeeding hosts with that regularity necessary to establish a continuously operative portal of entry for successive generations of these bacteria. The colon bacillus, for example, may attain a very considerable degree of virulence, invade the host from his intestinal tract and even cause death. Under certain conditions even localized epidemics may result, but the strain soon dies out, or loses its virulence and returns to its former parasitic existence.

It is evident that the production of disease by these parasitic bacteria depends largely upon their ability to actually invade the host, that is to say, upon the location and forcing of a weak spot in a barrier which ordinarily is sufficient to perfect the body from the harmful activities. This ability to locate and invade the body through such a *locus minoris resistentiae* is the last property the organism acquires, and inversely it is usually the first property lost, although such organisms can frequently be raised to decided degrees of virulence which they possessed originally only potentially by artificially producing conditions which facilitate their entrance to the body. This ability to invade,—to force an entrance to the body,—is the first requisite of pathogenism, and it is in a sense the measure of virulence in many organisms. A few illustrations will indicate how this is accomplished by certain habitual pathogens. Plague (at least the septicemic and bubonic types), syphilis and gonorrhea are illustrations of diseases in which there is a highly specialized mechanism which provides the necessary portal of entry and of exit of bacteria from one host to another, the former through mechanical transfer by infected fleas, the latter ordinarily through sexual intercourse.

The tubercle bacillus, on the other hand, is illustrative of a type of pathogen in which there is no specialized mechanism for transfer from host to host aside from a very generalized infection of the environment. This transfer may be immediate, by "droplet infection" or indefinitely extended when the organisms remain lodged in dust, etc.

The typical disease, tuberculosis, progresses slowly; innumerable myriads of tubercle bacilli escape from the host and many of them find their way eventually to new hosts. Acute miliary tuberculosis, on the contrary, represents an unpurposeful or rather a disadvantageous excursion of the tubercle bacillus in the body, because these bacilli are unable to escape to the exterior in sufficient number to secure a foothold in other hosts. Toxin formation is the entering wedge for the diphtheria bacillus, and Theobald Smith called attention long ago to the fact that the diphtheria bacillus has become pathogenic for man only whereas its toxin, the chief pathologic product, is still capable of producing harmful effects in a variety of animals. The occurrence of strains of the diphtheria bacillus, which are perfectly typical except that they have lost the power of producing toxin, is a fair example of this tendency which many bacteria exhibit of acting more and more on the defensive, gradually disembarrassing themselves of their offensive weapons.

Between these two groups, the parasites on the one hand, which only occasionally invade, and the habitual pathogens on the other, which cause many of the diseases most dreaded by man, there is a large group with ill-defined limits. This group is in a sense an unstable one, receiving additions from time to time of parasitic bacteria for limited periods as these forms temporarily acquire invasive powers and also representatives from the more habitual parasites as they lose their invasive or defensive powers. The pneumococcus is such an organism. So far as it is possible to measure it, the penumococcus is capable of producing disease in man provided it can locate and successfully force the barrier which ordinarily stands between it and the body. It is estimated that from twenty to thirty-five per cent. of healthy adults in large cities harbor virulent pneumococci, yet not nearly twenty per cent. of these have pneumonia. There is little or no evidence which proves that one case of pneumonia habitually develops from another, as is the case in typhoid fever, for example. If the pneumococcus is regarded as a parasite which has either lost or never habitually developed the necessary factor of penetrability for man, but that on the contrary its power of entering the body is due to "lowered resistance" on the part of the host (due to the physiological action of cold, exposure, alcoholism, etc.), a clearer idea of the reciprocal relations between pneumococcus and man will be

ealized. The excursion of the pneumococcus nto the body, producing disease there, as in obar pneumonia, is apparently not necessary or the perpetuation of the species pneumococus, if indeed that particular strain which has ucceeded in forcing the barrier is not less likely o reach other hosts because of its temporarily ltered characteristics. The descendants of this train which has become invasive may be actually handicapped by this very excursion into he host.

Examples could be multiplied, but enough has een said to indicate the lines along which bacteria should be expected to develop if this theory can be substantiated by actual demonstrations.

It now remains to reconsider the three cases nentioned above. Whether these young children were carriers in the generally accepted sense of he term, whether the bacilli they harbored were hose which had temporarily lost their penetrating (offensive) powers, or whether they had become more or less permanently changed in this espect in their evolution toward such a relation vith respect to their host that their descendants vould be successfully parasitic, gradually deeloping those factors which would permit them o maintain themselves in the intestinal tract, nd thus strengthening their defensive powers, vith the gradual loss of their offensive weapons n virtue of which they invade the body, cannot e definitely stated. Cases involving this problem vill undoubtedly come into prominence from ime to time; the solution of the problem must wait the development of methods which shall neasure accurately and decisively the relationhip between "resistance" on the part of the ost to infection, and the ability of bacteria to reak down this "resistance."

OBSERVATIONS ON SUMMER DIARRHEAS IN CHILDREN. 1912.*

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THE summer of 1912 was noteworthy from the acteriological point of view for the large numer of cases of severe diarrheas in young chilen, apparently of gas bacillus origin. These ses have furnished an unusual opportunity r a study of the practical application of etary treatment which a theoretical knowledge the chemical characteristics of this organism ould indicate.

The factors which are necessary for an abrmal multiplication of gas bacilli in the intstinal tract are two: an excess of utilizable carhydrate and a deficiency of organisms in the intestinal tract capable of forming lactic acid from this carbohydrate in sufficient volume and concentration to inhibit the growth of the gas bacillus. The gas bacillus is rather sensitive to lactic acid. It forms butyric acid from sugars which act as an irritant, frequently causing severe diarrhea. This diarrhea may be accompanied by blood, pus, and mucus in the stools, which then resemble those of typical cases of bacillary dysentery. Prostration is a prominent feature of these diarrheas, but unlike bacillary dysentery the symptoms of profound toxemia are lacking in uncomplicated cases. The prostration may be so great that the absence of toxemia may be quite overlooked. This absence of toxemia in uncomplicated cases of gas bacillus overgrowth is due to the fact that the gas bacilli are developing at the expense of carbohydrate. In general, the products which result from the utilization of carbohydrate by bacteria are nonnitrogen-containing and therefore not capable of producing true toxemia. The absence of toxemia furthermore explains perfectly the rapid recovery which even many of the desperate cases exhibit when the appropriate treatment is instituted. Since an excess of utilizable carbohydrate and a deficiency of the normal acidoduric flora are the principal factors which permit an overgrowth of gas bacilli, the theoretical treatment would be a restriction of the carbohydrate and the introduction of appropriate acid-producing bacteria into the intestinal tract. Theoretically the simple expedient of restricting carbohydrate should bring relief in all except the desperate cases. Time is an important factor in the desperate cases; in them it is advisable to introduce actively growing lactic acid bacilli. These organisms antagonize the gas bacilli and make the intestinal medium unsuited for their development in virtue of the lactic acid which these lactic acid bacilli produce. Ordinarily the lactic acid which exists preformed in fat-free buttermilk (the vehicle in which lactic acid bacilli are ordinarily introduced) is immediately available, being carried rapidly to the site of gas bacillus activity by the increased peristalsis which is a feature of these diarrheas. When lactic acid bacilli are not made use of the restriction of the carbohydrate of the diet may be compensated for by an increase in protein. The use of lactic acid *per se* or in pasteurized buttermilk in which the lactic acid bacilli have been killed by heating would almost certainly be less effective. This form of dietary treatment would probably be found effective in other types of diarrhea of similar origin, in which the causative organisms are at present unknown. The premises upon which this treatment is based appear to be sound. it is observed that feeding carbohydrate, particularly sugar, to this type of diarrheal cases results in a prompt rise of temperature, often several degrees, a prompt aggravation of the symptoms and an immediate increase in the number of stools.

Gas bacilli were found in 53 of a total of 135

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cases of diarrhea during the summer of 1912. This is a much higher incidence than that observed in previous years, although the technic employed for the recognition of this organism was that which has been used throughout these investigations. In 1910, for example, gas bacilli were found in but 22 of a total of 293 cases examined. In 1911, 33 out of a total of 283 were positive. These statistics emphasize the epidemic tendency which the gas bacillus exhibited in 1912. Even early in the season this unusual frequency of gas bacillus cases attracted attention and a study was made of diarrheas of moderate severity due apparently to fat indigestion. It was surmised that some relationship might exist between fat indigestion and the presence of the gas bacillus in the stools, since it is known that an intolerance of carbohydrate not infrequently follows this condition. A few of these cases actually developed typical severe diarrheas associated with the presence of large numbers of gas bacilli in the stools.

In all, 103 cases of these fat diarrheas were studied with this object in view. Of these, six showed definitely large numbers of gas bacilli. Gas bacilli were found in small numbers in six other cases, apparently, however, without significance. Dysentery bacilli were found in five patients; four of these were of the Flexner type, one of the Shiga type. As in previous years, the associated flora of these diarrheal cases has also been studied. An organism apparently identical with the Morgan bacillus has been found in thirteen of these. It will be remembered that this bacillus was met with in 14 cases the previous summer. Its association with other organisms, ordinarily regarded as pathogenic, makes it difficult to ascribe to it any specific etiological significance. A yeast odor was noticed in a considerable number of cases. The stools when passed were more or less frothy and contained considerable amounts of mucus. A peculiar bacillus, which is tentatively grouped with the pneumobacillus was found repeatedly in 31 of these, usually in considerable numbers. The association of these organisms with the gas bacillus in a limited number of these cases and the improvement which was observed in them on a diet calculated to restrict the activity of the gas bacillus is in harmony with what might be expected *a priori* from the consideration of the chemical characteristics of this organism. Like the gas bacillus it is relatively intolerant to acid, although it acts energetically upon carbohydrate.

Paratyphoid bacilli of the Beta type were found in four cases, bacillus pyocyaneus in two, streptococci in six. Yeasts were isolated from the stools of seven patients. The stools of these patients were strongly acid in reaction following the use of buttermilk. It is known that certain races of yeasts will develop in a strong acid medium, provided this medium contains a considerable excess of sugar. It was a noteworthy fact that the stools from which these yeasts were obtained did not possess a yeasty odor.

OBSERVATIONS ON THE ETIOLOGY O SEVERE SUMMER DIARRHEAS O BACTERIAL CAUSATION.*

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FOR three consecutive years the Boston Floa ing Hospital has offered unusual facilities for th study of acute intestinal disorders of childhoo peculiar to the summer months. Literally, hur dreds of cases are under observation and trea ment in the day and permanent wards each yea so that the opportunities for a complete surve of this complex subject is a very unusual on The active and intimate coöperation between th administrative, medical and laboratory branche which is a feature of this institution, views thi wealth of material from many aspects, a point o some importance, for it is an assured fact tha the final word in the diagnosis, treatment an cure of these summer diarrheas will find its ult mate expression in the combined product o many workshops.

Dr. William E. Fay[1] of the visiting staff ha summarized briefly the nature of the investiga tions which had been undertaken during the firs ten years of the hospital's activity, indicatin therein the changes which have taken place i the treatment of summer diarrheas during tha interval. The purpose of the present communi cation is to indicate equally briefly those event of the last three years which have been note worthy from the laboratory point of view, par ticularly as they relate to the etiology and mech anism of infection in certain of these types o disease.

It should be remembered that the majorit of cases treated on the Floating Hospital ar under three years of age, that they come fro the poorer classes, among whom hygienic condi tions are very unsatisfactory, and that the sever ity of the cases far exceeds those of similar et iology seen in private practice. This severity o the cases deserves special mention, for the result of treatment are too frequently judged by other in the light of their personal experience, whic has rarely been confronted with a similar inci dence of truly desperate illness. It may b claimed with fairness that the removal of babie from their very unfavorable home environment to the relatively favorable conditions on ship board in itself would be a great factor in hasten ing their recovery, and this is certainly the cas in all except the most severe illness. This fea ture, however, cannot wholly compensate for th lack of stamina which many of the patients ex hibit. The patient seen in private practice ha much the advantage over the average Floating Hospital patient at the start.

The intestinal flora of children under thre years of age is in a transitional state, the bac

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erial flora characteristic of infancy is gradually being supplanted by organisms associated with dolescent life. This period of bacterial transition is largely the result of a somewhat radical hange in diet. The monotonous milk diet breast milk) of infancy is being replaced more r less gradually by a mixed diet, in which both he composition and relative proportions of the rganic ingredients are changed. Of these inredients the carbohydrates and proteins are the ost important in determining the alternation of acterial types. The essentially carbohydrate iet of the nursling period, containing as it does bout four times as much lactose as protein, akes conditions favorable for an obligately fermentative flora, of which *B. bifidus* is the most oteworthy example. This nursling flora is to a ertain extent a protective one to the host, producing enough lactic acid and smaller amounts f other fatty acids to restrain the development f adventitious types of bacteria in the intesinal tract, many of which are potentially able o provoke alimentary diarrheas of marked severity. The absolute degree of protection conerred upon the immature alimentary tract of he nursling by these obligately fermentative acteria is not a measurable quantity, but there s little doubt hat it is of decided value in preenting undesirable bacterial proliferation at a ime when the immature intestinal canal is somehat permeable to proteolytic organisms.

As the child's diet is increased in complexity he carbohydrate-protein ratio is changed and here is a corresponding responsive readjustment f bacterial types in the intestinal tract; the obliately fermentative types of bacteria are no onger provided with a continuous excess of ugar, for a relative reduction of sugar is a feaure of the adolescent diet, consequently they are eplaced by organisms such as *B. coli,* which can ore readily accommodate their metabolism to hese dietary alternations. This restriction of he fermentative types of bacteria at a time when he sterile, well balanced food of infancy is beng replaced by a diet containing an excess of lien protein in relatively large amounts brings bout a period of relative physiological and bacriological instability in the alimentary tract. n the one hand, the advantage attributable to ie protective activity of an acidogenic flora hich tends to restrict bacterial proteolysis putrefaction) is lost; on the other hand, the mewhat immature digestive apparatus is cononted rather abruptly with a non-sterile, alien iet. It is to be expected, therefore, that this ansitional period in the life history of the child ould be one of potential danger to its well-beg. Ordinarily the bacteriological aspect of this adjustment is inconspicuous clinically and eds but little consideration; less commonly exemely grave complications arise in which bacria play a prominent part. The recognition of is rather definite bacterial response to a change regimen is fundamentally important in underanding the intestinal bacteriology of health and disease; the recognition of the factors involved in it will lead to more definite understanding of the mechanism of bacterial infections of the intestinal tract and undoubtedly will throw definite light upon their treatment. Some progress has been made along these lines. Perhaps the most striking observation of clinical interest is that relating to the etiology of summer diarrheas. The question is by no means fully investigated; indeed the limits of the problem are at present undefinable; even the ideas which appeared to be fairly well established a few years ago have been seriously deranged, particularly with respect to the causation of the severe acute diarrheas associated with prostration and fever, with pus, blood and mucus in the stools. A few years ago this syndrome would have been regarded as strongly suggestive of bacillary dysentery. Now it is definitely known that such a symptom complex does not suffice to establish even a tentative etiological diagnosis, for the results of the last three years' work show definitely that in young children there is a decided similarity in clinical response to severe infections of intestinal origin caused by a variety of intestinal bacteria.

Brief mention of the prevailing types of bacteria met with in these severe, acute summer diarrheas during the last three years will illustrate this unexpected observation. The clinical picture presented by such cases of severe diarrhea is almost invariably the following: fever, marked prostration and frequent stools containing much mucus and usually blood and pus. The prostrations may be so intense as to mark the toxic symptoms which may or may not be present.

It is unfortunate that the rather limited laboratory force and facilities have necessitated an undesirable restriction in the examination of the large number of patients available for study, but this situation is met with in almost all large hospitals. Only the more severe cases have been studied in detail, according to methods described previously.[2] In addition to these more complete examinations, a larger series of milder cases have been investigated for one or more important organisms which can be identified by less complex procedures. The general result is a fairly satisfactory survey of the very severe cases, and a less complete, but nevertheless important idea of the incident of certain organisms of etiological importance in milder types of disease of bacterial causation.

Generally speaking, the summer of 1910 in Boston was one in which dysentery bacilli were prominent; fully 75% (39 out of 52 cases) were due to these organisms. Gas bacilli were found in six and streptococci in significant numbers in those remaining. Streptococci were also present in about 60% of the dysentery cases, probably as secondary or terminal invaders. The summer of 1911 was noteworthy as a "streptococcus" year; 78 out of a total of 146 cases studied harbored large numbers of these organisms. A few

of these patients died of septicemia, or perforation followed by peritonitis, others showed sequelae of streptococcus origin.[3] Dysentery bacilli were found in 18 cases (three of these were classed as bacilli carriers) although they were repeatedly sought for in several stools from each patient. Gas bacilli were recovered repeatedly from 33. 1912 was a "gas bacillus" year; these organisms appeared in unusually large numbers in 53 out of 135 cases examined. Dysentery bacilli were recovered from five cases, and streptococci from but six. That is to say, the very severe, acute summer diarrheas of bacterial causation present a very constant syndrome consisting of prostration and fever associated with mucus, pus, and, frequently, blood in the movements. It is frequently very difficult to determine the organism causing the disease. Bacteriologically considered these cases are of varied etiology, caused by organisms of very unlike characteristics. One year the dysentery bacillus was the dominant type met with, a second year streptococci were conspicuous, while a third summer was noteworthy because of the great number of cases in which the gas bacillus was the prominent organism encountered. It should be stated that each of the above types were found each year; the striking feature is the shifting of the dominant organism from year to year.

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TWO TYPES OF INFECTIOUS DIARRHEA IN INFANTS.

BY RICHARD M. SMITH, M.D., BOSTON.

THE classification of the acute gastro-intestinal diseases of infants has been the subject of much discussion and controversy for many years. Abt[1] has made a careful resumé of this literature and it is unnecessary for me to repeat it at this time. I should like, however, to point out certain features of our present conceptions of the acute disturbances of the intestinal tract. The chronic affections will not be considered in this discussion.

The literature of a few years ago and to a certain extent of today contains a great deal concerning gastric symptoms and intestinal symptoms in the acute gastro-intestinal disturbances as though the two groups of symptoms indicated separate and distinct conditions. The tendency of the present time is away from this conception and toward the belief that we are dealing with conditions which in different individuals show gastric or intestinal symptoms, as the case may be. The vomiting and the diarrhea occur together, one or the other in excess, according to various circumstances, but both arising from the same causes.

Many acute disturbances of the gastro-intestinal tract arise from errors in feeding or from the temporary inability of the individual infant to digest a correct food. This temporary inability may be due to extraneous causes, such as variations in the temperature, humidity and environment or to acute disease. The errors in feeding are due to the improper administration of one of the food elements, fat, carbohydrate or proteid. The signs and symptoms of the disturbances due to these factors are well known and need not be recited at this time. It is probable also that salts bear a similar etiological connection with certain of the acute gastro-intestinal disturbances. The symptoms of this group are not well defined at the present time, though a considerable amount of work has been done in this connection.

We are coming to understand better the relationship between bacteria and these acute gastro-intestinal disturbances. It is not universally acknowledged that bacteria have any important connection with these conditions, but it seems to me that the arguments against their influence are not well sustained. Bacterial activity must still be considered as bearing upon these diseases. Bacteria occupy a secondary position in some instances and a primary position in others. The distinction between these two groups of cases should be carefully drawn for the treatment is quite dissimilar. We recognize that many bacteria are normal inhabitants of the intestinal tract of infants and that the number and character of these organisms may vary greatly in health and disease under different conditions of diet. These normal bacteria probably have little to do with the causation of acute gastro-intestinal disease or at any rate we do not at present understand what the relationship is between these bacteria and disease, provided one exists.

In a large number of cases of acute gastro-intestinal disease bacteria are the primary cause of the disturbance. Such cases may be grouped together under the term infectious diarrhea. This is in some ways an unfortunate name, but it emphasizes one important feature which all these cases have in common, namely, infection. We are dealing just as truly with infectious diseases as in typhoid or pneumonia. It would perhaps be worth while to enumerate the symptoms in this group of diseases. The onset is sudden. The incubation period is variable but probably short, often a matter even of hours. So far as we know there are no prodromal symptoms. There is a rise in temperature often to 104° or 105°, and this fever is continuous for several days. Prostration is present and often marked even to complete collapse which may occur within a few hours after the beginning of the attack. Nervous symptoms are common, such as twitching, restlessness or convulsions. Vomiting and diar-

rhea occur early. Vomiting is usually present at the beginning in most cases but is not as important a feature as the diarrhea. The diarrhea may be so severe that there are 20-30 stools in twenty-four hours. The stools vary in character, but usually contain pus, blood and mucus. The prostration and toxic symptoms are not directly proportionate to the severity of the diarrhea, except that the marked loss of liquids leads to a condition of depletion, with depressed fontanelle, hollow eyes, dry skin, sunken abdomen and modified breathing. This is a familiar picture. We used to be content with the classification as infectious diarrhea, but now we recognize that in this general group there are definite subdivisions according to the particular organisms concerned and that from the point of view of treatment it is quite as important to separate the subdivisions as to classify into the larger group. Clinically it is very difficult to differentiate these subdivisions because of the similarity in the picture produced by the different bacteria. At the present time a bacteriological examination of the stools is necessary to make this differentiation absolute.

Certain varieties of intestinal bacteria causing these diseases have been well known for some time. The dysentery bacillus, both the Shiga and Flexner type, has received the greatest amount of attention. Recently also it has been recognized that the gas bacillus is a causative factor in a considerable number of cases. Whether the streptococcus is entitled to a group division is open to question. It seems not unlikely that its relation may be a complicating one, perhaps like the relationship which it bears to scarlet fever. There are still many cases of infectious diarrhea in which neither dysentery bacilli nor gas bacilli can be isolated from the stools and in which there are no very large number of streptococci. The identification of other particular organisms is a problem toward the solution of which a large amount of work has been done at the Floating Hospital. Much further investigation is needed in this direction. There must be a combined clinical and bacteriological study to establish, if possible, the relationship existing between the clinical picture and the bacteriological finding in the stools.

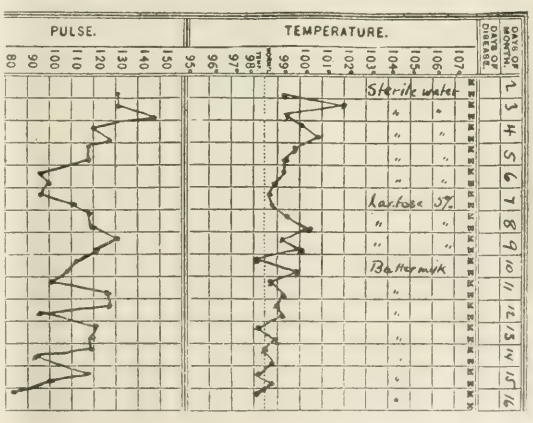
From the study of a large number of cases during the last few years we have been struck by certain facts which may point in the direction of future determinations. To understand these we must bear in mind considerations which we already know in regard to the organisms previously identified. Kendall[2] has pointed out the fact that dysentery bacilli when grown in media containing an excess of carbohydrates use the carbohydrates first and only enough proteid to furnish the nitrogen requirements of their living body structure. The same thing occurs when these bacteria grow in the intestinal tract. Since the toxic products are largely the result of the proteid breakdown we should expect a minimum of toxic products in the presence of an excess of utilizable carbohydrates. This has been demonstrated to be the case in the laboratory and we believe also with individual patients. The detailed report of these studies has already been published.[3]

The gas bacillus flourishes on a carbohydrate diet and if given carbohydrate food will continue to multiply almost indefinitely since it forms a very small amount of acid and therefore its reproduction is not self-limited. Patients ill with gas bacillus infection would grow worse therefore if fed on a high carbohydrate diet and improve on a diet low in carbohydrates. This has been shown to be the case. Lactic acid milk is a food of low carbohydrate and high protein composition. It contains lactic acid, which is detrimental to the development of the gas bacillus. Its beneficial effect on patients ill with gas bacillus infection has been proved conclusively. Observations on this condition have also been published.[4]

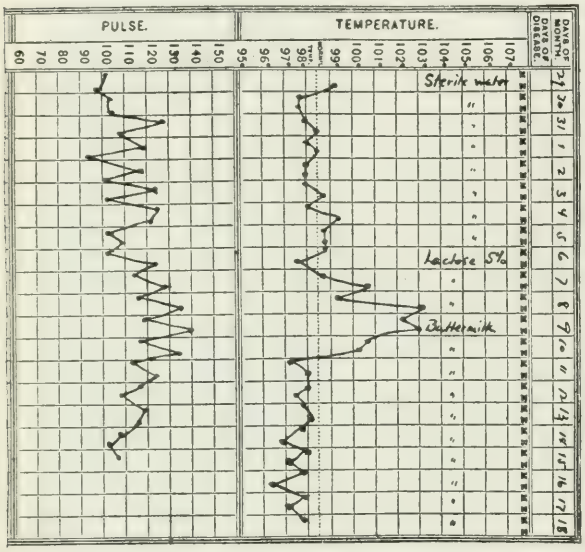
It will be seen that the dysentery bacillus cases and the gas bacillus cases are sharply contrasted in this particular—that the patients with dysentery bacillus infection do well on carbohydrate feeding and badly on proteid feeding, while the gas bacillus cases do well on proteid feeding and badly on carbohydrate feeding.

During the last summer a number of cases were observed on the boat which did not at first examination show the presence of the gas bacillus in the stools, and yet their response to treatment was identical with cases infected with gas bacillus. In the majority of these cases gas bacilli were subsequently isolated from the stools, though in many instances a considerable number of days elapsed before the organisms were found. A few of the cases never showed the presence of gas bacilli in the stools. Illustrative cases will make this point clear:—

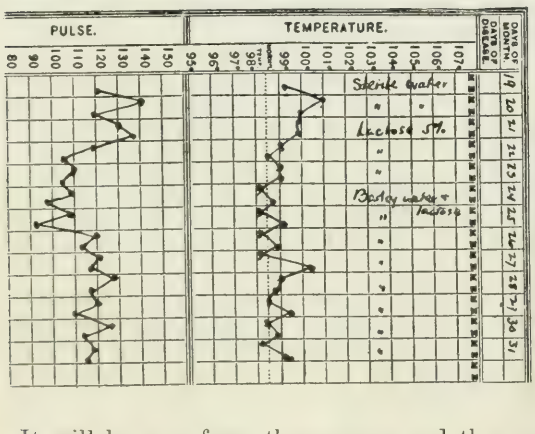
CASE 1087. History of acute diarrhea. Stools containing mucus, pus and blood. Given oil and sterile water and then lactose. Rise in temperature and pulse. Evidently not improved. Given buttermilk and improvement began. Shows unfavorable response to carbohydrate feeding and benefit from buttermilk. Gas bacilli were found in the stools.



CASE 1073. Fifteen months old. History of diarrhea. Stools containing mucus, pus and blood. Given castor oil, sterile water and then lactose. Rise in temperature, general condition not so good. Stools not markedly changed. Given buttermilk. Immediate fall in temperature and recovery. Shows unfavorable response to carbohydrate feeding and favorable response to buttermilk. Gas bacilli were found in the stools.



CASE 1168. Ten months old. Gave history of acute diarrhea. Stools contained mucus, pus, and blood. Given castor oil, sterile water and carbohydrate feeding. Diarrhea cured. Shows favorable response to this form of treatment. Organisms not determined, *i.e.* no dysentery or gas bacilli were found. Surely not gas bacillus infection.



It will be seen from these cases, and they are typical of many others which occurred on the boat during the season, that in patients where the bacterial findings in the stools are uncertain or undetermined if the response to feeding with carbohydrate diet is unfavorable, as evidenced by increase in temperature, frequency of stools or increased toxicity, it is a fair assumption that the bacteria causing the disturbance are the gas bacilli or in any event, organisms closely related to the gas bacillus. It would seem that quite possibly a further study of similar cases will reveal the presence of other organisms which bear a close relationship to the gas bacillus. From a clinical point of view it is evident that at the present time we shall do well to consider cases of acute infectious diarrhea as belonging to one or the other of two main groups of infection and to treat them in accordance with the principles known to be beneficial for the organisms standing as a type of the two groups, the dysentery bacillus and the gas bacillus.

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PREPARATION OF COMMON INFANT FOODS.

BY ROBERT B. HUNT.

THE modification of milk and the preparation of the various infant foods as carried on in the home, is frequently attended with difficulties of one kind or another, due principally to inexperience along this line of technic on the part of the individual who has undertaken the task of preparing the baby's diet.

The object of this paper is to place before the home, simple, time and labor saving methods for preparing several of the common infant foods as well as a few words on the relative merits of the ingredients to be used.

Barley Water. Three-quarters of an ounce of barley flour is added to one quart of cold water and boiled for twenty minutes. Then add water to make up the original amount, and strain the contents through several thicknesses of gauze. The flour when placed in water becomes lumpy and no amount of boiling will break up these masses. This difficulty may be overcome in two ways: first, a small amount of water may be added to the flour and thoroughly mixed, thus making a paste which will be nearly free from lumps. The second but better method is as follows: Partially submerge a fine wire strainer in the cold water to be used, pour the flour on the water in the strainer and stir gently with a spoon until the flour is in solution. The flour is quickly dissolved and the barley water will be absolutely free from lumps.

Whey. Heat fat free milk (skimmed) to about 100° F., or if you have no thermometer, to a point when a drop on the back of the hand feels neither hot nor cold. Add enough rennet or essence of pepsin to form a junket-like mass. Stir well to break the mass as finely as possible and allow to stand for ten minutes. Pour off the top and strain through several thicknesses of gauze. If the whey is to be added to milk or

cream, it must be heated to 157° F. and immediately cooled to prevent the further action of the rennet. No "short cuts" are advisable in this method, but a word might be said to relieve the mental stress which arises when the color of the whey varies each time it is made. There are two reasons which might account for this change.

1. Whey made from milk which contains the minimum amount of fat and coagulated by practically pure rennet will be olive green in color. The greater the amount of fat present, the more yellow will be the whey. The percentage of fat in commercial skimmed milk or in whole milk skimmed at home is a variable quantity, hence the difference in the color of the whey. During this process of making whey, the fats present in the milk adhere and settle with the curd, but when pressure is brought to bear on the mass, the small globules of fat are forced out and remain suspended in the liquid.

2. The action of the proprietary rennets differ according to the percentages of rennin, pepsin, and alcohol, which they contain. Nearly all contain from eighteen to twenty per cent. alcohol in the form of white wine. The curds formed by these rennets are soft, non-adherent, and many of the finer particles of casein remain in suspension and cannot be removed by repeated straining. Enough casein remains in the whey to give it a dirty yellow color. Allowing the whey to stand for two hours and then decanting will tend to reduce the amount of casein. The powdered extract of P. D. and Company, or the liquid rennet from Walker-Gordon and Company are excellent for making whey.

Buttermilk. A pure culture of lactic acid bacilli is added to skimmed milk in an earthern ware dish, and allowed to stand at about 70° F. for twenty-four hours, or until the casein is coagulated. Stir vigorously in a churn, or with a spoon or egg beater until the curd is very small, and then push the contents through a fine wire strainer with a spoon. If the buttermilk is too thick add a small amount of water. When the buttermilk is once made, a small portion (about four ounces) may be used as the inoculating agent for the next supply to be made. In this way the original culture may be made to last from six to eight weeks. The quality and action of the product made will vary but little. Add the four ounces of buttermilk to the fresh milk, incubate and follow the above outline. Sometimes the milk will not coagulate although it may smell sour. Stirring gently with a spoon will often produce coagulation in a few minutes. The fat present will rise to the top and when coagulated appears as a brownish yellow cum which may be removed before the curd is broken up. At the present time the market is flooded with tablets for the preparation of buttermilk, but one must hesitate before using them to prepare milk for a baby. During the process of manufacture of these tablets, contamination is the rule rather than the exception, and instead of having a pure culture of lactic acid bacilli, we find a heterogeneous mass of foreign organisms. Pure cultures may be obtained at any biological laboratory and are by all means the safest and surest, especially when the child is concerned.

Eiweissmilch. One quart of whole milk is heated to 190° F. for three minutes and then cooled to body temperature. Add essence of pepsin enough to coagulate all of the casein. Break up the curd with a fork or spoon and allow to settle. Heating the milk to a temperature of 190° F. changes the character of the calcium salts so that the curd formed by the addition of rennet will be soft, flocculent and non-adherent. The essence of pepsin is used instead of stronger rennets, so that the curd will remain soft. The precipitated casein is allowed to settle and the liquid part is decanted. Straining the curd through linen or a wire strainer is impossible because the curd is of such consistency that the meshes of the strainer are quickly obliterated so that no drainage takes place. After all of the liquid has been removed and only the curd remains this precipitate may then be put into a wire strainer and the remaining portion of the whey allowed to drain off. This dry curd is then pushed through a fine wire strainer by means of a spoon, into one pint of buttermilk and one pint of water. After the curd is strained into an empty dish, the particles quickly adhere and you have gained practically nothing by straining. This precipitate must be strained into liquid in order to make use of the colloidal action so that these particles will remain separated. The buttermilk, water and curd is then strained again, put into glass jars or bottles and kept on the ice.

Precipitated Casein. The process of making precipitated casein is exactly the same as that of eiweissmilch, with the exceptions that fat-free milk is used instead of whole milk and no buttermilk is added.

Milk Sugar. A word might be said on lactose. Milk sugar does not dissolve readily in cold water, therefore, if the sugar be added to milk just before it is to be taken, the child does not get it at all if the bottle is not emptied or gets it all at once in an undissolved condition with the last half ounce, or so, of the feeding. To do away with this difficulty it is better to boil the sugar in a small amount of water, thus insuring a dissolved and sterile mixture. Milk sugar becomes contaminated in the manufacture, and a bacteriological examination frequently shows the presence of many bacteria. Aerogenes Capsulatus, the organism which causes fermental diarrhea, has often been found in the sugar, and several cases of intestinal infection have been traced to this source.

The above methods of preparing the several foods and the facts in regard to the important steps may be of benefit to those who are interested in the feeding of infants.

CONTRIBUTIONS FROM THE LONDON CONFERENCE ON INFANT MORTALITY.

THE WETNURSE PROBLEM.*

BY FRITZ B. TALBOT, M.D., BOSTON.

THE wetnurse problem, at first sight, seems simple and separate from other social problems which come to our attention but on closer study it is found to be connected with many of the great problems of the day, such as that of infant mortality, the social question, and the problem of illegitimate children.

That there is a wetnurse problem is shown by the fact that out of eighty physicians who answered a circular letter sent to them by the writer, only eight did not use wetnurses at all. Most of the seventy-two remaining physicians used six or more a year and one has used on an average of twenty-five a year in his private practice for the past two and a half years. Wetnurses are used extensively in the United States both in hospital work and private practice. Breast milk is often necessary to save a baby's life and in such instances must be obtained quickly. The phase of the problem which interests the practicing physician is "how can one be obtained." The writer has traveled many miles and spent many hours in the past hunting for wetnurses. This time was wasted in many instances and it seemed to him that if some central agency or directory could be established it would serve the double purpose of bringing the demand and supply together. This was by no means an original idea. It was found, on enquiry, that an attempt had been made in the year 1900 to have wetnurses register at the Directory for trained nurses in Boston, but that none had ever registered. This attempt was unsuccessful as have been other similar attempts that have come to the writer's notice. The explanation is simple because the majority of women who wish to become wetnurses are destitute and cannot afford to wait for a position because they need money immediately for their bread and butter. They have, therefore, to wean the baby, put it out to board, and go to work.

There is a wetnurse agency in the city of New York run by private individuals, where wetnurses can be obtained by paying a fee of ten to twenty-five dollars. These agents also take an unknown per cent. of the wetnurse's first month's wages. The babies are placed out to board and the writer has been told, on good authority, that a large percentage of them die. Although wetnurses obtained in this manner may be satisfactory to the families, and a great deal of trouble may be saved, no right-minded person who knows the facts should allow the baby to be separated from the mother for selfish reasons or her own convenience.

The following is a description of the essentials for a Directory and Home for wetnurses:—First, the directory should be run in connection with some babies' hospital where the problems of breast feeding are understood, and secondly, there should be no charge for the board of the wetnurses because they are nearly all destitute. The average length of time that they have to wait for a position is fourteen days, and they could not afford to wait so long if they were not given free board and lodging for themselves and babies. The natural result when such an opportunity is afforded, is that more women are able and willing to wetnurse.

February 1, 1910 a Directory for Wetnurses was opened in Boston under the supervision of the Massachusetts Babies' Hospital. A moderate sized house was selected, with a kitchen, sitting-room, and five bedrooms, four of which were fitted to accommodate two wetnurses apiece and their babies, while the fifth was for the matron. The next problem was to find wetnurses so that when the demand came there would be a supply. This was accomplished in two ways:—First, the majority of wetnurses were obtained through the various maternity hospitals in the city of Boston. One of the serious problems of these hospitals is to look after the destitute mothers and babies in such a manner that they will not be dependent on charity after ceasing to be obstetrical cases. This is impossible, in many instances. The mothers and babies either have to shift for themselves and are probably separated, or else they remain in the hospital and exclude other worthy cases. As there are very few occupations open to a mother with a newborn baby, wetnursing is preeminently fitted to these cases. The maternity hospitals, therefore, find the Directory a valuable adjunct to their work, because it supplements the social work that they are trying to do. Most of the wetnurses are glad of the opportunity for honest work and very few have to be urged.

Second:—Eight thousand postal cards were sent to physicians in New England stating that wetnurses might be obtained from the Directory and requesting them to send any women who were suitable to become wetnurses to the Directory. This was intended to create a demand as well as a supply. A fee of ten dollars was paid to the Directory for supplying the wetnurse, and eight dollars a week to the wetnurse in wages. The baby accompanied the mother in every instance.

REQUIREMENTS FOR ADMISSION TO THE DIRECTORY.

Before a wetnurse is formally admitted to the Directory, the following tests and examinations are made. A complete physical examination of the mother and the baby, including the hair, mouth, throat, heart, lungs, breasts, glands, skin and bones is made to exclude contagious diseases, tuberculosis and syphilis. The mother's blood is

* Read before the English-speaking conference on Infant Mortality, London, Eng., Aug. 4, 1913.

taken for a Wassermann reaction, and finally a smear is taken of any vaginal secretion and examined for gonococci (it is probable that the gonococcus complement-fixation test will eventually be performed on all cases.) If all these examinations are satisfactory, the woman is admitted and is ready for a position. During the three years that the Directory has been running, it has passed one hundred and forty-seven wetnurses. Seven others were not accepted, two because of tuberculosis, one gonorrhoea, and four syphilis (one of these women had a perfectly normal physical examination but was found to be specific by the Wassermann test). Five other women passed the physical examination but were unsuitable for wetnurses because of insufficient breast-milk. The wetnurses are only allowed to go to a household in which the family practitioner guarantees that there is no danger to the health of the wetnurse or her baby.

FINANCES.

Originally, a fee of ten dollars was charged by the Directory for supplying wetnurses, the income from this fee was used to pay the running expenses, the balance being raised by private subscription. Although some people could not afford to pay the full fee, many others were willing to pay more, consequently this year, (1913) the fee to the Directory was raised to twenty dollars. It is hoped that this, with an additional source of income in the sale of drawn breast-milk at 25 cents an ounce, will pay nearly all the expenses, and the Directory will eventually become self-supporting. During the past year about 60 quarts of drawn breast-milk were sold to families in which a few ounces were needed to tide over a critical period. There is no doubt that the facility in obtaining this breast-milk in small amounts saved many babies' lives. The average expenses for running the Directory has been about 1300 dollars a year. This includes the board and lodging of the wetnurses, the salary of the matron (but not the salary of the social worker) and other incidental expenses.

Up to date the majority of the wetnurses have been primiparae, their ages varying from between eighteen and thirty years. Among the occupations represented were ladies' maid, mill operatives, and school girls. Eighty-five per cent. of them were single (of the 125 single women, five were subsequently married under the care of the Directory).

The writer anticipated that there would be a large demand for wetnurses during the fall and summer months, and was surprised to find a steady, though less marked demand throughout the rest of the year. Many wetnurses received a position the first day they were admitted to the Directory, but this was not encouraged because the Directory desired to teach them some of the principles of the care of their own babies before they were sent out to a position. They were also taught light housework.

The wetnurses were not allowed to take a position in any instance without their babies, and the Directory has been able to accomplish a great deal, both for the women and their babies by living up to this rule. It was made for two reasons: First, it is well known that the amount of milk secreted in the normal breast depends in a great part on the demand put upon it. Usually when it is necessary to get a wetnurse, the sick baby is so feeble that it is only able to take small amounts of milk. Thus, the demand being reduced the milk tends to dry up. When a wetnurse is sent from the Directory she understands that the sick baby is to be nursed first and that her own child can have what is left. She has frequently been able to completely nurse both babies without any help from the bottle. Secondly, she is usually happier when she has her baby with her, and is thus more easily handled. And lastly, New York has found that when babies are separated from their mothers, a large percentage of them die. While of the babies that have been under the care of the Directory, there has not been a single death up to date. The principal factor which is responsible for these results is that the baby is kept with its mother.

During the period of wetnursing the growth of the mother's character is often remarkable; the nature of her work allows her a great deal of time with her baby, and, as a result, she develops the responsibility of motherhood. She comes to the Directory burdened with the shame of her position and without any hope for the future. She finds that other people have been in a similar position, and, with the help of the Directory, have found a new start in life. In some cases she sees in the love and anxiety of the mother of the sick baby an example, and as a result, her own sense of motherhood begins to develop. Self-respect comes quickly, because she is earning her living honestly. In this connection, too much credit cannot be given to the encouragement, guidance and tact of the social worker, Miss Fenstadt.

After the first position is ended, she always comes back to the Directory either for another position, or for advice for her future. Sometimes she is able to wetnurse in several families, and most of the women have saved from fifty to three hundred dollars with which to start in life. If the mother is separated from the baby before the maternal instinct is developed she is apt to desert it at the earliest opportunity. The baby must then be turned over to an institution and become a public charge.

The social worker takes an important part in the work of the Directory. She tries to learn the woman's true story, becomes her friend, confidante and adviser. She is often able to get a settlement from the child's father. After the period of wetnursing is finished, she finds her a position, with the baby, if possible, and, if not, finds a suitable home for the baby where the mother can see it daily. She keeps in close touch

with the mother and helps her in every way possible. The following cases illustrate some of the problems with which the social worker has to deal:—

CASE 1. Annie came to the Massachusetts Babies' Hospital directly from a hospital where maternity cases are taken, but where there is no social worker to look out for the unmarried mother. At first she told an untrue story, saying she was married and that her husband had deserted her. After short acquaintance with the social worker, she volunteered the truth.

She left her home in Nova Scotia three years ago and since then has been employed at housework in private families, earning $5.00 a week up to three months before her confinement. This money had all been spent on clothes and pleasures. The man had paid her board and confinement expenses but later disappeared.

As Annie had no place to go she was taken to the Directory. At first she objected to wet-nursing, but after a few days was very happy in her surroundings. After the usual physical examinations, she was employed as a wetnurse at the hospital. Investigation proved that Annie had been employed in a number of different homes, but had not stayed over three months at one time in any place, as she usually left because she wanted more freedom than she was allowed, so that no one wanted to employ her again.

A letter was sent to the priest in her home town, who replied that Annie was the oldest of a large family and was needed in her own home. Her parents were poor, but had a comfortable home and were able to provide for their daughter.

The father of the child was located. Marriage was impossible as the man was but a boy of seventeen. He offered to take the responsibility of the baby and pay $3.00 a week for its board, in order to let the girl go home so that her disgrace would not be discovered.

The girl was induced to write and tell her story to her mother. The social worker also wrote to the mother, suggesting that she take the girl home with her baby. After considerable correspondence the mother consented to take her daughter and baby home. The man signed a bond for which his employer is surety, to pay $3.00 a week for the support of the child. Annie's earnings as a wetnurse enabled her to save enough money to pay her travelling expenses and to buy necessary clothing for herself and the baby.

For more than a year the man has paid $3.00 a week, one of which has been sent to the home in Nova Scotia, to provide clothing for the baby; two have been put in the bank to provide for the baby's education. For a year Annie has been living happily in her home. Her mother reports that she is a much better woman and has no desire to return to the old life.

CASE 2. Mary did chamber work in hotels for nearly five years and spent her money as fast as she earned it. She was smart and capable, but drifted along with her associates.

When she found that she was pregnant her first thought was of abortion. She failed to accomplish this and finally applied to a Children's Agency which placed her in a maternity home a few days before her baby was born.

An effort was made to locate the man, after the case was referred to the Massachusetts Babies' Hospital. It was found that he had left his place of work and had not been heard from since.

Mary earned enough money while wet-nursing to make it possible for her to take a course in dressmaking. She was encouraged in this as she had shown a liking for needle work while she was at the Directory. She is now earning her living as a seamstress, going out by the day and at times taking work home. In this case the baby was boarded away from its mother, but Mary paid $3.00 a week regularly for the baby's board, and goes to see the child once a week. We hope in the near future that her earnings will be enough to enable her to have the baby live with her. She is living with her relatives, saving her money, and making every effort to improve herself and showing a steady growth of character.

CASE 3. Louise is a Finnish girl who came to America about five years ago and was employed in a physician's home in a small town in Massachusetts, earning $3.00 a week. Most of this money she sent to her family in Finland.

One day Louise notified her employer that she was to be married to a young man, who had been calling on her regularly for over a year. The employer arranged to have the marriage take place at her home but the young man never appeared. It was found that Louise was pregnant and she was sent to a maternity home for her confinement. When her baby was a month old, Louise was sent to the Massachusetts Babies' Hospital to become a wetnurse.

The girl was of an unusual type and highly recommended by her employer who said that as she was a girl with high ideals she would gladly employ her again even with her baby.

The man was located and arrested under the old Bastardy Law, and a settlement of $300 made. This was banked for the baby. The girl was sent to several families as a wet nurse and was able to save $250 from her earnings. This has been put in the bank for the baby.

Louise refused to go back to her old community where she was known and was, therefore, placed with her baby in a family near Boston where they report that she is doing satisfactory work and earning $5.00 a week. She is still a sad girl, but she is a good mother, and means to give the boy as good an education as possible.

SUMMARY.

The wetnurse problem can be solved by establishing such a directory as has been outlined above. It is probable that such an institution can become self-supporting. The secret of success lies in widely advertising the fact that wetnurses can be obtained quickly, and in giving the prospective wetnurse a place where she can live without expense until she obtains a position. Infant mortality can be lowered to a minimum by insisting that the mother and baby are not separated. The directory for wetnurses gives these babies an opportunity in life which they could not get otherwise, and makes it possible to save the lives of many babies that would otherwise have died.

RELATION OF THE HOSPITAL TO THE HYGIENE OF PREGNANCY.*

BY JAMES LINCOLN HUNTINGTON, M.D., BOSTON.

From the Pregnancy Clinic of the Boston Lying-in Hospital.

Among the many measures for the prevention of infant mortality those instituted to safeguard the child before and during its entrance into the world are of primary importance. It is the object of this paper to show the development of a pregnancy clinic, which is an active part of a lying-in hospital, in a large medical school centre; to show exactly what this institution is and what results have been obtained.

I wish also to show by what means even better results might be obtained in a more nearly ideal pregnancy clinic in connection with a modern lying-in hospital, what the cost would probably be and an estimate of its running expense.

To show the various steps in the development of the work done at the Boston Lying-in Hospital in connection with the hygiene of pregnancy it is necessary to go back to the starting of the out-patient service in 1881. Through the firm establishment of this department and the careful supervision of the work, not only of the students, but also the supervision of the work done by the house officers by specialists in obstetrics, a splendid record has been established, and now some two thousand women are cared for in their homes every year by this department of the hospital. In 1891, Dr. Charles M. Green of the department of obstetrics in the Harvard Medical School, and the staff of the Lying-in Hospital, wrote his first paper on the care and observation of pregnant women and has strongly emphasized the importance of the hygiene of pregnancy in his lectures ever since.

The Instructive District Nursing Association began making ante-natal visits on some of the women in the out-patient department of the Boston Lying-in Hospital in 1901. The work gradually spread until in 1906 all these women were paid at least one visit by a nurse from this association some time between the date of application to the hospital and the confinement of the patient. Last year this association averaged about three ante-natal visits on each patient of the Boston Lying-in Hospital Out-patient Department.

In 1909 Mrs. William Lowell Putnam of the Infant Social Service Department of the Women's Municipal League of Boston began the experiment of intensive prenatal care of the patients registered at the Boston Lying-in Hospital, later to be confined in the hospital itself. These patients were visited by the nurse every ten days and were questioned not only as to the proper care of their bodies, but were reassured and encouraged as well. This work was so successful and the need for this work so clearly demonstrated that in May, 1911, the pregnancy clinic of the Boston Lying-in Hospital was opened for patients.

The quarters of this department are in a tenement house almost opposite the main entrance of the Lying-in Hospital. It is a typical four-roomed apartment and rents for $300 a year. The kitchen is the laboratory and waiting room. The large front room is the office and an alcove screened off is used for an examining room. The adjoining room is the main waiting room and the back room beyond the kitchen is fitted for the physical examination of patients.

It has not been considered advisable to have all the women cared for by the hospital, patients in this pregnancy clinic, but all who apply for confinement in the hospital are referred to the pregnancy clinic for examination and treatment unless within four weeks of term.

The patients planning to be confined in their own homes come directly to the pregnancy clinic, and remain under the care of this department until they start in labor, unless some serious complication arises which makes treatment in the hospitable desirable. It is not true, however, that all the out-patients of the Boston Lying-in Hospital are patients of the pregnancy clinic, for in another section of the city is the branch station of the Lying-in Hospital, and as its patients live so far away from the hospital, it has not been considered good policy to require all these prospective patients to come to the pregnancy clinic. These patients are visited by the nurses from the Instructive District Nursing Association, and should any complications arise they are referred to the pregnancy clinic, so in this way there is some supervision of the hygiene of pregnancy of all the 2000 patients now delivered annually in the out-patient department of the Lying-in Hospital and of nearly all the 900 patients that apply to the hospital for confinement within the institution.

Let us follow a patient through the course of her care in the pregnancy clinic. We urge the patients to come as early in their pregnancy as is possible, but as a matter of fact, few apply before the fifth month and most of them some time during the sixth and seventh months. The history of the patient is taken, both social and clinical, careful stress being laid on the previous obstetrical history. Should the patient have passed successfully through one or more confinements with normal labor, she is sent into the back room for physical examination. On the way, the nurse obtains a specimen of the patient's urine. The physician examines the urine, and takes the blood pressure. The abdomen is examined, the probable date of confinement estimated. If pregnancy has developed sufficiently far, the fetal heart is examined, and in all cases the pelvis is carefully measured. The patient is given minute directions as to the hygiene of pregnancy and is told to return in four weeks, or sooner if any untoward symptoms arise. She is told that should her symptoms be acute and

* Read before the English-speaking conference on Infant Mortality, London, Eng., Aug. 5, 1913.

should she need the attention of a physician she is always to come to the hospital for treatment at any time of day or night, or if she is to receive care in her own home she is given a card which she can send to the hospital and medical aid will be furnished at once. The name is then given to the nurse, who makes the follow-up visits. The out-patients are visited in their homes at regular intervals by the nurse of the Instructive District Nursing Association. Many of the patients that are to be confined in the hospital are visited, however, by the nurse who is on duty in the pregnancy clinic, and this is the ideal arrangement for the best kind of service. The nurse being present when the physician examines the patient learns what to be on the lookout for in that particular case. When the nurse comes to the patient's home for her regular visit, it is not a stranger, but a friend that is welcomed. Then, when the patient returns for her next visit in the hospital, the nurse being present makes it easier for the physician to learn, as well as for the patient to impart, an accurate account of how the pregnancy is progressing.

Should, however, the patient give a history of previous difficult labor or should she be a primipara, she is referred to the front room and is examined on the table in the alcove, and a careful vaginal examination is added to the examination previously described. Should the pelvis show marked contraction and the patient be nearly at term, she is sent to the hospital for consultation. Should a patient show albumin in the urine or a high blood pressure, if the symptoms are acute, she is sent to the hospital for treatment. If the symptoms are mild, she is told to return to the clinic for examination in three days, in five days, or at the end of a week, depending on the severity of the symptoms. We find that most patients are constipated and practically none of them are drinking enough water and that when the fluid intake is sufficient and the bowels active the urine becomes normal in the vast majority of cases.

When the patient returns for her subsequent visits all the previous clinical data are reviewed by the physician and all symptoms that have developed since her last visit recorded. Her urine is examined and her blood pressure taken. She is questioned on her observance of the rules for the hygiene of pregnancy, and this may conclude the visit, or it may be necessary to observe the growth of the fetus, or listen again for the fetal heart, or even to make another vaginal examination, depending upon the nature of the case.

Most of the patients return faithfully and seem to appreciate the service rendered.

To show the work that we are doing, I have carefully reviewed the records of 1000 cases beginning with the first case that made application after the clinic had been running for five months and the present system fully established. During the months covered by this series 555 patients made application to the branch of the Boston Lying-in Hospital and 22 of these cases being sent to the pregnancy clinic are therefore included in this series of 1000, as out-patient cases.

Of this series 609 cases were delivered in the patients' own homes by student externes and the out-patient staff of the Boston Lying-in Hospital; 230 were delivered inside the hospital by the house staff. The remaining 161 who applied at the pregnancy clinic for treatment can be disposed of as follows: 17 were found not to be pregnant, or came in for treatment following delivery; 12 refused examination or the treatment advised by the hospital before the onset of labor; 8 were discharged to private physicians at the request of the patients themselves. One was discharged to another lying-in hospital, and another patient, it was subsequently learned, called in a midwife to conduct the delivery. The other 122 were not traced.

Now turning to the 609 cases delivered in the out-patient department. All but 44 were born outside the United States; 410 were born in Russia, 98 born in Italy, 33 born in Austria, 10 born in Ireland, 4 born in Canada, 3 born in Roumania, 2 born in Greece, and 1 each in England, Germany, Sweden, Syria, and Tunis.

Six hundred and eight were married and one only was single; 157 were pregnant for the first time, while 452 had had one or more previous pregnancies. The complications of pregnancy that these patients had, not severe enough in character to make it necessary for the patients to change their original plan of being cared for in their own homes, were as follows: 36 showed albumin in the urine without other signs of toxemia, and without a further diagnosis being made; 9 showed early signs of toxemia as well as albumin in the urine; 11 had moderately contracted pelves; 5 showed heart lesions; 2 had syphilis; 1 had gonorrheal cystitis; 1 bronchitis, and 1 threatened miscarriage.

To see the results of the work accomplished in this ante-natal work it is necessary to follow these cases through confinement and puerperium until discharged from the care of the Lying-in Hospital.

Of these 609 cases, 545 had normal deliveries. The other results were: 21 low forceps and 18 high forceps operations, 11 breech deliveries and extractions, 6 versions and extractions, 6 twin deliveries, and 1 adherent placenta and 1 miscarriage. The average length of time that the mothers were under the care of the out-patient department after delivery was 12.17 days. Six hundred mothers were discharged well; 5 were discharged to private physicians during the puerperium at their own request and all these were later discharged well; 1 was sent to the tuberculosis hospital with a diagnosis of phthisis; 2 were discharged dead, 1 with a diagnosis of pulmonary embolism, the other with adherent placenta and post partum hemorrhage.

The infants were under the care of the out-

patient department for an average length of time of 12.19 days; 576 were discharged well; 3 were discharged to the Massachusetts Charitable Eye and Ear Infirmary, 2 with a diagnosis of ophthalmia neonatorum and 1 with conjunctivitis; 2 were discharged to the Infants' Hospital with bronchitis, and they subsequently recovered; 5 were discharged to private physicians, at the parents' request; 1 was discharged to the Massachusetts General Hospital with congenital syphilis; 10 were premature. Of these 3 were discharged well and 1 as still premature, and 6 dead with no other diagnosis. Six were discharged dead, as follows: general anasarca 1, erysipelas 1, acute hydrocephalus 1, cerebral hemorrhage 1, mucous inhalation 1, intra-uterine toxemia 1. There were 14 stillbirths. Six were macerated fetuses and 8 were after operative deliveries. This would give a rate per 1000 births of 22.9 stillbirths, which compares favorably with Boston's rate of 39.8, and Borough of Manhattan, 48.6.

As this paper is limited in length, I will not go fully into the statistics of the patients delivered in the hospital, but I feel obliged to state that this rate of stillbirths is not so satisfactory. The total for all these 839 cases delivered in the hospital and the out-patient department combined is 35.3 per 1000 births. Three patients seen in the pregnancy clinic subsequently developed eclampsia in the hospital, and one of these died. None of these three showed any symptoms of toxemia while under observation in the pregnancy clinic. On the other hand, the 7 cases showing symptoms of toxemia and referred to the hospital escaped without serious trouble. It is only fair to state, however, that of 230 patients of the pregnancy clinic subsequently delivered within the hospital, only 54 were visited in their home by the pregnancy nurse.

On the previous pages I have described in detail the workings of an actual institution and the results obtained. Now I want briefly to sketch a more nearly perfect system.

In this ideal pregnancy clinic all patients should apply without reference to the subsequent confinement, being guided as far as they are willing by the physician in charge. The nurse who received the patient and assists the physician in making the examination should be in each and every case the nurse who will make the follow-up visits. This nurse should be trained to take the blood pressure and make the nitric acid test for albumin and carry with her on her visits to the patient's home the necessary apparatus for taking these observations.

From the date of application the patient should be visited by the nurse or report to the clinic at least every two weeks. Patients failing to report at the clinic should be traced by the nurse.

All patients when applying to the pregnancy clinic should be given a complete physical examination. In the clinic the urine examination should include an examination of the sediment in every specimen showing albumin by the heat test.

Such an ideal pregnancy clinic must be associated with a hospital providing beds and adequate obstetrical care for the graver complications of pregnancy and for operative obstetrics. It should also be associated with an out-patient service providing care for patients in their own homes.

What would the estimated cost of such an institution be, exclusive of the care of confinement and puerperium or the services of the physician during pregnancy?

We have found the rental of the necessary quarters to house such an institution would be $300 per year. The initial expense of fittings and office furniture $100. This clinic would require three nurses to make the necessary visits. If living in the hospital is provided, such nurses could be obtained in Boston for $500 a year. Car fares for one nurse in 1912 amounted to $40.10. Gas for heating water and lighting in winter cost $38.80. The services of a maid to clean the rooms cost in 1912 $42. Stationery, drugs, and instruments cost $120.75. So the total cost of such an institution caring for 2000 cases annually would be $2321.55 for the first year and $2221.55 for subsequent years, as the wear and tear of office fittings is slight. Thus with each patient paying $1.16 the thing could be accomplished. It would seem that for a practically nominal cost to the individual the hygiene of pregnancy could be supervised intelligently in any community offering over 500 pregnancies for observation annually.

Reports of Societies.

BERKSHIRE DISTRICT MEDICAL SOCIETY.

The regular meeting of the Berkshire District Medical Society was held at the Park Club, Pittsfield, Mass., Thursday, Oct. 30.

After an appetizing lunch at 2 o'clock, the meeting was called to order by Vice-President Dr. F. C. Downing, with thirty-four doctors present.

After the regular business, Dr. Harry Fox of New York addressed the meeting on the subject of skin diseases, showing a large number of interesting lantern slides illustrating the different types.

Dermatitis. Cases of rhus poison, drugs, potassium iodide and bromide, x-ray eruption, artificial dermatitis and the four types of eczema, erythema, papular, vesicular and pustular. Dr. Fox explained their peculiar characteristics and the differential diagnosis.

Four Types. Sycosis, ringworm, impetigo contagiosa and eczema occur on the foci. The differential diagnosis is easy. Impetigo yields quickly to white precipitate of mercury, and ringworm to almost any antiparasitic ointment.

Psoriasis. Small pin-head lesions or as large as a foot or more in diameter. The borders are always sharply marked. Chrysarobin is the best local drug in 10% ointment.

Lichen Planus may be localized as on the arm or a general eruption. It occurs as small pin-head moist papules of a violaceous color.

Ringworm of the scalp is very difficult to cure. The x-ray is the best form of treatment, but requires considerable skill.

Favus. A vegetable parasitic disease, usually of the head; is also difficult to cure. Rubber caps or covering over the crusts for a day or two macerates the scabs and they are easily removed. Here again the x-ray is the best form of treatment.

Several plates illustrating herpes zoster, tinea versicolor, elephantiasis, hairy nevus, tuberculosis and leprosy and malignant diseases, including epithelioma, melano-carcinoma and sarcoma.

Dr. Fox said that the best and only way to treat leprosy was with the Finsen ray.

Dr. Fox then took up the subject of pellagra. Pellagra is two hundred years old. It originated in Spain, where it flourished for two centuries. It afterward decreased and now there is practically none. It then appeared in Italy, where it has since become endemic. Later it appeared in France, then Austria Hungary, Roumania, Egypt and America.

How long it has been in America is unknown. One case was reported by Dr. Gray of Utica in 1864. In 1902 Dr. Harris found hookworm associated with pellagra. Attention was called to it in 1907 in Columbia, South Carolina, by Babcock and Watson, and in 1908 Babcock called the first conference.

The etiology is unknown. Some think it is an intoxication from spoiled corn; others think it is an infection; and the weight of the argument is in favor of the latter.

The disease is prevalent in all the South except Missouri and Virginia. The disease occurs in all people and in both sexes, usually between the ages of 20 and 40, and is not inherited.

The symptoms refer to the skin, gastro-intestinal tract and nervous system. They are acute, subacute and chronic. Of the chronic cases there are three types or stages; the dyspeptic, in which the diarrhea from one to twenty movements is the chief characteristic; the neurasthenic; and the cachectic or terminal.

The disease comes in attacks in the spring, May and June mostly.

The chief diagnostic point is the skin eruption, as illustrated by these slides. The dermatitis may appear like sunburn. After one to three weeks it scales and the color darkens and then clears. After a second attack the skin wrinkles from atrophy.

The prognosis depends upon the temperature and weight. If the temperature is above 100 and weight is lost the outlook is bad. Fifty per cent. of the cases in America die.

The treatment is symptomatic and preventive.

Drs. Shalton of Lee and Dodd of Pittsfield discussed the paper. Dr. Dodd gave the history of a fatal case, which was quite characteristic according to Dr. Fox's description of the disease.

Owing to the lateness of the hour there was no further discussion and the meeting adjourned after a vote of thanks to Dr. Fox.

Book Reviews.

A Laboratory Manual of Invertebrate Zoölogy By GILMAN A. DREW, M.D. Second edition Revised. Philadelphia and London: W. B Saunders Company. 1913.

The first edition of this excellent manual wa reviewed in the issue of the JOURNAL for Nov. 7 1907 (Vol. clvii, p. 644). This second edition revised by the author "with the aid of forme and present members of the zoölogical staff o instructors at the Marine Biological Laboratory Woods Hole, Mass.," contains a dozen mor pages than its predecessor, representing descrip tions for the study of a few forms not include in the original, and a list of references to th literature. The appearance of this new editio after only six years indicates that the book ha amply fulfilled the expectations whose entertain ment was justified by its obvious merits.

Medical and Surgical Reports of the Episcopa Hospital. Volume I. Philadelphia: Willian J. Dorman. 1913.

The first fifth of this volume constitutes th usual annual report of the hospital for the cal endar year 1912. The remainder consists of series of 32 papers by members of the staff, si of them by Dr. Ashhurst. Of particular interes is an article by Dr. Currie on "Vaccination an Its Discoverer." This volume is the first of projected series which promises to contribut much of value to medical literature.

Industrial Poisoning. From Fumes, Gases, an Poisons of Manufacturing Processes. By Dr J. RAMBOUSEK, Prague. Translated and ed ited by Thomas M. Legge, M.D., D.P.H With illustrations. London: Edward Arnold 1913.

The subject of industrial diseases has of recen years attracted increasing medical attentio throughout the world. This Hungarian work deals with the single but important group of suc diseases due to fumes, gases, and poisons associ ated with manufacturing processes. The first par consists of the description of the industries an processes attended with risk of such poisoning the second with the pathology and treatment o toxic conditions; the third with their genera and particular prophylaxis. The English trans lation is flexible and idiomatic. The illustra tions are good. The appendix contains an abun dance of classified references. The book should be of value to all interested in the deeper study of these hygienic problems.

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THE PREVENTION OF INFANT MORTALITY.

IN this week's issue of the JOURNAL we publish two papers, by Dr. Fritz B. Talbot and Dr. James L. Huntington, representing the contribution of the Boston profession to the International English-Speaking Conference on Infant Mortality, held last August in London. The subjects of these papers, wet-nursing and pregnancy hygiene, are perhaps also the two aspects of maternal and infant care in which Boston has within the past few years made the most important progress, and indeed has done pioneer work which has served as an example to other communities.

The Massachusets Babies' Hospital, by the establishment of its directory of wet nurses, has systematized and made possible the obtainment of safe substitute breast feeding for many infants who must otherwise have been restricted to cow's milk modifications; and the Boston Lying-in Hospital, by the establishment and operation of its pregnancy clinic, with the district work of a visiting graduate nurse, has not only demonstrated the importance and value of such supervision in the prophylaxis, early detection, and prompt treatment of many serious complications of pregnancy, but also served a definite educational function both to medical students and to the community of actual, prospective, and potential mothers. Pregnancy hygiene and breast feeding are two of the most valuable agents in combating infant mortality. The excellence of the work represented by these papers of Dr. Talbot and Dr. Huntington was evidenced by their very favorable reception at the London conference.

The publication of these papers at this time acquires additional interest from its concurrence with the fourth annual meeting of the American Association for Study and Prevention of Infant Mortality, which was held at Washington, D. C., from Nov. 14 to 17, inclusive. The meetings were held in sections on nursing and social work, pediatrics, eugenics, obstetrics, public school education, and vital and social statistics. Among the topics specially discussed were the care and instruction of pregnant women, the problems of infant hygiene and feeding, standards of training for infant welfare nursing, continuation schools for home making, the relation of vital statistics to plans for social betterment, and the relation of the plans for the conservation of infant life to the general ideals of conservation.

The American Association for Study and Prevention of Infant Mortality was organized at the first Conference on Prevention of Infant Mortality, held in November, 1909, at New Haven, Conn., under the auspices of the American Academy of Medicine. The objects of the Association are:—

"1. To study the causes of infant mortality; to awaken an interest in the possibility of reducing the present unnecessary waste of infant life, and to formulate plans for preventive work.

"2. To act as a central clearing-house for the collection and dissemination of information regarding infant mortality and the work being done to prevent it.

"The work of the Association is carried on as follows:

"(*a*) By general propaganda through the central office.

"(*b*) By investigations and by special work carried on by standing and special committees.

"(*c*) Through an annual meeting and the publication of annual transactions.

"(*d*) Through a traveling exhibit.

"Organizations as well as individuals are eligible for membership, and much of the strength of the Association has come from the active cooperation of the organizations which are enrolled as affiliated members. Affiliated membership is open to any society that is either interested in or that is engaged in some phase of baby-saving activity. The enrollment in this class includes departments of health, infant welfare societies, nurses' organizations, state and local women's clubs, departments of home economics, etc. Through its affiliated membership the Association is in touch with organized baby-

saving work that is being carried on in 42 cities in 27 states."

At the session of the eugenics section on Nov. 15 a committee was appointed, on motion of Prof. Roswell Johnson, of the University of Pittsburg, to meet the eugenics committee of the American Breeders' Association to discuss the question of founding a National Society for the Promotion of Practical Eugenics.

At the closing session Mr. Homer Folks, of New York, was chosen president-elect, to succeed the new president, Dr. J. Whitridge Williams, of Baltimore, a year hence. Dr. Milton J. Rosenau, of Boston, and Miss Julia L. Lathrop, of Washington, D. C., were elected vice-presidents; Dr. Philip van Ingen, of New York, secretary; and Mr. Austin McLanahan, of Baltimore, treasurer.

The next meeting of the Association is to be held at Boston in October, 1914, and for this meeting Dr. Talbot and Dr. Huntington have been made members of the executive committee of nine. Dr. Henry I. Bowditch, of Boston, has also been elected a member of the board of directors from this city, which is already represented by Mrs. William Lowell Putnam, Dr. Huntington, Dr. Talbot and Dr. Thomas Morgan Rotch.

THE CONTROL OF VENEREAL DISEASES.

In the recently published bulletin (Vol. 8, No. 9) of the Massachusetts State Board of Health for September, 1913, is reprinted an article by Dr. Hermann M. Biggs defining the attitude of the New York City Department of Health in relation to venereal diseases.

The compulsory notification of venereal diseases from public institutions, and the optional notification of such cases from private physicians by number, was established by the board on Feb. 20, 1912. At the same time provision was made for doing in the city laboratories the Wassermann and the complement fixation tests for syphilis and gonorrhea, and for the examination of fresh smears for spirochetes and gonococci. The principles of action and the measures thus adopted were essentially similar to those employed in the first attempts to secure registration and control of tuberculosis.

In practise, the opposition to these regulations has proved greater in the case of the venereal diseases than in that of tuberculosis. Some public institutions have refused to comply with the orders of the board. During 1912 the total number of cases reported treated by 1500 of the 800 private physicians in New York was: gonorrhea, 24,980; syphilis, 13,348; and chancroid 4331: total 42,659. Obviously these figures must lie far below the actual incidence of these diseases among the people of New York. Nevertheless, the Department of Health is not at all discouraged in its intention ultimately to secure full registration of venereal diseases, believing that it will be supported by public opinion as proved the case in tuberculosis.

In July, 1912, the board further established a diagnosis clinic for venereal diseases. During the first four months of 1913, the total attendance at this clinic was 1275, upon a large percentage of whom the Wassermann test was done. The board believes that registration, early diagnosis, and prompt, efficient treatment are the essential agents in dealing with these, as with all infectious diseases. Hospital provision for such treatment is now the most urgent need in this important movement.

The venereal diseases will doubtless be the last to disappear from the earth, but doubtless they will disappear after having served their evolutionary purpose. The deliberate effort to control and suppress them is one of the encouraging signs in an age which abounds in phenomena of discouragement.

ALCOHOL EDUCATION THROUGH POSTERS.

In another column of this issue of the Journal is published the announcement of a forthcoming medical conference at the Psychopathic Hospital on "alcoholic mental diseases." In this connection we may call attention to a recent movement, originating in Boston, to educate the public by means of posters on the facts pertaining to the use of alcoholic beverages.

Alcohol education through posters is a movement of Boston doctors and social workers. The idea is to get the latest economic and medical facts to the man who thinks. It is a publicity campaign, and posters were chosen because approved by prominent people and posted by prominent organizations.

The first poster was placed on a little hous

n Charles Street, Boston, on April 5,—a simple economic statement thus:—

"To the Thinking Man: Our Prison Commission reports that 95% of those imprisoned in 911 had intemperate habits."

Before the month was over these posters without any other advertising than that given by the Boston newspapers) were up in Alberta, Saskatchewan, Alaska, California, and through he United States to Florida. The states most nterested seem to be California and Illinois. California has started a state-wide poster campaign.

In May a long, educational poster was printed n linen to be tacked on trees. This is more practical than the big posters, which are hard o get up. The Mayor and Park Commissioners f Cambridge ordered a long poster, in substance like the above, to be placed in all parks nd public buildings, and thus Cambridge, Mass., came to be the first city to post municipally the facts about alcohol. Fitchburg and Quincy have since followed suit.

The value of this method of popular education remains to be definitely determined. Obviously no statements should be used which can admit of controversy or which cannot be statistically proved. There is always danger of overdoing a new method and thereby defeating the very ends it is intended to secure; but any agent that will really make the public realize and think about the facts of alcohol consumption is surely to be encouraged.

MEDICAL NOTES.

Bubonic Plague in Guayaquil.—Report rom Washington, D. C., on Nov. 6 states that uring the past month of October there were 112 ases of bubonic plague at Guayaquil, Ecuador.

Yellow Fever in Brazil and Nigeria.—Report from Washington, D. C., on Nov. 7 states hat a death from yellow fever was notified on ct. 30 at Rio de Janeiro, Brazil, and on Oct. 31 case of the same disease at Forcados, in outhern Nigeria.

Award of the Baly Medal.—The Baly medal f the Royal College of Physicians of London r 1913 has recently been awarded to Dr. John cott Haldane, F.R.S., reader in physiology in e University of Oxford. This medal, which is awarded every other year, was established in 1866 by Dr. Frederic Daniel Dyster in memory of William Harvey.

American Association of Clinical Research.—The fifth annual convention of the American Association of Clinical Research was held in Chicago during the week of Nov. 8. Dr. Leonard H. Hirshberg, of Baltimore, was elected president, and Dr. James Krauss, of Boston, secretary and treasurer, for the ensuing year.

The World's Supply of Radium.—In a recent lecture on radium before the Society of Civil Engineers in Paris, Dr. Paul Blesson is reported to have given the following statistics as to the total amount of radium thus far produced in the world:—

"From the creation of the radium industry in 1899 under the impetus of Professor Curie, up to 1904, only two to three grammes of radium were extracted from thirteen tons of pitch-blend residues, and these two or three grammes were supplied to the laboratory of M. and Mme. Curie. Then the Austrian Government prohibited the exportation of radio-active ore from Joachimsthal, and radium had to be extracted in France from much poorer ore, containing only half to two milligrams of radium to the ton, such as antunites from Portugal and carnonites from Colorado, whereas pitch-blend residues contained one hundred to two hundred milligrams of radium to the ton. In recent years Austria has not treated more than three to four tons of pitch-blend annually, yielding less than one gramme annually. America and England do not yet produce salts of radium to any considerable amount. The command of the production and the market are held in France. The price of a gramme of bromide of hydrated radium is about $80,000, which makes the gramme of pure metallic radium worth about $156,000. The chief holder of radium is Madame Curie, with about 2.6 to 3 grammes. After her comes Sir Ernest Cassel. Radium is a perfectly defined element, the standard of which has been entered by Madame Curie at the International Office of Weights and Measures in Paris."

BOSTON AND NEW ENGLAND.

Bequest to Medical Library.—By the contested will of the late Miss Ellen B. Wyman, of Newburyport, which was allowed by Judge Harmon in the Essex County Probate Court, Nov. 11, the Boston Medical Library becomes the residuary legatee of her estate, which has been appraised at $95,000. By the terms of the will,

$8200 are left to different friends, and the residue is to be held by the Library in memory of Miss Wyman's father and is to be called the Samuel Wheeler Wyman Memorial Fund, as a permanent endowment. The income only is to be expended,—one-half for the purchase of new foreign medical and surgical books, especially those treating of the diseases of the eye, and the remaining half for binding volumes of periodicals.

It is to be said that Dr. Wyman was a graduate of Harvard College in the class of 1814, and of the Harvard Medical School in the class of 1818. He practised medicine for forty years in Newburyport, and died there Jan. 31, 1867. He was especially interested in diseases of the eye.

NEW HOSPITAL FOR QUINCY.—An appropriation of $35,000 has been requested for the erection of a new contagious hospital in Quincy, Mass. The request has been referred to the joint committee of the city council and board of aldermen on public buildings and finance.

POLIOMYELITIS IN ARLINGTON.—Two cases of acute poliomyelitis were reported on Nov. 10 in Arlington, Mass. The families of both patients have been isolated.

SCARLET FEVER IN FITCHBURG.—Report from Fitchburg, Mass., on Nov. 11 states that eight cases of scarlet fever have recently occurred in that city, four of them among pupils at the local State Normal School, which has been closed in consequence.

REGISTRATION OF DENTISTS.—Of the candidates who took the examinations in October before the Massachusetts State Board of Registration in Dentistry, 42 were passed and have been authorized to begin the practise of their profession.

TWO LIVING CENTENARIANS.—Mrs. Elvira Gannett, of North Scituate, Mass., is said to have been born on Nov. 12, 1811, in that town, and recently celebrated there her supposed 102nd anniversary. She is slightly deaf and cannot read easily without glasses, but is still able to do her own housework.

Mr. Ralph Butler, of Dorchester, Mass., is said to have been born on May 5, 1813, at Phillips, Me. His health is excellent, and he is in the habit of walking several miles daily in pleasant weather.

A LEPER IN MALDEN.—A case of leprosy was discovered on Nov. 8 at Malden, Mass., in the person of a Russian Hebrew, who migrated to the United States in 1906. The patient has been isolated and removed to Penikese Island.

NEW ENGLAND PEDIATRIC SOCIETY.—At the invitation of the New England Pediatric Society the children's hospitals in Boston were visited last week by representatives of the pediatric sections of the New York Academy of Medicine, the New York State Medical Society, the New Jersey Pediatric Society, and the Philadelphia Pediatric Society. At a meeting in the Copley-Plaza addresses were made by Dr. Ralph Vincent, of London; Dr. John F. Sinclair, of Philadelphia; Dr. William H. Park, of New York and Dr. James W. Sever, of Boston.

TUBERCULOSIS PROBLEMS IN MASSACHUSETTS.—At a recent executive session of the recess legislative committee of the Massachusetts House of Representatives on tuberculosis, a conference on tuberculosis problems in this state was held with the respective heads of the State Board of Charities, the State Board of Health, and the Board of Trustees of Consumptive Hospitals.

"It was unanimously agreed by all the representatives of the state boards that there should be some centralized authority to control the treatment of tuberculosis in the state, and that the state board of health should be this centralized board and authority.

"It was also suggested that the board of health in every city and town in Massachusetts should have at least one physician in charge of tubercular cases.

INFANT MORTALITY WORK IN BOSTON.—The New York Milk Committee in its report for 1912, based on an investigation of milk conditions in Baltimore, Boston, Brooklyn, Buffalo, Chicago, Cleveland, Detroit, New York, Philadelphia, and Pittsburg, makes the following statement relative to Boston:—

"In a general way all the cities discussed, except Boston, were more active in 1911, than ever before.

"Boston is the striking exception to the general rule of reduction. Considerable effort has been made to find out conditions existing there in 1911, and apparently there has been abso-

lutely no increase in effort nor expansion of the work over past years.

"The weather conditions were no worse comparatively than in other places, and in rainfall they were better than most others. With these conditions went a stationary infant mortality compared with 1910, and a poorer showing compared with previous years than most of the other cities record.

"The reduction of infant mortality in 1911 in the cities studied was very marked, especially during the summer. During the first part of the summer meteorological conditions were not favorable to a low mortality.

"This reduction was not due to chance, but bears a close relation to the activity of the campaign for the reduction of infant mortality. The difference between cities in infant mortality rates is probably more a matter of public conscience and quality of official endeavor than weather and character of population.

"The work in Boston in 1911 showed no increase, except in efficiency perhaps, than over that done in the three previous years."

Infectious Diseases.—Cases of infectious diseases reported to the Boston Board of Health for the week ending Nov. 11, 1913. Diphtheria, 37, of which 2 were non-residents; scarlatina, 43; typhoid fever, 21, of which 1 was non-resident; measles, 19; tuberculosis, 45, of which 2 were non-residents.

The death-rate of the reported deaths for the week was 13.61.

NEW YORK.

New Tuberculosis Hospital.—New York City enlarged its facilities for the treatment of tuberculosis by opening a new $3,500,000 hospital on Staten Island on Nov. 12, at Castleton Corners. Eighty patients already have been admitted. The patients are housed in eight pavilions arranged in a semi-circle so that the sunlight enters every room and ward. Each pavilion will accommodate 125 patients. The group of buildings includes also one for administration purposes, a staff house, nurses' quarters, a surgical pavilion and a kitchen in the center of the group from which trolley trucks convey food to a tunnel through which it is delivered to its destination by pressing a button.

Corrosive Sublimate Poisoning.—In view of the considerable number of deaths from corrosive sublimate poisoning which have occurred in the city in the last few months, the Board of Health is considering the adoption at an early date of an amendment to the Sanitary Code which will afford to the public better protection from this danger than now exists. The subject of such poisoning was discussed at a meeting of the New York City Branch of the American Pharmaceutical Association held on November 10, and the result was the passage of a resolution calling for a conference of the various branches of the association in the state for the purpose of drafting a bill providing for adequate regulation of the sale of corrosive mercuric chloride, to be introduced into the legislature.

Death-Rates in October.—In October the death-rate in the city was the lowest, for a month, ever recorded, and a new record was also made in weekly mortality. In the week ending Oct. 18 the death-rate was 11.20, the next lowest rate being that of the week ending June 28, 1913—11.48. This record of 11.48 was also beaten in the week following that ending Oct. 25, when the death-rate was 11.26. The rate for the month was only 11.65, as against 12.22 in September and 12.66 in October, 1912. Among the diseases in which there was a diminished fatality were the following: The weekly average of deaths from whooping-cough declined from 10.75 in September to 7.75 in October; the weekly average from epidemic cerebrospinal meningitis from 5.5 to 2.5; from diarrheal diseases under five years, from 140.75 to 73.75; from cancer, from 84.5 to 79.75; from appendicitis and typhilitis, from 10.75 to 7.75; and from Bright's disease and acute nephritis, from 96.25 to 93.5. Among the diseases showing an increased mortality were the following: The weekly average of deaths from typhoid fever increased from 11.75 to 15.75; from diphtheria and croup, from 11.5 to 13.75; from pulmonary tuberculosis, from 133.5 to 135.5; from acute bronchitis, from 6 to 11.5; from pneumonia, from 42.5 to 55.75; from bronchopneumonia, from 53.75 to 55.75; from apoplexy and softening of the brain, from 15.25 to 20.75; from organic heart diseases, from 157.5 to 170; from hernia and intestinal obstruction, from 8 to 10; from cirrhosis of the liver, from 13 to 17.25; and from puerperal diseases, from 10.25 to 11.5. Although the weekly average of deaths from typhoid fever was somewhat larger than in October, there was during the month a marked decline in the deaths from this disease. Thus, while in the week ending Oct. 11 these amounted to 27, in the last week of the month there were only 8.

OPENING OF A NEW EYE HOSPITAL.—The Herman Knapp Memorial Eye Hospital has opened its doors in its new location, at the southwest corner of 57th Street and Tenth Avenue, New York. The hospital was founded in 1869 by the late Dr. Herman Knapp, and under the name of the "New York Ophthalmic and Aural Institute" it has been in uninterrupted activity at 44 and 46 East 12th Street. During these forty-four years over 420,000 patients have been treated. The new building is a specially constructed seven-story fire-proof hospital building, with complete modern equipment for the treatment and study of diseases of the eye. The board of trustees has deemed the occasion of its removal to a new building in a new location the proper time to change the name of the Institute in honor of its distinguished founder.

Current Literature.

MEDICAL RECORD.

NOVEMBER 1, 1913.

1. GIBNEY, V. P. *Diagnosis and Treatment of Knee Lesions in the Adult.*
2. ANDERS, J. M. *The Rôle of Physical Exercise in the Open Air in the Prophylaxis of Tuberculosis.*
3. WILLIAMS, E. H. *Liquor Legislation and Insanity.*
4. KLAER, F. H. *Diet Social Service in Dispensary Work.*
5. *BURROWS, W. F. *Postoperative Intestinal Stasis and the Intra-abdominal Use of Oil.*
6. SUTTER, C. C. *The Detection of Disturbances of the Digestive Tract by the Examination of the Feces.*
7. CADWALDER, W. B., AND SWEET, J. E. *Experiments on Intradural Anastomosis of Nerves for the Cure of Paralysis.*
8. ROETHLISBERGER, P. *A New Method for the Determination of Uric Acid in Minimum Quantities of Blood Serum and Other Fluids of the Body.*
9. CROSS, F. B. *Ambulation and Full Diet as Factors in the Diagnosis of Gastro-duodenal Ulcer.*

5. Burrows reports satisfactory results from intraperitoneal injections of bland oil in guinea-pigs and dogs, his object being to determine whether such injections could control infection and the effects of surgical incisions and other forms of trauma. He found that purified oil caused no damage itself and that when injected in sufficient quantity it prevented to a great extent the formation and recurrence of adhesions. He believes that it fills the lymphatics leading from the wound, thus limiting septic absorption, and that by protecting and lubricating the abdominal contents it minimizes stasis, vomiting and pain. [L. D. C.]

NEW YORK MEDICAL JOURNAL.

NOVEMBER 1, 1913.

1. TILTON, B. T. *Common Errors in the Diagnosis and Prognosis of Gall-stone Disease.*
2. BOSTON, L. N. *Special Technic in Palpation.*
3. SCHWALT, H. *Induced Pneumothorax.*
4. WHITE, G. H., JR. *The Toxicity of Coal Tar Products.*
5. MACY, M. S. *Methods of Teaching Sex Hygiene.*
6. HENSON, G. E. *A Clinical Study of Leucocytes.*
7. *CUTTER, J. A. *Neosalvarsan and Malaria. A Personal Experience.*
8. KLOTZ, H. C. *A Plea for Oily Injections of Salvarsan.*
9. STEINER, S. *The Treatment of Chronic Urethritis.*
10. PATTERSON, P. M. *The Intravenous Treatment of Rheumatic Fever.*

7. Cutter reports his own illness with recurrent malaria, becoming chronic, and the relief which he finally obtained from intravenous injections of neosalvarsan. Ehrlich has called attention to the value of this drug in malaria, stating that quinine sometimes loses its hold on cases, but resumes its effect after the exhibition of neosalvarsan. [L. D. C.]

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

NOVEMBER 1, 1913.

1. HEWLETT, A. W. *The Relation of Pathologic Physiology to Internal Medicine.*
2. RICHARDS, E. T. F., AND JOHNSON, W. C. *Study of a Case of Congenital Hemolytic Jaundice.*
3. VAUGHAN, V. C. *Importance of the Tuberculin Reaction in the Diagnosis of Early Pulmonary Tuberculosis.*
4. RICH, E. A. *Limitations of Lange's Silk Ligaments in Paralytic Surgery and Substitutes Therefor.*
5. *HEIDINGSFELD, M. L. *Clinical and Laboratory Salvarsan Relapses and Their Remedy. A Serologic Study of Six Hundred and Fifty-One Cases Covering Nine Hundred and Fifty-Two Intravenous Administrations and Three Thousand Three Hundred Four Wassermann Examinations.*
6. *HINMAN, F. *An Experimental Study of the Antiseptic Value in the Urine of the Internal Use of Hexamethylenamin.*
7. TOWNSEND, W. W. *The Pseudo-diphtheria Organism in the Urinary Tract.*
8. MCBEATH, H. F. *Correction of Impediments of Speech in Our Public Schools.*
9. DEAN, L. W. *A Method of Closing a Sinus Between the Antrum of Highmore and the Mouth.*
10. RYERSON, E. W. *The Surgery of Infantile Paralysis.*
11. RUSS, W. B. *Acidosis as a Complication after Surgical Operations.*
12. LINTZ, W. *Von Mikulicz' Disease—Further Studies.*
13. ROBERTSON, L. B. *Gas Bacillus Infection—A Report of Six Cases.*
14. FRAZIER, C. H., AND LLOYD, J. H. *A Case of Tumor of the Hypophysis Partly Removed by the Transfrontal Method of Approach.*
15. WILLIAMS, B. G. R. *The Invariable Blood-Stain.*
16. KIMPTON, A. R. *Further Notes on Transfusion by Means of Glass Cylinders.*
17. MCNEIL, H. L. *An Improved Method of Extracting Ova from Stools.*

5. Heidingsfeld finds that 83.5% of syphilitics recovered after salvarsan which had been preceded by rather long mercurial treatment. In cases not previously treated with mercury the salvarsan cures average about 77%. He believes that the other 23% can be clinically and from the laboratory point of view, cured by the aid of sodium cacodylate and other measures.

6. Hinman finds that hexamethylenamin is easily nverted into formaldehyde in an acid medium but ot in an alkaline one. The amount of excretion in ie urine is influenced by the size and frequency of ie dose and the changes that occur in the acid con- nts of the stomach. Disease of the kidney has no fluence on the formaldehyde content of the urine. oses smaller than fifteen grains three times a day nnot be expected to produce much antiseptic tion. [E. H. R.]

Surgery, Gynecology and Obstetrics.

October, 1913.

1. Richter, H. M. *Congenital Atresia of the Esophagus; an Operation Designed for Its Cure.*
2. Brickner, S. M. *The Rôle of the Glands of Internal Secretion in the Genesis of Fibroma Molluscum Gravidarum.*
3. Skinner, E. H. *The X-ray Investigation of Habitual Constipation.*
4. *George, A. W., and Gerber, I. *The Value of the Roentgen Method in the Study of Chronic Appendicitis and Inflammatory Conditions, Both Congenital and Acquired, About the Cecum and Terminal Ileum.*
5. Quain, E. P. *Pregnancy in the Rudimentary Cornu of Uterus Unicornis, and Report of a Case with Full-Term Fetus.*
6. *Squier, J. B. *Vital Statistics of Prostatectomy.*
7. Swenson, C. G. *The Use of Tuberculin in the Treatment of Surgical Tuberculosis; with Clinical Reports and Late Results.*
8. MacCarty, W. C. *The Histogenesis of Cancer (Carcinoma) of the Breast and Its Clinical Significance.*
9. Bartlett, W. *A Simple Method of Excluding the Pylorus.*
10. Watkins, T. J. *Infantile Type of Uterus with Dysmenorrhea.*
11. Berg, A. A. *Malignant Hypernephroma of the Kidney; Its Clinical Course and Diagnosis; with a Description of the Author's Method of Radical Operative Cure.*
12. Lynch, F. W. *Blood Pressure During Pregnancy.*
13. Hertzler, A. E. *Pathogenesis of Congenital Cystic Disease of the Parenchymatous Organs.*
14. Carr, W. P. *A Study of the Cancer Situation.*
15. Kerr, H. H. *Intestinal Anastomosis, with a Report on the Aseptic Basting Stitch Method.*
16. Turck, R. C. *Harelip, with Illustrative Cases.*
17. Hirst, B. C. *The Modern Extraperitoneal Cesarean Section with a Description of the Best Technic for Its Performance.*
18. Jackson, S. *The Technic of Insertion of Intratracheal Insufflation Tubes.*
19. Werelius, A. *Ill Effects from Ileosigmoidostomy; Report of a Case.*
20. Collins, C. U. *Two Cases of Obstruction of the Bowels from Unusual Causes.*
21. Watkins, T. J. *Modified Figure of Eight Suture.*

4. George and Gerber show some remarkably fine ays of the gastro-intestinal tract clearly illus- ting the pathology of the chronic kinked and ad- rent appendix, Lane's kink with fixed and dis- ded terminal loop of ileum, filling of ileum in kson's membrane, the presence of adhesions due old inflammatory processes, cecum mobile and e-sided appendix.

6. Squier: "Fifty per cent. of unoperated pa- ts suffering from prostatic obstruction will die hin five years from the onset of obstructive symp- s when catheter life is not necessary. The begin- ng of catheter life shortens this expectation of life lost 50% and increases the mortality to 66 2-3% ain the shortened period. The average length of if of the cases of carcinoma have been thirteen nths from the onset of symptoms."

The Lancet.

October 11, 1913.

1. *Wethered, F. J. *Hunterian Lecture on Fever in Pulmonary Tuberculosis.*
2. Osler, W. *Examinations, Examiners and Examinees.*
3. Keith, A. *The Present Problems Relating to the Origin of Modern Races.*
4. Hunter, W. *The Problems of University Medical Education in London.*
5. Skinner, B. M. *The Relation of Medical Knowledge to War Conditions.*
6. Thresh, J. C. *Hard versus Soft Water.*
7. Goodman, C. *Arterio-venous Anastomosis for Impending Gangrene; a Report of Fifteen Consecutive Cases with Arterio-venous Anastomosis of the Femoral Vessels.*
8. Bonney, V. *Formation of an Artificial Vagina by Transplantation of a Portion of the Ileum (Baldwin's Operation), with Remarks on the Ethical Aspect of the Procedure.*
9. Moxon, F. *The Use of Atropine Tablets for the Determination of Refraction in Children.*
10. Johnson, W. *The Use of Gelatin in Microscopical Technic.*

1. Wethered, from a detailed study of the course and significance of fever in pulmonary tuberculosis concludes that fever is always a sign of activity, and that the most reliable means for reducing activity is rest. A patient must live in accordance with his temperature chart. Any increase of cough and expectoration, headache, general malaise and so on call for a record of temperature for a few days and if necessary rest, more or less absolute, insisted on. (This is a timely paper; it would be more valuable, however, if careful consideration of the pulse as well as the temperature were urged.—J. B. H.) [J. B. H.]

October 18, 1913.

1. Hart, D. B. *Some Appliances of Antenatal Eugenics in Heredity.*
2. *Ferrier, D. *The Cerebrospinal Fluid in Health and Disease.*
3. *Davis, E. D. *The Relief of the Pain of Laryngeal Tuberculosis.*
4. Worton, A. S. *Hereditary Optic Neuritis: Eleven Cases in Three Generations.*
5. Johnstone, E. M. *A Note on a Case of Pellagra.*
6. Telford, E. D. *Two Cases of Cervical Rib with Vascular Symptoms.*
7. Keith, R. D. *The Treatment of Ankylostomiasis.*
8. De Lostalot. *The Treatment of Infections by Means of Fixation Abscesses.*
9. Mackinnon, M. *Hemiplegia Following Syphilis.*
10. Jastrow, M. *The Medicine of the Babylonians and Assyrians.*

2. This is an interesting and valuable review of the work done on the cerebrospinal fluid in health and in disease, especially as to its condition in syphilitic and parasyphilitic affections. This paper will be of assistance to general practitioners and especially to those specially interested in this subject, more as a general summary of the latest views on the subject rather than presenting anything new.

3. Davis, while agreeing that the condition of a tuberculous larynx depends upon the extent of the disease in the lung and that it is a part of the pulmonary process, believes that these unfortunate patients are deprived of considerable relief and comfort by passive and expectant treatment. Judicious removal by surgical methods of painful lesions undoubtedly relieves pain and vigorous methods with careful research are needed to attack the disease. [J. B. H.]

MÜNCHENER MEDIZINISCHE WOCHENSCHRIFT.

No. 41. October 14, 1913.

1. INGEBRIGSTEN, R. *The Regeneration of Axis Cylinders in Vitro.*
2. SELLHEIM, H. *A New Method of Increasing the Destructive Action of Roentgen Rays on Deep-seated Tumors.*
3. DESSAUER, F. *Progress in the Generation of Hard Roentgen Rays.*
4. RIEDEL. *Tonsillectomy in Children.*
5. *HOHLWEG. *Tests for Liver Function.*
6. BORCHARDT, AND BENNIGSON, W. *The Blood in Chronic Nephritis.*
7. *BANG, I. *A Clinical Test for Hyperglycemia.*
8. GUNDERMANN, W. *The Pathology of the Great Omentum.*
9. STRAUB, W. *The Decomposition and Preservation of Scopolamine Solutions.*
10. SIEGEL, P. W. *Narcosis During Delivery by Constant Scopolamine Solutions.*
11. ROST, F. *The Active Principle of Beck's Bismuth Paste.*
12. TSCHUDNOWSKY. *Protective Ferments in Pregnancy and Gynecological Diseases Determined by Abderhalden's Optical and Dialysis Methods.*
13. HEINRICHSEN, F. *A Case of Injury from a Cow's Horn.*
14. BÄUMEL, A. *A Carrier for Uterine Dilators.*
15. VERAGUTH, O., AND SEYDERHELM, R. *A New Method for Quickly Changing Abnormal Leucocyte Counts.*
16. NASSAUER, M. *The High School for Physicians and Patients.*

5. Hohlweg reviews the various tests devised to determine liver function. The most satisfactory ones at present are based on determining the liver's capacity to form glycogen from sugars given by mouth. Levulose and galactose are best suited for this purpose, since glycogen is formed from dextrose in muscle and is stored there, as well as in the liver.

Hohlweg has observed over one hundred cases of liver disease, in each determining the levulose tolerance by feeding one hundred, seventy-five or fifty grams of the sugar to the patients, and estimating the amount of sugar recovered in the urine.

His results show that levulose tolerance is markedly diminished in catarrhal jaundice. Occlusion of the common bile duct by stone causes no lowered tolerance, nor do primary tumors of the liver. In cirrhosis, the results vary, possibly depending on regenerative processes in the liver. In leukemia, anemia or chronic passive congestion, the tolerance is normal. Therefore Hohlweg concludes that the levulose test for liver function is helpful, especially in differentiating catarrhal jaundice from other diseases. His results are confirmed by the other writers who have used galactose in the same fashion.

7. Bang offers a simple clinical test to differentiate a hyperglycemia of more than .15% from a blood containing a more normal amount of sugar. The test is a modification of Bang's micro-method for estimating blood sugar. A solution is made containing 136 c.c. of saturated potassium chloride, 64 c.c. of water and .15 c.c. of 25% hydrochloric acid. Small pieces of filter paper are cut in 16 x 28 millimeter squares, on which two or three drops of blood are placed. The paper is transferred to a test tube; 5 c.c. of the potassium chloride solution are added boiling hot, in such a fashion as to completely cover the filter. In this way the albumin is coagulated, while the sugar diffuses through the filter into the fluid. After half an hour's cooling, the fluid is transferred to another tube; 5 drops of Fehling 2 are added, and 2 drops of Fehling 1. The mixture is boiled for thirty seconds. If reduction occurs after two minutes, the blood contains more than .15% of sugar. In this way a normal or nearly normal blood sugar content can be differentiated from a marked hyperglycemia. [R. F.]

WIENER KLINISCHE WOCHENSCHRIFT.

No. 39. September 25, 1913.

1. FISCHER, J. *The Meeting of German Scientis and Physicians in Vienna.*
2. MUSSER, E. *Anemias.*
3. JAUREGG, W. *Surgical Treatment of Hypothyroi ism.*
4. SCHATTENFROH, A. *Immunization Against Dip theria with Toxin—Antitoxin Mixtures of Behring.*
5. JOANNOGICS, G. *Action of Morphine Cocaine a Schleich's Mixture on the Growth of Tran plantable Mouse Tumors.*
6. LATZKO, W., AND SCHÜRMER, H. *Radium Trea ment of Cancer.*
7. HIST, R. *Nonproteinogenetic "Allergie."*
8. ARZT, L., AND KERL, W. *Experimental Syphil in Rabbitt.*
9. FERNAU, A., AND SCHRAMEK, M. *Chemical Actio of Becquerel Rays.*
10. *FRÜHWALD, R. *Contribution on the Aborti Treatment of Syphilis.*
11. JAGIC, M. *Orthostatic-Lordotic Albuminuria a Tuberculosis.*
12. GLAESSNER, K. *A New Therapy for Gastric H peracidity Especially in Ulcer.*
13. FINSTERER, H. *The Importance of Anesthesia Regard to Outcome of Laparotomies.*
14. KÖRRL, H. *Retrograde Embolism in Arteria Fos Sylvii, Proceeding from a Thrombus of the D scending Aorta after a Prick Injury of th Latter.*
15. WALZEL, P. *Two Successful Cases of Remov of Projectiles from the Region of the Gasseri Ganglion.*
16. ERDHEIM, S. *Gravity Hypertrophy of Mamm and Accessory Mammae.*

10. The experience of the author with salvarsa indicates that it reacts much more intensely a promptly on secondary than on primary syphilis; tha extensive scleroses often react strongly; he cites case to show the possibility of a renewal of the pr mary sore with consequent propagation of the viru over the body. These conditions should, therefore, b an indication in suitable cases for the excision of th primary sore for the purpose of abortive treatmen Excision of the primary sore of 5-6 weeks' duratio should not be delayed with the idea that the viru has already gone into the blood for success is by n means excluded at this time, and if this is so th injection of salvarsan may need to be very small fo cure.

[F. S. K.

No. 40. October 2, 1913.

1. V. NEUSSER, E. *Aenemias. (Second Contribution. The Heart and Chlorosis.*
1. PRIBRAM, B. *Hypersplenic Hemoptysis and Splen Engorgement.*
3. GOTZEL, A. *Experiences with Tuberculo-mucin.*
4. MARKLE, AND POLLAK, F. *Experimental Contribu tion on the Differential Diagnosis of Diphtheri Bacillus and Pseudo-Diphtheria Bacilli and Ob servations on Their Occurrence in Health Throats.*
5. *GERBER, H., AND BENEDEK, L. *Occurrence of Liv ing Spirochetae in Paralysis Progressiva.*
6. HOKE, E. *Bradycardia, Hypertonicity, Subnorma Temperature, Singular Muscular Weakness an Tendency Toward Swooning.*

5. The authors cite a case of progressive paraly sis of ten years' standing in which at autopsy eigh hours after death living spirochetae were found i the brain. Seven cases on the living had given nega tive results to lumbar puncture. [F. S. K.

No. 41. October 9, 1913.

1. *Rieul, G. *Carcinoma and Raidum.*
2. Wertheim. *Radium Treatment of Carcinoma of the Uterus.*
3. Peham, H. *Radium in Gynecology.*
4. Ranzi, E., Schüller, H., and Sparmann, R. *Experiences in the Radium Treatment of Malignant Tumors.*
5. Schüller, H. *Experiences with "Rademariet" in Carcinoma.*
6. Dantwitz, F. *Use of Radium in Surgery and Dermatology.*
7. Keyffer, F. *Experimental Investigation of Carcinoma.*
8. Hist, R. *Correction on Report of September 25 on Non-Proteinogenetic Allergie.*

1. The author draws the following conclusions:—
1. Carcinoma of the female genitalia accessible to direct radium treatment is thereby favorably influenced, as we already know in skin cancer.
2. From past experiences it is not conclusive that radium can be considered a specific cure in carcinoma, nor is it justifiable to substitute the radium treatment in operable cases. To treat an incipient carcinoma with radium over a long period is unjustifiable, because by postponing the operation the chances of successful operation are reduced.
3. The use of radium is advisable in inoperable and residual cases. [F. S. K.]

Obituary.

CHARLES McBURNEY, M.D.

Dr. Charles McBurney, who died of cardiac disease on Nov. 7 at Brookline, Mass., was born in Roxbury, Mass., on Feb. 17, 1845, of Scottish ancestry. He obtained his preparatory education at the Roxbury Latin School, received the degree of A.B. from Harvard College in 1866, and that of M.D. in 1870 from the New York College of Physicians and Surgeons. After serving as a surgical interne at the Bellevue Hospital and studying for a time in Europe, he settled in the practise of his profession at New York City in 1872. In the same year he became assistant demonstrator of anatomy at the College of Physicians and Surgeons, and subsequently served for several years as demonstrator.

In 1874, Dr. McBurney was appointed attending surgeon at St. Luke's Hospital, New York, and in 1880 assistant surgeon at the Bellevue Hospital. In 1882 he became lecturer on operative surgery at the College of Physicians and Surgeons. In 1886 he was appointed consulting surgeon to the Presbyterian Hospital, and in 1888 attending surgeon at the Roosevelt Hospital.

Following Dr. Fitz's classic clinico-pathologic description of appendicitis in 1886, Dr. McBurney became particularly interested in the surgical treatment of this disease, and in 1887 published in the *New York Medical Journal* his now famous paper on "Experience with Early Operative Interference in Cases of Disease of the Vermiform Appendix." The principles of early or interval appendectomy, as stated in this paper, are the basis of modern surgery of this disease, and the terms "McBurney's point," and "McBurney's incision" will forever associate his name with the treatment of appendicitis as that of Dr. Fitz is associated with its diagnosis.

In recognition of his work, Dr. McBurney was in 1889 made full professor of surgery at the College of Physicians and Surgeons. In 1893 his title was changed to professor of clinical surgery, and in 1907 to emeritus professor of surgery. He also became consulting surgeon to the New York Hospital, St. Luke's, St. Mark's, the Lincoln, the Orthopedic, and the Presbyterian Hospitals, and the New York Hospital for Ruptured and Crippled.

Dr. McBurney was a fellow of the Royal College of Surgeons of Edinburgh, Scotland; a corresponding member of the Société de Chirurgie of Paris, honorary member of the Medical Society of Constantinople, member of the Medical College of Philadelphia, honorary member of the Surgical Academy of Philadelphia, member of the New York Academy of Medicine, State Medical Society and County Medical Society, American Medical Association, Medical and Surgical Society, Practitioners' Society and the Roman Medical Society, and he was a councillor of the Associations of the Alumni of the College of Physicians and Surgeons.

Dr. McBurney retired from practise in 1908, and since that time had lived chiefly at Stockbridge, Mass. He is survived by one daughter and by two sons, one of whom is also a physician.

Miscellany.

ALCOHOLIC MENTAL DISEASE.

NOTICE OF MEDICAL CONFERENCE AT THE PSYCHOPATHIC HOSPITAL BEFORE THE MASSACHUSETTS COMMISSION ON DRUNKENNESS, MONDAY, NOVEMBER 24, 1913.

The General Court of Massachusetts of the year 1913 provided by Chapter 117 of its Resolves that the Governor should appoint a commission to investigate the subject of drunkenness in this Commonwealth. The commission is to report Jan. 1, 1914. Various hearings have been held in the cities of the state, including two hearings at the State House.

The commission is composed of Judge Michael J. Murray, chairman, Edwin O. Childs of Newton, Dr. Irwin H. Neff of Foxboro, Mr. W. Rodman Peabody, and Dr. E. E. Southard.

Although the Psychopathic Hospital is not an institution for alcoholics and has not admitted cases of delirium tremens to its wards (except through mistakes in diagnosis or through the dictates of humanity when patients *in extremis* have been brought) nevertheless its experience in acute alcoholic cases which fall outside the

delirium tremens group has been large. The commission has therefore thought it worth while to hold a conference at the Psychopathic Hospital, to which physicians of the Metropolitan District, as well as of the rest of the Commonwealth, are cordially invited by the trustees of the Boston State Hospital.

Following is a program of this conference, which will be held in the assembly room of the Psychopathic Hospital from 4 to 6 p. m., Monday, Nov. 24, 1913.

Prior to the meeting the commission will visit the hospital. Small parties of physicians can be taken through the wards during the afternoon, before the conference.

PROGRAM.

1. Introductory Remarks. Walter Channing, chairman board of trustees, Boston State Hospital.
2. "Scope of the Work of the Massachusetts Commission on Drunkenness, 1913." Judge M. J. Murray, chairman of the commission.
3. "Types of Alcoholic Mental Disease at the Psychopathic Hospital." H. M. Adler, chief of staff, with clinical demonstrations of available material (delirium tremens, alcoholic hallucinosis, Korsakow's psychosis, alcoholic pseudoparesis, etc.) by members of the staff.
4. "Consensual Amyosis to Blue Light as Shown in Alcoholic Cases." G. E. Eversole, assistant physician.
5. "Further Remarks on Therapy, Especially Hydrotherapy, in Various Hyperkinetic States." H. M. Adler.
6. "Notes on After-Care and Moral Suasion Work with Alcoholics in the Out-Patient Department of the Psychopathic Hospital." A. W. Stearns, first assistant physician, in charge of out-patient department, and Mary C. Jarrett, director social service, Psychopathic Hospital.
7. "The Alcohol Problem, Viewed from the Angle of the Psychopathic Hospital." E. E. Southard, director.
8. General discussion.

Correspondence.

HYDROPHOBIA AS AN OCCUPATION DISEASE.

BOSTON, Nov. 8, 1913.

Mr. Editor: Of late I have been reading considerably about occupational diseases. I have consulted several worthy works, including Dr. Rosenau's "Preventive Medicine and Hygiene," and I have not yet seen rabies considered as an occupational disease. In view of the fact that there are men engaged in catching dogs and that it would be possible for these men to be bitten by rabid dogs and thereby become infected, why wouldn't it be proper to consider hydrophobia under occupational diseases?

Yours very truly,

GAETANO PRAINO, M.D.

SOCIETY NOTICES.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.—A meeting of the Society will be held in Sprague Hall, Medical Library Building, on Monday, November 24, 1913, at 8.15 p. m.

Addresses:

"The Seventeenth International Medical Congress in London, with Especial Reference to the Work of the Orthopedic Section." Dr. Robert W. Lovett.

"Chaucer's London, and its Medical Associations. (Illustrated with lantern slides.) Dr. Robert M. Green.

Members of the Suffolk District Medical Society are cordially invited to attend.

E. W. TAYLOR, M.D.,
President.
ROBERT M. GREEN, M.D.,
Secretary.

THE NORFOLK DISTRICT MEDICAL SOCIETY.—A regular meeting will be held at Masonic Temple, 171 Warren Street, Roxbury, Tuesday, Nov. 25th, at 8 p.m. sharp.

Communications: "The Doctor and the Criminal Law." By Thomas D. Lavelle, Assistant District Attorney, Suffolk County.

"Origin and Function of the Medical Examiner." By Harry M. Cutts, M.D., Medical Examiner, Brookline.

"Some Experiences of a Medical Examiner." By Timothy Leary, M.D., Medical Examiner, Suffolk County.

BRADFORD KENT, M.D., *Secretary.*

APPOINTMENTS.

DR. GEORGE V. N. DEARBORN, of Boston, has been appointed consulting pathologist to the Forsyth Dental Infirmary of this city.

RECENT DEATHS.

DR. THOMAS C. FINNELL, of New York died suddenly on November 5, at the age of 48 years. He was graduated from the medical department of New York University in 1880 and was an inspector in the Health Department.

DR. JOHN MILTON HOMAN, who died on Nov. 5 at East Everett, Mass., was born in Cambridge, Mass. on Nov. 21, 1874. He was educated at the Boston Latin School, and received the degree of M.D. in 1900 from the Harvard Medical School. After practising for a while in Brighton, Mass., he finally settled at Everett, where he served as a local school physician and was a member of the Everett Medical Society. He is survived by his widow and by one son.

DR. ELIZABETH G. PYRUM-PERRY, of New York City, died recently of pneumonia in Fryeburg, Me., where she was born in 1820. She obtained her medical degree in 1880, and practised her profession in New York until her retirement in 1892.

BOOKS AND PAMPHLETS RECEIVED.

On the Classification of the Streptothrices, Particularly in their Relation to Bacteria, by Edith J. Claypole, M.D.

United States Public Health Service. Pellagra, by C. H. Lavinder. Reprint. No. 137. Washington.

A new Design for a Sanitary Pail, by Victor G. Heiser. Reprint No. 138 from the Public Health Reports. Washington, D. C.

Studies on Conglutination, by Ivan C. Hall. Reprint.

Original Articles.

THE CLINICAL VALUE OF THE WASSERMANN REACTION.

BY ABNER POST, M.D., BOSTON.

When a practitioner sends a specimen of blood to a laboratory with a request for a Wassermann test as to the presence of syphilis and receives an answer "positive" or "negative," what ought that answer to mean to him?

This short paper is intended to answer such a question. In other words, it is an attempt to express the diagnostic value of the Wassermann reaction without any reference whatever to its theory or to the technical procedure in language which may be understood both by physician and layman.

In the first place—the Wassermann reaction is not directly a test for syphilis at all. It simply shows that syphilis has or has not produced a certain change in the blood. Syphilis does not produce that change at the moment of inoculation nor is it usually present until after the chancre or primary sore has existed for three or four weeks. Occasionally, it shows very early but oftener it is late, that is, three, four or five weeks after the appearance of the primary sore.

When we are told that the reaction is positive in primary syphilis in such and such a proportion of cases, it leaves the interest centered about the cases in which it has failed. The story is not complete unless we know the age of the lesion at which the blood was taken for examination.

The spirochetae may be discovered some time before the change is recognizable in the blood by the Wassermann test. There may come, also, a time later in the disease when the blood ceases to respond to the Wassermann test, although the disease itself is still present. The disease is then latent or attenuated or powerless, so far as the production of the Wassermann is concerned.

The Wassermann reaction is most delicate and complicated. It can be performed only by skilled scientists specially trained for the purpose. It depends upon a certain substance in the serum of the blood which is known only by its influence on other substances. The amount of blood required is about a drachm and is usually drawn from a vein by the insertion of a hollow needle. The amount required is too large to be readily taken from the ear or finger tip. The reagents required in the original process were:

The patient's blood serum, heated for half an hour at 56° C. just before the experiment
Watery extract of congenital syphilitic liver
Guinea pig's blood serum, freshly drawn
Rabbit's blood
Washed sheep's blood

These are manipulated in five test tubes. The presence or absence of syphilis in the patient's serum is shown by its action on the sheep's corpuscles in the presence of the other agents. Two other test tubes are used for control experiments.

The reaction differs in intensity and this intensity is indicated by the number of plus signs used, though the same symbolism is not used universally. One series of symbols used in this vicinity is as follows:—

+ + +	= markedly positive
+ +	= positive
+	= slightly positive
-	= negative.

When the Wassermann is positive, it means that the patient has syphilis. That is practically reliable in this country. There are, however, certain diseases other than syphilis which may give a positive reaction. These are yaws, leprosy, trypanosomiasis. The blood in certain temporary conditions has also given positive reaction, anesthesia, narcosis. A positive reaction has also been found in a small proportion of other diseases—malaria, scarlet fever, pneumonia, typhoid,—but not constantly. These may almost be said to be isolated observations of single observers, not confirmed by others.

Blood in certain other conditions has occasionally been reported positive. The amount of latent syphilis in the community makes it extremely probable that unexpected positive reports should occur not infrequently. For instance, a woman presented symptoms of disease of the internal organs. She bore the scar of an extensive operation for removal of the breast. There was every reason to believe that she was suffering from malignant disease of the mediastinum, secondary to the disease of the breast. For some reason, a Wassermann was done with positive result. She was given repeated doses of 606 without any change whatever in her symptoms.

A further inquiry into her history gave room to believe that she had had both syphilis and malignant disease. The positive report was evidently misleading. Because she had syphilis and a positive Wassermann, her attending physician drew the inference that everything was syphilitic.

The exceptions to the truth of positive reports are very few. Unfortunately they occur, when they do occur, in cases which are troublesome, as for instance, in the diagnosis between syphilis and leprosy.

From what has been said, it will be evident that a negative report does not necessarily mean no syphilis. It means either no syphilis or that syphilis, if present, has not produced that change in the blood which creates a positive reaction. A negative report is, then, simply negative evidence. It simply shows that there is no evi-

dence of syphilis in the particular specimen of blood submitted for examination, and as we have seen that syphilis may be present in the body and not show in the blood, it is evident that a negative Wassermann is not conclusive evidence of the absence of syphilis. In fact, it sometimes occurs that we get a negative Wassermann while characteristic syphilitic lesions are present on the body. Some of the serious cases of nervous syphilis occur after a negative Wassermann. This does not mean that a negative report is valueless.

The Wassermann reaction is of use for two different purposes. First, for diagnosis, and second, as a measure of the effect of treatment. So far, it has been considered in this article only as a help to diagnosis. As a measure of treatment, it is taken before treatment is begun, at intervals during treatment, and after treatment has been omitted for a length of time. When found positive before treatment and negative after treatment, it shows that treatment has had an effect on the disease. Some times there is a gradual reduction in the strength of the reaction in successive tests. It may be reported + + + before treatment, + + after treatment has been begun, + a little later and negative a little later still. When the reaction is thus extinguished, there is always room for hope that the disease is absolutely cured. Unfortunately, the reaction is known to return to positive in some cases. This has led physicians to take repeated tests at long intervals after it becomes negative. How long such reactions should be followed before one can pronounce his patient positively cured is unknown. It has become evident that the disease does occasionally show its old characteristic of returning after an apparent cure.

The reaction may be rendered negative by treatment when the disease is not cured, exactly as other symptoms may be made to disappear. This change in serum reaction may sometimes be brought about by mercury before the symptoms for which it was given have disappeared. The same is true of salvarsan administration though the external symptoms are more apt to disappear before the serum reaction changes. A negative reaction is also said to be brought about by acute alcoholism.

A negative report is also of value as confirmatory evidence. This is best illustrated by an example. There was a difference of opinion between two doctors as to the character of certain lesions on a patient. One said that they were syphilis and the second denied it. They agreed to submit the case to a third doctor and to abide by his opinion. The third doctor found no evidence of syphilis. A few years ago, he would have said so—at present, he must have a serum examination before he can deliver a positive and satisfactory opinion. In this particular case, a negative Wassermann was necessary to complete the case. The report would have been incomplete without it.

A third report on blood submitted for the Wassermann test is occasionally returned—"anticomplementary." That means that complement, the unisolated and little understood substance, known only by its influence on other substances, and necessary to the Wassermann reaction, is not present in the specimen submitted. This substance, present in all fresh serum, disappears from blood too long preserved. That change in the blood renders it necessary that the specimen sent for examination should be freshly taken.

No sooner had Wassermann made public his discovery than scientists set to work to improve it, either by simplifying the procedure or by the introduction of more delicate reagents which should detect a larger number of cases than the original. At present, certain pathologists claim that their reagents recognize a larger number of cases of syphilis than those of other pathologists. This difference in procedure gives different results and different reports when specimens from the same individual are sent to different pathologists. In these cases, the positive report is returned usually as mildly positive, or is indicated by a single plus sign, showing that the two pathologists do not differ widely and that the case is on the border line, but they are very annoying to the clinician.

After the publication of the Wassermann reaction, a few enthusiastic pathologists felt that the diagnosis of syphilis could always be made in the laboratory and statements to that effect were widely circulated, but the reaction is a symptom rather than an unfailing test. When it proves positive, it is a very great help but a negative report by no means settles the matter. It means no more than the absence of any other important symptom. The case must be further studied clinically.

As a measure of the effect of treatment, it gives us something absolutely new and of very great value, but its greatest usefulness can never be reached until pathologists themselves reach unanimity in their methods.

But its value is not confined to individual cases. Its assistance in the study of the disease has been very great. It has helped to show how very large the proportion of syphilis is in the country; the dissemination of the disease; that certain diseases called para-syphilitic are still syphilitic; it has been of wonderful use in the study of hereditary disease.

If one will regard the Wassermann reaction as a symptom to be considered like other symptoms, and in relation to other symptoms, it will prove a wonderful help. If one insists in calling it a test, he may be confused rather than aided.

Our knowledge of the Wassermann reaction is not yet perfect. In fact, no definite conclusion has been reached as to what the Wassermann reaction really is. Our present knowledge is only a step towards a wider knowledge of yet hidden truth.

COMPARATIVE PSYCHOLOGY IN RELATION TO MEDICINE.*

BY ROBERT M. YERKES, PH.D., CAMBRIDGE MASS.,

Assistant Professor of Comparative Psychology, Harvard University, and Psychologist to the Psychopathic Hospital, Boston.

THE relation of comparative psychology to medicine appeals to me as a timely topic for discussion, not because I happen to be a comparative psychologist, but because psychology, no longer a philosophic discipline nor merely the qualitative study of consciousness, to-day as never before, by its promise and by its recent achievements, commands the attention of students of medicine. I wish to present and to defend the thesis that comparative psychology, like comparative anatomy, physiology, pathology, should be included among the medical sciences.

Due largely to the advances in methods of observation and to the considerable contributions of fact made by students of animal behavior[1] during this decade, psychology is rapidly becoming the study of conscious behavior instead of the study of consciousness or mind. Indeed, certain psychologists, ultra-progressive or prophetic, perhaps, have defined it as the science of behavior.[2] This definition is indicative of a tendency to extend the boundaries of the science and to supplement its methods.

The psychology of yesterday was predominantly introspective, self-observational. The psychology of to-day, or as I prefer to call it, comparative psychology, for it is in reality a special development within the science—is observational, in the broad sense, and insistently quantitative.

The new comparative psychology[3] differs from the general science not in its materials but in its methods. It is characterized as objective, whereas psychology in general has been subjective. These words are objectionable but well nigh unavoidable. It is further true that whereas comparative psychology attends chiefly to behavior and its products, the psychology of man concerns itself more especially with the phenomena of consciousness.

But it matters little whether we agree to call the newer scientific work, from the psychological standpoint, physiology, psychology, or comparative psychology, if we recognize clearly the nature and significance of the changes which the science of mental life is undergoing.

The newer psychology accepts as its legitimate materials, the behavior of the organism, as well as the varied forms of introspectively known consciousness and the products of activity. There are, in fact, three groups of phenomena to which the student of mental life must give close and persistent attention if he is to gain insight into human nature and deal successfully with it. They are (1) the facts of consciousness as known through self-observation (sensations, feelings, ideas, images, emotions, thoughts, etc.); (2) the facts of behavior, obscure as well as obvious; inherited and acquired, simple and complex responses of the organism to environmental situations; and (3) the more or less permanent and psychologically meaningful products or results of organic activity (the spider's web, the bird's nest; human works of art and industry; domestic architecture and scientific achievements).

Unquestionably a psychology which is neither "structural" nor "functional," devoted solely neither to the "introspective" study of mind nor to the "objective" study of bodily processes as correlates of consciousness; a psychology which as eagerly and as carefully examines the products of human (or infra-human) thoughts and actions as it does the thoughts and actions themselves, demands and deserves a name. The name comparative psychology is suggested because method is alike the distinctive characteristic of "animal psychology" and of the general movement which we are considering. The method is that of experimental observation and comparison. The results are quantitative descriptions of conscious behavior.

That comparative psychology, as it has been defined, has to do with vital phenomena which are of extreme importance to the physician is too obvious for argument or proof. The physician deals with living reacting beings, who are conscious—even self- or introspectively conscious—and who exist in complex social relations. His success is conditioned, first of all, by his knowledge of the facts and laws of human nature (of conscious behavior). Now it is precisely the phenomena exhibited by the consciously reactive organism that occupy the comparative psychologist. His task it is to accurately describe conscious behavior, to formulate its laws, to explain it, and to point the way to its control.

With respect to materials, comparative psychology is limited only by the boundaries of physiology. It studies alike the consciousness, behavior, and achievements of man and ape, animal and plant; of child and adult; of isolated individuals and social groups; of normal and pathological organisms. To all its objects, and to all the phenomena displayed by these objects, it applies the method of self-observation, when this is at all possible, and the methods of natural science. Above all it compares and, in the light of genetic relations, describes and interprets its facts.

It remains to show, by concrete examples from research, how comparative psychology actually works.

Proposed, the problem: Is a certain organism capable of perceiving and discriminating cer-

* The substance of a lecture delivered at the Psychopathic Hospital, May 4, 1913. Being Contributions from the Psychopathic Hospital, Boston, Massachusetts, Number 23 (1913. 23). The previous contribution, P. H. Contributions, 1913. 22, was by A. Myerson, "Note on Contra-Lateral Oppenheim and Gordon Reflexes, with Observations in Two Cases." Submitted to the *Jour. Nervous and Mental Diseases*, 1913.

tain colors? The self-observation of the organism may be either lacking or insufficient for the solution of the problem. Forced to have recourse to other methods, the comparative psychologist devises an apparatus which (1) enables him to present simultaneously or successively two chromatic stimuli, accurately controllable and describable with respect to size, form, position, intensity, purity, and hue; (2) demands that the organism react specifically, on the basis of experience, to the two stimuli: to the one it must react negatively on pain of punishment or loss of reward; to the other positively, with reward, (3) makes it possible to repeat time after time, at intervals of weeks or months, if necessary, the observations on a given organism, and to record with a high degree of accuracy the reactive behavior.

Thus, by means of a so-called objective and quantitative method, the comparative psychologist is enabled to supplement, if not to correct, the introspective report which the older psychology depended upon.

The case brings out two points. First, that the comparative psychologist uses self-observation as far as he safely can; and second, that he strives for quantitative, verifiable results which shall be as free as possible from observational bias.

Dr. G. V. Hamilton[4] has devised a method by which certain of the important reactive tendencies of man and lower animals may be studied comparatively. He set himself the task of developing a method which should be equally suitable for the experimental observation of human beings, immature or mature, normal, defective or deranged, and of many other animals. Thus far he has studied, with his device, men and boys, both normal and defective; monkeys, both mature and immature; dogs and puppies, cats and kittens, and horses.

The problem set the various subjects is to develop a method of escaping from a small room with four doors or possible exits. In any given trial only one door is unlocked and there is no way in which the animal can certainly select the door which will yield to pressure. The same door is never left unlocked in two successive trials.

Dr. Hamilton's pioneer work in applying the methods of animal psychology to the study of human subjects, both normal and pathological, was inspired by his desire to analyze profitably the behavior of mentally diseased individuals. He has obtained important results, but still better he has pointed a new way to knowledge of human nature. To quote one of his conclusions: "The present investigation has afforded experimental evidence that the phylogenetic and ontogenetic differences of adequacy of mammalian adjustments are to be accounted for not merely in terms of sense-physiology and of associative habit formation, but in terms of reactive tendencies as well. Evidence has also been adduced to support the view that the elaboration of experience involves an interplay of conflicting reactive tendencies, and that these are experimentally isolable according to criteria legitimate to genetic (comparative) psychology," (pp. 64-65.)

Or again, the problem of the nature of the "learning process" is proposed. Having exhausted the possibilities of introspective examination, the psychologist appeals to the comparative psychologist for aid, and the latter suggests the following procedure.

Construct a labyrinth or maze whose correct path from entrance to exit is difficult to learn because of numerous turns and blind alleys. By a system of mirrors and lenses project an image of the maze upon a sheet of paper on which is printed a diagram of the maze. Under certain definitely describable and uniform conditions permit the organism whose learning process is to be studied to find its way from entrance to exit, the while on the record sheet tracing the exact course or route followed, and noting the time occupied by various phases of the reaction. At the end of the experiment record (1) the distance traversed; (2) the number of mistakes made; (3) the time occupied. Repeat the experiment at stated intervals and thus obtain accurate records of those modifications in behavior which, through the learning process, finally result in a perfect habit of following the correct route. Finally, correlate the objective data of the maze experiment with such introspections as were obtained.

In this study of the learning process it is made clear that the comparative psychologist endeavors to measure a number of aspects of behavior and to correlate his results with those of introspection. Were he to ignore the latter he might be called a physiologist rather than a psychologist.

The study of the emotions furnishes admirable opportunities for the comparative psychologist to apply his methods. Confronted with the task of investigating the emotion of fear in an organism, he devises mechanisms which supply records of certain organic processes: circulatory, respiratory, secretory changes. He then correlates the various aspects or elements of the "fearful situation" with the modifications in organic processes which appear in his records; and the latter in turn with such self-observational data as are available. Fear as introspectively known demands the supplementation of the organic picture—this picture the comparative psychologist obtains.

The Pawlow salivary reflex method is an admirable example of a scientific procedure which may be employed either for the purposes of physiology or for those of comparative psychology.

Recently I was asked to compare the "intelligence" of two groups of rats: the one normally bred (stock) and the other closely inbred. As comparative psychologist, I set about the task thus. Equal numbers of individuals from each

group, of the same age and sex, were selected and systematically subjected to training in a visual discrimination apparatus. The rapidity with which each rat learned to react positively to one visual stimulus and negatively to another was determined. From the experiments several kinds of data were obtained: (1) rough measurements of the wildness and timidity of the individuals; (2) records of the exact behavior in the apparatus—course followed, etc.; (3) the time taken for discrimination and choice; (4) the nature of the choice—by affirmation, negation, or comparison[5]; (5) records of positive or negative reactions; (6) the total time of the experiment.

Another group of rats, including both stock and inbred individuals, was trained in a maze in the manner suggested above.

We are not concerned with the outcome of these experiments, but solely with the method of procedure and with the varieties of data obtained. This should be said: there are no aspects of organic reaction which are not worthy of accurate measurements in a psychological investigation. The reflexive and the instinctive often prove to be quite as important as the impulse or voluntary.

An unexpected result of the preliminary attempt to measure the "intelligence" of stock and inbred rats for purposes of comparison was the discovery that the two kinds of individual differed so radically in "temperament" that no reactions could be satisfactorily interpreted except in the light of an analytic and quantitative study of savageness, wildness, timidity, nervousness, inhibition, and similar complexes which either condition behavior or constitute it.

How may "savageness" or "timidity" or "nervousness" be studied scientifically is the question irresistibly suggested by the previous paragraph. These terms almost certainly designate complexes rather than simple behavior-traits. Nevertheless, it is possible to measure them roughly. Each must be analyzed into its chief constituents, first of all. Then the several part-reactions may be examined separately. Thus, savageness, in the rat, turns out to be made up of (1) squealing, (2) biting, (3) jumping, and various other less conspicuous activities. Each of these may be measured in frequency of occurrence, amount, persistence, etc., if one chooses to take the time to do so. As a result of such a quantitative study of savageness, one is enabled to compare, with a fair assurance of accuracy, the savageness of different individuals or types.

What has been said of savageness applies to nervousness. This complex is so important in its relation to the rapidity and the nature of the learning process that it simply must be taken into account. In other words, it is putting the cart before the horse to attempt to measure the "intelligence" of "stock" and "inbred" rats before measuring their nervousness. The temperament of an organism demands thorough analysis and quantification in connection with any psychological experiment whose purpose is comparison.

The above illustrations of the working of comparative psychology have been taken from researches with other animals more often than from those with man. This is simply because the methods under consideration have been developed largely by students of animal behavior and have yet to be applied extensively and intensively to the problems of human nature. It needs no proof, however, that human behavior, consciousness and achievement, are as accessible to the comparative psychologist as are those of the ape, the dog, the frog, or the worm.

I have attempted to convince you that comparative psychology deals with facts and principles which are of extreme importance to the physician, and that it deals with these facts in a systematic, quantitative, law-evoking manner which renders it immediately serviceable to medicine.

The situation is this: A science of conscious behavior, introspective and quantitatively observational, comparative and rigorous in its demands for verifiability, is developing. Will those who are interested in medical education make use of it or will they continue to permit students to grapple with the problems of human nature without systematic training in the methods of studying conscious behavior, and without a good working knowledge of the facts and principles of human behavior. It is a case of heads I win, tails you lose, for comparative psychology has much to give and medicine much to gain, and whether or not students of medicine avail themselves of its assistance, it will progress steadily, little by little supplying the principles of organic nature which should enter into the foundations of our social sciences and guide in the varied applications of natural science.

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[1] Behaviorists or comparative psychologists, as the case may be.

[2] Pillsbury, W. B.: The Essentials of Psychology. New York. 1911. "Psychology may be most satisfactorily defined as the science of human behavior," p. 1.

McDougall William: Psychology: The Study of Behavior. New York. 1912. "We may then define psychology as the positive science of the behavior of things," p. 19.

Watson, John B.: Psychology as the behaviorist views it. Psychological Review. 1913. 20:158. "Psychology as the behaviorist views it is a purely objective experimental branch of natural science. Its theoretical goal is the prediction and control of behavior. Introspection forms no essential part of its methods, nor is the scientific value of its data dependent upon the readiness with which they lend themselves to interpretation in terms of consciousness."

[3] The term comparative psychology at present is commonly used to designate the psychology of animals other than man. This usage is bad, in the opinion of the writer, and he, therefore, proposes a new usage in this paper.

[4] Hamilton, G. V.: A Study of Trial and Error Reactions in Mammals. Jour. Animal Behavior, 1911. 1:33-66.

[5] See Yerkes: The Dancing Mouse. New York, 1907, p. 131.

NOTE ON SOME PROBLEMS OF THE ADOLESCENT AS SEEN IN THE PSYCHOPATHIC HOSPITAL OUT-PATIENT DEPARTMENT, BOSTON, MASSACHUSETTS.*

BY WILLIAM PALMER LUCAS, M.D., SAN FRANCISCO,

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THE Out-patient Department of the Psychopathic Hospital offers an exceptional chance to study certain problems of adolescence, especially those dealing with border-line mental cases. This is a field which needs especial attention. And though from the following cases no conclusions can be drawn, it is hoped that a short study of the cases so far seen may call attention to the need of investigating this important class of cases.

During the last eight months we have had the opportunity to examine 123 such cases between the ages of ten and twenty years; 71%, or 88, of these showed some evidence that adolescence had some relation to the condition for which they were brought in. The distribution of ages is seen in the following table:

Age.	Number of Cases.
11 years	14
12 years	10
13 years	18
14 years	16
15 years	20
16 years	16
17 years	15
18 years	12
19 years	2
Total	123

The family history of these cases, especially from the standpoint of any family mental history is seen in the following table:—

FAMILY HISTORY.

Negative	38
Insanity	12
Lues	12
Defective	10
Alcoholic	19
Immoral	24
Nervous	10
Epilepsy	7
Deaf-mutism	3
Defects of speech	2
Friedrich's ataxia	1
Consanguinity	1
Unknown	4

The reasons for bringing these cases in was mainly mental examination. The reasons given are as seen in the following table:

REASONS FOR COMING TO HOSPITAL FOR TREATMENT.

Backward mentally	43
Speech defects	15
Violent temper	9
Erratic behavior	8
Incorrigibility	18
Untruthfulness	15
Extreme nervousness	16
Stealing	23
Truancy	11
Inability to keep job	3
Juvenile court cases	19
Immorality	9
Waywardness	3
Sexual pervert	4
Forgery	2
Masturbation	5
Depression	2
Tic	3
Suicidal tendencies	2
Brain tumor	1
Epilepsy	5

Our physical examination brought out the fact that over 39% of these were normal. The other percentages are as seen in the following table.

PHYSICAL CONDITION.

Normal	48=39%
Under par	38=30.89%
Nervous	30=24.39%
Tic	4=3.2%
Speech defects	15=12.19%
Epilepsy	5=4.2%
Tuberculosis (Incipient)	3=2.4%
Endocarditis	2=1.6%
Friedrich's ataxia	1=0.8%
Anemic	2=1.6%
Enuresis	6=4.87%
Eye troubles	12=9.75%
Hearing troubles	5=4%
Excessive fat	1=0.8%
Nightmare	2=1.6%
Previous convulsions	8=6.5%
Tubercular bone (healed)	1=1.6%

The striking ones being those under par, 30.89%; nervousness, 24.39%; those having speech, 12.19%; eye, 9.75%; ear, 4%; defects, epilepsy, 5%, and enuresis, 4.87%; also those having had previous convulsions, 6.5.

Even more interesting are the findings of our mental examinations which shows the greatest disturbance in their volitional powers; a very large percentage being defective or retarded (57.7%).

MENTAL CONDITION.

Normal	29=23.5%
Retarded	29=23.5%
Defective	42=34.14%
Psychosis	10=8%
Dementia precox	6=4.8%
Neurotic	3=2.4%
Psychopathic	1=0.8%
Imbecile	1=0.8%
Unstable	5=4%
Sexual neurasthenia	1=0.8%
Bad environment	2=1.6%
Bad heredity	2=1.6%
Irregular	10=8%
Suggestibile	12=9.7%
Poor Inhibition	12=9.7%
Delinquent	20=16%

* Being Contributions from the Psychopathic Hospital (Boston, Massachusetts), No. 17 (1913. 17). The previous Psychopathic Hospital Contribution is 1913. 16, entitled outlook of work at Psychopathic Hospital, by E. E. Southard, BOSTON MEDICAL AND SURGICAL JOURNAL, September 18, 1913.

The state of adolescence is given in the following table:

ADOLESCENCE.

Backward adolescence	12
Pre-adolescence	43
Adolescence	52
Adolescence plus	16
Total	123

TRANSFUSION BY MEANS OF GLASS CYLINDERS.*

BY A. R. KIMPTON, M.D., BOSTON,

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THE object of this paper is to present a method. Therefore the therapeutics of transfusion will only be spoken of in a general way.

Transfusion is usually looked upon as a procedure preliminary to an undertaker, and quite often questionable as to its technical success, but if you wish to avoid the undertaker do not look upon it as such. The cause of this attitude is the great technical difficulties of direct transfusion and with the introduction of easy methods will gradually change.

Transfusion has a quite definite place in the treatment of certain medical and surgical conditions as well as in the treatment of certain emergencies. It has its place both in preparing for operation and after operation.

In the *Journal of the American Medical Association* for July 12, 1913, there appeared an article, "A New and Simple Method of Transfusion" by A. R. Kimpton, M.D., and J. Howard Brown, M.S.

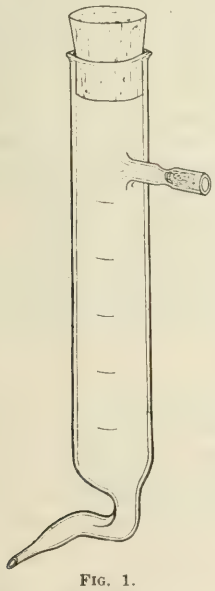


FIG. 1.

* Read by invitation before The Obstetrical Society of Boston, Oct. 28, 1913.

The tube (Fig. I) consists of a glass cylinder of whatever capacity desired, closed at the upper end by a cork stopper, a side tube a little below the cork, and a cannula leading from the bottom of the cylinder. The canula must join the cylinder at such a position that it will lead from the upper side of the cylinder when the latter is placed on its side with the side tube uppermost.



FIG. 2.

(Fig. 2.) The cannula bends downward just after leaving the cylinder and then at right angles to the plane formed by the axis of the cylinder and the side tube. From the last bend the cannula should not be more than two or three inches long, should taper gradually, and terminate in a beveled and burnished point about 2 or 3 mm. in diameter.* The whole cylinder is then wrapped in sheet wadding and a towel, placed on its side in an autoclave and sterilized in the same manner as are dressings. At any time before the operation (which is better), or at the time of the operation, the sterile tube is unwrapped by the surgeon and is held above the flame of a Bunsen burner, alcohol lamp, or other source of heat, and carefully revolved until the melted paraffin has covered all the portions of the inner surface of the cylinder, cork, and the side tube as far as the constriction. Finally the excess is allowed to run out of the cannula while the tip is held against a sterile gauze sponge. To avoid excessive crystallization of the paraffin, the cylinder should be cooled as quickly as possible by being brought into contact with an alcohol sponge. The tube is also sealed on the outside by allowing a little paraffin to run around the junction of the glass with the cork. This prevents any escape of air when pressure is applied to empty the tube.

Fifty-four degree paraffin was originally used to coat the tube, but now Vincent's mixture, of stearin, paraffin, and vaseline, is used. This is in the proportion of 1-2-2. With this mixture the tubes are more readily cleansed by merely running hot water through them.

One should practice coating the tubes before using them for the first time. They are easily coated, provided the tube is first heated equally, then a lot of paraffin poured in, much more than is needed. The excess is easily run out.

The paraffin or Vincent's mixture is sterilized in an autoclave and at the time of using is melted by placing the jar in a basin of hot water over a flame.

The tubes are of two sizes, 250 c.c. and 150 c.c. Any size can be made, but these sizes answer re-

* The tube was designed and made by Mr. Brown.

quirements in all cases, whether a new born baby or an adult.

Technic. A tourniquet is placed on the donor's arm tight enough to give venous congestion and still allow arterial blood to flow in. With novocain a vein just below the elbow is exposed cleanly, through an incision about one and one-half inches long. This vein is tied off proximally and a ligature placed around it distally, but *not* tied. This ligature is raised by an assistant, thus acting as a clamp. The vein is now transfixed by a cataract knife and a slit made. A similar vein of the recipient's arm (without a tourniquet) is prepared in a like manner, except it is tied distally.

The cannula of a tube is now inserted into the vein of the donor and held upright until filled by venous pressure. This usually takes not over two to three minutes for a 250 c.c. tube. If not filling well, this usually means that the tourniquet is too tight. While filling, the donor is instructed to open and shut his hand. This perhaps hastens the inflow. Being filled, the tube is withdrawn and held on its side (Fig. 2) with side piece uppermost to prevent the blood from running out. The cannula is now inserted into the vein of the recipient and held in an upright position. An actual cautery bulb pump is attached to the side tube and by a little pressure the tube is emptied, withdrawing the cannula while still a little blood is left in it.

More tubes may be filled and emptied, using the same veins if desired. Pointing the cannula towards the hand seems better than towards the heart. Both ways may be used.

Using any means of suction in filling the tube seems to be of no advantage, as the tubes fill readily. Furthermore, the walls of the vein can easily be collapsed by a little too much suction. The pump is boiled, therefore the operator can handle it himself.

The method, to my knowledge, has been used fifteen times either by others or myself, and in each case a known quantity of blood has been transfused, without difficulty, except in two cases. Here the difficulties were in technic, which corrected, the patients were easily transfused. A brief summary of these cases is as follows:—

CASE 1. The original cases done at the Children's Hospital, transfusing 100 c.c. of blood. (Reported in original article.)

CASE 2. Reported in *J. A. M. A.* for Nov. 1. Seen with Dr. A. L. Brown, Winchester, Mass. Patient had received a compound practure of skull and had lost a great deal of blood. Was transfused with 350 c.c. of blood with very pleasing result. This patient, after being up and around, developed meningitis, four weeks after transfusion and died.

CASE 3. Dr. J. C. Hubbard's case. Seen by him with Dr. Sise of Medford. Hemophilia. Bleeding after excision of small growth on eyelid. Transfused with 250 c.c. from his mother. This man began to feel queer as soon as his mother's blood entered his circulation. About one-half hour later he had a severe chill lasting about one hour. Wound began to ooze and there was hemoglobin and broken-down red cells in his urine. This is the only case of hemolysis and he gradually recovered. He had had a considerable amount of rabbit serum before the transfusion.

CASE 4. Baby six days old. Seen with Dr. Newhall, Holliston, Mass. Hemorrhage of newborn. This baby was having very severe hemorrhages and just before my arrival had a very severe hemorrhage about umbilicus. Preparations were rapidly made, but baby stopped breathing just as incision was made in father's vein. Ninety c.c. was transfused, using internal jugular of baby but without avail.

Newborn babies probably never need over two to three ounces at most.

CASE 5. Seen with Dr. Finklestein. Hemorrhage from placenta previa followed by sepsis. Was transfused because of loss of large amount of blood, in hopes of giving better resistance to sepsis. Done in tenement house under very bad conditions. Two hundred and fifty c.c. transfused from a cousin. Patient died two days later.

CASE 6. Seen with Dr. H. F. Day. Post-partum hemorrhage. Patient had been pulseless. After salt solution and stimulation, pulse returned but very thready, 160 in rate. Transfused with 550 c.c. from husband with very marked improvement. Pulse gradually returned to 104 and next day was 90. Uneventful convalescence.

CASE 7. Seen with Dr. N. R. Mason at the Boston City Hospital. House Officer's message to Dr. Mason was that the patient was moribund. On arrival patient found in very bad condition. A few heart beats were reaching wrist. Transfused with 600 c.c. from husband and patient promptly became alert and interested. Abdominal at once by Dr. Mason. Dr. Mason states that her convalescence was such as you could expect after an operation of election. In this case there was difficulty in filling the first tube because of improperly applied tourniquet and the blood clotted. This tube was cast aside and we began again and no more difficulty was experienced.

CASE 8. Waltham Hospital. Toxemia of pregnancy. Very severe with blindness. Transfused by Dr. J. C. Hubbard, from husband 500 c.c. Pulse and color improved. Uterus then emptied. Patient died. It was wished to transfuse this patient with the blood from another pregnant patient but no such case was available. In this case great difficulty was experienced in getting into the very small vein of the recipient and again a tube clotted, but using other tubes the transfusion was successfully done.

CASE 9. Transfused by Dr. J. C. Hubbard. Post-partum hemorrhage. Patient would undoubtedly get well but was given 250 c.c. of blood from husband, as she was very much bled out, to save her a long drawn-out convalescence. Very marked improvement. Internal saphenous vein of recipient was used.

CASE 10. Seen with Dr. N. R. Mason. Hemorrhage from hydatidiform mole. Transfused with

300 c.c. from a thirteen year old daughter. Husband and brother refused to give blood. Because of age of daughter, although robust, only 300 c.c. of blood was taken. There was very marked improvement and an uneventful convalescence instead of the long drawn-out convalescence these washed-out patients usually have.

Case 11. Seen through the courtesy of Dr. J. B. Blake at the Boston City Hospital. Child two years old; splenic anemia. Very much enlarged spleen. Hemoglobin 40-50. In no shape for splenectomy. Appearance before transfusion was waxy, absolutely colorless. Transfused with 150 c.c. from father, using internal jugular vain of child. Child became at once a bright red all over. Hemoglobin rose to 80. An attempt was made to do this case without a little ether, using novocaine. This was very foolish. External jugular was pricked with needle and then it was impossible to get into the vein with cannula because of trauma done to it. Child was now given a little ether and internal jugular used and transfusion became easy. Next day spleen was removed by Dr. Blake who says that the child has had such a convalescence as to be remarkable. Hemoglobin about one week later was 85.

Cases 12, 13, 14, 15. These cases were done by Dr. W. E. Ladd, Dr. F. H. Lahey (2) and Dr. Dowman, Birmingham, Alabama, all successfully.

Physicians frequently ask such questions as these: "Has transfusion any dangers?" Its answer might be, "Has a laparotomy any dangers?" "How great is the danger of hemolysis?" "How great is the danger of peritonitis in clean cases?" One would not hesitate to do a laparotomy because of a slight danger of peritonitis when needed. No more so should one hesitate to do a transfusion when needed. The danger of hemolysis is overdrawn. It very rarely occurs—in my own experience with transfusion, only once. It shows itself almost immediately. Crile's large experience shows it to be a very rare occurrence. Laboratory tests are of very little avail, for blood may hemolyze in test tubes, and not in the circulation of the patient, or vice versa.

More important is the danger of an acute dilatation of the heart. This should be carefully watched for. It manifests itself by precordial distress, dyspnea and rapidity of pulse. Stopping the flow by pressure of a finger on the vein and controlling the flow by the same means until the heart recovers will usually overcome this. In those cases not definitely emergencies, a Wassermann is essential.

Donor. Who shall it be? Kinship, according to Crile, is not essential. It is best to be a near relative, but not a necessity. It is also better that the donor and recipient be near of an age when practicable. The statement that transfusion should be a method of last resort is not agreed with at all. We should be aggressive, and aggressive earlier, provided we have the means.

All of the direct methods require very special training for the operator and his assistant. One can do a transfusion by any method that he makes himself familiar with in the laboratory. The direct methods do not do away with the uncertainty of the flow of blood, lack of knowledge of the amount of blood that the recipient is getting (most of them get mighty little, usually, by these methods except in the hands of men doing it very frequently), nor do they do away with the great difficulty of joining the donor with the recipient. All operators using any one of these methods as a rule use the radial artery of the donor, which requires a considerable dissection. One would think that the danger of a septic wrist by these methods would be great, but in a considerable experience, it has not occurred.

The above method does away with practically all of the disadvantages of direct methods even to the trained assistant. Practically all of the above cases were done without assistants trained in this work and some practically without any assistant.

The question might be asked, "Is the blood too rapidly taken from the donor?" and "Is it too rapidly transfused?" It certainly is not taken too rapidly and if the flow is too rapid on transfusing the blood, a finger on the vein ahead of the cannula will easily regulate the rapidity.

Another fair question is, "Do any preliminary stages of clotting take place and is venous blood as suitable as arterial"? As to the clotting, experimentally and practically, if such takes place, it is so preliminary as to be of no practical importance. The venous blood very rapidly becomes arterial, and of course direct transfusions have been done from vein to vein by direct methods.

The method is simple, the technic can be acquired by ane one, but it is justifiable to say that one should familiarize himself with the technic before attempting it. He should be acquainted with the handling of blood vessels, or better with the *not* handling of blood vessels, for usually the vessels can be exposed cleanly without handling. It is the little details such as this, that make for success.

Since the reading of the above, the following cases have been done successfully as far as technic goes. There have been several cases transfused by this method at the Brigham Hospital by Dr. Harvey Cushing; three by Dr. E. H. Nichols and two by Dr. F. H. Lahey at the Boston City Hospital.

The following case seen with Dr. Stephen Rushmore at Carney Hospital.

Post-operative hemorrhage following operation for multiple fibroids. Transfused with 1050 c.c. from husband. Patient went to pieces very rapidly just before transfusion was started. Not waiting to fill a tube, but getting 150 c.c., this was transfused, then a 200 c.c. tube was filled and emptied twice (using same tube), then a 250 c.c. tube was filled and emptied twice (same tube). Respirations had stopped although there was still a little circulation. Efforts to bring about respirations were fruitless.

I have been impressed with the amount of blood the donor can lose without embarrassment. This man lost over one quart, two other donors lost nearly one quart but without any embarrassment. The recipient nearly always complains of hunger as his vessels are filled.

Being simple, the method allows patients to be transfused that otherwise would not get the benefit of transfusion.

I wish to express my thanks to Dr. J. C. Hubbard for valuable suggestions.

THE USE OF BACTERIAL VACCINES IN ACUTE SEPTIC CONDITIONS OF THE ORAL CAVITY MET WITH BY THE DENTIST.*

WITH SPECIAL REFERENCE TO MANDIBULAR AND SEPTIC APICAL ABSCESSES: REPORT OF CASES.

BY LEON S. MEDALIA, M.D., BOSTON.

IN this paper I shall take up for discussion the practical application of vaccine treatment in septic diseases of the oral cavity, more particularly those of the gums, teeth and alveolar process that are due to bacterial infection, limiting myself to those that are distinctly not chronic alveolar osteomyelitic or "pyorrheal" in nature. The latter I have already presented to you at a previous date and published in detail since (See BOSTON MED. AND SURG. JOUR., Dec. 19 and 26, 1912).

The acute and chronic infections of the oral cavity—suppuration of the pulp; acute and chronic septic apical abscesses; dento-alveolar abscess, especially those of the mandibular third molar; and chronic abscess with fistula, although they would seem offhand to be distinctly dental in nature, are in reality more important from the medical standpoint than they are from the dental because of such symptoms as high temperature, tonsillitis, sore throat, general malaise and prostration, which accompany them. The successful results obtained in these cases by the vaccine treatment still further indicate the importance of these diseases from a medical standpoint.

Such suppurative infections might arise spontaneously as for instance during an attack of tonsillitis, the infection penetrating by way of the gingival margin of a partially erupted wisdom tooth, as few of my cases will illustrate; also from neglected or decayed teeth in which cases the infection penetrates through the pulp; or following dental mechanical procedure, such as laceration of the pulp during cavity preparation. The latter may be responsible for starting the condition but it is really the bacteria and their products that are responsible for the inflammation and the suppuration.

* Read at the annual meeting of the N. H. State Dental Society, held at Wiers, N. H., June 19, 1913.

The bacterial relation of these suppurative infections being definitely established, the vaccine treatment immediately suggested itself, especially in those cases with the mandibular or apical abscesses that did not yield to the ordinary local treatment. Such cases yielded promptly to the vaccine treatment as will be seen later under the case reports. Some of the chronic cases with discharging fistulas that had gone on for years and where the bone was affected were not benefited much until the indurated fistula was thoroughly curetted and the necrotic bone removed, while on the other hand those of the chronic cases where no necrotic bone was present, yielded to this treatment. The chronic cases had, of course, to be followed up for a much longer time than the acute or subacute cases, before they were cured.

The vaccine seemed to have been of special value in cases where the infectious process was around a partially erupted or impacted mandibular third molar. The inflammatory edema in these cases—swelling and cellulitis—was so great that it caused the locking of the jaws and the swelling of the whole side of the face and throat. The patient could not open his mouth more than about one-half to three-fourths of an inch and was generally very sick. Local mechanical treatment was practically of no avail. The almost immediate relief of the symptoms (within 8 to 24 hours)—the lowering of the high temperature, reduction of the swelling and pain—following upon the administrations of the vaccine was, in the beginning of this work a surprise to the dentist and myself.

Those of you who are doing special work on oral surgery will probably appreciate the more any therapeutic agent which will help in overcoming an infection already present in a case of fracture or where the infection has come on following the setting of such a fracture. In a few such cases we have used the vaccine in a prophylactic way, that is, immunizing these cases with the vaccine and thus preventing infection, which might otherwise have followed.

In a similar way such prophylactic procedures might be carried out to great advantage in cases where there is a suspicion that infections might follow a given dental operation, as for instance in a run-down patient. This procedure is particularly advantageous where there are already signs of a beginning infection or symptoms of hyperemia. Under such circumstances one or two prophylactic treatments with vaccine 3 to 5 days previous to any necessary dental operation might avoid the impending infection and save considerable trouble and annoyance to the patient and dentist alike.

The best way of pointing out in just what kind of cases the vaccine has been found of value and the method of its administration would probably be by discussing the individual cases that have come under my personal observation. Before doing so, however, it might be advisable in order to refresh your minds, to say a few

words concerning bacterial vaccines, what they are made of, way of using them, and a brief mention of the principles underlying their administration.

Bacterial vaccines are, as you know, suspensions of killed bacteria, suspended in sterile salt solution, usually containing a small amount of disinfectant such as one-fourth per cent. of carbolic acid or cresol. Since bacteria are nothing more than the lowest form of vegetable life, the vaccines, consisting of sterile salt solution having in suspension killed bacteria, are consequently nothing more than vegetable medicines. They have no animal matter in them and are not serums or antitoxins. They do not, therefore, cause when injected subcutaneously, any of the serum sickness met with at times following the injection of diphtheria antitoxins. In fact, when the dosage of vaccine is properly gauged there is little more than a passing local sensitiveness at the point of injection, as much as would be caused by a slight pinch.

METHOD OF PREPARATION.

The vaccines are prepared by planting the material obtained from the infection or the pus, upon solid culture media—usually glucose agar. The cultures are incubated for from 24 to 48 hours—for a long enough time for the bacteria to grow up. The bacterial growth when found uncontaminated is then washed off with sterile salt solution. This suspension is then placed in a sealed test tube which is submerged in water kept at 60° C for one hour. This temperature kills the bacteria without apparently destroying their immunizing properties to any great degree, if at all. The vaccine is then standardized by counting the number of bacteria present per c.cm. or 15 drops and diluted to the proper strength, the diluent being sterile salt solution containing one-fourth per cent. of carbolic acid. If the cultures are found contaminated or containing bacteria other than those thought responsible for the condition, subcultures have to be made and those bacteria wanted for the vaccine are isolated in a bacteriological way. The procedure after that is the same as already described.

There are two distinct kinds of vaccine in use —"autogenous" and "stock." The autogenous is prepared from bacteria obtained from the patient's own source of infection or from the patient's own pus, while stock vaccines are made up from bacteria obtained from sources other than the patient himself; *i.e.* from other patients suffering of a similar infection. The "stock" vaccine referred to in this paper consists of a large number of strains (20 to 60) obtained from a variety of sources several of which are similar to those under discussion. It does not refer to the stock vaccine found on the market prepared by manufacturing druggists.

METHOD OF ADMINISTRATION.

The vaccines are thin, slightly cloudy, watery fluids, are kept in bottles covered with rubber caps and are administered subcutaneously with a hypodermic syringe, previously sterilized. The dose and interval of time depend upon the local reaction of the patient, the particular condition treated, and the clinical response to the treatment. All these points can only best be determined by one who has had experience in this special branch of medicine or one who is specializing as an immunizer. Generally speaking, however, the treatments are begun with the minimal dose and repeated in acute cases as soon as the soreness in the upper arm at the point of inoculation is practically gone (usually at the end of 12 to 24 hours). Later, when improvement takes place the treatments are given less often. In subacute or chronic conditions the treatments are given once every three to five days or less often.

UNDERLYING PRINCIPLES OF VACCINE TREATMENT.

The principles underlying this treatment are briefly as follows: The vaccine when administered subcutaneously stimulates the tissues of the patient, in a way unknown to us, to produce substances inimical to the live bacteria responsible for the infection. These substances circulate in the blood and affect the whole system, antagonizing the infectious process in whatever part of the body it happens to be. The protection acquired by the patient against the bacteria in this way is known as *active immunity,* because the patient takes an *active* part in its production. It is in contradistinction to *passive immunity,* such as the protection against diphtheria acquired by the patient through the administration of antitoxin. In the latter case the child suffering of diphtheria takes no active part in the production of the protective substances. These protective substances in case of antitoxin against diphtheria are produced by the horse whose blood serum is used in the form of antitoxin and not by the child or patient who is treated. (A more detailed description of the principles of immunity and the method of its production you will find in a recent article published by me in the *Dental Cosmos* of July, this year.)

We will now take up for discussion the individual cases that have come under my observation:

Case 1. June 21, 1911. B. G. W., male, 24 years old. This patient whom I saw at his home in consultation with his dentist was well up to ten days previous, when he had an acute attack of tonsillitis. Was treated by his physician with ordinary medical treatment. Got better but not entirely well. Two days previous the right side of his throat and gum round the mandibular third molar, which was partially impacted, got painful and swollen. The swelling prevented the opening of his mouth and he

could take only liquid nourishment. Complained of considerable pain and felt sick generally. Was not relieved by the usual local treatment prescribed by his dentist.

Examination showed marked swelling and edematous condition of whole right side of throat, especially in the submaxillary triangle, with follicular tonsillitis and cellulitis of the front of neck, extending upward over the maxilla and toward the orbit, the eye slightly closed. His mouth could not be opened more than one-half inch. There were no caries nor was there pulp involvement. Was not lanced. Temperature 101, pulse 84. Physical examination otherwise negative.

Treatment. Aside from the mechanical cleansing with dilute peroxide of hydrogen and an antiseptic gargle, also attention to the bowels and diet, the treatment mainly consisted of the administration of stock staphylococcus aureus and pneumococcus vaccines, each made up of several strains, some of which strains were from sources similar to the one under treatment. The dose was 150 million of the former and 75 million of the latter.

Cultures which were taken at the same time for the preparation of an autogenous vaccine showed at the end of 24 hours some long chains of pneumococcus (streptococcus lanceolatus pneumoniae) and many colonies of staphylococci.

Next day, June 22, P. M., the swelling was markedly reduced. Felt better in every way. Temperature 100. Could open mouth slightly more. Was given 200 million staphylococcus aureus, 100 pneumococcus and 50 million autogenous vaccine.

June 24, temperature normal since the day before, swelling still further diminished. "Feeling fine." Was given 200 million staphylococcus and 50 million each of pneumococcus and autogenous vaccine.

Received treatments of the same dosage as that of June 24, on June 26 and 29, July 3, 8, and 15. The last three times he was well enough to come into the office. Discharged cured July 29. Has been well since.

This case was apparently at the beginning of the suppurative stage when I first saw him. The alveolar infection was probably secondary to the throat trouble and tonsillitis. It might be well to call attention in this case to the quickness with which the swelling and septic condition subsided and the general well-feeling of the patient by the third or fourth day after the first treatment, also the uneventful recovery without any surgical interference.

CASE 2. Jan. 3, 1913. G. J. B., female, student. 25 years old. This patient who is attending college away from home gave a history that for some time her skin would get infected from the slightest scratch and that she was very much run down generally; that while at home on her vacation (Dec. 23) she had her teeth cleaned. Four days later (Dec. 27) she felt an abscess developing in back of the lower right wisdom tooth which was lanced by her dentist. She meanwhile came back to Boston where she is under the care of the college dentist who called me in. The abscess instead of getting better kept on getting more sore. The whole side of her face swelled up markedly with considerable pain. She could not open her mouth for the last four days and had to take liquid nourishment only. Felt sick all over.

Examination revealed a partially erupted mandibular third molar, practically wholly imbedded in the surrounding edematous tissue. Considerable swelling of the submaxillary triangle, edema of the whole side of the throat and tonsil, and cellulitis of that side of the neck, extending upward. Pus was present round the affected tooth and sloughs of gum tissue were found overhanging the tooth. This overhanging gum tissue caused much pain on occlusion. No caries, no pulp involvement. Temperature 100, pulse 92. Felt very weak.

Treatment. 200 million staphylococcus aureus and 75 million pneumococcus stock vaccine was administered. Cultures were obtained at the same time for the preparation of the autogenous vaccine. They showed at the end of 24 hours a predominating growth of pneumococcus, many chains of streptococcus and few staphylococcus colonies.

Next day, Jan. 4, she was given 150 million staphylococcus and 75 million autogenous vaccine. The gums looked much healthier and very little pus present. Swelling had gone down considerably Pulse 76. Temperature 99.

Jan. 5, was given 100 million staphylococcus and 50 million each of autogenous and pneumococcus vaccine. Pulse 76. Temperature 98. Swelling practically gone. Wound looked clean.

Jan. 11. Came into the office for another treatment. Was given 50 million each of pneumococcus and autogenous vaccine.

Jan. 14, was seen for the last time. Given 150 million staphylococcus, 75 million pneumococcus and 50 million autogenous vaccine. Discharged cured as to local condition. Feeling fine generally. Tooth was not extracted. Has been well since.

This case distinctly needed vaccine treatment or needed to be immunized against the pus-producing bacteria as shown by her previous history of becoming infected from the "slightest scratch," also as shown by her lack of proper response to the regular local treatment. Her general run-down condition and low resistance to these bacteria were apparently responsible for the ease with which she became infected following the cleaning of her teeth. It is a good illustration of what can be accomplished with vaccine in similar cases.

CASE 3. April 1, 1913. L. H., female, 17 years old. This patient had two ulcerated teeth sometime previous. One had to be extracted.

Five days previous (March 27) she felt the beginning of a toothache of her last right molar and could not take solid food. "The swelling," she said, "has been the same for the last five days and has not changed either way." She had no relief from the regular treatment recommended by her dentist before referring her to me.

Examination showed marked swelling and pain of right submaxillary triangle and right side of throat. Submaxillary gland swollen hard and painful. Mouth could not open more than one-fourth to one-half inch. Tongue coated. Felt mean all over. Temperature 99, pulse 100.

Treatment. Was given 75 million pneumococcus and 150 million staphylococcus aureus stock vaccine.

April 2, had only slight local reaction from the vaccine. Swelling gone down somewhat. Was given 100 million pneumococcus and 150 million staphylococcus aureus vaccines. Has not returned for treatment. When heard from, three days later, swelling had subsided and the whole process cleared up. Is feeling well generally. Had had no trouble with tooth since.

This case illustrates well the limitations of local treatment alone in such cases. For five days under local treatment there was no apparent change in the process, while with the vaccine treatment the condition cleared up rapidly and without its reaching the suppurative stage. The possible abortive treatment of such cases when treated early enough in the disease and without lancing is also well illustrated here.

CASE 4. Feb. 28, 1910. F. N. A., female, 28 years old.

Complained of infected right lower wisdom tooth. "Tooth itself perfectly sound." Whole right side of throat and tonsil very swollen. Considerable pain of lower jaw with tightness and rigidity of muscles. Could not open her mouth. Could not masticate. Had to take liquid food. Hurt to swallow. Felt bad generally.

Examination showed swelling of right submaxillary triangle, extending to right side of throat, tonsil and submaxillary gland. Swollen and tender on pressure. Tongue very coated and considerable white mucus covering the gum round the lower right molars and throat. No pus.

Treatment. Vaccine was administered, 250 million staphylococcus aureus and 50 million pneumococcus.

Mar. 1, swelling practically gone. Could open her mouth well. Very little pain. Feeling fine generally. Was given another injection of vaccine in the same dose as that of the first day and discharged. She needed no further treatment.

This case too is a good illustration of the possibility to abort an acute abscess by means of vaccine during the hyperemic stage of the disease. Two treatments at an interval of 36 hours were apparently sufficient to check the further progress of the septic process in this case.

CASE 5. Mar. 15, 1911. B. G. F., female, 32 years old.

This patient, whom I saw at her home in consultation with her dentist, who told me that the patient had lower left third molar opened into Mar. 9. Pulp was found necrotic and signs of tissue necrosis were present. Infection became very active immediately following the opening.

March 14 there was a full developed acute alveolar abscess with considerable swelling, pain and temperature. Her dentist advised hot fomentations and other local remedies with no relief.

March 15, was seen twice by her dentist who became very anxious about her condition. When he called me in on the evening of that date swelling was very pronounced with evidence of beginning of third stage. Considerable swelling of whole side of left lower jaw with marked edema of throat and cellulitis of face and side of neck, causing difficulty in swallowing, with much local pain. Mouth could not be opened more than about one-half inch. No other teeth affected. Felt very sick generally.

Treatment. March 15, vaccine administered in dose of 100 million staphylococcus aureus and 50 million pneumococcus stock vaccines. Cultures taken from pus for the preparation of an autogenous vaccine showed at the end of 24 hours many chains of pneumococcus, a few colonies of staphylococcus aureus and a few bacilli.

March 17. Given another treatment with vaccine in dose of 75 million autogenous, 50 million pneumococcus and 100 million staphylococcus aureus. Patient stated that she felt small abscess break last night and some pus come out. Swelling and pain were greatly relieved. Mouth could be opened much better. Tooth felt better.

March 20. Given 50 million autogenous, 100 million pneumococcus and 150 million staphylococcus vaccines. Local condition kept on improving. Felt much better generally.

March 23. Had another treatment of 50 million autogenous and 150 million each of pneumococcus and staphylococcus vaccines. All symptoms subsided. Gums healing rapidly. Discharged.

Her dentist reported that the tooth did not have to be removed. Later a temporary filling was put in preceded by a root filling.

The dentist was particularly anxious of this case for fear of its going on to a general cellulitis. The local and general condition of this patient was very similar, he told me, to a case which he had some time previous and which ended in a general cellulitis of the neck taking several months and considerable surgical interference to save the patient's life. The outcome of this case under the vaccine treatment with such slight suppuration was particularly gratifying to him.

The following (Cases 6, 7 and 8) are some more of the mandibular third molar abscess cases and are self-explanatory. They are similar to those already described.

CASE 6. June 1, 1911. S. W. A., male, 24 years old.

Complained of a sore wisdom tooth and acute tonsillitis. Had difficulty in swallowing. Caught cold in head and chest. Raised some. Could not sleep the night before because of the pain in tooth. Could take only liquid nourishment.

Examination showed marked inflammation of the throat. Swelling of left tonsil and submaxillary triangle. Very tender to touch. No fluctuation. No discharge of pus seen. The acute alveolar osteomyelitic abscess in this case was apparently in the hyperemic stage. He also had acute nasopharyngitis and tonsillitis.

Treatment. Vaccine administered, 200 million staphylococcus aureus and 100 million pneumococcus.

June 3, no marked change for the better. Given 150 million staphylococcus and 100 million pneumococcus vaccine.

June 5, feeling fine. Swelling gone down and could eat well. No vaccine administered. Discharged cured.

CASE 7. May 26, 1910 M. C. I., 39 years old.

Complained of abscess of tooth and gums. Tooth was filled about a year previous. Became sore and sensitive all of a sudden. Filling removed but trouble became worse. Gum was lanced by dentist May 24. No relief.

Examination showed marked swelling of gums round affected tooth. Very little discharge present from lanced tooth. Cultures obtained for the preparation of autogenous vaccine showed at the end of 24 hours small chains of pneumoccoci, some staphylococcus aureus and a few long thin bacilli.

Treatment. Was given 200 million staphylococcus aureus and 50 million pneumococcus vaccines.

May 28, felt much improved. Swelling considerably reduced. Practically no pain. Given another injection of 500 million staphylococcus aureus and 50 million pneumococcus vaccines. Discharged cured. Did not need any further treatment.

CASE 8. Aug. 1, 1910. P. F. T., male, 44 years old.

Complained of an "acute abscess of lower left molar tooth. Nerve was devitalized and tooth filled when trouble started. Did not seem to get better under local measures."

Treatment. Vaccines, 100 million pneumococcus and 150 million staphylococcus aureus administered.

Aug. 3, suppuration stopped. Wound healing rapidly. Felt no pain on mastication. Was given another dose of 250 million staphylococcus and 100 million pneumococcus vaccine. Discharged cured. No further treatment was necessary.

The following are cases with septic apical and dento alveolar abscesses of the front teeth. They are good illustrations of what might be accomplished with vaccine treatment in similar cases of acute apical abscess that do not yield readily to local surgical treatment.

CASE 9. June 3, 1910. A. D. F., male, 53 years old.

History. Patient, six days previous, while at camp on his vacation, felt a trifle soreness of upper cuspid tooth which had been slightly loose. Two days later the whole left side of his face swelled up Had gum lanced by a local physician. Felt relieved and was apparently getting well, when all of a sudden the right side started to trouble him (June 2) with considerable swelling and pain similar to that on left side. Came back home at once. His dentist referred him to me for vaccine treatment.

Examination showed swelling of right upper gum and alveolar process, swelling extending upward and to the left. Cellulitis of whole side of face partially closing the eye. The teeth on the right side were not particularly sore. The process on the right was apparently an extension, subperiostially and within the alveolar process, from the osteomyelitis of the left side. Some pus could be squeezed out from wound on left side of gum.

Treatment. Was given 200 million staphylococcus aureus and 25 million pneumococcus vaccines.

June 6, swelling gone down. Feeling well generally. No local discomfort. Wound healing. No pus present. Was given 150 million staphylococcus and 100 million pneumococcus vaccine. Discharged cured.

This case illustrates the possibility of extension of the process from left to right side of the maxilla in spite of local surgical measures and drainage. The quick response of this case to vaccine treatment strongly suggests the value of vaccines in such cases.

CASE 10. April 15, 1911. S. W. E., female, 55 years old.

This patient whom I saw at her home in consultation with her dentist complained of infected lower right cuspid. Had a fixed bridge put on two weeks before. Soreness began three days ago. Swelling of the gum and considerable pain. Could not sleep for the last two nights on account of pain. No fluctuation present. Local measures had apparently no effect.

Treatment. Given 250 million staphylococcus aureus and 75 million pneumococcus vaccine. "Had a good night's sleep for the first time since trouble began" same evening.

April 17. Swelling and pain subsided. Felt well otherwise. Given 200 million staphylococcus and 100 million pneumococcus vaccine. Discharged well. Bridge did not have to be removed.

CASE 11. Mar. 17, 1913. D. S., female, 50 years old.

Referred to me by her dentist for vaccine treatment.

This patient complained of abscess of first upper right bicuspid. Began to trouble her three days previous. Had not been lanced. Much throbbing and pain.

Examination showed swelling of gum over the tooth, tenderness on pressure. Face swollen. No fluctuation present.

Treatment. Administration of 150 million staphylococcus aureus and 100 million pneumococcus vaccine. Swelling became more pronounced same evening but less painful. Process came to a head and was lanced by her dentist next day. Very little pus present.

Mar. 22. Was given 200 million staphylococcus and 100 million pneumococcus vaccine. Gums well. Wound healing. No pus. Cultures taken for the preparation of autogenous vaccine showed at the end of 24 hours a predominating growth of pneumococci, a few chains of streptococci and a rare M. catarrhalis.

Apr. 15. Complained of some stiffness of neck, "caught cold," and little soreness of gum. Given 200 million pneumococcus and 50 million autogenous vaccine.

Apr. 19. Was given 150 million pneumococcus and 25 million autogenous vaccines. Local treatment was kept up by her dentist who gave me the following report:

"This patient consulted me Nov. 15, 1912, with reference to mounting a gold crown on first upper right bicuspid, same root having been previously treated and filled by an able dentist in Washington two years previous. There were all the indications that the root and surrounding tissue had been in normal healthy condition. Root canal filling was, therefore, not removed because of the history of the previous care in this case. Root was crowned and remained comfortable for four months when an acute alveolar abscess suddenly and without warning developed with considerable swelling. Was lanced but little pus obtained. It then assumed the

chronic apical abscess form with fistulous opening. Was treated at intervals locally and by vaccine until June 3. At the last treatment, June 3, there was found on probing a slight necrosis of bone which was curetted. A wick was left in for 24 hours. No further trouble since then. At no time was the root itself loose. Whether the condition is definitely cured is questionable."

This case illustrates the fact that vaccine cannot be expected to remove local mechanical irritants, be they necrotic bone, a too long pin, or filling material that has been pushed through the pulp canal. I believe, however, with the dentist, that the vaccine has helped the inflammatory and suppurative conditions in this case.

Case 12. Jan. 14, 1913. L. A. T., female, 48 years old.

This patient gave a history of having had ulcerated teeth previously which she had removed. Complained now (Jan. 14) of an ulcerated tooth, pulp of which was devitalized and filled about a year ago. Trouble began suddenly. Had filling removed, tooth cleaned and temporary filling put in. No relief. Had temporary filling removed a week ago. "Trouble started up worse than ever," when she was referred by her dentist for vaccine treatment. Not much swelling but throbbing pain, particularly bad at night. Could not lie on that side.

X-ray showed a circumscribed abscess round the root of right upper lateral tooth.

Treatment. Was given 150 million staphylococcus aureus and 100 million pneumococcus vaccine.

Jan. 16, Tooth felt much better. Was given 125 million staphylococcus and 75 million pneumococcus vaccine.

Jan. 18. Gum lanced by her dentist the day before. No pus was found. Cultures taken from lanced wound showed chains of streptococci and pneumococci. Tooth progressively better. The same day, Jan. 18, was given 50 million staphylococcus and 100 million pneumococcus vaccine.

Jan. 23. Vaccine administered, 50 million staphylococcus, 100 million pneumococcus and 25 million autogenous.

Jan. 30. Given 75 million staphylococcus, 100 million pneumococcus and 50 million autogenous vaccine. Tooth felt well. Was advised to wait for permanent filling.

Mar. 15. Has been well since last treatment. Was sent in by her dentist for a prophylactic treatment before he attempted a permanent filling. Given 100 million staphylococcus, 125 million pneumococcus and 50 million autogenous vaccine. Tooth was filled permanently. No further trouble.

The following two cases are illustrative of chronic apical abscesses with discharging fistula and necrosis of the alveolar process.

Case 13. Aug. 3, 1909. J. T. V., male, 56 years old.

This patient was suffering of cellulitis of upper lip and right side of face. "Started last Friday with soreness of upper lateral incisor." Complained also of shooting pains of neck and shoulder for last two years (neuralgic pains?). Tooth had been troubling him for two years. Had filling removed. Gum lanced. No relief. Referred by his dentist for vaccine treatment.

Treatment. Was given 500 million staphylococcus aureus and 50 million pneumococcus vaccine.

Aug. 5. Given 800 million staphylococcus and 50 million pneumococcus vaccine.

Aug. 16, cellulitis gone. Still felt soreness of gum. Kept up treatment on an average of once every four to six days until December (for four months), mostly for the relief of his neuralgic pains rather than the tooth. Neuralgic pains and general condition improved but still conscious of tooth. Had a radical operation performed by dentist. Infectious material and necrotic bone removed. Kept up vaccine treatment to June 2, on an average of once every 8 to 14 days, with the idea of preventing further developments of tooth trouble, wound healed. Tooth felt well since.

Case 14. Jan. 31, 1913. C. I., female, 32 years old.

Complained of tooth abscess of two years' duration. Trouble began following the introduction of a crown and pivot in the root. A year ago the abscess was opened and a new pivot and crown were put in while abscess was still discharging pus from fistulous opening. Fistula kept discharging off and on all the time up to a few weeks ago when there was an acute exacerbation with swelling of whole side of face with considerable pain. Was very sick generally. Had it curetted by dentist about a week ago. Is draining since. Is still discharging considerable pus.

Examination showed swelling of gum over tooth with deep fistulous opening. Few drops of pus could be squeezed out. Bare bone felt with probe. Cultures obtained from pus for the preparation of autogenous vaccine showed principally pneumococci, a few chains of streptococci and a rare weak staphylococcus aureus.

Treatment. Was given 75 million autogenous and 25 million pneumococcus vaccines. Vaccine administrations repeated on an average of two to four days in similar doses up to Mar. 3. Considerable improvement in discharge of pus and soreness of tooth but was not cured of condition. Was advised to have a radical operation done. Has not been seen since.

Both of the above cases are cited to indicate the limitation of vaccine treatment and to again emphasize that we cannot expect the vaccine to substitute proper surgical attention. Where there is an indurated fistula and bare necrotic bone present these have to be removed by a radical operation and curetting of the fistulous tract before this or any other treatment can be of any avail.

SUMMARY.

The cases of mandibular abscess cited, especially those accompanying a partially erupted tooth, are particularly instructive. They indicate what might be accomplished with vaccines in similar acute infections. According to the

best text-books on Dental Pathology and Therapeutics such cases are the worst ones met with in dental practice. Local surgical treatment is practically impossible in such cases on account of the rigidity of the muscle and the locking of the jaws. The condition is therefore, left to nature to do its best or worst, depending upon the virulence of the bacteria and the general condition of the patient who has to fight his own battle practically unaided. The vaccine treatment which tends to raise the resistance of the patient against the invading bacteria is apparently the only direct help we can give the patient under the circumstances.

The cases here recorded are probably the very worst ones met with by dentists. Practically never have I had a case referred to me unless the dentist was fairly satisfied that he could do little for the patient by local measures alone, or after such local treatment had been given a fair trial and failed. The results obtained are, therefore, more valuable.

The records of *all* the cases that came under my observation have been cited in detail so that every one may be able to judge for himself and draw his own conclusions therefrom.

The two chronic cases with fistulas were cited principally to call attention to the limitations of this treatment and also to indicate that vaccines should not be expected to substitute local surgical measures when necessary.

CONCLUSONS.

The number of cases are too few to draw definite conclusions from. I should like, however, to emphasize the following points:

1. Vaccine treatment is of value in acute septic dento-alveolar abscesses—even the worst types of mandibular impacted third molar abscesses have apparently yielded well to this treatment.

2. Such cases with septic apical abscesses, especially the deep-seated ones or the so-called blind abscesses, acute and subacute, have been greatly benefited by the vaccine method of treatment.

3. I believe that there is a big field for vaccine treatment in acute and subacute dento-alveolar abscess cases and its wide-spread use will save considerable suffering and loss of teeth to the patient, and annoyance to the dentist.

In concluding I wish to thank those of the dental profession who have referred the cases to me and made this study possible. I am particularly grateful to Dr. F. S. Belyea of Brookline and Dr. Wm. Y. Allen of Boston who have so kindly put most of these cases at my disposal and rendered valuable assistance in following them up.

CANCER CONTROL.*

BY JOSEPH C. BLOODGOOD, M.D., BALTIMORE.

Pre-cancerous Lesions.

To improve the results, to increase the number of cures of cancer there are two factors over which we have control,—the duration of the disease and the treatment.

Long experience and investigation seem to show that cancer never begins in healthy tissue. There is always a pre-existing local defect which is benign and in which later there may be a cancerous development.

When this previous defect is situated on the skin or beneath the skin or on the mucous membrane of the lip, tongue and mouth everyone is aware of the little lesion.

These previous defects or local lesions in which cancer may develop may be called pre-cancerous.

The complete removal or complete healing of these pre-cancerous lesions will in my experience accomplish a cure in one hundred per cent. of cases, that is, none of these people will die of cancer from a growth in the situation from which the pre-cancerous growth has been removed.

Such cases cannot be called actually cured of cancer, but we can be quite certain that such treatment prevents cancer in many if not all of the patients treated.

First, little tumors which may have been present since birth, or noticed later in life. These little tumors may occur on the skin as warts, moles or navi. They may be felt beneath the skin as hard or soft nodules the size of shot, peas, beans or larger, or they may be felt deeper as in the breast, thyroid gland, deep in the neck.

Second, unhealed ulcer of the skin and mucous membrane. Here there may be a wound or a burn or some injury or disease which destroys the skin or mucous membrane. The wound never heals or heals badly and then breaks down, the open sore remains for weeks, months or years, often irritated by the patient. At any time, usually after months or years, cancers may develop in such ulcer.

Such ulcers are especially dangerous on the tongue, a week's delay here is equivalent in danger to six months' delay for a like ulcer on the lip.

Third, some form of chronic irritation of the skin and mucous membrane which does not actually destroy it. For example, chronic inflammation and irritation about bad teeth (cancer of the gum never develops about healthy clean teeth). Inflammation and irritations of the mucous membrane of the mouth, lip or tongue in smokers, from chewing tobacco, or from snuff. This tobacco irritation may lead to

* Author's abstract of paper read before the Clinical Congress of Surgeons of North America, Chicago, Nov. 13, 1913.

the formation of white patches (leucoplacia) or ulcers, or thickening of the mucous membrane. Cancer at any time may develop in these areas of irritation.

All of these pre-cancerous lesions, tumors, unhealed ulcers, areas of chronic irritation and inflammation of the skin and mucous membrane are recognized by their hosts the moment they begin. Delay in treatment is due to ignorance, fear or skepticism.

As stated before, treatment in this early pre-cancerous stage, if proper treatment, should accomplish a hundred per cent. of permanent cures.

Any treatment which does not completely remove the little tumor or accomplish healing of the ulcer, or completely excise the ulcer, or stop the irritation of the skin or mucous membrane, or any treatment which does not completely excise the ulcer the result of the irritation, is more dangerous than no treatment at all.

In this stage good surgery should give one hundred per cent. cures.

In this stage bad treatment is dangerous. Far better to delay for good treatment than subject one's self to bad treatment in this stage.

Bad treatment is incomplete removal of the little tumor or ulcer. Irritating treatment which does not completely destroy the cells in the tumor, ulcer or area of irritation. Such irritating treatments are: application of caustics, curetting, improper use of x-rays and radium, and carbon dioxide snow.

Bad Treatment. These pre-cancerous lesions may in some cases be completely destroyed by the application of caustic salves, or curetting or x-ray or radium, but with such treatment a piece is rarely, if ever, saved for microscopic study.

This treatment is dangerous, first, because it may be incomplete; second, there should always be a microscopic study of a piece of the pre-cancerous lesions, because in some cases cancer develops very quickly and can only be recognized with the microscope.

It takes less time to completely excise such pre-cancerous lesions with a knife (combined with the actual cautery in some cases, in certain localities, for example, the tongue). The operation in most instances can be done under cocaine without pain or discomfort. With good surgery the scar will always be the least possible after any method of treatment.

With such proper surgery a piece of the lesion excised may always be studied at once with the microscope, and the possibility of an early development of cancer recognized. This in some cases would lead to an immediate more radical operation.

My investigation over a period of twenty years with almost three thousand cases, demonstrates that in cancer in accessible regions like skin and mucous membrane of mouth, lip and tongue, and subcutaneous areas, that is with palpable nodules, ulcers and areas of irritation teaches that good surgery in this pre-cancerous stage should accomplish a hundred per cent. of cures, because this early recognition and treatment leads to the complete eradication of the pre-cancerous lesion still benign, or to the recognition of the earliest stage of cancer by the microscopic study of the piece excised, and thus leads to the radical operation indicated at a period most favorable for the cure of cancer.

Pre-cancerous lesions in the internal organs are difficult to demonstrate and will not be discussed in this paper, but I agree with William and Charles Mayo and others, that gastric ulcer and the chronic irritation of gall stones and inflammation of the gall-bladder should be looked upon as pre-cancerous lesions and lead to good, appropriate surgical treatment in the earliest stage of the disease. This treatment will be indicated by what the patients complain of, because rarely, if ever, can a tumor or ulcer be felt.

The great hope for increasing the number of cures of cancer, and decreasing the number of deaths from cancer lies in the education of the public and the profession on the significance and potential danger of the pre-cancerous lesion; the education of the surgeon as to the best surgery and the education of the surgeon and the pathologist as to the recognition of the earliest stage of the beginning of cancer in the benign pre-cancerous lesion.

The excision of the pre-cancerous lesion has the great advantage of allowing a microscopic study. There is no other way of excluding the possibility of cancer.

The short duration of the pre-cancerous lesion does not exclude cancer. The long duration does not indicate cancer.

The microscopic investigation not only leads to a decision whether it is cancer or not, but if it is cancer, to the type of cancer. These microscopic diagnoses in the pre-cancerous lesion, benign, early cancer, type of cancer, leads to immediate operations, which in some cases are radically different for the benign and for the cancer, and for the different types of cancer.

Any treatment, therefore, which does not allow the examination of a microscopic section is not devoid of danger, and is not the best treatment.

The best results therefore in the pre-cancerous stage, where the factor of the duration of the disease is controlled rests upon good surgery, and good pathological diagnosis.

To repeat, incomplete treatment in this earliest stage often yields worse result than complete treatment in a later stage.

CARCINOMA OF THE BREAST.

The following results illustrate the relation between the probability of a permanent cure and the duration of the disease when surgery is equally good.

These figures are based upon the per cent. of patients who have lived five years or more after

the operation without any signs of return of the cancer.

In the least malignant forms of cancer of the breast, called adeno-carcinoma, there are 35 patients cured five years or more after operation; this is 76%.

In this group there are 15 patients who came for treatment so early in the disease that a diagnosis could not be made until at the operation when the lump was explored. The diagnosis having been made, the complete operation followed immediately. Every one of these patients have remained well five years or more, that is 100% of cures have been accomplished when the operation has been in the early stage in less malignant forms of cancer of the breast.

In the same form of cancer there have been 20 patients who came for treatment late. Here the diagnosis could be made at once. The same complete operation was performed, the per cent. of cures is but 64%.

Results, therefore, in the less malignant form of cancer of the breast can be expressed as follows:—

All cases (35) 76% of cures.
Early cases (15) 100% of cures.
Late cases (20) 64% of cures.

The figures 35.15 and 20 represent the actual number of cured patients, and not the total number subjected to operation, except in the group where there was 100% of cures.

The results in the more malignant form of cancer of the breast show the same difference in the results between early and late cases as follows:—

All cases cured 92, or 36%.
Early cases 12 cured, or 85%.
Late cases 80 cured, or 33 per cent.

Any woman who has a lump in the breast immediately operated upon has the best chance of a permanent cure. If the lump proves to be the less malignant, adeno-carcinoma, her chances are 100%; if it is the more malignant medullary or scirrhus carcinoma her chances are 85%.

No one can influence the character of the tumor. This is a factor over which we have no control, but if a woman subjects herself to operation at once for a lump in the breast her worst chances are at least 85%, with a possible 100%. If she delays until the surgeon can tell it is cancer her best chances are 64% if the tumor proves to be adeno-carcinoma; in the more malignant form of cancer, 33%.

The danger of delay is really greater than this, because during this time the cancer may grow so that no radical operation can be performed. This stage of affairs was present in 27% of all cancer cases.

The per cent. of cures for all cases of cancer in which complete operation could be done and in which the period of time since operation is five years, is now 42%. Five years ago it was only 35%. This improvement is due to the fact that women are coming earlier for treatment.

Every woman should know that if she submits to proper treatment within a few days after she feels a lump the chances are one out of three that the lump is not cancer, and the proper treatment will yield 100% of cures. If the lump is cancer, her chances are one out of four that it it the least malignant form of cancer, with a possible chance of 100% of cures. At the worst with cancer in this stage the chances are 85%.

Delay, if the tumor is benign, is risky, because at any moment the benign tumor may become cancer. If the lump is cancer when first observed every day's delay must decrease the probability of a cure. Absolutely nothing can be gained by delay.

The difference is the result between complete and incomplete operations for cancer of the breast.

This is best shown in the results after complete and incomplete operation in the early stages where the probabilities of a cure are best.

In the less malignant adeno-carcinoma there are 11 cases in which it is five years since the incomplete operation, with but one cure (9%). We have just shown that after the complete operation in the same state for tumors of like character there are 15 five-year cases with 100% of cures.

For the more malignant type of cancer there are 17 five-year cases without a single cure after incomplete operation. This should be contrasted with results in the same type of tumor when the operation had been complete in this early stage.

Thirteen five-year cases well, 76%.

We may summarize the results as follows:—

Operation in the earliest stage when the diagnosis of cancer cannot be made except when the lump is explored.

Adeno-carcinoma, complete operation, 15 cures—100%.

Adeno-carcinoma, incomplete operation, 1 cure—9%.

More malignant carcinoma, complete operation, 13 cures, 76%.

More malignant carcinoma, incomplete operation, 0 cures (17 cases).

By incomplete operation I mean excision of the lump or breast and later, days or weeks, after the microscopic diagnosis of cancer, the complete operation. We have only one positive cure. In this case the entire breast was removed and nothing further was done.

These figures absolutely prove the importance of a complete operation in the early stage of cancer. Incomplete operation gives worse results than delay with complete operation when the diagnosis can be made without the aid of the microscope.

The properly educated surgeon should always be able to diagnose the early cancerous lump of the breast and perform the complete operation immediately after the exploration, giving the patient the best chance of a permanent cure—from 85 to 100%.

CARCINOMA OF THE LOWER LIP.

The following figures show the influence of delay and incomplete surgery.

1. Benign lesions of the lip, 8 five-year cases, 100% cures.

These are pre-cancerous lesions. In every case the microscopic examination showed no evidence of cancer, but these are the lesions that the patients who came for treatment with fully developed cancer of the lower lip tell us about as being the little nodule, or sore or wart which they had observed on their lip for weeks, months or years before the non-present fully-developed cancer showed itself.

2. Lesions of the lip which to sight and touch seem benign, but which under the microscope prove to be early cancer, 9 cures—90%.

The failure to cure in the one case was due, I am sure, to an incomplete operation on the lower lip.

In these two groups it is not necessary to do more than excise the lesion on the lower lip.

3. Fully developed cancer of the lower lip.

When we have removed the lower lip only and not removed the glands we have cured but 7 patients, or 63%. The failure to cure in 4 cases was due to the involvement of the glands under the jaw.

When the complete operation was performed, that is, excision of the lesion on the lip and the glands of the neck, there have been 20 five-year cures, or 95% (in cases where these removed glands showed no positive evidence of cancer). If the evidence of cancer was made out by the microscope there are but 6 five-year cures, or 50%.

If the lesion of the lip has had previous treatment and has recurred on the lip, and the recurrence is microscopically cancer, the probability of a cure in the three groups is reduced from 63 to 20%, 95 to 60%, and 50 to 20%. That is operation for recurrent cancer of the lip reduces the probability of a cure at least 42%.

Similar figures can be duplicated with lesions of the tongue, face, skin of the body and extremities. The same investigation is now complete with over 1000 lesions of the skin and mucous membranes. These tables will be published later.

THE EFFECT OF NITROGENOUS WASTE PRODUCTS IN THE BLOOD IN CHRONIC INTERSTITIAL NEPHRITIS.*

BY MALCOLM SEYMOUR, M.D., BOSTON.

THIS work was undertaken to study the effect of high and of low proteid diet on patients suffering from Chronic Interstitial Nephritis, with increased arterial tension.

Fourteen patients were selected, each case having an arterial hypertension, persistent low gravity urine, with small amounts of albumen, and rare hyaline casts.

For five days the patients were given the regular hospital diet, which contained about sixty grams of proteid. At the end of this period the proteid content of the diet was increased and this diet maintained for seven days. By the sixth day they were given about one hundred and eighty grams of proteid daily. During the next period of eight days, the proteid was reduced, so that they were given very small amounts, the daily average for this period being about twelve grams.

The nitrogen content of the blood was measured at the end of the normal hospital diet period, and at the end of the high and of the low proteid diet periods.

Urinary nitrogen determinations were made daily, except on the days when the phenolsulphonephthalein tests were made. These latter were made five times during the course of the experiment.

Out of the fourteen cases, eight showed an increase in the nitrogen content of the blood at the end of the high proteid period.

Of these eight cases showing a nitrogen increase, six had edema of the face with puffiness of the eye-lids, and complained of nausea and headache. All of these patients vomited, and in each case refused food at the end of the sixth day. Two of the patients who showed the greatest increase in the blood nitrogen, had more marked symptoms than those showing a more moderate one.

Two cases showing an increase in the nitrogen, had no symptoms.

Of the six patients showing no increase in the nitrogen of the blood, one had only edema of the face, two had nausea and vomiting with slight edema of the face, two were drowsy, dull, and complained of headache. One patient showing no nitrogen increase, had no symptoms.

The effect of the blood pressure is difficult of interpretation, on account of the irregularity of the arterial tension under normal conditions, but it seemed to be an interesting observation, that of the eight patients showing an increase in the blood nitrogen, six showed a lowering of the blood pressure during, at the end, or slightly after the high proteid period. One case had no change in the blood pressure, and in another, the pressure became irregular.

Of the six patients showing no increase in the nitrogen content of the blood, two showed a simple irregularity, three no change, and one patient showed a lowering in the blood pressure.

There seemed to be no relation between the arterial tension and the low proteid diet during the eight day period the diet continued. In some cases there was an irregularity, in some a rise, and in others a fall in the pressure; even though the nitrogen content of the blood was greatly diminished in every instance.

* Read at the annual meeting of The Massachusetts Medical Society, June 10, 1913.

In the phenolsulphonephthalein tests, the excretion of the dye was decreased in every case, but here again there seemed to be no relation between the blood-nitrogen content and the excretory function of the kidney as measured by this test. This may be due to injecting the material in the gluteal muscle. Recent observations by Fromme and Rubner show that more constant results are obtained if the solution is given intravenously.

I wish to thank Professor Folin for the privilege of collaborating with him in this experiment, and also thank Dr. Dennis for her assistance in making the many nitrogen determinations. To Dr. Fitz I also extend thanks for the help in making the phenol readings.

NITROGEN BLOOD

	House diet.			High protein.			Low protein		
	Non prot N	Urea N	Uric acid	Non prot N	Urea N	Uric acid	Non prot N	Urea N	U a
Case No. 10	30	15	2.6	32	16	2.8	19	10	2
" " 5	30	15	2.5	30	15	3.0	19	10	not
" " 8	40	18	1.9	40	20	2.7	21	11	2
" " 4	39	18	3.0	62	45	3.9	30	15	2
" " 1	44	26	1.7	44	24	2.7	19	10	1
" " 6	50	28	2.7	58	40	3.3	23	12	2
" " 7	30	14	3.0	37	20	2.9	20	11	2
" " 3	50	28	2.2	82	67	3.9	26	12	2
" " 2	28	14	2.5	30	15	2.5	20	11	2
" " 13	49	25	2.6	48	23	2.6	22	10	1
" " 11	27	14	2.6	30	16	2.8	20	11	2
" " 9	38	20	2.2	37	20	2.3	23	11	2

PHENOL-PHTHALEIN TESTS.

	April 10.		April 15.		April 19.		April 22.		April 28.	
	1 hour.	2 hours.	1 hour.	2 hours.	1 hour.	2 hours.	1 hour.	2 hours.	1 hour.	2 hour
Case No. 1	13	44	trace	12	none	22	16	36	10	35
" " 2	trace	12	9	34	8	23	10	lost	10	30
" " 3	14	30	9	21	14	29	13	26	19	35
" " 4	4	35	33	no spec.	12	23	10	30	10	29
" " 5	13	23	13	35	8	16	10	18	10	20
" " 6	trace	9	trace	14	10	20	6	17	12	28
" " 7	trace	12	trace	13	12	45	13	33	12	28
" " 8	10	26	9	22	20	38	7	26	35	45
" " 9	25	47	9	34	10	29	15	34	10	37
" " 10	6	18	6	29	20	37	20	39	20	33
" " 11	trace	7	trace	2	no spec.	26	11	31	8	24
" " 12	38	61	14	39	..	..	..	..	..	
" " 13	trace	25	trace	9	6	31	19	39	25	50
" " 14	13	no spec.	trace	no spec.	trace	15	no spec.	25	5	15

URINE

April, 1913. (Figures indicate grams of Nitrogen in 24 hours)

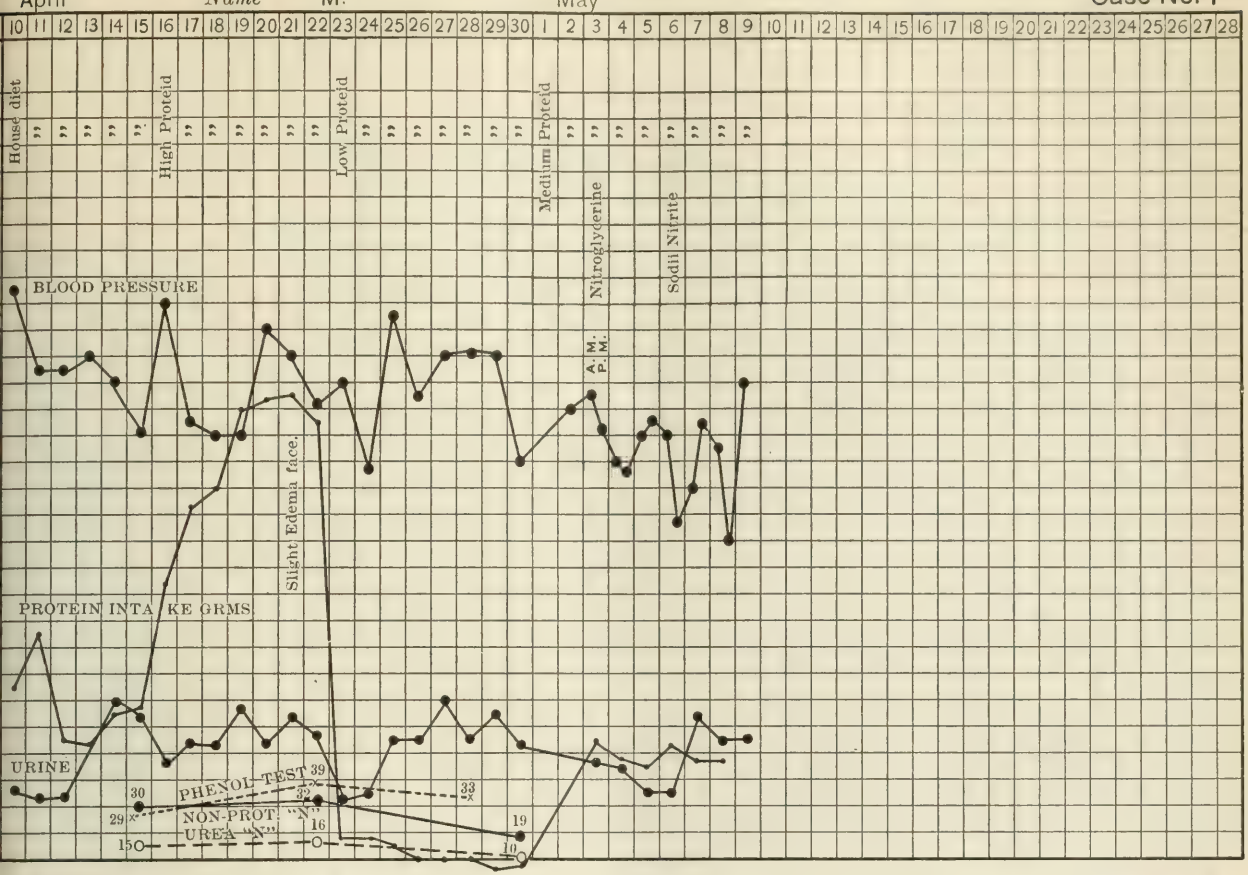
	House diet.						High protein.								Low protein.								
	9 to 10	10 11	11 12	12 13	13 14	14 15	15 16	16 17	17 18	18 19	19 20	20 21	21 22	22 23	23 24	24 25	25 26	26 27	27 28	28 29	29 30	30 1	Ma
Case No. 1	8.4		5.1	7.4	8.4	44 8.0 28	Av. 7.4	7.5	8.1	8.4		12.4	44 15.0 03	Av. 10.2	9.8	6.6	6.0	4.4	4.2			19 2.9 20	A 5.
" " 2	10.1		6.7	11.4	9.9	11.1 50	9.8	11.1	11.3	10.6		14.4	15.3 82	12.5	10.8	10.9	6.3	2.4	3.8			2.8 26	6.
" " 3	7.4		6.8	9.4	10.3	9.8 39	8.7	9.1	9.5	11.5		11.7	11.1 62	10.5	6.7	7.5	4.9	3.3	1.9			2.4 30	4.
" " 4	11.1		10.5	6.4	7.8	8.7 30	8.9	8.3	13.1	9.6		14.1	13.6 30	11.7	8.5	7.7	6.1	5.6	4.8			3.5 19	6.
" " 5	7.3		5.8	6.4	9.2	7.9 50	7.3	8.2	12.0	12.5		10.1	9.6 58	10.4	7.7	9.8	5.3	4.7	3.4			3.5 23	5.
" " 6	7.8		5.7	7.8	8.5	12.2 30	8.4	8.4	8.5	12.0		11.1	10.0 37	10.0	6.7	6.9	4.5	5.7	4.3			2.3 20	5.
" " 7	13.9		10.5	11.1	9.3	9.5 40	10.8	9.9	12.2	15.5		13.2	18.3 40	13.8	2.5	8.4	6.2	4.6	3.4			2.1 21	4.
" " 8	9.7		9.9	9.7	9.2	8.4 38	9.3	8.9	10.3	12.6		11.2	9.7 37	10.5	7.9	11.5	5.5	3.5	2.7			1.3 23	5.
" " 9	7.0		5.1	9.0	7.5	7.8 30	7.2	9.2	8.2	10.8		11.3	10.6 32	10.0	7.4	9.0	5.3	7.1	3.3			3.4 19	7.
" " 10	15.0		5.6	8.5	9.5	9.6 27	9.6	11.5	12.3	14.2		13.0	14.8 30	13.1	7.0	7.5	4.8	4.6	4.2			3.4 20	5.
" " 11	4.8		5.1	5.4	9.8	7.4 49	6.5	7.0	9.6	9.0		13.0	 48	9.6	7.0	7.8	3.5	2.6	3.3			2.0 22	4.
" " 13	....	....	5.4	11.2	8.8	12.0	9.3	10.1	13.7	14.8	....	16.2	18.7	14.7	8.7	10.4	6.5	5.9	5.2			4.4	6.
" " 14	....	....	6.2	5.7	10.8	10.1	8.2 7.7	9.0	9.7	7.8	....	9.2	10.8	9.3 11.2	7.7	10.5	5.0	2.2	4.9			4.6	5. 5.

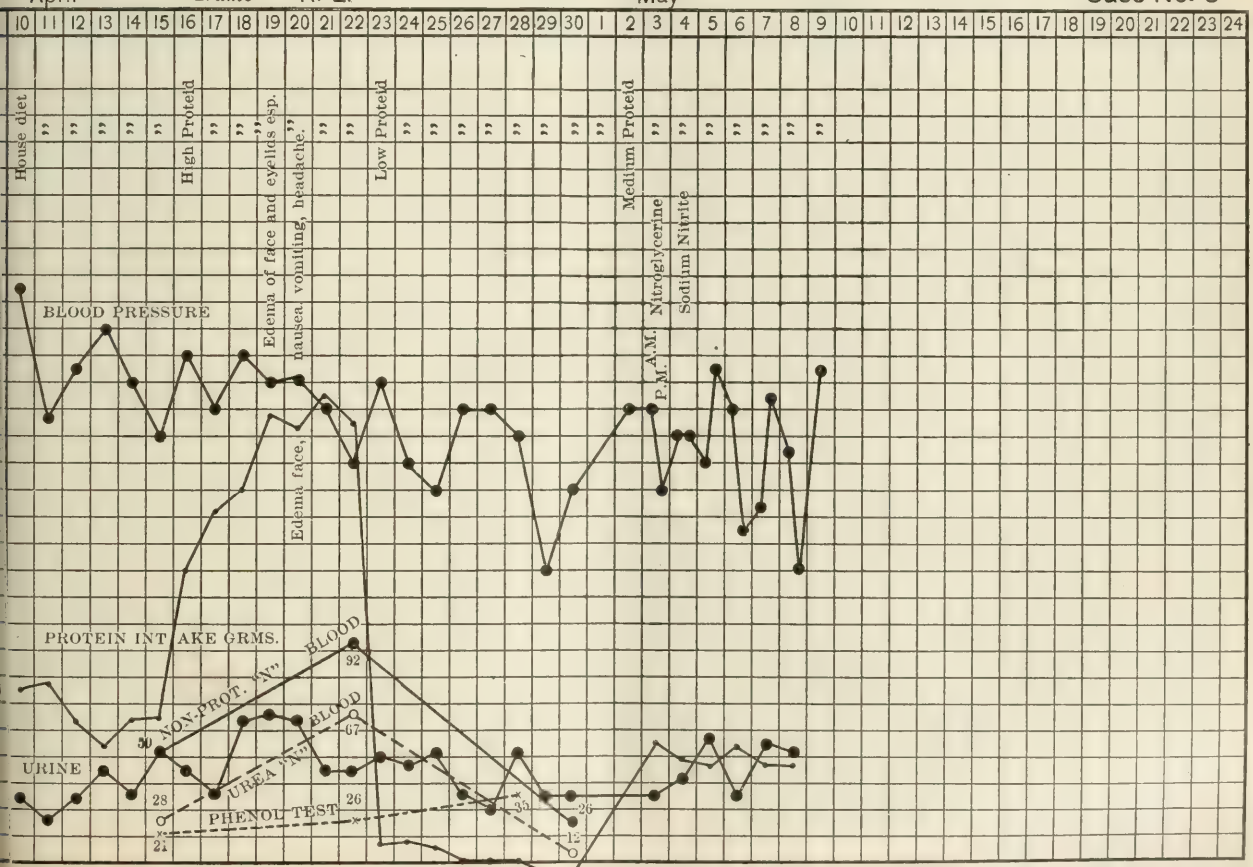
Phenol-Sulphone-Phthalein Test

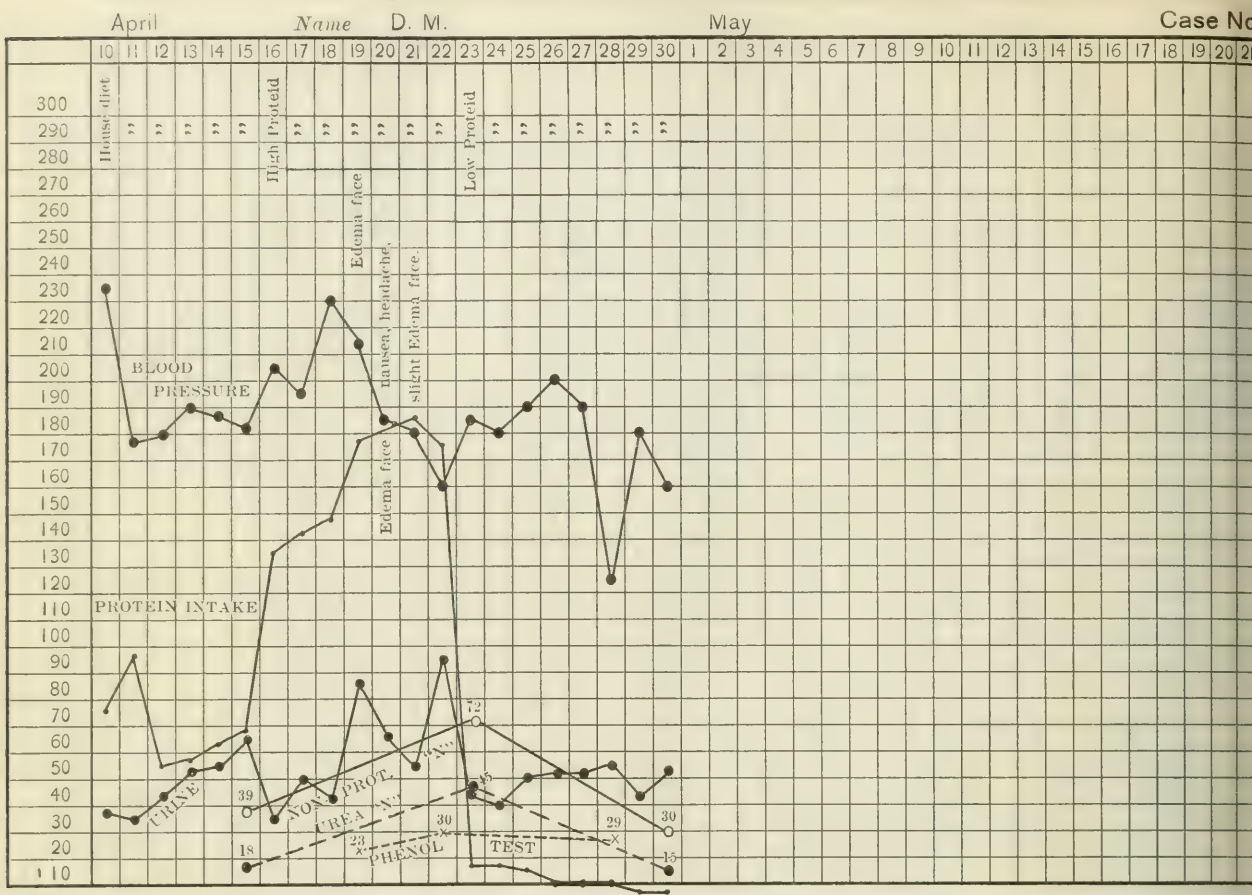
Phenol-Sulphone-Phthalein Test

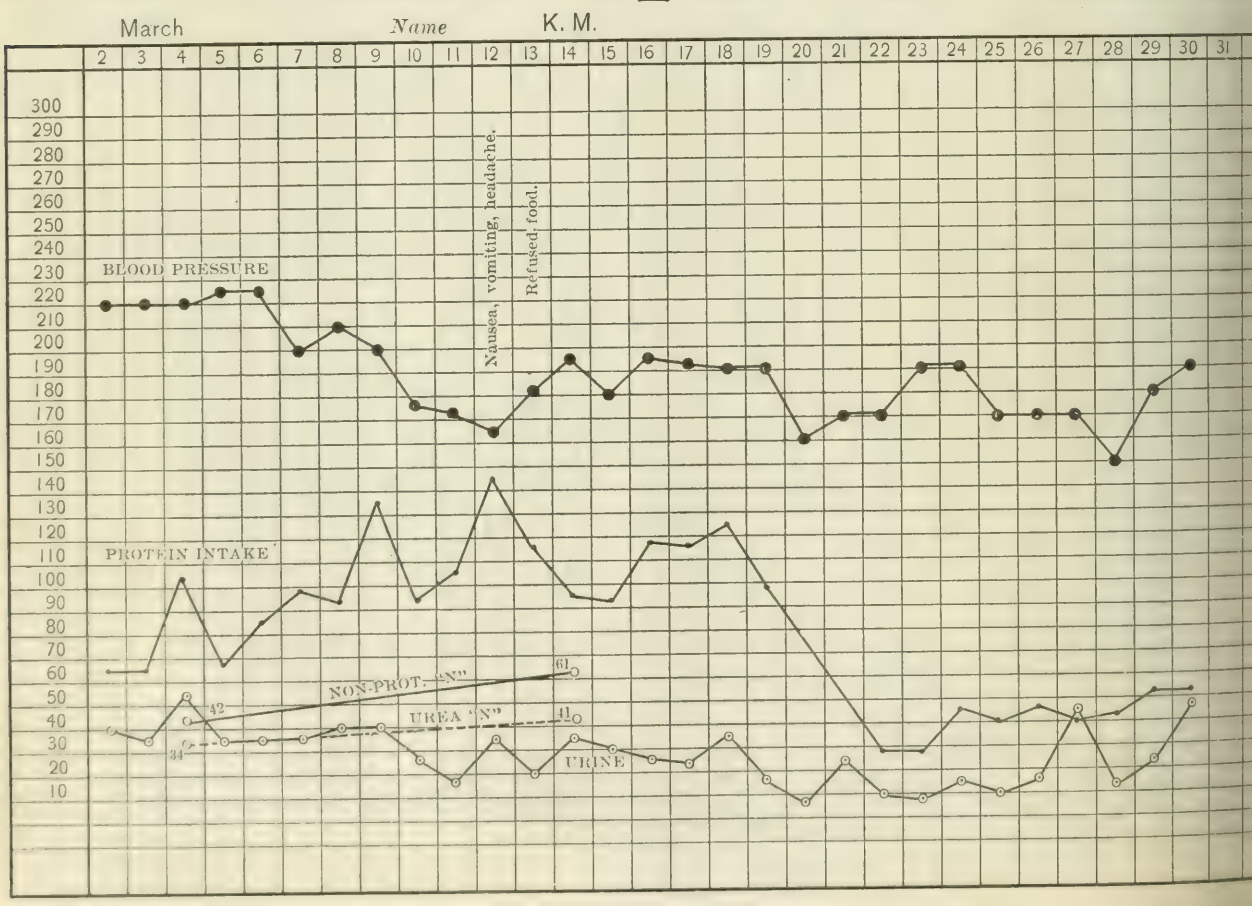
Phenol-Sulphone-Phthalein Test
Last blood taken.

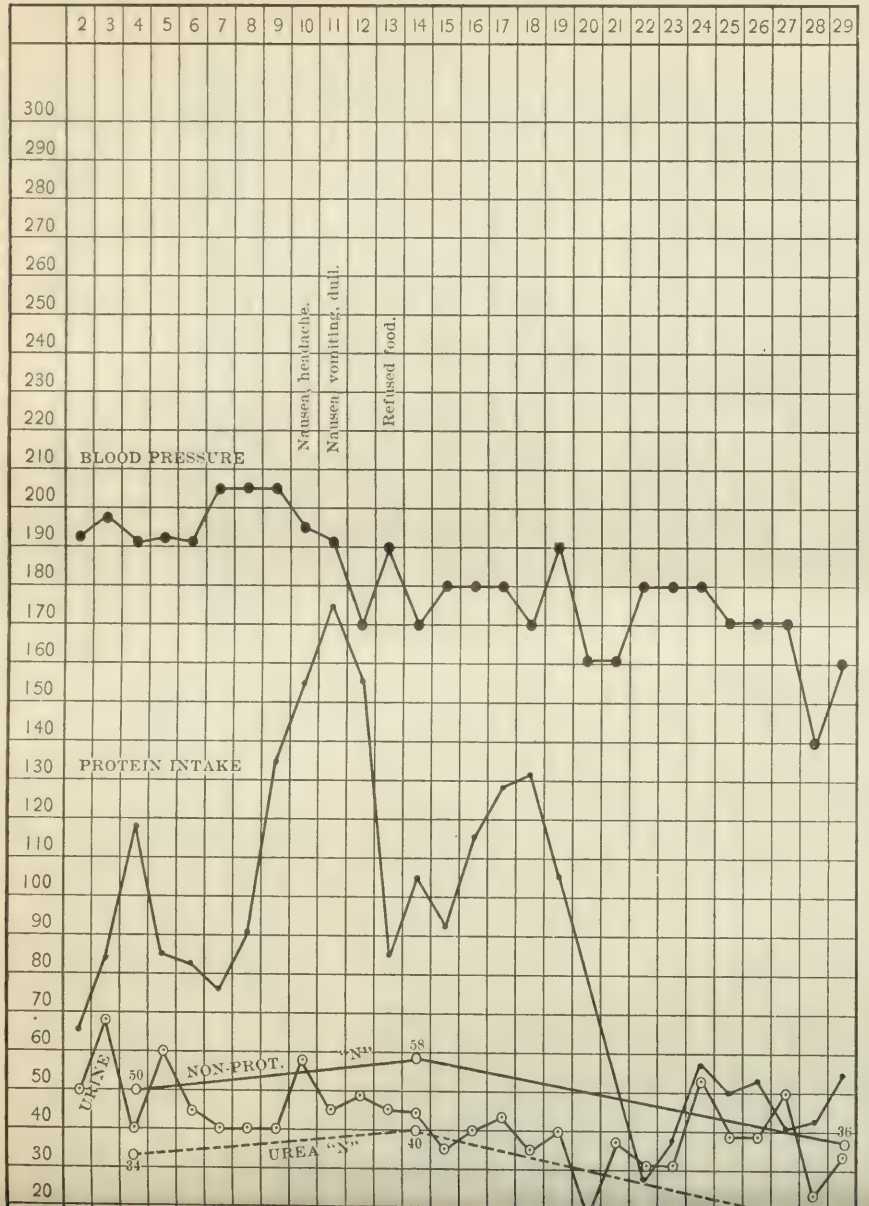
Urine not examined

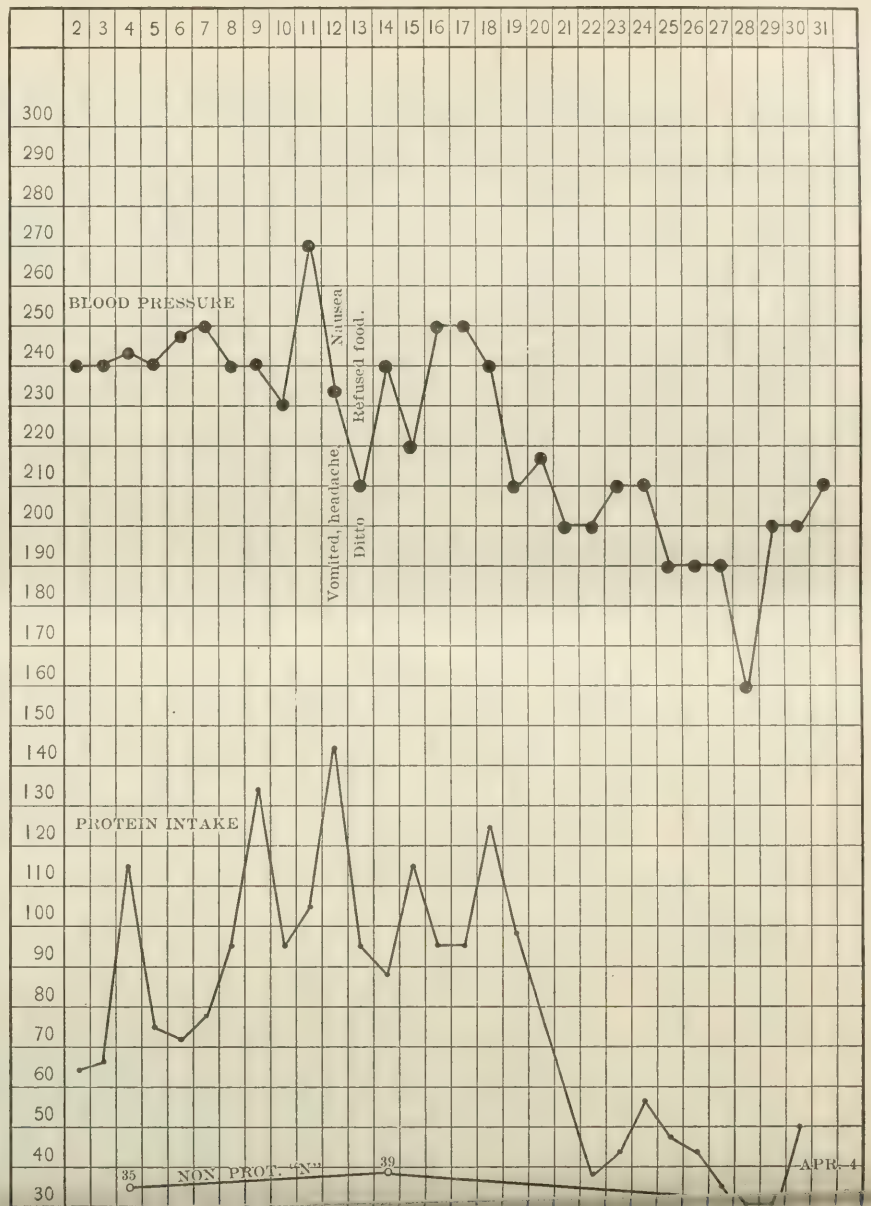

April
Name M.
May
Case No. 1
House diet
High Proteid
Low Proteid
Medium Proteid
Nitroglycerine
Sodii Nitrite
A.M.
P.M.
BLOOD PRESSURE
Slight Edema face.
PROTEIN INTAKE GRMS.
URINE
PHENOL TEST
NON-PROT. "N"
UREA "N"


April
Name R. E.
May
Case No. 3
House diet
High Proteid
Low Proteid
Medium Proteid
Nitroglycerine
Sodium Nitrite
P.M.
A.M.
Edema of face and eyelids esp.
nausea, vomiting, headache.
Edema face,
BLOOD PRESSURE
PROTEIN INTAKE GRMS.
NON-PROT. "N" BLOOD
UREA "N" BLOOD
URINE
PHENOL TEST


April
Name D. M.
May
Case No
10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
Hous. diet
High Proteid
Edema face
Nausea, headache, slight Edema face.
Edema face
Low Proteid
BLOOD PRESSURE
PROTEIN INTAKE
URINE
NON-PROT. "N"
UREA "N"
PHENOL TEST
39
18
23
30
29
30
15


March
Name K. M.
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
Nausea, vomiting, headache.
Refused, food.
BLOOD PRESSURE
PROTEIN INTAKE
NON-PROT. "N"
UREA "N"
URINE
42
34
61
41


March
Name F. H.
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29
300 290 280 270 260 250 240 230 220 210 200 190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20
BLOOD PRESSURE
Nausea, headache.
Nausea, vomiting, dull.
Refused food.
PROTEIN INTAKE
URINE
NON-PROT. "N"
UREA "N"
50
58
34
40
36


March
Name K. M.
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
300 290 280 270 260 250 240 230 220 210 200 190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30
BLOOD PRESSURE
Vomited, headache.
Ditto
Nausea
Refused food.
PROTEIN INTAKE
NON PROT. "N"
35
39
APR. 4

THE TERMINOLOGY OF MEDICINE IN RELATION TO ITS ORIGINAL SOURCES.

BY SAMUEL DELANO, M.D., BOSTON.

IN earlier years I saw exhibited a prescription that went from door to door, always with the same rebuff—"haven't the second ingredient." It called for:

℞ Tinct. Scillae
Syr. Ejusdem

I have no doubt it might today go on its jejune way with many a sly chuckle, a-begging to be filled.

But it is not with prescription writing in Latin that we have to do. That of course has long since been gathered to its fathers—abiit ad plures. Soon, no doubt, the needs of our partners in practice—the public—will demand that such drugs as we give shall be offered up in the vernacular.

But it is with the more respectable body of Latin and Greek which is a corporate part of our codex and which is in danger of being so mauled and mutilated as to be unrecognizable, that this writing concerns itself.

It is true that, according to the creed of our Neo-Iatrics, this item possesses only an academic interest. In the education of today the ban is put upon all that is not immediately profitable—always the goal is in view. Education by indirection is frowned upon; the pupil is led straight up to the business of being a doctor. But we may possibly find that this method has its defects—that the birth of a mind is not readily accomplished on a diet of facts, or by an Imitatio Magistri—that the *personal* problem has an awkward way of obtruding itself on medical *science*, so called—that the finer qualities of mind—logic, consequence, judgment, developed instinct (impression) come right to the front in practical medical problems.

If the proper study of mankind is man, man is, *a fortiori*, the proper study of medical mankind. A man, ill and host of a disease, is quite a different proposition from disease in the abstract. Whoever saw a sick man at the end of a microscope tube? In my medical life I have never seen reason to regret the lucky hazard of a good tincturing with the classics. There is a good deal of the Homo bound up in the Humanities, and much might be said, though not here, in favor of classical study as a preparation for medicine—or anything else for that matter.

It may be that usage represents *what is*,—not what *ought to be*; but usage can be an inexorable tyrant and its defenders very narrow pedants. One does not make himself liable to the reproof of purist by protesting against a purely wanton corruption of the tongue. We are never called upon to make concessions to either a flabby or a decadent tendency. To a man who would, for example, like to defend "it is me" as a worthy idiom, supported by the laws of language and of analogy, it is distressing that usage is summoned to lay him low offhand. Medical Latin or Greek is still Latin or Greek—not vernacular; we may not then corrupt it. Quantities should be preserved and the same be transferred to any adjective derivative. Thus the Latin is

Va-gī'na

—the adjective should be

Va-gī'nal

Why not enrich the word by making it indicate as much as possible of its antecedents and genealogy?

English pronunciation has, for me, a very weak tendency to throw the accent as far back as possible without reference to the makeup of the word. This tendency is much to be deplored. It weakens the word, disturbs the balance of syllables and results in their falling with much less rhythm and musical klang. This practice works much havoc with the solidity of our medical terms of classical origin. Roots are broken into regardless, and the whole symmetry of the word destroyed.

Again, we have no right to apply spelling-reform methods to our Medical Latin. We do not apply phonetics to modern languages. In the vernacular, changes come about by the attrition, almost of the centuries. Language is always in a state of slow flux; but no "Jupiter inflatis buccis" (he is now ex—we rejoice to say) can change it by his fiat. So no one who like the writer, is aiming at seeing purity restored to Medical Latin can hope to see his cause prevail at once. It would obviously be useless to be an extreme purist and insist upon words that have crystallized out, going again into the crucible. But many of our terms are just now in a transient state—just in the undoing, and a little weight of authority might turn the scale against the iconoclasts. This is especially the case with *roots*.

A *root* is inviolate. It is struck a mortal blow if mutilated. It is the badge of ancestry; an indestructible index: an irreducible minimum it may be neither mauled, mangled nor pulverized. The unconscious attrition of colloquialism is not allowable. As Sidney Smith said of all creatures, classical roots have rights that we are bound to respect. In this way we have the satisfaction of being correct and accurate and 2d, we observe the ends of conservatism and instruction. Thus we do not propose to make our paper a defense of pedantry, but a plea for justice.

Take the root

paed (παιδ)

we haven't any right to change to the phonetic

ped

This to be sure has happened in pedagogue, but that was, as I have pointed out, an unconscious corruption through the vernacular. No one knows when it came about: it was not arbitrary. But this change *is*. One is an example of entrenched, *eingebuegert*, usage. The other is not

Besides, we are immediately in collision with *ped*,—foot.
Thus if we say

Ortho-ped'-ist

instead of

—pæd'-ist

we might think of him as a fellow that makes feet straight or fancy a pediatric association a club of medical men who went on tramps together. The same root appears in

Pro-pæd-eu'tics

just now coming into some use and being spelled proped.
In

Gynæc-o'-logy

we have the root

γυναικ

and we ought to preserve it.
Why discard the diphthong in

αἷμα

Let us stick to
Hæm'or-rhage and An-æm'-ia; likewise Dys'-pnœ-a.
Why be bold enough and so on destruction bent as to change pure Greek forms like
Œ-de'ma and Œ-soph'a-gus into Ed— and Es—
Foreigners wouldn't recognize the words in this guise.
Then we have the numerous compounds with

pathy—scopy—ptosis

In this case we make unnecessary confusion. These words naturally part in two in the middle —one root on one side, one on the other. All we need do, in order to give them full value, is to abandon that slovenly habit of throwing the accent back. Old fashioned people who were on the spot at the time of the "great fire" call it

Hom'-oeo-path'-y

with the double accent, it balances better and the derivation is all open-work.

Allop'-athy

is worse—there is no "teeter" here at all.

Hypo-dermoc'-lysis

is hideous but

Hy'po-derm'-o-cly'-sis

is smoothly gliding.
So it should trip along.

En'do-scop'y

et id omne genus.
¶ With ptosis, the fault is still more glaring.

Splanchnop-tosis, enterop-tosis

violate the spirit and genius of language whereas

En'tero-pto'sis
Splanch'no-pto'sis
Ne'phro-pto'sis

are very natural and thoroughly consistent. At all events we ought to write

Enterop'-ptosis

—if we prefer that pronunciation, borrowing a "pi" from the root just as we do a "rho" in

Diar-rhœa

for the sake of euphony.

Tachycardia, never tak—root ταχυ (swift)
Kako (evil) is softened into caco
through the Latin; thus
Cac'o-ë'thes (bad habit) and Ar'-thro-ca'ce (joint trouble)
but it is

Ca-*ch*ex'i-a

because the Greek itself substitutes the chi for the kappa.
Leuko (white) softens into leuco; thus

Leu'cor-rhœ'a

So

Leuc-æm'-ia

seems more consistent than

Leuk-æm'-ia

Diphtheria is a capital illustration of learning standing its ground. Praevalebit! One seldom hears dip nowadays, whereas it was common; the diphthong has maintained itself.
Di—phthongia however, divides as printed.
¶ Words in which the quantity is wrongly given, even in dictionaries.
The Latin ending *igo* is long: thus

Ser-pī'-go (herpes)
Len-tī'go (freckles)
Ru-bī'go (mildew)
Pru-rī'go
Im-pe-tī'go and finally
Ver-tī'go*

Ending *ina* is long, hence

Va-gī'na

but

An'gĭ-na

is an exception to the rule.
Now follows a list of words seldom accorded the right quantities:

Um-bil-ī'cus
Ve-sī'ca
Gin-gī'va (gum)
Co-rō'na
Cer'-ĕ-brum
Vom'ī-ca (cavity)
Cer'-ā-sus as in Aqua lauro-cer'-asi usually called cerāsi
Sam-bū'cus (elder)
Bi-tū'men (pitch)
Cer'vix (gen. cer-vī'cis, plu. cer-vī'ces, root cer-vīc')

hence

Cer-vī'cal
Ru'bex—ru-bī'ces (wheals)
Pru-rī'tus

so

Tin-nī'tus au'ri-um but So'nĭ-tus,

another word frequently substituted, is short.
In making an English adjective according to these roots we ought, it seems to me, to observe the quantity. There is really no good reason for doing otherwise except mere waywardness which in fact accounts for a good deal of so-called usage.

Thus	Va-gī'nal	gin-gī'val	um-bi-li'cal
	Cer-vī'cal	ve-sī'cal	co-rō'nal
But	Cer'-ēbral—ceph'-alic		

¶ Latin has done some real spelling reform on its own hook these last decades and expunged some errors that had remained undiscovered. Highest authority is agreed upon:

Sucus (not succus)
Coniveo (not conn—thus: valvulae coniventes)
Lacrĭma—thus the adjective lacr*i*mal
Fetor (not fœtor—but cæcum not cecum)
Fetus (not fœ)
Frenum (not frænum)

An interesting class of words are the collective plurals with singular wanting:

* Cf. Swift's, "That damn'd vertigo in my head."—Ed.

Fauces
Fæces
Menses
Nates
} A singular occurs but is not used

Neuter plurals used collectively:
Egesta
Ingesta
Pudenda and finally
Sputa

These words follow the analogy of *data* and the ending *ana* as in Americ*ana*. Now the spirit and genius of the Latin is that these words connote bulk or mass and are to be ideated as collectives but not, as separable into integers. It is almost sacrilege then to try to put them into an English strait-jacket and speak for instance of *datum*. In spite of its plural form data is still "*that which is* granted," not "*the things* which *are*."

So of sputa; and for this word now in process of discarding, I would make a special plea. Sputa is the old form, the original. There is no "Sput*um*," Think of "*that which is ejected*" and one can't deal with it singularly. The spit cup may have been filled by many times expectorating but when you see the contents, you see sput*a* not several sput*um*s. Expectoration, by the way, is not sputa but the act of ejecting sputa.

Moreover, these words take a singular verb. We do not say *many* data but *much* data, showing that here we ideate the word in bulk and therefore as singular. A few courageous souls say data *is*. So of sputa: we ought both to disdain sput*um*, and to maintain that "sputa *is*." So of pudenda. Praecordia is another such. Praecordia is a region. I have recently seen, however, "the praecordi*um is*"—a purely arbitrary mintage. Likewise with other collective plurals. It ought to run "the nates, faeces, menses, fauces *is*."

To go a little farther for analogy's sake, we have many such collective words in English with the plural ending *s* and no singular. They too ought to take the singular verb. Few perhaps say therapeutics *are*; then why politics, athletics *are* or why not measles *is*? We say *much* brains not *many* brains; then why not brains *is*? "The wages of sin *is* death," says the King James' version—why coin the word *wage* and strangle the idiom, as we are doing in the case of Data and Sputa. A ***Herald*** man used to give us antipod*e*. Links (tract of land): we Americans *had* to say links *is*, after we learned the English usage.

¶ To bring this somewhat discursive survey to an end by tagging on a few bobs of olla podrida!

Lancinating is thought to mean *stabbing*—it is *tearing*.

Entero-cēlē,
Epiplocēlē

should be

seelee, both e's being *etas*
Colica pictorum;

by some singular error

pict*o*num

has been installed.

Sanitarium and sanatorium are as different in meaning as in etymology. Since sanitaria (sanitas) are not always places where cures (sanare) result, my preference is for sanitaria (sanitas—welfare).

One of the old surgical teachers of Boston, was fond of

de'trī-tus

(and of making it!) instead of

de-trīt'-us ..

Curiously there is no Latin noun in

ūs

but the word seems a masculine adjective instead of

de-trīt'-a

There is no singular I believe to Borborygmi though I observe one in coinage. It is a collective word. So of Tormina (singular tormen existent, but not used!) This word was once synonomyous with Dysentery; as Celsus says, "Tormina which the Greeks call Dysenteria."

Reports of Societies.

AMERICAN SURGICAL ASSOCIATION.

MEETING HELD IN WASHINGTON, D. C., MAY 6, 7 AND 8, 1913.

FIBROMATOSIS OF THE STOMACH AND ITS RELATIONSHIP TO ULCER AND TO CANCER.

ALEXIS THOMSON AND JAMES M. GRAHAM, Edinburgh, Scotland: The points at issue are:—

1. Does there exist an innocent form of gastric fibromatosis (cirrhosis or linities)? We say yes, and we do so on the following grounds: (1) Anatomical. We have observed nine cases in which, neither in the stomach nor in the glands, was there a trace of cancer to be found. We agree that in the mucosa appearances resembling cancer are met with in these cases, and might be mistaken for it, but we are confident they do not represent cancer, for the suspicious appearances are confined to the mucosa. (2) Clinical. We have operated on cases of fibromatosis, and, having done no more than an exploration, or at most a palliative gastro-enterostomy, the tumor has disappeared and the patient has survived ten and more years.

2. Is there any essential difference between fibromatosis and the callousing scar-tissue of a gastric ulcer? We say yes, on the following grounds: Scar-tissue resembles the scar-tissue that forms in other organs and tissues in its structure, in that it is limited in extent and is proportionate in amount to the lesion with which it is associated. Fibromatosis not only differs from scar-tissue in its structure and arrangement, but, above all, is characterized by its capacity for spreading in the wall of the stomach, it may be, far beyond the area of its original formation. It may, for example, spread round the whole circumference of the stomach and into the adjacent transverse colon. The scar-tissue which attends

upon ulcer takes the place of the coats of the stomach that have been destroyed by the ulcer; fibromatosis is an addition to the tissues of the stomach, and by its selection of the submucosa, it renders the different coats of the organ more easily recognized than in the normal state.

3. What is the cause of gastric fibromatosis? We do not know; but from its invariable association with a punched-out ulcer or with chronic superficial ulceration of the mucosa, it is suggested that through the breach of surface, there enters an irritant or toxin which excites the diffuse formation of fibrous tissue. The clinical evidence supports the inference that if the breach in the mucosa heals, the fibromatosis may disappear. We are unable to support the view that fibromatosis is of syphilitic or tuberculous origin.

4. Does fibromatosis exclude the presence of cancer? By no means! The ulcer or ulceration which is responsible for the occurrence of fibromatosis is also liable to become the starting-point of cancer, and we demonstrate five cases in which there is the combination of ulcer, fibromatosis, and cancer.

5. Can we always diagnose accurately the nature of a pyloric tumor? (*a*) By clinical methods? Certainly not. (*b*) At the operation? There may be nothing conclusive in the external appearances; all our specimens of fibromatosis were removed in the belief that they were cancerous! Opening up the stomach reveals the exuberant cancer, but it does not help us to differentiate fibromatosis from the diffuse infiltrating cancer which resembles it. The immediate microscopical examination of a piece of the stomach or of an enlarged gland is only conclusive if it is positive; a negative observation is of little or no value.

6. What is the treatment of fibromatosis? From what has gone before, *i.e.*, the impossibility of excluding cancer at the period of operation, the treatment must necessarily be on the same lines as cancer. The subsequent detailed examination of the specimen, if it exclude cancer, will permit of a favorable prognosis.

Dr. Joseph C. Bloodgood, Baltimore, said that he had had the good fortune to examine and see at operation four cases of this disease. The thing which impressed him most was the fact that in other lesions there is a similar production of connective tissue out of proportion to any known etiologic factor, one of these being in osteitis fibrosa. Another, in slight infections such as acne; again in desmoid tumors. He cited an instance of a patient suffering from leontiasis plastica in which a positive Wassermann reaction was obtained, the patient being treated by salvarsan preparatory to operation. In the four cases he had observed of fibromatosis he was surprised by the absence of adhesions between the peritoneum covering the stomach and the surrounding viscera, and also by the fact that in spite of the enormous increase in connective tissue throughout the wall of the stomach the peritoneal surface remained free.

Dr. Joseph A. Blake, New York, suggested that the condition of fibromatosis might be due to a very slight infection giving rise to a rather diffuse round-celled infiltration with marked reaction on the part of the tissue to the irritation, and that the same condition was apt to obtain in places where there are broad tissue planes, as in the neck and abdominal wall.

Dr. T. A. McGraw, Detroit, cited a case of pyloric obstruction caused by a tumor the size of a hen's egg, the condition being relieved by a gastroenterostomy with the elastic ligature, the patient living in perfect health for three years. At the end of that time he again developed intestinal obstruction. Operation revealed no adhesions around the stomach, no trace of the original tumor at the pylorus, no palpable plands, but a cancer of the large intestine immediately under the stomach though not in any way connected with this viscus. The patient succumbed to the operation and examination of the sections showed typical scirrhus carcinoma, with cheesy degeneration of the lymphatic glands.

Dr. Howard Lilienthal, New York, referred to the two-stage operation for pylorectomy, first a gastroenterostomy and then two weeks later a pylorectomy, stating that he was convinced that in at least two instances by following this procedure he had saved the patient from the necessity of the second operation. He therefore recommended that in performing operations for the relief of pyloric obstruction where there are no distinct metastases, the two-stage method be followed.

Dr. J. M. T. Finney, Baltimore, stated that he had operated on cases of fibromatosis, doing simply an exploration or a palliative gastroenterostomy, with the recovery of the patient and the disappearance of the tumor. He also cited a case of spontaneous cure without operation.

Dr. Charles N. Dowd, New York, referred to a case of perforated gastric ulcer in which it was impossible to do a gastroenterostomy because of the excessive infiltration, but in which two weeks later the infiltration had entirely disappeared. He mentioned a case treated by the two-stage operation, a big tumor being found at the first, and its disappearance at the second, but notwithstanding this the patient died of cancer.

Dr. George W. Crile, Cleveland, reported a case in which he performed a gastroenterostomy for supposed cancerous condition, but which later proved to be syphilitic.

Dr. Rudolph Matas, New Orleans, stated that simple fibromatosis of diffuse type was a very rare condition. He also called attention to the fact that in the pathology of elephantiasis, which is a fibromatosis of the subdermal tissues, there were a great many analogies to this diffuse progressive form of fibromatosis encountered in the stomach. He referred to a case suffering from fibromatosis which was operated on under the impression that it was cancer, the mistake being discovered at autopsy.

Dr. Arpad G. Gerster, New York, in discussing this paper, referred to a case of excision of a pyloric tumor diagnosed as carcinoma, where in the removal he found that he had cut through a substance very much resembling malignancy and therefore feared he had not made a wide enough excision, but on microscopial examination although the body of the tumor was proven carcinoma, the surrounding material was a simple fibromatosis.

Dr. William B. Coley, New York, declared that in his opinion the clinical signs with regard to these tumors of the pylorus are of more value than the microscopical report if the latter prove negative for malignancy, and cited a case in point operated upon by Dr. Mayo in which the clinical diagnosis was carcinoma, the pathologist failed to find any trace of this condition, yet the patient dying two years later with general carcinomatosis.

Mr. Elexis Thomson, Edinburgh, Scotland (in closing) said he did not deny that syphilis might

be a factor in these changes in the stomach but that he did not believe it was a frequent one.

DIAGNOSIS AND TREATMENT OF FRACTURES INVOLVING THE KNEE-JOINT (INCLUDING EPIPHYSEAL SEPARATION).

DR. JOHN BAPST BLAKE, Boston: Since May 24, 1864, 871 closed, and 11 open fractures have been treated at the Boston City Hospital, about 2% of all fractures. The etiology is usually indirect violence, and this is probably an explanation of the scarcity of open patella fractures. Obliteration of normal joint dimple a constant symptom. Of the last 418 cases, since 1895, 245 have been subjected to operation, and 173 treated expectantly; at present practically all due to indirect violence are operated; usually a capsule suture with absorbable material, without drilling the bone. There were 7 cases of refracture; operated cases apparently more liable to refracture. Eight deaths in 418 cases, most of them due to pneumonia or delirium tremens, or both. Open fractures are cleaned with particular care and prolonged irrigation, and closed in a manner similar to the others.

There were 20 cases of separation of lower epiphysis of the femur, and but 2 of the upper epiphysis of the tibia since 1864; also 2 cases of Osgood Schlatter disease.

Fractures of the femur or tibia into the joint; the latter often unsuspected even by a good practitioner; should be considered in every case of trauma near knee: seldom require open operation. The former almost invariably have backward displacement of lower fragment, and will be operated more frequently in the future; both need longer fixation than shaft fractures.

On the whole, the involvement of the largest joint surface of the body, except for the danger of sepsis, makes less difference than might be expected if early diagnosis, x-ray control and sufficient immobilization be practiced.

DR. HARRY M. SHERMAN, San Francisco, did not agree with those who hurried the removal of the splint in fractures of joints, believing immobilization kept up for time sufficient to get solid union was imperative. He did not believe immobilization was the cause of anklyosis but that trauma to the joint itself did result in this condition because of adhesions. To strengthen this argument he referred to the long splint life of children with tuberculous hipjoints in which absolutely no ankylosis resulted. With regard to passive motion, he argued that passive motion which produced pain produced trauma and should be guarded against.

DR. CHARLES L. SCUDDER, Boston, said that one should be guided according as to whether the fragments had been reduced and the articular surface restored to the normal, in one's judgment regarding the time of relieving immobilization and beginning passive motion, calling attention to the fact that a longer time is required where there is a large amount of callus as in incomplete reductions. He also believed that immobilization did not cause ankylosis but that lack of reduction did.

DR. GEORGE E. ARMSTRONG, Montreal referred to the conclusion of the British Medical Association that the functional result in fractures is very largely dependent upon the anatomical result. He stated that there was but a slight tendency on the part of the fractures to displacement after being once properly replaced, and stated that while in many cases the use of a foreign body was objectionable, his method of notching the ends of the bones even in spiral or oblique fractures, would hold them in accurate position. He also said that in two cases he had made a dowel from a small portion of the crest of the tibia inserting this into the medullary canal of the upper and lower fragments of the broken bone, and that this piece of living bone had done much to stimulate and increase repair.

DR. WILLY MEYER, New York, called attention to the treatment of fractures of the elbowjoint proposed some fifty years ago by William Busch, who insisted that if the elbow be placed in three positions stiffness would result. First, in the obtuse position in which the patient usually holds the arm when he presents himself for treatment, for ten days; then with a whiff of anesthetic, conducting the arm slowly to the sharp right-angle position, keeping it there for ten days; finally, with another whiff of anesthetic very slowly bringing it into the straight position with a splint of either side encased in a flannel bandage. He has had most satisfactory results with this treatment.

DR. HENRY B. DELATOUR, Brooklyn, reported that in the last 9 years he had had 78 fractures of the patella, all operated, with mortality of one; this was due to delirium tremens. Two cases of simultaneous fracture of both patellae; in one case one patella operated on, then 12 days later the other patella: in the other case both operated upon at the same time. Method of operation employed was suture with chromicized catgut, particular attention being paid to the tear in the ligament. No drainage. Plaster splint from toes to middle of thigh for 10 days, then division of splint to leave a posterior splint, patella moved laterally at this dressing when the sutures are removed, and the posterior splint retained for 3 weeks; then removed at night, on in daytime, thus allowing the patient some passive motion in bed without any strain directly on the patella. No movements of the joint by the surgeon until after the fourth week. In only 2 of the 78 cases did he encounter trouble in getting motion; these two patients gave a previous history of rheumatism, and eventually good motion was obtained. Subsequent fracture of the opposite patella in 4 cases; refracture of the same patella in 2 cases. Dr. Delatour said that in compound fractures where he had used the Lane plate he had always had to remove the plate, and therefore he now inserted an ivory plate which never required removal.

DR. ARPAD G. GERSTER, New York, sounded a note of warning in the too great eagerness to follow the open method in fractures, and reported in detail a fatal case occurring in spite of the most careful precautions.

DR. JAMES MOORE, Minneapolis, considered that keeping the injured member quiet long enough to allow nature to bring about natural healing in the bone, by letting the patient exercise it himself afterwards, the greatest number of good results would be obtained. He considered it more important to treat most carefully joints in adults than in children with regard to the aftertreatment. Great difficulty is sometimes encountered about the kneejoint after fracture of the neck of the femur in old people, and in such cases he advocates passive motion to the kneejoint.

DR. CHARLES N. DOWD, New York, said the results in bone injuries in children are much better than in adults, and that these results in children were much the same whether treated by the most improved or by the old-fashioned methods. He

therefore emphasized the point that interference in children is not as necessary as in similar injuries occurring in adults.

Dr. John Bapst Blake, Boston, (in closing) stated that he had not infrequently encountered cases of fracture of the tuberosity in one or two long bones which had been diagnosed as sprains of the knee or rupture of the internal lateral ligament; in the latter case, that of rupture of the ligament, a fracture of greater or less extent should be considered present until absolutely disproven.

Dr. John B. Murphy, Chicago, (in closing) said that the cause of most of the trouble in fractures a differential diagnosis between fracture of both condyles; that this was more common than was supposed, and that it was absolutely essential that a differential diagnosis between fracture of both condyles and of only one condyle be made before treatment was instituted. In double fracture, dressing in full flexion, using the arm as a splint for the forearm, will bring the two condyles forward to a safe position. He emphasized also the point that when exercising a fracture it should never be carried to the point of causing pain to the patient.

(To be continued.)

THE BARNSTABLE DISTRICT MEDICAL SOCIETY.

The quarterly meeting of the Barnstable District Medical Society was held at Sandwich, Mass., November 13th. The discussion of the evening was concerned with the question of the revision of the fee table looking toward a legitimate increase in the fees of doctors in that district.

Book Reviews.

Lectures on Clinical Psychiatry. By Emil Kraepelin, professor of psychiatry in the University of Munich. Authorized translation from the second German edition. Revised and edited by Thomas Johnstone, M.D., Edinburgh, M.R.C.P., London, etc. Third English edition. New York: William Wood and Company. 1913.

This work, a classic in the literature of psychiatry, is practically unchanged in its third edition except for an appendix in which the editor has contributed short articles on maniacal-depressive insanity, dementia precox and general paralysis of the insane, which serves to bring the work well up to date. We repeat the substance of our notices of its two previous editions in saying that it is invaluable to all alienists and students of psychiatry for its wealth of detailed study and differentiation of the forms of mental disease as exemplified in life-histories of each separate condition. True, his cases are not analyzed by the Freudian method, but are none the less instructive on that account.

A Practical Manual of Venereal and Generative Diseases. Spermatorrhea, Impotence and Sterility in Both Sexes. By Gerald Dalton, late assistant surgeon St. Francis' Hospital and lecturer to Nursing Staff; assistant to Skin Department, Charing Cross Hospital, etc. New York: William Wood and Company. 1913.

This book is what its title indicates. The value of the best of such small manuals seems questionable, and this one is not a very good sample of what such books should be if they exist at all. Its brevity is so extreme that even the few subjects it includes are so casually considered that the book is far from being complete even as a brief resumé of knowledge. It enunciates a few well-known facts in the diagnosis and treatment of the various venereal diseases and some of their common complications and sequelae, but it contains little that is new. On the subject of the use of salvarsan in syphilis the author concludes his brief chapter as follows: "The foregoing, I think, proves that we are dealing with a highly dangerous drug of doubtful efficacy, which should only be used in those rare cases which do not respond to mercury, as a last resort." This statement would hardly pass muster in this medical community as a just estimate of the value of this remedy.

Practical Guide to Diseases of the Throat, Nose and Ear. For Senior Students and Junior Practitioners. By William Lamb, M.D., C.M., Edin., M.R.C.P., Lond.; honorary surgeon, Birmingham Ear and Throat Hospital. Third edition. New York: William Wood and Company. 1913.

This is an elementary manual for students. Compared with others of equal size it gives the impression of being less didactic and systematic and rather more clinical and conversational. This is in keeping with the author's expressed desire to make it a guide and to avoid overloading it with information which can be easily found in any work of reference. It takes up the pharynx, nose, larynx and ear in sequence, describing for each the methods of examination, including the normal and common pathological appearances, and their treatment. It would be more suited for the student in a purely clinical course than for use in a course of lectures. It contains a number of useful facts and suggestions presented in a way to draw the attention of the student. These practical details are most of them excellent and many of them not found in other books. The illustrations are fairly good, and the book of convenient size. It is excellent in its way, but should only be used where a more systematic reference book is readily obtainable.

The Tonsils and the Voice in Science, Surgery, Speech and Song. A Comprehensive Monograph on the Structure, Utility, Derangements and Treatment of the Tonsils, and of Their Relationship to Perfect Tone Production. A research study. With original contributions from highest medical and voice authorities. By RICHARD B. FAULKNER, M.D., Columbia University. With an Introduction by PROFESSOR GEORGE M. SLEETH, Pittsburg, Pa.: Presbyterian Book Store.

This is a queer book, well adapted to puzzle the medical or the musical reader. It consists largely of an enormous number of quotations from different medical authorities and well known opera singers on such debatable questions as the function of the tonsils, the advisability of removing them and their influence on the voice. Such opinions are, of course, valuable, but their combined effect does not seem to lead to any special conclusions, except that they are used by the author as a propaganda for conservatism. The book is interesting but could hardly be called a scientific monograph on the tonsil. It will in the future become valuable for the medical historian.

Psychanalysis: Its Theories and Practical Application. By A. A. BRILL, Ph.B., M.D., chief of the neurological department of the Bronx Hospital and Dispensary, clinical assistant in psychiatry and neurology at Columbia University Medical School. 8vo., pp. 337. Philadelphia and London: W. B. Saunders Company. 1912.

This book is published for the purpose of presenting concisely the principles of Freud's theories, in the hope that false conceptions may be removed and interest stimulated in Freud's original writings. A considerable part of the text consists of reprinted articles, which have from time to time appeared in various medical journals, and these, when taken in connection with the further exposition which the author gives, constitute a satisfactory outline of the psychology and practical applications of the doctrine of Freud. The unprejudiced critic of this attempt toward discovering a foundation for neurotic disturbances naturally sees exaggeration and at times forced interpretation in the author's analytic studies, and the suggestion is not out of place that dogmatism of statement is not likely to help the cause of exact knowledge. In general, however, it is apparent that only by free discussion and comparison of experiences and results may facts finally be sifted from error, and such a book as this, although likely to excite antagonism in uninitiated readers, should serve the purpose of bringing to the attention of physicians a theory which must be seriously faced and studied.

Essentials of Prescription Writing. By CARY EGGLESTON, M.D., instructor in Pharmacology Cornell University Medical College, New York City. Philadelphia and London: W. B. Saunders Company. 1913.

This book, intended as an aid and guide to medical students in the classic writing of prescriptions, would be more reliable and useful, if its Latin grammar were uniformly correct. For instance, *dant* and *dantur* are given as subjunctive forms, and the phrase *"unguentum faciendus est"* is used with unhesitatng assurance. Moreover, the author quite fails to understand the passive force of *fio,* and describes hypothetical non-existent forms such as *fiatur* and *fiantur.* A prescription had better be honestly written in good English than in pseudo Latin of this sort. Unfortunately the decline of classic education among doctors makes the majority guilty of greater grammatic errors in nearly every prescription they write, and will prevent them from recognizing these defects in a manual which otherwise is possessed of many merits.

Freud's Theories of the Neuroses. By DR. EDWARD HIRSCHMAN, of Vienna. Nervous and Mental Disease Monograph Series, No. 17. Introduction by ERNEST JONES, M.D., associate professor of psychiatry, University of Toronto. New York, 1913.

This monograph, translated by Payne offers a condensed synthetic presentation of the theory of Freud, and as such should be welcomed. The writings on the general subject, both by Freud and his many followers and opponents, have become so numerous that an authoritative brief statement of the doctrine is peculiarly needed. A difficulty in such an undertaking, as Jones points out in his introduction, is the fact that the Freudian theories are not fixed, and an attempt, therefore, to make anything approaching a final statement is hazardous. On the whole however, Hirschman has succeeded remarkably well in his task, and one may with confidence regard this monograph as a sympathetic and accurate report of the Freud psychology as thus far evolved. Following Jones' introduction and one by the author, the chapter headings are: General Theory of the Neuroses, The True Neuroses, The Sexual Instinct, The Unconscious, The Dream, Hysteria, The Obsessional Neuroses, Psycho-analytic Method of Investigation and Treatment, General Prophylaxis of the Neuroses, Application of Psycho-analysis.

The monograph is well translated and readable. We commend it to those who wish a brief and accurate account of a widely discussed theory, in a field of increasing importance.

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Medical and Surgical Journal

THURSDAY, NOVEMBER 27, 1913.

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HE BRITISH BIRTH-RATE COMMISSION.

In the issue of the Journal for Nov. 13 we ommented editorially on some "Phenomena of he French Birth-Rate." It appears that the alling birth-rate is also causing apprehension n Great Britain, since a private commission as recently been constituted to investigate the ubject in that country.

This commission, which is composed in great art of clergymen, has among its medical repre- entatives Sir A. Pearce Gould, Sir James Crich- on-Brown, Surgeon-General G. J. H. Evatt, Professor G. Sims Woodhead, Dr. J. W. Bal- antyne, and Dr. C. W. Saleeby. Its investiga- ions are to be grouped under four distinct cate- ories, dealing with separate aspects of the prob- em.

"First, the extent and character of the de- line are to be considered under such headings s the present British birth-rate and infantile ortality, general and classified according to come, occupation, province and county, urban nd rural, and religion (if possible); statistics howing the proportion of sterile to total mar- ages (to find out whether smaller families or tal childlessness is the cause of the fall); for- gn statistics showing the extent of declining rth-rates, special attention being paid to rance and the Jews. Secondly, the alleged uses of the decline are to be investigated, un- r the headings of physiological causes (for ex- mple, the effect of town life, etc., upon lateness marriage, fertility; number of marriages), udential motives, and methods of restraint noral, mechanical, and chemical). Thirdly, e effects of the decline of the birth-rate, ether due to natural or artificial causes, are to be searched out, under the headings of effects upon the children, upon the man and woman, upon married people, and upon home life. Fourthly, economic and national aspects are to be dealt with, and the commission is to consider, for instance, the alleged results of a rapid increase of population in a country where the land is fully cultivated, of a permanent surplus of workers upon the condition of the working class (in the matter of unemployment, overcrowding, etc.) in the case of a declining or stationary population, and the alleged national danger of a disproportionate increase in other nations."

On Oct. 21, a conference was held at Edinburgh, under the auspices of the Scottish Council of Public Morals, at which was presented a preliminary paper by Mr. James Marchant on the work of the Birth-Rate Commission. In opening the discussion on this paper, Dr. Ballantyne, a member of the commission, pointed out the importance of the work it is undertaking.

"So tremendous a change in the vital statistics of a country as was represented by the fall of the birth-rate from 35 per 1000 to 25 per 1000 called loudly for scrutiny and investigation in a collective fashion. In some thirty years the population of Edinburgh had increased by about 100,000 persons, but the number of births in the city was now actually less than it was in 1881; then between 7000 and 8000 babies were being born annually, now there were only between 6000 and 7000. The fall was beginning to make itself felt in the board schools, where this year the enrolments were 748 less than last year, and last year had shown a decline on the preceding year. There were 57,000 houses in the city with a rental of less than £30 per annum, and from more than 32,000 of these houses no children set out to school in the mornings. In his inaugural address to the Edinburgh Obstetrical Society some seven years ago he had dealt with the subject of the falling birth-rate, and had then ventured to prophesy that the decline in the birth-rate would not be checked, but he had hardly been prepared for the amount or the persistency of the fall which had actually taken place. There was no doubt that the human race had now begun an experiment upon its reproduction, very much as in the past it had experimented upon its digestion and other bodily functions. No one could foretell the results, but one immediate and welcome result had been the appreciation in the value of infant life, before and after birth, which had followed upon the decrease in the number of babies arriving. They were now counteracting the fall in the birth-rate by keeping more of the babies in life after they were born and probably by bringing more of them safely to their birth. This plan could not, of course, succeed always, but in the meantime it was possible thus to maintain a sort

of equilibrium so far as the number of lives in the nation was concerned. There was still much to be done, and the commission would help to make this clear; it had to discover how many antenatal lives were being lost every year through miscarriages and untimely premature births; for this purpose a stillbirths registration act was needed; the discomfort and even suffering which expectant mothers at present endured before their babies came into the world must be removed, and it was therefore necessary to make it possible for the married women working in factories and the like to stop their work a month or two before the expected date of confinement."

That the birth-rate of civilized races should fall is perhaps a natural phenomenon. That man should take thought, even though at first unsuccessfully, to prevent this decline, is another evidence of their intellectual adaptability and biologic fitness for survival. The British Birth-Rate Commission may achieve no tangible results, but its existence is a wholesome symptom.

ERRORS IN THE DIAGNOSIS OF RABIES.

AT a recent meeting at Turin there were shown to the Academy of Medicine by Peroncito a series of cases of pseudo-rabies in dogs, which have not received sufficient notice by the medical profession at large (*Il Morgagni,* 1913, Pt. 2, p. 566). In these instances the diagnosis of rabies was made, to all appearance, under the influence of the conventional theory and practice of Pasteur Institutes, for the dogs had displayed signs of a sudden change in behavior and disposition, had become violent and convulsive, and had bitten people without cause, as if in an access of genuine madness. As such cases are misleading, even to experienced observers, and, as they are the cases that often overstock Pasteur Institutes, it may be worth while to particularize a little more fully the different causes of error.

In Peroncito's cases the post-mortem examination showed that the animals were infected with various kinds of worms. He found in a large proportion such parasites as taenia, uncinaria, strongylus, and dochmius, together with small hemorrhages in the duodenum and inflammation of the mucous membrane. Besides the intestine, the liver and stomach were also seats of the disease, or in other words, of helminthiasis. The true symptoms of rabies were wanting. Those who were bitten did not in any instance develop hydrophobia, though many were not given Pasteur treatment. Peroncito lays paramount str on the healthy condition of the brain. T Negri bodies were absent in all cases, which considers a valuable evidence of their spec nature.

Several of the animals died in a few days, a the persons bitten were advised to undergo P teur treatment. It was, therefore, entirely accident that they were obliged to suffer t pain and inconvenience of the injections, for is customary that the public turns to that ins tution and not to the family physician for authoritative exposition of the aspects of a bite. Hence a large proportion of cases a treated quite needlessly, and any source of err should be pointed out when it is well timed.

Another error is furnished by the cases "atypical rabies," or the "atypische Wutfälle described in the Arbeiten aus dem Kaiserlche Gesundheits-Amt." These are sometimes mo difficult to distinguish from genuine rabies. T animals are often paralyzed, and often have t "dropped-jaw," considered so important as symptom. Yet the bacteriological examinati has shown that organisms like the streptococc and, as Acton and Harvey have proved, t bacillus pyocyaneus have been the agents pr ducing the simulation of rabies. In all the cases the diagnosis may be established by wate ing the animal or by inoculation into other an mals, or finally, by a thorough bacteriologic examination. But whatever the method fo lowed, no physician engaged in administerin Pasteur treatment can view these problems wit out profound concern. It is not desirable th people should be treated unnecessarily, no have we here a question that involves nothin more than technical routine. It involves th future of many human lives.

TWO IMPORTANT MEETINGS IN CHICAGO.

DURING the week of Nov. 10-15 two importan surgical events took place in Chicago. One wa the fourth annual session of the Clinical Con gress of Surgeons of North America; the oth was the first regular convocation of the newl instituted American College of Surgeons.

The Clinical Congress was attended by abou 3500 members. Daily clinics were held in 2 hospitals, and a total of about 1500 operatio

ere performed before the various sections. At he general session on Nov. 14, Dr. John B. Murphy, of Chicago, was elected president, and Dr. George E. Armstrong of Montreal, vice-president, for the ensuing year. It was voted o hold the next Congress in London, beginning uly 26, 1914.

On Thursday, Nov. 13, was held the first official meeting of the American College of Surgeons, under the presidency of Dr. J. M. T. Finney, of Baltimore. The principal address as delivered by Sir Rickman John Godlee, who resented a memorial from the board of counllors of the Royal College of Surgeons of Engnd, of which he is president.

Honorary fellowship in the College was conerred on Dr. Godlee, on Dr. William W. Keen f Philadelphia, on Dr. William H. Halsted of altimore, and on Dr. John Collins Warren, of oston. One thousand other American surgeons, selected by the board of regents, were lso admitted as fellows of the College, includng the surgeons-general of the United States rmy, Navy, and Public Health Service. It is ated that one thousand more surgeons are to e admitted by selection, after which further dmissions will be by examination only.

Sir Rickman Godlee, prior to the convocation, elivered on Nov. 4 an address on "Foreign odies in the Air Passages," before the Academy of Medicine at Toronto, Canada; and on ov. 5, the honorary degree of LL.D. was conerred on him by the University of Toronto. His resence at the meeting of the American College, hich will include Canadian as well as United tates surgeons, is additional evidence that the tablishment of this College should lead to oser affiliation among English-speaking surons throughout the world.

CONSTITUTIONALITY OF STERILIZATION LAWS.

On Nov. 18 the Supreme Court of New Jersey, on a test case, declared as unconstitutional the act of the state legislature of 1911, providing for the sterilization of epileptics, feeble-minded, criminals, and other defectives. The court held that this law "was based upon a classification that bears no reasonable relation to the object of the police regulation and that it denied to the individuals of the class so selected the equal protection of the laws." Whatever the merits of this decision, it seems likely to be of importance as a precedent in questions involving the operation of similar sterilization laws in other states. Eight states now have laws providing for the sterilization of imbeciles and certain criminals. In Washington the law has been adjudged constitutional. In Indiana about 1000 persons have already been sterilized under the operation of the law. The United States Constitution expressly forbids "cruel and unusual punishments," and some lawyers maintain that this applies to sterilization.

MEDICAL NOTES.

Award of Nobel Prize in Medicine.—It has been recently announced that the Nobel Prize in medicine for 1913, amounting to about $40,000, has been awarded to Professor Charles Richet, of Paris, for his work on anaphylaxis.

Measles in Alaska.—Report from Seward, Alaska, by way of Seattle, Wash., states that measles is at present virulently epidemic at Afognak, where 110 cases have occurred. There also have been 100 cases at Kenai, 25 cases at Seldovia, and 13 deaths of the disease at Kodiak.

Case of Beri-Beri at Philadelphia.—Report from Philadelphia states that on Nov. 13 a case of beri-beri was discovered at that port in the person of a sailor on the British steamer *Strathmore*, just arrived from Bombay, India. He was placed in quarantine.

Continued Illness of the Czarevitch.—Report from Vienna on Nov. 13 states that the Russian Czarevitch has been recently sent to Helonan, Egypt. He is believed to have acute bone tuberculosis, and it is feared that he will not live.

Hereditary Hypopituitarism.—Miss Nellie Lambert, of London, is said to weigh 563 pounds, and is alleged to be the heaviest woman in the world. She is a great-granddaughter of Daniel Lambert, of Leicester, England, also reputed to have been the heaviest man of his time. This would seem to be an instance of hereditary hypopituitarism, a condition which, however, if associated with genital infantilism, should ultimately prove self-exterminative.

MEDICAL PROTEST AGAINST GERMAN IMPERIAL INSURANCE.—Report from Berlin on Nov. 15 states that at a recent meeting of 800 medical delegates from rural Germany, it was voted that 21,000 physicians from the districts represented, should refuse to accept appointments under the German Imperial Insurance Act. This protest is analogous to that made last spring by physicians in England.

BOSTON AND NEW ENGLAND.

REPORTING OF OCCUPATIONAL DISEASES.—The State Board of Labor and Industries and the Industrial Accident Board are making arrangements through sub-committees for a public hearing at the State House in regard to the adoption of a regulation requiring all physicians to report occupational diseases to the joint board, this hearing to be held as provided for by Section 2, Chapter 813, Acts of 1913. Representatives of all the medical societies of the state and physicians generally will be invited to attend the conference and the meeting will be addressed by the experts engaged by the special committee created by the joint board, Messrs. James B. Carroll, James A. Lowell and Mrs. Davis R. Dewey. Arrangements for the proposed meetings are in the hands of a sub-committee, consisting of Messrs. James W. Crook, Joseph A. Parks and Channing Smith. It is expected that a comprehensive plan for the reporting of occupational diseases will be developed as a result of the conference.

MASSACHUSETTS BABIES' HOSPITAL.—On Monday and Tuesday of last week, Nov. 17 and 18, the annual auction and rummage sale for the benefit of the Massachusetts Babies' Hospital was held in Boston.

"The Massachusetts Babies' Hospital received last year application for aid from 112 New England towns and cities. It has taken care of more than 5300 babies since its establishment in 1868. Unfortunately the demands made upon it have outgrown the resources at its command, and each year this useful institution faces a deficit of from $15,000 to $25,000. It has been said that 700 people in Boston and vicinity support the city's charities. The directors of the Massachusetts Babies' Hospital make their appeal outside of this limited circle of regular givers."

BOSTON UNIVERSITY SCHOOL OF MEDICINE.—In Boston recently a three-days' bazaar was held by the Alumni Association of the Boston University School of Medicine, in the attempt t raise a sum of $50,000 towards the endowmer of that institution.

NEW WARDS IN CAMBRIDGE HOSPITAL.—O Tuesday of last week, Nov. 18, the new surgic and obstetric wards of the Cambridge (Mass Hospital were officially opened for public i spection.

CHANGE OF HOSPITAL NAME.—It is announce that the name of the Charles B. Towns Hospita of Brookline, Mass., has been changed to th Fisk Hospital.

FIRE IN A SANATORIUM.—Fire from an ove heated furnace caused an estimated damage $2000 on Nov. 17 at the Ring Sanatorium, A lington Heights, Mass. Fortunately none of th patients was injured.

GLANDERS IN MALDEN.—Report from Malde Mass., on Nov. 18, states that during the pa month of October several cases of glanders hav occurred among horses in that city. The loc board of health has consequently ordered th closing of all public drinking places for horse

DANGER FROM UNLICENSED SALE OF EY GLASSES.—A recently published report of th evening eye clinic of the Boston Dispensar shows that during the first five months of i operation 337 patients were treated. Of thes two-thirds were from Boston. The report em phasizes the danger to the community from th sale of glasses by unlicensed, unregistered dea ers.

"There is no law which provides any restri tion or supervision to prevent totally untraine persons from selling glasses of any quality ove a counter to persons too uninformed or too care less to understand the dangers to their healt and eyesight."

A CENTENARIAN.—Mrs. Richard H. War who died at Troy, Me., on Nov. 13, is said t have been born on Aug. 24, 1811, in Unity, M She was the mother of fourteen children, and i survived by many descendants.

TRANSPORTATION OF CONTAGIOUS CASES.—Th Boston Board of Health has announced its inten tion of prosecuting the persons responsible fo recently bringing a patient with scarlet-feve from Sharon, Mass., to the Boston City Ho

pital South Department in public conveyances, thereby running serious risk of disseminating the infection among innocent passengers.

Tuberculosis Death-Rates in Massachusetts.—In an address before a recent meeting of health inspectors, Dr. Hiram F. Mills, of the Massachusetts State Board of Health, pointed out that the death-rate from tuberculosis in this state is only one-half what it was in 1893, and one-third what it was in 1873. Next to Boston, the greatest number of deaths from this disease during the past five years was in Cambridge, Lowell, Lawrence, Fall River, and New Bedford.

NEW YORK.

Harvey Lecture.—The fourth in the current series of lectures before the Harvey Society will be given at the New York Academy of Medicine on Saturday of this week, Nov. 29, by Prof. G. H. Parker, of Harvard University, on "The Nervous System; Its Origin and Evolution."

Hospital Social Service.—At a social service conference held in Brooklyn on Nov. 11 under the auspices of the Brooklyn Institute of Arts and Sciences, the principal address was by Mr. Michael M. Davis, Jr., director of the Boston Dispensary, on "The Aims, Methods, and Results of Hospital Social Service." He emphasized the economic value of social service and the importance of training for it.

"Tests of efficiency at several institutions have indicated that the introduction of social service, while it is likely to increase the cost of the medical service by twenty per cent. to thirty per cent., will probably increase efficiency by fifty per cent. to five hundred per cent. The rapid increase in the number of social service departments all over the country has made it particularly difficult for hospitals and dispensaries to secure a sufficient number of especially trained persons for this work, the supply at present being unequal to the demand. There is, therefore, great danger that standards of training, and therefore quality of work, be lowered. Persons going into medical social service need special training. The training of a nurse, even of a visiting nurse, is of value to the prospective medical social worker, but it is not in itself sufficient.

"Special training in dealing with social problems is necessary. This can now be secured in the School of Philanthropy in New York and in the School for Social Workers in Boston. In the latter place there is not only the academic training given in New York, but actual practical training in case work at the Boston Dispensary and in the Social Service Department of the Massachusetts General Hospital."

Medical Inspection of School Children.—In the state of New York, in general, the medical inspection of school children was inaugurated by the State Health Department in 1907, and since then to the present time the work has been carried on upon a voluntary basis, as far as the local educational authorities were concerned. By the action of the legislature of 1913, however, the supervision of such medical inspection has now been placed in the hands of the Education Department. The work is to be prosecuted under a mandatory law, and the officials of the Health Department have expressed their gratification at the fact that the enforcement of the law is to be carried out by Thomas E. Finegan, assistant commissioner for elementary education, who has displayed special interest in the inspection work of the department, and through whose influence among superintendents of education and others much local co-operation has been secured. In a letter addressed to the state commissioner of Health Mr. Finegan says: "It is fortunate that the law clearly defines the jurisdiction of the Education Department, as well as that of the Health Department. This clearness of the law will prevent any misunderstanding between the health authorities and the school authorities in the proper enforcement of the law. The Education Department will undoubtedly desire your coöperation in certain phases of the enforcement of this law in the future, and we shall call upon you whenever we feel that you can be of assistance to us."

Current Literature

Medical Record.

November 8, 1913.

1. Bloomfield, M. D. *Neurovascular Gangrene.*
2. Rosenbluth, B. *The Neuroses and Psychoneuroses of Children: Their Mode of Development and Treatment.*
3. Chappell, W. F. *Notes on Laryngeal Cases.*
4. Thomas, W. S. *Methods in Joint Diagnosis.*
5. Lydston, G. F. *Is Sterilization Destined to be a Social Menace.*
6. Winston, J. W. *Anatomy of the Uterine Pelvic Support.*
7. Amberg, E. *High Eosinophile Percentage of Unexplained Origin.*

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

NOVEMBER 8, 1913.

1. PERSHING, H. T. *Neurasthenia an Increased Susceptibility to Emotion.*
2. KIEFER, G. L. *Progress in Public Health Work.*
3. OTIS, E. F. *Experiences of a Health Officer in Porto Rico.*
4. CAULK, J. R. *Ureterovesical Cysts. An Operative Procedure for Their Relief.*
5. *KROTOSZYNER, M. *Untoward Results of Nephrolithotomy.*
6. *BECK, C. *The Implantation of the Ureters into the Large Bowel.*
7. *EISENDRATH, D. N. *The Repair of Defects of the Ureter.*
8. *ROBERTSON, H. E. *Studies of the Necrosis Following Injections of Salvarsan and Neosalvarsan.*
9. OUTERBRIDGE, G. W. *Decidual Reaction in the Appendix in Intra-Uterine Pregnancy.*
10. MAGRUDER, E. P. *Infantile Paralysis Affecting the Lower Extremities; Its Surgical Treatment and Possibilities of Cure. A Preliminary Report.*
11. TOWNSEND, W. R. *Causes of Error in the Diagnosis of Diseases of the Joints.*
12. GUTHRIE, G. W. *The Passing of the Family Doctor.*

5. Nephrolithotomy is connected with serious immediate and remote untoward results such as hemorrhage and perineal infection. It should, whenever possible, be replaced by posterior pyelotomy. Nephrectomy is the simplest, quickest and safest curative method for pyonephrotic stone-kidney, provided the function of the other organ is satisfactory.

6. Beck believes that a temporary transplantation of both ureters, one into the appendix and the other into the large bowel with free end of ureter protruding into the bowel is an operation feasible in certain cases of obstinate bladder disease, and that reimplantation into the bladder is later possible after relief of the bladder condition.

7. Eisendrath has found in dogs that segments of bladder, even without vascular connections, can be used to take the place of segments of the ureter, but even though bladder mucous membrane is accustomed to the presence of urine, it will undergo cicatricial changes in the same manner as other structures, as artery, vein, appendix, bowel, or horn of uterus, which are lined with endothelium or mucous membrane, not accustomed to urine, and even though the union of the transplant occurs, it soon becomes transformed into connective tissue, drawing the two ends of the ureters together with resultant stenosis of the ureter and hydronephrosis and hydroureter.

8. Intramuscular injections of salvarsan and neosalvarsan uniformly produce severe destructive lesions which always heal slowly and are often complicated by hemorrhages and sloughing abscesses. The severity of the reaction is the same whether salvarsan or neosalvarsan is used. Salvarsan always leaves an insoluble pigment which acts as a foreign body. Mercurial preparations when injected into muscles produce similar lesions. [E. H. R.]

BULLETIN OF THE JOHNS HOPKINS HOSPITAL.

AUGUST, 1913.

1. *KELLY, H. A., AND NEEL, J. C. *Carcinoma of the Cervix of the Uterus.*
2. CARY, R. J. *A Brief History of the Methods of Resuscitation of the Apparently Drowned.*
3. RIESMAN, D. *The Great Irish Clinicians of the Nineteenth Century.*
4. SMITH, J. T. *A Review of the Life of Sir Hans Sloane, Bart., M.D.*

1. Kelly and Neel, basing their observations upo 137 operations for cancer of the cervix of the uterus discuss this subject as to anesthesia, operation, ra dium, primary mortality (11.5% in the last fiv years), disinfection of the growth, lymphatics, post operative treatment and sequelae. Extensive abdom inal removal of all uterine cervical carcinomata i justified when there is any hope of complete excision an exploratory operation is often necessary. Obesit is not necessarily a contraindication to the operation The greatest hope lies in the early recognition of th primary growth. [J. B. H.

SEPTEMBER, 1913.

1. *HURWITZ, S. H. *Osteitis Deformans, Paget's Disease. A Report of Six Cases Occurring in The Johns Hopkins Hospital and Dispensary.*
2. *KNOX, J. H. M., JR. *Diabetes in Early Infancy*
3. AUSTRIAN, C. R., AND FRIED, H. *The Production o Passive Hypersensitiveness to Tuberculin. Second Paper.*
4. THEOBALD, S. *Some Striking Examples of Subnormal Accommodative Power.*
5. EVANS, F. A. *Unilateral Sclerosis of the Pulmonary Artery.*
6. REIK, H. O. *The Value of Naso-Pharyngeal Surgery in the Treatment of Chronic Exudativ Otitis Media.*

1. Hurwitz, in an interesting article excellentl illustrated, takes up the history of Paget's disease the previous work done on this subject, and present in the greatest of detail six cases. Our ignorance o its etiology is as great today as when the disease wa discovered, although there are many theories on thi question. The assumption of a causal connection be tween the internal secretions and osteitis deforman is, in his opinion, mere speculation.

2. Knox presents in tabular form the details o sixteen cases of diabetes in early infancy, collecte from the literature, including one case of his own Heredity seems to have played very little part; con tinuous over-feeding of sugar was a factor in three cases; injury to or alteration of the central nervous system was often associated with the beginning o the malady. Symptoms were the same as in adults Prognosis is grave but not hopeless. Treatmen should be the same as in adults. An "oatmeal day" should be given at frequent intervals. [J. B. H.

OCTOBER, 1913.

1. CLOUGH, P. W. *The Development of Antibodies in the Serum of Patients Recovering from Acute Lobar Pneumonia.*
2. NUTTALL, G. H. F. *Lectures on the Herter Foundation. III.*
3. *MILLER, R. T., JR. *Enterogenous Mesenteric Cysts.*
4. *BOGGS, T. R. *Salvarsan in Pernicious Anemia.*
5. FROTHINGHAM, C., JR. *Etiology of Arteriosclerosis*

3. Miller gives the details of a case of an enterogenous mesenteric cyst with operation. He classifies such cysts as (1) cysts of intestinal origin, arising either from sequestration of the bowel during development or from Meckel's diverticulum; (2) dermoid cysts; and (3) cysts arising from retroperitoneal organs. These various types and their development he describes, discussing signs, symptoms and treatment. Such signs and symptoms are apt to be vague, as evidenced by the fact that a cyst of the mesentery has never been positively diagnosed before operation or autopsy. About 50% of the cases give acute abdominal symptoms which lead to death unless operated upon; the remainder are latent and without symptoms of any kind. There is an elaborate bibliography.

4. Boggs in a brief paper concludes that salvarsan is distinctly justified in pernicious anemia and that in such cases special attention should be paid to the question of syphilis in the patient. [J. B. H.]

BRITISH MEDICAL JOURNAL.

OCTOBER 11, 1913.

REPORT TO THE SCIENCE COMMITTEE OF THE BRITISH MEDICAL ASSOCIATION.

1. CLARK, A. J. *The Action of Strophanthin upon the Cardiac Tissue.*
2. DALLY, J. F. H. *Maximal and Minimal Blood Pressures and Their Significance.*
3. ROBINSON, C. A. *The Idio-Ventricular Rhythm. A Clinical Case with Polygraphic Records.*
4. BURNACKE, J. *Fatal Purpura Following Scarlet Fever.*
5. SEMON, H. C. *Acute Facial Dermatitis Produced by a Hair Dye.*
6. TURNBULL, A. *On the Genesis of Cancer.*
7. DENMAN, R. *Electrargol in Smallpox.*

BRITISH MEDICAL ASSOCIATION.

SECTION OF ELECTRO-THERAPEUTICS.

8. BUTCHER, W. D. *Introductory Remarks.*
9. BARKLA, C. Z. *Address on Secondary X-ray Radiations in Medicine.*
10. *GOULD, A. P., ET AL. *Discussion on Radium and Radio-Therapeutics, Chiefly in Malignant Growths.*
11. *JORDAN, A. C. *A Note an Cardiospasm.*
12. BRUCE, W. I. *Collargol Injections in the Diagnosis of Diseases of the Urinary Tract.*
13. SAVILL, A. F. *X-ray Treatment of Uterine Fibroid.*
14. HARRIS, J. D. *Secondary X-rays in Connection with Ionization.*
15. GAUSS, C. J. *The Radio-Therapeutic Treatment of Gynecological Cases at Freiburg.*
16. BATTEN, G. B. *The Treatment of Ringworm by X-rays.*
17. HERTZ, A. F. *Suggested Standards in the X-ray Examination of the Alimentary Tract.*
18. *MORTON, E. R. *The Present Position of the X-ray Diagnosis of Pulmonary Tuberculosis.*
19. BAILEY, C. F. *Electro-Therapeutics in Neuron Lesions.*
20. JONES, H. L. *The Value of Condenser Discharges in Treatment.*
21. CUMBERBATCH, E. P. *The Use of Condensers in Electrical Testing and Some Results.*
22. HUMPHRIS, F. H. *Pathological Blood Pressure and Its Treatment by Modern Electro-Therapeutic Measures.*
23. JONES, H. L. *The Treatment of Corns and Warts by Ionization.*

10. Gould, Abbe, Johnson, Fowler, Hill, Williams, et al, discuss the use of radium and the x-ray in malignant disease, especially cancer, before and after operation, is a substitute for operation, etc., the technic and dangers. The papers are short but give numerous points of practical interest.

11. Jordan, in an article with some excellent x-ray plates, discusses the etiology, diagnosis, treatment and results of treatment of cardiospasm. In every case of cardiospasm the entire intestinal tract should be carefully investigated as the cause is apt to be in some lesion lower down the tract.

18. Morton discusses with the usual somewhat over-enthusiastic point of view of the radiologist of the use of the x-ray in the early diagnosis of pulmonary tuberculosis. Aside from its value in bronchial gland tuberculosis, he believes that there is a certain class of cases in which clinical signs and symptoms are so slight as to make the x-ray the only means of diagnosis. He believes that the x-ray should be part of every routine procedure and that it "frequently anticipates a clinical diagnosis." He believes x-ray to be "the most valuable means for the examination of pulmonary tuberculosis."

MÜNCHENER MEDIZINISCHE WOCHENSCHRIFT.

No. 42. OCTOBER 21, 1913.

1. BINSWANGER, O. *Abderhalden's Serum Test in Epileptics.*
2. BROMMER. *The Treatment of the Abdominal Muscles of Pregnant Women by Bergione's Method.*
3. SCHÖNE, G. *The Treatment of Fractures of the Forearm by Wiring.*
4. V. TSCHERMAK, A. *Current Ideas in Physiology.*
5. GUNDERMANN, W. *The Pathology of the Liver.*
6. *DREYFUS, G. L. *Intravenous Injections of Concentrated Salvarsan.*
7. KATZ, T. *Intravenous Injections of Neosalvarsan.*
8. SAALFELD, E. *The Technic of Intravenous Salvarsan Injections.*
9. *FUCHS, H. *Cardiac Complications Occurring after Salvarsan Treatment in a Patient with Late Secondary Lues.*
10. DAVID, O. *Acute Primary Inflammation of the Lungs Due to the Diphtheria Bacillus.*
11. PLATE, E. *A Case of Meningitis from Plumbism.*
12. MÜLLER, P. *A New Clamp.*
13. JOLLES, A. *An Azotometer for the Quantitative Estimation of Urea, Uric Acid and Purin Bases in the Urine.*
14. LIFSCHÜTZ, J. *The Quantitative Estimation of Cholesterin and Oxycholesterin.*
15. HIRSCH, A. *Icterus Neonatorum and the Secretion of Bile Pigments in the Fetus and Newly Born.*
16. RIELANDER, A. *The Seventieth Birthday of F. Ahlfeld.*
17. NASSAUER, M. *The High School for Physicians and Patients.*

6. Dreyfus advocates salvarsan given intravenously in concentrated solution. He uses between 0.1-0.4 gms. of the drug in 40 c.c. of distilled water made alkaline by 15% sodium hydrate. The injection is given slowly.

Dreyfus has made 300 such injections. The disadvantage of the method is that unless the technic is perfect perivenous infiltration occurs with pain and thrombosis. The advantages of concentrated salvarsan are that both subjective and objective symptoms on the part of the patient are decreased; no harmful effects have been noted; the method is simpler for both patient and physician than when larger amounts of fluid are injected.

9. Fuchs treated a patient having syphilitic periostitis, iridocyclitis and mucous patches in the mouth with 2.3 gms. of salvarsan given intramuscularly and intravenously over a period of nine weeks. The heart on physical examination was normal. Forty-eight hours after the last salvarsan injection, however, there developed a complete heart-block, lasting a week, disappearing under mild anti-luetic treatment and not recurring with subsequent salvarsan treatment. At the time of onset of the symptoms the skin lesions were quiescent.

Fuchs explains this complication by assuming the lesion in the conduction system of a syphilitic nature. The salvarsan destroyed the spirochetes contained in it, thereby liberating endotoxines which caused disturbance in function of the tissue of that area. But after resorption occurred, recovery took place. Fuchs believes that the condition was analogous to heart block occurring in the convalescence of various acute infections, due to a similar liberation of endotoxines in the same region, recovering with resorption.

[R. F.]

WIENER KLINISCHE WOCHENSCHRIFT.

No. 42. OCTOBER 16, 1913.

1. *WALDSTEIN, E., AND EKLER, R. *The Demonstration of Resorbed Spermatozoa in the Female.*
2. CAMPIERI, C. *Hypertension and Cholesterine Content of the Blood.*
3. HOFER, G., AND KOFLER, K. *Present Results of the New Vaccination Treatment of Ozena.*
4. LANDAU, W. *Investigations in a Luetic Serum Reaction with an Iodine Oil Reagent.*
5. WEISS, M. *A Means of Determining the Prognosis in Phthisis.*
6. RITTER, A. *The Fight Against Tuberculosis.*
7. FRÜHWALD, R. *The Infectiousness of Syphilitic Blood.*
8. ALBRECHT, H. *The Investigation and Teaching Purposes of Modern Pathological Anatomy.*

1. The authors draw the following conclusions: 1. Coitus establishes in female blood certain demonstrable ferments due to resorbed semen. 2. If this can be demonstrated in women as we have demonstrated it in animals, it will open up means of explaining many phenomena occurring in the life of woman which up to this time have been only feebly suggested by psychic processes. Possibly this "testicular reaction" may take a prominent place in legal medicine as a means of proving coitus. [F. S. K.]

DEUTSCHES ARCHIV FÜR KLINISCHE MEDIZIN.

JULY 21, 1913.

1. GRABS, E. *Two Cases of Disturbance in Heart Impulse Conduction.*
2. *MOSENTHAL, H., AND SCHLAYER, C. *Experimental Investigations on Fatigue of the Kidneys.*
3. GÜNTHER, H. *Multiple Symmetrical Diseases of the Tendon Sheaths and Serous Cavities, Especially Hygromatosis Rheumatica.*
4. *CSÉPAI, K. *Diagnosis and Pathology of the Polyglandular System.*
5. *MOEWES, C. *Polycythemia Rubra.*
6. EDENS, E. *Heart Hypertrophy.*
7. *SCHLOSS, K. *Effect of the Nitrites upon the Circulation in the Heart.*
8. *BENEDICT, G., AND JOSLIN, E. P. *The Material and Energy Exchange in Diabetes.*
9. HURDHEDE, M. *Studies on Albumen Minimum.*

2. Schlayer and Mosenthal report on the result of their experimental work on nephritis in which they take up the question of fatigue of the renal function in health and in different types of experimental nephritis. They also take up especially the effect of diuretics upon different stages of kidney abnormality. In brief their work showed that the diseased kidney reacts to fatigue in a different manner from the normal kidney. They have used rabbits chiefly for their work. The diuretic which will or will not produce fatigue depends upon the kidneys' ability to function. The kind of diuretic, the number of doses and the size of the dose all take a part in fatigue. Sodium chloride causes increase in fatigue, even when it is well excreted. In some cases of uranium nephritis at certain stages after fatigue from sodium chloride, caffein will restore activity.

4. Csépai, in an article upon the polyglandular system diseases, brings out the interesting point that in eye reaction tests, etc., the pituitary and adrenalin extracts will in certain cases augment the action of each other and in this way can be of diagnostic use. He also brings out the interesting point that eosinophilia is quite common, especially in diseases of the pituitary gland.

5. In reporting a case of polycythemia complicated by chronic nephritis, Moewes brings out the fact that after the administration of benzol the red blood cell count dropped "from 10,000,000 to 6 1-2 million i about a month's time." Unfortunately the patient die about that time from uremia, so that the specifi action of the benzol upon the red blood cells remain slightly obscured.

7. Schloss experimentally worked on the effect o different members of the nitrite group upon the circu lation in the coronary vessels. Although they a cause a lowering in blood pressure they cause a suff cient dilatation of the coronary vessels to increase th circulation to the heart, despite the fall in pressur This action is for most of them only transitory. H takes up the difference in duration of action betwee the different members of this group.

8. Joslin and Benedict's article is not one capabl of a short review, but is one of value for anyon wishing information on the many problems of dia betes which they so carefully take up, and upo which they offer much valuable information.

[C. F., JR.

Obituary.

EDWIN KLEBS, M.D.

THE second half of the 19th century occupie a preëminent place in the history of medicin No other epoch can present such a great num ber of brilliant men as this period. It is the ag of Pasteur, Lister, Virchow and Koch. Edwi Klebs, who died Oct. 21 at Berne, Switzerland was one of the great leaders of this epoch. Th life of Dr. Klebs is of special interest to us a he spent several years as practitioner an teacher in America.

Edwin Klebs was born Feb. 6, 1834, i Königsberg, Prussia. He received his early edu cation at the gymnasium of his native city an studied medicine at the universities of Königs berg, Würzburg, Jena and Berlin. In 1861 h became Virchow's assistant in the Pathologica Institute at Berlin. In 1866 Klebs was called t the chair of pathological anatomy at the Univer sity of Berne. In 1872 he filled the same pos tion at the University of Würzburg, but fo lowed a call to Prague in the following yea From 1882-92 he was Professor of Pathology i Zürich. In 1895 Klebs came to America and th following year was elected Professor of Patho ogy at the Rush Medical College in Chicag But his restless spirit did not permit him to sta long in one place. In 1900 he returned to Eu rope and spent the last years of his life in re tirement, mostly in Switzerland and Germany

Klebs was one of the pioneers in bacteriolog and his name occupies a prominent place in th history of this science. As far back as 1870 h made bacterial cultures by means of solid media especially of the germs of wound infection. H discovered the tuberculosis bacillus long befor Koch and made cultures by transplanting it int hens eggs, but failed to recognize in it the caus of tuberculosis. The typhoid bacillus, too, wa seen by Klebs before Eberth, and he discovere bacilli in leprosy long before Hansen. His dis covery of the diphtheria bacillus in 1883 pro

cured for him a lasting place in the history of medicine.

Klebs was all his life an untiring, ceaseless worker and his labors cover a wide range of investigations. From 1868-80 appeared his great work on pathological anatomy. In 1889 he published his text-book on general pathology. He wrote valuable monographs on cretinism, cholera Asiatica, diphtheria, and tumors. Tuberculosis was one of his favorite subjects. As early as 1866, while he was professor at Berne, he noticed that tuberculosis was quite frequent among the sturdy mountaineers of Switzerland, who live almost exclusively on milk and milk products. Already at that time he expressed the view that milk was a probable carrier of the disease, thus foreshadowing the later discovery of the transmission of tuberculosis from tuberculous cows to man. Klebs was also the originator of the treatment of tuberculosis with tuberculocidin, and he was the first to use attenuated tubercle bacilli from cold-blooded animals in the treatment of tuberculosis (1900).

As a teacher Klebs was a master. He was a fluent, forceful speaker and his pupils remember the skill and lucidity with which he presented his subject.

Though Klebs has in many cases failed to carry his investigations to their ultimate conclusions, he has shown the way to others. And while others have sometimes claimed all the glory, it is nothing but just to give full credit to the work of the man who has now passed away. Klebs was a master mind and a power in the progress of modern medicine.

Miscellany.

AN EXPERT CRITICISM OF MASSACHUSETTS METHODS.

On Thursday, Oct. 23, Dr. Livingston Farrand, professor of anthropology at Columbia University and secretary of the National Anti-Tuberculosis Society, appeared at the State House before a legislative committee on tuberculosis to answer a series of categorical questions relative to the enforcement of laws for the control of the disease.

"He said that he approved of Massachusetts laws in general, but he thought that the problem of tuberculosis should be worked out in local hospitals. He said that the statute making it mandatory on cities and towns to build tuberculosis hospitals should be enforced, but with discretion. It would not be possible for the state to build and maintain local hospitals at state expense. New Jersey requires county hospitals, but he was unable to suggest a practical method for the taking over in Massachusetts by a county or local institutions already established. New York has permissive county hospitals and local hospitals also.

"He urged that the Massachusetts dispensary law should be enforced as correlative to the hospital law, and there should be a legal definition of dispensary. It should have separate accommodations for tubercular patients and provide supervision for such patients in their homes. He praised the Massachusetts subsidy law, allowing a subsidy from the state for patients in local hospitals. He said that other states have found local boards of health incompetent, and New York has practically wiped them out, substituting local health officers, appointed locally, but under state supervision, and obliged to follow state regulations. He said that Pennsylvania has gone to the extreme in establishing state supervision, and has made a lamentable failure. Patients will not go to the state sanitaria because they are too far from their homes. As for the 135 dispensaries, they also are almost all faiures. Never was there so large a sum of money absolutely wasted on so meritorious a project.

"Dr. Farrand lauded Massachusetts as the pioneer state in the state-care of tuberculosis, but said that it is now very nearly the unanimous opinion that the best method is treating the disease as a local problem. The only question is the size of a unit—whether it should be a town or a group of towns, or a county. New Jersey is the only state that has developed a mandatory law like Massachusetts, the New York law being permissive. He said no community would stand for a sweeping segregation law, and yet a tuberculosis patient is a menace to the community, and a law permitting discretion is absolutely necessary. Under the New York City sanitary code patients may be segregated. San Francisco and Birmingham, Ala., have similar drastic powers. Atlanta has such a law applying only to Negroes.

"The state board of health or a health commissioner should have central authority for control and supervision of the disease. It is not common sense to turn over the supervision to a separate department. In conclusion Dr. Farrand praised the Massachusetts system and said the whole country is watching its development and further improvement."

IN MEMORY OF REGINALD HEBER FITZ, A.M., M.D., LL.D.*

Reginald Heber Fitz was born in Chelsea, on May 5, 1843. He graduated from Harvard College in 1864, and from the Harvard Medical School in 1868. He continued his studies in Europe, and on his return in 1871 was appointed microscopist at the Massachusetts Gen-

* Resolutions adopted by the Aesculapian Club of Boston.

eral Hospital and instructor in pathological anatomy at the Harvard Medical School. In 1873 he was appointed assistant professor, and in 1878 professor of pathological anatomy. In 1887 he was appointed visiting physician to the Massachusetts General Hospital. He relinquished the professorship in pathological anatomy in 1892 to become Hersey professor of theory and practice of physic in the Harvard Medical School. These positions he held until 1908, when he retired from active teaching and was made emeritus professor.

He died September 30, 1913.

A physician and pathologist of world-wide reputation, he was best known to us as a teacher whose clinics were at first fearsome because of the keen mind that dominated them; later enjoyable and inspiring because of the humor and affection which appeared to his students as they grew to know and understand him.

He has left to us a training in accurate observation and logical deduction, and the memory of a man for whom our feeling of awe has been supplanted by one of love.

MEMORIAL TO DR. FITZ.

ADOPTED BY THE BOSTON MEDICAL LIBRARY.

THE death of Dr. R. H. Fitz, which took place September 30th last, has deprived the Boston Medical Libary at once of one of its original incorporators in 1877, of a Vice-president, and of one of its most widely known and distinguished Fellows.

No one has made greater or more fruitful use of its resources than he. From the years preceding the publication, in 1886, of the paper on "Perforating Ulcer of the Vermiform Appendix" to the appearance in 1911 of the essay on "Zabdiel Boylston, Inoculator, and the Epidemic of Smallpox in Boston in 1721,"—his last considerable contribution to medical literature,—this Library was the frequent and often the prolonged witness of his patient labors, furnishing the cruder materials of medical observation and record to be transformed by his persistent study, close reasoning, successful ingenuity, and terse English into the more perfected products of medical thought and science. Of such products, and there are in all some forty-five titles, in addition to the two previously referred to, there should be mentioned the Middleton-Goldsmith Lecture on "Acute Pancreatitis," delivered before the New York Pathological Society in 1889; and the course of Lane Medical Lectures (six) for 1910 given in San Francisco, on "Some Features of the Lymphatic System."

The Boston Medical Library desires at this annual meeting to place on record its keen sense of the great loss sustained by the death of Dr. Fitz.

CHANGES IN NAVY MEDICAL CORPS.

The following changes have been made in the Medical Corps, U. S. Navy, for the two weeks ending November 15, 1913:

November 9, Medical Director C. T. Hibbett, placed on retired list in accordance with section 1444 revised Statutes upon reaching the age of 62 years.

Assist. Surgeon J. B. Greene, M.R.C., commissioned from October 15, 1913.

Assist. Surgeon J. B. Bostick, M.R.C., to Naval Training Station, San Francisco, California.

November 11, Surgeon J. C. Thompson, from *Albatross* to Pacific Reserve Fleet.

P. A. Surgeon J. A. Toulon, from *Ozark* to *Severn*.

November 5, Surgeon W. M. Garton, from Naval Hospital, to *Kearsarge*.

Surgeon F. L. Benton, from Atlantic Reserve Fleet to Receiving Ship at Norfolk, Va.

Surgeon R. B. Williams, from Receiving Ship at Norfolk, to Naval Hospital, Norfolk, Va.

P. A. Surgeon W. N. McDonell, to Naval Hospital, Annapolis, Md.

SOCIETY NOTICES.

AMERICAN SOCIETY FOR THE STUDY OF ALCOHOL AND OTHER NARCOTICS.—The 43d annual meeting of the American Society for the Study of Alcohol and other Narcotics will be held Dec. 3 and 4, 1913, at the Hotel Rittenhouse, Philadelphia, Pa.

Two sessions will be devoted to the practical work of hospitals and sanatoriums for inebriates.

A very warm invitation is extended to all who are interested in this work. For further particulars address the secretary,

T. D. CROTHERS, M.D.,
Hartford, Conn.

THE HISTORICAL CLUB of the Harvard Medical School will meet in the amphitheatre of the Peter Bent Brigham Hospital Tuesday evening, December 2, at 8 p. m.

"The Medical Side of Benjamin Franklin," by Dr. Hackett.

"Remarks on Albrecht von Haller," by Dr. Cannon.

"Some Autograph Letters of Famous Medical Men," Dr. Stedman.

The meetings are open to members of the medical profession.

RECENT DEATHS.

DR. CHARLES S. COLLINS, who died on Nov. 16 at Nashua, N. H., was born in Grafton, N. H., on April 21, 1853. He was educated at Colby Academy and received the degree of M.D. from Boston University in 1875. He retired from practise several years ago. He is survived by his widow and by four sons.

DR. AUGUSTINE C. HAUB, who died recently at Boston, was born in Nevada in 1880. She received the degree of M.D. in 1903 from Boston University, and was a member of the Massachusetts and of the Boston Homeopathic Medical Society. She is survived by her parents, three sisters, and one brother.

DR. JAMES H. MCCLELLAND, who died on Nov. 14 at Pittsburg, Pa., was born in 1845. He was president of the American Institute of Homeopathy in 1893-4, and in 1900 honorary president of the International Homeopathic Congress at Paris.

DR. GEORGE B. SAWTELLE, who died of cardiac disease on Nov. 14 in Malden, Mass., was born at Sidney, Me., in 1838. He was educated at the Coburn Classical Institute, Waterville, Me., at Union College, Schenectady, N. Y., and in 1866 received the degree of M.D. from the Hahnemann Medical College of Philadelphia. He was a member of the Massachusetts Homeopathic Medical Society and of the staff of the Malden Hospital. He is survived by his widow and by two daughters.

Original Articles.

THE NERVOUS IRRITABILITY OF CHRONIC RENAL DISEASE.

BY WILLIAM H. ROBEY, JR., M.D., BOSTON,

Instructor in Medicine, Harvard Medical School; First Assistant Visiting Physician, Boston City Hospital.

In a recent paper by L. F. Barker on "The Commoner Forms of Renal Disease," with special reference to the knowledge of them most useful at present to the general practitioner, the writer mentions among many points "the symptoms which indicate the existence of renal disease or which leads us to suspect it." Under this heading he refers to albuminuria, cylindruria, polyuria, or oliguria, nycturia, hyposthenuria and hematuria, edema, certain vascular changes, and certain phenomena referable chiefly to an intoxication of the nervous system, the so-called uremic symptoms.

It is most necessary that such papers should be written and carefully read when we consider how often the early signs of renal disease are overlooked and the symptoms ascribed to some other condition.

Dr. Barker furthermore says: "The so-called uremic symptoms, referable to an intoxication of the central nervous system (headache, dizziness, vomiting, diarrhea, renal asthma, somnolence, disturbances of vision from albuminuric retinitis, convulsions, coma) may sometimes, though rarely, be those which lead the patient first to consult the physician. Unless a thoroughly systematic examination was made in such a case as a matter of routine, including an examination of the urine, and of the blood pressure, the cause of the nervous symptoms might be entirely overlooked or wholly erroneously interpreted."

Barker has little to say about nervousness as an early symptom of chronic renal disease.

I looked back to the fourth edition of Flint's Practice of Medicine to see if the early symptoms of nervousness in chronic renal disease were mentioned. In those days (1873) the first symptom which was generally noted was dropsy. Under affections of the nervous system, Flint speaks of pain, headache and albuminuric retinitis, but he says the most important symptoms are convulsions and coma. It was then interesting to read his chapter on what he called "Nervous Asthenia." He says, "The term 'nervous asthenia' may be used to denote a morbid condition sufficiently common in this country, especially in the larger cities." The propriety of considering the condition as a functional affection, and the name, have been suggested by my colleague, Professor Fordyce Barker. As the name signifies, debility or prostration affecting especially the nervous system, constitutes the affection. It occurs without anemia or any notable disorder of the vital functions. It proceeds from undue functional activity of the nervous system as connected with the exercise of the intellectual and emotional faculties.

Physicians are often consulted by patients, who, although far from being well, have no well defined malady. They complain of languor, lassitude, want of buoyancy, aching of the limbs and mental depression. They are wakeful during the night and enter upon their daily pursuits with a sense of fatigue. Under the pressure of mental excitement, they may be able to exert themselves with their usual energy, but when the excitement subsides, they are jaded and worn out. They become apprehensive that their powers are giving away and are apt to fancy the existence of some serious malady. An investigation of the various organs of the body reveals no evidence of disease; the lungs, heart, kidneys, etc., are sound. None of the affections embraced in the nosological catalogue may be discovered, yet the morbid condition is real. This brief sketch represents a class of cases with which every physician is familiar. An inquiry into the habits and circumstances connected with the daily life in the cases now referred to, will show that the mind has been for a long period unduly taxed by the cares and responsibilities of business, over-exertion in the pursuit of wealth or other objects of ambition. Long continued anxiety or inquietude, in short, the patient is suffering from wear and tear of the nervous system. The action of mental causes is increased by other causes which tend to diminish the vigor of the body, such as irregular habits with respect to diet, the hours devoted to sleep and rest, etc. The causes which act directly through the mind are especially operative in this country, owing to the early age at which persons engage in the active pursuits of life, the great inducements to excessive exertions and the emulation excited by the activities of others. It is not uncommon to meet with persons who have overtasked the nervous system, without any rest or recreation, for many consecutive years. The condition of nervous asthenia is, in itself, not a small evil, causing much discomfort and unhappiness to the patient, and rendering him uncomfortable to others by inducing depression, irritability, or moroseness. That this condition favors the development of diseases to which there may be a predisposition, or coöperates with the various causes of diseases, is highly probable. It is apt to engender a desire for stimulants and thus lead to intemperance. It may eventuate in confirmed melancholia, hypochondriasis or other forms of mental derangement."

After considering the treatment of the condition such as rest, change in environment and the mode of living, together with the administration of nerve sedatives he concludes in this way:

"A full consideration of nervous asthenia would require much more space than can be

accorded to it in this work. The topic belongs properly to mental hygiene, a subject of vast importance in its pathological, social and moral bearings. I must content myself with having offered a few hints for the reflections of the medical reader."

If the clear-minded Flint could have put this description in his chapter on chronic diseases of the kidney how far ahead of his time he would have been.

Osler in his 1901 and 1909 editions, makes no mention of the nervous symptoms which Flint so carefully described as nervous asthenia, but speaks of lassitude, sleeplessness, blindness, and uremia as the prominent nervous phenomena of the chronic kidney.

Of course Flint's description of nervous asthenia fits many conditions, but we wish simply to call attention to it in middle aged persons and to urge a thorough elimination of a renal source.

J. B. Herrick in Osler's Practice of Medicine (1909), says: "The symptoms of toxemia may show themselves in a mild manner for months or years, their manifestations being so slight and the increase in severity so gradual that the patient is hardly aware of the fact that he is in ill health. Yet on analysis of the testimony of the patient and his observing friends it will often be found that for some time there have been noted an easy mental fatigue, a lack of power of concentration and of the former quick grasp of business affairs; sleep may be poor or the patient is drowsy during the day. He wakes in the morning with a headache, is annoyed at times by a full feeling in the head or by a transient dizziness. He becomes easily discouraged, has fits of the "blues," is more subject than is natural for him to spells of despondency. He grows irritable or morose. He tries dieting, takes a short vacation, uses laxatives and tonics, but obtains only temporary relief. It is only when he consults his physician that the true underlying renal cause for these symptoms is discovered. During the further course of the disease these symptoms may become more pronounced." How similar to Flint's "Nervous Asthenia" is the above description.

Herrick says, "It is only when he consults his physician that the true underlying renal cause for these symptoms is discovered." I would hardly feel as confident as Herrick. It is only in the latest articles and text-books that attention is called to early signs of nervousness in disease of the kidney.

When a man of forty or fifty years, who has been active and successful in business begins to complain of headache, to be nervous and irritable or to have any change in disposition, thorough and repeated examinations of his heart, blood vessels, blood pressure and twenty-four hour urine are imperative. More than forty years ago Flint wrote that in a certain number of cases the urine gave no sign of the early stages of the disease. He knew this by looking back over a series of cases, but he was unable to guide his readers to an early recognition of the disease.

Today, quite apart from the urine, we have a better knowledge of the heart and blood vessels and the use of the blood pressure machine. I would not take up your time to mention these facts were it not that I have seen within two months four cases where the blood pressure ranged between 200 and 240, yet no special effort was made to curtail the patients' activities or to correct their modes of life. One was brought to a halt by apoplexy, one by cardiac insufficiency and apoplexy, and two by cardiac insufficiency and edema.

Every physician should be provided with a blood pressure apparatus and should use it constantly. One examination of the blood pressure in a patient with early nervous symptoms may be as uninstructive as a single examination of the urine.

Sometimes it is the patient's fault that he does not consult us early enough, sometimes it is our fault that we do not attach enough importance to his early and seemingly trivial symptoms.

CASE 1. One of the first of these cases which came under my notice was a physician. The diagnosis of chronic kidney disease had been made and I saw the patient occasionally in the absence of his own physician. This was before the blood pressure machine was much in use but he had tense arteries, an enlarged heart and a urine containing a trace of albumin and casts. He would often be seized at night with dyspnea, intense nervousness and apprehension. It would be necessary to remain with him until his attack had passed. The picture of this patient was a help to me in subsequent cases although it was too late to benefit him.

CASE 2. A. M. S., a railroad checking clerk entered the B.C.H. July 28, 1910. His family history was unimportant.

He had had the usual diseases of childhood and at twenty-six had scarlet fever soon followed by typhoid fever. His habits were good. He used tobacco but no alcohol. He said that he always worked hard with very long hours. He had been nervous for several years with distress and gas after eating. For eight or nine months he had considerable stomach trouble. At times he had pain in the epigastrium, precordial distress, dizziness, palpitation and headache and "a lump in the stomach."

Five days before entrance he had bad dreams and would jump out of bed screaming. For four days he vomited everything, vomiting ceased on the day of entrance. Bowels moved once a day. Is very thirsty but has no appetite.

Physical Examination. WD&PN. C&R. Talks very rapidly. Color of skin yellowish but sclera are not jaundiced.

Pupils equal and react to light and accommodation.

Tongue protruded straight. Slight white coat.

Pulses. Equal regular, synchronous, good volume, rather high tension. Radials palpable.

Heart: Apex fifth space 3.5 cm. by 10.5 cm. action regular, sound of fair strength. Loud blowing, musical systolic murmur transmitted over precordia and into axilla.

Lungs negative except for friction rub at right base, not always heard in expiration.

Abdomen soft, tympanitic; slightly tender in epigastrium. No fluid, masses nor spasm.

Liver edge felt just below costal margin.

Spleen not felt.

Knee jerks equal and normal.

Slight edema of extremities.

July 29. Test meal normal.

Patient was entered by his physician with a diagnosis of carcinoma of the stomach.

August 1. Vomited several times each day. Talks very fast and disconnectedly. Sleeps poorly and is very restless.

Dr. Heffernan examined the eye grounds and found them normal.

Restlessness and delirium continued especially at night. Drowsy at times but would suddenly jump up. Gets out of bed at night, wanders about the ward and is evidently demented.

Urine showed a few granular casts, occasionally with fat cells. SG 1011-1035 ¼ o/j of albumin.

Carcinoma of the stomach and brain tumor were excluded and a diagnosis of chronic renal disease was made. Dr. J. J. Thomas who saw the case said that the nervousness was due to a toxemia.

Autopsy August 11: chronic interstitial nephritis and myocarditis.

A study of the nervousness, blood pressure and urine early in this case might have lead to a correct diagnosis. His physician told me some months later that he had subsequently learned that the patient's nervousness was due to domestic troubles. Such nervousness was a sign of renal disease.

Case 3. J. W., single, sixty-six years. Saw her in 1910 because of extreme nervousness. She had a nervous breakdown some five years before from which she had partly recovered, but in 1909 she became intensely nervous again. Her history prior to this time had not been remarkable and she had lead a fairly active life up to the time of her nervous collapse.

The physical examination was as follows:

WD & N. Color slightly cyanotic at times. Eyes normal. Tongue protruded straight, brownish coat. Teeth in fair condition. Heart: Area slightly increased. First sound at apex shortened and sharpened with a slight systolic murmur. Aortic second sound accentuated.

Lungs negative.

Liver edge palpable and slightly tender.

Abdomen negative; no masses. Spleen not enlarged.

Extremities normal.

Pulse. Regular; good strength and volume.

Arteries atheromatous and easily palpable.

Blood pressure 150.

Urine pale, SG ranging between 1010-1015, acid, no sugar, with a trace of albumin and slight sediment with an occasional hyaline cast. No special nycturia. Twenty-four hour amount usually within normal bounds.

Her complaints were more numerous than almost any other patient I have ever seen. She wore out her family and her nurses would not remain with her because of her constant irritability and fault-finding.

She talked constantly in the following manner:

"I have terrible nausea and everything I eat distresses me."

"I am terribly nervous all the time, and my blood does not flow properly."

"I have a constant pain in the back of my neck and trembling spells, it seems as though I would lose my mind."

She complained of weakness and inability to sleep. There were numerous phobias and great indecision.

The fasting stomach was empty.

The blood pressure ranged between 150 and 175 and all efforts failed to bring it down.

Finally she went to a sanitarium in December, 1910, and on the 20th of February, 1911, died, eight hours after the onset of apoplexy.

Her toxemia affected the nervous system in a marked degree and her early signs of nervousness were probably the first symptoms of renal insufficiency.

Case 4. M. H., widow, forty-six. Entered the Boston City Hospital Aug. 2, 1912. She was in the hospital for a few days prior to this date with heat exhaustion and chronic endocarditis.

Present Illness. Has been very dizzy most of the time. Continual headache from occipital to frontal region for the past month. Vomited everything eaten the past two days; vomitus dark green in color; no blood present. Dyspnea, vertigo, no pain and no gastric distress after eating.

Physical Examination. WD—Comfortable. No dyspnea and no cyanosis.

Pupils equal and react to light and distance.

Teeth in poor condition.

Pulse equal; regular; synchronous. Fair volume and tension.

Heart: 3½ x 11½ cm. Systolic murmur heard best at apex, transmitted to axilla.

Aortic second accentuated. Action regular.

Lungs negative.

Chest: left breast amputated. Two or three small tender nodules in line of scar.

Abdomen and extremities normal.

Aug. 3. Urine pale, cloudy, SG 1010. Granular casts. B.P. 134.

Aug. 6-10. Vomiting constantly but free from headache.

Aug. 14-30 continued improvement—no vomiting, no headache; no edema.

Average blood pressure 130.

Sept. 3-23 with exception of slight vomiting, continues to do well.

Urine averages SG 1010, very slight trace of albumin; occasional hyaline cast.

Nov. 2-28. Showed improvement in weight and strength but had a little vomiting and headache every few days.

Nov. 30. Became ugly, threw her medicine glass on the floor and declared doctor and nurse wished to kill her. Very irritable, would go into the lavatory and crouch behind the door refusing to come out.

The eye grounds were negative; no choked disc.

I was interested in this patient as she had been under my care during September. Her visiting physician sought to explain her mental state by a cerebral metastasis from the breast focus. It seemed to me that there was a strong possibility that it was the nervousness of chronic kidney disease.

She was transferred to the nerve service.

While there (from Dec. 3 to Feb. 8) she had no more special nervous or new physical signs except a right optic neuritis and was discharged relieved.

In our discussion of this case it was maintained that when the blood pressure fell if she had nephri-

tis the urine would have become more albuminous and the sediment shown a larger number of casts. Theoretically this is the rule and practically it is often so but not necessarily. I have seen several cases which were exceptions.

Weakness, dyspnea, vertigo, headache, and vomiting with accentuated aortic second and a urine such as we have described were sufficient to make a diagnosis of chronic disease of the kidney. The toxemia manifested itself in two ways in her case, generally by storms of headache and vomiting followed by days of reasonable comfort and by a spell of nervousness lasting several days.

Two months later she had improved, having only occasional attacks of vomiting and no subsequent nervousness while in the hospital. A carcinomatous metastasis would have been a progressive condition.

CASE 5. R. D., age fifty-seven. Entered hospital Aug. 18, 1911.

Family history negative—no nervous or mental trouble.

Present History. Has been treated for some nervous trouble for a long period but doesn't seem to know what it was. Says she was shaky, had headaches and legs felt weak all the time. Has felt drowsy at times but does not fall. Appetite very poor.

On Aug. 17th when getting out of bed in the early morning she found that the right side was helpless.

Physical Examination. Showed a right hemiplegia.

Urine 1022, acid, slight trace of albumin, no renal elements in sediment.

I saw her about six months later. She was then intensely nervous and irritable. The heart was enlarged, the first and second sounds at the apex were similar and the aortic second was accentuated. The blood pressure was 210. She was weak, had dyspnea even when quiet and was in bed more or less of the time. Her physician had made a diagnosis of neurasthenia and had seemed to have entirely overlooked the hemiplegia. It was a clear case of chronic disease of the kidney and under appropriate treatment she improved and is in a more comfortable condition than she was two years ago.

Recently a lady brought her mother from New Hampshire for examination. The chief symptom which the family noticed was irritability of temper. She became excited over trifles and was unlike her former self in this respect. The blood pressure was 160, the second aortic sound was accentuated; the urine was of low specific gravity, contained a trace of albumin and an occasional cast.

The object of this brief paper is to remind us of the fact that the toxemia of chronic disease of the kidney may exert influence upon the nervous system either as a very early sign or one occurring after the condition has become fairly advanced.

In the toxemia of bacterial infections we see the same manifestations. The pneumococcus may invade the body in a variety of ways. In acute articular rheumatism, its earliest manifestation may be in the nervous system, later the skin, joints or serous cavities may be involved. When middle aged individuals show signs of nervousness, change in disposition, irritability or moroseness, the heart, blood vessels and kidneys should be thoroughly and repeatedly examined and we should not allow ourselves to rest contented with a mere diagnosis of nervousness.

A METHOD OF PROMOTING THE EFFICIENCY OF AN OUT-PATIENT CLINIC.

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AND

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THERE is no more serious limitation to the efficiency of out-patient clinics than the failure of patients to return for treatment. The patient whose disease is diagnosed and for whom a plan of treatment is made, and who does not come back to see the doctor, is a patient lost. The time of physician and patient and the money of the institution are wasted.

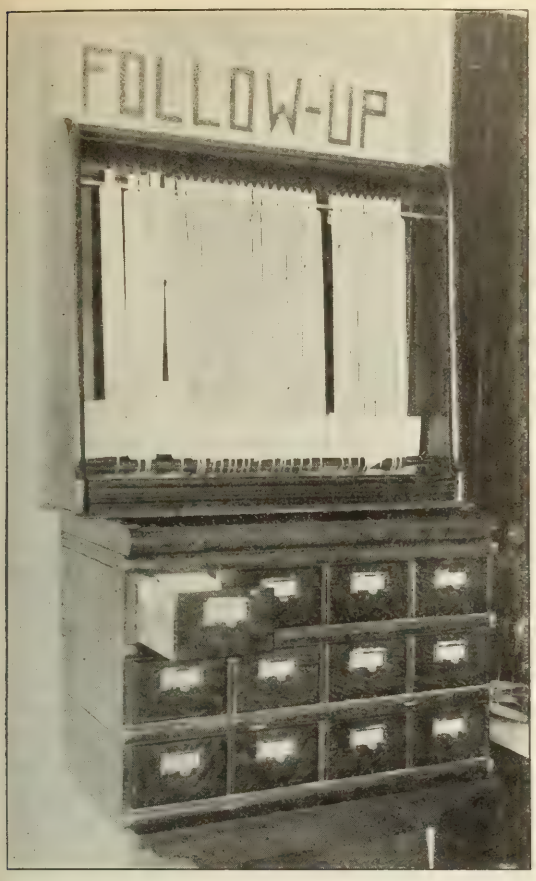
As out-patient clinics have ordinarily been run, the return of a patient is left very much to chance, so far as any active effort on the part of the medical or the executive staff of the clinic is concerned. Furthermore, there is usually no means of ascertaining readily the patients who do not return. The physician interested in a particular case can have it looked up if good clinical records are kept; but the medical or the executive staff of the clinic are not ordinarily regularly informed how the patients of their clinic are coming for treatment.

The establishment of efficiency tests at once reveals that the proportion of lost patients, in the above sense, is a large one. Tests made in the Children's Medical Clinic of the Boston Dispensary, for instance, show that in some classes of cases, such as infant feeding cases, one-third of the babies were not brought back for treatment, when, in the opinion of the physicians, it was desirable that they should return.

With a view to establishing a system which should be, so far as possible, automatic, and be capable of maintenance with relatively little labor, the following scheme has been devised:

The so-called "Index Visible," invented by Prof. Irving Fisher of Yale, has been utilized. A photograph of the case and of a sample card are shown. The mechanical advantages of this scheme are simplicity, ease of insertion and removal of cards, and the fact that all the cards are always in sight at the same time.

Every card stands for a patient who is under treatment by the clinic and who it is desired should return for treatment. The general idea is to file the cards of the patients under the date



at which they are next expected or asked to return. The case contains 31 aluminum strips, suspended from a rod in such a way that they are easily moved from one position to another, or removed from the case. The numbers on the strips indicate the days of the current month. The order of the strips is changed daily, so that the date on the first, or left-hand strip, is always three days behind the calendar.

The card, as may be seen from the illustration, is ruled for six months' use, and at the initial visit of a patient the top line is filled out with name, address, and clinical number. This card is then attached to the medical history card with a spring clip, and both cards go together to the examining physician. After he has examined the patient and made his diagnosis or other record on the medical history card, he puts a diagonal line on the index card in the square corresponding to the date on which he desires to see the patient again. He tells the patient, or the patient's mother, to come back on that day. He may also, if he thinks it well, give to the patient a printed slip— a reminder slip on which the physician simply has to write the date of desired return.* If the physician thinks the case especially important and desires that a postal-card should be sent if the patient does not appear on the appointed day, he places a capital P, in ink or pencil, in the square corresponding to the proper date, instead of making the diagonal black line. This P serves as an order to the clinic clerk to send a postal card if the patient has not returned up to the third day after the date named.

At the end of each day's clinic the cards are collected by the clerk, and filed; the medical history cards in one filing case, arranged numerically; the follow-up or index cards in the "Visible Index" on the aluminum strip which corresponds to the date which the physician has marked as the day on which he desires the patient to return.

When the patient comes back the next time, the clinic clerk takes out the index card as before and sends it to the physician with the medical history card. The clinic clerk also marks on the index card a diagonal line, in red ink, in the square corresponding to the date of return. The index card then goes with the medical history card and the patient, to the physician, and the same routine follows as above described.

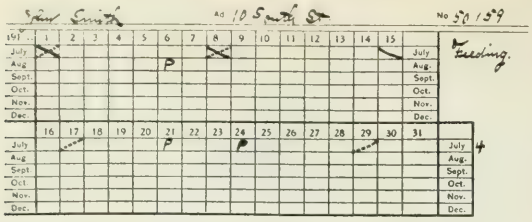
Thus, as patients return to the clinic for treatment their cards are shifted along from date to date according to the indication given by the physician as to the desired time of return. It will be apparent from this that when a patient does not return on the desired day the card will automatically remain on the strip. Every day the clinic clerk takes all the cards off of that strip, which is three days behind the calendar. These cards represent patients who have failed to return for three days after the date on which they were asked to come. Those cards which were marked by diagonal black lines are filed alphabetically in a drawer where they can be readily found for future use. Those cards with a P are separated, a postal card is sent to the patient asking for return on a definite date, and the card is then put back in the "Visible Index" on the strip which is labelled with this date. The fact that a postal card has been sent by the clerk is indicated by her by a P in red ink.

If two postal cards have been sent to the patient without response, the fact is reported to the physician, who determines, according to the medical needs of the case, whether the patient shall be referred to the Social Service Department, to exercise personal persuasion, or ascertain why return has not been possible. The physician may, on the other hand, decide that the case may be dropped. The card will then be filed in the drawer with others bearing the diagonal black line.

AN EXAMPLE.

A word in explanation of the card reproduced in the photograph may be given as a concrete illustration. This patient was to have returned on July 1 and July 8, and did so. He was told to

* The printed slip has been found useful in a number of ways. It is frequently used and accepted by the school-teacher as an excuse for the child's absence from class, or as a request for early dismissal, so that the child can attend the clinic at a sufficiently early morning hour and not be recorded as absent from school. This service was of course entirely unthought of by those who designed the slip, and has simply come about because the school-teachers have found it convenient.



come back again on July 15, but did not come until the 17th. He was then requested to come back on the 24th, and, as the physician wished especially to see this case again he put a P opposite the date, July 21st, instead of merely a diagonal black line. The P on the 24th was put down in red ink, by the clinic clerk, to indicate that she sent a postal card to the patient on that date because the patient had not returned on the 21st, three days before. The diagonal line on the 29th, also in red ink, shows that the postal card was effective in bringing the patient back on that date. The doctor then, as will be seen, made an appointment for the patient to return on Aug. 6th, the P being again put down as an order to the clinic clerk to send the postal card if return did not take place by Aug. 9th. The total visits during July were thus four in number, one postal card being necessary to obtain the last visit.

At the right side of each card will be seen a blank space. This is reserved for the clerk to write in the medical diagnosis, which she copies from the medical history card. As soon as the six months' period for which the index card is designed has elapsed, the index card is filed in a diagnosis file, *i.e.* the cards of patients having the same diagnosis are filed alphabetically under the heading of this diagnosis in a card cabinet. One, and only one diagnosis, may be written on one index card. More than one diagnosis may, of course, be made on one patient, but as two index cards are necessary for each year, two diagnoses can be recorded without writing an additional index card. Thus for the large majority of patients the index card serves also for permanent record in the diagnosis index, and there is no waste of cards or labor.

APPARENT RESULTS.

This follow-up system has been in operation for a little over six months at the time of writing (August, 1913). It has been found to work remarkably well; and, in addition to helping us to keep in touch with our patients, the cards also contain statistics as to the total number of visits paid by any one patient, and the amount of effort expended to get the patient to return. These statistics are in a form in which they can readily be found and made use of for efficiency tests and other data that may be desired. As the card is also used for filing as a diagnosis index, there is no unnecessary use of cards.

The introduction of the "Visible Index" has proved of great service. Previous to this the same idea had been carried out in much more laborious and less convenient fashion through a system of slips filed (in an ordinary card index drawer) under the dates at which the patients designated on the slips were to return. This system accomplished practically the same results, but with much less convenience. The earlier system was begun toward the close of the year 1911, and had an immediate effect upon the clinic. While there may have been other influences at work, it is our opinion that this clerical follow-up system* is chiefly responsible for raising, in three months, the average number of visits per patient from 2.5 to 3.7. This is what actually occurred. The average number of visits per patient has continued to increase, being now 4.3. There are many children who need come only once or twice, because they are referred to other departments in the Dispensary and are not further treated in the General Medical Clinic for Children, and since the proportion of these so-called short-term cases is as large or somewhat larger now than it was two years ago, it will be seen that the effect of the follow-up system in increasing the number of visits in the clinic as a whole is greater than appears from the average figure. When it is considered that this increase in clinical efficiency means that the child who requires continuous treatment gets about double the amount of medical service that it previously obtained before the system was introduced, and that the cost of the whole scheme in a clinic receiving 15,000 visits a year is only a little over one cent per average visit, counting the time of the clerk and the maintenance of the card system, it may be inferred that this is an economical way of promoting the health of the coming generation.

* A "clerical follow-up system" like that described in this article is not a substitute for the *personal* follow-up system carried out by the members of a Social Service Department. But the clerical system is a most valuable supplement, and an economical one also, since in a considerable proportion of cases it achieves the desired result without the much more expensive personal visits to the patient's home

REPORT OF VOICE CLINIC, SEPTEMBER, 1912, TO JUNE, 1913, OUT-PATIENT DEPARTMENT OF THE PSYCHOPATHIC HOSPITAL.*

Work of Dr. W. B. Swift and Miss C. Charnley.

BY WILLIAM PALMER LUCAS, M.D., SAN FRANCISCO, CAL.

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THE project of a "Voice Clinic" in such a hospital as the Psychopathic was purely experimental. There are a very few such clinics abroad, notably that in Berlin under Gutzmann,

* Being Contributions from the Psychopathic Hospital (Boston, Massachusetts) No. 18 (1913. 18). The previous Psychopathic Hospital Contribution is 1913. 17, entitled "Note on Some Problems of the Adolescent as Seen in the Psychopathic Hospital Out-patient Department, by Dr. W. P. Lucas, BOSTON MEDICAL AND SURGICAL JOURNAL, Vol. clxix, No. 22, p. 782.

a brilliant and original investigator of the vocal process. Dr. E. W. Scripture, the neurologist, holds such a clinic at the Vanderbilt Clinic in New York, where the patients are all treated in one large class, twice a week for one hour, and it is acknowledged that only about half receive any benefit whatever, and very few are cured. This clinic was established in the hope that many varieties of speech-defect might be observed here, and that data might be forthcoming as to the relation of speech-defect to physical and mental defect. Speech-defect has for years been included among the stigmata of degeneration, but of course a case by no means illustrates degeneration because of the presence of one stigma alone.

In the nine months during which the clinic has been open, sixty-six cases have been examined, of which about three-fourths (51) were male, and one-fourth (17) female. It has long been established that many more cases of speech-defect occur in males than in females; this proportion of females is on the whole high. No satisfactory explanation of this has yet been offered. The most common age of patients has been between ten and twenty years (30 patients), and the next under ten years (19 patients), though there have been fourteen patients between twenty and thirty years old, and three over thirty years. By far the greatest number of cases examined, nearly 75%, have been stutterers, forty-five out of the total sixty-six having shown this type of defect in degrees ranging from a very mild or intermittent impediment to a constant hesitation or struggle to speak, accompanied by violent contortions of some part of the head or body. These patients have varied in age, and include all the mature cases.

The remaining defects have been chiefly lisping, either neglected or organic, indistinct speech, or retarded speech. This group includes in all between twenty and twenty-five per cent. of the whole, and is made up chiefly of children under ten years of age.

In twenty, or about one-third of the cases, no physical examination was made; in twenty-seven or somewhat more than one-third, the results of the physical examination were negative, but in nineteen or somewhat less than one-third, there was some disease that could be diagnosed, or a condition distinctly below normal. One case showed deformity of the jaw, this being the only one exhibiting any deformity of the organs of the speech. There were nine cases distinctly under par physically, and three who had congenital syphilis; clearly in all these cases the speech defect was an evidence of weakened physical condition. In one case, speech defect was associated with rickets, in one with cardiac trouble, in one with hemiplegia, in one with cephalgia, and in two with hydrocephalus. In five of these last cases, some degree of feeble-mindedness was present. But twelve others, in all about twenty-five per cent. of the whole, showed some mental defect even when there was no physical trouble. This throws an interesting light on the question of the connection between speech-defect and mental defect. It is worthy of note that most of the cases of mental defect have as the accompanying speech-defect an entire absence of speech, indistinct speech, or some form of a lisp. The stutter seems not typically an accompaniment of deficiency, but frequently present in cases of high-grade mentality, and by no means necessarily indicates any physical defects which can be diagnosed.

Prognosis on these cases is, of course, difficult, and even when made is often impossible to verify, since conditions make it out of the question for the patient to come to the clinic for treatment. At present no conclusions can be drawn as to whether the result of treatment coincides with prognosis. As in all partially psychic diseases, many conditions may be present to render treatment ineffective; the personality of the doctor or teacher, the ambition of the patient, his ability to concentrate and make a response intellectually, the influence of other persons in touch with him in home, business, or school life, all have direct bearing on the possibility of cure and the length of time it takes.

In regard to the treatment it has been possible to give, nineteen of the cases have visited the hospital only once, and eight only twice, which means that more than one-third of the total number received no treatment, but were merely examined. This number includes some who never returned, some for whom it was clear an institution was the only solution, and some who preferred private treatment. The two-thirds remaining fall about equally into two groups, those who made under ten visits, and those who made more than ten. The types of defect treated also fall about equally into two groups, about half having been stutterers. Of twenty stutterers, ten (fifty per cent.) were cured, four (twenty per cent.) are at present nearly cured, and still continuing, four (twenty per cent.) are improved but slightly, and two (ten per cent.) received no lasting benefit from treatment. Practically all this work has been done by the trained assistant, as these are the cases which take time, and a visiting physician cannot devote sufficient time to them with adequate regularity when new cases are being constantly brought in. The certainty of cure, and the speed with which it can be accomplished, seem to be in exact proportion to the frequency and regularity of treatment and to the intelligence and capacity for response of the patient. Only one cure was made in less than ten visits, three cures in visits ranging from ten to twenty, and six in a number of visits greater than twenty, reaching in some cases over forty visits. There have been no cures made except in stuttering cases. The cases where there were other defects, such as indistinct or retarded speech, seem to require more time for cure than do the cases of stuttering, though invariably if the treatment is faithfully continued and coöperation can be secured in

school and at home, there is improvement. These cases occur chiefly in children; some of the obstacles to recovery are the low mental caliber of the child. his lack of ambition or even appreciation of his condition.

In only three cases of stutterers where visits numbering about twenty have been made, has the treatment quite failed to achieve marked improvement, if not a cure. One of these cases was of a boy sixteen, who had congenital stuttering which was so slight that the ambition to recover was also slight, and the response to treatment and interest in the exercises given was poor, though treatment was given three times a week for five weeks. Another case was the outgrowth of nervous conditions still present, and the patient could attend the clinic only once a week, not often enough to get sufficient improvement to establish confidence, though the patient worked faithfully and could probably be cured, if lessons could be given every day and the home and school influence suspended for a time. The third case falling in the group was of a crippled child with club foot and hand, and bad social history, whose case was extremely stubborn, and of long standing. Miss Charnley tried the experiment of taking him every day at her house for a number of weeks, but even this, which in other cases produced excellent results, was effective of only slight improvement, although at the end of the time he was able to recite in school for the first time.

The patients have been of all grades of society, many of the stutterers having been working men over twenty-one years of age, to whom it is of the utmost importance to be able to express themselves easily and without embarrassment, both to their equals and superiors. The extent to which persons so afflicted are, and feel themselves to be, hampered in both social and business intercourse is hardly appreciated by those who have not been in close contact with them. In two cases cured, the patients at once secured better positions, in another the whole outlook for his future was changed, in another life became pleasant and work tolerable, where before constant depression and discouragement had been present. The friends of one man of twenty-three assured him that "had it happened in Bible times it would have been called a miracle," referring to his cure. Several school children have revolutionized their standing in their classes, and have been enabled to feel no longer a laughing stock among their schoolmates.

Successful treatment can be accomplished in class work, but with the variety of cases which come to us, both in age and in degree of seriousness, individual work undoubtedly yields the best results. Each case has been seen as often as possible in periods varying from one-half hour to one hour, or even longer. The public schools and other schools for retarded or undeveloped children are beginning to care for the great majority of cases of speech defect in young children. There remain many boys and men and working girls, who are unable to avail themselves of any school training, and unable to afford private treatment, even if they knew to whom to go and could be sure they would not be in the hands of a quack.

Such a clinic as ours seems already to have justified itself as a place for mothers to bring children for diagnosis of such troubles, and for older patients to receive treatment yielding either cure or such marked improvement that the entire life of the patient is changed for the better. The appropriateness of maintaining such a clinic in a hospital for mental cases is clear, since so many cases brought in for examination show speech defect as well as mental defect, whether they can be treated or not. Still another important field in this work is preventive, since by relieving such cases either in childhood or maturity, causes of depression or morbidity are much lessened, thereby reducing the number of those persons who have a predisposition toward mental trouble and possible insanity. But unquestionably the treatment should be in the hands of a skilled, sympathetic and intelligent teacher, as an unpaid visiting physician cannot be expected to devote to these cases the painstaking care which is imperative. I therefore recommend that a worker be engaged at a salary adequate to secure the requisite amount of time for the work so that the maximum degree of benefit to the patients may be insured. Only in this way can the clinic maintain the reputation which is desirable and be an effective means of public service.

SOME OBSERVATIONS ON THE CONDITIONS AND TREATMENT OF STUTTERING.*

BY CONSTANCE CHARNLEY, BOSTON,

Assistant in the Voice Clinic, Out-Patient Department of the Psychopathic Hospital, Boston, Mass., November, 1912, to June, 1913.

THE tendency in medicine today is to believe that every abnormal manifestation has its cause in some diseased condition, organic or functional, cerebral or otherwise. Stuttering has only recently been looked upon not as an unchangeable, personal peculiarity, almost in the class with deformity, but as a disease, of which the etiology is discoverable with study, and in which therapy is possible. The patients sometimes heard of who are cured by such means as the historic placing of pebbles in the mouth clearly are only additional feathers in the cap of the faith healer. Others doubtless were considered to outgrow their trouble, who in reality worked their own cures, basing their unconscious treatment on the then unstated laws of

* Being Contributions from the Psychopathic Hospital (Boston, Massachusetts), Number 20 (1913. 20). The previous Psychopathic Hospital Contribution is 1913. 19 entitled, "Experiences in the Treatment of Vocal Disorders," by Miss C. Charnley, BOSTON MEDICAL AND SURGICAL JOURNAL, vol. clxix, No. 23, p. 833.

voice production and mind control. When surgery developed, during the first half of the 19th century, radical methods were advocated as treatment for this trouble, such as slitting or cutting the tongue, which it is almost superfluous to say failed to cure, caused much unnecessary suffering, and were entirely unconnected with the cause of the trouble, since in almost no cases whatever is there any actual organic defect in the vocal or articulatory organs. As a result of the scientific investigation of voice-production, and the recognition of the laws governing mental and nervous control, habit, will, and attention, a body of knowledge has been built up from which can be drawn reasonable inferences as to the causes and cure of stuttering.

One of the most baffling features of such cases is that no two are similar; for this reason a successful method of treatment must be adapted to the individual, and this perhaps explains some of the failures of those systems where patients are treated in groups, without reference to their special needs, or where the same treatment is applied to every case, whether it fits the needs or not.

Undoubtedly where some degree of impediment has been present since first learning to talk, the cause lies in some cerebral predisposition, yet also in cases where the commencement of the trouble can be assigned to a definite later date and is associated with some such event as a fright, illness or fall, the primary cause still must be sought in a mental or nervous condition, perhaps latent until then, or perhaps brought about then for the first time. In other words, the character of the impediment as it becomes recognizable to the listener in a contortion, a repetition of sounds, prolonged silence, or whatever it may be, is the effect and not the cause of the trouble. Yet, as will be shown later, excellent curative results may sometimes be obtained from directing the attention to exercises for the relief of the physiological bad effect.

However, though the underlying cause be cerebral, the longer the patient, in order to speak, goes through struggles without knowledge of the normal muscular and respiratory processes involved in articulation, the more his bad physiological habits become involuntary and reflex. If his impediment takes the form of noticeable and more or less violent contortion, as of the jaw, lips, eyes, tongue, head, etc., the longer it goes on, the more this in itself reacts on his mental and nervous condition. Therefore what may have originally been a mere tendency to wrong cerebral direction of the articulatory process, or a slight upset of the efferent impulses, becomes a fixed improper habit, correspondingly difficult to overcome, and spreading until its effects attack the will and even the personality itself.

On the basis of this explanation, it will be seen that no method of treatment can be considered well balanced which does not include both the psychic and the physiological. But these overlap and frequently some exercise obviously in one sphere will have effects in the other. For example, if a person's confidence in himself can be increased by suggestion, he will without doing muscular exercises for the purpose probably stand straighter, breathe deeper, and be on the whole better fitted physically to articulate correctly than if he is embarrassed, despondent, sullen, or self-deprecatory. In the same way, if as a result of doing some purely muscular or tonal exercise, a person is enabled to speak easily where previously he had difficulty, his spirits will rise, his confidence increase, and the desirable psychic effects be obtained without a direct word on the subject.

A satisfactory method of treatment must take into consideration the complicated nature of the speech process; it is dependent on quantity and placing of breath, muscular processes of the trunk during the emission of breath, muscular processes in the throat and larynx governing the quality, pitch and volume of tone, and finally on the muscular processes governing the position of the articulatory organs above the larynx, the pharynx, palate, tongue, lips and jaw.

It is easily seen that in a process so involved, there is infinite opportunity for the formation of improper habits; the lack of right use of one set of muscles immediately throws undue strain on some other set, which then overwork in the effort to accomplish some part of sound production they were never intended to perform. For example, in one case the jaw was dropped wide open as a means of commencing every word; but many consonant sounds can only be made by bringing the jaws almost if not entirely shut. Another case projected the lips in a hard knot for the initial effort to speak, meantime expelling the breath with force through the nose. Naturally a spoken word would never result from such misdirected energy. It is evident that in overcoming such habits the ambition of the patient, his powers of concentration, memory and will, become of the utmost importance. It is quite possible to cure in a time limited to a few weeks even a mature person who almost never speaks without such contortions if he has these qualities well developed, while another person lacking them may work faithfully for months with only slight improvement. In general it may be said that if a mentally normal child in the first stages of such habit formation is worked with understandingly and patiently, the power of normal speech will come, unless there are other disorders of a nervous or physical nature which weaken the whole system, as for example, some form of chorea or tic, nervous exhaustion, or nervous excitability.

On the physiological side, then, treatment must recognize these elements: the teaching of correct breathing, the correction of habits, of muscular over-rigidity in any of the sets of muscles concerned, a thorough study of phonetics,

and the cultivation of proper laryngeal action to secure flexibility and flow of tone. Probably every intelligent and honest method devises similar exercises based on these four elements of voice production.

It is sometimes enough to call the attention of the patient to the necessity for inhalation before speaking. Frequently the effect of his nervousness is to make an inhalation impossible because of throat, chest, and intercostal rigidity; with other patients the instruction to inhale results in filling only the upper part of the lungs, and in consequent contraction of the shoulder and neck muscles, but none at all of the diaphragm and abdominal muscles, which are the important ones for breath control both in inhalation and exhalation. Therefore, some attention to the placing of breath and the quantity taken is essential, if the patient's difficulty chances to depend even partially upon lack of breath or incorrect breathing, which is often but not always the case. Most patients when they are told to take a breath, close the mouth and inhale through the nose. This necessitates a change of position of the soft palate and back of tongue before speaking can begin; therefore, the tendency after such inhalation is to make a nasal exhalation, and this is a fatal hindrance to speech, which requires exhalation through the mouth. Of course it must be pointed out to the patient that ordinary, quiet respiration should be nasal—mouth breathing used only for speaking.

The question of placing of breath brings us at once face to face with the fact that authorities differ as to what constitutes "correct breathing." Even so eminent an authority as Dr. E. W. Scripture professes to have no opinion of the subject because of not having experimented especially with reference to it, and therefore teaches no special "method" of breathing. Experimentation with voice-production in singing has convinced me that the teaching of bodily expansion with contraction of the diaphragm during inhalation and the consequent filling of the lower lungs with air constitutes the best breathing method for support and control of tone. The application of this is as important in the removal of speech defects as in the cultivation of a singing voice. It is easy to teach and it relieves rigidity of upper muscles which should not be used at all, in the slight inhalation and exhalation needed for ordinary speaking; repeatedly patients who complain of feeling a tightness or hardness in the chest or lower, during the effort to speak, sometimes amounting to actual pain, have entirely lost these accompaniments of their difficulty after mastering the habit of diaphragmatic breathing.

Exercises for this purpose together with specific relaxing exercises usually are of great benefit, but are not needed in all cases.

Nearly always the tone of the stutterer's voice is very poor, being either noticeably weak, or of the low pitch expressive of depression, or very monotonous. This means that the action of the vocal cords is not as it should be. Frequently they get no chance to act normally because of the too great effort made with the extrinsic muscles of the larynx, or because of some contortion habit by which an effort is made to substitute the use of the voluntary muscles of the jaw or tongue, for the involuntary ones of the larynx. As a remedy for this, exercises in the relaxation of the throat, jaw and tongue, are extremely helpful. In the attempt to develop flexibility I find the musical ear of the patient is of great importance; stuttering is frequently associated with a remarkable degree of tone deafness. In such cases, directing the attention to change of pitch does no good.

Dr. Scripture, for example, has crystallized the need for flexibility into a definite "method" called the use of the octave "twist," which means that the voice, at the commencement of a sentence and perhaps on the most important accents, passes up in a kind of vocal slide the distance of an octave. This is all very well, and it is obvious that it has the same advantages for the relief of stuttering that singing has, in that it secures right laryngeal action. But its disadvantages are also very definite. First of all, in cases where there is marked lack of pitch sense, it is next to impossible to teach a patient to do it accurately. Second, it makes an artificial and noticeable voice even when done by its most finished exponents, as for example, persons cured by Dr. Scripture himself. This makes it something that patients hang back from doing because they consider it "queer." Dr. Scripture expressly states* that it is important to use a full octave, and believes that this use of the voice is not in the class with the "queer" voices advocated by some schools and methods. I confess that from experience with a number of cases and the testimony of listeners, there is strong evidence that this voice makes the impression of being "queer." I have also found that a smaller pitch interval assists laryngeal action just as certainly, establishes the necessary flow of tone, and can more quickly be grafted on, so to speak, by the stutterer, to his normal voice.

Dr. Scripture's further explanation for the desirability of using this is that since that it is in the production of his usual voice where the cerebral action of the stutterer in some way comes to grief, one secures correct action by the use of the deliberately assumed voice. Yet nearly every stutterer has times, at least when alone, of speaking quite normally, and even Dr. Scripture refers to the inculcation of the normal voice as "the only method of cure which should be permitted." There is unquestionably tremendous advantage in making it possible for the patient to build his cure on the basis of his own normal tone and inflection when he is at his best. He invariably takes to it more kindly and there is far less alteration of already established psychological processes necessary. All his habits of thought and its expression are connected with

* Stuttering and Lisping, E. W. Scripture, p. 92.

his involuntary impulse to use his normal voice, and it takes a great deal of time and more persistence than the average stutterer possesses to change these mental habits. The use then of the octave "twist" may be considered as essentially desirable and necessary in its principle, but only to be resorted to in full when a cure can be made in no other way. Out of twenty cases, I found it possible to cure nine or nearly fifty per cent., without any assistance whatever of more than a very slight degree of flexibility. Three out of twenty, or about fifteen per cent., it was possible to cure only by resorting to this idea, and the octave makes a definite and usable basis for exercises. Three more it was not possible to cure even with careful drill of this sort extending over a period of months, because of difficulty in getting a memory picture of the voice so used and inability to overcome the idea that it was "queer."

There remains the teaching of correct position for different sounds. This is extremely important in many cases, of no assistance in some where the sounds are always made correctly if at all, and the cause of trouble is elsewhere, but this sort of training alone rarely accomplishes a cure in mature cases. It is, however, of the greatest value with young children. Since the study of phonetics has made such work familiar there is no necessity of dwelling on it in further detail here.

The recultivation of the ear is of the greatest importance, not only in making a cure of stuttering, but in insuring the permanence of cure. The average stutterer does not hear his own voice as it is. He must be trained to listen to the normal speaking voice of others and contrast it with his own, to apprehend what the easy flow of one word to another means in sound as well as in breath and muscle sensation. It is extremely helpful in assisting easy "beginning," so often the greatest stumbling block to a stutterer to develop in him the power to make an absolutely clear mental concept of an easily and correctly produced vowel sound. To be effective this mind picture must be accompanied by muscular sensation in the throat, which he practises until perfect familiarity is assured, and the ability to call up that sensation at any time results. For example, a stutterer will be perfectly able to say any vowel easily and correctly, but the moment a consonant is placed before the vowel, there is a change in the laryngeal action and the vowel perhaps cannot be spoken at all or comes out after a time spasmodically with no ease or right quality of tone. The patient must first be taught the distinction between vowel or pure tone, depending on the action of the vocal cords primarily, and the articulatory processes which give consonants and break up the pure tone into words. This done, a beneficial exercise is to have him speak a vowel aloud, directing his attention to the throat sensation, possibly even placing his fingers on his throat to feel not only the vibration but the muscular movement accompanying the sound. Then he speaks aloud a word containing this vowel. For example, "a, bake." He then *thinks* the vowel, still directing attention to the muscular throat action, but stopping short of audible sounds, and only calling up the sounds mentally with all possible vividness. He then again speaks the complete word aloud.

This simple exercise proved of value in three very different cases; one where there was a prolonged silence and a great deal of eye movement for beginning, because of inability to initiate any kind of muscular movement in the throat; another where a series of scraping sounds took place in the throat in the effort to begin. Another habitually started by projecting the lips and straining the larynx out of position, and only this way of thinking the sounds enabled him to drop that habit and start easily. Even the octave "twist" failed with him, because he couldn't "get started."

General training and the study of language structure, too, is helpful at times. Some stutterers fail to realize how they break up language, chopping and clipping their speech until only two or three words are jerked out at a time. This is, of course, due to incorrect muscular action rather than to incorrect thought, but by analysis of their sentences as they speak them, they can be made to see how certain words in a group belong together, and how there are natural and legitimate places to pause, as well as unnatural and illegitimate. This new focus of attention on grammatical or rhetorical structure relieves the fear of isolated words and brings the patient to expecting more of himself.

There remains the purely psychic side of the treatment: inculcation of right habits of thought, the doing away of mental hesitation, both with regard to thought itself, and the choice of words for its expression, the training of the attention and the will, the establishing of a better attitude on the part of the individual toward himself, others, and his environment. It is obvious that in this sphere particularly much depends upon the natural endowment of the patient. It is also essential not to try to work with more than one idea at a time. Multiplicity of exercises is dangerous. One may advise a number of exercises as a home practice and during the treatments one may try by suggestion to bring about several desirable mental changes, but in outlining a mental attitude for the patient to assume when the necessity for speaking arises, it is well to select one idea and insist that the whole mind be given to that; it is a good plan to vary the idea from time to time, depending on the extent to which it seems to have become habitual, and the amount of benefit derived in its being persisted in.

The gaining of the confidence of the patient is also very necessary, as is the awakening of confidence in himself. For certainty and permanence of cure it is essential that the patient should thoroughly understand the object of all

exercises given, see why they have beneficial results, and reach the conviction that the matter is in his own hands if he is sufficiently faithful and determined.

It is difficult to be specific in regard to the "method" of this side of treatment. It would naturally vary according to the temperament and training of the teacher, and similarly according to the character of the trouble, the age and social position of the patient, and the circumstances in regard to time and place of treatment. The establishment of very friendly relations, which make possible talks about the patient's life, work, hopes and fears, etc., is very desirable.

It is obvious that in work requiring the formation of new habits, the oftener treatment is given, specially at first, and the longer each treatment is, up to the point where fatigue makes concentration and attention impossible, the better are the results obtained, and the quicker. It is practically impossible to state dogmatically at the beginning of treatment whether a real cure can be effected or how long it will take. One cannot know the peculiarities of the individual case, both physiological and mental, until one has studied it. Those who claim that such cures can be made in one treatment, after the manner of faith cures, may have evidence to support them; but the persistence of such cures would seem exceedingly doubtful, if not their existence. Yet the importance of the psychic side of treatment for a disorder primarily psychic is evident. It is quite possible to make actual and permanent cures in five weeks, even of cases which appear extreme; it is also quite possible that work will have to be kept up for months, perhaps for years, before there is sufficient improvement to call it a cure. Cases are very likely to improve rapidly at first and then either go backward or remain stationary for some time. It is then that the most care is needed to maintain confidence and choose the most helpful exercises.

The question of what to say to a patient regarding the time the cure will take is a delicate one. If one states at the outset that the time will be indefinitely long, there is great discouragement and perhaps insufficient determination even to give the treatment a trial. Therefore the maximum amount of confidence to aid in commencing the work is not secured. On the other hand, the bad effects of unfulfilled promises are deplorable. If a cure is promised in a rash moment and not brought about in the specified length of time, the patient may relapse so that his "last state is worse than his first."

But as the common experience among honest experimenters in this field is that more than fifty per cent. of cases are curable and nearly fifty per cent. more capable of much improvement, one can, by taking pains, reach a conclusion as to how best to present the requirements of treatment to a stutterer, so as to do what is half the battle from start to finish, namely, establish and retain his confidence in the method, in the teacher, and in himself.

DIGITALIS: ITS ACTION AND ITS USES.*

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AMONG the many drugs in our Pharmacopeia which are valuable in the treatment of circulatory disorders, digitalis and its preparations have a deserved foremost place. The remedy was first introduced to the medical profession in 1785 by William Withering,[1] a Birmingham physician, who had had his attention drawn to it ten years previously by a family prescription from an old woman, who was a resident of Shropshire, his native town. This receipt, composed of twenty or more different herbs, was valuable, he decided, from foxglove or digitalis being its essential ingredient, and in his book he asserted "the herb merited more attention than modern practice bestowed upon it." He was chiefly interested, however, in its diuretic effects. Although he did not associate them with cardiac changes, yet he recognized the drug had a power over the motion of the heart to a degree yet unobserved in any other medicine and that this power may be converted to salutary ends. He also commented upon cases of cardiac failure in which he had used it with success.

Thirteen years later Barton[2] recognized its utility, and Allen Burns,[3] in 1809, appreciated its value when employed in cases of cardiac dilatation, but its field of usefulness was obscured by its being considered a cure for tuberculosis.[4] Later it was shown in its true light as a cardiac remedy, but even then it was at first misunderstood, for it was classed as a depressant or sedative and not as a cardiac tonic. Pereira,[5] for example, advised its use to reduce the force and velocity of the circulation, as in aneurysm or hemorrhage from internal organs, and Bouilland[6] described it as "this great soothing force, this kind of opium of the heart." Subsequently, with the introduction of experimental methods of investigation, its real action was revealed by Traube,[7] Schmiedeberg[8] and others, after which a stage of over-appreciation came on from which we are only now being emancipated.

Unfortunately, the amount and character of the active ingredients vary widely according to the part of the plant used, the soil in which it is grown, and the season utilized for its gathering. The seeds, for example, contain a large yield of glucoside, but possess little digitoxin, the most active constituent, and a large percentage of digitonin, which has little cardiac effect. The leaves from uncultivated plants have twice the potency of the cultivated ones, as Focke[9] and

* Read before the Hartford County Medical Association, April 1, 1913.

others have well shown. Leaves from an uncultivated plant, in a hilly region, are to be preferred, which have been gathered in August or September, just before the time of flowering. After a long period of rains an inferior product is obtained. The leaves, when thus gathered, should be kept free from moisture, as this interferes with their strength. The stems and ribs being inert should be carefully removed from them. As no accurate assay is generally employed, digitalis and its preparations vary widely in their efficacy. Fraenkel[10] in Germany has shown the tinctures there exhibited a difference in strength from 100-400 per cent. while Houghton,[11] Hale,[12] Pratt[13] and others have noted similar findings in America and Haynes[14] like results in England. The chemistry of digitalis is in much confusion for impure substances have been described as definite entities and the same glucoside has been masqueraded under several different names. In 1844 Homolle and Quenne[15] first sought to discover the composition of digitalis. They separated a product which they designated digitalin, apparently a mixture of several different substances. Then Nativelle[16] obtained by chloroform a crystaline body he called digitaline. It was of a constant composition and action. These investigators were followed by Schmiedeberg[17] and Arnaud,[18] who gave an account of two new constituents. Later exact methods of isolation, as well as the physiological and chemical properties of the active principles, have been well given by Kiliani,[19] Houdas and others. At present we distinguish from the digitalis leaves the following glucosides: (1) digitoxin, (2) digitalin, (3) digitonin and (4) two uncertain glucosides, digitalein and digitophyllin. (1) Digitoxin is insoluble in water but soluble in chloroform. It is the most active constituent of the leaf and should be present in about 0.3 per cent. in good leaves, gathered as above described. Unfortunately, it causes gastric symptoms more often than the other active principles, and, if given hypodermically, may induce necrosis with suppuration. Like the other constituents it is both slowly absorbed and slowly eliminated, having consequently some tendency to cumulative effects. Experimentally in animals it raises blood pressure quite decidedly by its vaso-constrictor action. (2) Digitalin is the other active constituent of the leaf, although it only has about half the potency of digitoxin. It is insoluble in water and only slightly so in chloroform. For hypodermic injection it is much used when mixed with a little digitonin to render it easily soluble. Unlike digitoxin, it everts no vaso-constrictor action on the peripheral vessels, but has this effect on the vessels of the splanchnic area. (3) Digitonin is a saponin obtained, as I have said, in its largest yield in the seeds. It has absolutely no cardiac effect but is useful in combination with digitoxin and digitalin, as it makes about 80 per cent. of these two active principles dissolve in watery solutions. It is an irritant in action and shows, on absorption, hemolytic effects. (4) The two uncertain glucosides have not yet been carefully studied as to their physiological actions.

No drug should demand a more thorough knowledge of its action, for, as Osler says,[20] it is one of the dozen drugs the uses of which repay a life-long study, dividing with quinine the honors of the galenical pharmacopeia. Experimentally it has been found that digitalis acts on the heart in two ways, which are in direct opposition to each other, for (1) by stimulating the inhibitory center in the medulla it depresses the rate and strength of the contraction, the conductivity, and the tone of the muscle and (2) by acting directly on the cardiac muscle, it increases the strength of contraction, the tone and the excitability. Its direct effects on conductivity have not yet been thoroughly worked out. Consequently the heart is slowed by the inhibitory action, which causes less complete systole and more complete relaxation, but accelerated by the muscular effect, which causes more complete systole and less complete relaxation, so that the therapeutic benefits of its judicious administration are the resultant of these two actions. By its use, the heart's rhythm becomes slower and more forcible, which is indicated in the pulse by a decrease in the number of beats per minute and an increase in their amplitude. These circulatory changes indirectly affect the kidneys and cause an increased secretion of urine, as Withering[20] first pointed out. In animals the blood pressure rises from the cardiac changes and the contraction of the arterioles, by the direct action of the glucosides upon them, but in man this is a negligible feature, on account of the more perfect development in them of the vaso-constrictor mechanism. Although this action of digitalis had been carefully investigated in animals since the time of Traube,[2] yet its clinical effects upon human subjects lacked thorough scientific investigation until MacKenzie in his general practice at Burnley and in the wards devoted to the diseases of the heart at Mount Vernon Hospital, in London, took up this subject. He was fortunately aided in his labors, at the latter place, by Professor A. R. Cushny of the Pharmacological Department of the University College, London; by Dr. Thomas Lewis of the Cardiographic Department of the same college and by other men trained for this purpose. Here cases of heart disease could consequently be studied under the most favorable auspices. At the onset two matters demanded attention, for it was important: (1) to recognize clearly the exact definition of heart failure, and (2) to comprehend the true significance of abnormal signs and symptoms, so that rational treatment might be instituted if necessary. For the former purpose he sought some method of estimating, diagnostically and therapeutically, cardiac efficiency, and finally did so by noting how the heart maintained its circulation with the body at rest and in response to effort, defin-

ing these observations by the terms rest power and work power of the heart.[23] In other words, the rest power of the heart is the force of the heart which will enable it to maintain the circulation efficiently while the body is at rest, while the work power is that force of the heart which enables it to increase its work when an effort is made, accommodating its activity to the varying demands made upon it. These powers differ in different individuals and show different signs of exhaustion according as subjective or objective symptoms are exhibited by the patient. The rest power and work power hence are more practical and definite standards than the terms compensation or decompensation. For the recording as well as preservation of accurate records, he has introduced a special chart, which gives in separate columns the date, treatment, subjective sensations, pulse, respiration and blood pressure before and after evertion, the examination of the heart, tenderness in skin areas, examination of the lungs, urine, and finally a space for special remarks. Graphic records of each case are kept on separate sheets. The extent and severity of the areas of tenderness of the skin, muscles, mammary gland and other tissues in the external body wall are important, he claims, as a diminution of the same is of prognostic value. Thus digitalis, strophanthus, and squills, all mostly in tincture form, have been carefully studied, the effect of rest in each case being first noted before any drug is administered.

In 1905 Mackenzie[24] first showed that the most brilliant clinical results in digitalis were to be seen in cases of auricular fibrillation or perpetual irregularity of the pulse, which he then named nodal rhythm. Six years later, when his study of these drugs had been much amplified, he published another paper[25] in which he noted that individuals reacted differently to the drug. He studied twenty-one cases of normal rhythm under digitalis and found that seven of them showed a slow pulse after its use, and that six of this number exhibited either partial heart block or sinus irregularity from it. He, also, found marked slowing of the pulse after digitalis in thirteen out of sixteen cases of auricular fibrillation, which possibly, he suggests, is due to a stimulation of the vagus nerve.

Recently Cushing, Marris and Silberberg[26] have shown that in normal rhythm the action of digitalis, if seen by the lowering of the pulse rate, is due to its inhibitory effect upon the vagus. In the five cases of normal rhythm they investigated, the drug caused a slowing of the pulse and a block, sometimes through the inhibitory apparatus and sometimes through direct action on the heart muscle, which closely simulated the inhibitory stimulation in its effects. The latter is seen when atropine does not release sinus slowing or heart block, as should be the case if they were inhibitory in origin. As a general rule, however, the slowing of the pulse in cases of normal rhythm is inhibitory. In ten cases of auricular fibrillation, on the other hand, they found that the inhibitory action on the vagus was not there observed, for in spite of the use of atropine, which releases the inhibition, a distinct effect was seen in all of them, on the employment of digitalis, in a reduction of the pulse rate so the action must be direct upon the muscle. "This reduction in rate may be due," they claim, " to a direct depression of the conduction or of the excitability of the heart muscle." They suggest that these functions may be reduced in directly through the improved nutrition of the heart from the augmented power of contraction of the heart muscle. The beneficial action of the drug is, then, to be ascribed to its direct action on cardiac muscle.

Locally, digitalis is an irritant, and to this action has been ascribed the nausea and vomiting which sometimes ensues during its administration. To combat this, with the idea that the irritant action is due to digitonin, fat-free tinctures have been much employed, and digalen digipuratum, digitalysatum and other preparations, with much vaunted non-irritating effects have been introduced. The recent work, however, of Eggleston and Hatcher[27] would almost entirely assign the cause of these phenomena, in therapeutic doses, to a direct action on the vomiting center in the medulla, although it is acknowledged that massive doses have an irritating effect upon the gastric mucous membrane. These investigators found that all of the digitalis bodies produced emesis in cats more promptly and in smaller doses after intravenous administration than when they were given by the stomach. They even produced the same effect in dogs, from whom the gastric-intestinal tract had been removed, their work leading irresistibly to the conclusion that the emetic action of these drugs is exerted on the vomiting center. The purgative action, also, is obviously of central origin. True digitalin seemed to be the most active emetic of the principles of digitalis, digitoxin being much less so, and consequently digitalis itself was intermediate in this respect, because it contained, of course, both of these active principles. Their results also contradicted the claims that the fat free tinctures, digalen, digipuratum and digitalysatum were less actively nauseant or emetic than any of the less expensive galenical preparations.[28]

The cumulative effects of digitalis were known to Withering[29], although this term had not been then coined. After a variable period in its administration, depending upon the susceptibility of the patient, the amount of disturbance of the equilibrium between excretion and absorption and the dosage employed, untoward symptoms are produced, as revealed by an irregularity of a previously regular pulse (such as sinus irregularity, extra-systole, partial heart block or pulsus alternans) rapid heart action, a feeling of pressure and pain about the heart, imperfect vision, nausea and vomiting, dizziness, dyspnea and marked asthenia. Extreme delirium and

hallucinations, also, occur sometimes, as Duroziez[30] and Hall [31] have emphasized.

Many preparations of digitalis are on the market. The powdered leaves, the tincture and the infusion are the most employed of the galenical preparations, while of the proprietary products digalen, digipuratum and digitalone have found especial favor. My own experience inclines me to favor more and more the leaves which should of course be accurately (and preferably physiologically) assayed, and given in doses sufficient to produce results. "A medicine," says Withering[32], "whose fullest dose in substance does not exceed three grains, cannot be supposed to stand in need of condensation." The tincture frequently is not freshly prepared, deteriorates greatly with age and is often made from leaves of an uncertain source, not physiologically assayed. The infusion, to be preferred to the tincture when it is freshly prepared, has a taste which sometimes renders it objectionable and its resulting gastric disturbances are frequently more pronounced. Digalen, introduced by Cloetta[33] with the recommendation that it had the digitalis effects, without any of its irritating properties, has proven, in general, unsatisfactory. Moreover Worth Hale has shown it can vary in value to 100 per cent. while Eichorst[34], Veiel[35], Leichman[36], Müller[37] and others have shown it is not without irritant properties. Consequently it cannot be employed, hypodermically, as first recommended, without pain, swelling and inflammation at the site of the injection. By intravenous use, it is also not without objection, since thrombosis and oedema have been reported from it. Digipuratum, on the other hand, has generally given better results, as it is a uniform and reliable preparation of digitalis. It is prepared from the leaves by exhausting them with alcohol and ether. Thus 85 per cent. of the inert material is gotten rid of, and, on drying in vacuo, a powder remains which consists of a mixture of the tannic acid compounds of the glucosides. Subsequently, by standardization, it is made to contain a fixed amount of the digitoxin, and can now be obtained in powdered, tablet, or liquid form. Hale[38] has shown that all of these preparations are of the same strength and have good keeping qualities. Its toxicity is about half that of ordinary digitalis leaves. Dixon[39] assigns to it four virtues: (1) it keeps well (2) it is uniform in composition (3) it contains all the valuable glucosides of digitalis and (4) it causes less gastric irritation than the powdered leaves. He, also, adds that a good tincture fulfills all of these requirements, except the last one, and it is doubtful whether this advantage can make up for its being some ten times more expensive. The recent work of Eggleston and Hatcher, also, makes this virtue less apparent. However, the consensus of opinion is favorable to this preparation. Gottlieb[40], who introduced it, and his pupils[41] have naturally become quite enthusiastic over it. They have shown it is less irritating to the organs of digestion and more quickly absorbed than the leaves, the rapidity of absorption depending upon the condition of the portal circulation. Since the recommendation of Hoepffer[42], the tablets are generally given in a grain and a half form over a period of four days and are so distributed that four are taken on the first day, three on the second and third days and two on the fourth day, making twelve in all. After a few days' respite the same treatment may be again resumed, or one to two tables may be administered daily, after the first twelve are given. The drug may be taken by the mouth, intravenously, or subcutaneously, but by the last method may give rise to very painful nodules. We are coming more and more to the opinion that it presents no superior qualities over physiologically assayed leaves of required standard, or a reputable tincture. After all, as Fraenkel has pointed out,[43] the effect depends more upon the quantity of the dose than upon the kind of drug employed. I have had no experience with digitalone.

In the therapeutic use of digitalis we have strayed far afield from the careful indications for its employment, formulated by Withering in 1785.[44] Indeed our respect for him increases with the lapse of years, for a perusal of his book now carries with it the conviction that he not only introduced this valuable remedy to the medical profession, but gave in a consideration of 163 cases most admirable suggestions for its administration. In fact many of them are still in force to-day. He advised the giving of digitalis, preferably in the powdered leaf form, in doses of from three to six grains daily, and so continued until an effect was seen from the kidneys by an increased elimination of urine, or from the stomach by nausea or vomiting, or from the pulse by an increase in amplitude or slower rate, or from the intestines by the onset of diarrhea. Since then it has been heralded as a cure-all for all cases of cardiac disease, no matter what their nature may be.

Undoubtedly, as Wenckenbach has written, every man has his own way of using digitalis, but in general we may say, as Hirchfelder[45] has shown, the drug should be given for dilatation of the ventricles and fibrillation of the auricles. For the former, by increasing cardiac tonicity happy results ensue before even a loss of compensation occurs, so we should not let these cases advance to this stage without its prior employment. Da Costa[46], for example, showed the remarkable results from its use, together with rest, in the strained and irritable hearts of soldiers during the Civil War. In valvular disease, on the other hand, this drug is only required in cases of broken compensation. But in the acute cases of this sort strophanthin is to be preferred by intravenous administration, as the effect from it is seen within ten minutes, while digitalis takes at least twelve hours to show results.

For the sub-acute and chronic cases its use is often accompanied by brilliant effects, al-

though some instances of mitral stenosis prove refractory to it. In aortic lesions, contrary to the teachings extant since the time of Corrigan,[47] it is not contraindicated, but in prolonged use strengthens the heart by increasing the tonicity. Bradycardia or arrhythmia, however, should be carefully looked for in these cases, as their presence indicates cumulative effects. In juvenile or respiratory arrhythmia, it is contraindicated if the heart is not dilated, but in heart block, or atrio-ventricular allo-rythmia, it should be employed if the block is complete, as Bachman[48], Hewlett and Barringer[49] have shown it increases the automaticity of the ventricles. The drug, however, should be used with caution. In extra-systole it should be given, if accompanied by dilatation, on account of the effect upon the latter, and also in pulsus alternans, as it increases the force of contractions, which is weakened in this type of arrhythmia. In the remaining variety of irregularity—auricular fibrillation—its action is magical by the slowing of the ventricular rate from an inhibitory effect upon the fibrillating auricles or from a depressing action upon the conduction of impulses from the auricles to the ventricles, through the atrio-ventricular bundle or muscle of His. Its best effect is seen when the pulse is rendered quite slow, that is between 50 and 60, for which purpose large doses may be necessary for a considerable period of time. Windle[50], for instance, estimates five to eight drachms of the tincture may have to be given in fifteen minim doses for about ten days before the maximal slowing is noted. If, however, still larger doses be given, the same result can be accomplished in two or three days.

In acute intoxications either from acute infectious diseases or from the action of poisons or from acute fatty degenerations from other causes, digitalis is distinctly contraindicated. In partial heart block also, it should not be used, because it is likely to bring on complete block suddenly and with it there is danger of an attack of Adams-Stokes syndrome.

The failure to produce the desired effect by the administration of digitalis has been assigned by Janeway[51] to five causes:

(1) *Inefficient Preparations.* I have elsewhere considered this question sufficiently and can only add that a standard physiologically assayed leaf or preparations made therefrom should alone be considered, in the pharmacopeial products, while if these are not obtainable, or any other reason prevents their use, then a proprietary preparation should be employed, such as digipuratum. (2) *Use in Unsuitable Cases.* If, for example, the stasis be merely of renal origin, no results will be seen from the use of this drug. I have gone carefully into its uses and its contraindications. (3) *Improper Dosage.* Although every man, as Wenckenbach has said, has his own way of using it, yet if he wishes to produce results he must give sufficient doses. "The cumulative action" says Cushny[52], "has been held over us as a bogey for so many years that many prescriptions contain this valuable drug in harmless and useless doses. Non nocere is a good rule, but prodesse is a better, and tincture of digitalis in two minim doses three times a day, approaches the lines of purely expectant treatment." We have seen that Withering[53] used it until it either acts on the kidneys, the stomach, the pulse or the bowels; (then he adds) "let it be stopped upon the first appearance of ane one of these effects." Mackenzie[54] continues it until nausea is experienced by the patient and considers this sign as an evidence of its physiological effect. (2) To accomplish this he usually prescribes fifteen to twenty minims of the tincture three or four times daily, aiming to give in all one drachm a day. It is given from five to eight days or until the above mentioned-effect is produced. Osler[55], during my service as one of his house medical officers at the Johns Hopkins Hospital, advised its administration in fifteen minim doses every four hours until two drachms were taken. This course might be repeated again in a few days if necessary. Fraenkel[56] prescribes several large doses of either the tincture or the leaves, twenty minims or three grains being given every four hours for a rapid initial effect, to be followed by smaller doses (seven minims or one grain), in order to retain the accomplished results. Hirchfelder, also, has a method, which consists in the administration of five minims of the fluid extract three times a day until the pulse rate falls below eighty, after which it is discontinued without the necessity of a special order. In all of these methods then, the aim is to procure results by sufficient dosage, remembering that the indications of success are (1) The increase in the amplitude of the pulse; (2) The produced diuresis; and (3) The slower pulse rate. The last indication, however, is not as important as the first two and not always attained. (4) *Improper Methods of Administration.* There can be no or, at best, little absorption of digitalis from the intestine if frequent vomiting occurs. The drug can be employed by rectum or preferably by hypodermic or intravenous injection. In the acute cases where an immediate result is desired, strophanthin intravenously should be substituted for digitalis. (5) *Neglect of Other Necessary Means.* As Janeway[57] emphasizes sleep is often lost sight of in cardiac cases even though striking results may be obtained by the hypodermic injection of morphine. The restriction of the fluid intake also has its advantages as well as free purgation and the use of iron to combat anaemia. Finally psycho therapy and the benefit received from rest in bed should not be forgotten.

CONCLUSIONS.

In digitalis we have a remedy which will generally yield, in proper cases, brilliant results, if rightly employed in proper preparations and in proper dosage, over a proper period of time.

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NOTE. The action and uses of Digitalis are well given in Cushny's Pharmacology and Therapeutics or the Action of Drugs, Philadelphia, 5th ed., 1910, pp. 357-385. Fraenkel's Ueber Digitalis Therapie, Ergeb. d. inn. Med. u. Kinderheilk., 1908, vol. i, pp. 68-106; and Mayer's Die Digitalis-Therapie. Indikationen und Kontraindikationen. Jena, 1912.

THE Wayneflete chair of physiology at Oxford was founded under the ordinances made in 1877 by the University Commissioners, and was held by Sir John Burdon-Sanderson from 1882 until he became Regius Professor of Medicine in 1895, when his friend and former pupil and assistant, Francis Gotch, was appointed to succeed him in the chair of physiology. The lamented death of Professor Gotch last July created a vacancy which has now been filled by the election of Dr. Charles Scott Sherrington, Holt professor of physiology in the University of Liverpool. Professor Sherrington therefore again succeeds Professor Gotch, for he was appointed to the Liverpool chair when Gotch gave it up to accept the corresponding chair in Oxford. It is interesting and perhaps significant to note that each of these distinguished physiologists has been particularly devoted to the study of the physiology of the nervous system.

British Medical Journal.

Clinical Department.

EXPERIENCES IN THE TREATMENT OF VOCAL DISORDERS.*

BY CONSTANCE CHARNLEY, BROOKLINE, MASS.,

Assistant in the Voice Clinic, Out-Patient Department, of the Psychopathic Hospital, November, 1912 to June, 1913.

THE project of a "voice clinic" in the Psychopathic Hospital was purely experimental. There are a very few such clinics abroad, notably that in Berlin under Dr. Gutzmann, and Dr. E. W. Scripture holds such a clinic at the Vanderbilt Clinic in New York, where the patients are all treated in one large class. It was hoped that this would offer opportunity to study many varieties of speech defect, with or without mental defect, and to experiment with methods of cure.

Of the 66 cases brought in for examination during a period of nine months, by far the greatest number, nearly 75%, have been stutterers. Forty-five out of the 66 showed this type of defect in degrees varying from a very mild or intermittent impediment to a constant hesitation or a struggle to speak, accompanied by more or less violent contortions, usually of some part of the head. These patients have varied in age and include all the mature cases.

Other defects occurred chiefly in children and included different forms of lisping, indistinct and retarded speech. As my own work in treatment lay with 22 out of the 66, or only one-third of the total number, and of these 20 were stutterers, my statements with regard to the number of cures made and the time they required will refer only to this form of defective speech.

Prognosis is difficult in these cases, and unless there is mental deficiency, all of them are practical to treat, though, of course, difficulty of cure increases after early maturity. But even with older persons a degree of improvement distinctly worth while can be secured in most instances. Fully 50% of those who were examined were given intensive treatment; 50% remained untreated at the hospital either because they failed to return or preferred private treatment.

Of the twenty stutterers falling to my lot for treatment, 10 or 50%, were cured; 4, or 20%, were very nearly cured when treatment ceased, and of these, two were quite confident that the work of completing a cure lay with themselves and would be accomplished in a limited time. Four others, 20%, seemed capable of only slight improvement, and a cure appeared impossible. Only 2, or 10%, received no benefit whatever.

It is obvious that the chance of cure is much increased by frequency of treatment, since work

* Being Contributions from the Psychopathic Hospital (Boston, Massachusetts), Number 19 (1913. 19). The previous Psychopathic Hospital Contribution is 1913. 18, entitled "Report of Voice Clinic, Sept., 1912, to June, 1913, Out-Patient Department of the Psychopathic Hospital," by Dr. W. P. Lucas, BOSTON MEDICAL AND SURGICAL JOURNAL, vol. clxix, No. 23, p. 822.

of this sort is largely a matter of the formation of new habits, and also constructive work must be done frequently to counteract the effect of environment and daily life upon the patient. The time in which a cure can be made is also very much lessened if the treatments can be given often, and this eliminates many chances of discouragement and relapse present when patients can come only once a week.

In only one case was the patient able to come one hour every day from the first. His treatment extended over seven weeks, but the last two were spent in insuring the permanence of cure, which was accomplished in five weeks, or thirty treatments of one hour each. When it became evident that two other cases, seen for some weeks only once or twice a week were not advancing, I was able to see them both every day for a time; three weeks in one case, four in the other. Both cases proved extremely obstinate though their physical manifestations were no worse than in the case already referred to, and though they improved, they failed to yield to treatment; what the result might have been could their own confidence have been enlisted as a result of the greater improvement gained by daily treatment at first, or by keeping it up for months, it is impossible to say.

Four cures were made with patients who came three times a week and were seen little more than a half hour at a time. In none of these did the cure require more than two months, twenty-four treatments; though some of them came to the hospital longer than that to insure the permanence of cure. It is quite practical to reduce the number of treatments gradually if all goes well, until the patient is seen only once a week or even once a month; but much may be lost by doing this too soon.

Two other patients, who came three times a week from the first, evidently needed a more prolonged period of treatment and my work with them ceased before their cures were completed, one after three months, thirty-six treatments, when he declared he felt competent to complete his own cure, and one after two months, twenty-four treatments, when it was evident that a cure was quite possible in perhaps two months more.

Two others who came three times a week improved only slightly; one, a stubborn congenital case, ceased treatment after about two months, but the other had more ambition and had been taking treatment over three months when my work with him ceased. He was encouraged by his improvement sufficiently to go on, but a cure I believe is doubtful because of his lack of mental power.

Several cures were made when patients came only once or twice a week, but in some cases the treatment extended over six or eight months (twenty-four to thirty-two treatments), and in some the improvement was discouragingly slow. Yet, since such a clinic is apt to receive many cases too old for the schools, of working men and girls anywhere from 16 to 30 years of age, it is very encouraging to know that cures can sometimes be accomplished even when the patient is so situated that it is impossible for him to take treatment more than once a week.

In only three cases out of twenty, speech trouble came on after ten years of age. Of the remaining seventeen, eight assigned definite causes for their trouble, such as a fright, a fall, the effect of an illness or operation, and in some cases, imitation. In these cases there was distinct memory of a time when speech was normal. The nine others, nearly 50% of the whole, had, so far as they knew, never had normal speech. In two cases where the trouble had begun late, after illness, at fifteen and seventeen years, respectively, the cure was remarkably quick and easy. Two other cases dating from the sixth and eighth year, respectively, and both attributed to imitation, also yielded easily to treatment.

In the rest of the cases, it does not appear that those of the longest standing were necessarily the most difficult to cure.

A cure apparently depends primarily on the ambition, intellect, and will power of the patient, and secondarily on frequency, regularity and length of treatment.

The actual cerebral conditions responsible for speech defect are extremely obscure. They have been studied of late and to a certain extent explained. But the practical side of treatment calls rather for knowledge of voice production, phonetics, and psychology, than for the more strictly scientific medical training which fits one to analyze the origin of this obscure disease.

Reports of Societies.

AMERICAN SURGICAL ASSOCIATION.

MEETING HELD IN WASHINGTON, D. C., MAY 6, 7 AND 8, 1913.

(*Continued from page* 805.)

AN ANALYSIS AND STUDY OF 724 MAJOR AMPUTATIONS.

DR. W. L. ESTES, South Bethlehem, Pa.: The paper tabulates 724 major amputations; 616 single major amputations with a death rate of 4.54%, and 108 multiple amputations with an average mortality rate of 20.65%.

The author insists upon (1) Asepsis.

(2) Discrimination as to the time after an injury when an amputation should be done. (The blood pressure properly measured should be the indication whether the amputation should be postponed or not.)

(3) Bloodless operation.

(4) Good and ample flaps.

These are the four especial requirements for good results after amputations for injuries. The paper

considers only the conditions affecting amputations for injuries; pathological conditions are not considered.

Dr. Nathan Jacobson, Syracuse, considered that as most of the patients enter the hospital in a depleted condition one should promptly overcome that condition by intravenous saline transfusion and overcome shock by early operation. As to amputating through the kneejoint as advocated by the author, he preferred amputation through the upper third of the leg in order to save the kneejoint wherever possible. He reported two cases, one of quadruple amputation necessitated by a roller accident; the other of triple amputation due to contact with a live wire.

Dr. Howard Lilienthal, New York, stated that in his experience in cases of gangrene due to arterial disease amputation at the kneejoint had been found wanting, gangrene because of deficient blood supply to the flaps being not uncommon; he preferred amputation in either the upper part of the limb or in the lower part of the femur. He stated also that it had been his habit for some years to make skin and muscle flaps rather than flaps of skin alone, in order to retain the nutritional supply, and that this being impossible about the knee, was another argument against selecting this point for amputation.

Dr. William S. Halsted, Baltimore, advocated that when a patient was greatly shocked from loss of blood and it is not possible to do a transfusion, much benefit may be obtained by catching all oozing points with clamps and placing the patient in a warm bath. With reference to hipjoint amputations he said he had never seen a death from this operation and attributed this to the fact that the patient is in good condition before operation and no Wyeth pins are used, the operation being made absolutely bloodless by the use of clamps.

Dr. F. W. Parham, New Orleans, advocated the advantage in some instances of using spinal anesthesia, stating that he had resorted to this method in several cases with good results.

Mr. Alexis Thomson, Edinburgh, suggested the advisability of performing major amputations in two stages, first blocking the nerves and dividing them, tying the arteries and subsequently the veins, and then at a second operation within two to four days finishing the amputation.

Dr. Willy Meyer, New York, with regard to the question of anesthesia in these cases suggested regional anesthesia by injection of nerve ends, and also considered that intravenous anesthesia would be worth a trial in such a large number of cases as fell to the author of the paper.

Dr. W. L. Estes, South Bethlehem, (in closing) considered that the fact that amputation at the kneejoint showed less mortality than in the upper third of the leg was sufficient to warrant its employment. He stated in reference to Dr. Halsted's suggestion of a warm bath that in many cases with large areas of torn tissue it would be impossible to carry this out because of the liability to sepsis. His method of amputation consists in the gradual dissection of the part without the use of Wyeth's pins; there is very little bleeding, and the after results are very good. So far as the two-stage operation was concerned he thought this should be taken into consideration, but in his opinion the dread on the part of the patient of a second operation far outweighed in effect the good results claimed for it.

CONGENITAL DISLOCATION OF THE HIP—A RATIONAL METHOD OF TREATMENT.

Dr. Harry M. Sherman, San Francisco: This paper points out that all the components of the joint, femoral head and neck, acetabulum and capsular ligament, are variants, in greater or less degree, from the normal, and that of these the capsular ligament, elongated and narrowed, is the chief obstacle to easy or complete entrance of the femoral head into the acetabulum, while the twisted femoral shaft, which gives the neck and head a forward direction instead of one inward and but a little forward, is the chief cause of relaxation and the assumption of the position called the anterior transposition. Therefore the writer advocates and practices reposition through an incision. This, placed between the tensor vaginae femoris and the long head of the rectus femoris cuts no nerves and naught else than connective tissue in exposing and entering the capsular ligament. Through this incision the narrow part of the capsule is reached and freely cut, and then, in the great majority of cases, in children of proper age, the head can be easily lifted into the acetabulum. Later, to prevent a reluxation, an osteotomy of the femoral shaft is done below the trochanters, and the lower fragment is rotated outwards, while the upper fragment is held in such a position that the head and neck are properly correlated to the acetabulum as well as to the rotated out shaft. The method of holding the upper fragment, consisting of head, neck and trochanters, is by driving into the shaft, between the trochanters, a suitable steel nail, the end of which projects and can be incorporated in the plaster-of Paris dressing. The method of estimating the functional value of the head and neck and the presence or absence of the antetorsion of the shaft of the femur by radiograms is given, and the character and time of use of plaster-of-Paris splints. The osteotomy is accorded a place of considerable value, for the cases of satisfactory joints, that is, joints that are practically normal functionally, even though they varied from the conventional norm anatomically, was but 41.3% before the osteotomy became a part of the technic, while 70.3% of satisfactory joints are secured since the osteotomy is practiced in all cases that need it.

Dr. William S. Halsted, Baltimore, reported a case of a patient operated upon at the age of five years in which he encountered a very small head and a twist of the neck of the femur which made extreme rotation necessary to hold the joint in position, the slightest deviation from this permitting popping out of the head. This child was kept in this position with extreme rotation, the splint being changed every week, for about six months, and now, some twenty years later, there is a perfect development of the hip.

FIVE CASES OF SUTURE OF THE HEART.

Dr. Francis T. Stewart, Philadelphia: Case 1. symptoms of acute anemia and hemopneumothorax. Stab wound of left ventricle, ¾ inch long, continuous silk suture. Ligation of descending branch of

left coronary artery near its origin. Drainage of pericardial and pleural cavities. Pyopericardium and pyothorax. Recovery. Death five years later from pulmonary tuberculosis. At autopsy the wall of the left ventricle was the seat of interstitial myocarditis, and in one place near the apex greatly thinned.

CASE 2. Symptoms of acute anemia and hemopneumothorax. Stab wound of left ventricle ½ inch long. Continuous silk suture. Suture of pericardium, drainage of pleural cavity. Pyothorax. Recovery. Patient still well four years and three months after injury.

CASE 3. Symptoms of compression of heart. Pleura not injured. Stab wound of right auricle, ¼ inch long. Continuous catgut suture. Closure of pericardium. Pleura not opened during operation. Recovery without pyopericardium or pyothorax. Patient well after two years.

CASE 4. Symptoms of acute anemia and hemopneumothorax. Stab wound of left ventricle, one inch long. Continuous catgut suture, closure of pericardium, drainage of pleural cavity. Death in forty-one hours. Autopsy, pyothorax, purulent pericarditis, acute infective myocarditis, acute vegetative endocarditis.

CASE 5. Symptoms of acute anemia and hemopneumothorax. Stab wound of right ventricle, 1.2 inches long. Continuous catgut suture. Closure of pericardium, drainage of pleural cavity. Death in one hour. Autopsy, wound passed into right ventricle, then through the septum into the left ventricle. Both ventricles were hypertrophied and the mitral valves were badly diseased.

Attention is called to the relatively slow pulse in the author's cases. In 3 it was 100 or below, in one 108, and only 130 in the case with the highest count. External bleeding was never more than a trickle, partly accounted for by the valvular nature of the wounds. It is impossible with a single thrust of a narrow bladed knife to create a channel from the skin to the heart that will remain straight. So soon as the patient lies down the skin glides upward an inch or more and the heart likewise ascends. If the pleural cavity is at the same time opened the heart is displaced farther by the resulting pneumothorax. In addition to the influence of this angulation of the tract in retarding the outward escape of blood, external hemorrhage is apt to be insignificant because the blood finds one, and usually two, reservoirs, viz., the pericardial and pleural cavities, into which it may flow unhindered. On the other hand, a bleeding intercostal or internal mammary artery unassociated with a wound of the pericardium or pleura may give rise to considerable external hemorrhage, because, aside from the cellular tissue, there is no place in which the blood can accumulate.

There are no pathognomonic symptoms of a wound of the heart; even hemopericardium may be due to a wound of the pericardium alone or to a wound of one of the heart vessels at the base of the heart. The diagnosis can be assured only by exploration, which should be done in all cases in which there is the slightest suspicion of a wound of the heart.

In five cases of wound of the precordium the author has explored the heart without finding a wound in that organ, although in three cases the pericardium was injured and in one the heart was contused. In three other cases in which a wound o the heart was suspected the wound did not pene trate the thoracic wall.

Technic of operation: Iodin disinfection of skir excision of cutaneous wound, digital explorator Formation of a chondroplastic flap, the size an shape depending upon the situation of the externa wound and the amount of room necessary to expos and suture the wound in the heart. So long a there is a pneumothorax it makes little differenc whether this flap is reflected towards the right o the left. If the pleura is, however, intact, it shoul be preserved from injury; this is best done by turn ing the flap to the left, and pushing back the un opened pleura from the pericardium, as was done i Case 3. Enlargement of the pericardial opening i the axis of the heart, discovery of the wound in th heart by palpation. Inspection in the cases cite above was useless until the bleeding had been con trolled temporarily by digital compression and th blood removed by sponging. With the finger on o in the cardiac wound, insertion of a suture which i used as a tractor while the rest of the wound i closed. In two cases the wound was approximate with forceps during the suturing; this greatly fa cilitated the operation, but in one case the pulsa tions of the heart fell from 108 to 52 and the patien ceased breathing for a short time. A continuou suture is quicker than interrupted sutures, present fewer knots on the surface of the heart, and less op portunity for leakage between the points of inser tion. Catgut is the best material. In one case i which silk was used, a sinus persisted until the silk was discharged. In three instances additional su tures were needed to control the bleeding, once be cause of spurting from the needle punctures (wounc of right auricle), once to tie a large branch of th coronary which ran into the wound, and once to tie the descending branch of the left coronary near its origin, where it had been accidentally wounded by the needle. This case of ligation of the left de scending coronary artery is of considerable impor tance in view of the statements of some physiolo gists regarding the fatal effect of suspension of its function. The patient recovered and was appar ently not inconvenienced by the obliteration of his coronary artery. At the autopsy, however, five years later, it was found that the wall of the left ventricle was the seat of interstitial myocarditis and in one place near the apex greatly thinned. It is recommended that all blood be removed from the pericardial and pleural cavities and that these cavities be closed without drainage. Drainage favors infection. If suppuration occurs later in either of these cavities a drain can then be inserted. It is recommended also that the Auer-Meltzer insufflation apparatus be used during operation, or if this is not at hand that the thorax be closed completely and the air withdrawn from the pleural cavity by aspiration. The only discernible objection to this course is the possibility that distension of or suction upon the lung might renew or increase the bleeding from a wound in the lung. The importance of an air-free pleural cavity, however, cannot be overestimated. The large volume of air in the pleural sac contains a great number of bacteria, and these settle on the pleura and give rise to infection. In a recent case of exploratory thoracotomy for a stab wound of the lung, the wounds in the lung and in the thoracic wall were closed, and as much air as possible aspirated from the pleural sac; recovery followed without empyema.

THE SURGERY OF THE PULMONARY ARTERY.

Dr. Willy Meyer, New York: The main trunk of the pulmonary artery is easily accessible within the pericard after incision of the latter and pulling the pulmonary artery plus ascending aorta forward by means of an elastic tube, which was conducted through the transverse sinus of the pericard. Five years ago Trendelenburg recommended the operative removal of pulmonary emboli. He resected the left second rib with the help of a double skin muscle flap formation and thus got sufficient access to the pericard and pulmonary artery. The elastic tube compressing both vessels is held by an assistant, the pulmonary artery is incised, and the emboli are removed with forceps. The vessel wound is then closed by sutures. According to personal communication (December, 1912), Trendelenburg and his assistants have done the operation twelve times. No permanent recovery was seen so far, but the results are encouraging. One patient of Krueger lived four days after the operation and then died of pleuropneumonia.

The two arteries cannot be compressed longer than 45 seconds. Laewen and Sievers of the Leipzig clinic have found that the compression of the two venae cavae is better borne, evidently on account of avoiding the distention of the right heart. In doing this, six or eight minutes are at the operator's disposal. The possibility of doing this operation at our hospital is then discussed. Dr. Meyer, too, hopes that the future will see a number of these patients saved by operation.

The second operation considered is the ligation of branches of the pulmonary arteries for bronchiectasis. It was recommended by Sauerbruch and Bruns two years ago. The pathology of the disease and technic of the operation are briefly gone over and the history of three patients given who were operated upon by Dr. Meyer at the German Hospital in this way. All three recovered and are greatly improved so far. The interruption of the physiologic function of the lobe of the lung produces shrinkage, connective tissue formation, and adhesion between pulmonary and costal pleura. Mutiple resection of ribs done at a second stage produces collapse of the lung later on.

At the present time Dr. Meyer has two patients under his care in whom it seems desirable to influence all three lobes of the right lung. A more central ligation of the pulmonary artery seems better for the purpose. Experimental work has been done in this direction. The main trunk of the left and right pulmonary artery can be ligated without harm to the animal. The left branch is nicely accessible within the pericard by reflecting a part of the latter or right outside of the pericard, according to anatomical conditions. Ligation of the right branch is more difficult. According to Dr. Meyer's observations the best procedure is the exposure and ligation of the right pulmonary artery within the pericard between ascending aorta and superior vena cava. Another approach is to the division of the right pulmonary artery through an incision outside of the vena cava superior. The experimental work on this latter approach has not yet been completed. The advisability of ligating the main branch or its divisions is discussed.

If it should be shown that pulmonary shrinkage and collapse therapy of the lung do not cure or at least greatly improve the trouble, pneumectomy will become the operation of choice, since we have learned to close the bronchus air-tight.

ARTERIO-VENOUS ANASTOMOSIS FOR THREATENED GANGRENE OF THE FOOT.

Dr. Leonard Freeman, Denver: Following the report of a case in which an unsuccessful attempt was made to check the progress of incipient presenile gangrene of the foot by reversal of the circulation, attention was called to the large proportion of failures in these operations, due, perhaps, more to inherent deficiencies in the operation itself than to faulty technic.

A good and permanent result must depend upon the passage of a sufficient quantity of arterial blood through the utmost ramifications of the femoral vein into the capillaries. A certain amount of blood may succeed in doing this (2% to 4%, according to Rothmann), but it is more than probable that by far the greater proportion promptly returns towards the trunk through the numerous anastomotic veins, without reaching the capillaries.

The temporary improvements which have been observed following arterio-venous anastomosis, such as the return of color and warmth to the affected part, the inhibition of the gangrenous process, and the disappearance of pain and numbness, may be due merely to the passive hyperemia produced by ligation of the femoral vein, as suggested by Oppel and by Moskowicz, and not to the reversal of the circulation.

From theoretical considerations and from the results so far obtained in arterio-venous anastomosis for threatened gangrene of the extremities, the following conclusions may fairly be drawn:

1. Although the procedure is justifiable in a few well-selected cases, it seldom has been followed by success, and even then its real value may be questioned, owing to the fact that spontaneous recoveries occasionally occur—with as much frequency, perhaps, as do operative successes.

2. Owing to the uncertainty of the value of the operation, one should at least endeavor to do as little harm as possible. Hence, from this point of view, it is better to do a side-to-side anastomosis, or to implant the distal end of the vein into the side of the artery, rather than to unite the two vessels end-to-end; thus preserving to the limb its remaining arterial circulation, however little that may be.

3. According to our present knowledge, operations upon the upper extremities should be considered with reservation, owing to the comparative frequency of spontaneous recoveries.

Dr. F. B. Lund, Boston, in discussing the papers dealing with the cardiovascular system called attention to the value in these cases of employing the Meltzer-Auer intratracheal insufflation apparatus, reporting a case in which he had used this, the operation being the removal of a sarcoma of the chest wall with three ribs, and in this case, as in others, the result had been most satisfactory. He emphasized the advantage of the employment of this apparatus where the pleura is to be widely opened and where there are no adhesions of the lung to the chest wall.

Dr. Howard Lilienthal, New York, in reference to Dr. Freeman's paper said that in arteriovenous anastomoses the technic was of prime importance, and considered it most important to use the very finest needles that can be handled, No. 13 or No. 14.

together with 60 silk well vaselined. He considered the end-to-end suture the best as it afforded the minimum chance of thrombosis.

DR. JAMES E. THOMPSON, Galveston, cited a case of suture of the heart, in which it was believed that the right ventricle was penetrated; autopsy, however, showed that the wound was in the interventricular septum.

MR. ALEXIS THOMSON, Edinburgh, reported a case in which an arterio-venous anastomosis was done first on one side, and at a subsequent time on the opposite side for threatened gangrene; the anastomoses being of the femoral artery and vein at the apices of Scarpa's triangle. This same patient still later developed a hemiplegia and at her own request her common carotid was anastomosed with her internal jugular vain.

DR. WILLY MEYER, New York (in closing), said that although all agreed that under most circumstances the Meltzer-Auer intratracheal insufflation was indicated, yet there were cases in which the cough reflex was advantageously retained, and that in such cases this apparatus encumbered the mouth to such an extent that one of the other pressure apparatus was indicated.

LARYNGECTOMY FOR CANCER.

DR. GEORGE W. CRILE, Cleveland: Intrinsic laryngeal cancer follows frequently in the wake of benign tumors and syphilitic lesions. It can be successfully treated by complete excision, for as it cannot invade hyaline cartilage it metastasizes tardily, if at all. Although operation for extrinsic cancer is but palliative, even in such cases complete laryngectomy is the most effective treatment.

The special dangers accompanying complete laryngectomy are: pneumonia, local infection, mediastinal abscess, vaginitis, reflex inhibition of the heart, and respiration. These may be successfully combated by a specially planned technic, as may also the dangers attending the administration of the anesthetic, which by choice should be nitrous oxide.

The immediate mortality of this operation is now well controlled. The disability and deformity resulting should have no weight in deciding for or against the operation. Special training and experience are required to thoroughly master the intricate technic. If recognized early and removed completely, intrinsic laryngeal cancer is perhaps the most curable cancer of the body.

DR. JOSEPH C. BLOODGOOD, Baltimore, discussed the metastasis in the glands of the neck in laryngeal cancer, referring to cases operated on for cancer of the larynx followed by recovery and subsequently dying from metastasis in the glands of the neck. He emphasized the fact that the inability to palpate these glands is no indication that they are not involved. He also advised that the operation of laryngectomy be done under novocain.

(To be continued.)

IT is reported that there are only ninety-seven physically perfect men among the 1256 students in the freshman class of the college department of the University of Pennsylvania, according to statistics compiled by Dr. R. Tait McKenzie, the director of physical education. The university's ophthalmologist is said to have found that more than one-third of the freshman class have defects in eyesight.

Book Reviews.

Massage, Manual Treatment, Remedial Movements. History, Mode of Application, and Effects; Indications and Contra-Indications. By DOUGLAS GRAHAM, M.D. Fourth edition, revised and enlarged, with 75 illustrations. Philadelphia and London: J. B. Lippincott Company. 1913.

The first edition of this book was reviewed in the issue of the JOURNAL for Feb. 26, 1885 (Vol. cxii, pp. 207-8), and the second in the issue for May 21, 1891 (Vol. cxxiv, p. 514). This fourth edition is augmented by a chapter on "Massage of the Eye" by Dr. A. Darier of Paris. The book maintains its standard of merit and there seems no reason for modifying earlier critical estimates of its value.

The Relations of the Lachrymal Organs to the Nose and Nasal Accessory Sinuses. By PROF. DR. A. ONODI, director of the Rhino-laryngological Clinic in the University of Budapest. English translation by DR. DAN MCKENZIE, London. New York: William Wood and Company. 1913.

This book takes up the anatomical relationship between the efferent lachrymal apparatus and the nose and accessory cavities. The text is in German, French and English. There are 45 full-page plates representing sections through the region discussed and giving a very clear idea of the actual anatomical relations of the parts. Variations from the average are also presented. The book is well planned and very useful to anyone operating on the lachrymal apparatus either from the eye or the nose end.

Genito-urinary Diagnosis and Therapy. For Urologists and General Practitioners. By DR. ERNST PORTNER, Specialist for Urology, Berlin, Germany. Translated and edited by Bransford Lewis, M.D., B.Sc., Professor of Genito-urinary Surgery, Medical Department of St. Louis University, St. Louis; Genito-urinary Surgeon to St. John's Hospital and Frisco Hospital. Forty-three illustrations. St. Louis: C. V. Mosby Company. 1913.

This book of two hundred pages adds another to a long list of books of questionable value. In its fourteen chapters (and an appendix by Dr. Sophian of Kansas City, devoted to Serological Diagnosis and Specific Treatment of Gonococcic Infections) is found brief mention of most matters pertaining to urology, but their considera-

tion is so brief that, except for the medical student who is trying to get a bird's-eye view of this subject, or the doctor who is looking up brief facts on some topic included in this department of surgery, the book can have little real value. It is sufficiently well printed and illustrated, and is up-to-date in its very brief consideration of the more recently developed knowledge in diagnosis and treatment.

The Surgery of the Stomach. A Handbook of Diagnosis and Treatment. By Herbert J. Paterson, M.A., M.C., M.B. (Cantab.), F.R.C.S., London. New York: William Wood and Company 1913.

This excellent handbook of 300 pages is apparently the elaboration of an essay for which the author has awarded the Jacksonian prize in 1904. The book is based largely upon the author's opinion, experience and practice, and his own failures and successes, though he confesses to the belief that "doubtless the subconscious mind is influenced even more than one realizes, by the fruits of the labor of others." He is enthusiastic upon the future of gastric surgery, though he deplores the fact that at present "in less than 5% of the cases I see, is a radical operation possible." This presumably refers to the cases sent to him by consultants, and unfortunately is still true in countries other than England. He believes results are to be improved by earlier rather than by more extensive operation; and hopes that as soon as it is generally recognized that "the stomach is more frequently affected by cancer than any other organ of the body," and when a routine use of the stomach tube and test meals is invariable in persistent indigestion, the early operation will become a possibility. The book is well worth careful reading by all general surgeons. Like many other present-day English books, it is well written, concise, admirably illustrated and unusually well made and printed. The book is concluded by an appendix, containing the principal tests and method of examination of the stomach, together with a list of authors quoted, and an adequate index.

A Treatise on the Diseases of Women. For Students and Practitioners. By Palmer Findley, B.S., M.D., professor of gynecology, College of Medicine, State University of Nebraska; gynecologist to the Clarkson Memorial Hospital and Douglas County Hospital. Oct., pp. 954, with 632 engravings in the text and 38 plates in colors and monchrome. Philadelphia and New York: Lea and Febiger. 1913.

The appearance of a new text-book in gynecology attracts attention at once, and the questions which first arise are: Why is this new book? Has the author something new in matter or method? Has the increase in knowledge demanded a new book rather than new editions of books already existing. There is also a feeling of hope that the new book may more nearly approach the ideal of what a text-book for students should be.

In the preface, it is stated that the book is the outgrowth of the author's "Diagnosis of Diseases of Women," until a complete treatise has developed. The method of presentation is to consider certain general topics in separate chapters, thus avoiding much repetition. Especial emphasis is laid on the non-operative treatment, for the author says, and he expresses the opinion of a group by no means small, that such methods of treatment have not received their due share of consideration either in text-book or practice.

The importance of the anatomical basis of diagnosis is appropriately recognized; as the author says, "the subject of diagnosis has been placed on an anatomical basis," an ideal which through the incomplete development of the science rather than the fault of the author, is not realized. There are treated at some length certain conditions which lie on the borderline of gynecology and obstetrics.

Turning now from the preface to see how well the author has accomplished his purpose, the table of contents is to be noted. Defects of arrangement are striking. For example: Chapter I: Introductory, Hemorrhages from the Genital Tract. Chapter II, Disorders of Menstruation: Amenorrhea, Dysmenorrhea, Backache, Diastasis Recti, Enteroptosis. In Chapter III are grouped Leucorrhea, Sterility, the Menopause.

Reviewing the text, it is found that the book represents a sincere and vigorous effort in the right direction, as is indicated in the preface, and contains a large amount of accurate information, well illustrated and well worded. But the arrangement and manner of presentation often leave much to be desired. It is to be hoped that in a future edition the book may be recast for it deserves this treatment.

There is an opinion among many gynecologists today which the book voices on page 22 in the following words: "Symptoms, at best, are only suggestive of a possible lesion." This demands a protest. Symptoms, at worst, may be only suggestive of a possible lesion, but "at best," not always, are characteristic of the disease. For example, the two diseased processes of pyosalpinx and tubal pregnancy, differ in etiology and in course. At a certain point in the development, the two conditions may be indistinguishable on examination, but if patient and history-taker are intelligent the conditions should not be confused frequently. Too little emphasis has been laid on this point and especially should students be impressed with the value of careful history taking.

The Principles and Practice of Gynecology. For Students and Practitioners. By E. C. DUDLEY, A.M., M.D., professor of gynecology, Northwestern University Medical School; gynecologist to St. Luke's Hospital, Chicago. Sixth revised edition. With 439 illustrations and 24 full-page plates. Philadelphia and New York: Lea and Febiger. 1913.

This new edition of the text-book by a well-known author needs no extended review. The size of the volume has been slightly reduced in spite of the additions necessary to keep the work up to date. There has been considerable rewriting and some condensation, and the changes are in the direction of the development of the science and art. The chapters on pelvic inflammation have been remodelled and made clearer, and in the consideration of tumors, tubal pregnancy and malformations, the arrangement has been improved. The difficulty of revision of a book of this scope by a single author is exemplified by the chapter on deciduoma malignum, which is inadequate, to say the least, and to the student misleading.

Part IV, on traumatisms, contains an excellent presentation of the subject; it is in the treatment of the results of traumatism that the author is at his best. In the final section, functional disturbances are considered, but one looks in vain for a presentation of the relation of internal secretions to the genital system. The discussion of operative procedures is sufficiently detailed to be of value, but is not too extended. One misses somewhat non-operative treatment, which in a work as comprehensive as the "Principles and Practice of Gynecology," should receive more attention.

The book is a worthy successor of the earlier editions in its excellent typography, its clear and sometimes beautifully accurate illustrations.

A Course in Normal Histology. A Guide for Practical Instruction in Histology and Microscopic Anatomy. By RUDOLF KRAUSE, professor of anatomy at the University of Berlin. Translated by PHILIP J. R. SCHMAHL. New York: Rebman Company. Part I. General Part, xi+86 pp. Part II. Special Part, x+406 pp. 1913.

The first part of this book deals with histological technic and the use of the microscope. The second part is an atlas of histology, containing full descriptions of the sections figured and directions for preparing them. Professor Krause states that it is not his purpose to replace the histological text-book, which he finds as essential as the course of lectures, but he considers that the text-book should "cast off its technical ballast," or rather discharge it into a laboratory manual such as he has provided. The day of unabridged anatomies is evidently passing. The volume under discussion is of special interest to American histologists since it is a detailed description of the course presented at the University of Berlin. The specimens which the student examines have been drawn by Professor Krause himself, and although he modestly states that "they are not intended to be works of art, but solely true representations of the microscopic findings," many of them are very artistically rendered. They have been reproduced in color by the autotype process and occupy ninety-eight full-page plates in Part II.

We are told that "every student should be obliged to make faithful sketches of his slides," and should be provided with "a modern microscope, having a condenser and a homogeneous immersion." Such equipment is now supplied in the better American schools, and drawings are required. Moreover in plan and extent, our courses are very similar to that which Professor Krause presents. It may be noted, however, that of the 208 specimens figured by Krause, only 88 represent human tissues; a larger proportion is desirable for medical students. The descriptions of the figures are concise and instructive, and the purpose of the author has been admirably accomplished.

In the English translation, presumably in order that the plates may be kept away from the stains of the technic room, Professor Krause's work has been subdivided, and it appears as two mismated volumes. The first is so thin that its back cannot be labelled to match the second volume. Moreover, each part has been disfigured by a turgid publisher's announcement, facing the title page, stating that "the microscope is the hand-maid of anatomy," etc. Scattered through the text in the English edition, many words have been printed in large bold-faced italic type, so that the student who runs may read; but such staring letters are not needed for the microscopist. Mention should be made also of the very large number of blank pages in the second part, including the reverse sides of 98 plates, together with 52 numbered pages, and 92 more which contain only titles of figures which are to follow.

The translation of the text is conscientious and literal, but a small number of errors have crept in. Professor Krause does not state that centrosomes are "also known as polar bodies" (p. 10) nor does he write that the two parts of the diplosome "not infrequently are connected by a thin bridge—the centrosome." In several cases the German terms have been literally translated and printed as technical English terms, *e.g. interpolated sections,* for intercalated discs; and *stay-cells,* for supporting or sustentacular cells; and few histologists could define a *"gastric dimple."* These, however, are but minor defects. In binding there is little to choose between the coarse pepper-and-salt cloth of the German volume and the fine drab-green buckram of the English edition, the latter bearing the owl and serpents of the Rebman Company.

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THE SYSTEMATIC STUDY OF THE CONDITIONS UNDER WHICH TUBERCULOSIS IS FOUND IN MASSACHUSETTS.

The people of the Commonwealth of Massachusetts have before them in the proposed study of the conditions under which tuberculosis exists in the state an example of the quiet but momentous efficiency of their State Board of Health. Mr. Mills in an address to the State Inspectors of Public Health presented a map of the state showing the conditions that have existed in the various towns and cities of Massachusetts during the past five years. In this address the inspectors are directed to go forth and try to find out so far as possible the causes maintaining in the various communities leading to the spread or continuance of this menace to the public health.

The inspectors have further been given a large road and contour map of their various districts and starting with the worst towns and cities of their districts, they are bidden to visit all the houses where there has been a death from consumption during the past five years or where there is an existing case today. The inspectors are to mark upon this map the place, and further to take notes of the conditions in which tuberculosis is found to flourish and to report their findings to the State Board of Health office for further study.

Such intensive study has from time to time been applied to a few cities, or more usually certain portions of cities, as for example the infamous "lung block" in New York or the study of the worst infected streets of South Boston, but no such state-wide study as this has ever been attempted.

The preliminary work done at the office of the Board of Health in the preparation of the town map of the state and the instructions which are given to the inspectors show a keen appreciation of the problem and the desire of the Board to attack it in a manner that shall be most effective.

The advice to the inspectors as to what they shall do when they have made their survey in urging the activities of the local boards of health and the selectmen or city councillors is most wise. There is too much tendency today for local boards of health to shirk their duties and to ask that the State Board shall act for them. This is unfortunate in the extreme. Health work cannot be truly advanced without local support and intelligence behind it. The responsibility for local conditions belongs with the people who create the condition, and it is for them to right what is wrong, as well as to take pride in what is good and beautiful. The State Board of Health, through its skilled inspectors can help and point the way, but the community, through its own public sentiment, must do the things themselves in order to have them done most effectively in the long run.

Public conscience has been and must still be the boast of Massachusetts and of New England. Once more we say that the people of Massachusetts and its State Board of Health are to be congratulated on the inauguration of this new step in the state-wide study of the fundamental conditions under which tuberculosis flourishes in the state. This study, we believe, will materially add to the efficiency of the work already being done in Massachusetts.

MASSACHUSETTS STATE TUBERCULOSIS SANATORIA.

In connection with the preceding editorial, we desire to call attention to a circular letter which has recently been sent by the Trustees of Hospitals for Consumptives to every physician in Massachusetts. Three years ago a similar letter was sent, giving information concerning the State sanatoria and the method of admitting patients. Since that time various changes of

method have been made; and the present letter is intended to give the medical profession further information about these and about the present status of the work.

The three new sanatoria at North Reading, Lakeville, and Westfield now have a capacity of about 20 patients each, and admit all classes of cases at a cost to each patient of $4 a week for board.

"The advanced and active cases are kept either in small enclosed wards, or in private rooms, where they are given every attention to make them comfortable, as well as every opportunity for fresh air day and night. Patients in the incipient, inactive, and more favorable stages of the disease sleep in open pavilions. It is unfortunate that the impression has gone abroad that these three sanatoria are hospitals for advanced and dying cases, and that incipient cases cannot receive adequate treatment. This is far from the truth. In the past, on account of the non-citizenship restriction, and for other reasons, early and favorable cases have been admitted at North Reading, Lakeville and Westfield, and the results in such cases have been as good as at Rutland. As local hospitals increase and are able to care for advanced cases, the trustees hope and expect that these institutions will be able to do more and more real sanatorium work. These three institutions are sanatoria in fact, as well as in name, and have every possible facility for carrying out in detail the latest idea of sanatorium treatment of the early and incipient case. Physicians are urged to bear this fact in mind when advising their patients as to a sanatorium, as the waiting list for the Rutland sanatorium is always a long one, whereas the waiting list for the three newer institutions is frequently shorter."

The Rutland sanatorium is reserved for patients in the incipient and early stages.

"The percentage of incipient cases received at Rutland is very low, rarely over 30%. This percentage during the past three years has been slowly rising, however, and leads us to the encouraging belief that physicians are becoming more and more alive to the importance of early diagnosis and prompt and aggressive sanatorium treatment. The board is making every effort to send only incipient and favorable cases to the Rutland sanatorium, but is constantly hampered in so doing by the number of applications for patients, who, while not in the incipient stages, have been urged by their physicians to go to Rutland and nowhere else, or who are told by physicians that they are in the incipient class and eligible for Rutland, while really in the advanced or moderately advanced stages of the disease. Much unnecessary delay and hardship to patients would be saved if physicians would constantly bear in mind that Rutland is intended only for the early and incipient cases, and that only in rare instances can patients in the moderately advanced stages of the disease be admitted. Physicians are also reminded that the superintendent of this institution is instructed to use his discretion in discharging those patients admitted to this institution who after a fair trial do not improve and are likely to become advanced and progressive cases."

Special provision for tuberculous children is made at the Westfield sanatorium; and at Tewksbury there are excellent accommodations for indigent patients, for whom application may be made to the State Board of Charity. Application for admission of patients to the four state sanatoria should be made on suitable blanks to the trustees. Local tuberculosis hospitals are also in operation at Boston, Cambridge, Chicopee, Fitchburg, Haverhill, Holyoke, Lawrence, Lynn, New Bedford, Pittsfield, Salem, Springfield, and Westfield.

It is hoped that physicians throughout the state will note the information contained in this letter, since it is only by their coöperation that the efforts of the trustees to deal with tuberculosis in Massachusetts can be brought to fruition.

"DAMAGED GOODS."

DURING the current week considerable attention is being attracted among the public and the medical profession by the performance at a theatre in Boston of Eugène Brieux' "Les Avaries," under the English title of "Damaged Goods." The coming of this much-heralded play, which aims to set forth in dramatic form some of the facts about venereal disease, was announced to physicians by the following circular letter signed by representatives of the Women's Municipal League and of the Suffolk District Medical Society.

"Mr. Richard Bennett and his co-workers are to present the sociological play, 'Damaged Goods' by Eugène Brieux, in Boston, for a limited engagement at the Tremont Theatre, beginning Dec. 1. This drama has awakened wide interest and received the enthusiastic endorsement of social workers in New York, Washington, Buffalo, Cleveland, Chicago, St. Louis, Indianapolis, Louisville, Cincinnati, Rochester and Syracuse, the cities in which it has been given prior to the Boston engagement.

"In Washington 'Damaged Goods' was given at a special invitation performance for members of congress and their wives, cabinet officers, jus

tices of the supreme court, members of the diplomatic corps, prominent physicians, clergymen and social workers. In Buffalo it was given under the auspices of the Fourth International Congress on School Hygiene; in Chicago under the joint auspices of the American Federation for Sex Hygiene and the American Vigilance Association; in St. Louis, Washington and Louisville under the auspices of the Social Hygiene societies of each city; in Rochester under the sponsorship of the Women's Educational and Industrial Union, and in Syracuse with the coöperation of the Moral Survey Committee. That 'Damaged Goods' has dramatic interest as well as social significance is shown by its long engagement in New York City last spring and again this autumn.

"The department of public health of the Women's Municipal League and the Suffolk District Medical Society are deeply interested in the appearance of this play in Boston, since it teaches a vital lesson, gives a clearer understanding of the fundamental facts of life, and shows the dangers of a double standard of morality."

Apparently the action of the Suffolk District Medical Society in thus officially endorsing "Damaged Goods" has not passed altogether uncriticized or unchallenged. Already two members of the Massachusetts Medical Society have published in the daily press their disapproval of this action. One of them writes in part:—

"I regret extremely that I was not present at the meeting of the Suffolk District Medical Society at which the vote was passed authorizing the use of the society's name as an indorsement for this play. The meeting was not a representative one, numerically, and the vote was passed as a routine procedure which apparently no one present took the trouble to oppose. That the Suffolk District Medical Society wishes to authorize such a use of its name I do not for one moment believe. I do not wish to question in any way the manner in which the authority was obtained, but I do believe that had the society known beforehand that this matter was to be brought before it the meeting would have been a large and representative one and the requested authority would have been refused."

Another member of the Suffolk District Society, also absent from this meeting, has, however, written to express his approval of the play. He says in part:—

"A growing and already strong sentiment seems to me to exist among members of the medical profession here and elsewhere toward education of the public in the matters concerned in this play. Physicians appreciate that at present their activities are limited to curative measures because the public is insufficiently instructed to coöperate with them in preventive work, and it is the educational value of this play which should, I believe, enlist for it the support of the medical profession.

"The drama, from the days of ancient Greece to our own, has dealt with questions of immorality, but we have to thank Brieux for having found in the facts of medical science material for hitherto untold tragedy."

Other physicians have publicly expressed themselves in general in favor of the production of the play.

Obviously the question is one about which there will inevitably be much difference of opinion and impossibility of agreement. Doubtless "Damaged Goods" contains a statement of facts which every woman, every young adult, ought to know. It is still an open question whether such a play constitutes the best means of imparting such information.

Regarding the play itself, whatever its artistic merit may be, the concensus of opinion of those who have seen its performance seems to be reasonably unanimous that it is not sensational or alluring, but rather a bald statement in dramatic form of definite facts relating to the disease, syphilis. President C. W. Eliot expresses himself in part on this point as follows:

"I have both read and seen it, and know whereof I speak. During the past year the play has been presented in a series of American cities by the same excellent company which is to present it in Boston, and everywhere it has been found to give a serious, impressive and horrible picture of one of the worst evils which afflicts society. There is not a word or a gesture in the play which could possibly provoke or attract anybody to vice. There is nothing in it lascivious or even voluptuous. On the contrary, every scene and sentence is fitted to deter men and women from vicious indulgences, and from the first approaches to vice. The effect of the play, even on the careless or reckless, is solemnizing and restraining."

It should be apparent to thinking persons that if a censorship of the stage is to exist it should be actuated by the strictest justice, and broad-mindedness. The fact that a play is designed to attempt to teach a grim lesson concerning a wide-spread and devastating disease, should not preclude its performance unless it can be shown that it is a menace to public morals. This, we believe, has not been demonstrated in the case of "Damaged Goods"; the evidence, so far as available, points towards its sobering influence rather than towards its possible incitement to

vice. It is, however, manifestly impossible to determine the exact effect of such a play upon the persons who may see it, and upon the community which comes within the radius of its influence. Speculation upon this point is profitless, but in the excitement which must for a brief time prevail, it is desirable that we do not lose sight of the main design and issue of the propaganda of which the performance of this play is merely a somewhat insignificant part.

Education of the public in matters pertaining to its health and welfare is the watchward of present-day preventive medicine. It was inevitable that sex questions and the related venereal diseases should sooner or later be included in this general movement. This is certainly not to be regretted. The one essential problem is how such education may most expeditiously and most efficiently be brought about. Here naturally opinions will differ, and more or less acrimonious discussion is sure to take the place temporarily of the judicial attitude which this problem of deepest moment requires. Experiments must be tried and various methods adopted before a scheme of education can be evolved which may even approximately reach to the core of the difficulty. At present publicity is the prevailing method; such a method manifestly is superficial; its advocates no doubt expect too much from it, and its opponents see only its dangers. In any case, it must be given a trial. Hence the justification for the production of "Damaged Goods."

It must not be forgotten, however, in the excitement of the present-day agitation that the solution of this world-old problem, if solution there be, lies only in a painstaking psychological research into the sources and development of the sex-instinct and a study of our whole social system in relation to the facts which may thereby be revealed.

MEDICAL NOTES.

USE OF HEROIN SPREADING RAPIDLY AMONG DRUG TAKERS.—According to information gathered by the U. S. Department of Agriculture, there has been a sudden and very significant increase in the use by persons with a drug habit of the little known but very dangerous drug called "heroin." The sales of this drug have recently increased greatly, particularly in those states which have rigid laws preventing the indiscriminate sale of morphine and cocaine. Investigation of the subject establishes the fact that many drug victims who formerly used morphine and cocaine, and who under the new laws find it difficult to obtain these substances have begun using heroin, the sale of which is not as yet as carefully restricted under state laws. The drug is said to be fully as dangerous as morphine and by many is held to be much worse, for the reason that it occasionally kills the victim outright and its habit is far harder to overcome than the use of the other drugs. The department, pending further action, specially warns all people who are unfamiliar with the drug to avoid all preparations containing the substance and to take it only on the prescription of reputable physicians.

MARY CURZON HOSPITAL.—On Nov. 22 the new Mary Curzon Hospital for Women, at King's Cross, London, was formally opened by Alexandra, the Queen Mother, as a memorial to the late Lady Curzon.

A CENTENARIAN.—John Ryan, who died on Oct. 29 at Plymouth, England, is said to have been born in Thurles, Tipperary, on June 24, 1810. Until a fortnight before his death, he is alleged always to have walked several miles daily.

A LIVING CENTENARIAN.—The Reverend John F. Mesick, of York, Pa., is said to have been born on June 16, 1813. He is an alumnus of Rutger's College, and is believed to be the oldest living college graduate in the United States.

POLIOMYELITIS IN ENGLAND.—In the issue of the *Lancet* for Nov. 15 are reported three recent minor epidemics of acute poliomyelitis in England, one of 8 cases at West Kirby, Cheshire, one of 6 cases at Diddington, Oxfordshire, and one at Tillicoultry. In all these instances there was evidence to suggest the etiology of insects as transmitting agents.

MÜTTER LECTURE.—The Mütter Lecture for 1913 will be delivered by Dr. Robert C. Coffey of Portland, Oregon, in the Thomson Hall of the College of Physicians of Philadelphia on the evening of Dec. 12. Subject, "Chronic Constipation Considered from the Embryologic, Anatomical and Experimental Standpoints."

Fourth National Tuberculosis Day.—It is announced by the National Association for the Study and Prevention of Tuberculosis that Sunday, Dec. 7, is to be observed as the fourth national tuberculosis day in this country. The United States office of Indian affairs has issued instructions for the appropriate observance of the day at the 330 Indian schools connected with the government reservations.

International Anti-Vivisection Congress.—It is announced that the third International Anti-Vivisection and Animal Protection Congress will be held on Dec. 8 to 11 at Washington, D. C. There will be an anti-vivsection exhibit and an exhibit of implements for the painless slaughter of animals.

BOSTON AND NEW ENGLAND.

Scarlet Fever in Everett and Malden.—Reports from Everett and Malden, Mass., state that scarlet fever is extensively prevalent in those towns. There have been fifty cases in a single school district of Everett, and this school has been closed for an indefinite period. No deaths from the disease have as yet occurred.

Typhoid Fever in Providence.—Report from Providence, R. I., states that on Nov. 19 there were 103 cases of typhoid fever in that city. There have been six deaths from the disease since the beginning of the present epidemic.

A Centenarian.—Mrs. Spencer Mowry, who died at Woonsocket, R. I., on Nov. 23, is said to have been born in April, 1812, at North Kingston, R. I. She is survived by six elderly grandchildren and fifteen great grandchildren.

A Living Centenarian.—Richard K. Powers, of Lancaster, Mass., is said to have been born in November, 1810.

New England Peabody Home for Crippled Children.—The nineteenth annual meeting of the directors of the New England Peabody Home for Crippled Children was held last week in Boston. Addresses were made by Dr. Robert W. Lovett and Dr. Robert Soutter. The receipts of the institution for the past year were $13,594 and the expenses $12,940, of which $2000 were spent for permanent improvements on the buildings. There are at present 31 inmates in the Home.

New Building for Winchester Hospital.—At a meeting of the Winchester (Mass.) Visiting Nurse Association, held in that town last week, it was voted to purchase a lot of land for the erection of a new hospital building, which it is expected will be completed in a year and a half.

Receipts for Massachusetts Babies' Hospital.—The net receipts of the sale held recently for the benefit of the Massachusetts Babies' Hospital amounted to $2600. This was unfortunately less than the sum realized at the sale last year, when $4000 were obtained.

Boston Association for the Relief and Control of Tuberculosis.—The tenth annual meeting of the Boston Association for the Relief and Control of Tuberculosis was held in this city on Tuesday of last week, Nov. 25. Dr. Livingston Farrand, of New York, secretary of the National Association for the Study and Prevention of Tuberculosis, delivered an address on "Recent Developments in the Tuberculosis Campaign." Mr. Seymour H. Stone, in his annual report as executive secretary of the Boston Association, emphasized particularly the value and importance of open-air schools. During the past year, the Prendergast Camp, maintained by the Association, has cared for 71 patients, at a cost of $5600.

Opium Raid in Portland.—Report from Portland, Me., states that on Nov. 21 federal customs inspectors raided the premises of a local Chinese merchant and seized several thousand dollar's worth of opium, pipes, and smoking paraphernalia.

NEW YORK.

Opening of Sea View Hospital.—The new Sea View Hospital, of the Department of Public Charities, said to be the largest and finest tuberculosis hospital or sanatorium in the world, was formally opened on Nov. 12. Commissioner of Charities Drummond presided at the exercises, and among those who spoke were ex-Commissioner Homer Folks and Frank H. Mann, chairman of the committee on tuberculosis of the Charity Organization Society. The hospital is situated on the south shore of Staten Island, in the borough of Richmond, and occupies the crest of the highest point on the Atlantic coast between Maine and Virginia. Its construction was commenced nearly eight years ago, and

when entirely completed it will have cost over $4,000,000, and will accommodate some 1,100 patients. At present, fifteen of the twenty buildings of the institution are ready for use, and it is expected that within a few weeks 1000 patients will be under treatment. The completed structures, of Spanish mission architecture, include eight ward buildings, an administration building, surgical building, pathological building, physical therapeutics building, a fine chapel, and a "commons" building. In the course of his remarks at the dedication Mr. Mann said: "If all the dangerous advanced cases of tuberculosis could be treated in hospitals two results would follow: First, the greatest danger of infection to the community would be removed, and, second, the health department and the tuberculosis dispensaries would be able to maintain an effective control of the remainder by concentrating their energies upon the more hopeful cases. . . Many of these consumptives whom we speak of as self-respecting, are a little too far advanced to be admitted to our sanatoriums, and, being unwilling to mingle with the vagrant element, they are not properly cared for in our hospitals. To me Sea View Hospital arises as a new type of institution, having the main features of both the hospital and the sanatorium. We might, perhaps, properly call it a hospital-sanatorium. I say it has been opened at the right time, because we are now fully aroused to the need of this social classification. I say it has been built at the right place, because it is both in the city and in the country, and is near enough to the homes of the people to make it easy for them to visit their friends and relatives." The superintendent of the hospital is Dr. Edward S. McSweeny, and on the resident medical staff are Drs. J. J. Donnelly, F. I. Herbig, and E. D. Hubbell.

TWO CENTENARIANS.—Mrs. Charlotte Campbell of Vineland, N. J., died on Nov. 16, at the reputed age of 104 years. She was the mother of ten children, four of whom survive her. Mrs. Campbell was born at Monmouth, Atlantic County, and had never been out of the state of New Jersey.

Joseph Jackson, a negro inmate of the State Hospital, at Binghamton, N. Y., who died there on Nov. 25, is said to have been born a slave on a plantation near Charleston, S. C., in 1800. He served throughout the Civil War in the Confederate Army.

HEALTH OF THE CITY IN 1913.—The best yardstick for measurement of the health of the community is the complete reporting of all cases of sickness, but as such an ideal condition of registering morbidity does not exist, it is necessary to rely upon the number of cases of infectious diseases as reported and upon the number of deaths reported from the various diseases.

The year 1913 gives promise of being the healthiest year in the entire experience of New York City as gauged by the general death-rate, which for the first forty-seven weeks of the year was 13.71 per 1000 of the population. The next lowest rate was that of the previous year, 1912, in which the death-rate for the same period was 14.07, a decrease in the rate of .36 of a point, which translated into absolute figures means that there will be in the neighborhood of 1900 fewer deaths reported during the present year than in 1912. The autumn season this year has been very free from sickness as judged by the number of cases of infectious diseases reported. During the past seven weeks there were 2602 cases of pulmonary tuberculosis reported as against 2002 in the corresponding period of 1912, a decrease of seven per cent.

EDEBOHL'S OPERATION FOR MERCURIAL POISONING.—An unauthenticated press report on Nov. 24 states that Edebohl's operation of renal decapsulation has recently been performed in the treatment of mercurial poisoning upon four women in this city, two at Fordham Hospital, one at Lebanon Hospital, and one at Smith Infirmary, New Brighton. One of the patients at Fordham Hospital has died; the others are said to be recovering.

REGISTRATION AT COLUMBIA UNIVERSITY.—The final registration figures at Columbia University, with all corrections for duplicate enrollment made, show a total of 13,229 students for the present season. In the medical department there are 341, and in the college of pharmacy, 441.

SEASIDE HOSPITAL OF ST. JOHN'S GUILD.—The winter service of the Seaside Hospital of St. John's Guild, at New Dorp, Staten Island, which is now to be kept open during the entire year, is especially for women, children and infants during convalescence. The wards are for heart and orthopedic cases, women convalescing after maternity, acute cases of non-contagious

lisease, and general convalescing cases. It is ppreciated that a large proportion of the in- alidism of the women and children of the poor s due to lack of proper care during convales- ence, and hence it is believed that this service, ith its excellent equipment and the advantage f air direct from the sea, will save much suffer- ng, as well as give the children a better chance o attain healthful maturity.

OPERATING IN CASES OF CORROSIVE SUBLIMATE POISONING.—During the past few weeks opera- ions upon the kidneys, in the hope of saving ases of poisoning by corrosive sublimate, have een undertaken by surgeons in New York in ve instances, and while three of the patients ave succumbed, the other two are now believed o be out of danger.

FIRE AT PHILANTHROPIC HOSPITAL.—When, ne day recently, fire was discovered in a store- oom at the Philanthropic Hospital, on upper ifth Avenue, the regular fire drill of the insti- ution was promptly executed. Fire escape loors were opened, stretchers were carried to he bedsides of all patients unable to walk, and hysicians and nurses took up the work of avert- ng panic. There was little excitement among he patients, and fortunately the blaze was read- ly extinguished.

Current Literature

MEDICAL RECORD.

NOVEMBER 15, 1913.

1. KNOPF, S. A. *Rest and Exercise for the Tuberculous and the Predisposed Child at School, with Practical Demonstrations of Breathing Exercises and a Device Combining Open-Air Study and the Window Tent.*
2. VAN PELT, J. V. *The Architecture of Open-Air Schools.*
3. CROTHERS, T. D. *Premonitory Aurae in Inebriety —a Study of Some Special Symptoms.*
4. *SWAN, W. H. *Cases of Tumor of the Lungs and Mediastinum Simulating Pulmonary Tuberculosis.*
5. CUNNINGHAM, W. P. *Pruritus Ani Pertinax.*
6. EBERSOLE, R. E. *The Value of Typhoid Vaccination in Civil Communities.*
7. WILENSKY, A. L. *Transplantation of Bone for Flail Joint Produced by Inflammatory Destruction of Joint.*
8. BISHKOW, I. E. *A Diphtheria Carrier Treated with Culture of Staphylococcus Pyogenes Aureus.*
9. DELATOUR, H. B. *A New Colostomy Apparatus.*
10. REICH, A. *Perineorrhaphy Retractor.*

4. Swan believes that intrathoracic tumors are ore frequent than generally supposed. Early differentiation from phthisis is often impossible, especially as the two conditions may co-exist. Doubtful cases should be given the benefit of all hygienic treatment for tuberculosis, pending diagnosis. [L. D. C.]

NEW YORK MEDICAL JOURNAL.

NOVEMBER 8, 1913.

1. *BABCOCK, W. W. *The Dangers and Disadvantages of Spinal Anesthesia.*
2. WRIGHT, A. H. *Preventive Medicine and the Family Doctor.*
3. BEHAN, R. J. *Surgical Experiences During the Last Servian-Bulgarian War.*
4. SKILLERN, P. G. *A Case of Fracture of Pelvis in a Child Aged Seven.*
5. MAGRUDER, E. P. *Infantile Paralysis.*
6. SOLOMON, M. *If Certain Conclusions of the Freudian School Were True.*
7. CRAMPTON, C. W. *Blood Ptosis.*
8. PULLEY, W. J. *The Reflex or Protective Phenomena of Angina Pectoris.*
9. STERLING, A. *Supplementary or Accessory Placenta.*

1. Babcock discusses the disadvantages and dangers of spinal anesthesia. In the hands of unskilled or careless anesthetists it is undoubtedly much more dangerous than ether, he says. Danger symptoms are apt to follow if the patient is moved immediately after the injection or if the proper posture to prevent the anesthetic from reaching the upper nerve roots is not maintained for at least half an hour. Spinal anesthesia is dangerous in circulatory hypotension, whether due to shock, myocardial insufficiency or some other cause, also in any conditions greatly depressing the respiratory centers. It is very dangerous in cases of large intrathoracic effusion. It is more dangerous for operations upon the upper abdomen than those upon the lower. On the whole, the use of spinal anesthesia should be restricted to carefully selected patients. [L. D. C.]

NOVEMBER 15, 1913.

1. HOLMES, B. *The Family Substance and the Theory of Coincident Disease in Blood Relations.*
2. NASCHER, I. L. *The Medical Care of the Aged.*
3. FRINK, H. W. *The Sexual Theories Formed in Early Childhood, and Their Rôle in the Psychoneuroses.*
4. BRV, A. *Ocular Vertigo.*
5. CUNNINGHAM, W. P. *Vincula Practeritorum.*
6. JACKSON, J. A. *Laboratory Studies of the Manic Depressive Group.*
7. TOMPKINS, H. E. *Charity: Some Thoughts on Its Use and Abuse.*
8. BURROWS, E. C. *Blood Letting Apparatus.*
9. JUNOR, K. F. *Clinical Observations on Cancer; Its Treatment and Cure by Chemicals Alone.*
10. *CHAPIN, C. V. *The Air as a Vehicle of Infection.*

10. Chapin writes a striking paper dealing with the spread of infections. He takes up the common infectious diseases, one by one, and tells why he does not consider them air-borne but carried by contact. For tuberculosis alone, he says, is there valid evidence in favor of possible air transmission. Dust is not a factor of very great importance. [L. D. C.]

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

NOVEMBER 15, 1913.

1. VAUGHAN, V. C. *The Protein Poison and Its Relation to Disease.*
2. MCCLEAVE, T. C. *Acute Acid Intoxication in Children.*

3. RUCKER, W. C. *Legal Aspect of the Federal Protection of the Public Health.*
4. WOOD, H. B. *The Need of Whole-Time Health Officers.*
5. RIDLON, J. *Osteochondritis Dissecans.*
6. *NUTT, J. J. *Results of Bone Plastic and Graft Operations on the Spine for the Cure of Pott's Disease.*
7. *TAYLOR, H. L. *Charcot Joints as an Initial or Early Symptom in Tabes Dorsalis.*
8. CASSELBERRY, W. E. *The Recognition of Early Changes in the Larynx in Tuberculosis.*
9. PHILLIPS, C. E. *Autoplastic Operation to Cover Stump Subsequent to Amputations of Leg or Thigh.*
10. *SMITHIES, F. *The Significance of Gastric Ulcer with Respect to Gastric Cancer. A Study of Five Hundred and Sixty-Six Consecutive Operatively and Pathologically Demonstrated Cases of Cancer of the Stomach.*
11. WALSH, J. J. *The Medicine of Our Forefathers.*
12. BUNTING, C. H., AND YATES, J. L. *An Etiologic Study of Hodgkin's Disease. Preliminary Note.*
13. LONG, J. H. *Who is Responsible? The Position of Chemistry in Medical Education.*
14. MORREY, C. B. *Vaccination with Mixed Cultures from the Nose in Hay Fever.*
15. PATTERSON, J. F. *The Cerebral Form of Pernicious Malaria.*
16. BRADBURY, S. *Case of Stab Wound of the Heart. Operation and Recovery.*
17. STEINHARDT, E. *A Preliminary Note on Spirochaeta Pallida and Living Tissue Cells in Vitro.*
18. BRADY, J. M. *The Preparation of Albumin Milk in the Home.*
19. PETTY, O. H. *A Case of Aneurysm of Aorta Rupturing into the Vena Cava.*

6. Nutt does not believe that the claims made for the bone graft operation in the cure of spinal Pott's disease have been substantiated. The fault is not in the operation itself but in the false sense of security which is liable to produce a neglect of other necessary therapeutic measures.

7. Taylor finds that Charcot's joints and spontaneous fractures are often the initial or early symptoms of tabes dorsalis. They often precede the ataxic gait and are of diagnostic importance in calling attention to the underlying condition. They are often of traumatic origin. Orthopedic treatment is very satisfactory when fixation or hinged braces are used.

10. Smithies, analyzing 566 cases of gastric disease, finds that many cases of gastric cancer reveal a pre-cancerous history which at any stage prior to the terminal period of malignancy satisfies the clinical symptom complex of chronic gastric ulcer; 41.8 per cent. of proved cancer cases presented early symptoms of gastric ulcer. [E. H. R.]

THE JOURNAL OF EXPERIMENTAL MEDICINE.

OCTOBER 1, 1913.

1. UNDERHILL, F. P., WELLS, H. G., AND GOLDSCHMIDT, S. *A Note on the Fate of Tartrates in the Body.*
2. UNDERHILL, F. P., WELLS, H. G., AND GOLDSCHMIDT, S. *Tartrate Nephritis, with Especial Reference to Some of the Conditions under Which It May be Produced.*
3. UNDERHILL, F. P., WELLS, H. G., AND GOLDSCHMIDT, S. *A Study of Renal Secretions During Tartrate Nephritis.*
4. STEWART, G. N. *Studies on the Circulation in Man. Blood Flow in the Feet.*
5. STEWART, G. N. *Studies on the Circulation in Man. The Blood Flow in the Feet with Special Reference to Fever.*
6. WEIL, R. *A Study of the Blood in Rats Recovered from Implanted Sarcoma.*
7. LEVIN, I. *The Mechanisms of Metastasis Formation in Experimental Cancer.*
8. LAMBERT, R. A. *The Influence of Temperature and Fluid Medium on the Survival of Embryonic Tissues in Vitro.*
9. INGEBRIGTSEN, R. *Regeneration of Axis Cylinders in Vitro.*
10. ROUS, P. *Resistance to a Tumor-Producing Agent as Distinct from Resistance to the Implanted Tumor Cells.*
11. *ELLIS, A. W. M., AND SWIFT, H. F. *The Effect of Intraspinous Injections of Salvarsan and Neosalvarsan in Monkeys.*
12. *SWIFT, H. F., AND ELLIS, A. W. M. *A Study of the Spirocheticidal Action of the Serum of Patients Treated with Salvarsan.*
13. AUER, J., AND ROBINSON, G. C. *An Electrocardiographic Study of the Anaphylactic Rabbit.*
14. *FLEXNER, S., AND NOGUCHI, H. *Experiments on the Cultivation of the Micro-organism Causing Epidemic Poliomyelitis.*

11. Ellis and Swift found that the intraspinous injection of even small quantities of salvarsan was very irritating to monkeys. Injections of neosalvarsan produced a similar but less marked irritation.

12. Swift and Ellis were able to demonstrate a definite spirocheticidal action of the serum of rabbits and patients treated intravenously with salvarsan against the spirocheta duttoni.

14. Flexner and Noguchi describe in detail the cultivation of the micro-organism which apparently causes epidemic poliomyelitis. The micro-organism which passes through Berkefeld filters consists of minute globoid bodies and is arranged in pairs, chains and masses. The micro-organism is also detected in film preparations. The article is accompanied by illustrative plates. [R. I. L.

BRITISH MEDICAL JOURNAL.

OCTOBER 18, 1913.

1. PAWLOW, I. *An Address on the Investigations of the Higher Nervous Functions.*
2. BUTLER, T. H. *"Struma" an Important Factor in Disease of the Eyes.*
3. MACCORDICK, A. H. *On the Rigidity of Calcified Arteries.*
4. MACEWEN, J. A. C. *A Second Case of Double Loop Hernia.*

REPORT TO THE THERAPEUTIC SUB-COMMITTEE OF THE BRITISH MEDICAL ASSOCIATION.

5. WELD, R. B. *Part II. On Certain Non-Official Fats as Ointment Bases. Part III. On Soft Paraffin as an Ointment Basis.*

BRITISH MEDICAL ASSOCIATION.

SECTION OF GYNECOLOGY AND OBSTETRICS.

6. SANDERSON, R. *Introductory Remarks.*
7. SCHARBER, M., ET AL. *Discussion on the Best Methods of Dealing with Malpositions of the Uterus, Especially with Reference to Retroversion Displacements and Prolapse.*
8. *CROOM, H., ET AL. *Discussion on Affections of the Urinary Tract Complicating Pregnancy.*
9. *GILES, A. E. *A Plea for Early Operation in Cases of Uterine Fibroids.*
10. JONIDES, T. H. *General Peritonitis Due to the Vermiform Appendix and Complicating Pregnancy.*
11. DICKINSON, R. L. *Clinical Travel.*
12. MCILROY, A. L., WATSON, H. F., AND MCILROY, J. H. *The Significance of the Wassermann Reaction in Gynecological Diagnosis, with Special Reference to Uterine Hemorrhage.*

13. Schlimpert, H. *Abderhalden's Serum Reaction of Pregnancy.*

SECTION OF DERMATOLOGY.

14. Meachen, G. N. *Treatment of Cutaneous Tuberculosis by Means of Copper.*
15. Bunch, J. L. *The Treatment of Skin Affections by Solid Carbon Dioxide.*
16. Walsh, D. *Circulatory Disorders in Relation to Alopecia Areata and Other Forms of Baldness.*
17. Gardiner, F. *An Unusual Case of Acne Necrotica.*
18. Davis, H. *Some Remarks on Ointments.*
19. Williams, A. W. *Treatment of Chronic Ulcer of Leg.*
20. Dore, S. E. *The Use, Action and Dosage of X-rays in Psoriasis and Other Skin Diseases.*
21. Hobson, L. J. *Treatment of Common Skin Diseases at the Harrogate Spa.*

8. Croom discusses in detail various affections of the urinary tract in pregnancy and takes up the questions as to whether an albuminuria which is the result of a chronic nephritis can be distinguished from an albuminuria due to a pregnancy toxemia and also in a case of chronic nephritis whether we can tell when pregnancy toxemia has been grafted onto the old kidney lesion. In addition to these questions he considers diabetes in pregnancy, glycosuria, hematuria and pyelitis. Williamson takes up in detail the question of pyelonephritis in pregnancy, discussing the route of infection, symptoms and treatment. There is much of value in this article and the discussion on it.

9. Giles presents in tabular form much material to support his view that the early operation of uterine fibroids in many cases allows conservative measures, which if neglected will eventually lead to the sacrificing of the uterus. [J. B. H.]

Münchener Medizinische Wochenschrift.

No. 43. October 28, 1913.

1. Abderhalden, E. *Remarks on the Specificity of Cells of the Various Organs and a New Biological Law.*
2. Leva, J. *Bodily Manifestations of Psychical Disturbances with Special Relation to Psycho-Galvanic Reflex.*
3. Gildemeister, M. *The Physico-Chemical and Physiological Factors on Which the Psycho-Galvanic Reflex Depends.*
4. Gennerich. *Syphilitic Re-infection after Salvarsan Treatment in Relation to the Biology of Human Syphilis.*
5. *Berger, F. *Statistical and Clinical Studies on the Salvarsan Treatment of Syphilis.*
6. Leo, H. *The Therapeutic Use of Camphor.*
7. Kolb, K. *The End Results of Suturing the Pylorus with Fascia, Ligament of the Liver or Omentum According to the Method of Wilms Instead of by Unilateral Occlusion of the Pylorus.*
8. Huismans, L. *The Telecardiograph, a Substitute for the Orthodiagraph.*
9. *Schuster. *Traumatic Secondary Apoplexy.*
9. Lengnick, H. *The Operation for Prolapse of the Rectum in Children.*
1. Mathes, P. *The Technic of Intra-Uterine Injections.*
2. Reusch, W. *A Simple and Cheap Fermentation Saccharometer.*
3. Hartmann, J. *Tuberculin Treatment of Ambulant Cases.*
4. Sudhoff. *Viktor Fossel.*
5. Toff, E. *Workman's Insurance in Roumania.*
6. Nassauer, M. *The High School for Physicians and Patients.*

5. During the past three years Berger has treated a large series of cases of syphilis by combined salvarsan and mercury. Two injections of salvarsan were given at two-week intervals and five grams of mercury daily in the form of inunction until 120-150 grams had been used. Berger's statistics run over a period of from 16-22 months.

In primary syphilis all cases so treated remained free from secondary manifestations and maintained a negative Wassermann reaction. Over 90% of the secondary syphilis cases were free from later clinical signs of the disease. Of the cases in which treatment was begun in less than a year after the initial infection, 61% continued to have negative Wassermann reactions, and of the cases in which treatment was begun more than a year after the initial infection 58% had persistently negative Wassermann reactions.

Berger concludes that such a combination of mercury and salvarsan offers an abortive means of treatment for the disease, that in secondary lues the danger of relapse is reduced to a minimum, and that 60% of all cases can be cured. Nevertheless, Berger advocates an intermittent after-cure during the first five years unless the Wassermann reaction remains negative, even after provocative reactions.

9. Bollinger has reported as cases of late or secondary apoplexy, those which received a traumatic injury able to produce cerebral or vascular lesions, followed after an interval of from one week to nine months by cerebral hemorrhage.

Schuster quotes a case of a man eighteen years old with a cerebral injury without localizing signs who developed symptoms of cerebral hemorrhage five weeks later. Schuster concludes that in this case the hemorrhage occurred as a consequence of necrosis with secondary vascular degeneration in an area whose resistance was lowered by trauma according to the idea of Bollinger, or was due to a primary direct or indirect vascular injury in that vicinity occurring at the time of the accident. [R. F.]

Deutsche Medizinische Wochenschrift.

No. 35. August 28, 1913.

1. Rotter, J. *Radical Operation for Primary Carcinoma of the Lung.*
2. Kassowitz, K. *Nervous Symptoms in Rachitis.*
3. Jastrowitz, H. *Typhoid and Measles.*
3. Freund, P. *Increased Glycuronic Acid Elimination in Tetany in Infants.*
6. Molnar, B. *Respiratory Changes in the Percussion Note over the Lungs, and Its Significance.*
6. Martini, E. *Human Blood Serum as a Culture Medium for Diphtheria Bacilli.*
7. Schereschewsky, J. *Experimental Immunization with Spirochaeta Pallida.*
8. Zweifel, E. *Attempted Criminal Abortion in the Absence of Pregnancy.*
9. Stoffel, A., and Stoffel, E. *Tendon Transplantation.*
10. Hausmann, T. *Formaldehyd in the Urobilin Reaction.*
11. Hesse, P. *Advantages of Combining the Tuberculosis and Inebriety Sanatoria.*
12. Heimann, G. *Inheritability of Acquired Properties.*

No. 36. September 4, 1913.

1. Kromayer, E. *Cosmetic Dermatology.*
2. Kassowitz, M. *Phosphorous—Cod Liver Oil in Rachitis.*
3. Pinkuss, A. *Radiotherapy of Cancer.*
4. Freund. *Partial Operation for Myoma.*
5. Mattko, J. *Behavior of Duodenal Contents in Icterus, and Duodenal Processes.*
6. Herxheimer, K. *Changes in Skin Eruptions.*
7. Liefmann, H. *High Infant Mortality in Hot Weather in the Spring.*
8. Grabley, P. *The Nature of Physiologic Stimulus.*

DEUTSCHES ARCHIV FÜR KLINISCHE MEDIZIN.

SEPTEMBER 4, 1913.

1. NICOL, K. *Growth of Myeloblastic Elements (Diffuse Myeloblastosis?) in the Retroperitoneal Lymph Glands in a Case of Pernicious Anemia.*
2. SNAPPER, J. *Relation Between Functions of the Kidneys and Chlorine Retention in Febrile Diseases.*
3. SNAPPER, J. *A Change in Permeability of the Cells as a Cause of Chlorine Retention in Febrile Diseases.*
4. HERTZ, R., AND URETOWSKI, T. *A Case of Generalized Lymph Gland Swelling of a Lymphatic, Endothelial, Connective Tissue Nature. Also a Study of Malignant Granulomata.*
5. REINHARDT, R. *Breathing in Heart Disease.*
6. *FISCHLER, F., AND KOSSOW, H. *Preliminary Communication on the Place of Origin of Acetone Bodies and Experiments with Chlorridzin on the Partially Excluded Liver, Besides a Few Critical Remarks on the So-called Flesh Intoxications with Eck's Fistula in Dogs.*
7. v. JAKSCH, R. *Clinical Essay on the Knowledge of Lymphatic Granulomata.*
8. *WEITZ, W. *Experimental Study on the Changes of the Electrocardiogram in Changes of the Heart's Work.*
9. BITTORF, A. *Curable Acute Hepatitis.*

6. Fischler and Kossow have taken up the question of the origin of the acetone bodies in the body. They start their article with a brief but apparently quite thorough resumé of the work on this subject up to the present time. Then they proceed with experimental work to show the part the liver plays in the production of these bodies. For this purpose they have employed the Eck fistula. They feel that the acetone bodies and oxybutyric acid are formed in the liver to a great measure because with partial exclusion of the liver few are formed and with reversing the Eck fistula and putting more blood through the liver an excess is formed. They also report upon the intoxications from proteid and anaphylactic phenomena and their relation to the Eck fistula.

8. Weitz here reports on the changes in the electrocardiac tracings produced by different experiments in rabbits upon the heart, involving so far as possible the amount of work the heart does and its relation to the amount of blood in the heart at the time. The article seems very thorough and is too long to review properly. It contains 87 excellent reproductions of tracings. His conclusions, in brief, are that the amount of blood probably affects the size of the P-wave and the force of contraction surely does. Both affect the size of the T-wave.

[C. F., JR.]

ARCHIV FÜR KLINISCHE CHIRURGIE.

VOL. 102. PART ONE.

1. REHN, L. *Experimenal Pathology of the Pericardium.*
2. REHN, E. *Clinical Experience with Free Tendon Transplantation.*
3. KÜTTNER, H. *Some Late Results of Transplantation from the Human Body and from the Monkey.*
4. JIANER, I. *The Question of Transplantation.*
5. *NORDMANN, O. *Experimental and Clinical Observations on the Relation of Acute Pancreatitis to Diseases of the Bile Ducts.*
6. AXHAUSEN, G. *Experimental Free Transplantation of Mucous Membrane.*
7. KEMPF, F. *Traumatic Brain Abscess, Its Complication by Extradural Abscess, and a Method of Plastic Closure of the Operative Defect in the Skull.*
8. KAUSCH, W. *Collargol.*
9. VON WRZESNIOWSKI, W. *Operation and Open Treatment for Purulent Fistulous Joint Tuberculosis.*
10. SCHLOESSMANN. *What Practical Value Has the Determination of Coagulation Time of the Blood in Surgery?*
11. LERDA, G. *A Case of Remarkably Rapidly-growing Tumors of the Testicle after Hernia Operation.*
12. VON OETTINGEN, W. *Infection in War.*
13. WOLFSOHN, G. *The Serodiagnosis of Carcinoma.*
14. NEUBER, C. E. *Tumors of the Carotid Gland.*
15. HINTERSTOISSER, H. *A Case of Congenital Partial Gigantism.*
16. JEGER, E., AND UNGER, E. *Technic of Blood Vessel Surgery.*

5. Nordmann produced acute pancreatitis in dogs by the ligation of pancreatic ducts and bile ducts, and the introduction of bacteria into the gall bladder. He thus proved that pancreatitis can be caused by the passage of bacteria through the walls of the common duct and their subsequent infection of the stagnant pancreatic juice, as well as by the backing up of infected bile into the pancreas. In eight cases of acute pancreatitis seen by him since 1906, Nordmann obtained a history of gall-stone colic in six. He therefore considers the history of previous attacks of biliary colic very helpful in making a diagnosis of pancreatitis. In cases with hemorrhagic infarct of the gland, the prognosis is extremely bad. In those with swelling alone, it is better, and in those with abscess formation, it is fairly good. He advises early operation, decapsulation of the pancreas, free drainage of the omental bursa, and cholecystostomy or choledochostomy.

[G. G. S.]

DIE THERAPIE DER GEGENWART.

OCTOBER, 1912.

1. *KLEMPERER, F. *Tubercle Bacilli in the Circulating Blood.*
2. ROLLY, F. *The Practical Application of the Results of Recent Researches in the Field of Serum Therapy.*
3. WOLFF, A. *Ileus in Diseases of the Pancreas.*
4. TREBING, J. *Thigenol in Gynecology.*
5. KROMAYER, E. *The Causes and Treatment of Ordinary Alopecia (Pityriasis Capitis).*

1. Klemperer searched for tubercle bacilli in the circulating blood of patients with tuberculosis and of normal individuals (as controls). He found them constantly present in phthisical persons, even when the process was inactive, also in cases where the site of the tuberculous infection was not the lungs. The diagnosis of pulmonary tuberculosis, therefore, cannot be made on the demonstration of tubercle bacillaemia alone. Bacillaemia has no prognostic importance, for it may occur in the mildest cases as well as in the most severe.

[L. D. C.]

NOVEMBER, 1912.

1. WECHSELMANN, W. *The Present Status of the Salvarsan Treatment of Syphilis.*
2. SCHLESINGER, H. *My Experience with Acute Basedow's Disease.*
3. ROLLY, F. *The Practical Application of the Results of Recent Researches in the Field of Serum Therapy (Concluded).*
4. PERTHES, G. *The Treatment of Bone and Joint Tuberculosis.*
5. VON STALEWSKI. *The Use of Opiates, Especially Narcophin, in General Practice.*
6. LEWIN, C. *Kalmopyrin, the Soluble Calcium Salt of Acetyl-Salicylic Acid.*

Miscellany.

ANTIMENINGITIS SERUM.

It is announced that the State Board of Health of Massachusetts is prepared to furnish free to physicians and citizens of the Commonwealth, in a manner similar to that employed with diphtheria antitoxin, a curative serum for use in cases of cerebro-spinal meningitis. This antimeningitis serum is obtained from the horse after prolonged treatment with a number of strains of the diplococcus of meningitis. It is of no service in other infectious diseases. It is administered subdurally and not by the subcutaneous or intravenous route. It is urged, furthermore, that whenever a reliable microscopic examination of the cerebro-spinal fluid withdrawn cannot be made at once, the fluid should be sent to the nearest accessible laboratory, or to the laboratory of the State Board of Health. The specific diplococci disappear rapidly from the fluid and may not be found later than six hours after withdrawal from the spinal canal.

"1. When lumbar puncture (in fourth lumbar space, or higher if necessary) is performed in a suspicious case, be prepared to inject the serum. If the cerebro-spinal fluid withdrawn is cloudy make the injection of serum immediately and without waiting for a bacteriological examination. The subsequent doses of the serum are to be given only if the *Diplococcus intracellularis* has been demonstrated.

"2. Always withdraw as much cerebro-spinal fluid as possible at each puncture and inject full doses of the serum. Thirty cubic centimeters of serum should be injected in every instance in which this quantity of fluid or less has been removed, unless a distinctly abnormal sense of resistance in the spinal canal is encountered after as much serum has been injected as fluid has been removed. When the amount of fluid withdrawn exceeds 30 cubic centimeters introduce a large quantity of serum—up to 45 cubic centimeters, or even more. In the very severe or fulminating cases inject from 30 to 45 cubic centimeters of serum without reference to the quantity of fluid removed unless abnormal resistance is encountered.

"3. In very severe or fulminating cases repeat the injection of serum within the first twenty-four hour period, as soon as the symptoms intensify, or, where the condition remains stationary, after the lapse of the first twelve hours.

"4. In cases of average severity make daily injections of full doses for four days. If diplococci persist after the fourth dose, continue the injections until they have disappeared.

"5. If the subjective symptoms, including fever and mental impairment, persist after the diplococci have disappeared or after the four doses have been given, and improvement is not progressing, wait four days, if the condition is stationary, and then repeat the four injections. Should the symptoms have become worse before the expiration of this period, the injections should be resumed immediately.

"6. In relapse which is indicated either by reappearance of the diplococci in the cerebro-spinal fluid or recrudescence of the symptoms, the four doses at twenty-four hour intervals are to be repeated and the subsequent treatment is to be conducted as for the original attack.

7. This plan of treatment is to be followed until the patient is free of symptoms, the diplococci disappear from the cerebro-spinal fluid, or the chronic stage of the disease supervenes. The serum has proven of some benefit in the chronic stages in which the diplococci are still present in the meninges. When the condition of hydrocephalus has been established the injection of serum into the spinal canal offers little of value. It is possible that direct intraventricular injections may be of benefit in this condition."*

* From directions issued by the Rockefeller Institute, New York (abstracted from paper by Charles Hunter Dunn, M.D., Boston Med. and Surg. Jour., 1908).

Correspondence.

HYDROPHOBIA AS AN OCCUPATION DISEASE.

New York, Nov. 25, 1913.

Mr. Editor: The theory, to which a correspondent refers (November 20) that hydrophobia should be treated as an occupation disease is, so far as we are aware, comparatively novel in medical literature. The moral and psychological side of the disease has, however, been the theme of a few interesting speculations, notably by Italian and Russian writers. Their method is statistical rather than biological, and they reach their results by surveying the whole subject with the rules of analysis and mensuration. Thus, to Ferrannini and Pieracini, hydrophobia is most common among the poor, among the hardworking classes who undergo much, both of labor and hardship.[1] Such is also the view of Palmirski, who took pains to trace the subsequent histories of those who came to him for treatment, and of those who, untreated, died of hydrophobia.[2] On the other hand, hydrophobia does not seem common, as Babes[3] informs us, among the members of Pasteur Institutes, nor among those whose profession it is to handle animals

It is, however, unquestionable that hydrophobia is relatively frequent among the broken-down, the very poor, "gli infortuni" as Ferrannini calls them. The writer of this article has seen the fact confirmed in the experience of a large general hospital, especially selected for the treatment of people bitten. Of 2000 cases, certainly 1975 belong to the poorer classes. It may be answered that such reasoning is not conclusive, because there are more poor than rich in the world, and that the poor are more likely to be bitten by rabid and by stray dogs. Undoubtedly such is the case with poor children who play in the streets. But the reasons of the occurrence of hydrophobia among the unfortunate are both social and biological. Hard-

[1] Ferrannini: La rabbia in patologia del lavoro, Medicina d'infortuni, 1910, vol. iii, p. 130.
Pieracini: L'infezione rabica considerata come malattia di classe professionale, Ramazzini, 1910, vol. iv, p. 83.
[2] Palmirski: Results of Preventive Vaccination, Gazet. lek., 1910.
[3] Babes: Traité de la rage.

ship, cold, moisture, sudden changes of temperature, are social and elemental causes; these predispose but they also *sensitize*. Hence a man, who has undergone Pasteur vaccination, has suddenly developed hydrophobia after some excess, or some exposure to cold and wet. Such cases occur every now and then in the experience of experts. Fright, particularly that caused by a dog, is an occasional sensitizer. Babes and others have reported instances, and the writer has seen more than one. Bad food which, according to Marchialis,[4] delays the incubation of hydrophobia, may make the immunity more difficult to attain, or the immunity once established may wear out before the disease or infection. Mental stress goes to swell the mortality, a fact which Ferrannini and Pieracini as psychologists, dwell upon with due seriousness. In the matter of profession or occupation, hydrophobia seems to find no especial place, though the Italian writers whom we quote have tried to establish such a connection by figures. Their standpoint is difficult to define. The proposition that certain trades or professions furnish more cases than others hardly bears a very close scrutiny. To associate hydrophobia with classes seems as far-fetched as to associate drink and debauchery with classes.

Truly yours,

PAUL BARTHOLOW, A.B. (Harv.), M.D.

[4] Marchialis: Gazetta degli ospedali, 1913, p. 425.

ARMY MEDICAL CORPS EXAMINATIONS.

The Surgeon-General of the Army announces that preliminary examinations for appointment of First Lieutenants in the Army Medical Corps will be held on January 19, 1914, at points to be hereafter designated.

Full information concerning these examinations can be procured upon application to the "Surgeon-General, U. S. Army, Washington, D. C." The essential requirements to secure an invitation are that the applicant shall be a citizen of the United States, shall be between 22 and 30 years of age, a graduate of a medical school legally authorized to confer the degree of Doctor of Medicine, shall be of good moral character and habits, and shall have had at least one year's hospital training as an interne, after graduation. The examinations will be held simultaneously throughout the country at points where boards can be convened. Due consideration will be given to localities from which applications are received, in order to lessen the travelling expenses of applicants as much as possible.

In order to perfect all necessary arrangements for the examinations, applications must be completed and in possession of the Adjutant-General at least three weeks before the date of examination. Early attention is therefore enjoined upon all intending applicants. There are at present twenty-six vacancies in the Medical Corps of the Army.

EXAMINATION OF CANDIDATES FOR ASSISTANT SURGEON.

TREASURY DEPARTMENT.
UNITED STATES PUBLIC HEALTH SERVICE.

Boards of commissioned medical officers will be convened to meet at the Bureau of Public Health Service, 3 B Street, S.E., Washington, D. C., and at the Marine Hospitals of Boston, Mass.; Chicago, Ill.; St. Louis, Mo.; New Orleans, La.; and San Francisco, Cal., on Monday, January 12, 1914, at 10 o'clock A.M., for the purpose of examining candidates for admission to the grade of assistant surgeon in the Public Health Service, when applications for examination at these stations are received in the Bureau.

Candidates must be between 23 and 32 years of age, graduates of a reputable medical college, and must furnish testimonials from two responsible persons as to their professional and moral character. Service in hospitals for the insane or experience in the detection of mental diseases will be considered and credit given in the examination. Candidates must have had one year's hospital experience or two years' professional work.

For invitation to appear before the board of examiners, address "Surgeon-General, Public Health Service, Washington, D. C."

SOCIETY NOTICES.

WORCESTER DISTRICT MEDICAL SOCIETY.—The regular meeting of the Worcester District Medical Society will be held in G. A. R. Memorial Hall, Worcester, Dec. 10, at 4 p.m.

MIDDLESEX SOUTH DISTRICT MEDICAL SOCIETY.—A special meeting of the Middlesex South District Medical Society will be held Dec. 11, at 12 o'clock, at the Boston Medical Library. The following papers will be read:—

DR. HOWARD T. SWAIN, Boston, "Pitfalls in Obstetrics."

DR. C. E. PRIOR, Malden, "Maternity in Relation to Public Health."

RECENT DEATHS.

DR. HORACE H. TINKER, of New York City, who died on Nov. 20 at New London, Conn., was born in 1858. He is survived by his widow.

DR. WILLIAM SHIPPEN, U. S. A., of Petersburg, Va., who died on Nov. 17, was born in 1861. He had been a surgeon in the United States Army since 1893.

DR. WILLIAM B. TREADWAY, who died of pneumonia on Nov. 18 at Stamford, Conn., was born at Norwich, Conn., in 1878.

DR. SIMON J. O'NEILL of New York died from cardiac disease at the Hotel Nassau, Long Beach, on November 13. He was graduated from the medical department of New York University in 1887.

DR. EDWARD F. DENNER of Paterson, N. J., died at St. Joseph's Hospital in that city on November 14. Dr. Denner was born in New York in 1872, and was graduated from the College of Physicians and Surgeons in 1894. He was surgeon to St. Joseph's Hospital.

DR. PHILIP XAVIER RYAN of New York died on November 17, at the age of 27 years. He was graduated from the medical department of Columbia University in 1901, and for five years was on the medical staff of the New York Life Insurance Company.

DR. DOUGLAS AYRES, a prominent physician of Central New York and a former president of the Montgomery County Medical Society, died at his home at Fort Plain on November 20 at the age of 71 years. Dr. Ayers was graduated from the Albany Medical College in 1865.

UNITED STATES CIVIL-SERVICE EXAMINATION.

ANATOMIST (MALE). JANUARY 7, 1914.

The United States Civil Service Commission announces an open competitive examination for anatomist, for men only, on January 7, 1914. From the register of eligibles resulting from this examination certification will be made to fill a vacancy in this position at $1600 a year, in the Army Medical Museum, Office of Surgeon-General, and vacancies requiring similar qualifications as they may occur, unless it is found to be in the interest of the service to fill any vacancy by reinstatement, transfer, or promotion.

Further information may be obtained through the United States Civil Service Commission, Washington, D. C.

Original Articles.

SYMPOSIUM ON DISEASES OF THE GALL-BLADDER.

ERRORS OF DIAGNOSIS IN GALL-BLADDER DISEASE FROM A SURGICAL POINT OF VIEW.*

BY JOHN H. GIBBON, M.D., PHILADELPHIA.

To state something as "a fact" and to prove it are two different things and so also it is often easier to make a diagnosis than to confirm it. The surgeon much oftener than the physician is asked to prove his conclusions by his findings so that his point of view may be a little different from that of the internist. The beginner both in medicine and surgery is much surer of his diagnosis than he will be later when experience has taught him how much one condition can simulate another. Even the "typical" case occasionally turns out to be something quite different. This I am sure is the experience of us all. But I am not here to make excuses for our mistakes or to pretend that a correct diagnosis cannot, as a rule, be made. When the Chairman of the Surgical Section honored me with your kind invitation to read a paper on gall-stones I tried to think of some new ideas that I might bring before you, or some unique, interesting cases that might be made the basis of profitable discussion, but neither idea appealed very much to me or seemed to offer anything of novelty. When I think of Boston surgery I am apt to call to mind the work and words of two men recently among you and for whose ability and honesty I had the highest regard. I refer to Maurice Richardson and John Munro and I concluded that if I should emulate them I would present to you my mistakes rather than my successes, hoping that by a study and discussion of them we might be materially benefited. I have, therefore, searched my operation records for the cases in which I expected to find gall-stones and did not, or in which I had made some other diagnosis only to find that gall-stones were the cause of the patient's suffering. The latter mistakes are much less frequent than the former. Our errors may, in the light of what is found at operation, be clear to us and it is evident when and how we went astray, but there will still remain cases which cannot be cleared up quite so easily.

A history of indigestion which manifests itself soon after eating by a sense of fullness and the eructation of gas; by attacks of pain of sudden origin in the upper right quadrant passing across the abdomen and around to the back and perhaps to the right shoulder-blade, and which are relieved by vomiting; and the finding of marked localized tenderness on palpation when the patient takes a deep breath; certainly suggest gall-bladder trouble. If we have added to these severe colic requiring morphia for relief and followed by a transient jaundice, we are quite justified in making a diagnosis of gall-stones. We have learned, however, that a patient can have all of these and still not have stones.

The following cases do not represent all of my difficulties, but I found by going over my records for the past four or five years I could get enough cases to illustrate our usual errors. The notes are my own made just after the operations.

Case 1. Miss Z. Nurse. Jefferson Hospital. Cholecystitis? Exploratory. 11-7-'12.

I saw this nurse two or three months ago with Dr. McCrea; at that time she had been taken sick apparently with a laryngitis and after a day or two developed pain in the upper right quadrant of the abdomen accompanied by a leucocytosis of about 25,000. At the time I saw her she had no fever, but there was marked tenderness over the gall-bladder; no mass could be felt and there was no rigidity; she had no urinary symptoms and the urine was normal on repeated examination. Under rest and ice she gradually recovered and the leucocytosis disappeared. She then had her vacation and returned to work some weeks ago. Two days ago she again complained of pain in the right upper quadrant and although her temperature was normal and has remained so, she had a leucocyte count of 19,000. Her pain is located just below the costal border, but there is no rigidity and no mass to be felt. She says there was some radiation of pain to the right shoulder. The case did not look like a typical one of gall-bladder infection and I thought she might have an infection of her kidney, but the urine was absolutely normal. Doctor McCrea thought that she ought to be operated upon, as he did in the first attack. I opened the abdomen through the right rectus and found the gall-bladder, stomach, duodenum, and the cystic and common ducts perfectly normal. There were no adhesions anywhere; the gall-bladder was moderately distended but easily emptied and I could find nothing to account for the patient's pain. The appendix had been removed two years ago and I felt no adhesions or other trouble in the appendix region. In order to make sure regarding the condition of the gall-bladder I emptied it, and obtained apparently only normal bile. Some of the bile was sent to the laboratory for examination. The gall-bladder was closed without drainage.

11-14-'12. The patient is making a very satisfactory convalescence, is free of pain and her leucocytes are 15,000.

5-30-'13. Has been much better and has attended to her work as a pupil nurse until a few weeks ago when she had another attack similar in all respects to the others, though the leucocytosis was not so high. The attack slowly subsided and she is now apparently well again.

I do not know to what the symptoms were due in this case, but notwithstanding the negative findings at operation and the absence of growth from the culture, I shall always regret that I did not drain the gall-bladder.

* Read before The Massachusetts Medical Society, June 11, 1913.

CASE 2. E. M. 37 years. Jefferson Hospital. Gallstones(?). Exploratory. Appendectomy. 11-2-'12.

This man gave a history extending over a number of years which strongly suggested gall-stones, but he spoke no English and it was extremely difficult to get through an interpreter, a satisfactory history from him. He complained of pain in the right side of the abdomen at a point a little low for the gall-bladder. There was no appendiceal tenderness, there were no urinary symptoms and the urine was normal. There was nothing typical about the patient's description of his symptoms and the most marked feature in the case was localized tenderness. As he had been complaining a number of years, I thought I was justified in making an exploration of the upper abdomen. I opened the abdomen through the right rectus and found a distended gall-bladder with some light adhesions between it and the colon. The ducts were apparently normal; the stomach and duodenum were also normal. I had no trouble in bringing the appendix into the wound and found it short and free from adhesions; it was removed, the stump being ligated, cauterized and buried. I could feel no stones in the gall-bladder, but as it was so distended I concluded that I ought to empty it; I did so and found it contained only normal bile. The opening was closed and the wound closed without drainage.

11-19-'12. Wound infected mildly, some bile discharged, but patient comfortable.

6-10-'13. Patient made a good recovery, but I have been unable to learn his present condition.

In this case, too, because of the adhesions I should have drained the gall-bladder instead of closing it. Nature, however, completed the operation by establishing drainage.

CASE 3. J. W. 37 years. Jefferson Hospital. Cholecystitis. Chronic appendicitis. Cholecystostomy. 5-10-'13.

Patient is married and has two healthy children. Both parents living and well. One maternal aunt died of tuberculosis. When eight years of age patient had quite a severe attack of typhoid fever. At the age of sixteen he had another attack which was thought to be typhoid. His present trouble began with indigestion and stomach trouble eighteen months ago. Several months ago he began to have attacks of cramp-like pains and has had five. The pain was epigastric and passed along the right costal border to the back and occasionally up between the shoulder blades. He did not vomit during the attacks. He says he was deeply jaundiced several months, about a year ago; no jaundice followed the recent attacks. He never had any chill or fever during the attacks. The bowels are usually constipated and movements have been very light. He has lost about fifty pounds in the last eighteen months. Examination showed quite marked tenderness over the gall-bladder and nothing else. I made a diagnosis of gall-stones and advised operation. I opened the abdomen through the right rectus. The gall-bladder was large, soft and non-adherent; I could feel no stones in it nor in the ducts which were carefully examined. The stomach, duodenum, and pancreas were perfectly normal. I had little difficulty in bringing the appendix up in the wound and found its distal half twice as thick as the proximal and the vessels over it prominent and tortuous. It was removed, the stump being ligated, cauterized and buried. Although there was undoubtedly a chronic appendicitis, I did not think it could have produced the symptoms. The history was so suggestive of gall-bladder disease that I determined to examine the interior of the gall-bladder. The bile was thick and dark and contained some mucus; it was sent to the laboratory for culture. The mucous membrane of the gall-bladder was very red, thickened and rough. It looked like a strawberry gall-bladder without the stones fixed to the mucous membrane. A cholecystostomy was done.

6-10-'13. Good recovery; is gaining weight and looks much better. No growth from the bile.

My experience in the preceding cases was my main reason for draining this gall-bladder.

CASE 4. Mrs. B. 36 years. Jefferson Hospital. Gall-stones. Exploratory. Appendectomy. 1-1-'13.

The patient's physician sent her in with a diagnosis of gall-stones, saying she had had a number of typical attacks, and the history the patient gave certainly suggested gall-stones. Patient has a simple goitre but comes to the hospital because of the acute attacks of pain in the abdomen extending over two months. The first attack occurred at night and was of three or four days' duration. The pain started in the left hypochondrium, extended across to the right and then up the back to the right shoulder. The patient has had twelve attacks altogether and has vomited in many of them. She says she has never been jaundiced, but says that the stools have been light in color. On her arrival at the hospital she complained of a great deal of soreness in the right side of the abdomen. She had no fever or leucocytosis. She was apparently quite tender over the gall-bladder. She had a large nodular goitre more marked on the right side, but no evidence of Graves' disease. We excluded any kidney lesion and I was prepared to find gall-stones. I opened the abdomen through the right rectus and found the gall-bladder, ducts, stomach, and duodenum perfectly normal. The right kidney was free from adhesions and nothing abnormal could be felt about it. As the patient had said in the beginning, her pain started under the left costal border and later became fixed on the right side, I examined the left kidney, which was also normal. I had no difficulty in bringing the appendix into the wound and removed it, ligating, cauterizing and burying the stump. There was nothing in the appendix that I felt could account for the patient's severe attacks of pain. I cannot explain this case unless it was one of appendicitis and the appendix had entirely recovered. There was some thickening and congestion of the mucous coat, but I thought this was probably due to my manipulation.

6-10-'13. Patient made a good recovery, but I have been unable to get a reply to my letters of inquiry regarding her present condition.

Pain in the left side in gall-bladder cases, as suggested by Riesman, is probably due to adhesions between the bile passages and the stomach. In this case I found nothing else.

I realize that stones may be in a gall-bladder and palpation not show them, but if the gall-bladder is emptied by pressure then they can be felt. If the gall-bladder cannot be readily emp-

tied then it should be opened, if the symptoms point clearly to gall-bladder disease.

Case 5. Mrs. C. Pennsylvania Hospital. Cholecystitis. Chronic appendicitis. Cholecystostomy Appendectomy. 4-15-'12.

The patient's physician telephoned me that she was suffering from a severe attack of gall-stone colic which was not relieved by large doses of morphia. She was brought to the hospital twenty-four hours before operation. She had a previous attack of similar character a year or two ago. The present attack had come on suddenly with severe pain in the right upper abdomen, which radiated across to the left side, but did not go to the back or shoulder. She vomited practically everything she had taken. The attack lasted several days. There were no urinary symptoms. She was not jaundiced, but said that she had had jaundice after the first attack. On admission to the hospital the pain had greatly subsided, but there was still marked tenderness over the gall-bladder region, with some rigidity. Her urine was normal and her leucocytes 11,000. There seemed no doubt of the diagnosis. I opened the abdomen through the right rectus and found a long tense gall-bladder with extensive old adhesions about its lower portion and the cystic duct. The stomach and duodenum were normal, and I could feel no stones in the common duct nor in the gall-bladder. Before opening the gall-bladder I determined to examine the appendix, which I found very long and densely adherent, its tip was attached by a firm adhesion to the right broad ligament. I removed the appendix with much difficulty, ligating, cauterizing and burying the stump. I then introduced a trocar into the gall-bladder, but the bile was so thick that it would not flow; on opening it I found that it contained thick black bile but no pus and no stones. The mucous membrane was acutely inflamed. A tube was inserted and the gall-bladder drained.

6-10-'13. The patient made a good recovery.

The attacks in this case I believe were undoubtedly due to the passage of plugs of mucus, or sloughs of mucous membrane.

These cases show very conclusively to my mind that infections of the gall-passages not only can but often do produce symptoms which are the counterpart of those accompanying the passage of a stone, and a practical lesson from these cases is that we should understand and make the patient or his family understand this, and that consequently the failure to find a stone is no indication that the operation was unnecessary. We do not expect to find, as was at one time thought necessary, a concretion in every case of appendicitis. Futhermore, the gall-bladder like the appendix, may show few evidences in its interior of the fight it may have made against infection. Like the appendix after an acute attack of inflammation, the mucous membrane of the gall-bladder may appear normal, but the presence of adhesions to the neighboring structures is our proof that the diagnosis was correct and the operation indicated. We may not have arrived at the height of the conflagration, but we have come in time to remove the débris, put out the smoldering timbers, cleanse the site, and repair the neighboring structures.

Case 6. L. B. 46 years. Pennsylvania Hospital. Cholangitis. Cholecystitis. Cholecystostomy. 8-25-'04.

I saw this patient first with Dr. Scott Law about the first of August. He was then suffering from a typical attack of hepatic colic. When I saw him the pain was controlled but there was a marked tenderness over the gall-bladder. The patient had had another attack about a year previous which the doctor diagnosed appendicitis. Frequent attacks of epigastric pain with indigestion had occurred. After I saw him he had two chills and became quite jaundiced. His temperature during this period was quite high, but gradually came down to normal and his jaundice subsided. Operation was advised, but as the doctor was going away, we thought we would wait until his return. However, the patient on the 17th developed another attack of hepatic colic and was admitted to the Pennsylvania Hospital on the 18th. This attack was not so severe as the previous one and the patient rapidly recovered from the pain. After the disappearance of the pain he again had two chills and his temperature remained high, about 103; jaundice was very marked. He did not vomit in this attack as he did in the previous ones. The fever gradually disappeared and the jaundice became less marked. At the time of operation there was no tenderness over the gall-bladder. His coagulation was five minutes. I expected to find a stone in the common duct as I believed the patient to have had typical symptoms of this condition. When the abdomen was opened the gall-bladder was found very small and contracted, being about the size of a little finger; the stomach and omentum were very adherent to the gall-bladder and its ducts, and the separation of the adhesions produced considerable bleeding. The ducts were carefully palpated, but no stone could be felt. The gall-bladder was then opened, its walls found thickened and its mucous membrane at the fundus, black. A small quantity, probably 1-2 teaspoonful of pure pus escaped, later considerable necrotic tissue. A careful exploration of the gall-bladder revealed no stone, however. I spent considerable time in examining the common duct. I exposed it to view at the point of its entrance into the duodenum, and carefully palpated its remaining portion, but no stone could be felt. The head of the pancreas seemed normal, but there were some enlarged retroperitoneal lymph glands. There was nothing to be felt in the neighborhood of the ampulla of Vater. I was very much disappointed not to find a stone in the duct and yet I felt there was enough in the adhesions and the condition of the gall-bladder to account for the symptoms. The upper gangrenous portion of the gall-bladder was removed, a rubber tube attached by a catgut suture to the remaining portion, and a gauge drain introduced well down below the point of attachment of the tube. The patient did not take his anesthetic well and was considerably shocked.

6-10-'13. It has been nine years since the operation and this patient has had no other attacks.

A cholangitis can produce symptoms exactly like those which characterize a stone in the common duct.

Case 7. Doctor L. 34 years. Pennsylvania Hospital. Duodenal ulcer. Gastroenterostomy. 3-13-'13.

There is no hereditary history. During the summer of 1900, when a student at the Jefferson Med-

ical College he had a great deal of stomach trouble and had a severe attack of colic; was admitted to the Jefferson Hospital and was attended by Doctors Keen and J. C. Wilson. A diagnosis of gall-stone colic was made and he was in the hospital eleven days; no jaundice followed the attack and he gradually recovered. Again in 1902 he had a similar attack of pain, accompanied by vomiting, and was laid up for about the same length of time. Up to last June his health has varied. In 1907 he had pneumonia and developed an interlobular abscess which, he says, drained through rupture into a bronchus. On the 9th of January, he was again seized with sudden severe pain while visiting a patient, he vomited, was covered with cold sweat, was not relieved by two hypodermics and had to be given chloroform; the nausea kept up all the next day. The patient's weight has been about the same for the past few years. He says that he suffers more or less from gas after eating and that he is apt to have some pain, three or four hours after eating, which is relieved by the taking of food; this, he says, may be all imagination. He has seen a number of physicians, and at present Doctor Stengel has been going over him carefully. I found some gall-bladder tenderness and I believed that in view of the severe attacks of colic and the early diagnosis of gall-stones, that this was the correct diagnosis. Doctor Pfahler has made some excellent plates and his interpretation of them was that there were numerous adhesions about the pylorus which was held in a higher position than normal. Doctor Stengel inclined to the view that the patient had an ulcer. Under m.c.e.e. anesthesia I opened the abdomen through the upper right rectus and found extensive adhesions between the pylorus, gall-bladder and liver; some of these adhesions extended over the upper surface of the liver. No stones could be felt in the gall-bladder or ducts. There was a large irregular ulceration extending above the pylorus into the stomach and below into the duodenum, but making only a moderate constriction of the pylorus. The duodenal wall was indurated and contained a quantity of scar tissue. Undoubtedly the severe attacks of pain this patient has suffered were due to a localized peritonitis. There was no thinning of the ulcer at any place at this time. I did a posterior gastroenterostomy and infolded the pylorus with two rows of sutures; I then removed the appendix, ligating, cauterizing and inverting the stump. The appendix was practically normal, but the patient was very anxious to have it removed.

3-18-'12. The patient is quite comfortable and making an excellent recovery; he vomited much more than is usual after gastroenterostomy, but the material vomited was only water and albumen water which he had taken. The vomiting was relieved by putting him in a sitting position.

6-7-'13. Patient is well and attending to his practice.

Threatened perforation giving rise to localized peritonitis, as shown in this case, can certainly simulate gall-stone colic.

CASE 8. M. C. Jefferson Hospital. Cholecystitis. Duodenal ulcer(?). Cholecystostomy. 3-11-'12.

This man was admitted to the hospital three or four days ago in a severe attack of pain which was localized over the gall-bladder region, extended across the abdomen and up to the right shoulder blade; he had a leucocytosis of about 18,000 and marked tenderness over the gall-bladder. I saw him the next day and there seemed to be no question in regard to the diagnosis. He had no urinary symptoms and I thought he had had gall-stone colic. There was still a good deal of tenderness and a slight rise in temperature. I thought it was better to wait until the acute symptoms subsided, and therefore kept an ice-bag over the gall-bladder region. The patient had vomited several times during his acute attack. He said he had had a similar attack last July though it was not so severe and he thought it was indigestion. Two days before I operated upon him he says that his urine was very highly colored and he thought that it contained blood; microscopic examination, however, showed no blood and the x-ray plate showed no stone. I opened the abdomen through the upper right rectus and found extensive adhesions between the duodenum, omentum, gall-bladder and liver; when I had separated these, I found the gall-bladder very tense and its wall infiltrated and containing lymph and a marked induration of its wall; this was about two inches below the pylorus. I was puzzled to know whether this was an ulcer or whether it was simply due to the adhesions between the bowel and the gall-bladder; it looked exactly as if the duodenum had adhered to the gall-bladder and a stone had been trying to perforate. The indurated area was not round but rather oblong, and yet on feeling its inner surface through the bowel wall I could detect a distinct depression, though the intestine was not thinned at this situation. The gall-bladder was punctured and contained a quantity of absolutely black, thick bile of the consistency of syrup. The interior of the gall-bladder was inflamed, but no stone could be palpated in it or the ducts. The gall-bladder was drained with a tube, and I then infolded the area in the duodenum by the passage of deep sutures about its circumference. I am still in doubt as to the condition of the duodenum. There is no question that the patient had a cholecystitis and in the bottom of the gall-bladder there appeared to be pus, and yet I believed that the condition in the duodenum was an ulcer; I cannot otherwise explain the localized induration in the bowel wall, especially in the absence of gall stones.

3-16-'12. The patient is making a very satisfactory convalescence and there has been a free drainage of bile.

6-10-'13. This patient has remained well since his operation.

CASE 9. I. I. 40 years. Jefferson Hospital. Gall-stones. Cholangitis, suppurative. Cholecystostomy. Choledochostomy. 10-10-'09.

This man was admitted to the hospital about 11 p. m.; he was sent in by his physician as a case of appendicitis demanding immediate operation. He had a slight rise in temperature; pulse 110; a leucocytosis of 14,000, and was suffering a great deal of pain. The lower portion of his abdomen was soft, but the upper portion was rigid, especially on the right side. He described the pain as passing directly around to the back, but said that it did not radiate to the shoulder. He had not had any previous attacks, but gave a history of indigestion; he said that the stools had been light in color, but never tarry; he was pale, but did not seem to be jaundiced. The pain had come on suddenly at 4 p. m. and had been persistent. From the history given me over the telephone I thought there could be little doubt that he had a perforation of the

intestinal tract. When I saw him he had been given, according to my orders in preparation for the operation, 1-4 grain of morphine and, therefore, there was little rigidity; the man still, however, seemed to be suffering. I opened the abdomen through the upper right rectus. There was no escape of gas, and the gall-bladder was covered by adhesions so that just its fundus protruded; the stomach was drawn into the wound, but no ulcer was found. I felt something, however, through the stomach wall which I thought at first was an ulcer; it was movable, and my next thought was that it was a portion of food; on examining it more closely, however, I found that it was a pedunculated growth attached at the lesser curvature, about two or three inches from the pylorus; I never felt anything like it before and could not understand it. Leaving it for the time being, I examined the appendix region and found nothing wrong; I then began separating the old adhesions around the gall-bladder; these were very dense and the separation done with difficulty; finally, I could feel two large rough stones, apparently in the common duct. The gall-bladder was small and contained neither stones nor bile. Finally I got the common duct exposed and opened it; there were two or three stones that measured 3-8 of an inch in diameter and many smaller ones; the duct was enormously dilated and easily admitted my forefinger. In passing my finger upward the hepatic duct was found packed with the same soft stones; the removal of these was very difficult and the operation occupied over an hour. The dilatation of the hepatic duct was sufficient also to admit my finger quite a distance. I was surprised that so very little bile escaped. There was, however a quantity of mucus, some sloughing mucous membrane, and a quantity of thin pus. With this accumulation of pus in the hepatic duct I thought the patient's condition very serious. The duct and gall-bladder were drained. I thought it unwise to investigate the pedunculated tumor in the stomach.

10-11-'09. This morning I was rather surprised and greatly relieved to find the patient in excellent condition. There had been a free discharge of bile through the tube and there had been a little nausea.

10-12-'09. Although in good condition yesterday, the patient's circulation began to fail about midnight and he died about 7.30 this morning. I was surprised that this patient improved so much after his operation, as I thought it quite likely that he might not recover, but his death at this time was a great surprise. His stomach was opened, post-mortem, and a pedunculated growth, which apparently is a polyp, was removed.

This case shows that a diagnosis made over the telephone cannot always be relied upon, and that an infection of the bile passages can produce symptoms similar to those of a perforative peritonitis.

Case 10. Mrs. B. 38 years. Bryn Mawr Hospital. Perigastric adhesion. Excision. 5-10-'10.

This patient is married and has two children. Since last December she has suffered from indigestion manifested by flatulency with pain in the right hypochondrium and referred to the angle of the right scapula. Her first attack lasted a week; in February she had another attack in which nausea and vomiting were added to the other symptoms, and she says that her skin became yellow after this attack. Tenderness in the gall-bladder region has been persistent since December and the patient has lost weight. Under m.c.e.e. anesthesia I opened the abdomen through the right rectus and found a normal gall-bladder which could be emptied by pressure; the ducts were normal and free of adhesions; I could feel no evidence of ulcer in the stomach; the pylorus was normal in size and was quite low, and there was a point of adhesion extending from it to the anterior abdominal wall. This looked more like an abnormal attachment of omentum than like an inflammatory adhesion; it was so dense, however, that I could not draw the pylorus out of the wound until it had been divided. I believe this was the cause of the patient's discomfort, especially when I could find no ulcer in the duodenum. I put two mattress sutures in the lesser omentum after the manner of Beyea in order to draw the pylorus away from its old point of adhesion.

6-13-'13. The doctor reports that the patient is entirely free from all her previous symptoms.

Case 11. Mrs. F. 54 years. Pennsylvania Hospital. Chronic cholecystitis. Gall-stones. Cholecystostomy. 1-17-'10.

This patient has been married for thirty-seven years, but has never had any children; she had one miscarriage shortly after her marriage. She has always been strong and healthy until about four years ago. Menopause occurred eight years ago. Both parents died of paralysis, mother's sister died of either tuberculosis or cancer at the age of fifty-five. For several years the patient has had peculiar attacks, which as far as I can make out were gastric disturbances. Since March she has had vomiting attacks and epigastric pain radiating over the whole abdomen; since the middle of November she has been in bed, and it is said that she has lost considerable weight. The doctor discovered a tender spot above, and to the left of the umbilicus. The patient complains particularly of giddiness, even when she is lying flat on her back. I saw her at her home about a week ago. Because of the loss of weight and the inability to take any solid food, it was thought that she probably had a cancer of the stomach; she certainly had no symptoms of pyloric obstruction and no constant pain after eating; she was not cachectic, and had fairly good color. She was moved to the hospital where I have studied her for several days. A gastric analysis shows nothing significant, and x-ray plates of the stomach, filled with bismuth, are negative. I made up my mind that the trouble was probably in the gall-bladder, and in the x-ray plates the gall-bladder cast a shadow. Today under m.c.e.e. anesthesia I opened the abdomen through the right rectus and found the stomach perfectly normal; the gall-bladder was tense, distended and could not be emptied; I could detect no stones in the ducts and could feel none in the gall-bladder; just above the gall-bladder in the liver was a hard nodule in which I thought I could detect fluctuation. There was no adhesion about the gall-bladder or ducts. The gall-bladder was opened and there escaped a large quantity of grumous thick bile containing fine granules. The mucous membrane was thickened, inflamed and rough; one very small gall-stone was removed. Attached to one part of the mucous membrane was a tiny granular growth containing sand. Some of the contents of the gall-bladder and this mass were sent to the laboratory for examination. The gall-bladder was drained. I incised the nodule in the liver and evacuated about a teaspoonful of clear fluid.

2-2-'10. The wounds are nearly entirely healed. The patient is up, but she still has occasional eructations of food. She also continues to complain of a number of queer sensations.

9-29-'10. The patient came in to see me today and has improved so much that I would not have known her. Her present weight is one hundred and eighty-four pounds. Apparently she has made a complete recovery.

CASE 12. Mrs. G. 62 years. Bryn Mawr Hospital. Gall-stones. Cholecystostomy. Choledochotomy. 1-17-'10.

I saw this patient for the first time just before the operation. A diagnosis of cancer of the stomach had been made, based on a history of attacks of vomiting and a gastric analysis, which plainly indicated cancer. The history of gastric trouble extended over four or five years. The patient did not look cachectic; she had never vomited blood; had never had tarry stools; an x-ray plate had been made while the stomach was filled with bismuth, and it was supposed to indicate an irregularity in the outline about the middle. I concurred in the diagnosis, but, because of some rigidity over the gall-bladder, the fact that the gastric disturbance had occurred in attacks, and because of the long duration of the case, said that I would not be surprised if we found gall-stones. On operating I opened the abdomen to the right of the middle line above the umbilicus. The stomach was normal excepting for one or two little enlarged glands in its serous coat; one of these I removed for examination. Palpation of the gall-bladder showed it to contain a number of large stones. The gall-bladder was entirely covered by an adherent colon, this was separated and the gall-bladder opened; there escaped a quantity of light yellow material which looked like fecal matter, then a large black stone with no facets. This was followed by a mass of tissue that looked like a "hair-ball"; on withdrawing this I found it to be the entire mucous lining of the gall-bladder; this was covered with small black granules; when it had been removed, the gall-bladder was entirely emptied, but I could feel beyond several large stones, which it was impossible at the time to exactly locate; on further separation of the adhesions around the ducts, I discovered the common duct. When I opened the common duct a large mass of yellow material of the constituency of mud, was removed and another very large soft stone. Some bile also escaped. I was unable to pass my finger into the duct very easily; I passed a probe down into the duodenum and then sutured into the opening of the duct a large fish-tail drainage tube; another tube was fixed in the gall-bladder and the two brought out through another small incision made over the gall-bladder; a gauge drain was also carried down to the common duct and the median wound closed. The patient stood her operation very well. The material removed from the common duct was exactly like that removed from another common duct case operated upon at the Jefferson Hospital a few months ago.

2-2-'10. This patient is making an excellent convalescence and has had no untoward symptoms whatever.

CASE 13. Jefferson Hospital. Chronic appendicitis. Chronic cholecystitis. Appendectomy. Cholecystostomy. 4-17-'13.

I saw this man with Dr. McCrea in the medical ward some days ago and we thought the patient either had gastric ulcer, gastric cancer or gall-stones. There had been considerable loss of weight, vomiting, pain of a varying type sometimes referred to the back and shoulder, and jaundice. Dr. McCrea said the patient was slightly jaundiced on admission. The x-ray report was that the outline and function of the stomach were normal. The gastric analysis made on several occasions showed an absence of free hydrochloric acid, a low per cent. of combined acids and the presence of lactic acid. I opened the abdomen through the right rectus and found the stomach very large but otherwise normal. I was easily able to pass my finger through the pylorus. The pancreas was normal and I could find nothing wrong with the duodenum except some adhesions to the gall-bladder. The gall-bladder was large and adherent at its lower portion and along the cystic duct to the duodenum. Before opening the gall-bladder I examined the appendix and found it chronically inflamed and containing a large concretion near its extremity. It was removed, the stump being ligated, cauterized and buried. I then separated the adhesions between the gall-bladder and the duodenum and examined the common duct with a negative result. I then opened the gall-bladder and found the mucous membrane very red and angry looking, but no other abnormality. In view of the adhesions, the history, and the appearance of the gall-bladder, I drained it. A section of the gall-bladder was examined microscopically and said to be the seat of a chronic cholecystitis.

6-10-'13. This man is out, going about and seems perfectly well. No longer has any gastric symptoms.

The three cases (Nos. 11, 12 and 13) illustrate the difficulty sometimes encountered in differentiating gall-stones from cancer of the stomach.

CASE 14. Mrs. B. Jefferson Hospital. Acute Cholecystitis. Chronic Pancreatitis. Cholecystostomy. 2-17-'13.

This patient was admitted last evening to the hospital and I saw her upon arrival. The patient had had two attacks similar to the present one, the first occurring last summer; the present attack, which started yesterday morning, has been by far the most severe; it was sudden in onset and the pain was very acute and confined to the upper abdomen, especially on the right side. She also had pain in her right shoulder. Her pain was so severe that her physician, Dr. I. B. Roberts, was afraid that his previous diagnosis of gall-stone colic might be wrong and that the patient perhaps had a perforated ulcer. On admission to the hospital her temperature was normal; the pain had been relieved by a hypodermic of morphia, but she was still nauseated. Examination of the abdomen showed very localized tenderness and some rigidity immediately over the gall-bladder. I also thought I could detect a mass in this region. I felt confident that the patient was suffering from an attack of gall-stone colic and applied an ice-bag thinking that she might wait until today for operation. Her leukocytes were 17,000, on admission, and this morning they had dropped to 13,000. The patient had a good night and feels quite comfortable today. She is decidedly jaundiced. Under anesthesia I was unable to feel any mass in the region of the gall-bladder, but with the spine resting on a sand-bag I could palpate the head of the pancreas distinctly; this caused me to be uncertain regarding the diagnosis. The abdomen

was opened through the right rectus and immediately there escaped a quantity of bile-stained fluid and an elongated, greatly distended gall-bladder popped into the wound. The wall of the gall-bladder was edematous and infiltrated with bile; there was no point of threatened rupture, however, the bile simply seeping through the wall. No stones could be felt in the cystic or common ducts, both of which were free from adhesions. There was no fluid in the lesser peritoneal cavity. The pancreas, especially its head, was very much enlarged, but not hard enough to make me feel it was malignant nor soft enough to think that it was the seat of a hemorrhagic pancreatitis. I could feel no stone in the ampulla or in the pancreatic duct. The gall-bladder was drained and contained a large quantity of thick bile and apparently pus; a culture was taken. The mucous membrane of the gall-bladder was acutely inflamed and very red. A tube was inserted into the gall-bladder and a rubber covered drain into the right kidney pouch.

2-21-'13. The patient is making an excellent recovery, jaundice has disappeared and there has been a free flow of bile through the tube; she vomited occasionally a day or two after the operation, but all nausea has now disappeared.

This is the only case I have ever encountered where the distention of the gall-bladder was so great that the bile oozed through its walls, although similar cases have been reported.

Case 15. H. S. 55 years. Jefferson Hospital. Chronic Pancreatitis. Cholecystostomy. Appendectomy. 3-1-'13.

This patient was sent in as a case of gall-stones or probably one of malignant growth in the upper abdomen. For five years the patient has had indigestion, he never vomits, suffers from gas, and the last few months has had quite severe attacks of epigastric pain which radiated to the right side and up the back under the shoulder-blade. None of these attacks had been severe enough to require morphia, and in none of them has the patient vomited. He has lost considerable weight lately, and the skin of his face and the conjuctivae appear to be yellow. Examination of the abdomen shows marked tenderness in the gall-bladder region. Examination of the blood shows no anemia. The case seemed undoubtedly one of gall-stones, and today I opened the abdomen through the upper right rectus and found the gall-bladder and ducts free from adhesions and normal in every respect. The stomach and duodenum were perfectly normal. A few moderately enlarged glands could be felt in both the greater and lesser omenta. The pancreas was enlarged throughout and was quite hard. I had no difficulty in bringing the appendix up into the wound and removing it; ligating, cauterizing and burying the stump. It was slightly congested, but I did not think could account for the condition. There were no areas of fat necrosis encountered: the condition of the pancreas, however, made me feel that we were dealing with a case of pancreatitis.

6-6-'13. A note from his physician, Dr. Glasgow of Tyrone, Pa., states that he is perfectly well and has gained 28 pounds.

Case 16. Doctor W. 45 years. Pennsylvania Hospital. Acute Pancreatitis. Gall-stones. Cholecystostomy. 1-7-'11.

Doctor W. always appeared to be a very healthy man, although he did at times have trouble with his digestion. He was quite stout. Two days before I saw him, he was taken ill with severe pain in the epigastrium, the pain seemed to be diffused, and yesterday became apparently more localized in the right iliac region. He vomited in the beginning of his attack and has been nauseated since. When I saw him he had a temperature of 102°, a rapid pulse, slight distention of the abdomen, with tenderness and some rigidity in the lower right quadrant. He complained of some pain in the hypochondrium, but there was no tenderness or rigidity in the upper half of the abdomen. His physician, Dr. Wm. E. Hughes, and I both thought he had acute appendicitis and he was moved to the Pennsylvania Hospital. On admission he had a leukocyte-count of 29,000. He had a slight bowel movement. He impressed one as being quite sick, and I expected to find a very bad appendix. I opened the abdomen through the sheath of the right rectus, and when the peritoneum was entered there escaped some straw-colored fluid. I was surprised on examining the appendix region, however, to feel no appendix. I finally separated and brought up what I thought was an appendix, but on examination, it seemed to be an epiploic appendage. The cecum was bound down, and I had considerable difficulty in bringing it up into the wound, but finally accomplished it and still could see nothing of the appendix. I thought that it might be placed between the layers of the meso-colon, but I could not feel it. At the end of the longitudinal band was a small short stump which looked like the stump of an amputated appendix. It may have been attached to the cecum, but I could demonstrate no opening. The opening was closed with two rows of sutures. The absence of any inflammatory condition in this neighborhood was very confusing, and I determined to explore the upper abdomen. On bringing the omentum out, I found it to be as thick as my hand and it contained several points of fat necrosis. On passing my hand into the gall-bladder region I found the omentum adherent to the gall-bladder, and the latter very tense. I at once made a diagnosis of acute pancreatitis and opened the upper abdomen through the upper right rectus. Because of the deep abdominal cavity I had considerable difficulty in obtaining a satisfactory access to the gall-bladder. The gall-bladder was emptied with a trocar of a quantity of thick dark bile. I then evacuated about one hundred stones of varying size. There were some adhesions about the duodenum, and I did not make a search of the common duct as the patient was in bad shape and the operation had already taken a long time. The gall-bladder was drained with a tube and two gauge drains introduced. The omentum, which was adherent to the gall-bladder, was filled with points of fat necrosis. The lesser peritoneum did not seem to be distended and there was no bloody fluid in the cavity. I realized the serious condition of the patient, but hoped that with drainage he might recover.

1-10-'11. The patient died last night without showing any improvement after operation. The gall-bladder drained profusely, and the bowels moved several times without help, but the patient vomited nearly continuously up to the time of his death; his temperature gradually rose to 104°. I thought from the persistent vomiting and from the dark character of the vomit that probably the pancreatitis took on a hemorrhagic character. No post mortem examination was allowed.

CASE 17. Jefferson Hospital. Acute Hemorrhagic Pancreatitis. Gall-stones. Drainage. Cholecystostomy. 9-6-'10.

Excepting for the history of attacks of painful indigestion this patient has always been well and her appearance is very good. Three or four days ago she was seized with abdominal pain and was unable to have a bowel movement; vomiting occurred rather promptly and has kept up. She was brought down this morning from her home in the train. Her physician says that the vomiting became stercoraceous last night. I saw her four or five hours after admission and she then had been vomiting large quantities of bilous material; she had a temperature of 101° and a leukocytosis of 18,000; she said she had not even passed gas by the bowels for three or four days. There was some distention of the abdomen and some general tenderness which was most marked in the upper left quadrant; she presented no urinary symptoms. The patient certainly seemed to have obstruction of the intestinal tract and because of the tenderness and the leukocytosis, I judged it to be of an inflammatory origin and thought of a misplaced appendix or an inflamed Meckel's diverticulum. I opened the abdomen in the midline, just below the umbilicus and encountered some distended coils of small intestine. I could detect nothing abnormal in the pelvis or anywhere in the intestinal tract. In passing my hand to the upper part of the abdomen, I encountered what I belived to be a very much enlarged pancreas and on further exploration discovered that the gall-bladder contained stones. Making a diagnosis of acute pancreatitis I made a second incision through the left rectus, above the umbilicus; on examining the pancreas from this position I had no doubt whatever of the diagnosis as it was very much enlarged and apparently symmetrically so. A small opening was made through the lesser omentum and a quantity of bloody exudate escaped. I then opened the gall-bladder and removed about twenty stones, a little larger than peas, and a great number of small ones. The gall-bladder contained very dark sticky bile; there was no normal bile whatever in the gall-bladder. I could feel no stone in the common duct. The gall-bladder was drained. I then increased the opening through the omentum and drained the lesser peritoneal cavity freely with gauge. From my manipulation of the pancreas there was considerable bleeding and I thought that I had done enough to relieve the congestion of the organ. The greater omentum showed extensive fat necrosis and a portion of it was removed for examination. The patient left the table in good condition, but later her pulse became very rapid and her temperature reached 103°. She did not vomit but her circulation became worse and she died at 2.30 this morning, ten hours and a half after operation. She had regained consciousness and was not restless and was fairly comfortable.

These two cases illustrate common errors of diagnosis especially the second, and I imagine that acute pancreatitis will continue to be mistaken for intestinal obstruction.

CASE 18. Miss B. 38 years. Pennsylvania Hospital. Cholecystitis. Gall-stones. Cholecystostomy. 12-9-'09.

This woman came into the hospital from Atlantic City at seven p. m., and I operated at ten p. m. She had been treated for four days before admission for intercostal neuralgia. She had been ill for a number of days and had one previous similar attack though not so severe; both attacks were accompanied by vomiting; she had never been jaundiced; no history of typhoid. The whole abdomen was tender, but there was marked tenderness and rigidity in the upper right quadrant. It was thought that there was a mass in the gall-bladder region, but the rigidity was so marked as to render this uncertain. She had a temperature of 103°, respiration 44, and a leukocyte-count of 12,000. A diagnosis of cholecystitis was made. The abdomen was opened through the upper half of the right rectus. A quantity of lymph and exudate was found around the gall-bladder and ducts. The fundus of the gall-bladder was covered with lymph. The exudate was sponged away and the gall-bladder well isolated with packs; it was aspirated and then opened. When opened I was surprised to find that the muscular coat was gangrenous in spots but that the mucous membrane was not gangrenous. I removed about seventy-five small stones and a quantity of pus and sloughs of mucous membrane. I had no difficulty in palpating the cystic and common ducts, but could feel no stones. The gall-bladder was drained with a tube and a number of gauge drains was carried down to the ducts and around the gall-bladder.

12-10-'09. The patient is very much better. Her temperature is normal and she has no pain. The drainage is working well.

1-15-'10. This has been an extremely interesting case. Typhoid bacilli were found in the cultures taken from the gall-bladder and from the stones themselves. The wound has behaved very well, but the patient has run a continuous temperature from the fourth day after operation until about a week or ten days ago. She had several positive Widal reactions and undoubtedly had typhoid fever. She is at present convalescing and in good condition. Discharged 2-11-'10, cured.

I have seen another case in which I feel sure the patient has gall-stones and which has been treated as intercostal neuralgia and the acute exacerbations as acute indigestion.

The case also illustrates Sir Berkeley Moynihan's recent remark that "Every gall-stone is a monument erected to the evil memory of the germ which lies buried within it."

The remarkable features of this case are that, according to the history, the patient had not had typhoid before operation and that she did have it afterwards.

CASE 19. Mrs. T. 28 years. Germantown Hospital. Chronic appendicitis. Misplaced kidney. Appendectomy. 6-24-'12.

This patient has been married several years. She has three children, the youngest two years of age. Menstruation always regular, not very painful. Last August first had an attack of indigestion just after the menstrual period. This attack lasted two weeks. She had another in October and a bad one in December. Her physician, Dr. Gummey, discovered in December that the right kidney was quite movable, and thought that the patient's symptoms were probably caused by this. She has had a number of attacks since December. I first saw her in the office shortly after one of the attacks. She has no indigestion between the attacks, which

usually start with diarrhea and marked nausea. The nausea and vertigo keep up even when the patient is on her back. The pain is of a burning character located in the epigastrium and may later extend over the whole abdomen. The taking of food increases the pain. She has waked up occasionally with burning pain. No eructation of gas or food. Examination shows the patient to be very thin, the abdomen very soft, fundus easily palpated above the pubes. The only tender areas found at my first examination were over the gall-bladder and the appendix. The right kidney could easily be palpated but was not tender. I thought at first that the patient was suffering from chronic appendicitis, but on examining her again two weeks later after she had had an attack of pain, I found very marked tenderness over the gall-bladder. The patient also said that the pain passed directly across the abdomen and occasionally went to the right shoulder. The kidney was not tender on palpation and there was no appendiceal tenderness. When the patient was standing she located the pain and tenderness directly under the costal border, and there seemed to be a mass in this region which she herself had discovered. After this second examination, I was inclined to believe that this patient must have gall-stones and thought her gastric symptoms were due to this condition rather than to her appendix. To-day under m.c.e.e. anesthesia I opened the abdomen through the outer portion of the right rectus a little above the umbilical line. I found the gall-bladder and ducts normal in every respect. The right kidney had a range of motion of about two inches but a lower pole projected prominently forward. I was able with little difficulty to bring the appendix and the cecum into the wound. The latter did not look very bad, but seemed to be constricted about its center. It was removed; the stump ligated, cauterized and buried. Doctor G. opened the appendix at once and remarked that he thought there was quite enough in it to account for all the patient's symptoms, as there was a point of constriction with considerable thickening and congestion of the mucous membrane beyond it. I confess that in this case I was surprised not to find some trouble in the gall-bladder, and believe now that although the kidney was not tender when the patient was in a recumbent position that it was the lower pole of this organ which could be felt and was tender when the patient was standing.

7-12-'12. The wound is entirely healed and the patient is in good condition.

7-12-'12. The patient has made a prompt recovery and has gone home in good condition.

9-3-'12. In my office today and says she feels much better. Some soreness when jolted. Looks very much better.

This case shows how one who thinks he knows something about abdominal examination can be misled, and how the surgeon must sometimes doff his hat to the medical man.

Case 20. Mrs. H. Pennsylvania Hospital. Cholecystitis. Gall-stones. Cholecystostomy. 9-6-'10.

This patient was brought in from Bristol in an automobile last night. She was an extremely fat woman and had an enormous abdomen; she had been sick for a number of days with severe abdominal pain; her temperature on admission was 101° and her leucocytes 11,200; there was marked rigidity and tenderness in the upper right quadrant of the abdomen and apparently a distinct mass in that region. Her doctor said that he had never seen her in a typical attack of gall-stone colic, but she had had attacks which he thought were angina pectoris. The patient was much more comfortable this morning and the mass seemed smaller. I opened the abdomen through the right rectus and came down at once on the gall-bladder covered with thickened and adherent omentum. The rest of the abdomen was protected by gauze and the adherent omentum separated from the gall-bladder. There was considerable lymph over the omentum but no free fluid. The gall-bladder was tense; it was punctured and a quantity of thick yellow pus evacuated. It was then opened and I removed two large stones, one firmly wedged in the cystic duct. I did not examine the common duct and I did not think it was wise in the presence of this infection to do so, especially as the patient presented no common duct symptoms. The mucous membrane of the gall-bladder was apparently necrotic throughout and portions of it could be easily removed. A large tube was inserted into the gall-bladder and a rubber-covered gauze drain placed outside of it.

6-10-'13. Patient made a prompt recovery.

This case shows that gall-stones can produce symptoms which may be mistaken for angina pectoris and every physician and every surgeon should read the interesting papers by Riesman of Philadelphia (*J. Am. Med. As.* May 11, '07 and *Am. Jour. Med. Sci.* Nov., '11) and Babcock of Chicago (*Trans. Asso. Amer. Phys.* xxiv, 43) on the relation between gall-stones and heart murmurs.

Case 21. Mrs. D. Woman's Hospital. Gall-stones. Cholecystectomy. 10-7-'12.

The patient is a large woman, has had nine children, eight living; she has never had any illness and the family history is excellent. Last February she was seized in the night with an attack of abdominal pain for which two hypodermics of morphia were given. Since then she has had repeated attacks, the longest interval being eight weeks. The attack previous to the last one was the worst she has had. It was followed by jaundice. She also had fever in this attack. She always vomits followed by some relief. The patient is rather stout, but a healthy looking woman; there is no jaundice. Examination shows marked tenderness in the gall-bladder region and apparently a distended gall-bladder. She was sent to the Woman's Hospital and on the day of admission had 19,000 leucocytes, but a normal temperature. She was having considerable pain on her arrival in Philadelphia, but this subsided entirely under rest and an ice-bag. I opened the abdomen through the right rectus and found a moderately distended gall-bladder, long and bent upon itself at the extremity like an interrogation point. There were adhesions about the fundus, but none about the ducts. The lymphatics were enlarged, but no stones could be felt in the ducts or gall-bladder. The stomach and duodenum were normal. The gall-bladder contained considerable bile having in it numerous small yellow granules and apparently pus and mucus. The interior of the gall-bladder was covered with these yellow granules, presenting a typical strawberry appearance. A large number of these small stones were

enmeshed in mucus. As I feared a return of the trouble if I simply drained, I determined to do a cholecystectomy. The gall-bladder was removed and a small rubber drainage tube sutured in the cystic duct as I thought drainage was indicated. I was able to cover the raw surface on the under surface of the liver by approximating two flaps of the serous coat of the gall-bladder. A small rubber drain was also fixed to the cystic duct and the wound closed.

10-9-'12. The patient has vomited but once since the operation and is in good condition.

10-24-'12. Has been up for several days; wound practically healed; no discharge of bile at any time; in good shape and goes home in a day or two.

This case is included in this list only in order to illustrate the "strawberry gall-bladder."

(All of these patients, with one exception, were anesthetized with chlorid of ethyl followed by ether and preceded one half hour by a hypodermic of morphia and atropine.)

Our failures to diagnosticate properly the conditions we treat are half the time due not to the fact that we do not know the differential diagnosis, but because we are struck with some prominent feature of the given case, jump to a conclusion and never consider the other possibilities. The making of a "snap diagnosis" has been a stumbling block long enough and often enough in the experience of us all. A little more time given to the other possibilities will often change the apparently brilliant "snap diagnosis" into a different and saner one and sometimes save the operator much chargin. The mistakes made honestly and conscientiously we can forgive, but those attributable to careless methods of examination and to over haste to operate should worry us always. How should a surgeon feel who, without examining the chest, opens an abdomen for a supposed perforation of the gastrointestinal tract, finds nothing and sees his patient die in a few days from pneumonia; or the internist who treats a child for rheumatism and then sees repeated operations for or death from osteomyelitis.

We need always to test our diagnoses and consider all possibilities. If we do this and make errors they cannot be counted against us, and if we do it our mistakes will be fewer.

As was said to me recently by a medical man "abdominal diagnosis before the days of abdominal surgery was easy and few mistakes were made; if the patient recovered of course we were right and if he died we too were right." The old Spanish proverb, "The earth hides as it takes, the doctor's mistakes," is no longer true. Now our mistakes are more frequent because the abdomen is opened and the true condition is found.

We have learned much in twenty years, but more is to be learned and I believe a rehearsal of our errors in diagnosis will help us as much as anything. A review of my own mistakes I think will help me and I hope they may be of some help to you.

I once sat at the feet of a good and great man who prayed a prayer which every medical man should pray, "O Lord, make us dissatisfied with ourselves."

CONDITION OF THE UPPER REGION OF THE ABDOMEN IN RELATION TO DISEASE OF THE GALL-BLADDER.*

BY CHARLES G. STOCKTON, M.D., BUFFALO.

IT should be possible to make a diagnosis of disease in the right upper quadrant of the abdomen without having resort to surgical exploration.

No statistics exist which show the proportion of unsuccessful surgical explorations. Data for such statistics are not to be procured, for many such explorations are made by men of low ideals, and men of low ideals do not report their failures.

There is the widest difference between good surgery and bad surgery, but there is an equal disparity between good and bad diagnosis.

An indifferent clinician and a surgeon who makes a "roving expedition through the abdomen" are natural associates.

It is necessary to strive, and to keep striving, for perfection in diagnosis. As proficiency increases the purely exploratory incision will become unpopular. This paper deals with disease of the gall-bladder and with other pathological conditions of the right upper quadrant of the abdomen which to the clinician may offer difficulty in diagnosis.

Cholecystitis and allied conditions, duodenal and pyloric ulcer, appendicitis, cancer of the stomach with metastasis to the liver, cancer of the ascending colon, slowly perforating peptic ulcer with abscess, some cases of syphilis of the liver, septic endocarditis with secondary infection of the liver and biliary apparatus, affections of the pancreatic head and occasionally, septic right kidney represent the group of diseases which often, either in origin or in attending symptoms, are related to the right upper quadrant of the abdomen. These conditions may puzzle the diagnostician.

Important among the causes of obscurity in diagnosis are:—

(*a*) The development and persistence of symptoms in an organ as results of disease in another, usually, but not necessarily, contiguous part.

(*b*) Comparatively trivial local disease accompanied by severe and misleading symptoms; or, the reverse of this.

(*c*) The simultaneous presence of two diseases.

(*d*) The influence of diathesis and metabolic peculiarities not only in the inauguration of symptoms, but also in masking conditions and in delaying recovery.

* Read before The Massachusetts Medical Society, June 11, 1913.

Permit me to consider these divisions of the subject in order.

1. THE APPEARANCE OF SYMPTOMS IN ONE ORGAN WHEN THE TROUBLE IS LOCATED IN ANOTHER.

For the most part these symptoms arise (*a*) because obstruction at the site of disease interferes with the function of some related part; or, (*b*) because irritation at the seat of disease, acting through the nervous system excites disturbances of function in other parts. Such irritation may be transmitted directly through a nerve, or it may act reflexly; the impulses may follow through the spinal axis, through the sympathetics or more particularly through the division of fibres now spoken of as autonomic nerves. (*c*) Secondary infections or metastasis may give rise to local symptoms of such importance that the primary disease is overlooked.

Among the familiar obstructive causes are enlargement of the head of the pancreas, opposing the flow through the ductus choledochus; ulcer, inflammation and edema, or growth in the duodenum, leading to swelling and closure of the common duct; tumor or inflammatory bands interfering with the course through the biliary or pancreatic passages, the duodenum or pylorus; narrowing of the intestine impending the flow through the intestine above as well as through the stomach and other tributaries.

Of nervous and reflex causes of symptoms that arise in parts more or less remote from the organ diseased, the most familiar one is that which, acting through the autonomic nerves, produces vagotonic excitement and spasms or over tonus of the pylorus and stomach. The familiar symptoms of this are severe pain, a sense of epigastric tension, sour regurgitations, eructations and vomiting.

Here are the stomach symptoms, yet no stomach disease may be present. The actual disease may be duodenal ulcer, cholelithiasis, appendicitis, perityphilitis, etc. At times it is not easy to determine that the stomach is free of disease and merely affected with derangement of function by a bombardment of nerve impulses arising in disease and irritation in another organ.

When it is concluded that the gastric symptoms do not result from gastric disease, it is yet frequently difficult to decide from what organ the storm of nerve impulses is coming.

Obstruction and nerve irritation may act conjointly, and the symptoms which result may closely resemble those produced by general infection or metastasis. The value of these statements may appear in the following closer examination of the subject.

Obstructive Causes. When bile is secreted under pressure greater than the blood pressure in the hepatic vein, jaundice results; therefore, slight obstruction is sufficient to produce cholemia, even when bile appears in the stools. Jaundice may develop suddenly or very gradually; and may be persistent or intermittent.

These facts may be turned to diagnostic advantage.

A sudden and complete retention of bile, usually intermittent and accompanied by severe pain is justly attributed to stone in the ampulla; yet the same clinical picture may result from stone held in the cystic duct. However, in the latter case the pain is often more spasmodic and intense and the bile retention remains complete for a longer time, receding more slowly than when caused by stone in the ampulla.

Pressure from without, as in enlargement of head of the pancreas, leads to continuous and complete retention of bile, usually without pain. Often, following Courvoissier's law, it is accompained by an enlarging gall-bladder.

Duodenal ulcer may involve the bile papilla and thus occasion jaundice; often this is associated with intense paroxysmal pain, with exaggerated duodenal reflex and consequent pyloric spasm. Probably, in some cases, the gall-bladder is also excited to spasm. The diagnosis may be established by having resort to the string test of Einhorn. Friedenwald and Baetzer report that the Roentgen-ray shadows display a rapid emptying of the stomach and duodenum. It may be safely affirmed that this is not uniformly true. At times the pyloric spasm is so great that nothing passes the pylorus for hours together.

When that exceptional disease, cancer of the duodenum causes jaundice, the icterus may appear abruptly or slowly, but the cancer at the same time produces the well-known symptoms of duodenal block and food stagnation.

Slowly developing jaundice may follow angiocholitis, and the infection on which it depends often induces cholecystitis. Such a process must not be assumed until there have been excluded the various diseases of the liver that may cause obstruction; that is, the various types of hepatic cirrhosis, syphilis, cancer and abscess. Cirrhosis may be excluded readily; not so the other diseases. The question of syphilis is often troublesome notwithstanding the employment of the Wassermann reaction. Syphilis is the contributing factor, if not the sole cause, of most hepatic cirrhosis occurring in hospital wards. My viewpoint as to the frequency of syphilis of the liver has changed within the past few years. Most cases of those formerly regarded as hopelessly incurable are now subjected to a prolonged and intensive course of treatment with mercury and salvarsan, and the proportion that makes improvement is astonishing.

Occasionally a gumma obstructs the choledochus or cystic duct, and though more often mistaken for cancer, the symptoms may closely resemble those of cholecystitis.

Abscess of the liver would scarcely be mistaken for disease of the gall-bladder; yet amebic abscess, forming about the transverse fissure, may produce symptoms that are very suggestive of cholecystitis. Abscess in the region of the liver, but outside that organ, may

give rise to much perplexity. Abscesses of this kind, as a rule, are secondary to slowly perforating ulcer. Ordinarily a fistulous tract is formed and this may follow in various directions, governed largely by the point of perforation. Perforating the anterior surface of the stomach or duodenum, an ulcer would probably result in an anterior phlegmon; or, the process may pass above the liver and form a subphrenic abscess. Perforation of the posterior wall of the stomach would lead to abscess in the lesser omental cavity. A posterior perforating ulcer of the duodenum is prone to penetrate the retroperitoneal tissues, to burrow downwards along the psoas muscle, and to form a deep abscess, the origin of which is readily misinterpreted.

The immediate symptoms of perforation of the stomach, duodenum or gall-bladder may be mistaken one for the other and, through protecting adhesions the process may be converted into a very chronic one and be difficult of differentiation. I have seen cases in which the diagnosis was missed, even after exploratory incision, in which the patient survived for months and in which large collections of pus eventually were evacuated. One case which came to me had been diagnosed first typhoid fever, then tuberculosis and finally cholecystitis. A large abscess was recognized which on drainage was shown to occupy a space above and behind the liver. Apparently it arose from perforation at the lesser curvature of the stomach. Ordinarily such a perforation would produce only the comparatively frequent subdiaphragmatic abscess. In this case the abscess was drained posteriorly.

Another case probably arose from latent duodenal ulcer. After long study by several men, first the appendix was removed, then the gall-bladder was drained. There were many adhesions in the upper right quadrant; the patient was not relieved of his septic condition. Later, there developed symptoms of psoas irritation, and a retroperitoneal abscess with a sinus extending upwards and behind the liver was drained through the incision just above the pelvis. In this case ulcer has not been suspected. After removal of the appendix, the obscure symptoms in the right upper quadrant attracted attention to the gall-bladder, which was unnecessarily drained.

These details are given in order to emphasize the fact that many obscure cases representing signs and symptoms in somewhat distant parts, have their origin in the right upper quadrant and usually result from perforating ulcer.

Thus the right and left pleural cavities, the mediastinum, the pericardium, the greater and lesser peritoneal cavities and the retroperitoneal structure may finally bear the brunt of the disease. However, there is often a strong temptation to make the diagnosis of cholecystitis and to advise a cholecystostomy.

Cancer of the liver usually also means primary cancer of the stomach, yet at times the gastric disease is masked, and the symptom complex often strongly suggests cholecystitis. Jaundice may be absent, or, if present, it may be of various degrees of intensity, and may appear slowly or abruptly. The obstructive symptoms may duplicate precisely those of cholecystitis and gall-stones. The differentiation is usually made from the cachexia, together with the character of the stomach contents and the gastric symptoms.

The gastric cancer may be latent and easily overlooked. When a new growth springs from the submucosa, it may give rise to symptoms and to gastric contents that closely resemble those of achylia gastrica. When the biliary tract or the liver shows signs of disease, the contents of the stomach should be thoroughly investigated and, should there be marked depression of the gastric secretion, cancer should be suspected.

Malignant endocarditis in its symptomatology may closely parallel that of an infected gall-bladder. Often there is the absence of the more distinctive features of endocarditis; the liver is enlarged, and there is tenderness and muscle spasm over the gall-bladder, associated with fever and leucocytosis; a group of circumstances that may lead to a useless drainage operation. In such cases I have seen the gall-bladder drained, and the kidney, the retroperitoneal structure and the lesser omental cavity explored with negative results. Not until autopsy was a correct diagnosis made of septic endocarditis. Sometimes a differential diagnosis is most difficult. Blood cultures often are negative; the bacteria apparently being strained out of the arterial blood and lodged in the tissues, when they give rise to cloudy swelling and edema in the liver, gall-bladder, kidneys and other organs. Undoubtedly in such cases, when the venous blood is found negative, cultures should be made from arterial blood.

2. COMPARATIVELY TRIVIAL LOCAL DISEASE ACCOMPANIED BY SEVERE AND MISLEADING SYMPTOMS.

Just as it is possible for gross lesions to be present, yet attended by inconspicuous symptoms, so also local disease of minor importance, such as chronic appendicitis, stone in the bladder, movable kidney, or renal calculus may occasion marked symptoms in the right upper quadrant of the abdomen. This development of marked symptoms from moderate and perhaps distant causes is to be attributed to vagotonic irritability, native to certain individuals.

In the case of the gall-bladder, there may be characteristic signs and symptoms of chronic or even acute cholecystitis, muscle spasm, tenderness, hepatic dullness, leucocytosis, besides severe pain, vomiting, sour stomach and other expression of pyloric spasm, collectively of sufficient importance to warrant operation and drainage; yet upon examining the exposed gall-bladder it will be found normal in appearance and to have normal contents. I have seen cases in which the only abnormality discoverable was

the presence in the gall-bladder of greenish fluid, having too great consistency; no evidence of past or present inflammation, apparently perfectly healthy organ, with a patulous cystic duct. Such patients I have seen permanently cured by drainage of the gall-bladder, after they have resisted a long course of treatment, including dieting, rest and other soothing measures. The nature of such cases is rather mysterious. It would seem to be straining a point to explain the concurrent symptoms by assuming a derangement of the vagal or sympathetic nerves. A more probable explanation may be found in metabolic disturbances, hereafter to be considered.

The gall-bladder may show striking deformity from chronic inflammation, and yet produce but moderate and indefinite symptoms. This occurs when the cystic duct is permanently closed and when the content of the gall-bladder is sterile. I have seen a case in which the gall-bladder at operation was found to contain large calculi, besides a collection of sterile, "puruloid" fluid; evidently it had been bile-free for a period of years. The walls of the viscus were one centimeter in thickness. Yet in this case there was not much suffering. There was occasionally pain, for the most part epigastric, less often infracostal; at times there was sensitiveness to pressure and muscle spasm. There were the usual symptoms of an irritable pylorus, distress after meals, hyperchlorhydria and delay in emptying the stomach. All symptoms disappeared after cholecystectomy.

On the other hand, when the gall-bladder is infected and, when from time to time it becomes congested and swollen, when its spasticity is exaggerated, when the autonomic nerve fibres are highly irritable, then the suffering is likely to be intolerable. In cases of this kind the diagnosis may be difficult for the reason that the vagotonic symptoms may be conspicuous and give rise to a clinical picture that resembles duodenal or pyloric ulcer as much as it does cholecystitis.

Under these circumstances, the "string-test" of Einhorn is very useful for, by having recourse to it, ulcer may be excluded in cases wherein the anamnesis and the results of examination of gastric contents may leave one in doubt. Sometimes valuable information may be derived from radiography.

After cholecystitis, the resulting adhesions often hold the duodenum, the pyloric extremity of the stomach and the hepatic flexure of the colon in a fixed and unnatural position.

3. THE SIMULTANEOUS PRESENCE OF TWO DISEASES.

It is an experience not very rare to find cholecystitis and appendicitis, or cholecystitis and duodenal ulcer simultaneously present, or some other combination in which more than one cause is operating to produce the symptom complex. When a course of medical treatment or surgical drainage is carried out for the relief of symptoms of cholecystitis, it is embarrassing to find the symptoms continuing with their former intensity. The fact that two causes are jointly responsible for a symptom complex may not be discovered until one of these has been eliminated.

A colleague, coming from a distance, suffered from symptoms which I attributed to cholelithiasis. The gall-bladder was drained and many calculi removed, after which the patient promptly gained in weight and general health, though he continued to suffer from hyperchlorhydria and recurrent pyloric spasm. Duodenal ulcer was suspected; soon afterwards came profuse hemorrhage, following this persistent vomiting. Owing to the spasm and vomiting the "string test" and duodenal feeding were not successful.

The abdomen was opened and a dense adhesion, which appeared partially to obstruct the duodenum, was removed. The duodenum presented no visible or palpable evidence of ulcer. The patient survived two weeks, then died of exhaustion and acidosis.

The autopsy revealed a posterior duodenal ulcer, immediately below the pylorus, not discoverable without incising the intestine. In this case three causes were at work, any one of which might have produced all the symptoms, excepting perhaps that of hemorrhage.

It is occasionally inadvisable to make an unreserved diagnosis as to a single, local cause of irritation producing a symptom complex. When practicable the "string test" should be employed; careful search for occult blood should not be omitted, and a full acquaintance should be made with the gastric function by means of the stomach tube and the Roentgen rays. After having taken advantage of these sources of information and, after having used this information judiciously, there yet remains, in a few cases, good reason for perplexity.

Doubtless light may be thrown upon some of these obscure problems by trying out the possible "vagotonic" or "sympathetico tonic" state of the patient, according to the method of Eppinger and Hess.

In attempting this I have met with some interesting results, but I feel that much experience and thought are needed before conclusions should be drawn. Many cases need to be reported and analyzed, together with results of treatment, or post mortem findings.

In a desperate case in which the patient nearly succumbed to vomiting and starvation, and in which the radiograms pointed to perigastric adhesions, possibly neoplasm, at the pylorus, there were grave counter indications to a laparotomy. This apparently dying patient was unexpectedly and promptly relieved by 1-75 grain of atropine hypodermically. Also I have succeeded in relieving gastric spasm and spasm of the gall-bladder, even when there was marked local irritation, as shown later by exploration, through the subcutaneous use of adrenalin. Probably

the purely necrotic cases may be excluded by following the suggestions to be found in the work of recent pharmacology.

4. THE INFLUENCE OF DIATHESIS AND METABOLISM.

I predict a revival of an antiquated conception of the nature of gall-bladder diseases, feeling convinced that there is greater promise both of preventive and curative results than is now usually admitted. Following the work of Naunyn, Riedel, Magnon and others, we readily accepted the doctrine that gall-stones were the offspring of cholecystitis and that the latter was the consequence of infection. Of this relation of cause and effect, there can be no doubt, and yet it is but a part of the truth. This generation is occupied with the questions of infection and of surgical drainage. It is rather oblivious of the multitude of spontaneous recoveries and those effected by the Carlsbad and other cures. Little practical advantage is taken of the teachings of the ages that gall-bladder disease belongs to later life, to bodily inactivity, obesity, pregnancy, gluttony. These commonplace observances have been routed from the field by scientific data, and the ground is held by the idea that infection is present and that it is curable by operation. It is well to inquire, why does the gall-bladder lose its immunity? Why is it invaded by pathogenic bacteria? The answer to these queries, even though it involves more specific agencies, includes diathesis and metabolism.

A sufferer from infection of the urinary tract may fail to improve with antiseptics or vaccines, but when diet, baths, recreation and open air life are added to the course of treatment, immediate improvement is to be observed. Similar facts are true of diseases of the gall-bladder. It is particularly true because of the close relationship between the gall-bladder and the liver, and the liver, more than any other single organ, feels first the evil results of metabolic deficiency and the harmful effects of the lithemic and gouty diathesis. One must have lived long to recall the importance once attributed to latent gout, to lithemia and to oxalemia. However, these neglected subjects were, and yet are, worthy of closest study.

This generation will scarcely listen to one who advises a course of colchicum, alkalies, a diet scientifically prescribed, systematic diaphoretic baths, massage and out-of-door exercise in the cure of infection of the urinary or biliary tract, but surely the time is at hand when the obscure subjects of gout, oxalemia and other metabolic defects will stand again in the foreground, not only in explaining pathogenesis, but in guiding our therapeutics.

Recently Loeper of Paris[1] has shown by experimental work that oxaluria depends on oxalemia; that oxalemia is demonstrable by blood examinations; that this condition alone produces gastro-intestinal conditions that might well be ascribed to infection of the appendix or gall-bladder, or to peptic ulcer. Latent gout and oxalemia are astonishingly frequent manifestations in Americans, and it would seem that we must retrace our steps and give these subjects more active consideration. This is true as to their relationship to the diseases of the digestive tract and especially to cholelithiasis, appendicitis and to other gastro-intestinal states now too exclusively attributed to infection or to vago-tonic irritability.

It must not be supposed that I advocate a retreat from a hard-won position, or that the importance of infection is minimized. It is intended to emphasize the notion that infection may be but a corollary of diathesis and faulty metabolism. The statement is ventured that these questions of vital chemistry, although now much disregarded, bear an important relation to immunity, and should be considered in cases which today are immediately and conclusively relegated to the domain of infection or of the neuroses.

[1] Leçons de Pathologie Digestive, deuxième série, Masson et Cie, Paris, 1912.

DISCUSSION.

DR. G. G. SEARS, Boston: After listening to the papers of our distinguished visitors one certainly has less excuse for those sins of omission and commission in diagnosis of which he has been too frequently guilty. I shall occupy your time only to emphasize a point which was introduced by Dr. Gibbon but which he failed to elaborate owing to lack of time. I refer to the occurrence of cardiac complications in connection with gall-bladder disease. Their development introduces an entirely new chain of symptoms whose urgency may dominate the picture and distract the attention from the underlying cause. They appear to arise chiefly in two ways, either as the result of toxic absorption resulting, directly or indirectly, from the inflamed gall-bladder, or as a reflex phenomenon. Very little attention has been given to the subject in the text books and one finds only a rare article in the periodical literature regarding it. It required a particularly striking case to force my own attention to it, and as this exemplifies the two ways in which gall-bladder disease chiefly affects the heart and as Dr. Gibbon reported no illustrative cases, I will give a brief summary of its most important features.

The patient was a lady of 38 who had been suffering for months from slight dyspnea, a rapid pulse and occasional paroxysms of tachycardia. She also had attacks which were practically those of angina pectoris—intense pain over the precordia extending to the left shoulder—but not dependent on either exercise or excitement. She also presented a number of neurasthenic symptoms, notably flushing and a tendency to profuse perspiration. She had not yet reached the menopause. None of her complaints

suggested abdominal disease, but such symptoms might have been discovered if a more careful history had been taken. Physical examination showed a somewhat fleshy individual with a normal temperature, a pulse which while under observation never went below 90 and was frequently well over 100. The only organ found definitely abnormal was an enlarged thyroid gland. In connection with this the eyes were suggestively prominent. The question of diagnosis was carefully discussed with several other consultants, and we had about determined to consider it a case of Graves' disease associated with mis-called pseudo-angina when she had an attack of typical gall-stone colic. The gall bladder was opened, one or two large stones removed and an uneventful recovery followed. Her previous symptoms disappeared.

Some time after this I came across a paper by Dr. Robert Babcock of Chicago in which he reported 13 cases in which cardiac symptoms and gall-bladder disease were associated. His classification of these cases is so good that I will quote him. He divides them into four groups, (1) those with pronounced cardiac incompetence with dilatation, arrhythmia, feeble heart action and murmurs.

(2) Those with attacks of pain that had been called angina with evidence of myocardial inadequacy, often with dyspnea from slight dilatation of the heart.

(3) Cases with prolonged intractable intermittency of the pulse, but without dyspnea or other cardiac signs.

(4) Cases with valvular disease, whose cardiac competency was destroyed owing to attacks of colic or distressing symptoms due to the gall-bladder.

It is of course to be remembered that cardiac failure may occur without disease of the gall-bladder, and when the two are associated it is possible to overestimate the importance of the latter as a factor in the downward progress of the case. The point which I have wished to emphasize is this, that in any case presenting cardiac symptoms, especially those of an anginal character, when the cause is obscure, it is wise to go minutely into the history and to direct one's physical examination with the special object of discovering if gall-bladder disease is not the underlying cause.

DR. BOTTOMLEY: I am now old enough in surgery to be willing to learn and to be taught. For that reason I came here today unprepared, without notes and with an open mind ready to receive impressions from two papers by honest men.

A medical meeting fails of its object unless those who attend it get something from it and go away either with something in their minds that they did not have before or with something that they had before much better defined. From this meeting, it seems to me, there are two lessons to be drawn which, perhaps, may be expressed as follows:

First, it is evident from both papers that the difficulties of diagnosis of diseases of the right upper quadrant of the abdomen are very numerous and that in a certain proportion of cases, which grows less as we learn better to use means of diagnosis, an exact diagnosis is impossible. As a corollary to this, it is plain that a certain number of cases require an exploratory laparotomy as a means of diagnosis.

If I may digress a moment, let me call attention to the importance of a careful history as an aid to diagnosis. I have always thought that one of the most important things in a house officer's hospital training is his opportunity of acquiring the ability to take a good clinical history. On the surgical side of a hospital this opportunity is unusually great, for very frequently he may check up his clinical history by the facts of living pathology shown on the operating table. House officers are usually not taught to take good histories. I believe that more attention should be paid to this in hospitals.

Early diagnosis is extremely important in the treatment of diseases of the biliary tract. The dangers from surgical treatment lie not so much in the disease itself as in the sequelæ and in the complications. The simple cases do not go wrong. It is the neglected, long-standing cases of biliary disease which, when submitted to surgery, give the high mortality rate of from six to ten per cent. instead of the less than one per cent. mortality rate of the uncomplicated cases.

The second and equally important lesson to be drawn from these papers is that these diseases of the biliary tract are neither wholly medical nor wholly surgical. These cases fall within the province of the internist both ante- and post-operatively. Such cases as are not emergencies should have medical treatment before operation. Certainly, all cases should have medical treatment following operation. Some of the bad results of surgery come from our failure to recognize the fact that surgery alone will often not cure these cases. Careful medical treatment after operation should always be instituted.

DR. WILDER TILESTON, New Haven: It is a great pleasure to be with you once more, I am sure. In discussing these two very illuminating papers, I shall confine myself chiefly to diseases of the gall-bladder.

In the first place I should like to say that I agree emphatically with Dr. Gibbon in the frequency with which cases occur where the diagnosis of gall-stones is made, operation done, and no stones found, but only an infection of the gall-bladder. This is so common that I think that where the symptoms clearly point to trouble in the gall-bladder, the gall-bladder should be opened and drained even if no stones can be located. I think some of the cases Dr. Stockton mentioned in which nothing was found at operation excepting darkened and altered bile can be attributed to infection, rather than to metabolism.

In the diagnosis of gall-stones the most important point I think is a very careful history. That is the thing that is most apt to be neglected, and if I had my choice I would rather have a careful history than a physical examination and the laboratory findings. The history of these attacks is that of severe pain coming on spasmodically and without any relation to food. The pain in the right shoulder is also very important from the point of view of diagnosis, and it should be remembered that it may be only in the right shoulder and not in the gall-bladder region at all.

In the second place I would speak of tenderness over the gall-bladder upon a deep breath, present in most infective cases, but absent where the stones are lying quiescent in the gall-bladder.

Differential Diagnosis.—It should be borne in mind that in gall-stones the pain is frequently in the epigastrium. In the case of duodenal ulcer the history again is of more importance than physical findings or laboratory findings. There is a story of pain coming on in the well-known manner when the stomach becomes empty and this is extremely suggestive of duodenal ulcer. The presence of occult blood in the stools of course points toward ulcer rather than gall-stones, but blood may be absent at repeated examinations in the case of ulcer. In ulcer hyperacidity is more common than in gall-stones, but it is not constant. More important in my opinion in the presence of ulcer is an increased amount of gastric contents after a test meal. In most cases of duodenal or gastric ulcer especially if near the pylorus the diagnosis may be made with great probability from the x-ray. The important points are: (1) a six-hour residue which is often found where no fasting contents can be found with the stomach tube; (2) the loss of outline of the pylorus in several successive plates; and (3) the absence or irregularity of the duodenal cap. In a great many cases of duodenal and pyloric ulcer, some one or more of these x-ray findings are present, and when present they are extremely reliable.

Adhesions from the gall-bladder to the stomach may cause dilatation of the stomach, but that is quite rare. In the case of gall-stones the calculi themselves are not as a rule to be shown by the x-ray. The x-ray findings in cholelithiasis are suggestive rather than diagnostic. If adhesions from the gall-bladder to the stomach or colon are present, then you may get signs of them in the x-ray and, if they show, they suggest the diagnosis of gall-stones. It is important to remember that adhesions very rarely give rise to dilatation of the stomach or a six-hour residue in the x-ray picture.

The differential diagnosis between gall-stones and chronic pancreatitis is often impossible. This is less important, however, as the treatment is the same for the two conditions.

Another disease that should always be borne in mind in making a diagnosis of gall-stones is pyelitis on the right side, and unless the urine is examined a serious mistake may be made. Pyelitis is a very common disease in women and in young children, and is very frequently not recognized on account of failure to examine the urine properly. A catheter specimen in the case of a woman is almost essential.

I want to touch on the frequency of syphilis as the cause of hepatic cirrhosis, and also the excellent results to be obtained from anti-syphilitic treatment. There is no doubt that a great many cases of cirrhosis are being allowed to die which might be saved by treatment with Salvarsan and mercury, and, in case you are unable to have a Wassermann reaction done, it is better to give the patient the benefit of the doubt and give anti-syphilitic treatment.

DR. DAVID CHEEVER, Boston: The impression which stands out most clearly in my mind in connection with the diagnosis of gall-stones is the relative uncertainty in the diagnosis, except in typical cases, and this feeling has been confirmed by the two splendid papers which we have just heard. In many cases, we can have little more than a shrewd suspicion, and the more cases I see the more distrustful I feel of any evidence, except that which is purely objective, in making the diagnosis. If one can feel the distended and tender gall-bladder, or if intermittent or persistent jaundice appears in connection with other cardinal symptoms, or if, as is occasionally the fact, shadows are revealed by a radiograph, the diagnosis of gall-stones or at least of gall-bladder disease may be almost certain. The dependence which Dr. Tileston places upon the history is not justified by my own experience, unless indeed he means to refer chiefly to those cases which have a history of characteristic radiating pain, occasional evidence of occlusion of the ducts, and secondary gastric symptoms. Of course, as in any other disease, a carefully analyzed history is very valuable, but, in my experience, the very frequent cases which present a rather vague history of discomfort in the right upper quadrant and epigastrium, with varying complaints of gastric dyspepsia are quite as apt upon exploration to prove to be caused by some other condition. I am in entire accord with the statement of the other speakers, that it is much more common to make a diagnosis of gall-stones and upon exploration find some other condition than it is to find gall-stones unexpectedly when interference was undertaken for some other supposed disease. The past has shown that it is unwise to prophesy anything but progress in the diagnosis of disease, but it seems to me that there is nothing at present in sight to indicate the probability of much advance in the diagnosis of gall-stones unless progress shall be made in the use of the x-ray. At present, a small minority of gall-stones are imperfectly shown, but variations in the quality of the tube used and other conditions not wholly understood, as I am informed, sometimes enable the roentgenologist to obtain better plates. The diagnosis of diseases of the other abdominal organs, except pos-

sibly the pancreas and the spleen, has made much greater strides in recent years. The chemical examination of the contents of the alimentary tract, the direct inspection of parts of the tract, and the use of the x-ray after a bismuth meal or injection have greatly simplified diagnosis in this field, and the cystoscope with ureteral catheterization and pyelography in connection with the x-ray have made the lesions of the bladder, and, in many cases, of the kidney, almost an open book.

The important thing is for the internist, as well as the surgeon, to realize that, in many obscure cases, an exploratory incision is one of the justifiable diagnostic procedures instead of being solely reserved as a therapeutic measure only if the diagnosis has been made. When the abdomen has been opened for suspected gall-stones, and none can be demonstrated, I believe it is wiser in most cases to drain the gall-bladder, unless some other condition is found to account for the symptoms. Otherwise, a very small calculus or a slight degree of infection of the gall-bladder may be overlooked. This procedure adds only slightly to the duration of the convalescence, and, if there proves to be even a slight cholecystitis or cholangitis, the right treatment will have been carried out.

In connection with the simulation of gall-bladder disease by other conditions, I recall a woman with acute abdominal symptoms centering in the upper abdomen, presenting diffuse tenderness and pain, radiating toward the right scapula in characteristic fashion. Operation revealed a ruptured right extra-uterine pregnancy, with moderate hemorrhage, and a normal gall-bladder. Some of the extravasated blood had passed up from the pelvis into the sub-hepatic region, possibly thus giving rise to the symptoms.

Dr. Homer Gage, Worcester: I am very glad of this opportunity to express my appreciation of these two papers which have certainly been very illuminating, and very valuable.

Dr. Bottomley has spoken of two lessons which he has derived from them, to which I would add a third—viz., that if a man of Dr. Gibbon's experience and ability and conscientiousness in studying his cases, makes his mistakes, there is some excuse for our own—although they are none the less distressing and humiliating.

A fourth lesson, it seems to me, is that the opening of the abdomen for gall-stones should be confined to those who have had some opportunity for the observation and study of living pathology.

When experts find it so difficult, even with all possible precautions, to recognize the exact condition, either before or at the time of operation, it seems wrong to encourage the performance of such operations by men of insufficient experience.

I am glad of the opportunity to thank Drs. Stockton and Gibbon for their fine papers.

Dr. J. B. Blake, Boston: There is one other lesson to be learned from these papers and that is the not infrequent occurrence of more than one lesion of several coincident conditions. It is extremely important and apt to be forgotten. We ought to be given a hint from the records of the pathologist. They make a series of diagnoses; and of course it is true that we in practice seldom get advanced surgical or medical disease without having more than one serious lesion present.

Dr. Stockton referred to late syphilis, but syphilis may also present the symptoms of acute gall-bladder disease. I saw a case admitted to the gynecological service; it was apparently cholecystitis and probably gall-stones; temperature, tenderness and white count all being present. At operation a perfectly normal gall-bladder was found, but there was a tumor just to the left of the gall-bladder region, which was hard, white, round, about the size of a golf ball, and disappeared under treatment; a section showed gumma.

I am inclined to think that syphilis with acute symptoms is not quite so uncommon as we previously thought. The necessity of early operations in acute lesions of the right upper quadrant cannot be overestimated, and I am going to repeat a point which I made yesterday—namely, that it is easy to get patients to come into the hospitals for appendicitis, but it is much more difficult to get them to come with gall-bladder disease, and practitioners ought to try to make them come early, no matter how difficult the task of education may be.

Dr. J. H. Cunningham, Boston: It seems from what has been said that there is rather definite percentage of error in the diagnosis of diseased conditions of the gall-bladder that direct attention to other structures in the right upper quadrant of the abdomen for the explanation of some of this error. The right kidney, I believe, if examined properly, will furnish evidence which will diminish this percentage of error somewhat. There are two diseases of the kidney simulating gall-bladder disease. One is acute and the other chronic. Acute hematogenous infection of the kidney, or septic infarcts, simulates acute gall-bladder disease. Such cases have been operated upon for gall-bladder disease and have died, and the right kidney found to be the site of an acute hematogenous infection. The chronic condition referred to in the right kidney is hydronephrosis. This sometimes closely resembles chronic gall-bladder disease. The diagnosis of hydronephrosis cannot always be made from the history, physical examination and urine analysis, and the only way by which a hydronephrosis may be differentiated from gall-bladder trouble in certain instances is by cystoscopy catheterizing the right ureter and injecting the kidney cavities with one of the fluids which cast a shadow with the Röentgen rays. By so learning the capacity of the kidney cavity and recording its appearance on an x-ray plate hydronephrosis, its character and its etiological factor, may be demonstrated.

So long as we all admit error, I think we

ought to think of acute hematogenous infection of the right kidney in questionable cases of acute gall-bladder disease and of hydronephrosis in the chronic cases where the symptoms do not seem to be absolutely those of gall-bladder trouble.

DR. RICHARD C. CABOT, Boston: As long as all the possible sources of error are being brought out by Dr. Cheever, since he even spoke of extra-uterine pregnancy, it seems to me that we ought to mention one other not uncommon mistake. I refer to the gastric crises of tabes. They are operated upon for gall-stones quite often. I have seen at the Massachusetts General Hospital several cases which had been operated on and I have seen other cases which came mighty near being operated.

We used to think that if a patient had good knee jerks and good pupils it was not tabes, but this is not always the case. You ought to tap the spinal cord. I have known instances where we got a positive Wassermann in the spinal cord though the blood Wasserman was negative and the pupils and knee jerks normal.

The only other thing that I would like to say is to reinforce what was just said in relation to the operation being performed by the man that knows the most. I do not know of any disease in which, from my own experience, it makes so much difference who operates, as in gall-bladder disease.

DR. F. B. LUND, Boston: I am certainly very strongly of the opinion that the man who has had the most experience ought to operate on these cases. They are often extremely difficult. I have probably had as many mistakes as Dr. Gibbon has had in diagnosis. Gall-stones may occur without gall-stone colic, and the larger the stone is, the less apt we are to have the colic. Gall-stone colics are the kind of gall-stone cases that are mistaken for ulcer of the duodenum. I have had cases of this kind. Then, gall-stones are not infrequently mistaken for cancer. We have a case in the hospital now of a man sent in for gall-stones because of the acute pain and repeated digestive disturbance, in which a good man had made a diagnosis of gall-stones. A mass was felt and the patient was emaciated. The x-ray showed what was thought to be a cancer, and what we found was a chronic ulcer which had perforated, the pains of perforation being mistaken for gall-stone colic.

Regarding excision of the gall-bladder: if you find a single stone impacted in the cystic duct or if the gall-bladder is much thickened, from my experience it is usually wiser to take out the gall-bladder than simply to drain it. In a recent case, the wife of a physician, we were in doubt whether to drain or to excise the gall-bladder, but finally decided to excise it on account of the great thickness of its wall, which thickening was largely inflammatory. In the separation of the adhesions preliminary to excision of the gall-bladder, we cleared the cystic duct and found a very large stone impacted in it, that would have been overlooked had we not decided to excise the gall-bladder, and it would undoubtedly have caused great suffering and necessitated a second operation.

Where we are dealing with stones in the common duct, the history is all important. If you have chills with intermittent slight jaundice, by all means explore the common duct. I do not believe in opening the common duct in all cases, but in making a very thorough examination before stating that stones are not there. It is very easy for a loose stone in the common duct to slip up and down in such a way as to escape the palpating finger; and in a recent case with a very fat woman, I made three distinct attempts to palpate a stone before finally doing so. I mean, of course, with the abdomen open at the operation. If I had been less persistent, we should not have cured our patient, as there were stones in the gall-bladder which might have accounted for some of her symptoms; but the symptoms of chills with recurrent attacks of slight jaundice which she presented, stones in the gall-bladder would not account for. By the way, in her case, there was at no time colicky pain: merely a "slight distress" she called it, in the epigastrium. This is another misleading symptom in regard to diagnosis.

In some of these cases, one has to make a snap diagnosis. Of course, if there is time, a more careful diagnosis should be made; but in urgent cases, one has at times to go ahead, and in some cases the snap diagnosis may be right. I have had the experience of making a snap diagnosis and afterwards having time to think the case over of deciding my snap diagnosis was wrong and making another diagnosis, and then, on operating, finding that the snap diagnosis was right. This does not mean that one should not take all possible care in diagnosis, but that in the careful after-thought on a case, one may, by giving consideration to less prominent symptoms, fail to accord due prominence to the one symptom which enabled the surgeon to make a correct diagnosis at first, so that a shrewd guess is sometimes as good as careful reasoning. We must never forget, however, that if we do make a mistake, our conscience is not clear unless we have employed every means to reach a correct diagnosis.

DR. GIBBON: There are a few more things to emphasize if I may be pardoned for speaking again.

First, about the history taking. House officers should be thoroughly trained in correct history taking. It is a thing that every practitioner in medicine should do. He may not be able to carry out stomach analyses, to make bacteriological examinations and to conduct a great many other investigations, but there is no question about it, that the history of these patients will do more than any other one thing to differentiate the lesions, and this is a thing which we can always do if we will only take the time. There is one common excuse for not doing it and that is the

fact that one is so busy that he has not time. It pays to take the time and then when the thing is done, someone else will not be finding later that you have been treating him without the knowledge which a good history would have given.

Of course we shall go on making mistakes. We always do. But this will help to eliminate them.

In regard to tabes, about a month ago I divided the posterior nerve roots in a case of tabes with epigastric pain, in which a rather energetic but inexperienced surgeon had done a gastroenterostomy. The mistake was not in operating on this patient; but in doing the gastroenterostomy when no ulcer was found. Now this is a mistake which I think we are liable to make.

I do not believe that we ought to drain the gall-bladder in all cases in which the symptoms are present and we find nothing, but if we do find adhesions about the gall-bladder or any infection then we ought to drain it.

I was struck by one of the cases referred to in Dr. Stockton's paper where the ulcer was not felt. I believe that with experience we can feel most chronic ulcers of the duodenum and I do not think the chronic ulcer can easily escape detection.

It seems to me that acute erosion is not common, and if a patient has a chronic ulcer you ought to be able to find it.

I believe we can get over a good deal of our chagrin and difficulty if instead of making the diagnosis of gall-stones we say there is gall-bladder disease. When you operate for appendicitis you tell the patients they have an infection of the appendix and I believe that if we describe these gall-bladder diseases by saying that they have a gall-bladder infection, and possibly stones, we will not be so likely to destroy the confidence of our patients, because in a given case where you have told a patient that he has a stone, and then you do not produce a stone, he will never be satisfied.

ACUTE AND CHRONIC SUPPURATION OF THE MIDDLE EAR.*

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The subject of suppuration of the middle ear, which until within a few years, has been greatly neglected not only by the lay public, but also by the profession, is of the very greatest importance to you as general practitioners. The acute suppurations, especially in infants and young children, are neglected, not occasionally, but as a rule. This very neglect of a condition easily amenable to proper treatment is the source, in the vast majority of cases, not only of subsequent deafness, with its great economical depreciation of value of the individual, but of grave danger to life itself. Proper and early treatment will, in practically every case, result in complete recovery and in the restoration of perfect hearing.

An aural discharge lasting for months or years, without pain or occasional slight pain, came to be regarded as of little consequence,—the seriousness of the condition being measured largely by the impairment of hearing which it occasioned. Fostered by the fact that it is not unusual for the discharge to cease suddenly on the advent of a serious complication, the idea that it was dangerous to check the discharge from a suppurating ear was formerly credited by many in the profession, and is still held by the majority of the lay public. An occasional irrigation of the canal for the purpose of cleanliness and lessening of the foul odor was all that was considered necessary or advisable.

Of late years, however, a majority of the profession, and, as a consequence, a large percentage of the public have come to realize the significance of a purulent otitis aside from its relation to hearing, and that the majority of intracranial complications of otitic origin spring from cases of chronic otorrhea. This fact has also been brought to the attention of the public since the life insurance companies, recognizing the danger, have refused to take risks on any who have a suppurative otitis.

The fact that a discharging ear is a constant and serious menace to life cannot be too strongly impressed upon the minds of the profession and the general public.

This paper is presented to you, not as a scientific thesis, but merely to bring to your attention certain points in the recognition, treatment, and prognosis of the aural suppurations, which may be of value to you in the practice of general medicine.

The middle ear consists of the tympanic cavity, with its contained ossicles, the eustachian tube and the mastoid cells; it is lined throughout with a mucous membrane, continuous with that of the nose and nasopharynx.

The eustachian tube enters the middle ear through the upper anterior wall. The outer wall is formed for the greater part by the yielding drum membrane and is readily seen during the examination of the ear through the external auditory canal. The inner wall is formed by the outer wall of the internal ear and is of great importance in the consideration of intra-cranial complications. The floor of the middle ear is formed by the bulb of the jugular vein. The mastoid cells drain into the middle ear through a small passage, the aditus or antrum, opening in the upper posterior wall. This passage is easily shut off by swelling of the mucous membrane with consequent backing up of the pus in suppurative conditions. The roof is formed by a thin plate of bone, often dehiscent, separating the tympanic cavity and the middle cranial fossa. Surgically and medically the middle ear should

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be considered as an appendage of the nose and nasopharynx since at least 90% of the aural infections are secondary to a primary infection of the nose or throat.

The bacteria in acute otitis media in the vast majority of cases gain entrance to the tympanic cavity by way of the eustachian tube. As a result of this invasion there is a subsequent injection of the blood vessels, swelling of the mucosa, exudation, erosion and ulceration of the thin membrane lining the middle ear, rupture of the drum membrane, and sooner or later bone necrosis.

That you may not become confused the subject will be taken up in sequence, as follows:—

1. Acute otitis of childhood.
2. Acute otitis in adult life.
3. Treatment of the acute suppurations.
4. Chronic suppurative otitis.
5. Complications and treatment of chronic suppurative otitis.

1. The great prevalence of acute aural suppurations during infancy and childhood is due to the almost universal presence of adenoids and tonsils, giving rise to nasal obstructions and mouth breathing, combined with the fact that the eustachian tube at this age is short, more horizontal and of relatively larger calibre than in the adult. The greater frequency of the acute exanthemata during childhood is also very important as a predisposing factor.

You will come in contact with two general types of acute otitis in childhood:—

The first presents very acute symptoms; the child, otherwise apparently healthy, screams with pain, has a rapid and high rise of temperature often accompanied by convulsions, tosses about in bed, occasionally has retraction of the head, and in fact may present symptoms of acute meningeal irritation.

In the second type the child suffers from a gastro-intestinal disturbance irrespective of diet, is very restless and irritable, has marked variation of temperature, will occasionally cry out as if in pain, loses weight and yet manifests no acute symptoms, as in the first type. An examination of the ear will disclose a slightly reddened edematous drum membrane, the landmarks of which are obscured, the general appearance being that of red velvet. Bulging of the drum is slight, since the pus is draining into the naso-pharynx through the short and large eustachian tube; in many cases the otitis goes on to resolution without rupture of the drum. This is the condition found in practically all cases of so-called teething. The majority of the cases of catarrhal deafness occurring in adults date from this type of otitis, since, owing to the long continued low grade inflammation of mucous membrane, structural changes take place in the mucosa.

During the course of the acute infectious diseases, after the temperature has fallen to normal, should there be a sudden rise of temperature, with or without the other symptoms of which I have spoken, always examine the middle ear. Acute otitis occurs in 20% of the cases of scarlet fever, in 10% of the cases of diphtheria, and 7 to 8% of the cases of measles.

We may divide the treatment of the acute otitis of childhood into, first, the treatment during the attack, and secondly, the interval treatment. In only one way can the surgeon relieve the local condition, and save the patient either from a serious menace to his life or serious danger of permanent impairment of his hearing. Early and free incision of the drum membrane, in all cases of acute otitis in childhood, is urgently called for.

The operation should always be performed under general anesthesia. The incision in the drum membrane should extend from the tympanic vault downward and forward for at least one-half or two-thirds of the periphery. Where there is any sinking of the superior canal wall the incision should be carried well outward on the superior wall of the bony meatus. In this way free drainage, not only of the tympanic cavity, but also of the antrum, is secured.

Paracentesis properly performed will do absolutely no harm. The after-care following paracentesis consists, when the discharge is serous, in light wicking of the external canal with sterile cotton or gauze. Should the discharge be purulent, the external canal should be douched with hot sterile water at least every two hours.

The interval treatment consists in the removal of the adenoid and tonsils, which an examination of these children will almost invariably reveal. It must not be forgotten that the fossae of Rosmüller should be cleaned out—as well as the large central mass of adenoid tissue, since, when this is overlooked, the otitis will recur as before.

In dealing with mastoid involvement in children, I am inclined to operate at an earlier period than in adult life. The external auditory canal in the child is relatively much narrower than in the adult, and drainage along this channel is correspondingly less free. Moreover, the mastoid process in early childhood is but poorly developed, and an inflammatory process spreading from the mastoid may readily infect the meninges. It is not uncommon to find that the pus has found its way through the open sutures and formed a post-aural abscess without rupture of the drum membrane.

In all cases, therefore, of middle ear infection in children, where free paracentesis does not relieve pain and temperature at the end of a few days or in the presence of a post-aural abscess, the mastoid operation should be performed.

Acute otitis in adult life most commonly occurs as a sequence of influenza or the so-called head colds. Acute and chronic suppuration of the nasal sinuses predispose to this infection indirectly through violent blowing of the nose, forcing the infected secretions into the middle ear. Swimming and diving also frequently cause acute otitis, the water being forced into

the naso-pharynx and thence into the middle ear in the attempt to expel it. The middle ear is not infected through the external canal, as is commonly supposed by the laity, unless there is an existing perforation of the drum membrane.

The symptoms of the middle ear infection in the adult are, first, a sensation of fullness and a diminution of hearing in the affected ear, due to the accumulation of exudate and closing of the eustachian tube, followed in a few hours by sharp, lancinating pains, increasing until they are excruciating and often described as boring in character. Examination of the drum membrane at this time will show it to be bright red and slightly bulging. If seen during this early stage active suppuration may occasionally be averted by forcible inflation by means of the Politzer bag, douching the external canal with hot water and free catharsis.

If not seen at this stage, the pain increases as a rule, and a few hours later the drum membrane will be found to be infiltrated, edematous and bulging, the landmarks obscured, the color either a dark red or at the most prominent point of bulging it may be yellowish, owing to the pus in the middle ear.

If the drum is not opened artificially at this time, spontaneous rupture of the membrane usually takes place. These ruptures are as a rule inadequate, since they simply relieve pressure and are not sufficient to allow free drainage of the tympanum and antrum.

Influenza infections are not unusually accompanied by the formation of bloody blebs on the drum membrane and inner walls of the external canal, and most excruciating pains.

Should the case be under observation, a free incision of the drum membrane should be made under a general anesthetic. This also applies to the cases which have gone on to spontaneous rupture, when the drainage is not free.

Temperature in the adult, if present after the first 24 hours of an attack of acute suppurative otitis without intra-cranial complications, is as a rule due to the general infection of which the otitis is a complication.

Since the mucous membrane of the mastoid cells is directly contiguous with that of the middle ear, it follows that the mucosa of these cells usually becomes involved, to a certain extent, in every case of middle ear infection. In the majority of cases, however, the purulent invasion of the mastoid subsides very quickly in response to drainage of the middle ear.

Acute purulent otitis occurring during the course of acute infectious diseases, typhoid fever, influenza and pneumonia, are more prone to develop mastoiditis owing to the natural virulence of the infection and the lowered vitality of the patient.

Failure to establish early and efficient drainage through the drum membrane in acute otitis is the most common factor in the causation of acute mastoiditis.

Following the infection of the mucous membrane in the mastoid cells, granulation tissue is formed, the blood supply becomes lessened with a consequent necrosis of the thin cellular walls. This necrosis may continue and form larger cavities in the mastoid. Eventually the necrosis of the cortex allows the pus to pour out under the periosteum, giving rise to the typical post-aural abscess. On the other hand, the inner table may necrose, thus opening up the path for intra-cranial infections.

You will come in contact with two general types of mastoiditis.

The one is characterized by a very profuse otorrhea, with little or no pain.

The second, having only a moderate otorrhea, is accompanied by constant and intense pain.

In the class of cases characterized by profuse discharge and slight pain, the discharge becomes more and more purulent and copious, it being almost impossible to keep the external canal free of pus. Examination of the ear will show the drum membrane red and swollen, the posterior superior canal wall beginning to droop, and yet no tenderness over the mastoid and no pain. The patient is irritable, loses weight and is evidently suffering from a low grade of toxemia. This condition may continue for several weeks, and the seriousness of the aural condition be called to the attention of the physician only when the pus appears superficially over the mastoid, showing the typical post-aural abscess or breaking through the tip and dissecting the deep tissues of the neck, commonly designated as "Bezold's mastoiditis."

The more common type is accompanied by pain and moderate discharge from the beginning. The pain, after the opening of the drum, is not excruciating, but fairly severe and radiates over the side of the head. Examination of the canal and drum membrane will show the drooping of the post-superior canal wall and the bulging swollen drum membrane. The temperature in adults in uncomplicated mastoiditis rarely goes above 100 degrees.

Since the general practitioner must in many cases rely upon tenderness of the mastoid as the most important physical sign leading him to suspect an involvement of the region, I shall explain this in detail.

The signs are, as you know, upon palpation, tenderness over the mastoid either at a point just behind the superior attachment of the auricle, corresponding to the mastoid antrum, or over the tip of the mastoid, at the insertion of the sterno-cleido muscle, or posteriorly over the emissary vein. Rarely we have absence of tenderness in these regions, but we may find tenderness just above the superior insertion of the auricle, at the posterior root of the zygoma. The occurrence of edema over the mastoid process, while frequently significant of mastoid inflammation, is more usually characteristic of a furunculosis of the canal. The mere presence of edema over the mastoid, therefore, should not be taken as evidence of mastoid involvement

without a careful inquiry into all the symptoms and a thorough examination of the ear. The presence of a fluctuating swelling over the mastoid process naturally indicates that there has been a suppuration within the mastoid cells, and that the abscess has evacuated itself through the cortex. Quite frequently we find a rather diffuse swelling beneath the sterno-mastoid muscle. This swelling is brawny and seldom gives any sign of fluctuation. It is an indication of the rupture of the mastoid abscess through the tip of the mastoid into the digastric fossa.

Tenderness over the mastoid antrum is always regarded with suspicion, but if the ear has been freely drained by incision of the drum, the presence of this symptom alone is not an indication for the mastoid operation during the first 48 or 72 hours of the disease—provided severe pain and sepsis are present. A degree of tenderness which would not indicate the necessity for operation on the third day after an acute otitis, if present on the seventh or eighth day, in spite of free drainage of the middle ear, would be an indication for operation, as also would a recurrence; for example,—given an acute case in which the mastoid was tender for two to three days following the paracentesis, this apparently disappears, and yet in spite of free drainage recurs and becomes more and more pronounced.

The treatment of acute otitis media may be divided into two stages; first, treatment of the simple middle ear infection, and secondly, treatment after involvement of the mastoid.

The indications necessitating drainage of the middle ear being present, the external canal should be douched with alcohol or bichloride 1-3000, to diminish the possibility of additional infection from without. The patient should in all cases, over one year of age, be anesthetized; nitrous oxide or primary ether being the most satisfactory. A free incision should then be made in the drum membrane, starting just behind the short process of the malleus and following the posterior periphery, and should be carried downward and forward for at least two-thirds of the circumference of the drum membrane. The subsequent discharge being serous or mucous, the canal may be wicked with sterile gauze, the wicks being changed as often as saturated. The discharge being purulent or subsequently becoming so, the canal should be douched with at least one quart of hot sterile water every two hours, the canal being dried thoroughly with sterile cotton after each douching. A fountain syringe at a height of about two feet above the patient's head, is found to be most satisfactory. Rest in bed and free catharsis are essential. Should the infection increase with evident involvement of the mastoid cells, an ice bag should be applied to the ear. The vast majority of the acute cases will undergo resolution and recover with a restoration of normal hearing under this treatment.

Continuation of the infection in the mastoid cells, as evidenced by persistent purulent discharge, pain and tenderness over the mastoid, drooping of the superior canal wall, edema over the mastoid, increasing diminution of hearing or general symptoms of toxic absorption indicate the necessity of the simple mastoid operation.

Immediate operation is called for: (1) in the presence of a post-aural abscess or an evident infection of the neck, (2) upon the occurrence of a facial paralysis, (3) upon the advent of symptoms of labyrinthitis, the chief of which are sudden deafness, nausea, vomiting and nystagmus, and (4) upon the appearance of symptoms of intra-cranial involvement.

The simple mastoid operation, when properly performed previous to the advent of serious complications, is practically without danger to the life of the patient and is followed by complete restoration of hearing.

Endo-cranial lesions resulting from acute suppurative otitis are likely to be very acute and accompanied by violent systemic disturbances, owing to the fact that the infection has entered the cranium through the lymph sheaths of the blood vessels or by means of the blood vessels themselves (rather than by erosion or disease of the bone as in chronic cases), and as a result of the rapidity of the invasion, there is no opportunity for resisting barriers to be thrown out.

During the course of an acute otitis or mastoiditis, before or after operation, the occurrence of severe and persistent headache, dizziness, obstinate constipation, sudden rise of temperature, with symptoms of cortical irritation (such as exaggerated reflexes, Kernig's sign, photophobia, and retraction of the neck) indicate meningeal infection. I wish to emphasize the symptom of persistent headache. When this persists in spite of the mastoid operation and is not relieved by sedatives you may be practically certain that a localized meningeal infection is present and may burst forth with the more acute symptoms at any moment. I have recently seen at the Massachusetts Eye and Ear Infirmary three such cases, all of which were fatal.

Infection of the large venous channels within the cranium may occur, either by direct extension from the middle ear, without secondary involvement of the mastoid process, or may be secondary to mastoid inflammation. I have seen several cases in which extension to the jugular bulb took place, without apparent involvement of the mastoid. Infection of the venous channels is rapidly followed by thrombosis, usually of the sigmoid sinus and jugular bulb. The diagnostic features of this condition are a typical septic temperature, high white count (when associated with a marked septicemia the white count may be very low), chills, sweating and headache. For example, when a patient giving a history of recent acute suppurative otitis, with or without present inflammation of the middle ear, complains of general malaise and

headache, has a sudden rise of temperature to 103+, followed by equally sudden remission continued over 72 hours with or without chills, increasing leucocytosis, a careful differential diagnosis having ruled out other complications, the diagnosis of thrombosis of the lateral sinus may be made with certainty. Ligation of the internal jugular vein and the evacuation of lateral sinus is followed in 80% of the cases by recovery.

The exact moment at which an acute process passes into what is usually accepted as chronic disease is impossible to define, and depends not so much on the duration as upon the progress of certain organic changes and upon the failure to arrest the disease during the acute phase.

Chronic purulent disease of the mucous membrane lining the middle ear tract is one of the most important of the morbid conditions of the ear, not only on account of the damage inflicted upon the hearing, but also on account of the serious intra-cranial complications which it may induce.

Certain local and general conditions predispose to chronic suppuration of the middle ear, such as previous acute processes which have given rise to intra-tympanic adhesions, formation of granulation tissue and subsequently polypi, or a small perforation of the drum membrane, any or all of which may cause mechanical obstruction to free drainage and retention of septic material in the tympanic cavity.

The most important contributing factors in the prolongation of aural suppurations and the factors most commonly overlooked are pathological conditions of the nose and naso-pharynx, namely, adenoids and tonsils, nasal obstructions due to deviation of the nasal septum and enlarged turbinates, and the septic infections of the nasal sinuses.

The pathological changes in the ear vary from a small localized suppuration to a complete destruction of the organ of audition with involvement of the intra-cranial structures. This subject is so complicated and extensive that I shall not attempt to take it up in this paper.

The symptoms common to all chronic suppurations of the middle ear are discharge, either constant or intermittent, and diminution of sense of hearing. Pain or temperature are seldom present in the absence of intra-cranial complications. The amount and characteristics of the discharge vary within wide limits. It may be scanty and mucoid, or it may be profuse, thick and purulent. It may be odorless or quite offensive, depending upon the presence or absence of putrefactive bacteria. The discharge is most profuse when there are masses of exuberant granulation tissue, in the presence of bony necrosis and when the mastoid cells are infected.

The size and position of the perforation of the drum membrane is dependent on the severity and duration of the infection; the most common condition to be found is a destruction of the lower two-thirds of the drum, leaving the necrotic long process of the malleus free, the granulating inner wall of the middle ear exposed.

The danger to life depends largely upon the presence or absence of bony lesions in and around the cavity of the middle ear and mastoid. The longer the duration of the disease the greater the liability to bony involvement. Necrosis of the roof of the middle ear or mastoid is followed by exposure and infection of the dura of the middle fossa; invasion of the mastoid may be followed by perisinous abscess, thrombosis of the lateral sinus or cerebellar abscess, while necrosis of the inner wall and antrum may be followed by septic invasion of the labyrinth and indirectly give rise to a septic lepto-meningitis from extension through the internal auditory meatus.

The main objectives in the treatment are:—

(1) Removal of predisposing factors.

(2) Free drainage and ventilation of the middle ear.

(3) Complete removal of septic areas and necrosis with dermitization of the cavity.

(4) Preservation of as much hearing as is possible.

(5) Prevention of serious and fatal intra-cranial complications.

In uncomplicated chronic suppurative otitis the following conservative treatment should be carried out. Any and all pathological conditions of the nose and throat which interfere with the normal ventilation of the middle ear or which may be sources for reinfection by means of the eustachian tube, should be removed. Especial attention should be paid to the adenoids, bony obstructions in the nose and suppuration of the nasal sinuses.

Aural polypi, if present, should be removed by means of the snare and biting forceps. The polypi should under no circumstances be removed by traction since they frequently spring from the dura. I have seen several cases develop a fatal meningitis following this procedure. The ear should be douched gently with warm water, 110°—extreme heat or cold often causing marked vertigo from its effect on the semicircular canals. This douching should be carried out at least twice a day, followed by drying well with cotton tampons, and a few drops of a saturated solution of alcohol and boric acid instilled in the ear. In cases showing a small amount of discharge the syringing may be dispensed with. Where it is possible to have the patient under close observation and the physician is able to carry out the treatment, boric powder may be substituted; in the hands of the patient, however, this is not advisable since an excess will block the canal and prevent free drainage. The vast majority of the cases, at least 70%, so treated at the tremendous outpatient clinic of the Massachusetts Charitable Eye and Ear Infirmary have been found to respond to this treatment. The use of hydrogen

peroxide is dangerous since, owing to its explosive nature, the infection may readily be spread.

This mode of treatment is at times of no avail owing to the presence of small perforations of the drum membrane, cicatricial bands walling off localized areas of necrosis, and the presence of extensive caries and necrosis of the ossicles. In such cases the operation of ossiculectomy should be performed. This consists in the complete removal of the drum membrane, the malleus and incus, and removal of granulations throughout the tympanum.

When a permanent cessation of the purulent process has not been affected by prolonged conservative measures as outlined, the radical operation may be undertaken. The purpose of this radical operation is to convert the external auditory canal, tympanic cavity, mastoid antrum and mastoid cells into one cavity; to remove all diseased bone, destroy all membranous tissue, including the drum membrane and to effect dermatization throughout the entire cavity.

This operation is indicated during the course of chronic suppurative otitis: (1) upon the supervening of an acute mastoiditis, (2) upon the appearance of facial paralysis, (3) sudden onset of deafness accompanied by vertigo, nausea and vomiting with nystagmus, indicating an invasion of the labyrinth, (4) where there are fistulous openings through the cortex or external auditory canal, (5) whenever symptoms of mental irritability accompany the disease, and in cases in which cholestatoma may be demonstrated to be present in the mastoid. It is imperative in all cases showing symptoms of intracranial complications.

In considering the intra-cranial complications occurring during the course of aural suppuration, it must be borne in mind that such complications are infectious from their very inception. Such being the case, we are confronted by two important problems.

First, the employment of prophylaxis, the importance of which I have attempted to impress upon you.

Second, operative interference when the complications to be considered have become established.

As the result of erosion or infection, pus may collect between the dura and adjacent bone, either in the middle fossa or along the course of the lateral sinus. This occurs as a rule following an acute exacerbation of a chronic suppuration. The pus becomes walled off by a pyogenic exudate uniting the dura with the underlying bone. This may remain indefinitely, giving rise to indefinite symptoms, or it may infect the meninges, causing a septic lepto-meningitis, or by erosion of the dura give rise to an intra-cerebellar or cerebral abscess.

The diagnosis of this condition is uncertain and is frequently made only during the course of the mastoid operation. It should be suspected, however, when following an acute exacerbation or the mastoid operation, there is a complaint of indefinite headaches, lassitude, occasional attacks of mild vertigo, irritability, and an apparent low grade of sepsis. Occasionally the symptoms are more acute, with high temperature, severe temporal headache, marked vertigo with nausea and vomiting. The removal of the focus of infection with free drainage is as a rule followed by recovery.

Pachy-meningitis externa is the more common form of meningeal involvement, due to the erosion of the underlying bone or the presence of an extradural abscess. Internal pachy-meningitis is a continuation of the external variety, which, by erosive involvement of the dura or by infection through the blood channels, frequently causes a general meningeal involvement.

The diagnosis is a matter of the greatest importance, and yet is more or less uncertain, especially in the early stages of the circumscribed variety. There should be no difficulty in arriving at a diagnosis, however, when, given a patient with an existing aural suppuration, there is persistent temporal and frontal headache, unrelieved by opiates, nausea and vomiting, the temperature remaining in the neighborhood of 102 to 103 degrees F., followed or accompanied by rigidity of the muscles of the neck, incoherence of speech and muscular twitchings. Under these conditions there should be no doubt as to the advisability of prompt operative intervention.

It will be impossible in this paper to go into a detailed account of the various measures employed for the relief of meningitis and the other intra-cranial lesions. It should be understood, however, that every intra-cranial complication is amenable to operative measures, the prognosis in meningitis, however, being by far the least favorable.

Sinus thrombosis, the symptomatology of which I outlined while speaking of the acute suppurations, is a more common sequela of acute otitis and should always be suspected when there are symptoms of a marked general septicemia. Operation for this disease is followed in 80% of the cases by complete recovery.

Labyrinthitis or septic invasion of the internal ear is due most commonly to infection through the inner wall of the middle ear. There is a marked vertigo with nausea and vomiting, marked loss of hearing, oftentimes complete, and nystagmus. The symptoms presented, other than the loss of hearing and sepsis, are due to invasion of the semicircular canals. By means of elaborate and intricate functional tests the position and extent of the lesions may be outlined. Septic labyrinthitis is readily amenable to proper and skilful surgical interference, while neglect will in the majority of the cases result in a fatal meningitis.

Brain abscesses of otitic origin occur most frequently in the tempero-sphenoidal and cerebellar lobes, and are a much more frequent complication than is generally supposed. The symp-

toms are often most vague and indefinite. Often a large abscess will remain quiescent for months or years and, even with the patient under constant observation, will give no evidence until there is, what may be termed a sudden explosion, and it blooms forth with typical pressure symptoms, such as nausea, and vomiting, vertigo, headaches, slow pulse, and the appearance of motor pareses. When localized on the left side aphasia is often present. Slow cerebration, and drowsiness, amounting at times to stupor with flashes of irritability, dull headaches and staggering gait when associated with a chronic aural suppuration is almost pathopneumonic of brain abscess.

The acute symptoms of brain abscess are usually associated with an acute infection of the chronic aural suppuration, and, unless freely drained, and often in spite of surgical interference, terminate in death either from a general encephalitis or septic lepto-meningitis.

In conclusion I wish to recapitulate and impress upon you that:—

(1) All and every suppuration of the middle ear is a serious menace to life.

(2) The majority of aural suppurations are amenable to proper and timely treatment.

Reports of Societies.

AMERICAN SURGICAL ASSOCIATION.

Meeting Held in Washington, D. C., May 6, 7 and 8, 1913.

(*Continued from page* 838.)

PERIOSTEAL ROUND-CELLED SARCOMA OF THE FEMUR INVOLVING TWO-THIRDS OF THE SHAFT, WITH EXTENSIVE MULTIPLE METASTASIS: CURED WITH THE MIXED TOXINS OF ERYSIPELAS AND BACILLUS PRODIGIOSUS; PATIENT WELL TEN YEARS, EPITHELIAL TUMOR DEVELOPING AT THE SITE OF AN X-RAY DERMATITIS OF THE THIGH TEN AND ONE-HALF YEARS LATER; AMPUTATION; METASTASIS; DEATH IN FOUR MONTHS.

Dr. William B. Coley, New York, reported a case of periosteal round-celled sarcoma of the femur, involving two-thirds of the shaft, with extensive multiple metastases, apparently cured by the mixed toxins of erysipelas and bacillus prodigiosus, in whom ten years later, a malignant tumor—sarcoma and epithelioma—developed in the thigh at the site of an old x-ray dermatitis. He stated that the patient had been shown before the New York Surgical Society on several occasions, the last time on December 11, 1912. (A full report of the early history may be found in the *Annals of Surgery*, November, 1912, p. 787.)

The case was believed unique, in being the only one on record of periosteal round-celled sarcoma of the femur with metastases cured by any method of treatment. In February, 1902, the involvement of the femur was so great (two-thirds of the shaft) that hip-joint amputation was strongly advised, but refused. An exploratory operation was done and the diagnosis of round-celled sarcoma confirmed by microscopical examination made by Dr. E. K. Dunham, Professor of Pathology, Bellevue University Medical School, and by Dr. B. H. Buxton, then Assistant Pathologist to the General Memorial Hospital. The x-rays were used for a number of months to the point of causing a severe dermatitis. While receiving x-ray treatment a large metastatic tumor developed in the left pectoral region, and a larger tumor, the size of a child's head, in the ilio-lumbar region. The growth in the pectoral region was partially removed and a number of x-ray treatments applied to the locality. No x-rays were used for the large ilio-lumbar tumor. The mixed toxins were begun on February 12, 1903, and continued until July 25; 86 injections in all, ranging in doses from 1 to 20 minims. At the end of two months the hard tumor became fluctuating. An incision was made posteriorly through the ilium, and upwards of a pint of broken-down necrotic tumor material was evacuated. The patient made a complete recovery, except for the dermatitis of the thigh, which persisted during the following ten years. In May, 1913, a small epithelioma developed at the site of the slight dermatitis in the pectoral region. In October the dermatitis of the thigh, caused by the x-ray, underwent extensive malignant degeneration; the tumor grew with great rapidity. An exploratory operation was done on November 27, 1912, and the tissue removed examined by Professor Wm. H. Welch of Johns Hopkins University and Professor James Ewing of Cornell University Medical School, as also by Dr. Wm. G. Clark of the General Memorial Hospital. The specimen examined by Dr. Welch proved to be round-celled sarcoma; the edge of the specimen showed a structure which resembled a true epitheliomatous growth superimposed upon the sarcoma. Dr. Ewing's specimen showed spindle-celled sarcoma, Dr. Clark's epithelioma of the basal-cell type. The patient grew worse rapidly, and on January 3 finally consented to amputation which had been advised as soon as the diagnosis was made. At this time he was extremely emaciated; the blood count showed 35% hemoglobin, but despite his weakened condition he stood the amputation well. Death ensued two weeks later, apparently from general metastases.

A careful study of the entire specimen by both Dr. Welch and Dr. Ewing showed two distinct types of tumor side by side, one a typical epithelioma, the other a sarcoma. Section of the bone showed there was in the medullary cavity of the femur, a short distance above the condyle, a circumscribed tumor measuring 5 x 3 cm. Microscopical examination showed this tumor to be a squamous celled epithelioma, interpreted by both Welch and Ewing as a metastasis from the lesion in the skin or muscle. Inasmuch as the former periosteal tumor did not involve the muscle and the later tumor did not involve the bone or periosteum, Dr. Coley believed that the later tumor development was entirely independent of the primary growth of ten years previously. This was also the opinion of Dr. Welch and Dr. Ewing, who thought that the sarcomatous tumor might possibly be regarded as a relighting of the old bone sarcoma of ten years ago, some of the cells of the former tumor having remained latent during this long period. Dr. Ewing

was unwilling to express a definite opinion without comparing the histological structure of the later tumor with the earlier, but unfortunately the index to the sections of the periosteal sarcoma at the General Memorial Hospital has been lost or mislaid. But even with such an interpretation, *i.e.*, that the late tumor was a recrudescence of the earlier growth, Dr. Welch stated that "the efficacy of the treatment by your method was strikingly manifested by the history of the case and so it seems to me. To have brought about the disappearance of the tumor and to have kept the growth in check for ten years, and then to have the same (presumably) type of growth reappear in the original site and this a markedly malignant type of sarcoma, is a unique chain of events which is perhaps more convincing, than the disappearance of a tumor without a later return."

Dr. Coley stated that as far as he knew there was only one other case in which two types of malignant tumors, sarcoma and carcinoma, had occurred following x-ray exposure, in which the diagnosis was proven by histological examination, but that he knew of no other case in which the tumor had developed such a long period after the exposure.

DR. ALBERT J. OCHSNER, Chicago, reported a case of inoperable round-celled sarcoma of the ilium which was opened, the diagnosis made and confirmed, and the patient treated by the Coley toxins with apparent recovery; two years later a new tumor appeared in the same region, increased rapidly in size; toxins again administered but without effect, the patient succumbing to the condition. Autopsy revealed the fact that the secondary tumor was not a sarcoma but a cyst at the bottom of which was a carcinomatous degeneration. This case convinced the speaker that the same microorganism is the cause of sarcoma and of carcinoma under different conditions.

DR. WILLIAM H. WELCH, Baltimore, called attention to the fact that in the sections examined apparently different opinions were reached but that in reality this was due to the fact that different portions of the tumor showed different conditions, there being in fact two tumors, a sarcoma and an epithelioma. He considered it unfortunate that the sections of the primary growth are not obtainable in order that a definite opinion might be reached as to whether the recurrence is of the same or a different type of cell.

DR. JOSEPH C. BLOODGOOD, Baltimore, said in reference to the supposition that the secondary growth in Dr. Coley's case might have resulted from the x-ray treatment, that he had a patient now seven years after a primary and two secondary growths operated upon and treated by the x-ray. He was of the opinion, however, that the result obtained in Dr. Coley's case, of disappearance of the tumor and an interval of 10 years before reappearance, justified in inoperable cases the trial of the mixed toxins of erysipelas and bacillus prodigiosus.

DR. WILLIAM B. COLEY, New York drew attention to the fact that although sporadic cures were sometimes noted as of spontaneous occurrence, which rather proved them not to be of malignant nature, he had always had his specimens examined not by one but by several pathologists in order to reach as correct a diagnosis as possible, and that even with such convincing proof of the malignant nature of the cases, he had been able to report various cases as cured by the use of the mixed toxins of erysipelas and bacillus prodigiosus.

CANCER OF THE THYROID, WITH INVOLVEMENT OF THE LUNGS THROUGH THE BLOOD VESSELS.

DR. FRANCIS J. SHEPHERD, Montreal, Canada, stated that the treatment of cancer of the thyroid was always unsatisfactory, and the majority of cases succumb early, due to extension to the lungs or from local recurrence and involvements of the glands. These cases where involvement of the lung occurs are often due to extension through the blood vessels.

He reported a case where operation took place in 1907 and there was no local recurrence for four years, but in the fifth year extension to the lungs through the blood vessels occurred. Operation was performed for relief of breathing, but death took place some hours afterwards. In many cases operation is worth doing because of the relief which for a time is obtained.

DR. CHARLES H. MAYO, Rochester, Minn., emphasized the accepted fact that the younger people are affected with malignancy the more rapidly it is disseminated through the lymphatics and the circulation in general, and that, therefore, the cure of thyroid cancer will, as a rule, only be in people between 50 and 70, the total removal of the gland being indicated. He also laid stress upon the necessity of an x-ray examination of thyroid carcinoma cases in order to rule out involvement of the chest and lung, stating that no secondary carcinoma of the breast should come to operation without this precaution being taken.

HYGROMA CYSTICUM COLLI.

DR. CHARLES N. DOWD, New York: Large cystic tumors in children's necks have been described for years under the name of hygroma. The term should be restricted to cysts lined with endothelium and having a marked power of growth. Such cystic growths are uncommon. A careful search of the literature has so far revealed records of only 91 cases located distinctly in the neck, and 35 cases located principally in the axillia, but in part at least extending there from the neck. In the great majority of these cases there is no definite report of the cyst lining, hence this detail of their structure is unknown. The writer records three cases of undoubted hygroma, and a fourth case which was believed to be a hygroma but in which inflammation had destroyed the finer structure of the cyst walls. Two of these cysts showed a very strong form of growth—one extended into the mediastinum and another under the clavicle and onto the anterior chest wall beneath the pectoralis major muscle which it pushed forward. One recurred rapidly.

Protargol staining of the fresh walls in two of the cases showed delicate endothelial linings. Microscopical section of the third showed what was believed to be endothelial lining. The lining of the fourth case was obliterated by inflammation.

All cases were treated by excision. One case died in the hospital, another died of intercurrent disease a few weeks after leaving the hospital. It is believed that these cysts are due to embryonic sequestrations of lymphatic tissue which at a later time shows the power of very vigorous but irregular growth.

DR. JOHN B. MURPHY, Chicago, called attention to the fact that in hygroma cysticum colli if only a portion of the tumor is removed there is a rapid return with enormous increase in size and secre-

tion, and that these frequently undergo malignant degeneration.

Dr. Joseph C. Bloodgood, Baltimore, said that he had encountered a number of cysts in the neck lined with endothelium, having no apparent connection with the blood system, and had also seen them in the axilla and groin, occurring without trauma. Three of these cases, which in all number less than 20, have been malignant, evidenced by the presence of blood and papillomatous growths of the cyst wall, these papillomata making excision extremely difficult if not impossible. He advised early removal of hygromata to avoid malignancy, which seems to be a late development.

Book Reviews.

Aids to Gynecology. By S. Jervois Aarons, M.D., Edin.; M.R.C.P., Lond.; gynecologist to St. Anthony's Hospital. Fifth edition, twelfth thousand. New York: William Wood Company. 1913.

This little book, now appearing in its fifth edition, presents briefly and concisely the chief points in regard to diseases of women. It has the merit of condensation, judiciously carried out. It is perhaps a little too condensed, but as an aid it has its place among these dry books, for the work is well done. A deservedly obsolescent practice, such as passing the uterine sound by the sense of touch, should, if mentioned, be condemned, not described. The illustrations are wisely much reduced in number; they have their place in a larger book. The press work is excellent and the size of the volume very convenient.

Case Histories in Pediatrics. A Collection of Histories of Actual Patients Selected to Illustrate the Diagnosis, Prognosis, and Treatment of the Diseases of Infancy and Childhood. By John Lovett Morse, A.M., M.D. Second edition. Boston: W. M. Leonard. 1913.

The first edition of this admirable work in the Case History Series was reviewed in the issue of the Journal for April 13, 1911 (Vol. clxiv, p. 545). In this second edition the number of cases has been increased from 100 to 200, but the size and value of the book are more than doubled. The representation of the different categories of disease is much fuller, and, as may be seen from the convenient table of contents, forms an almost complete nosology of pediatrics. Moreover, by means of the excellent index, the comparative study of any clinical condition is much facilitated. The illustrations also are superior to those of the first edition. In this second edition has been added further a very useful introductory section on the normal development and physical examination of infants and children. The volume abundantly fulfils the promise of its predecessor; and, as a more complete case history text-book, not only augments its author's reputation as a teacher, but affords fresh evidence of the vitality and merit of this method of medical writing and instruction.

Diabetes: Its Pathological Physiology. By John J. R. MacLeod, M.B., Ch.B., D.P.H.; professor of physiology, Western Reserve University, Cleveland, O., U. S. A.; late demonstrator of physiology, London Hospital. International Medical Monographs. General editors, Leonard Hill, M.B., F.R.S.; William Bulloch, M.D. London: Edward Arnold. New York: Longmans, Green and Company. 1913.

This is a thoughtfully and a painstakingly written book. It covers the literature of the subject well, and analyzes clearly and critically the scientific data of others. There are chapters upon the sugar of normal urine, the sugars of the blood, the control of the sugar of the blood by the nerves, and an excellent discussion of that confusing topic, "The Relationship of the Ductless Glands to Metabolism." There are also chapters on the glycemic functions of the liver, the cause of hypoglycemia, and the assimilation limit of sugar in animals and man, together with remarks upon the diagnosis and treatment of incipient diabetes in man, and glycogenesis.

The whole book is written with a thoroughly scientific spirit, and no one who reads it will fail to appreciate this, as well as the carefully designed experiments of the author, with which he repeatedly enriches the subject under discussion.

Deep Roentgen Therapy. By Prof. Dr. C. J. Gauss and Dr. H. Lembcke. Berlin and Vienna: Urban and Schwarzenberg. 1912.

This German work presents the theoretic principles of deep Roentgen therapy, its practical application, and its clinical results during the past six years at the Freiburg University Frauenklinik, especially with reference to its use in the treatment of uterine myomata. In a preface, Prof. Dr. B. Krönig discusses the nature of the method, and outlines the field of its application. The text describes the qualitative and quantitative effects of deep x-ray dosage, the technic of its employment, and records the development of the Freiburg technic for multiple close filter irradiation, reporting results in 205 cases. It is well illustrated with 133 text figures. The book seems a valuable contribution to the knowledge and literature of an important new method in the treatment of uterine fibroids.

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THE NAME "EPILEPSY."

TIME was when the term epilepsy, as generally used, included under that name a number of conditions of widely varying etiology, and therefore, also, of different prognosis and treatment. With the advance of scientific medicine and the constantly increasing unravelment of the causation of disease processes and diseased conditions, our conception of so-called "epilepsy" has undergone gradual but certain changes. At the present time, however, there is still to be noted among the rank and file of the profession a generally erroneous conception of the present-day attitude toward the epilepsy problem. It is most important that a correct understanding of the problem be universally disseminated, for the simple but weighty reason that such an orientation towards the problem at hand is an absolute essential for proper diagnosis, prognosis and treatment.

It is not to be wondered at that, in reviewing the various definitions of epilepsy which are usually given in text-books, it is noted that not only is particular mention made of the paroxysmal attacks, but it is about these paroxysms as a nucleus that the definitions are built up. In other words, epilepsy, according to the old idea, was considered a definite and distinct disease entity. The modern tendency, however, based on our greater knowledge concerning the etiology and pathology of the various conditions which may give rise to what we have previously been in the habit of calling unqualified epilepsy, is to look upon "epilepsy" as a clinical syndrome, characterized by the seizure, which is its most striking manifestation and occurring as a part of the syndrome, no matter what form the latter may assume.

"Epilepsy," therefore, viewed as a syndrome, as above noted, cannot be considered as essentially and fundamentally a disease of the nervous system, in all instances. On the other hand, the cells themselves may be normal and the nervous system in absolutely normal condition, but the epileptiform seizure may be determined by toxic or other bodily states, of which the seizure is but a single, though important symptom. This, for example, may occur in uremia, eclampsia, etc.

Whenever the symptom-complex known as epilepsy makes it appearance, there is, of course, some cause for its origin. This origin is diverse. This varying etiology is the basis of the epileptic syndrome. It is only by such a conception that progress can be made with respect to the unearthing of the problem and with a view to proper treatment.

The old conception of epilepsy as one disease is manifestly responsible for the fact that conditions of widely different etiology have been grouped together under the same heading because of the occurrence of a common, striking symptom.

We must appreciate once and for all that there is not a single epilepsy, but that there are many epilepsies.

Granted, then, that it is the question of the "epilepsies" and not "epilepsy" alone, it is next incumbent upon us to classify the diverse conditions, preferably from an etiological standpoint.

Progress in classification has been achieved in the study of psychiatry and of feeble-mindedness. We should make an effort at classification of the epilepsies, at least in so far as we are able to in the present state of our knowledge.

Various classifications have been offered. Turner (Epilepsia, Vol. 1, p. 101) offers the following: Organic epilepsies—including focal brain disease and trauma; early epilepsy—often characterized by marked mental deterioration, and including certain cases of birth traumas, infantile cerebral palsies, hemorrhage and encephalitis; late epilepsies—may be caused by cardio-vascular-renal disease, intoxications, especially alcohol (and, as suggested by Munson, syphilis, and other infections, ex-

cept the focal manifestations of syphilis and tubercle, had best be here included), epilepsy with psychotic manifestations, and eclamptic states which develop into epilepsy; and, finally, so-called idiopathic epilepsy—the remaining cases without known cause.

Another classification, offered by the Ligue International contra l'Epilepsie, includes the following varieties: idiopathic, metabolic, late degenerative, traumatic, epilepsy related to syphilis, epilepsy arising from other, especially exogenous, causes.

On consideration of the question Munson,[1] in an excellent article on the "Treatment of the Epilepsies," suggests the following simple classification as the best working foundation: (1) symptomatic epilepsies, and (2) unclassified (old idiopathic) epilepsy. Fundamentally, all epilepsies are merely symptomatic. In the case of unclassified epilepsy we do not yet know the underlying causative factor. Under symptommatic epilepsies we can enumerate the following groups: Syphilitic; traumatic; alcoholic; birth injuries; infantile cerebral palsies, encephalitis or meningitis; infectious diseases, these being really due to encepalitis or meningitis; lead poisoning; cardio-vascular-renal disease; tumor of the brain; eclampsia.

Epilepsy, therefore, is not a unit condition, but a syndrome of varying etiology.

Viewing the subject from this standpoint, a good definition is that which is offered by Munson in his article above mentioned. He says: "The epilepsies are a group of similar syndromes arising by action of the cells of the central nervous system through stimulation by various agents which may be either intrinsic to the nerve cells or extrinsic or from a summation of causes in both groups, characterized by seizures in which consciousness is altered or lost, with or without motor phenomena; characterized by mental changes and by certain traits of mind and character which exist independent of the seizure."

[1] White and Jelliffe's Modern Treatment of Nervous and Mental Diseases, Volume II.

THE SINGLE DOSE OF ANTITOXIN IN DIPHTHERIA.

The tendency in recent years, as is well known, has been to increase the size of the doses of antitoxin in the treatment of diphtheria. In the discussion of a paper by Eckert on the present status of diphtheria therapy about a year ago, however, W. Braun reported that his extensive hospital experience had shown that increasing the dose beyond a certain point had not further reduced the mortality; but Jochmann, who stated that he had treated six hundred cases of the disease at the Virchow Hospital during the previous year, expressed the opinion that large doses of antitoxin exert a favorable influence as regards toxic septic complications and sequelae. Large doses have usually been given in Boston, and in New York the prevailing usage cannot perhaps be better summarized than was done by Dr. Darlington, the former health commissioner, in a paper read at a medical meeting in the spring of 1912. He said:—

"All patients over one year old who have been ill from twenty-four to thirty-six hours, and show membranes limited to the tonsils, should receive at least 5000 units. Patient over one year with membranes extending to the soft palate and uvula, or to the posterior wall of the pharynx, should receive 10,000 units as an initial dose, while in similar cases with the additional involvement of the nose or nasopharynx the initial dose should be at least from 12,000 to 15,000 units. In septic cases where the patient has been ill for from five to seven days, with necrotic membrane of foul odor, a tendency to hemorrhage from the nose or pharynx, and petechial spots upon the skin, enormous doses may be administered—up to 20,000 units. Even larger doses have been given. All croup cases should receive at least 10,000 units, and if the pharynx is involved with the larynx, 15,000 units. It is frequently necessary to repeat the dose, and the indications for this are: (1) If, after twenty hours, the false membrane is spreading, or does not show signs of curling at the edges; (2) If the general condition is not improved, as shown by the state of the pulse and the lessening of mental apathy. The latter is an extremely valuable guide, for in cases where sufficient antitoxin has been given its improvement is more rapid than that of any other symptom. In croup cases the dose should be repeated unless the obstruction has become less marked. In all cases the second dose should be as large as the first. The indications for the third and fourth doses are the same as for the second, but the interval between the third and fourth doses may be reduced to twelve hours. When a maximum of from 40,000 to 50,000 units has been reached it is useless to administer more antitoxin. Further injections only increase the suffering of the patient."

At a meeting of the New York Academy of Medicine early in November, 1912, Dr. William H. Park, chief of the bureau of laboratories in the New York City Health Department, advanced the proposition that a single dose of antitoxin was sufficient, stating that two, three or four doses were unnecessary and often inadvisable. The time element, he said, was an important factor, and in order that the antitoxin might be conveyed to the tissues as expeditiously as possible, at least in advanced and malignant cases, the intravenous method of administration was preferable.

In the Wesley M. Carpenter lecture of 1913, which was recently delivered by him and the subject of which was, "Antitoxin Dosage; Anaphylaxis, Immunization against Diphtheria," Dr. Park again advised the single dose of antitoxin, and adduced further arguments in favor of its adoption. Experimental evidence was submitted showing that in animals a single dose administered after infection would prove efficacious when the same and even larger doses, given in divided doses, failed to save life. In addition, he cited cases of diphtheria treated with one dose in which the antitoxin content of the blood was tested from hour to hour, evidencing a progressive increase for the first three days. The apparent improvement following a second dose of antitoxin, he believes, is attributable partly to the continued absorption of the first injection and partly to the necessary time required for recovery in the local process. When the first dose is of adequate size, a second one produces no real additional effect. The strongest confirmation of Dr. Park's contention is afforded by the results observed at the Willard Parker Hospital, for he states that during the past year over 95% of all cases of diphtheria treated there received but one injection of antitoxin and the records show that the mortality from the disease has been the lowest in the history of the institution. The doses given were practically the same as those mentioned by Dr. Darlington for initial injections—5,000 units in the milder cases, 10,000 or more in the moderate or rather severe ones, and 20,000 in the malignant ones. In the latter the antitoxin was administered intravenously wherever possible, and, in Dr. Park's opinion, a given number of units by this method has four times the effect that it has when injected subcutaneously.

THE LATEST STEP IN ANESTHESIA.

DR. J. T. GWATHMEY, before the New York Society of Anesthetists, on the evening of Nov. 20, 1913, announced his method of anesthesia by rectal injection of olive oil and ether. Here is in almost all respects a method preferable to any other of inducing narcosis. It has thus far been practically danger-free. Notably does it meet all Crile's anoci-association requirements. Gwathmey, after exhaustive experimenting on dogs, has used his method in one hundred operations on human subjects. In this series there was one death, which occurred twenty-four hours after the operation; the surgeon for whom Dr. Gwathmey anesthetized *per rectum* in that case detailed at the meeting above stated the autopsy findings and demonstrated that the death was in no wise due to the anesthetic but to a complication of lesions—about every organ in the body having been diseased, with the primary cause evidently a vegetative growth in a coronary artery. By Gwathmey's method no patient need experience *terror anesthesiae;* there will be no struggling; the ether cone, the chloroform mask, the intratracheal tube, the spinal puncture, the intravenous injection are alike superfluous. Indeed, the patient need not know at all that he is being anesthetized. The pious fraud may be perpetrated of assuming the rectal injection (done in the Sims position) to be a medicament—which, indeed, it is. Within a few minutes, from four to twenty, the patient goes to sleep; there is complete narcosis, with as absolute relaxation of tissues as with any other kind of anesthesia. This injection is preceded an hour before by a hypodermatic of morphine. For children, one ounce for every twenty pounds of bodily weight of a 55% solution of ether in olive oil is injected without preliminary medication; for adults, eight ounces of a 75% solution. The ether becomes liberated in the colon, passes into the blood, the supply of which is rich in that region; the patient's exhalations soon demonstrate the odor. In certain of Gwathmey's cases imperfect or ceased respiration evidenced an excess of the anesthesia. This was easily remedied by injecting cold water into the rectum, the remaining oil and ether being thus voided; and by administering carbon dioxide in a bag, thus stimulating respiration. After operation the patient is returned to bed when he "comes to" as after ordinary ether narcosis.

The only valid contra-indication to this consummation of Gwathmey's achievements thus far are rectal and anal lesions. Especially to Graves' disease and pulmonary diseases of the upper air passages is it adapted. With fine scientific sense Gwathmey considers that his oil-ether colonic method cannot hold an assured place until he and others have done it on one thousand cases; yet it may not be doubted that

the date above given will become a memorable one in the minds of anesthesia!

MEDICAL NOTES.

Cleveland Babies' Dispensary.—The recently published seventh annual report of the Babies' Dispensary and Hospital of Cleveland records the work of that institution for the year ended Sept. 30, 1913. During this period the total number of new patients was 27,293, of whom 17,441 were at the Board of Health Prophylactic Dispensaries. There were 136,172 milk deliveries. The nurses made 70,580 visits. A special department of social service has been organized, in charge of an experienced nurse who gives all her time to the work.

Freedom of Army from Typhoid.—The recently published annual report of Surgeon-General George H. Torney of the United States Army notes particularly the complete absence of typhoid fever among the American troops now encamped near Texas City and Galveston, along the Mexican frontier. This is to be attributed partly to efficient camp sanitation, partly to compulsory antityphoid inoculation. The rate of incidence of tuberculosis in the army is also steadily decreasing.

Centennial of the Discovery of Iodine.—The centennial anniversary of the discovery of iodine by Bernard Courtois was celebrated at Dijon, France, on Nov. 9. An address on the history of the discovery and on the development of the use of iodine was made by Prof. A. C. Matignon of the Collége de France. The actual discovery was made in 1811, when Courtois was examining the waste fluids produced in the manufacture of sodium carbonate from the ashes of seaweed, but he did not report it to the French Academy of Sciences until 1813.

A Centenarian.—The Reverend Philip Carlton, who died on Nov. 29, at Falmouth, England, was born in January, 1812. At birth he was so puny that it was not believed he would live long. He was ordained in 1836, and at his death was the oldest clergyman in Great Britain.

Award to Dr. Bell.—Report from London states that on Dec. 1 the British Royal Society awarded the Hughes medal to Dr. Alexander Graham Bell, of Washington, D. C.

Dr. Gorgas at Southampton.—Report from Southampton, England, states that on Nov. 15, Dr. Gorgas sailed from that port on his way to South Africa, where he is to advise the Chamber of Mines on the sanitation of the Rand, with special reference to the prevalence of pneumonia.

A Living Centenarian. — Mrs. Margaret Kiddney, of Newark, N. J., is locally reputed to have been born on Nov. 28, 1813. At the recent celebration of her supposed centennial anniversary, she is said to have stated her belief that her longevity and persistent good health are due rather to the grace of Providence than to her own habits.

New Health Ordinances in Philadelphia.—On Monday of last week, Dec. 1, the new ordinances of the State Health Department went into effect at Harrisburg, Pa. They prohibit the use of public drinking cups, common towels and barber's whisk brushes. The penalty for each offence of these regulations is a fine of $100 or imprisonment of one month.

BOSTON AND NEW ENGLAND.

New Home of the Springfield Academy.—The new home of the Springfield Academy of Medicine was opened on Oct. 6, 1913, with an informal evening reception. Nearly five hundred physicians from all parts of Western Massachusetts were present. At the first regular meeting in the clubhouse, held on Oct. 14, an address was delivered by Dr. David Riesman of Philadelphia. The November meeting was a symposium on the x-ray, Dr. Cole of New York being the principal speaker. For the December meeting, Dr. Crile of Cleveland has been secured.

Diphtheria in Connecticut.—Report from Suffield, Conn., on Nov. 30, states that diphtheria is at present epidemic in that town. Fifteen cases have occurred among pupils of a single room in the local grammar school.

Address on Feeble-Mindedness.—Before the Jamaica Plain Tuesday Club, on Dec. 2, Dr. Walter E. Fernald, superintendent of the

School for Feeble-minded at Waverly, Mass., delivered an address on "Feeble-mindedness."

HOSPITAL BEQUESTS.—The will of the late Francis Browne, of Salem, Mass., which was filed on Dec. 2, at the Salem Probate Court, provides upon the death of an annuitant a bequest of $2000 to the Salem Hospital.

The will of the late Ferdinand Emerson, which was filed on Dec. 2 at the Suffolk Probate Court, makes the Boston Dispensary, the Boston Floating Hospital, and the Industrial School for Crippled and Deformed Children, three of five residuary legatees.

SCHOOL FOR CRIPPLED AND DEFORMED CHILDREN.—The recently published nineteenth annual report of the Industrial School for Crippled and Deformed Children records the work of this institution for the past year. During this period the outdoor schoolroom has been equipped and put in operation. The reports of the trustees, the superintendent, and the industrial committee are included. The printing, wood-working, and cane-seating departments all show a profit, as well as having paid salaries to assistant-teachers, which contribute to the self-support of the school.

TUBERCULOSIS DAY IN MASSACHUSETTS.—In a recent proclamation, urging the observance of Tuberculosis Day in Massachusetts last Sunday, Governor Foss spoke in part as follows of the present status and need of tuberculosis work in this community:—

"Concerted public action in this state under expert medical guidance and advice has already accomplished a remarkable decrease in the death-rate from the disease of tuberculosis, and, in fact, throughout the United States the rate has fallen from 4.2 per thousand population in 1882, to 1.5 per thousand population in 1912.

"Expert medical testimony has been given to the effect that still further reductions in these much dreaded diseases can be effected until with the passing of another generation these maladies will have ceased to constitute any serious menace to the community.

"This much desired end cannot be reached, however, without still further public effort. I urge especially in this connection a more zealous compliance with the statutes in this state respecting the establishment of hospitals for the care of consumptives in the various communities.

"More important even than the hospitals themselves is a wider public understanding of the need of educating the consumptive patient, for his own advantage and for the safety of his community."

INFECTIOUS DISEASES.—Cases of infectious diseases reported to the Boston Board of Health for the week ending Dec. 2, 1913: Diphtheria, 39, of which 3 were non-residents; scarlatina, 48, of which 5 were non-residents; typhoid fever, 5; measles, 24; tuberculosis, 52, of which 3 were non-residents.

The death-rate of the reported deaths for the week was 15.32.

NEW YORK.

TWO TITLED PHYSICIANS.—On Nov. 28 the physicians of New York had as their guests two titled members of the profession, Sir Wilfred Grenfell of Labrador and Sir Arbuthnot Lane of London, prior to their sailing for England on the day following. The former spent most of the day at the New York Orthopedic Dispensary and Hospital investigating present methods of treatment, particularly in Pott's disease, and in the afternoon a special demonstration was given for him in the operating amphitheatre. Sir Arbuthnot Lane, together with Mr. Patterson, surgeon to the Temperance Hospital, London, and Dr. William Seaman Bainbridge of New York, held operative clinics at the New York Polyclinic Hospital, and in the evening Dr. Bainbridge gave a dinner in honor of Sir Arbuthnot at the Hotel St. Regis, which was attended by more than a hundred prominent New York physicians and a number of physicians from Boston, Providence, Philadelphia, and other cities. At this the famous London surgeon gave an illuminating exposition of his views on the causes, diagnosis, consequences, prevention and treatment of chronic intestinal stasis. He expressed the opinion that a very large number of cases of pancreatitis, bile-duct, gall-bladder, hepatic disease, arterio-sclerosis, heart affections, Bright's disease, and arthritis were due to the autointoxication resulting from it, and also stated that such autoinfection was a fruitful source of cancer, and that it was only persons debilitated by such autoinfection who contracted tuberculosis. In the treatment of the less severe cases he laid stress on the efficacy of paraffin oil, which he advises to be taken in half-ounce doses three times a day, before meals. When this, in addition to mechanical support, etc., fails to effect a cure, he resorts to either

ileocolostomy (Lane's "short-circuiting" operation) or to colectomy; procedures which he claims are attended with but little risk. Among the other speakers on this occasion were Mr. Patterson, Drs. Bainbridge, William H. Thomson, John A. Wyeth, Reynold W. Wilcox, L. Gregory Cole, and Willy Meyer of New York, Dr. Williams of the Navy, and Drs. La Place and Rodman of Philadelphia.

Reorganization of Health Department.—It is announced that in consequence of the expansion of the work of the City Health Department a reorganization has been effected in the department, by which several new divisions have been created, and some of the divisions raised to bureaus coördinate with the sanitary bureau and the bureau of records, which have been in existence for many years. The following are the bureaus as now constituted: Sanitary, records, general administration, infectious diseases, child hygiene, hospitals, laboratories, and food inspection. The chief executives of the different bureaus will be required to report directly to the commissioner of health, and each will be held responsible for the manner in which the work of his department is carried on by his subordinates. In the bureau of child hygiene further efforts in the reduction of infant mortality have now been made by extending the activities of the milk stations so as to include the care of pregnant women. One of the milk stations in Manhattan has been selected as a centre for the instruction of nurses in prenatal work, and when the nurses are sufficiently familiar with its details they will be assigned to other stations to carry it on. The bulletin of the department reports that to date 125 women have been enrolled, of whom 25 have given birth to children.

Anniversary of German Hospital Training School for Nurses.—The twenty-fifth anniversary of the training school for Nurses of the German Hospital was celebrated on Nov. 27. Twenty-three nurses were graduated, and Dr. A. Jacobi made an address to them.

Montefiore Home and Hospital for Chronic Invalids.—The new buildings of the Montefiore Home and Hospital for Chronic Invalids, constituting the largest Jewish hospital in the world, were dedicated on Nov. 30, and in connection with the event the 29th anniversary of the institution was celebrated. The new hospital, which cost nearly $2,000,000, is located on 210th Street, in the borough of the Bronx, and consists of nine buildings constructed of concrete. Ample grounds are provided, as the site covers no less than eight acres.

Hospital Saturday and Sunday Association.—A report issued by the Hospital Saturday and Sunday Association states that the cost of operating the 47 institutions represented in the association during the year ending Oct. 31 was $4,932,309, an increase of $382,441 over the previous year. On the other hand, the receipts from pay patients were $18,706, from the city for "public charges," $25,657, and from endowment funds, $21,890 less than last year.

Deaths by Automobiles. — The National Highways Protective Association reports that during the month of November 38 persons were killed in the streets of New York by automobiles—three more than in any previous month on record and 17 more than in November, 1912. The injured amounted to 115. The police and the city magistrates have very recently started a vigorous campaign against violators of the motor vehicle regulations and it is to be hoped that this will result in a decided diminution in the deaths and injuries from this cause.

Harvey Lecture.—The fifth in the current series of lectures before the Harvey Society will be given at the New York Academy of Medicine on Saturday evening of this week, Dec. 5, by Dr. Rufus Cole, of the Rockefeller Institute for Medical Research, on "Pneumococcus Infection and Lobar Pneumonia."

Bequests.—Among the charitable bequests in the will of the late William Scholle of New York are $4,500 to the Montefiore Home and Hospital for Chronic Invalids and $2,500 to Mt. Sinai Hospital.

Current Literature

Medical Record.

November 22, 1913.

1. Bulkeley, L. D. *Indications from the Urine in the Treatment of Certain Diseases of the Skin.*
2. North, C. E. *The Public Value of Different Milks.*

3. DELAVAN, D. B. *Comminuted Fracture of the Larynx.—Accidental Tracheotomy.—Multiple Trauma.—Extensive Frostbite.—Recovery.*
4. LAMBALLE, F. W. *The Utility of Enzymes in Malaria.*
5. HANDY, J. A. *The Fundamental Principles of Biochemistry. Their Application in the Study of Colloidal Minerals and Their Resulting Use in Medicine.*
6. WADE, H. A. *Description of a New Method of Repair for Vaginal Hernia, with a Report of One Hundred and Forty Cases in Which It was Used.*
7. STEWART, F. E. *Some Objections to Materia Medica Standardization, with Reference to the U. S. Pharmacopeia.*
8. OCHS, B. F. *Infantile Eczema.*

NEW YORK MEDICAL JOURNAL.

NOVEMBER 22, 1913.

1. OGILVEY, C. *Recent Progress in Orthopedic Surgery.*
2. SYNNOTT, M. J. *Observations on Inoculation Therapy.*
3. LOBEL, J. *Prejudices and Superstitions Met with in Medical School Inspection.*
4. KAPLAN, D. M., AND MCCLELLAND, J. E. *A Quantitative Chemical Reaction for the Control of Positive Reactions.*
5. LUBMAN, M. *The Aurometer.*
6. KNOX, H. A. *A Test for Adult Imbeciles and Six Year Old Normals.*
7. WOHL, M. G. *Myiasis, or Fly Larvae as Parasites of Man.*
8. WOOD, H. B. *Expectant School Diseases.*
9. MININGHAM, W. D. *A New Apparatus for Proctoclysis.*

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

NOVEMBER 22, 1913.

1. *YOUNG, H. H. *The Present Status of the Diagnosis and Treatment of Vesical Tumors.*
2. MACGOWAN, G. *The Transverse Incision and Abdominal Fascia as a Method of Approach in Suprapubic Operations on the Bladder and the Prostate.*
3. BELFIELD, W. T. *Vasostomy—Radiography of the Seminal Duct.*
4. *LESPINASSE, V. D. *Transplantation of the Testicle.*
5. SINGLEY, J. D. *The Operative Treatment of Hallux Valgus and Bunion.*
6. *FLEXNER, S. *The Local Specific Therapy of Infections. II. Treatment of Certain Infections.*
7. *HERTZLER, A. E. *Treatment of Inguinal Hernia in Children.*
8. RICHARDSON, D. L. *The Hospital Management of Contagious Diseases.*
9. PARKER, C. A. *Hollow Foot—Pes Cavus.*
10. LOEB, V. *Fields for Research in Oral Surgery.*
11. SHIELDS, N. T. *The Etiology of Trifacial Neuralgia or Tic Douloureux, and Clinical Treatment.*
12. BAETZ, W. G., AND BATES, L. B. *Typhoid Fever in the Canal Zone. A Study of One Hundred and Ninety-Five Cases from the Clinical and Bacteriological Standpoint.*
13. GROAT, W. A. *An Improved Clinical and a Micro-Chemical Test for Blood.*
14. GALLOWAY, D. H. *A Unique Case of Vicarious Menstruation.*
15. PATTERSON, J. *An Unusual Anomaly of the Left Pulmonary Vein.*
16. SHOEMAKER, H. *Rupture of the Sigmoid by an Air-Blast of One Hundred and Twenty Pounds Pressure.*
17. CLOUD, R. E. *A Case of Amebic Dysentery Treated with Emetin Hydrochlorid.*
18. OFTEDAL, S. *A Simple and Practical Method for the Preparation of Pure Buttermilk.*

1. Young, analyzing 117 bladder tumors, found 83% malignant. Local excision is totally inadequate and is followed by prompt recurrence. Wide excision of the whole bladder wall should be practiced, together with the use of the actual cautery. Benign tumors are amenable to high frequency spark in a large number of cases.

4. Lespinasse reports the case of a man who had lost both testicles in whom he transplanted a testicle from another man, slicing into thin pieces and placing these slices under the rectus fibers. The man within four days regained his lost sexual desire and power and has been potent ever since—a period of over two years.

6. Flexner's article is a very scientific and thorough review of the serum treatment of the different infections of the meninges.

7. Hertzler believes that all hernias in infants are due to persistence of the processus vaginalis. Inguinal hernias, therefore, are not cured by the truss and rarely spontaneously. [E. H. R.]

JOURNAL OF MEDICAL RESEARCH.

OCTOBER, 1913.

1. LEVIN. *Distribution of Vital Stains in Animals with Inoculable Tumors.*
2. *SCHLOSS AND FOSTER. *Experimental Streptococcic Arthritis in Monkeys.*
3. CUMMINS. *The Action of Human Blood Serum on Guinea-pig Erythrocytes.*
4. *LAIRD, KILE, AND STEWART. *The Presence of Tubercle Bacilli in Feces.*
5. WILLIAMS AND CALLVINS. *Cultural Amoebae. A Study in Variation.*
6. PEARCE AND RINGER. *A Study of Experimental Nephritis Caused by the Salts of Tartaric Acid.*
7. DOLLEY. *The Morphology of Functional Depression in Nerve Cells and Its Significance for the Normal and Abnormal Physiology of the Cell.*
8. OPIE. *Thrombosis and Occlusion of Lymphatics.*

2. Schloss and Foster have produced in four monkeys by intravenous injections of streptococcus pyogenes, a polyarthritis, resembling "rheumatic fever" in man. The organism was recovered from the blood in the early stages of the disease only, a fact suggesting the explanation of the negative results of blood cultures in human cases.

4. The authors report the results of over two hundred examinations of feces for tubercle bacilli. They have used the antiformin method and later the simple and direct smear method. The latter was found fully as satisfactory as the former, and far more easy of accomplishment. In many instances the character of the acid-fast bacilli in the feces was proved both by cultural methods and animal inoculation. They conclude from this work that nearly all patients with tubercle bacilli in their sputum also have virulent bacilli in their feces and that very few people not showing bacilli in the sputum show them in their feces. [L. H. S.]

BULLETIN OF THE JOHNS HOPKINS HOSPITAL.

NOVEMBER, 1913.

1. *ROWNTREE, L. G., HURWITZ, S. H., AND BLOOMFIELD, A. L. *An Experimental and Clinical Study of the Value of Phenoltetrachlorphthalein as a Test for Hepatic Function.*
2. *WHIPPLE, G. H., PEIGHTAL, T. C., AND CLARK, A. H. *Tests for Hepatic Function and Disease under Experimental Conditions—Phenoltetrachlorphthalein.*

3. *Whipple, G. H. *A Test for Hepatic Injury: Blood Lipase.*

1, 2, 3. These three articles, representing an immense amount of detailed experimental and clinical work, are sufficiently described by title. To those making special study of this subject they will prove of the greatest value. [J. B. H.]

THE LANCET.

OCTOBER 25, 1913.

1. Berry, G. A. *The Causes and Symptomatology of Impaired Retinal Activity.*
2. *Rolleston, H. D. *Symmetrical Necrosis of the Cortex of the Kidneys Associated with Suppression of Urine in Women Shortly after Delivery.*
3. Dreyer, G., and Walker, E. W. A. *The Effect of Altitude on Blood Volume, Together with Further Observations on the Blood in Warm-Blooded and Cold-Blooded Animals.*
4. Willcox, W. H. *Veronal Poisoning.*
5. Howell, J. *A Clinical Study of the Chief Function of the Peritoneum.*
6. Bullock, W. E. *The Experimental Transmission of Disseminated Sclerosis to Rabbits.*

2. Rolleston believes that symmetrical necrosis of the renal cortex is almost invariably related to recent delivery and the child is almost always stillborn. Symptoms resemble those of obstructive anuria, but uremic manifestations are not entirely absent. The kidneys may have been previously either healthy or diseased. [J. B. H.]

BRITISH MEDICAL JOURNAL.

OCTOBER 25, 1913.

1. Oliver, G. H. *An Address on the History of the Invention and Discovery of Spectacles.*
2. Würtzen, C. H. *The Influence of Time on Red Glass.*
3. Woodcock, H. de C. *The Operation for Inducing Artificial Pneumothorax.*
4. Ross, A., and Moore, A. E. *A Case of Influenzal Meningitis.*
5. Spittel, R. L. *The Effects of Emetine on Abscess of the Liver.*
6. Clippingdale, S. D. *Hemorrhage in a Newly Born Infant.*

THE BRITISH MEDICAL ASSOCIATION.

SECTION OF SURGERY.

7. *Makins, G. H., et al. *Discussion on the Diagnosis and Treatment of Primary Carcinoma of the Stomach.*
8. *Wilkie, D. P. D. *Experimental Observations on the Cause of Death in Acute Intestinal Obstruction.*
9. *Warden, A. A. *Radium and Inoperable Cancer.*
10. Dalziel, T. K. *Chronic Interstitial Enteritis.*
11. *Martin, A. M., et al. *Discussion on the Diagnosis and Treatment of Injuries of the Knee-Joint Other Than Fractures and Dislocations.*
12. Groves, E. W. H. *On the Treatment of Compound and Comminuted Fractures.*
13. *Wade, H. *Prostatism—the Pathological Basis of the Operative Treatment.*
14. Dalziel, T. K. *Neuralgia of the Twelfth Dorsal Nerve Simulating Visceral Lesions.*
15. Paterson, H. J. *The Surgical Treatment of Intestinal Stasis.*
16. Childe, C. P. *A Case of Retroperitoneal Fibroma, Weighing Thirty-four and Three-quarters Pounds Successfully Removed.*

7. Makins bases his remarks upon stomach cancer on 403 cases of this condition among the 70,234 patients treated at St. Thomas Hospital from 1901-1912 inclusive. He takes up the various methods of investigation on which early diagnosis is based and the methods of treatment, non-operative and operative, and if the latter the methods of operation.

8. Wilkie concludes from his experiments on intestinal obstruction that simple obstruction must be differentiated from strangulation. In the latter death ensues long before the obstruction to the onward passage of intestinal content has become a factor of importance. Absorption of poisons from the content of the obstructed intestine is not the leading factor in producing acute ileus. In simple obstruction peritonitis plays no part in causing death. In all varieties of obstruction the bowel content is highly infective. Splanchnic paresis with depletion of the systemic circulation is the main factor in producing the symptom-complex of acute intestinal obstruction. The operative treatment should be as conservative as possible.

9. Warden reports a case of laryngeal cancer apparently cured by radium.

11. Martin, Walton and others discuss at length the treatment of loose bodies in the knee, injuries to osteo-arthritic joints, injuries to semi-lunar cartilages and their treatment.

13. Wade, in a long article with numerous conclusions, attempts to consider and review the entire subject of enlargement of the prostate and its causes and the treatment of the various forms of such enlargement. [J. B. H.]

EDINBURGH MEDICAL JOURNAL.

NOVEMBER, 1913.

1. Ritchie, J. *The Development of Bacteriology.*
2. Jamieson, W. A. *Eczema: Its Prevention and Treatment.*
3. *Caird, F. M., et al. *Perforated Duodenal Ulcer.*
4. *Nicoll, J. H. *Operations for Hare-lip in Out-Patient Department.*
5. Carmichael, N. S. *Elephantiasis Neuromatosa.*

3. This article is a collective report on a series of 200 cases of perforated duodenal ulcer treated in Edinburgh between 1896 and 1912. It is compiled from data furnished by eighteen Edinburgh surgeons. The results are presented largely in tabular form. From 1896-1902 there were 12 cases; from 1908-1912, there were 145 cases; 90 showed well-marked indigestion or duodenal ulcer prior to operation. Premonitory signs of perforation, signs and symptoms following it, site of pain, vomiting, fever, site of tenderness, modification of liver dullness, muscular spasm at its site, abatement of symptoms resulting in a "reaction period" are points discussed in detail, as well as the operation, post-operative complications and immediate and late results. Of the 200 cases, 121 recovered and 79 died.

4. The opening sentence of this paper is remarkable, "Operations for hare-lip are, of course, common in the out-patient department." Aside from some excellent plates, the paper is merely a discussion of this operation. Its suitability for an out-patient department is not discussed. [J. B. H.]

BERLINER KLINISCHE WOCHENSCHRIFT.

No. 40. OCTOBER 6, 1913.

DEDICATED TO OTTO VON SCHERNIG, SURGEON-GENERAL OF THE ARMY AND CHIEF OF THE SANITATION CORPS, ON HIS SIXTIETH BIRTHDAY.

1. Schmidt, H. *A Word on Medical Ethics.*
2. Paalzow, F. *Principles in the Building and Management of Military Infirmaries as Compared with Civil Hospitals.*

3. HAMANN. *The Schooling and Improvement of Sanitation Officers.*
4. SCHULTZEN. *Concerning the Volunteer Care of the Sick in the Army.*
5. v. HECKER. *The So-called Physiologic Albuminuria from a military Viewpoint.*
6. HÖLSCHER. *The Importance of Diseases of the Upper Air-Passages and Ear, in Regard to Fitness for Military Service.*
7. OTTO, R. *Concerning a Large Number of Cases of Paratyphoid in Infantry Regiment No. 78 at Osnabrück.*
8. *FORNET, W. *The Pure Cultures of the Causative Agent of Smallpox.*
9. LANDGRAF. *The Danger of Contagious Diseases in War.*
10. LOTSCH, F. *Treatment of Gunshot Wounds of the Skull in Temporary First-aid Quarters.*

8. The author, in a series of experiments to obtain a more stable smallpox vaccine, found in the lymph, after filtering, a minute organism, which he thinks is the causative agent of vaccinia, and probably in another strain the cause of smallpox. This organism, which he compares with that spoken of by Flexner, in anterior poliomyelitis, he calls the "microsoma variolae s. vacciniae." He has been able to see and photograph it both with ordinary light and with the illuminated stage, and presents these photographs. This organism has been mentioned and described by numerous other authors, to whose work reference is given. [R. H. M.]

ARCHIV FÜR KLINISCHE CHIRURGIE.

VOL. 102. PART 2.

17. *VON EISELSBERG, AND RANZI, E. *Surgical Treatment of Tumors of the Brain and Spinal Cord.*
18. MAGNUS, G. *Experimental Research on the Suppurative Inflammations of Joints, with a Remark on the Question of Functional Adaptation.*
19. JACQUIN, P. *Hemostasis in Liver Wounds by Means of Attached or Free Omental Flaps.*
20. CHRISTEN, T. *The Mechanics of Nail-Extension (in Fractures).*
21. PRIBRAM, E. E. *Foreign-body Cysts.*
22. BABITZKI, P. *Surgery of Brain Tumors. A Case of Jacksonian Epilepsy with Subcortical Situation of the Tumor in the Region of Right Central Convolution. Removal of Tumor. Recovery.*
23. ESAU. *Hernia Dystopica Inguino-inguinalis Incarcerata.*

17. von Eiselsberg and Ranzi report in considerable detail their operative experiences with tumors of the brain and spinal cord for the years 1901-1913; 168 cases of brain tumor, besides a number of spinal cases, are reported. The cases are divided into groups according to location of the lesion, and the subject is discussed under the headings of diagnosis, operative technic and results. The writers favor the two-stage operation for brain tumors, and avoid drainage whenever possible. They do not regard the high mortality as a reason for not operating, for the later stage of brain tumor, with its progressive blindness and constant headache, is to be avoided at all costs. [G. G. S.]

DEUTSCHE ZEITSCHRIFT FÜR CHIRURGIE.

BAND 123. JUNE-AUGUST, 1913.

1. TSCHERNIACHOWSKI, E. *The Question of the Employment of Vascular Suture in the Treatment of Aneurysms.*
2. SASAKI, J. *Comparative Studies on the Suture-Strengthening Value of Unpedicled Omental, Peritoneal and Mesenteric Flaps.*
3. WORTMANN, W. *Intestinal Sarcoma.*
4. *FRANKE, F. *Proposition for the Removal of the Arm with the Appertaining Shoulder-Girdle in Certain Forms and Recurrences of Mammary Carcinoma.*
5. GÖBELL, R. *The Osteoplastic Repair of Congenital and Acquired Defects of the Lower Jaw.*
6. v. MAYERSBACH, L. *A Rare Case of Intercarpal Dislocation.*
7. WACHTER, A. *A Rare Case of Congenital Dislocation of the Knee-Joint.*
8. *GERLACH, W. *Positive Pressure Narcosis Apparatuses.*
9. GOETJES, H. *Injuries of the Crucial Ligaments of the Knee-Joint.*
10. *THOSEHKE. *Acute Osteomyelitis of the Os Pubis.*
11. TOREK, F. *Report on the First Successful Resection of the Thoracic Portion of the Esophagus for Carcinoma.*
12. HARTLUNG, H. *Contribution to the Surgery of the Sternum.*
13. FRISCHBERG, D. *The Diagnostic Value of Determination of the Viscosity of the Blood in Surgical Diseases.*
14. MENNE, E. *The Conservative Methods of Treatment of Surgical Tuberculosis.*
15. ZESAS, D. G. *Contribution to the Pathology of Idiopathic Osteopsathyrosis.*
16. LERDU, G. *Rational Pneumopexy in Thoracic Surgery.*
17. MATTHIASE, K. *Traumatic Epilepsy and Its Surgical Treatment.*
18. LUXEMBOURG, H. *Contributions to the Operative Treatment of Traumatic Peripheral Nerve Paralysis.*
19. PARIN, W. *Contribution to the Knowledge of Congenital Presacrally Located Tumors.*
20. BLECHER. *Lateral Avulsion of the Menisci.*
21. GUYE, G. A. *Observations on the Heliotherapeutic Question.*

4. Franke advocates the employment of interscapulo-thoracic amputation in the treatment of recurrent cancer of the breast with metastases above the clavicle, and reports one fatal case of the performance of this procedure for this purpose.

8. Gerlach presents a critical comment with communications on a new simplified apparatus for the induction and maintenance of positive pressure narcosis in thoracic surgery.

10. Thomsehke collects from the literature three cases of acute osteomyelitis of the pubic bone, to which he adds three of his own observation. From a discussion of the reports of these cases he concludes:—

(*a*) That primary osteomyelitis of the os pubis is a very rare disease. Its diagnosis at the onset may be very difficult.

(*b*) The treatment must be operative, as timely as possible to avoid serious complications.

(*c*) Primary osteomyelitis of the pubic bone occupies no exceptional position, as regards its etiology and course, from the osteomyelitis of other bones. [R. M. G.]

DIE THERAPIE DER GEGENWART.

DECEMBER, 1912.

1. PERTHES, G. *The Treatment of Bone and Joint Tuberculosis (Concluded).*
2. AMMANN, R. *The Bromide Treatment of Epilepsy.*
3. PRAGER-HEINRICH, H. *Vaginal Treatment with Xerase, a Mixture of Yeast and Bole.*
4. SEEGERS, K. *Biozyme, a New Stable Yeast Preparation.*
5. *FLOER, H. *The Treatment of Pulmonary Tuberculosis with Inhalations of Fumiform Vapor.*
6. BERING, F. *The Late Forms of Hereditary Syphilis.*

5. Floer reports eight more cases of pulmonary tuberculosis in which he used inhalations of fumiform. All of these patients showed marked improvement, although two of them died—one of an intercurrent erysipelas, the other of a rapidly developing intestinal tuberculosis. Experiments with pure cultures of B. tuberculosis, B. subtilis and staphylococci showed bactericidal action in from ten to thirty minutes. The tubercle bacillus was the least resistant of the three to the fumiform vapor. [L. D. C.]

MAY, 1913.

1. LITHJE, H. *The Treatment of Diabetes with Sugar Clysters.*
2. *SCHREIBER, E. *The Checking of Internal Hemorrhage by Intravenous Injections of Glucose.*
3. DOHRN, M. *The Antiphlogistic Property of Atophan and Some Other Carbonic Acids.*
4. MÜHSAM, R. *The Diagnosis and Treatment of Extra-uterine Pregnancy, with Reports on an Uninterrupted Series of Over One Hundred Operative Cures.*

2. Schreiber has used intravenous injections of grape sugar in the treatment of internal hemorrhage with good results during the past two years. He injects at one dose 200 c.c. of a 5 to 20% solution, the concentration varying with the severity of the bleeding. The theory and effect of this treatment is similar to that with hypertonic salt solution, and it has an advantage over the latter in that glucose is itself a food. The writer has never observed glycosuria, fever, or other untoward symptoms from these injections. He has used them successfully in hemophilia and prefers glucose to serum in these cases, as there is no danger of anaphylaxis. [L. D. C.]

JUNE, 1913.

1. *JOSEPH, E. *The Present Status of Hyperemia Treatment.*
2. LEWIN, C. *The Treatment of Cancer Patients by Vaccination.*
3. KLEMPERER, G. *The Explanation of the Action of Atophan.*
4. AUERBACH, S. *The Pathogenesis and Treatment of Seasickness.*
5. BURCHARD, E. *The Treatment of Mumps with Formamint.*
6. MÜLLER, G. *The Treatment of Contracted Flat-Foot.*
7. MERZBACH, G. *The Powder Pastes or Mattans and Their Use in Dermatology and as Cosmetics.*

1. Joseph discusses the general indications and contra-indications for hyperemia treatment. He points out that the stage of infection is all-important as a guide. Hyperemia is indicated in those conditions where the first inflammatory symptoms are localized or easily localizable. Thus most fresh infections are amenable to stasis therapy. In constitutional diseases, however, in which the quality of the patients' blood is poor—*e.g.* nephritis, diabetes, arterio-sclerosis, tabes, alcoholism—acute local infections do not yield readily to it. In general, septicemia Bier's method is not satisfactory. In chronic tuberculous joints some benefit may be expected after persistent treatment. [L. D. C.]

JULY, 1913.

1. KLEMPERER, G. *Progress in the Treatment of Diseases of the Stomach.*
2. KRAUSE, H. *The Treatment of Bronchial Asthma.*
3. HALLEWORDEN, J. *Diagnostic and Therapeutic Observations on Basedow's Disease.*
4. DOLGANOFF, W. *Spontaneous Rupture of the Eyeball.*
5. *MEIDNER, S. *New Remedies. III. Digitalis Preparations.*

5. Meidner discusses the relative merits of some of the newer digitalis preparations. He considers digalen a valuable remedy, as are also the two dialysates of digitalis now on the market, and digipuratum, in spite of the attacks made upon it. Results with folia digitalis titrata are in the majority of cases all that can be desired. Untitrated digitalis leaves should no longer be prescribed. [L. D. C.]

Obituary.

JOHN HOWE CLARK, M.D.

DR. JOHN HOWE CLARK, who died of cerebral hemorrhage on Nov. 30 in Amherst, N. H., was born at Greenland, N. H., in 1837. He received the degree of A. B. from Dartmouth College in 1857, and in 1862 that of M.D. from the Harvard Medical School. He immediately entered the United States Navy, and throughout the remainder of the Civil War served as assistant-surgeon and surgeon in the Gulf Squadron.

After 1865, Dr. Clark continued for many years on active sea and shore duty. In 1874 and '75 he was in charge of the United States Naval Hospital at Chelsea, Mass. From 1883 to '86 he served as fleet surgeon of the Pacific Squadron. In 1893 he was made a medical director. He had been appointed in 1881 to the Naval Examining Board, and in 1893 became its president.

Since his retirement, Dr. Clark, who was not married, had lived in Boston and at Amherst. He was one of the last local representatives of a type now fast passing away, the naval surgeon of the Civil War.

JEROME E. DWELLY, M.D.

DR. JEROME E. DWELLY, one of the oldest physicians in Massachusetts, died at his home in Fall River on Dec. 4, at the age of 91. He retired from active work five years ago, but had previously practiced continuously in Fall River since 1847 except two years spent in California at the time of the discovery of gold. He was a graduate of the Harvard Medical School, class of 1847. He was one of the witnesses of the original demonstration at the Massachusetts General Hospital of ether as a surgical anesthetic and was the first administrant in his own community. He was Fall River's first city physician, was pension examiner for thirty years, medical examiner fourteen years, and a member and official of the Massachusetts Medical Society since 1851. He was one of the finest types of the old-time practitioner, and had held many non-medical positions with distinction. He survived the death of his wife by only four months.

Correspondence.

LIEUT.-COL. ELLIOT'S VISIT TO BOSTON.

BOSTON, December 1, 1913.

MR. EDITOR:

This has been called The Glaucoma Age in ophthalmological history.* The impressive thing about it is not so much the voluminous literature that is growing around the subject of glaucoma, as the intensity and depth of the interest that is shown whenever the subject in any of its phases comes before a meeting of ophthalmologists for discussion. Just now the focus of interest for the whole ophthalmic world is Elliot's operation of sclero-corneal trephining in the operative treatment of glaucoma, an operation which he has convincingly shown to be safer, easier and surer than all others hitherto proposed.

I say the focus of interest is the operation, not the man, for he has studiously and sedulously avoided anything savoring of self-glorification in the matter, greatly underrating, in our opinion, the credit due to himself. Over and over again he has said, in public and in private, that there is nothing in his operation which he claims as original, that the chief glory for showing the way is due to Lagrange, who demonstrated that sclerectomy, with a view to the production of a subconjunctival fistula or filtering cicatrix, was practicable and safe as well as effective. When this had been shown by Lagrange and when Herbert had shown from the occasional accidental results of his cataract extractions with conjunctival flaps that a subconjunctival fistula (or filtering scar as it was at first called) would persist for years, keeping the eye soft but not destroying vision, the idea probably occurred to many ophthalmologists, as it did to more than one here in Boston, that the simplest way to achieve this would be by trephining. Nevertheless it was Elliot who first made the operation a success and who has perfected the technic. For this he had peculiar opportunities in that he has done over 1000 sclero-corneal trephinings since he began in 1909. Thus the ophthalmologists of New England were peculiarly pleased to welcome Lieut.-Col. Elliot to Boston and arrange an operative clinic for him to demonstrate his technic.

Colonel Elliot delivered the oration on glaucoma and received the gold medal of the American Academy of Ophthalmology and Oto-Laryngology at Chattanooga in October. He has visited, or plans to visit before his return to England, a dozen or more of the principal cities from St. Louis to Boston and from Toronto to Washington, to demonstrate his operation. He reached Boston Nov. 25 and was the guest, during his stay, of Dr. Allen Greenwood, who was assisted in entertaining the visitor by Drs. Derby, Lowell, and the writer. On Tuesday evening there was a formal dinner at the Harvard Club given by the New England Ophthalmological Society, at which some twenty were present, presided over by Dr. Myles Standish.

On Wednesday, at the Massachusetts Charitable Eye and Ear Infirmary, the ophthalmic staff had gathered a group of a dozen cases of glaucoma of various types, simple, chronic, acute, inflammatory, with and without complications. Eight operations were done and the minute details of the technic were demonstrated so that all of the thirty or more ophthalmologists who were present could see by turns just how the various steps of the operation should be performed. Each visitor as he entered the room was given a number and then at each successive operation a series of numbers were called to occupy the front row. From time to time during each operation, Col. Elliot would stop and show to each in turn the special features which he wished to emphasize.

Many were interested to observe his general surgical technic, but he wisely refrains from attempting to impose the full details of his usual preparations and procedures on each hospital as he goes from city to city. Certain points he does insist on and they are worth recording. He insists on one assistant through the series instead of changing with each operation. He does not attempt to sterilize his hands nor have his assistant do so or wear rubber gloves, but he is very particular that no part of any instrument or sponge that is to touch the eye should come in contact with the surgeon's or assistant's hands or any other thing that is not surgically clean except the patient's eye. In his own clinic at Madras his custom was to irrigate the eye with a stream of 1 to 3000 bichloride for from one to two minutes, the lids being everted, after which the conjunctival sac to its farthest recesses was swabbed out with sterilized mounted cotton swabs under a stream of sterile salt solution isotonic with the tears (1.4%). All sponging is done with small, firm, cotton swabs mounted on toothpicks or the like. These swabs are about 4 or 5 mm. thick and 10 or 15 mm. long and so wound about the stick as to leave a smoothly rounded end free from fuzz. About ten or a dozen of these should be provided for each operation. They are made up by the hundred, sterilized by dry steam and then, just before the operations, a sufficient number of them are placed in a sterile towel and dipped in a sterile solution (salt or boric or the like) and wrung out. Thus they are damp and absorb well but are sterile and are not made fuzzy or caused to stick together as they would if boiled.

THE ASSISTANT.

The duties of the assistant are: first, to keep the field of operation perfectly clear of blood by sponging with these swabs at every pause by the operator. Sometimes continuous pressure with a swab moistened with adrenalin is necessary for a minute or more to arrest bleeding. Col. Elliot uses 1 to 1000 adrenalin chloride. The best way to use the sponge is to apply its side lengthwise of the furrow that is being made at the base of the flap, thus removing the blood with the least loss of time and the least traumatism. Second, to carefully avoid sponging when the trephine has penetrated and the iris presents in the trephine hole, because to touch it with the sponge might cause it to disappear into the anterior chamber again and its recovery might be difficult. Third, to support the speculum after the eyeball has been perforated. Fourth, to hold the conjunctival flap down over the cornea away from the site of the trephine hole during any manoeuvers which require both hands of the operator, such as the removal of the trephine button and bit of iris by forceps and scissors.

Since the descriptions given by Dr. Elliot in his book and in numerous articles in the *Ophthalmoscope* and in the transactions of various societies give the details very fully and clearly it is necessary to call attention only to those most likely to be misunderstood, underrated or neglected. The large size of the conjunctival flap is sufficiently emphasized in his later writings, but many operators, and those of Boston are no exception, have not appreciated the importance of this. In India, Col. Elliot usually does not suture this flap after the operation, but in America, with a very different type of patient, he finds suturing is necessary in a large proportion of cases.

"SPLITTING THE CORNEA."

The most tedious part of the operation is the splitting of the cornea, and this is one of the features that we owe to Elliot and that is most essential to

* Preface of Sclero-Corneal Trephining in the Operative Treatment of Glaucoma, by R. H. Elliot.

success in difficult cases. Though others may have done it to some extent before him, no one ever made such a feature of it as he or showed its great value and its general feasibility. It has been called difficult by some and easy by others. Col. Elliot has said he has never found a surgeon with good eyesight who could not learn to do it satisfactorily. Several things are clear to the writer after assisting Col. Elliot with eight of these operations. One must have clearly in mind what he wishes to do and then he must go steadily and patiently forward, not hurrying even if no progress seems, for a time, to be made. The flap must be held down over the cornea with some tension, but to pull hard on it is to invite the serious disaster of tearing it from its attachment. The wound must be kept sufficiently free from blood so that the operator can see exactly where lies the line of incision that separates flap from cornea, the scissors point or needle or other cutting instrument must be applied *just in the line of this furrow;* to apply it farther back is to make useless and wasted strokes, to apply it even a tiny bit forward is to perforate the delicate flap. It was very pretty to see Col. Elliot make these strokes, first to right and then to left, across the furrow, leaving a smooth surface free from marks of useless strokes of the instrument and raising a thin layer of conjunctival and corneal tissue so translucent that one could easily see through it how far one was progressing onto the cornea beyond the limbus. Several of these cases presented considerable difficulty because of previous operations or other complications, but in every case by patient, painstaking, slow but persistent work the flap was neatly separated till its base was sufficiently far forward on the cornea to admit of placing the 2 mm. trephine so that it would easily clear the angle of the anterior chamber.

I would say to any novice: Be sure of a good light. Use magnifying glasses if your accommodation is not sufficient for you to work at 20 cm. distance. Have the wound so free from blood that at *every stroke* you can see just what you are doing. Make a flap whose base is nearly the whole width of that part of the cornea which you are denuding, so that your strokes can go clear to the limbus on each side without danger of puncturing the fragile flap. Do not use a very sharp instrument. Col. Elliot used the points of a sharp-pointed straight iridectomy scissors or a rather dull flat needle (Bowman's) or the knife designed by McReynolds, which Col. Elliot thinks will be better when it is not so new and sharp. The thickness of the flap raised from the cornea is about equal to that of the conjunctiva just above the limbus, and consists of the epithelium, Bowman's membrane, and some lamellae of corneal tissue.

THE TREPHINING.

In applying the trephine do not put it squarely down approaching the surface at right angles, but approach from the scleral side and glide into place so as to avoid possibly nipping the flap while getting close to its base. Once in position, do not lift it or stop cutting with it until a furrow is made of sufficient depth so that the trephine will readily find its way again into its place; this it does with great ease once a fair start is made. Do not hurry here any more than in raising the flap. Although Col. Elliot had done 990 trephinings he did not go quickly and boldly forward with the trephine, but slowly and cautiously, so that the escape of aqueous gave due notice of penetration before the disc was cut in its entire circumference. Care should be taken so to incline the trephine that it will cut through first on the side toward the center of the cornea, not toward the sclera. Then the button of sclero-corneal tissue will be lifted by the escaping aqueous and tilted back like a lid on a hinge, allowing the iris to present. Both iris and button are then seized in one grip by the very delicate Terson forceps and, *without traction*, held while the scissors cut them off, the point of the scissors being put into the trephine hole. It is a mistake to draw out the iris to cut it, not because a complete iridectomy is to be avoided, though it is unnecessary and looks better without it, but because it is so easy to impact the iris in the hole and plug it up. It is not always an easy matter to replace it. He does not aim to remove the whole of the sclero-corneal button, but prefers to leave the upper one-third or one-half attached to the sclera. This diminishes the tendency to prolapse of iris but leaves an ample opening for drainage of aqueous. The reason he does not use a smaller trephine to begin with, instead of leaving part of the button but a larger trephine, is because it is not possible to deal so well with the iris through a small opening should it be necessary to introduce a forceps into the anterior chamber through the hole.

IRRIGATION.

Colonel Elliot always irrigates after the iridectomy. The first thing he wishes to accomplish by this is the replacement of the iris into the anterior chamber and clearing of the trephine hole. This is beautifully accomplished by this simple means without the danger that is unavoidable with a spatula, which has sometimes to be used.* The second thing accomplished by irrigation is removal of blood from the anterior chamber. The third may be removal of some microörganisms which may have found access to the wound. The fourth is that when, as sometimes happens, the trephine cuts the button clean off and it falls into the anterior chamber, the irrigating stream will wash it out, while to remove it with forceps might be extremely difficult or impossible.

In handling the irrigator nozzle remember that if it is wet where held by the hand the liquid may run down from the fingers, which are not sterile, and contaminate the wound. The same applies to taking instruments out of a tray of boric or other solution. It is better to have them laid dry on a dry towel, as was done by Col. Elliot.

The manner of holding the flap which Col. Elliot uses by choice is with the end of his closed fixation forceps (which are of the usual Gräfe type) laid on the flap and finding counter-pressure against the cornea. These have rather sharp corners and can easily tear the flap. In the writer's opinion the rounded spoon is safer for novices, and I shall use it or a swab or some instrument of the sort. Some traction is of course a help in peeling off the flap, but strong traction is very dangerous, and I should caution anyone about using any kind of forceps to hold the flap up in his grip (although this is a most natural thing to do). A sudden movement of the patient's eye may tear the flap at its attachment. This is a very real danger.

AS TO VARIOUS TREPHINES.

I believe, though this was not my opinion at one time, that Col. Elliot's method is the best. It surely is the simplest. It requires but one hand to manage his modified Bowman's trephine, the other is free to attend to the flap, which otherwise would have to be intrusted to the assistant. It cuts slowly, so that one can stop after the cornea is perforated before the whole button is severed, and this is the preferred method, as explained above. A series of cases done by Col. Elliot with the von Hippel trephine showed a larger percentage of iris prolapse. The same would probably be true of the electrically driven trephines. These appeal to one only as long as he thinks the object to be desired is the rapid and complete cutting of a button of sclero-corneal tissue. This is an erroneous conception. The slow and the partial cutting are the correct standards.

* A properly-shaped nozzle is important.

INTRA-OCULAR HEMORRHAGE.

All the cases are doing well,—eyes soft, pupils central, filtration active, no pain. Perhaps the most interesting was the one in which, before the eye was closed at the end of the operation, it had already become hard again. This is a not infrequent complication, and as we had been discussing it the day before, Col. Elliot asked me to try the tension in this case by pressing on the cornea with the spoon. There could be no question about its hardness, although a few minutes before it had been as unmistakably soft. What had occurred? Something had plugged the opening. Doubtless the iris was pushed forward by the lens and that by something behind it, so as to block the hole. Col. Elliot thinks this is always caused by an intra-ocular hemorrhage. These are all too common in the old operations for glaucoma and the result is usually loss of the eye. In these cases, as Col. Elliot sees them, the eyes are not generally lost because, before a considerable hemorrhage can take place, the hole is blocked by the pressure from behind, the intra-ocular tension rises and stops the hemorrhage. In a day or two the tension is usually down, though it may take a week or more.

This is what happened in our case; within forty-eight hours the eye was soft. I believe that Col. Elliot is right that in many of these patients there is an intra-ocular hemorrhage, but I think it probable that in some cases the pushing forward and blocking of the hole by uveal tissue, lens, etc., may be caused by other fluid than hemorrhage. It is well known how rapidly the anterior chamber refills after paracentesis and with a fluid which is different from normal aqueous in being more albuminous—more like a transuded fluid. Now, immediately after trephining the anterior chamber and evacuating the aqueous and reducing the tension of the eye, is it not obvious that there will be a very rapid pouring out of fluid from the ciliary bodies, and might not this push forward lens, etc., and block the trephine hole, the suspensory ligament being already lax from long continued chronic glaucoma? This fluid could absorb even more easily than the blood, but it is not necessary to suppose that it is absorbed; it may leak slowly through the trephine hole and so, after some hours, re-establish filtration. Today at the third dressing, I made a cursory ophthalmoscopic examination. The fundus was not well seen and no signs of hemorrhage were made out. The result was negative and carries no weight. Such cases should be examined and the results reported.

Colonel Elliot has left us with a much more helpful attitude toward chronic glaucoma. Those of us who had tried Lagrange's operation had already abandoned the old discouraged and pessimistic attitude everyone once felt toward cases of simple glaucoma which were not held in check by miotics. Elliot's operation is a distinct improvement on that epoch-making achievement in that it is surer, safer and easier.

Truly yours,

WALTER B. LANCASTER, M.D.

CHANGES IN THE MEDICAL CORPS, U. S. NAVY.

The following changes have been made in the Medical Corps, U. S. Navy, for the week ending November 29, 1913:

November 25, Surgeon J. W. Backus from *South Dakota*, to Navy Yark, Pudget Sound, Washington.

Surgeon H. E. Odell, from Navy Yard, Mare Island, Cal., to Asiatic Station.

P. A. Surgeon N. T. McLean, from Pacific Reserve Fleet, to *South Dakota*.

P. A. Surgeon W. S. Hoen, from Navy Yard Pudget Sound, Washington, to Navy Yard, Mare Island, Cal.

November 26, Surgeon Jacob Stepp, from *Montana* to *Prairie*.

P. A. Surgeon P. R. Stalnaker, from Navy Yard, New York, to *Prairie*.

P. A. Surgeon H. L. Kelley, from *North Carolina* to *Prairie*.

SOCIETY NOTICES.

SOCIETY OF AMERICAN BACTERIOLOGISTS.—The annual meeting of the Society of American Bacteriologists will be held in Montreal, December 31, 1913, and January 1-2, 1914, under the presidency of Professor C. E. A. Winslow. Persons interested in bacteriology, whether or not members of the society, are cordially invited to attend the meetings.

BOSTON MEDICAL LIBRARY in conjunction with the SUFFOLK DISTRICT MEDICAL SOCIETY.—Medical section meeting, John Ware Hall, Wednesday, December 17, 1913, at 8.15 P.M. Recent Advances in the Treatment of Syphilitic Diseases of the Nervous System, Lesley H. Spooner, M.D., and James B. Ayer, M.D. Light refreshments after the meeting.

LESLEY H. SPOONER, M.D., *Secretary*.
260 Clarendon Street.

NEW ENGLAND PEDIATRIC SOCIETY.—The annual meeting of the New England Pediatric Society will be held on Friday, December 12, at 8.15 P.M., at the Boston Medical Library:

1. Report of Council and Nomination of Officers.
2. The following papers will be read:

a. Alcoholic Cirrhosis of the Liver in Childhood, with report of two cases. Dr. T. W. Ely.

b. Treatment of Tubercular Cervical Adenitis. Dr. W. E. Ladd.

c. Obstetrical Paralysis with Especial Relation to Treatment. Dr. J. J. Thomas.

d. Some Tragic Aspects of Whooping Cough. Dr. P. H. Sylvester.

3. Election of Officers.

Light refreshments will be served after the meeting.

DR. JAMES S. STONE, *Chairman*,
DR. FRITZ B. TALBOT, *Secretary*.

THE BOSTON SOCIETY OF MEDICAL SCIENCES.—The next meeting will be held on Tuesday evening, Dec. 16, 1913, in the amphitheater of the administration building of the Harvard Medical School, at 8.15 o'clock.

Papers will be presented as follows:—

Drs. W. B. Cannon and W .L. Mendenhall, "Physiological Factors Effecting the Coagulation of Blood" (15 minutes).

Dr. W. B. Cannon and Mr. Horace Gray, "The Effect of Adrenalin on Coagulation Time" (15 minutes).

Dr. S. B. Wolbach and Mr. C. A. L. Binger, "Demonstration of an Apparatus for Recording Slight Degrees of Turbidity, with Remarks on Free Living Sub-microscopic Filtrable Micro-organisms" (20 minutes).

Dr. Theobald Smith, "Bacillus Bronchisepticus in the Guinea-pig" (20 minutes).

THOMAS ORDWAY, M.D.,
Secretary and Treasurer.

RECENT DEATHS.

DR. ABBY SWAN MORSE, who died on Dec. 2 at Gloucester, Mass., was born in 1848. She received the degree of M.D. from Boston University in 1875, and was a member of the Massachusetts Homeopathic Medical Society.

DR. JEROME E. DWELLY, a retired member of The Massachusetts Medical Society, died at his home in Fall River, Dec. 4, 1913, aged 90 years.

Memorial Meeting.

REGINALD HEBER FITZ, M.D., LL.D.

Held at the Harvard Medical School, November 17, 1913, Dr. E. H. Bradford, the Dean, Presiding.

In the unavoidable absence of President Lowell it devolves upon me to open the meeting this evening and to present those who will express their sense of the loss sustained by the Harvard Medical School and the community in the death of Reginald Heber Fitz.

The occasion is unusual. A great university, a living institute of learning, rarely pauses long to note the passing of those who have enjoyed the privilege of its authority. But the service noted tonight is remarkable. Many have sought truth, but it is rare to have found and taught it so clearly that the lives of thousands and thousands were saved thereby.

None realizes the value of this gift of knowledge as keenly as the surgeon to whom is given a new weapon in the combat with death, and no one more fully than the distinguished American surgeon whose long activity reached from the period of bold skill to the modern era of safer scientific precision, Dr. Keen, emeritus professor of surgery at the Jefferson Medical College, of Philadelphia.

DR. FITZ'S SERVICES TO SURGERY.

W. W. KEEN, M.D.

Dr. Fitz's chief services to surgery may be thus enumerated:

1. In 1886, he first named the disease now so familiar to us under the name of appendicitis, established its origin from the appendix, elaborated its diagnosis and indicated on broad lines its proper treatment.

2. In 1889 he classified and clarified our knowledge of pancreatitis, a disease at that time emerging from obscurity into concrete form as a surgical entity.

3. He reviewed the reciprocal relations of the physician and the surgeon, encouraged their hearty co-operation and laid a restraining hand on the sometimes too radical tendencies of the surgeon.

4. By his personal relations and influence as a consultant and teacher, he rendered signal service both to medicine and to surgery by advocating surgical treatment to his laggard brother physicians and by pointing out the safest path to the surgeons.

Up to his epoch-making paper of 1886, the frequent "abscesses in the right iliac fossa" as they were called ever since the days of Dupuytren (1833) were generally believed to be due to typhlitis, perityphlitis, paratyphlitis, epityphlitis, etc., though the appendix was sometimes incidentally mentioned, Fitz swept aside all these misleading names and revealed the true culprit, the appendix.

In 1848 it is true that Hancock of London had operated successfully on one case—a happy exception to the then almost uniform story of disaster—yet eight years later (1856) Lewis reported 47 cases of such abscesses due to foreign bodies in the appendix, and *only one* of the 47 recovered!

Even eleven years later still (1867) Willard Parker of New York in reporting four operations with four recoveries wrote "the prognosis is bad. The end is generally death."

In 1873 Bull of New York published 67 cases of perityphlitis of whom 32 or 48% perished, thus almost justifying Parker's pessimism.

The first ray of light came in 1882 when Noyes collected 100 cases with only 15 deaths, (15%).

Fitz's paper in 1886 alone would have made notable the first meeting of the newly formed "Association of American Physicians." It was based on a critical analysis of 257 cases of appendicitis and 209 of typhlitis and perityphlitis. For such a detailed study of nearly 500 cases what hours and hours of labor were required! They surely involved large inroads into recreation and sleep. But it paid—paid *him* in greatly enhanced and permanent reputation; paid the *profession,* for though almost deaf to the words of Hancock, Parker, Bull and others, Fitz struck a note that we all heard and heeded—and it paid the *community* in lives saved and families made happy and sometimes rescued from poverty by saving their bread-winner.

Again in 1889 he analyzed 72 additional cases occurring since 1886. He urged the now common and safe "interval operation." He frankly avows of one case in which medical treatment had been adhered to, "The treatment should have been surgical."

As a result of these papers the profession quickly recognized the deadly rôle of the appendix in inflammations in the right iliac region, and from then until now hundreds and even thousands of operations have followed each other, first chiefly in America, and in later years in Europe. At present there is almost total immunity from danger when the abdomen is clean —*i.e.* free from pus—and only a moderate mortality when there is an abscess. Even diffused peritonitis is now being gradually freed from the former almost invariable fatality.

He clearly recognized the wide-spread ravages of appendicitis for he alludes to pylephlebitis, thrombo-phlebitis, portal embolism, abscesses of the liver and perforation of the diaphragm with consecutive pleurisy or pericarditis.

See how clear cut are his pronouncements. "Every case of so-called perityphlitic abscess must be regarded as primarily one of a perforat-

ing appendicitis unless proven to be the contrary."

As to treatment also, the conservative clinician became a herald of what was then, as I well remember, an astonishing radicalism. "If" says he "after the first twenty-four hours from the onset of the severe pain, the peritonitis is evidently spreading, and the condition of the patient is grave, the question should be entertained of an *immediate* operation for exposing the appendix and determining its condition with reference to its removal. If any good results are to arise from such treatment it must be applied *early.*" And again still more radically he not only advocates very early operation but even the deliberate opening of the peritoneal cavity itself instead of merely draining the abscess. Homans, his colleague, also urged early operation most tersely in 1886 saying "Dr. Greene (the medical attendant) and I decided *not to wait for the autopsy*" but to operate at once.

Listen again to Fitz—"If the indications for operating justified the election of a date as early as the fifth day, they still more justify the choice of the *third* day. The result has shown the wisdom of the former step, and the evidence here presented seems not only to warrant but to demand the latter. It is evident that the operation to be performed is that of opening the abdominal cavity."

How very modern all this sounds! Yet he wrote it more than a quarter of a century ago!

In the eyes of the conservative multitude it was then rank heresy. But time has vindicated his provision. The heretic of yesterday is the orthodox hero of today.

As a "by-product" his studies on appendicitis especially familiarized him with a condition with which it was not seldom confused—acute intestinal obstruction. Here again he showed his infinite capacity for analytical labor and constructive results.

His paper on "Intestinal Obstruction" was read before the First Congress of American Physicians and Surgeons in 1888. It was based on a critical study of 295 rigidly selected cases. His surgical instincts were again in evidence, for he did not hesitate to recommend the operative treatment.

In another fruitful field—Pancreatitis—he was an early laborer and reaped a rich harvest.

"The occurrence of hemorrhage" says Moynihan "into the substance of the pancreas had long been recognized, but its importance was not known until Fitz described 'acute hemorrhagic pancreatitis' in 1889." (His Middleton-Goldsmith Lecture.) In the same "memorable paper" as Moynihan well terms it, Fitz first suggested that fat necrosis was the result of a lesion of the pancreas, a suggestion which Langerhans in the following year confirmed.

Klebs in 1870 and Friedrich in 1875 had made valuable contributions to our knowledge of diseases of the pancreas, and Senn in 1885 and 1886 had done some excellent experimental work, yet our knowledge was meager, fragmentary and imperfect. Fitz classified our knowledge and carefully distinguished the hemorrhagic, the suppurative and the gangrenous forms of acute pancreatitis.

Thus he laid the foundations of our present knowledge of the pathology and symptomatology and, therefore, of the correct treatment of this so frequently and suddenly fatal disease.

In 1903 he again writes of pancreatic disease in a paper before the Sixth Congress of American Physicians and Surgeons, of which Congress he was most properly chosen President at its next succeeding session in 1907.

After reviewing the chief work in the fourteen years since his paper of 1889, and naming the principal contemporaneous authors, how modestly and generously he writes "*These* are the authors now to be consulted for classified knowledge of the questions under consideration. From them is to be learned in what respects the clinical characteristics of pancreatic diseases are now more sharply defined than in the days of Friedrich and his predecessors." Not a word about himself—the master builder!

And again he urged surgical treatment as evidently he and his fellow internists could hold out little hope. "Exploratory laparotomy in an increasing number of cases has proven the most satisfactory method of treatment and, like most abdominal operations for the relief of acute symptoms, is the more helpful the earlier in the course of the disease it is performed."

What a fine, wise, bold, yet not too bold surgeon he would have been!

In "Some Surgical Tendencies from a Medical Standpoint" an address in 1901 before the New York Academy of Medicine, he playfully alludes to "the modest claims of the physician" as contrasted with "the imperialistic tendencies of the surgeon," evidently having in view a future time when *all* cases will be under the care of the surgeon except those claimed by the obstetrician. But he skilfully averts any antagonism by adding with a noble charity: "The successful advance of either surgeon or physician into the region previously occupied by his colleague will always be welcomed provided the interests of mankind are served."

His wise conservatism comes now to the front in his just criticism of the too frequent lack of knowledge of pathology on the part of the surgeon, of indiscriminate "exploratory" operations, and operations by so-called surgeons who only operate occasionally. "Operative success" he warns us "has increased the number of operators as well as the number of operations. But skill in operating is not attained in a day, and requires a long period of preparation which is impossible for every one who would become an operator. The multiplication of small hospitals gives surgical opportunity, but this does not make the surgeon."

His pessimism as to the final results up to years after operations in cancer of the stomach

and intestines, in extensive resection of the rectum, intra-cranial tumors, tumors of the kidney, goiter and Hodgkin's disease while warranted by his statistics of local cases, I am sure he would find is not so fully justified at the present time.

Before this Boston audience who knew him so well and not a few of whom may be indebted to him for health and even life, I need not dwell on his charming personality, his fine character, his diagnostic acumen, his pains-taking, faithful examination, his sober, well considered judgment —the Man as well as the Doctor.

His influence as a consultant, teacher and writer will long survive in his students and in turn in their students, his professional children and grand-children.

His name is writ large and high on the Roll of Honor of our Guild.

Dr. Bradford: As a teacher of one of the fundamental medical sciences, Dr. Fitz excelled. No one appreciates the importance of his influence more than his successor, Dr. Councilman, Shattuck professor of pathology at the Harvard Medical School.

DR. FITZ'S CONTRIBUTION TO PATHOLOGY.

W. T. COUNCILMAN, M.D.

It remains for me to speak more particularly of that part of the life of Dr. Fitz during which he taught pathology in the Harvard Medical School. In this relation he held the position of instructor of pathological anatomy from 1870-1873, that of assistant professor from 1873-1878, and in November, 1878, he was appointed professor of pathological anatomy, succeeding Prof. J. B. S. Jackson. The title of the office was changed in 1879 to that of Shattuck professor of pathological anatomy. He held this position until 1892, when he was made Hersey professor of the theory and practice of physic, and I succeeded him to the chair of pathology.

He was thus identified with the teaching of pathology for more than half of his academic career and the period was one of great activity. During this period there appeared from his pen a large number of medical articles, among them the papers on appendicitis and pancreatitis which at once gave him an extended reputation. These articles embrace both pathological, anatomical and clinical subjects, although in all there is happily combined thorough and skilful study of anatomical lesions with careful and conservative statements of the relation between lesion and the clinical manifestations of disease. They also show painstaking study of the literature of the subjects treated, and few have equaled Dr. Fitz's power of analysis of medical literature. He selected unerringly the essential contributions of each author, placing these in their proper order and relation to the subject treated. His papers constituted real contributions to knowledge and serve as models for clear and concise statement and for conservative judgment on the clinical and general medical bearing of the facts presented. In this happy combination of pathological anatomical study and clinical judgment based on the knowledge so obtained, he finds a place among the group of great English physicians of the first half of the 19th century, in which period medicine in England reached its highest fame.

In estimating the importance and influence of his work, it is necessary to consider briefly the condition of medicine in Germany at his student period, for it was in Germany and in the medical centres of Vienna and Berlin that as a young man he obtained the training and inspirations which directed his future work. When he went to Europe in 1868 he was equipped with the scant stock of medical knowledge which could be obtained in the short medical course of the best school in the country, good health, remarkable intelligence and great capacity for work.

In 1868 the great school of pathological anatomy in Vienna, which was founded by Rokitansky and Skoda in the third and fourth decades of the century and which reached its zenith in 1850, was already beginning to decline and the new school of pathology in Berlin, under the master hand of Virchow, occupied the first place. Under Rokitansky pathological anatomy as a pure descriptive science, with observation limited almost entirely to the naked eye appearances, reached a height never before attained. His descriptions of lesions serve now and will continue to serve as models for clearness, accuracy, conciseness and vividness. At the same time, and mainly under the guidance of the clinician, Skoda, clinical diagnosis reached a high degree of accuracy. Just as Rokitansky by his post-mortem studies sought to ascertain the exact changes which were produced in the body by disease, so Skoda, by the enormously skilful use of the means of diagnosis available at the time, sought to determine during life the situation, extent and character of lesions. With their attention directed exclusively to the gross anatomical changes and without means of ascertaining the causes and mode of development of the changes, they could not comprehend how the conditions observed could be amenable to treatment, and there was developed a therapeutic nihilism, which for many years dominated the Vienna school of medicine.

In the Berlin school under Virchow, a new conception of disease developed; he emphasized the idea that disease was not an entity, something independent of the body, but merely life under altered conditions. He showed that the limits of pathological anatomy are determined and disease must be investigated not by ob-

servation alone, but by all the methods of science; further, that in observation we must go much closer than the naked eye will allow, and under Virchow the microscope became of prime importance in the furtherance of accuracy of observation. The microscope showed that the essential nature of disease lay not in the organs, the membranes and tissues of the body, but in the cells which composed them. Virchow created cellular pathology, which is the greatest of his many contributions to medical science, and may be regarded as one of the great contributions which the century gave to the knowledge of mankind. In the laboratory of Virchow there developed a group of eager students, among whom are found the names of many who later became leaders in medical science.

It was an interesting period. Cohnheim, who as a student and assistant in the laboratory had completed his revolutionary work on inflammation, occupied his first academic post in Kiel and was entering upon the experimental study of disease with which his name is identified. Bacteriology and the etiological period of medical science which was destined later to make such profound changes in the conceptions of disease, had only begun to develop. In England, Lister was in the early stages of the development of antiseptic surgery and had not yet secured either hearing or credence. Pasteur was in the midst of his studies on fermentation and putrefaction, and had not turned to the problems of medicine, although he had seen the close relation of his studies to infectious diseases.

The young Fitz found in Vienna opportunities for the study of disease which were unequaled, and there were great teachers to guide him. Both Rokitansky and Skoda, though men of mature age, the one 64, the other 65, were still teaching. The great surgeon, Billroth, was at the height of his powers, Hebra was conducting his great clinic for diseases of the skin and was beginning the publication of his famous atlas. Many of the men since famous were at that time docents in the university, laying by research and teaching the foundation of their future work. I have never heard Dr. Fitz say much about his studies in Vienna, but he must have profited by the opportunities for study which he found and by the examples of the men around him. He certainly attended the post-mortem examinations at the general hospital and heard the masterful expositions of Rokitansky. He visited the wards and clinics and studied under able masters the methods of diagnosis. It is not impossible that he may have acquired in Vienna that conservative judgment as to the efficiency of therapeutic measures which afterwards distinguished him. The waning theories of the Vienna school must have attracted him but little, he never had much respect for theories as such.

Coming from Vienna to Berlin, he was greatly attracted by Virchow. He attended his lectures and demonstrations and the courses in cellular pathology and became an adept in the use of the microscope and in the technique of making microscopic preparations. It was while working in Virchow's laboratory that he contracted the life-long friendship with Ponfick who was at that time assistant, and he was known and esteemed by Orth and others. He published at this time in *Virchow's Archives,* Volume 51, an article on the changes in cartilages of the bronchi in bronchiectasis. This was the first article of importance he published and was marked, as were his subsequent articles, by careful analysis, clear and concise statement and conservative conclusions. He learned here methods and ideals which he kept throughout his life. He followed always with great interest the work of the men he learned to know at this time. Few men knew German medical literature as well as he, following not only the contemporary literature, but reading the earlier authors as well. When he retired from the chair of pathological anatomy, he gave to the laboratory a very valuable collection of the works of German pathology, among them some rare volumes.

Dr. Fitz came home from Germany in 1870 well equipped for his future work, and at once found opportunities. His teaching of pathology may be said to mark an epoch in the development of medicine in this country for he was the first to have mastered and to teach to others the medicine of Virchow. Up to this time the students who went from this country to Europe were attracted more to France, England and Vienna than to Germany. It is true that many studied in Berlin, but Dr. Fitz was the first to follow and to teach the methods and ideals of Virchow. In the Harvard School he at once formed classes for the microscopic study of the lesions of disease. He made the post mortem examinations at the Massachusetts General Hospital and many in private practice, and the brilliant papers which he subsequently published are to a large extent founded upon observations made during this early period. He was active in the medical societies where he read papers and demonstrated specimens of pathological interest, thus extending the knowledge he possessed to men of maturer minds. He was a keen debator, enforcing his point of view with able arguments and he enjoyed a good contest. From his post mortem material he prepared large numbers of anatomical specimens which he used to illustrate his lectures and which are now among the most valuable in the collections in the Warren Anatomical Museum. As a lecturer he excelled in clear and simple statement, he was rapid in utterance, having such a fullness of knowledge at his command that there seemed not time to give it out. All facts were classified and coordinated in his mind and in his lectures knowledge was given out in order and relation. He was a powerful factor in the development of the school. It was due to him that Dr. Henry Sears when a young man was inspired to make the noble gift of the Sears Pathological Labora-

tory which was the first laboratory in this country to be used exclusively for the study and teaching of pathology.

May I add a few words as to my personal relations to Dr. Fitz. A much younger man, I succeeded him in 1892 as the Shattuck Professor of Pathological Anatomy. I came here having for the first time full academic responsibility as the head of a great department in a great medical school. My acquaintance with Dr. Fitz dated from the first meeting of the Association of American Physicians in 1886, a meeting which has become memorable in that he presented there the paper on appendicitis. I remember with great pleasure a day which he spent at the Johns Hopkins Hospital a year or so later, and the interest he showed and the encouragement he gave me in some work I was then engaged upon. It was through Dr. Fitz that I was made acquainted with the medical profession of Boston of which I felt at that time in some awe. He made me a welcome guest in his home and through him I formed friends and attachments which are lasting. Especially in my early days, I was accustomed to seek his advice which I always found practical and valuable. He was properly tenacious of his opinions, a firm opponent, but one who never bore malice whether in victory or defeat.

His students have learned from him good observation, clear thinking, cool and conservative judgment. To the school he served so long and so brilliantly, he has left the tradition of honest, able and successful endeavor; those who knew him best will think of him as a kindly man, sincere and enduring in friendship, with wide charity and devoid of envy, hatred and malice.*

Dr. Bradford: The value of a teacher is shown in the worth of his pupils. No better example of this can be found than in the work of the clinical professor of medicine at the Johns Hopkins University, Dr. William S. Thayer.

DR. FITZ AS A TEACHER.*

W. S. THAYER, M.D.

It is a sad but grateful opportunity, that of coming home today to pay an affectionate tribute to the memory of my dear and valued master.

It is not far from thirty years ago, though it seems but yesterday, that we sat in the precipitous amphitheatre of the then new school building in Boylston Street, and listened to his brilliant talks. No one who heard those remarkable lectures could have failed to carry away a deep impression of the strength, the ability, the learning of the man. They were remarkable lectures, remarkable in form and in substance; models of clear and precise exposition, admirably delivered in language, every facetted word of which seemed to have been so chosen that it and it alone, could fill its place; stimulating hours which gave to many of us a lasting realization of the importance of precision and accuracy in observation and thought and expression.

Fitz was not an investigator in the sense that he carried out or led original, experimental research, but his contributions to the science and art of medicine were none the less important and valuable. His habits of discriminating precision in thought, in observation, in interpretation, in exposition gave him that penetrating clearness of vision which enabled him to extract, as could no one else, from a mass of apparently unrelated observations, the concise, clear clinical picture, correlated with definite physiological and pathological processes and anatomical changes.

It is no small achievement that this one man should have given to the world the first clearly defined description of two such important maladies as appendicitis and acute pancreatitis. His communication entitled "Perforating Inflammation of the Vermiform Appendix, with Special Reference to Its Early Diagnosis and Treatment," was delivered in Washington before the first meeting of the Association of American Physicians on the 18th of June, 1886, now more than twenty-seven years ago. In this study, the orderly system and simplicity of which are so characteristic of the man, he focused clearly, for the first time, the vision of the medical world on the true nature of the inflammatory processes occurring so commonly in the right lower abdominal quadrant, and showed convincingly that the seat of primary disturbance, in the great majority of instances of this nature, lies in the appendix vermiformis. And along with this demonstration, he set forth in a masterly manner the clinical manifestations of the disease.

This publication came at a time when the world was well prepared. Everyone recognized that Fitz had, as it were, put his finger on the spot. Once set forth, the pathological and clinical sequence of events seemed almost obvious—obvious as are so many great truths when once they have been clearly enunciated. The sharp light thrown by Fitz on this common and perilous pathological event brought it about that our countrymen were fully ten years in advance of the rest of the world in their comprehension of this process, and in their skill and efficiency in the care of the patient. How many human beings owe their lives today more or less directly to Fitz no one can tell. Surely it is no small number.

There has been one curiously paradoxical sequence of this great contribution. The word "appendicitis," employed by Fitz in the course

* In preparing this address the author has made some use of an address of Dr. Wm. H. Welch, "Virchow the Pathologist," Boston Med. and Surg. Jour., 1891.

of this article, was immediately seized upon by the public, and has entered into universal use,—but not without bitter protest from some who still shudder at its etymological hybridism. It is an amusing thought that of all men, Fitz, the most careful and accurate, should have been the target of irritated critics, because of the introduction into medicine of what they regard as an ill-constructed word.

The practical importance of the facts set forth in this first contribution has, it has often seemed to me, somewhat overshadowed the brilliancy of the latter work. In his studies on the appendix, the truth seemed so nearly ready to emerge of itself that the medical public grasped immediately the significance of the exposition. The lectures on acute pancreatitis, on the other hand, treated of a subject of which little was generally known, even anatomically. The analysis of the carefully collected pathological material, the discriminating consideration of the clinical features and the final synthesis of the definite, convincing clinical picture of the disease, acute pancreatitis, was truly a great achievement.

How well I remember the demonstration by Virchow, nearly a year after the delivery of the Middleton-Goldsmith lectures—after I had seen acute pancreatitis recognized clinically and confirmed at necropsy,—how well I remember the demonstration by Virchow of the organs from a case of disseminated fat necrosis with sequestration of the pancreas, accompanied by the observation that these instances were pathological curiosities. With what pride I sought him out and made him familiar with the little pamphlet which set forth so clearly and so simply the clinical aspects of the disease! How vivid is the memory of Fitz's recitations and demonstrations! What student who attended them can forget the charm of that subtle and incisive, but yet humorous and not unkindly irony, or rather, perhaps, that ironical facetiousness which so disconcerted some of his pupils and colleagues, and so delighted others; which was, I am sure, highly beneficial to many who did not fancy it at the moment. One did not go to sleep in Fitz's demonstrations.

By nature of a careful and judicious temperament, he was a strong man, and had the strong man's love of discussion, argument, opposition. Just and tenacious of his opinions as a strong man should be, his firm mind was not easily shaken. But firm though his mind was, it was ever open to recognize and welcome and embrace the new truth. This very attitude of apparent opposition was one of Fitz's most stimulating qualities, inciting his associate, whether student or colleague, to keener and more efficient effort.

At the necropsy table he sought to induce the clinician to express a definite opinion as to the nature of the case, and, where there proved to have been any failure wholly to apprehend the character or extent of the pathological process, he often pointed out the omission in diagnostic procedure or the error in reasoning which had been responsible for the incompleteness of the diagnosis.

This most instructive and valuable habit was trying to some over-sensitive colleagues. But Fitz was consistent; he did not spare himself. While yet pathologist at the Massachusetts General Hospital, he used to visit patients in the surgical wards on whom abdominal section was to be performed, in order that he might compare his bedside observations with the results of surgical investigation. His opinions he was always willing to express, far more willing, sometimes, than those in attendance upon the patient. This habit must have been of great value to him as a consultant in later years; as an example to the house officers it was invaluable.

Fitz's peculiar keenness of intellect inspired, at first, in certain of his students, an admiration and respect not untinctured with fear—something akin to the *Ehrfurcht* of our Teutonic brethren. But the element of fear dissolved into love with the first personal contact.

How simple and gracious was his reception of the student who, perhaps, with some misgiving, sought his counsel in private. His unfailing kindness and thoughtfulness, his friendly interest and wise advice so freely and generously given, meant more to some of us than words can express. To not a few of his students, his teaching and example were the great inspiration of their school days, and to most of these men this inspiration has been a lasting and a growing influence. There must be many who owe to him their best ideals in medicine, and surely there are others of his pupils who have been, as have I, so jealous of his regard that any consciousness of lapse or shortcoming has been inevitably associated with the sting of the thought that they were unworthy the confidence of Fitz.

It is very strange and sad, the thought that all this wealth of wisdom and learning and experience so slowly and painfully acquired through a long and active life, has vanished in a moment. It leaves one with a sense of immense emptiness and vacancy and waste. But he has left to mankind a large legacy in his epoch-making contributions, and with his students and disciples he remains ever present, embodied in their highest ideals. If these disciples shall succeed in shaping their lives as he might have wished, his beneficent influence will long endure.

DR. BRADFORD: The student in medicine needs an opportunity for the close observation of medical facts. This was given to Dr. Fitz in the wards of the Massachusetts General Hospital so wisely directed under the council of the distinguished sanitarian, Dr. Henry P. Walcott, chairman of the Massachusetts State Board of Health, fellow of Harvard University:

DR. FITZ'S ASSOCIATION WITH THE MASSACHUSETTS GENERAL HOSPITAL.

HENRY P. WALCOTT, M.D.

Reginald Heber Fitz was graduated from Harvard College in the class of 1864. He then began his medical studies at Cambridge under the direction of Jeffries Wyman, and attended the lectures at the Harvard Medical School. In 1867 he received an appointment of house officer at the Boston City Hospital. In the service of Dr. J. G. Blake he studied one of the now rare outbreaks of typhus fever. Receiving his medical degree in 1868, he went to Europe.

In Vienna, Berlin, Paris and London he spent two years of earnest and profitable work; a paper in *Virchow's Archiv* on "Bronchiectasis" was published before his return to Boston in 1870. He established himself here, and soon after was appointed microscopist at the Massachusetts General Hospital and instructor in pathological anatomy at the Harvard Medical School, and at once received the recognition which his native ability and education had fairly earned. He was a physician at the Boston Dispensary from 1871-1882. In 1887 he was elected one of the visiting physicians of the Massachusetts General Hospital and held this office until 1908, when his retirement took place under the rules of the Hospital, which set an age limit of 65 years to holders of this office. He became a member of the board of consultation, and until the end of his life was a frequent and helpful visitor at the Hospital.

More than a century ago a circular letter was prepared by James Jackson and John C. Warren and addressed to a number of the wealthy and influential citizens of Boston for the purpose of creating an interest in the establishment of a general hospital. This letter is the cornerstone of the structure of the Massachusetts General Hospital. It eloquently sets forth the many forms in which a charity of this sort would be a benefit to all classes in the community, but it also states that there are certain collateral advantages attending the building of a hospital in this place, and in the enumeration of these aids mentions the preparation of a body of skilled attendants upon the sick, and the need of a hospital for the purposes of medical education in view of the ultimate comfort and relief of thousands who may never be aware of the hospital's existence.

Another statement in the appeal would probably not be made today. It is this, that the only medical school of eminence in this country is that at Philadelphia, nearly 400 miles distant from Boston, and therefore beyond the reach of all except those of large means.

From the day when the hospital opened its doors, the teachers in the medical school have been almost wholly drawn from its staff. Their names are household words here, and many are known far beyond our limits. They have with noble devotion given many of the best years of their lives to the unpaid service of this great charity, and they have been satisfied with their rewards, with the gratitude of the patients, with the knowledge that they have reduced the misery and suffering of their fellows, and had a part in the education of a coming generation that will surely carry into yet wider fields the powers of medicine.

The first and inevitable influence of pathology upon the teaching and practice of medicine is well illustrated by the appointments of three of the visiting physicians of this hospital. Dr. J. B. S. Jackson, one of the early students in the great French medical school in the first third of the last century, brought home with him a knowledge and enthusiasm in the pursuit of pathological anatomy which slowly found due recognition here. His interest in this department was life-long, and his success in it can still be found in the collections in the Warren Museum, in the grateful testimony of a generation of students, and the warm regard of all who were associated with him. He was chosen visiting physician in 1839, and resigned the office in 1864, when the trustees of the hospital placed upon their records a grateful acknowledgment of his conspicuous services to the institution and to the community.

Dr. Calvin Ellis, fresh from a later school of pathology, that of Rokitansky, served in his turn the hospital as visiting physician and the medical school as professor of clinical medicine and dean of its faculty, in which position he assisted in that great reform which has already been brought to your attention by the principal actor in it. He was also a wise and generous benefactor of the medical school and of the college.

It was quite in the order of our hospital administration then that Dr. Fitz should in the next generation again bring a later and more complete pathology to the service of a broader medicine.

No name deserves a higher place in the medical sciences than that of Rudolf Virchow—his genius created a new conception of pathological anatomy, and his active mind invented many useful applications of the investigations carried on in the Pathological Institute of Berlin. Dr. Fitz was his admiring and devoted pupil and received from him the impulses which went far toward the directing of the course of his own medical career.

Dr. Fitz had many of the traits of the great master. Both made it their business to cause the student to think for himself, to observe the actual qualities of things without preconceived opinion as to their origin or nature, both used the spur but not the lash; a gentle raillery was Dr. Fitz' favorite stimulus, but it was without malice or heat and left no lasting sting behind. No one of the many stories which are told by his students of his ingenious devices for arousing and holding alert their attentive minds has

a suggestion of unkindness. Many of them use the same expressions in recalling their memories of him as a clinical teacher, "he was a stimulating teacher—he aroused in me the desire to do good work, and he led me on to do more than I could have done without his help. Keenly critical as he was, he kept me on the edge of alertness to forestall his criticisms and diagnosis." The capable student recognized the merits of his teacher, and the hopeless dullard must have been conscious that every opportunity had been given him to learn, whatever the result.

The hospital has had in succeeding generations many men who have made it famous, many who are now preserving its former traditions, but the trustees know of no one who has given it a more devoted and fruitful service than did Dr. Fitz.

It has sometimes been made a reproach to the citizens of this republic that there is a general willingness to avoid controversy—a so-called good nature which leads to a tacit acceptance of many things which should not be received in silence. If this be true of any considerable number, it was certainly not true of Dr. Fitz. He accepted no statement which could not be adequately defended and he made none which he was not in turn ready to maintain.

The Massachusetts General Hospital has through the whole life of the institution given all the facilities possible for medical teaching, so far as these facilities were consistent with the humane purposes of its foundation. Dr. Fitz was deeply sensible of the fellowship into which he had been admitted; a scholar, he was familiar with the recorded accomplishments of his elders; an honored associate, he took part in all that gave the hospital distinction for a whole generation; he added the accuracy of a laboratory worker to the skill of the clinician. In the deliberations of the committee room he brought forward definite opinions which were the mature results of clear thinking. Not easily swayed by the prejudices of the hour, he listened patiently to any argument that had a foundation in experience and bestowed little attention upon well-meaning generalizations. He was at all times a friend of the administration of the hospital and willing to help in the many experiments which such institutions must in these modern days undertake.

I do not remember that he ever made a request with which the trustees of the hospital were not willing to comply. He had his own ideas about the management of the hospital, and they were valuable and were urged with force and good temper, and, whether adopted or not, had the effect of causing the administration to carefully ascertain the strength of its own position. His criticisms were addressed to the officers of the institution and not to subordinates, and however searching, they were accepted in good part, for they were not dictated by personal motives and had no purpose but the improvement of the service.

It is possible that such a relation to a large hospital with medical school connections as existed in his case, may not much longer endure. There are signs that a closer relation may be thought to be desirable, that the visiting staff should be less dependent upon practice outside of the hospital, and that some compensation in money should be paid by the institution.

It cannot with justice be assumed, I think, that the quality of the men attached to this hospital for a century past, to say nothing of the living, would have been better under a system of the newer sort than it has been. It has hitherto been true that the largest possible contacts with the world of disease outside of the hospital, with the great public, with the ever-increasing development of state medicine, have made better clinical teachers. It is not easy to think of a group of men in charge of the wards of our hospitals who cannot have these advantages. There would be something missing in the education of the clinical professor who has not known intimately the life of the public in all its seasons of sickness and health. Something of this is, of course, seen in the wards of the hospital, but in a less degree and of a different character. The function of the medical school is, after all is said, the preparation of competent and acceptable medical attendants for the ordinary care of the sick in the community at large.

Our experience has shown us that there is room in any large hospital for the medical men who are willing to devote the whole of their time to that service, and for those who give up a portion of their day sufficient to enable them to do satisfactory clinical work in the hospital and yet retain a large practice outside of its walls. Men of this latter sort the great hospitals of all lands have never failed to attract and the best of this community have needed no urging to obey a call to our service.

Dr. Fitz's retirement from the hospital and the school left him a greater freedom for other occupations than he had hitherto had, and one of the results was a contribution to our medical history which deserves more than a passing notice. He was interested in the story of Dr. Zabdial Boylston's share in the introduction of the inoculation of variola. The account of this most important advance in medicine overshadowed by the still greater discovery of vaccination, was a confused one. Dr. Fitz undertook the task of unraveling the tangled skein—he did so completely and has given us a most interesting narrative of this episode in our first experiment in preventive medicine.

Few better examples can be found in our medical literature of a simple but very effective presentation of the results of the study of original authorities. It is thoroughly in keeping with the author. There is no attempt at fine writing, though this first successful alleviation of one of the great and inevitable pestilences would have been a fit excuse. The first Boylston professor of rhetoric and oratory has left on record his own

eulogy of Dr. Boylston—I think he would scarcely care to have his stilted periods put in comparison with the far more appropriate sentences of Dr. Fitz, and I am quite certain that the most renowned holder of this college title, in the days of the elders here present, would have heartily agreed with this verdict. Election to membership in the Massachusetts Historical Society followed the publication of this paper.

Another production of his with which we are all familiar is the touching memoir of Maurice Richardson, the intimate friend through many years. Like all biographies that have a living interest, it reveals the deep sympathies between these two men apparently so unlike, and gives indirectly evidence of an underlying similarity of tastes and character. Both sprang from sound New England stock, each made his own career with little help from others, and in the most important events of their professional lives the magnificent enthusiasm of the younger felt and did not resent the influence of the cool judgments of his former teacher and later associate in the hospital and in the college. They shared, as all strong natures do, a deep and abiding love of the hills and seas and woods, and found in the sober pleasures of unspoiled nature the great refreshment to the spirit of man.

My own thoughts of Dr. Fitz are inseparable from that pleasant home by the sea, where on a height that surveyed as wide a range of coast and wood as even a mountain might, he made his friends welcome with an unstudied and generous hospitality. He pointed out with satisfaction the beauties of the surroundings, the well studied and appropriate plantations which he had made, and willingly sought advice from those in many cases not wiser than himself. True to his professional habits, he sought the assistance of an art, but the art was nature itself, and I think that the lesson of his life may be that he was most content in all that he did with the direction of the forces of nature, rather than with the attempt at much active, perhaps meddlesome, interference with them.

Dr. Bradford: Dr. Fitz was fortunate in entering upon his career at the beginning of the great development of American medical education. This owed its impulse to one we all revere, President Eliot, Doctor of Laws, Doctor of Medicine, President Emeritus of Harvard University.

DR. FITZ'S SERVICE TO MEDICAL EDUCATION.

CHARLES W. ELIOT, LL.D.

Dr. Fitz's connection with this medical school as a teacher began in the year 1870, when he was appointed instructor in pathological anatomy. He was to be a great clinician, but he was a devoted teacher of pathological anatomy for twenty-two years before he became a professor of clinical medicine. He was instructor in this science from 1870 to 1873; assistant professor from 1873 to 1878, and professor from 1878 to 1892; then, at the age of forty-nine he became professor of theory and practice, in which influential office he served with distinction for sixteen years.

The head of the department which Dr. Fitz entered in 1870 was Dr. John Barnard Swett Jackson, a pioneer in sound medical research and teaching, who devoted his whole time for thirty-two years to one of the fundamental subjects in scientific medicine without seeking private practice. In the twenty-two years during which Dr. Fitz taught pathological anatomy, he conducted numerous autopsies, and from these autopsies obtained much material for use before his class and before medical societies. His great sagacity and skill in diagnosis and his knowledge of clinical medicine had a firm foundation in an unusually thorough acquaintance with pathological anatomy; and during the first twenty years of his medical career, while he was diligent in hospital and private practice, he gave a liberal portion of his time to this scientific pursuit.

Dr. Fitz became a teacher of medicine in the Harvard School at a very interesting moment. In the first year of his service as an instructor, before he became a member of the faculty, namely, in March, 1871, the faculty adopted a progressive medical course of instruction covering three full years, determined that the students' examinations should be annual and in writing, and that no candidate should receive the medical degree without having passed the examination in every department of instruction. The students had been divided into three classes, and the annual fee had been fixed at two hundred dollars. In the following April the faculty adopted the new order of studies and the order of examinations which this program required. In the same March (1871) the faculty authorized the president to secure the appointment of Henry Pickering Bowditch as assistant professor of physiology, with "the assurance that the faculty will do all in its power to provide a laboratory." Dr. Bowditch entered upon his service with the understanding that he should not practice. In May, 1871, Dr. Edward S. Wood was suggested as assistant professor of chemistry on the same understanding; and in the following June the dean and Dr. J. C. White were appointed a committee to obtain plans and estimates for physiological and chemical laboratories for students' use. The school had therefore entered on two policies of the utmost significance,—first, the teaching of the sciences on which medicine depends by the laboratory method, and secondly, the employment as teachers of these sciences of men who were not to be practitioners in medicine.

In the following September Drs. Cheever, Fitz, and Wood were appointed a committee on the proper fees for single tickets and laboratory work, although at this time Dr. Fitz was not a member of the faculty

Dr. Calvin Ellis, the progressive and sagacious dean of the school from 1869 to 1883, had been a vigorous advocate of the revolution which took place in the school in 1871, both in its general outlines and in its details; and it affords clear evidence of Dr. Fitz's sympathy with that reform in his youth that Dr. Calvin Ellis was the person who nominated him for instructor in pathological anatomy, to conduct recitations which Dr. Ellis himself had been in the habit of conducting.

Dr. J. B. S. Jackson, in whose department Dr. Fitz began his teaching work, was the person who proposed in February, 1870, that candidates for the medical degree be required to pass a satisfactory examination in every department of instruction. It had been the practice of the faculty to confer the degree on every candidate who passed in a majority of the nine subjects in which the five-minute oral examinations were held. Action on Dr. Jackson's motion was then postponed; but early in 1871 Dr. James C. White renewed the motion, and it was adopted as part of the comprehensive reform which took place in the following March.

Dr. Fitz was made secretary of the medical faculty in January, 1874, and served for nine and a half years in that capacity, when Dean Bowditch began to keep the records. Dr. Fitz was selected for this function because he was prompt and accurate in administrative work, and possessed in high degree the confidence of both the president and the faculty. By the time he was appointed assistant professor of pathological anatomy in 1873, the use of assistant professorships in the medical school for definite terms of five years had been firmly established, in place of the adjunct professorships which had been in use for some years. An adjunct professor went out with his chief; an assistant professor did not; and this change was an important improvement for the young men who were then entering the service of the school. When this change was first made by the corporation in 1870, the medical faculty, which then consisted chiefly of full professors, voted that assistant professors should go out on the resignation or death of their chief, although appointed for five years; but the president and fellows declined to accede to this suggestion. Every assistant professor was by statue a member of the medical faculty.

By 1880 the medical faculty, having increased considerably in size and its work having much increased, had begun to employ committees to prepare its work for it, and to examine new projects and report on them to the faculty. The most important of these committees was the committee on the course of study, which was created Jan. 1, 1881, and Dr. Fitz was appointed a member of the first committee on the course of study. He was a member of that committee from 1881 to 1891, and its chairman from 1891 to 1908. That committee examined and reported to the faculty on every change in the course of study proposed in all those years, including all proposals concerning instruction in the new fourth year. Every member of the faculty was free to propose changes in his own instruction or in the instruction offered in any kindred subject; and the several departments were free to bring into the medical faculty propositions concerning the whole block of instruction offered by a single department or by any related department; but the faculty invariably referred such proposals to the committee on instruction, which exercised a difficult function of discrimination, comparison, and selection. For twenty-eight critical years Dr. Fitz was an effective member of that committee, and for seventeen years he guided its deliberations. His experience as well as his mental habits fitted him peculiarly for this task. He had himself introduced into the Medical School the teaching of pathology with the aid of the microscope; for Dr. Jackson had dealt solely with the gross appearances. His early teaching in the school was in a scientific laboratory subject; his later, on the clinical side. His sympathies with the various departments in the school were therefore broad; and he thoroughly understood the function of laboratory work for the clinician as well as for the investigator in the fundamental medical sciences.

By temperament Dr. Fitz was conservative, critical, and inclined at first blush to reject a novel proposal; but the astonishing progress of medicine in his own times was due to a rapid evolution of old principles and old methods, an evolution in which he himself had been more than a witness,—he had been an active contributor.

Besides serving continuously on the committee on the course of study, he frequently served on other important committees. Thus in 1883 he was a member of three other important committees, the executive committee, the committee on the new building, and the committee on nominations. The faculty recognized the fact that Dr. Fitz possessed many of the qualities of a first-rate man of business—that is, he was diligent, frugal, and judicious in discriminating between the essential and the trivial, and in selecting efficient agents. Therefore, the faculty ordered in 1895, during a period of expansion, that the head of every department should present in March of each year a detailed statement of the annual appointments necessary for the instruction under his supervision during the ensuing year, and that every such statement should be referred to the committee on the course of study. This action gave Dr. Fitz influence over the expenditures for instruction and over the selection of the personnel.

Dr. Fitz was always regular and patient in

his attendance at faculty meetings; for he perceived early that it was faculty action which had determined and guided the policies of the school, and that it was the faculty which nourished that spirit of disinterested coöperation which was necessary to the success of the school's difficult undertakings for the advancement of medical education and of the medical profession.

Dr. Fitz was an admirable student and teacher of clinical medicine and a skilful and sagacious practitioner; but the most beneficent and most durable work of his life was his large contribution to the better conduct of medical education and the advancement of the medical profession through his services to the Harvard faculty of medicine.

Dr. Bradford: In closing this meeting it may be fitting to call to our recollection the words of Holy Writ, inscribed over the academic rostrum of Harvard University:—"They that be wise shall shine as the brightness of the firmament and they that turn many to righteousness as the stars forever and ever."

Original Articles.

A SYMPOSIUM ON THE REPORTABILITY AND CONTROL OF VENEREAL DISEASES.

BY S. L. STRONG, M.D., BOSTON.

In the early months of 1913 letters were sent to some fifty physicians in this and other states to ascertain the prevailing opinions regarding the reportability and control of venereal diseases by boards of health. The questions were as follows:—

(*a*) Do you believe in the reportability and control of venereal diseases by boards of health?

(*b*) Would it be practical at the present time, considering the general trend of medical opinion, to attempt to bring about the reportability of venereal diseases to the boards of health, by number or by name, such information to be held by the boards as strictly confidential?

(*c*) With reportability, would it be possible for the boards of health to exercise such control over venereal diseases as is now exercised in the case of smallpox, diphtheria, etc.?

(*d*) Would it be feasible at the present time to establish an organization among physicians for the gathering of more accurate statistics in regard to the efficiency of the present treatment of venereal diseases, and the promotion of their reportability and control by the Boards of Health?

Replies were received from twenty-seven, representing most of the eastern states, and were as follows:—

QUESTIONS.

1. Do you believe in reportability and control of venereal diseases by the boards of health?

Yes	15
Reportability but not control	1
Control if possible, reportability, no	1
Not at present	2
Evasive replies	2
No	4
Literature sent instead of answers	2
	27

2. Would it be practicable at the present time, considering the general trend of medical opinion, to attempt to bring about the reportability of venereal diseases to the boards of health, by number or by name, such information to be held by the boards of health as strictly confidential?

Yes	12
Doubtful	1
Require hospitals and dispensaries to report to Boards of Health	1
No	10
Evasive replies	1
Literature sent	2
	27

3. With reportability, would it be possible for the boards of health to exercise such control over venereal diseases as is now exercised in the case of smallpox, diphtheria, etc.?

Yes	6
Not in the same degree	4
Not at present	2
Not till provided with means for hospital treatment and quarantine	3
Not in all cases	1
No	8
Evasive	1
Literature sent	2
	27

4. Would it be feasible at present to establish an organization among physicians for the gathering of more accurate statistics in regard to the present treatment of venereal diseases and the promotion of their reportability to and control by the boards of health?

Yes	12
No	7
Evasive or doubtful of value	2
Not necessary as societies now exist	2
Necessary first to have coöperation of physicians	2
Sent literature but no replies	2
	27

The replies of several are given in full below, tabulated in the order of the questions sent, illustrating a certain unanimity of feeling underlying a wide divergence of opinion as to methods.

1. Do you believe in the reportability and control of venereal diseases by the boards of health?

ANSWERS.

"As an ideal state of things, I should answer in the affirmative regarding control by boards of health."

"Your question is worded in a confusing manner, inasmuch as probably everybody would believe in the control of venereal diseases by boards of health if anyone could suggest a probable way, whereas many would think that making these diseases reportable would prevent rather than help their control."

"I certainly believe in the reportability of venereal diseases and their control, so far as possible, by boards of health. I believe that it is not only practical, but perfectly possible, to require that such reports be made by physicians to the boards of health, but I am absolutely opposed to any reports made by name, since the knowledge of such reports would tend directly to defeat the aims desired to be obtained. I feel confident that, were reports to be made by name, it would lead to many damage suits against physicians for breach of professional secrecy, and would drive the patients into the hands of quacks. The reports should be made by initials only, since they can be of value only for statistical purposes. Provision should be made, however, by law, to provide that the health department of a particular community should be empowered to arrest and to incarcerate until pronounced cured, any knowing transmitter of venereal diseases, be the individual male or female, and such power should be made to apply to such individuals as would voluntarily remove themselves from medical supervision during the progress of their venereal disease."

"It is well known that medical opinion is not always of the best, yet I believe that all progressive physicians, sanitarians and laymen are in favor of placing venereal diseases in the category of reportable diseases. The reports might be held optional by the boards of health as to the publicity or confidential records made of these cases."

"I do believe that in some way, perhaps following the example of San Francisco as I understand it, cases of venereal diseases should be reported to and supervised by the boards of health."

"I do believe in the reporting of all venereal diseases as other contagious diseases are reported. In New York, I believe, that has been started already. The cases are reported by number or initial now, but when the public and the profession have become educated names will undoubtedly be required."

"I believe in reportability and control by the boards of health."

"Under question (*a*) you lump together the questions of the reportability and control. Of course I believe in control, assuming for the moment such a thing to be possible. Whether the reportability would have any such effect seems to me another matter. If reportability is not too advanced for present public opinion then it will help, and it comes down directly to a question of what one believes to be the present condition of public opinion. I believe that at the moment any attempt at reporting would fail."

2. Would it be practical at the present time, considering the general trend of medical opinion, to attempt to bring about the reportability of venereal diseases to the boards of health, by number or by name, such information to be held by the boards as strictly confidential?

ANSWERS.

"It is not medical opinion that will ever report cases of venereal disease, it is public opinion."

"At the present time I do not think it would be practical to bring about at one stroke such a sweeping reform."

"Not only do we believe that it is practicable to obtain such notification, but we have actually adopted such a regulation and are enforcing the same in this city (New York). We are securing the name and address of hospital patients and the initials, age and sex of private cases. All information which we obtain is strictly confidential, only a single physician, pledged to secrecy, having charge of the name index."

"It does not seem to me that it is practical at the present time to make the attempt to have them reported by name, and I do not see how reporting by number would help, since what is to be gained by reporting of such diseases is the opportunity afforded to use means for the prevention of the extension of the infection. To do this would involve knowing the residence and place of business, etc., and this would practically involve knowing the name."

"I believe it is practical even now to bring about some such arrangement, but it would have to be very carefully and tactfully done. Probably the report of the patient by number would be feasible."

"If no further good comes from the reporting than the acquiring of a series of statistics of the frequency of these diseases, it will be worth while. If the source of the disease is supplied in the report, a certain number of danger spots can be found and destroyed."

"As to the practicability of a regulation by the boards of health requiring venereal disease to be reported at this present time, I am not

sure. Whether a sufficient portion of the public is well enough informed or interested so that the necessary legislation could be put through, I am in considerable doubt."

"I think in the beginning that it would be wise to require all hospitals and dispensaries to report these cases to the board of health by name and address, so that they could be placed under supervision. This class of cases are the ones that probably are the greatest sources of infection to other members of the family and fellow employees."

"'The general trend of medical opinion' has nothing to do with the practicability of reporting these things. It is purely a question of public opinion, and the public is surprisingly little interested in medical opinion.

"My own feeling is that the trend of public opinion, as well as medical opinion, is toward reporting venereal diseases just as other communicable diseases are now reported. This is largely a matter of education, and the success of such action would, I believe, depend not only on educating the public to the desirability of placing venereal diseases definitely in the category of communicable diseases and therefore reportable, but in educating as well the average physician and the physician below the average to the point where he will be as inclined as his more enlightened colleagues to lend his aid in preventing the spread of these diseases. This, I believe, has been the history of practically all communicable diseases. Proper penalties for failure to report should, of course, be provided and the prosecution of negligent physicians should be vigorously followed up by the boards of health."

3. With reportability, would it be possible for the boards of health to exercise such control over venereal diseases as is now exercised in the case of scarlet fever, diphtheria, etc.?

ANSWERS.

"In time I believe such control would be possible. At present it would be confined largely to the attempt to force physicians to report such diseases by fines and prosecution when negligence was discovered. This would mean that very few cases, except those found in institutions would be reported. A campaign of education regarding these diseases is, I believe, essential before much can be accomplished in the way of securing anything like accurate reports of these cases and even then very little could be accomplished unless it were well known by the public in general that information received by the boards of health would be considered confidential."

"I do not believe for an instant that public opinion would authorize the board of health to control venereal diseases the same way that it does smallpox, diphtheria, etc."

"Should reportability become established, it might be possible for boards of health to exercise control; but not, in my judgment, for many years to come, to the same degree as in smallpox, diphtheria, etc."

"While the object of reporting venereal diseases is to exercise some sort of control over the cases, it is obvious that such control can never be so complete as is the case in smallpox or diphtheria."

"It would seem to be the case that not much could be gained from reporting venereal diseases unless efforts were made to control it by isolation and hospital treatment, etc. This, of course, would involve providing hospitals for the treatment of venereal diseases."

"I see no reason why boards of health should not be empowered or should not be able, to exercise a control over venereal diseases similar to that which they now exercise over smallpox, diphtheria, etc. Such control, however, should be rational, and should not be allowed to become harshly arbitrary. In other words, a venereally diseased individual who is under competent medical supervision, be that supervision public or private, and who does not give evidence of a lack of care for the interests and welfare of his surroundings, or of others, should not be molested by the boards of health. But every individual who by his or her actions gives evidence that he or she will not carry out proper treatment, or who is considered, for any good and valid reason, to be a menace to the community, for recklessly risking the transmission of his disease to others, should be incarcerated and treated."

"It is entirely proper to place venereal diseases under the same control as smallpox or other vitally destructive diseases. It may be argued that venereal diseases should be controlled by moral or social laws, but those forces that are destructive to the progress of civilization should be governed as such."

"It is not clear to me how boards of health could exercise control over these cases as they do over other serious forms of infection, such as smallpox, etc. I suppose the victim of venereal disease might be required to pass a satisfactory examination before marriage, or something of that sort. That, of course, is a problem which would have to be worked out through prolonged consultation."

"With reportability I do not think that at present boards of health could exercise as complete control as you suggest. At present I only feel that it would be possible to insure patients being properly treated at existing clinics or perhaps at a special hospital provided for the purpose."

"No; I think, at least not all at once. Later, with hospitals for the treatment of venereal diseases, it can be done. Much education for all is necessary first, but this is surely coming."

"It would be necessary for the state board of health to declare these diseases dangerous, the same as smallpox and diphtheria, before the board could insist on the reporting of cases."

"The boards of health can exercise no control over venereal diseases until they are provided with means for treating these patients in a hospital and keeping them more or less strictly quarantined until cured. In my opinion it is no use to attempt by law or regulation to force the reportability of any disease until the community is prepared to furnish something that will be of benefit to the patient. When we can offer patients the benefit of medical facilities which they do not now have, then, and not until then, we may demand that they sacrifice their private interests for the benefit of the community."

4. Would it be feasible at the present time to establish an organization among physicians for the gathering of more accurate statistics in regard to the efficiency of the present treatment of venereal diseases and the promotion of their reportability and control by the boards of health?

ANSWERS.

"The practicability of such an organization is questionable. The multiplicity of societies and organizations which physicians are urged to join is well known. The enthusiasts on the subject would presumably be glad to form such an organization. The rank and file would have innumerable excuses for not joining, and it is the rank and file whose education along these lines is most important. Constant hammering in the newspapers, popular magazines and medical journals would at the present time, I believe, accomplish all that could be expected. The freedom with which these subjects are now discussed in the lay press, where only a few years ago they were to be mentioned only in a whisper, indicates the trend of public opinion regarding this question. There is, of course, a great mass of literature, especially foreign, relating to statistics regarding the efficiency of treatment of venereal diseases, and doubtless these statistics are becoming more accurate every year, due to the increased interest in the subject since the discovery of salvarsan. On the one hand is a body of men who enthusiastically believe that in salvarsan we have found a specific; on the other is an equally large body of physicians whose use of this drug has failed to produce the brilliant results alleged to have been attained by others. These divergent views will naturally produce a mass of statistical data available for the future study of efficiency of treatment, and the duty of compiling and interpreting these data will devolve upon the comparatively few enthusiasts."

"Your fourth proposition is certainly feasible, and I think much is already being done in this direction."

"We believe it is both desirable and feasible to establish an organization among physicians for the gathering of more accurate statistics regarding the venereal diseases, and for the promotion of measures looking toward the administrative control of such diseases."

"In answer to your final question, it does not seem to me desirable at the present time to establish any particular organization among Boston physicians for the ends stated in your question, because the matter is already under investigation by various boards in various places, particularly under the auspices of the Rockefeller funds, and I believe a more extended study is planned. It seems to me advisable to wait for some of their results. I do think that the City of Boston should provide hospital facilities for patients with venereal disease, and that would be the first step toward its control."

"I can see no objection, in fact, nothing but gain, if a committee were formed by men of such authority in these diseases that their conclusion would be acknowledged by all. Such a committee through the Board of Health, might issue circulars stating the results of the treatment of venereal disease by various methods, and advising the best treatment for the various conditions, analogous to the present instructions in regard to the use of nitrate of silver in ophthalmia neonatorum. This is as far as I think we should go at present."

"I do not think it necessary to establish any organization among physicians for the gathering of more accurate statistics, since we are already deluged with organizations whose only practical purpose seems to be the exploitation of their leaders, or the financial support of useless officials."

"The importance of the cure and control of venereal diseases is second only to tuberculosis, and I believe such an organization as you have referred to would be conducive to the welfare of humanity. We have in Pennsylvania a Society for the Prevention of Social Diseases, which has accomplished much good work. I know that a society or an organization incorporating the features which you have mentioned in your letter would be a highly praiseworthy innovation."

"I think it would certainly be feasible at this or any time for physicians to take concerted action regarding the efficiency of present modes of treatment and the promotion of such a scheme as you have in mind."

"I think such an organization as you suggest is much needed and would be decidedly in favor of its establishment."

"To make a beginning it would be absolutely necessary to have the co-operation of physicians. Without such co-operation the law probably would not be of much value."

"I doubt very much whether any organization among physicians would come to anything because I do not see any widespread interest in a subject to which the public has given so little attention. The average medical man is interested in this sort of thing only for two reasons; first, because it pays him money, and second, because his patients demand it. At the

present time patients do not demand it: when they do they will get it."

SUGGESTIONS AND COMMENTS.

"In general, there is still much to be learned before an efficient method of reporting can be put into effect. We are now attempting at the Massachusetts Hospital to make a study of treatment in a more systematic fashion than ever before attempted. This and similar attempts elsewhere should lead to information of importance which may in the future be made the basis for a more energetic and effective campaign against these diseases."

"Although you have not requested this additional answer, I would say that in our opinion, action by the public health authorities looking towards the control of venereal diseases should be based purely on grounds of public health and should not be confused with any social or moral questions concerning prostitution and the regulation of vice in general."

"Any organized control by Boards of Health would be impossible without hospital facilities for patients with venereal disease, and such a hospital would greatly help the problem without any organized control by Board sof Health. If anything is to be done, it seems to me that that is the first step, and that step I think should be taken."

"The start will have to be made in our medical schools, by more fully fitting out the students with regard to venereal diseases and their diagnosis and treatment. Then there will have to be an instruction of the general public with regard to the dangers of venereal diseases to the guilty and innocent alike. Then the stigma of shame must be sought to be wiped away, and the presence of venereal disease in an individual should lead him or her to be considered as a sufferer, not as a criminal. Every hospital receiving financial support from its community should be compelled to receive venereally infected patients upon the same footing that it receives other suffering from a disease. Our Boards of Health should make provision for the reception and treatment of venereally diseased individuals. And, finally, it should be made a crime knowingly to transmit a venereal disease, and the offender in this respect should be made answerable for the damages resulting to the infected individual. This should be made applicable to males and females alike and there should be no distinction because of sex."

"We need organizations among physicians here in Boston to deal with these and other problems, but I have so far not seen any active movement toward the starting of one. It will be a pity if the laity have to take so important a part in the formation of such societies as they took in getting the same type of organizations started for handling the tuberculosis problem. The laity must take an important part in both but we ought not to give them the lead. The question of treatment of course is one that should be handled by physicians alone."

CONCLUSIONS.

1. As to belief in the reportability and control of venereal diseases by the Boards of Health this canvass would seem to show that a majority of physicians do believe in it at the present time.
2. On the matter of practical adaptation and enforcement the profession is about equally divided, the prevailing view being that more efficient means of treating these diseases in hospitals must be provided before such a move can be taken.
3. Venereal diseases cannot probably be controlled to the same degree as small-pox, scarlet fever, diptheria, etc., for some time to come.
4. The desirability of gathering more accurate statistics regarding the efficiency of the treatment of venereal diseases is widely recognized. This should be done by societies already existing or by the formation of new organizations with this special object.

Reports of Societies.

AMERICAN SURGICAL ASSOCIATION.

MEETING HELD IN WASHINGTON, D. C., MAY 6, 7 AND 8, 1913.

(*Concluded from page* 879.)

DIAGNOSIS AND TREATMENT OF BORDER-LINE PATHOLOGICAL LESIONS.

DR. JOSEPH C. BLOODGOOD, Baltimore: By borderline pathological lesions are meant those in which it is difficult, clinically, or from the gross appearance, or from the frozen microscopic section, to come to a definite conclusion as to whether a lesion is benign or malignant. The earlier after the first symptom patients present themselves for treatment, the greater will be the number of cases in which the diagnosis will present difficulties; in this stage the prognosis after proper treatment is best. It is the opinion of the author that we have sufficient experience at the present time to allow us to formulate definite conclusions as to the proper method of diagnosis and treatment in this stage in which the result should be the best. Incomplete removal of any malignant disease in its earliest stage gives much worse results than complete removal in a later stage; this fact must be always borne in mind. Incomplete removal of a distinctly benign lesion, with the exception of the angioma, is always followed by the reformation of the tumor from the residues left behind, and the chances of malignant change in these residues are greater than in the undisturbed benign lesion; this fact also should be kept in mind.

These border-line pathological lesions, from the standpoint of diagnosis and treatment, can be divided into three great groups.

Group I. In this instance the complete excision of the palpable nodule can be accomplished without danger and without mutilation, so that after its removal it makes little difference what the microscope shows: the proper operation has been done.

Group II. Here also the complete excision of the nodule can be accomplished without danger or mutilation, but there is a possibility that the lesion may be a carcinoma of a type in which, experience has demonstrated, the neighboring lymphatics should also be radically extirpated.

Group III. In this series the diagnosis of malignancy would indicate a more radical operation with mutilation and, in some instances, increased dangers from the operation, while, if the lesion were still benign a cure could be accomplished with less or no mutilation and less danger.

From his investigations the author is confident that we have sufficient evidence to indicate to the surgeon the proper operation in each group with best results for the patient.

In the first place, the surgeon must have the easily available knowledge of the different pathological processes which may occur in definite localities. He must be familiar with the methods of diagnosis of the lesion in this special region and the nature and extent of the operation which promises the best results. The diagnosis as to the proper treatment rests upon, first, a careful study of all the available clinical evidence. In some cases this is sufficient to indicate the proper treatment without a gross or microscopic investigation. I think this is true for palpable masses in the stomach and colon. The resection of such masses, without an investigation of their gross and microscopic pathology by cutting into them, yields the best results with the least mutilation and danger. If the pathological examination after their removal shows a benign lesion the patient is protected from the later development of cancer; if, on the other hand, it should prove to be malignant, the chances of a cure are best.

As examples of Group I, we may mention benign pigmented moles, warts, small subepidermal nodules, and subcutaneous more or less encapsulated tumors.

In the second group we may mention a lesion on the lower lip. Here the lesion may be radically excised with a V-shaped piece without danger or mutilation, and the wound closed. Then a frozen section is made and if it proves to be a carcinoma of the spinocellular type, the glands under the jaw should be completely removed through a separate incision. This operation in two stages and without continuity dissection has been demonstrated to fulfill all the requirements. With an early lesion on the tongue the method is entirley different, because for the malignant nodule or ulcer the local operation must be more extensive. In a case of this kind, under general or local anesthesia, the palpable area is excised with the cautery and immediately studied under the microscope in a frozen section. If the section shows carcinoma then the more radical operation must be proceeded with at once.

As an example of Group III, we may use a lump in the breast, but in which a clinical diagnosis is impossible. The surgeon cuts down upon the lump. In the majority of cases the differential diagnosis between benign and malignant is best indicated by the gross findings. In many instances the frozen section is more difficult to interpret than the gross pathological picture. In a few instances the frozen section is helpful, for example, between an intracanicular myxoma and a medullary carcinoma.

The next important question to answer is, what shall a surgeon do when in doubt after he has exhausted clinical, and gross and microscopical pathological investigation. It is the author's opinion that we have sufficient evidence to answer this question. It rests upon the knowledge of the frequency of malignant disease in the different regions and the results of radical treatment. In the breast, the complete operation for cancer should always be performed for any lesion in a woman over 25 unless the benignity of the lesion is established. The complete operation should follow immediately upon the exploratory incision. This conclusion is based upon the fact that the mutilation of the complete operation is but slight, the additional danger is little if any, while the probabilities of a cure of the malignant tumor subjected to complete operation in this doubtful stage is 80% or more; if the operation is done in two stages the chances of a cure are reduced to almost nothing.

In bone lesions the mutilation of amputation is so great and the chances of a cure of any doubtful lesions, should it prove malignant, are so slight, that the most conservative operation should always be chosen. This is also true for doubtful lesions in the nasopharynx and antrum, on the alveolar border of the jaws, and in the body of the lower jaw.

Dr. Bloodgood is confident that if surgeons will carefully investigate these lesions clinically, scrutinize their gross appearance and look at the frozen sections, and keep a check on their results up to date, they will soon be in a position to meet the requirements of the diagnosis of these border-line pathological lesions inasmuch as immediate treatment based upon this investigation will lead to a removal of the lesion, giving the patient the best opportunity of a cure with the least mutilation and danger.

If the campaign for the education of the people on the early signs and symptoms of what is or may be cancer bears fruit, surgeons will be called upon more and more to treat these lesions in a stage in which accurate diagnosis is more difficult and where the dangers of incomplete removal following an inaccurate diagnosis increase with the space of time between the first signs and symptoms of the disease and the date of treatment.

DR. JOHN B. MURPHY, Chicago, agrees with the author that the final court of appeal in these cases is the clinical result and not the microscopical report. He reported a case of sarcoma of the patella, the first symptom of which was slight pain on trauma. A month or so later the patient while walking along the street was struck on the patella by a lady's handbag which the owner was swinging in her hand, and this caused him exquisite pain. On operation the condition of sarcoma of the patella was diagnosed, resulting in amputation.

DR. CHARLES H. MAYO, Rochester, Minn., suggested that in border-line pathological lesions where an exploratory operation could not immediately, if necessary, be followed by diagnosis from a frozen section, the wound, even though the condition be considered benign, be packed with Harrington's solution No. 9 for several days until a microscopical report could be obtained. He particularly emphasized the point of not closing such a wound, advo-

cating that it be left open and drained and the lymphatics burned with hydrochloric acid.

DR. ARPAD G. GERSTER, New York, called attention to the possibility of tumors in the breast being either of tuberculous or syphilitic origin, therefore not requiring amputation, referring to many instances, however, where amputation has been performed under the impression that these conditions were malignant. He also spoke of involution mastitis based upon gout, of actinomycosis in the breast, and of the various systemic disorders which may be accompanied by swellings in the breast, emphasizing the point that not all swellings in the breast are necessarily on their way to malignancy.

DR. ROBERT B. GREENOUGH, Boston, said that the hope of increasing the number of cures from malignant disease was based on the patients being seen in the early stages. He advocated that even in the early stages of suspected cancer of the breast the whole breast with the pectoral fascia be removed.

SURGICAL ASPECTS OF PURPURA.

DR. JAMES F. MITCHELL, Washington. Hemorrhagic tendency deserves a high place in the consideration of factors for safety in surgical operations. Haemophilia, jaundice and purpura represent three types of pathologic haemorrhage. Purpura is of the greatest interest because of its many variations, the possibility of confusion in diagnosis, and its complications which may demand operation. Henoch's purpura is the type with which we are most concerned. Autopsy data do not offer complete explanation of the abdominal symptoms. Five cases are reported in which the diagnosis was questionable. A review of the recent literature shows that visceral complications may be serious, and that intussusception is the most frequent and most serious lesions. There are reports of 19 laparotomies in 8 of which intussusception was demonstrated, and 3 intussusceptions went unoperated. There were no deaths from exploratory operation. The operative reports give a full explanation of the abdominal crises. The efficacy of the injections of serum has been shown. Operation in the course of the disease, as shown by the results, is not greatly to be feared.

DR. FRANCIS B. HARRINGTON, Boston, reported an instance in which he had performed a laparotomy presumably for obstruction, but on opening the abdomen an edematous condition was found, the abdomen closed, and the diagnosis of purpura made.

DR. CHARLES A. PORTER, Boston, likewise reported a case in which a bowel resection was done, the condition later proving to be nothing but angioneurotic edema.

THE REMOVAL OF STONES FROM THE KIDNEY AND URETER.

DR. JOHN H. GIBBON, Philadelphia: In this paper was discussed the technique of nephrolithotomy and uretero-lithotomy. In removing stones from the kidney and the pelvis pyelotomy and direct incision over the stone was recommended in preference to splitting the entire kidney. With the perfection of the x-ray technique and the greater reliance which can now be placed in the skiagrams this splitting of the entire kidney for exploration or for the removal of stones is only necessary in a small percentage of cases. Pyelotomy if properly conducted gives less hemorrhage, prompter healing and less leakage. Direct incision down to a stone lodged in the calices offers the same advantages and results in far less injury of the kidney. The author has removed 7 stones through 3 small incisions with no leakage, and the minimum amount of damage to the kidney.

For the control of bleeding when nephrotomy is necessary digital compression of the renal vessels is the best method, and is least apt to produce injury of the vessels. Drainage should be done with folded rubber tissue or a small gauze drain covered with rubber tissue and these drains should be fixed at the site of the renal or pelvic wound with very delicate catgut.

Attention was particularly drawn to the combined intra- and extra-peritoneal method of removing stones from the lower ureter. The ureter is exposed through the usual extra-peritoneal method and if the stone is not promptly found, or if it is not quite accessible, then a small buttonhole sufficient to admit the forefinger is made in the peritoneum and the stone and ureter pushed up into the extraperitoneal wound and the stone removed by a longitudinal incision which may then be sutured or not, the rubber tissue drain introduced, the forefinger withdrawn, the peritoneum closed, and then the rest of the wound.

Dr. Gibbon has operated on 14 cases of ureteral stone and 10 operations were of the combined type. All of the cases made good recoveries. Of the ten combined intra- and extra-peritoneal cases there was some leakage in 3 cases, the first 2 and the last. The ureteral wound was sutured in but two cases. Leakage is not dependent on the use or non-use of sutures in the ureteral wound, but upon the damage done to the ureter and the kind of drainage employed. The leakage in the first two cases is attributed to the use of a gauze drain which rested directly upon the ureteral wound, and in the last case to unusual traumatism of the ureter in removing a very inaccessible stone.

Attention was called to the great difficulties often met in finding and removing stones situated near the bladder or broad ligament through the extra-peritoneal wound, and the ease with which these same stones can be located and removed with little damage to the ureter when one finger is inserted into the peritoneal cavity. The author feels that his experience has now been sufficient to show that the danger of peritoneal infection is extremely slight when the proper precautions are taken to prevent it. The other methods of performing ureterotomy for stone were also considered.

DR. FRANCIS S. WATSON, Boston, said that in his experience bilateral calculus had occurred in 30% of cases and simultaneously in 19%. He has always obtained good results by performing a simultaneous bilateral operation in these cases, and considered this procedure had the advantage of freeing the patient from all his trouble at one sitting. In cases in which anuria is present he considers one is justified in a unilateral operation (both kidneys containing stones) only when the first kidney is seen to be so little damaged that there can be no doubt that it can maintain life by its own unaided functional secretory work.

DR. ALEXANDER PRIMROSE, Toronto, Canada, suggested the advisability of opening a dilated ureter at a point slightly above the stone, removing the stone by means of forceps, suturing the wound, and instituting drainage.

DR. JOHN H. GIBBON, Philadelphia, (in closing) said that with regard to Dr. Primrose's suggestion it would be impossible to adhere to such a procedure

in a case with a mulberry stone without producing unnecessary trauma of the ureter. He agreed with Dr. Watson's remarks in reference to bilateral renal calculi, laying stress upon the point that the stones might also be found in both ureters rather than in the kidney substance itself.

EXCLUSION OF THE BLADDER: AN OPERATION OF NECESSITY AND EXPEDIENCY.

DR. CHARLES H. MAYO, Rochester: To determine the best method of disposing of the secretion of the kidneys in individuals in whom it is necessary or expedient to exclude the bladder, remains still one of the serious problems of surgery. To say, however, that the modern methods of operation in these cases exposes the patient to greater danger from infection than is compensatory with the mitigation of his suffering considering the natural mortality of the disease, is not consistent with the history of the patients nor the records of the progress of surgery.

The patients under discussion may be grouped under three headings: (1) Those suffering from congenital anomalies of the bladder or urethra of a character not to permit restoration with controllable urine, or to free them from painful sequelae not possible to relieve by local surgical or other measures. (2) Those in whom sections of the ureter are necessarily or accidentally injured or removed during abdominal, pelvic, or sacral operations. (3) Those in whom malignant disease of the urinary bladder is too extensive to permit removal by partial resection of the bladder with retentive function, and those in whom gross malignant or other disease of the bladder exist but in whom the power of retention and control add to their suffering.

Various surgeons have devised ingenuous methods of making a bladder in the repair of cases in the first group. For example, (a) a bladder made of skin flaps, (b) the compression of the bony pelvis, (c) closing the bladder and covering it with an anterior bony arch by freeing the sacro-iliac joints, etc. Control in such cases was rare; cystitis and infection of the kidney common.

In the second group are those cases in which the injured ureter cannot be reunited to itself or reattached to the bladder, the injured ureter may be reunited with the other ureter if that be patent, or one or both ureters may be united to the colon. Direct drainage to the skin has been advised, also deflecting the ureter to the skin of the loin. These operations are done extraperitoneally, the urine being collected by special apparatus.

In the third group are cases of extensive involvement in which part or all of the bladder has been removed. In the former, the ureters are sometimes transplanted to the opposite remaining portion of the bladder, in the latter the ureters may be implanted into the rectum, or brought to the skin of the back.

It would appear that the best theoretical and practical anastomosis of the ureter with the large bowel are those which permit the ureters to traverse some distance between the mucosa and outer wall of the bowel before penetrating its lumen, or are infolded by the wall of the bowel for a certain distance: also the method which transposes the base of the bladder to make it a part of the rectal wall. The control against regurgitation is due to its closure by compression in the wall of the bowel.

In 8 cases of cancer transperitoneal resection of large areas of the bladder was done, with transplantation of the ureter to the opposite side. In 3 cases of cancer the bladder was completely removed;—

(1) Female, aged 62. Ureters transplanted into rectum. Operative recovery. Died some weeks later of cerebral hemorrhage.

(2) Female, aged 20. Ureter attached to base of urethra by the Sonnenberg method. Patient in good health one year. Died from acute infection of kidney.

(3) Male, aged 50. Ureter transplanted to back, transperitoneally. Well more than 3 years.

In 4 cases of extrophy the ureter was transplanted to bowel. No deaths.

DR. FRANCIS S. WATSON, Boston, reported the case of a patient in one of whose loins he established a permanent renal fistula by nephrostomy 16 years ago, doing the same operation on the opposite side 9 years ago, and stated that during these many years, with the exception of 4 months, the patient has been kept perfectly dry, free from odor, comfortable and in excellent health. He devised an apparatus, (previously fully described) for receiving the renal drainage. He urged the employment of nephrostomy as being superior in results to ureterostomy, stating that the advantage of the more easy performance of the latter procedure was far outweighed by the satisfactory results of the former operation, and described in detail the technique of the nephrostomy procedure. He emphasized the point that in inserting a drainage tube into the kidney it should be carried just within the entrance of the calyx into the renal pelvis, and that care should be taken to avoid having it press too hard against the wall of the renal pelvis lest it cause ulceration; this drainage tube should be of large size, which might make it necessary to stretch or enlarge the mouth of the calyx where it joins the renal pelvis.

DR. HARRY M. SHERMAN, San Francisco, reported the progress in a case in which he did the Petersen operation for extrophy of the bladder in a child of 3 years some 12 years ago. The patient has developed most satisfactorily. Five years ago he was operated upon for inguinal hernia, and the speaker thought it was most interesting and instructive to find that even with the absence in this case of the pubic bone the anatomy of the hernia had still been preserved. At this operation he investigated the condition of the ureters in the rectum, found them in excellent condition and with no indication of an ascending infection.

DR. ROBERT G. LE CONTE, Philadelphia, considered that experimentation had shown that the extension of infection upward is not through the lumen of the ureter but by means of the lymphatics along the course of the ureter. The longer the anastomosis or the more ureter covered by intestine in implantation into the intestinal wall, the greater the liability to ascending infection.

DR. JOHN J. BUCHANAN, Pittsburgh, considered the possibility of ascending infection being due to the fact that the cut end of the ureter is in reality the cut end of a mucous canal, which contracts, causing dilatation of the ureter and pelvis of the kidney, and thus predisposing to infection. He also stated that he believed before one could intelligently deal with this question it would be necessary to learn what effect was produced upon the patient by injection into his rectum of large quantities of his urine prior to operation. He had reached this conclusion after losing a case because of evident poisoning from this source.

Book Reviews.

Science and Education. Edited by J. McKeen Cattell. Vol. ii, Medical Research and Education.

This is the second of a series of proposed volumes designed for the promotion of scientific research and educational progress. There are twenty-one contributors among whom are many names prominent in American scientific medicine. The addresses which constitute the volume have been given on various occasions and are here reprinted. They cannot fail to be of interest to all who are following the progress of research in medicine and its broader problems. The volume is concluded by an address on Imagination and Idealism in the Medical Sciences by the late Dr. Christian A. Herter, delivered in 1909, and by the president's address before the Congress of American Physicians and Surgeons delivered in 1900 by the late Dr. Henry P. Bowditch on The Medical School of the Future. It will be seen, therefore, that the object of this series is not necessarily to publish only papers of very recent date.

The Human Body and Its Enemies. By Carl Hartman, B.A., M.A., and Lewis Bradley Bibb, B.A., M.D. Yonkers-on-Hudson, New York: World Book Company. 1913.

This volume is described on its title-page as "a text-book of physiology, hygiene, and sanitation." It is intended for pupils in secondary schools and seems well adapted to its purpose. Popular works of this sort have greatly improved during the past twenty years. The present book primarily represents the status of health education in Texas, but is equally suited for use in all parts of the country. As the authors emphasize in their preface, the fundamental principle of all hygiene and sanitation is discriminating cleanliness, and this principle is the same the world over. The book is well illustrated with 247 figures in the text. The chapter on "Alcohol, Narcotics, and Stimulants" is very temperately written.

Diseases of Women. Medical and Surgical Gynecology. By Charles A. L. Reed, A.M., F.C.S., M.D., Fellow of the College of Surgeons of America; professor in the University of Cincinnati; Gynecologic Surgeon to the Cincinnati Hospital, the German Deaconess' Hospital and the Jewish Hospital. With 448 illustrations in the text. New York and London: D. Appleton and Company. 1913.

In this work is presented a new treatise on the diseases of women. Unlike the formed volume which bears the name of this author and which was from the hands of several writers, the present work is penned almost entirely by one man. This gives the advantage of a unity which is otherwise difficult to attain. The subject is dealt with under several heads, first taking up malformations. In this section are considered in eleven chapters the various malformations of the mammary gland and the rectum as well as of the genital and urinary organs.

The order in which the organs are taken up is from the outside inward, which has obvious advantages. But there is a tendency, from this point of view, to regard the malformations of the genital system as isolated phenomena, and in the present treatment there is scarcely sufficient emphasis laid on the unity of the system embryologically. The unity is stated, of course, but there is not the unfolding and development which would make the subject much clearer to the student.

The second and third sections are devoted to injuries and displacements. The separation of these topics as here presented, tends to obscure the fact that many displacements of the uterus, for example, are due to injury. Following a section on foreign bodies, including calculi, is the important section on infections. Here the processes due to the gonococcus, spirochete pallida, streptococcus and tubercle bacillus are treated at considerable length. The unity of the systems from the point of view of certain infections is wisely emphasized. Neoplasms next receive much detailed attention. The closing chapters are on trophic changes, surgical conditions of pregnancy and parturition, and menstruation and its disorders. The methods of examination and diagnosis, and the general procedures in abdominal operations are relegated to two appendices. The illustrations are generally clear and well selected and the index is comprehensive. An excellent device in presentation is the description of operative procedures, which are fully given. The various steps of the operation are given in short numbered sentences, adding greatly to the ease with which the text can be followed.

"The book has been written exclusively to meet the demands of utility," and its object is to meet the needs of the practitioner, the teacher and the student, and the writer on gynecology. It is a fair question whether this is not too much to expect of any book, and perhaps the present work attempts the impossible. In any case, it has not succeeded in its triple object, in spite of some excellent features. Perhaps if less had been attempted, more might have been accomplished. One lays down the book wondering when a really adequate text-book or treatise on gynecology in English will appear. A reason for our weakness is that there is lacking on the part of most of our teachers and writers that knowledge of the pathological basis of gynecology, without which such an adequate treatment is impossible.

Early Pulmonary Tuberculosis. Diagnosis, Prognosis and Treatment. By JOHN B. HAWES, 2nd, M.D. Assisting Visiting Physician, Director Tuberculin Department, Massachusetts General Hospital; Secretary, Board of Trustees, Massachusetts Hospitals for Consumptives. With a preface. By RICHARD C. CABOT, M.D. Assistant Professor of Medicine, Harvard University. 8 vo. pp. 114. New York: William Wood and Company. 1913.

Within the limits which he has set for himself Dr. Hawes has presented to the general practitioner, in a terse, clear and convincing style, a valuable manual upon the early diagnosis and treatment of pulmonary tuberculosis, and the publishers have well done their part in the excellence of the type and paper and the useful paragraphing.

Of necessity, in treating so large a subject in so small a compass, the author has had to express himself dogmatically upon many controversial points, but for practical purposes this is rather an advantage; for definite statements and not discussion is what is desired and most useful in such a *vade mecum*. In general, the author's statements are in accord with modern thought and experience upon the subject. Of course authorities differ in the emphasis placed upon certain methods of diagnosis and treatment due, largely, to personal experience. And so one might differ with some of the statements of Dr. Hawes. For example, under the head of treatment, Dr. Hawes says that, "in dealing with adult patients it is only in rare instances that home treatment should be advised in place of the sanatorium, and if tubercle bacilli are present in the sputum, home treatment should never be allowed unless the sanatorium is absolutely out of the question." By some the above statement would be regarded as too sweeping.

There is so much good matter in the body of the book that one almost regrets that the author did not omit the appendices, (which are always rather unsatisfactory in any book) and have taken the space for further expansion of his subject; or else had incorporated in the substance of the book what he illustrates by the appendix additions. For example, instead of placing his admirable illustrative cases together in the appendix, they might have been well incorporated in the text, in their proper place, as illustrating and emphasizing the points made. Nothing is more illuminating than a case coming directly after the enunciation of some general principle, and practically illustrating that principle.

In reading Dr. Hawes' book one is reminded of the English translation of Dr. Turban's excellent manual upon the same subject, of the same size and published by the same house. With these two authoritative books in his hand, the general practitioner is well equipped, so far as book knowledge goes, to successfully manage this most important and prevalent disease. Of elaborate treatises and articles, in systems of medicine upon tuberculosis, there is no dearth, but a short, practical, and authoritative manual like this of Dr. Hawes is always welcome and should find a place upon the shelves of every general practitioner, especially of the profession in Massachusetts, who are so well acquainted with Dr. Hawes' work in dealing with pulmonary tuberculosis.

Modern Medicine. Its Theory and Practice. In original contributions by American and foreign authors. Edited by SIR WILLIAM OSLER, Bart., M.D., F.R.S., and THOMAS MCCRAE, M.D. In five octavo volumes of about 1000 pages each. illustrated. Volume I. Bacterial Diseases, Diseases of Doubtful or Unknown Etiology, Non Bacterial Fungus Infections, the Mycoses. Philadelphia and New York: Lea and Febiger. 1913.

The first volume of this well known system of medicine shows unusual care and thoroughness in the revision. The authors of the various sections are virtually the same as in the original work. The articles, as might be expected from the distinguished contributors, are authoritative and have been satisfactorily revised. The editors make the interesting announcement that by general condensation and by an increase in the size of the page, and by augmenting the number of pages in each volume, it has proved feasible to reduce the number of volumes from seven to five.

Papers on Psycho-analysis. By ERNEST JONES, M.D. (Lond.), M.R.C.P. (Lond.), associate professor of psychiatry, University of Toronto. pp. xv, 432. New York: William Wood and Company. 1913.

To those who have followed recent writings on the general subject of psycho-analysis, these papers, collected in book form, will not be unfamiliar. To others, however, the book will be welcome as giving in concrete form a general summary of the teachings of Freud from the pen of one of the most devoted of his pupils. The papers, of which twenty are published, are rather expositions of Freud's theories than original contributions, but everywhere tempered and amplified by the writer's enthusiasm and personal conviction. Whatever the final verdict on the Freudian psychology as applied to the neuroses may be, we are fortunate in having so keen an expositor of the doctrine as Jones has proved himself to be, not only in this collection of papers, but also in his other contributions to the subject.

Labyrinth Papers. By George W. Mackenzie, M.D. Philadelphia. 1913.

Mackenzie's book of 222 pages on the labyrinth is made up of fifteen papers written for various societies and journals between June, 1908, and February, 1911. Each paper practically comprises a chapter. The effort of the author has been to make each paper complete in itself and still have the various papers dovetail into each other and to cover every phase of the labyrinth and its diseases.

The writer has had a royal opportunity to become familiar with the difficult subject of the labyrinth by serving as aspirant assistant for two years under Alexander in Vienna. It was his further good fortune to have the ability to carry out a certain amount of original work, namely on galvanic nystagmus. American otologists who have done research investigation on the labyrinth can be counted on the thumbs. The writer's opportunities and abilities at once commend the book. It is preceded by a flattering personal introduction by Alexander.

The writer has accomplished his purpose of dealing with every phase of the subject of the labyrinth and its diseases. The summarizing tables which give in parallel columns the important differential symptoms and signs of the various labyrinthine affections are very acceptable and helpful. Many such tables are given, in fact, nearly every chapter ends with such a survey. The book should be of great service.

The grouping of the chapters is not the customary one. For example, the chapters on the anatomy and physiology of the labyrinth are placed in the middle of the volume, following six chapters given up to the consideration of the diseases and their treatment. This is the clinical or the practitioner's method of approach. In the reviewer's opinion, therefore, the book is eminently for the graduate student and practicing otologist. Any except the earnest student should avoid the subject of the labyrinth. Naturally some of the chapters are easier to grasp than others. The hardest for the reviewer is the one on "Turning and After-Turning Nystagmus." For the beginner, and most of us are beginners in this subject, this chapter might well be re-written, simplified and illustrated by diagrams.

The illustrations in the chapter on physiology and anatomy are poorly printed. Amateur lettering of legends has been employed in some of them, but as usual in such cases, it is not always intelligible. The author's own diagrams and illustrations, although crude, tell their story well. This book should at once take a high place as a consulting book for the active and progressive otologist. The author would do a great favor if he would re-write it, simplify it, and put all the summaries on single or opposite and facing pages. If this task should be undertaken the reviewer feels that the time-worn arrangement of chapters, that is anatomy and physiology first, and then diseases, their symptoms and treatment, would give the book a longer and more useful life.

Clinical Laboratory Methods. A manual of Technique and Morphology Designed for the Use of Students and Practitioners of Medicine. By Roger Sylvester Morris, A.B., M.D. New York and London: D. Appleton and Company. 1913.

Morris has written an excellent manual of some 300 pages. He has aimed to select the more important methods of laboratory technique. The methods are simply and concisely stated without discussion. It should prove a valuable small laboratory manual for routine laboratory procedures.

Calm Yourself. By George Lincoln Walton, M.D. Boston and New York: Houghton Mifflin and Company. 1913.

Under a different title the contents of this small book were delivered last spring as a public lecture at the Harvard Medical School. Those who have read and enjoyed "Why Worry" will see in this lecture, the same facile touch and ready wit, with a deep underlying current of common sense and practical philosophy. Such writing, unlike certain other well-meaning attempts, can do no harm, and may well help toward a more rational and comfortable conduct of life.

A Manual of Surgical Treatment. By Sir W. Watson Cheyne, Bart., C.B., D.Sc., LL.D., F.R.C.S., F.R.S., and F. F. Burghard, M.S., F.R.C.S. New edition, entirely revised and largely rewritten with the assistance of T. P. Legg, M.S., F.R.C.S., and Arthur Edmunds, M.S., F.R.C.S. In five volumes. Volume V. Philadelphia and New York: Lea and Febiger. 1913.

The first two volumes of this new revised edition were reviewed in the issue of the Journal for July 25, 1912 (Vol. clxvii, p. 130); the third in the issue for April 10, 1913 (Vol. clxviii, p. 547); and the fourth in the issue for Aug. 21, 1913 (Vol. clxix, p. 286). This fifth volume, which completes the work, deals with "the treatment of the surgical affections of the pancreas, liver and spleen, the neck, the breast and thorax, and the genito-urinary organs." It is well illustrated with 152 figures in the text. An appendix contains description of "operations on the female genital organs which may be found necessary in the course of an ordinary laparotomy." The praise which has formerly been written of this work is deservedly extended to this final volume.

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THE WORK OF THE NEW YORK HEALTH DEPARTMENT.

COMMISSIONER LEDERLE of the New York City Department of Health has issued a review of the work of the department during the four years of his administration. The most striking and gratifying feature of this is the continuous reduction in the death-rate which has been accomplished through the activities of the board of health with the efficient coöperation of various other agencies. In 1909, the year preceding Dr. Lederle's appointment, the death-rate was 16.21. In 1910 it was 15.98; in 1911, 15.13; in 1912, 14.11; and in forty-eight weeks of 1913, 13.52. At present, therefore, New York is exceeded in this particular only by London, among the great cities of the world, and its rate now closely approximates that of London. In 1912 the death-rate in Paris was 16.38, in Chicago 14.68, in Berlin 14.39, and in London 13.52. It should not be forgotten, however, that this admirable result is due in part to the work accomplished under previous administrations, and notably that of Dr. Darlington. In the three decades from 1868 to 1897 the average death-rate in New York (comprising the present boroughs of Manhattan and the Bronx) and Brooklyn the death-rate was respectively 27.17, 25.27, and 23.61, and in the first decade after the enlargement of the city, 1898-1907, it was 19.23. In 1908, the fifth year of Dr. Darlington's term of office, the rate was reduced to 16.53, and in its sixth and last year, 1909, as mentioned, to 16.21. It was he who practically started the campaign in the city for pure food, and under new ordinances introduced by him many million pounds of unfit food were seized and destroyed. It was at his request that the New York Milk Committee, which has accomplished so much good work, was organized, and he inaugurated the system of inspection of farms and dairies supplying milk to the city. The present scheme of school hygiene was developed under a plan formulated by him. He reorganized the medical school inspection on a new basis and appointed nearly two hundred trained nurses to work in the public schools and at the children's homes, and in 1908 created the division of child hygiene in the department. These measures were the foundation of the child welfare work now being so widely carried on. The establishment of the highly successful Otisville tuberculosis sanatorium was also due to Dr. Darlington's efforts.

These and various other undertakings inaugurated by him have been continued by the present administration, and, by the aid of increased appropriations by the municipal authorities, considerably extended. Unquestionably the most notable feature of Commissioner Lederle's régime is the decided reduction in infant mortality, which has been greater than in any of the ten largest cities of the world. This happy result is, of course, due in no small measure to the combined efforts of various other organizations, but the health department is entitled to great credit for its intelligent and systematic work for the attainment of this object. In 1911 the first milk stations of the department, fifteen in number, were established, and in 1912 these were increased to fifty-five. These stations, the report states, have contributed materially to the reduction of infant mortality. The important part played by the New York Milk Committee and other private agencies in the development of the system is freely acknowledged as a noteworthy instance of public service, and at the present time all organizations maintaining milk depots are now effectively associated. A contributing factor has been the improvement of the general milk supply, and as pasteurized milk has been considered the only safe product for other than certified milk, the department has succeeded in increasing the percentage of the pasteurized proportion of the supply from 7 to 75. Early in January, 1912, on the com-

missioner's recommendation, the board of health officially adopted certain grades of milk, and required that all milk brought into the city should be marked. Since then the grading of milk then adopted has been somewhat modified. Thus, the result of a study of cases of typhoid fever on the east side in September last showed beyond doubt that a certain supply of "grade B" milk had transmitted the infection, and, in consequence, raw milk was eliminated from that grade. Up to the occurrence of this outbreak of typhoid the incidence of the disease had steadily decreased until it was less than ever before in the history of the city. The results of the extension of systematic medical inspection in the public schools are shown by the reduction of the number of cases of defective vision from 13.1% to 9.3%; of adenoids with defective nasal breathing, from 18.7% to 7.6%; and of hypertrophied tonsils, from 22% to 10%.

It is not possible here to refer to all the matters touched upon by Commissioner Lederle, but a few others may be mentioned. For the treatment of cerebrospinal meningitis the research laboratory furnishes the Flexner serum, and the death-rate from this disease has declined from 0.75% in 1909, to 0.36% in 1912. The work of the department nurses in connection with contagious diseases has been greatly extended, and a special hospital and dispensary for whooping-cough, which for several months of the year causes more deaths than either scarlet fever or measles, has been opened. At the Willard Parker Hospital a new building for the treatment of measles, with a capacity of 320 beds, has been recently completed, and the hospital equipment of the department has also been otherwise considerably increased. The granting of work certificates to children has been safeguarded by careful physical examinations, and this, it is stated, has eliminated the unfit child from the work rooms. Each year the department has called attention to the urgent need of a larger staff of food inspectors. There are about 19,000 places where food is prepared, sold or handled in the city, all of which should be systematically inspected. This would require at least 150 inspectors, but the force has consisted of only 30 men until very recently, when repeated appeals were answered by appropriations providing for 10 additional men. In the bureau of records there has been an improvement in the compilation of vital statistics by reason of a determined effort to prosecute physicians and midwives for failure to report births. The enlargement of the scope of research laboratory work by the addition of a special division entitled the laboratory for specific therapy and preventive medicine, the notification of venereal diseases, the establishment of venereal clinics, dental clinics, and general clinics for children of the poor in the public schools, the extension of tuberculosis clinics, the school for midwives, with greater strictness in the licensing of midwives, and the recent undertaking of prenatal work in connection with the milk stations, have been previously noted in the JOURNAL.

SCHOOL HYGIENE AND THE COMMUNAL HEALTH.

COMPULSORY education, when first legalized, was held by some earnest citizens to be "government paternalism" and an outrageous infringement of the tax-payer's rights, but so beneficent did the system prove that today few would be found to object to it. When medical school inspection, for the detection of contagion in children (and their removal from school until such illness should be over) was begun, there were, on like grounds, objectors, probably none of whom now persist. The next logical step, medical school examination, by physicians under appointment of the constituted health authorities, is now making its way through opposition, which may be confidently expected also to disappear, so conspicuously has this measure demonstrated its usefulness, so many physical defects have by its means been discovered. For example, of 78,400 children examined in New York in one year, above 56,000, or 71%, exhibited physical abnormalities, for which the afflicted children, be it understood, were referred to their physicians or to hospitals and dispensaries for correction.

The Honorable Eugene H. Porter, the commissioner of health of New York state, in an address before the recent International Congress of School Hygiene at Buffalo, on "What the State shall do in the care and supervision of school children," maintained that the best index of communal health is the physical welfare of school children, that the conservation of such welfare is preventive medicine in the highest and best sense of the term, and any community's cheapest health insurance. He gave

his approval of Dr. William H. Allen's working program for the supervision and care of school children,[1] which calls for: A thorough physical examination of all candidates for teachers' positions; such an examination of every child in every school, upon entrance and periodically, during school life. Cards used by medical examiners to this end indicate the search for errors of nutrition, for enlarged glands, heart or lung disease, abnormalities of spine, chest or extremities, defective vision or hearing, disease of the teeth, palate, tonsils or of the upper air passages, the mental condition of the child, its weight, height, age and so on. It calls also for supervision by the physician of schoolroom hygiene and of the children's exercises in school and on playgrounds; the restriction of study hours at school and at home to limits compatible with health; "follow-up work" to ensure action by parents to correct the physical defects pointed out and to attend to physical needs; the teaching of hygiene, so that children will cultivate habits of health and see clearly the reaction of such habits to personal vitality and happiness and future efficiency; central supervision of school hygiene; information gained at school regarding conditions prejudicial to community health, to be published and made the basis of an aggressive campaign for the enforcement of sanitary laws. Commissioner Porter would, in addition to these measures have a sanitary survey of a given community, town or city, made by competent inspectors, who would consider the question of water supply, sewage disposal, tenement conditions, clean streets and the like. Such a survey would give a pretty definite and accurate picture of the essential conditions as to health in any given community. By means of such sources of information the annual report of any board of health could give as clear a picture of its community's hygienic and sanitary conditions, for any week or past quarter as an accountant's books would give of the conditions of any commercial concern. Nor should such a board of health keep track of one community alone; but it should be able to compare any given community with others of like size; and for each community its health conditions at one time, as compared with those conditions at any other time. Such scientific bookkeeping is essential to any really effective public health work.

[1] Porter, E. H.: What Shall the State Do in the Care and Supervision of School Children, *The Dietetic and Hygienic Gazette*, Oct., 1913.

THE MARGIN OF ERROR IN MEDICINE.

IN the issue of the *Journal of the American Medical Association* for October 15, 1910 (Vol. lv, p. 1343) was published a paper by Dr. Richard C. Cabot on "Mistakes in Diagnosis."

This paper, based on an analytic study of 1402 autopsy records at the Massachusetts General Hospital and their comparison with the clinical data, attracted at the time considerable attention and interest as statistical evidence of the considerable fallibility of medical diagnosis even in experts. In his series, Dr. Cabot found the clinical diagnosis correct in 844 cases and erroneous in 558. The errors in the latter group he classified as errors of commission,—the diagnosis of a condition found at autopsy not to have existed,—and errors of omission,—the failure to diagnosticate a condition found at autopsy as a contributing cause of death. As one might expect, errors of commission were more numerous than errors of omission. Indeed, of the 558 errors, 387 were in cases in which cardiac disease was correctly diagnosticated, but the exact lesion was missed.

In emulation of Dr. Cabot, Mr. Roger W. Babson, of Wellesley Hills, Mass., an analyst and statistician, has recently essayed to point out the diagnostic errors of the medical profession by tabulating the data of 2500 cases, comparing the clinical diagnosis, the statement on the death certificate, and the post-mortem findings. In the case of several common diseases he has on this basis determined the percentage in which the correct diagnosis was made clinically and on the death certificate. Thus in diabetes he finds that 55% were correctly diagnosticated during the life of the patient, and 95% on the death certificate; in typhoid fever, 30% and 90%, respectively; in pneumonia, 30% and 74%; in cancer, 35% and 70%; in tuberculosis, 25% and 50%; and in heart disease, 20% and 40%. He makes no attempt to discriminate between errors of commission and of omission. It is interesting to note that in both Dr. Cabot's and Mr. Babson's series diabetes was apparently the most accurately and heart disease the least accurately diagnosticated.

Whatever the motives of these two investigations, their result is essentially the same, namely to indicate the considerable margin of liability to error in all medical diagnosis. That medicine is infallible has never been alleged since the days of alchemists and astrologers.

Since that time, however, its margin of error has been growing steadily smaller. That it is not yet an exact science is nothing to its discredit, for it is yearly still approaching new goals of accuracy. Ultimately, perhaps, the margin of error may become reduced to a minimum but it is likely always to exist so long as medicine, though a science, is practised by and concerned with mutable human beings.

COMPARATIVE VITAL STATISTICS IN GLASGOW.

In a recently published report, Dr. A. K. Chalmers, health-officer of Glasgow, makes an interesting comparison of the vital statistics of the city in 1901 and in 1911.

In 1901 the total death-rate from all causes was 20 per 1000. Among 100,000 persons occupying one room to a family, the rate was 33 per 1000. Among 350,000 persons occupying two rooms to a family, the rate was 21 per 1000. Among 150,000 persons occupying three rooms to a family, the rate was 14 per 1000; and among 136,000 persons occupying four or more rooms to a family, the rate was only 11 per 1000. Not only does this illustrate strikingly that mortality is proportionate to over-crowding; but it shows also that the average household in Glasgow is of only two rooms, the "wee but and ben" of Scottish song.

In 1911 the population of Glasgow had increased 20,000 over that of 1901. Of the total population, 11% consisted of children under five years of age. Among the one-room families these constituted 20% of the whole, among the two-room families 14%, among the three-room families 7%, and among the four-room families 4%. This further illustrates that fertility is also directly proportionate to overcrowding.

In 1901 the total death-rate of Glasgow was only 16.6 per 1000. The single-room families showed a mortality of 25 per 1000; the two-room families, of 16 per 1000; the three-room families of 12 per 1000; and the four-room families of 3.85 per 1000. Among the one-room families, the average number of persons to a family was 3.2; among two-room families, 4.8; among three-room families, 5.45; and among four-room families 5.2.

MEDICAL NOTES.

Medical Bequests by a Scottish Physician.—The late Dr. Gavin Paterson Tennent, of Glasgow, by his will bequeathed his entire fortune in medical charity. To the University of Glasgow he left £25,000, as endowment for the Faculty of Medicine. The residue of his estate is to be divided equally between the Royal Infirmary, the Western Infirmary, the Victoria Infirmary, and the Royal Hospital for Sick Children, Glasgow.

London Death-Rates in October.—Statistics recently published show that during the month of October, 1913, the total death-rate of London was only 13.7. Among the several districts and boroughs, the highest rate was 22.0 in Shoreditch, a crowded eastern slum, and the lowest was 8.8 in Wandsworth, a populous southern section.

The Migration of Tuberculates.—Report from Washington, D. C., on Dec. 6, states that Drs. Paul Carrington, A. D. Foster, and E. A. Sweet, of the United States Public Health Service, have recently been detailed to investigate the effect of travel on tuberculates, and the effect of their presence on the health of railroad employees and passengers, and of communities in which they settle.

Diphtheria in Detroit.—Report from Detroit, Mich., on Dec. 9 states that during the month of November there were 260 deaths from diphtheria, which has been epidemic in that city. On Dec. 6 there were 225 cases under treatment. An examination of 186 healthy persons is said to have shown 64% of carriers.

International Anti-Vivisection Congress.—The meetings of the International Anti-Vivisection Congress in Washington last week were characterized by the usual hysteric denunciations of medical investigation. The Rockefeller Institute was particularly stigmatized as a wholesale torture-house, and it was said that at hospitals human vivisection and the inoculation of patients with loathesome diseases is extensively practiced.

BOSTON AND NEW ENGLAND.

Two Living Centenarians.—Mrs. Isaac Keyes, of Cambridge, Mass., who is said to have

been born in December, 1812, at Brighton, Mass., celebrated recently her supposed one hundred and first anniversary. Except for a failure of hearing and vision her health remains excellent. She has been a widow since 1877.

Miss Annie Conant, of Mansfield, Conn., is said to have been born on Dec. 10, 1811. Her health is excellent.

SUIT AGAINST LOWELL AND GLOUCESTER.—At the instance of the Massachusetts State Board of Health, the attorney-general has recently brought suit against the cities of Lowell and Gloucester in this Commonwealth for failing within a year and a half to comply with the law which provides that every city must establish and maintain a local hospital for consumptives. The penalty for such failure is a fine of $500.

NEW IPSWICH HOSPITAL.—Report from Ipswich, Mass., on Dec. 9 states that the directors of the Ipswich Mills have voted to give $10,000 towards the construction of a new Ipswich Hospital, provided the town will give an equal amount. The company further offers to give $1000 a year for five years towards its maintenance.

BROOKLINE FREE HOSPITAL FOR WOMEN.—The recently published thirty-eighth annual report of the Brookline Free Hospital for Women records the work of that institution for the year ended Oct. 1, 1913. During this period 781 patients were admitted to the hospital, upon 682 of whom 1970 operations were performed. There were only two operative deaths, both of patients with advanced cancer, one from shock and one from embolism. In the out-patient department there were 7220 consultations and 1460 new patients were treated. Two six-month classes were graduated from the training-school, and diplomas were awarded to 19 nurses.

WALTHAM TRAINING-SCHOOL FOR NURSES.—In the December issue of *The News Letter* is published the twenty-eighth annual report of the Waltham Training School for Nurses for the year ended Aug. 31, 1913. During this period 130 pupils were under training. In the hospital, 401 out-patients and 1155 in-patients were treated, and 91 babies were received at the Baby Hospital.

BOSTON MILK AND BABY HYGIENE ASSOCIATION.—The annual meeting of the Boston Milk and Baby Hygiene Association was held in this city on Thursday, Dec. 5. The present board of directors was reëlected for the ensuing year. Among the additional members of the corporation elected were Drs. Hugh Cabot, Walter B. Cannon, Maynard Ladd, John L. Morse, and Thomas M. Rotch. The directors' report showed that during November, 1913, 1469 babies were under care at the stations of the Association, as compared with 1232 during the corresponding month in 1912.

DENTAL HYGIENE IN BOSTON SCHOOLS.—During the past year a very active movement to promote dental care and hygiene among school children has been prosecuted in Boston. In April, 1912, 75,000 circulars were sent to parents, regarding the importance of this subject, and 50,000 replies were received. In the school-year of 1912-1913, 26,439 Boston public school children received dental treatment, 16,501 by private dentists, 9938 at school dental clinics. School nurses distributed 7700 toothbrushes, and gave 14,869 schoolroom talks, and 10,106 talks in the home on dental hygiene.

INFECTIOUS DISEASES.—Cases of infectious diseases reported to the Boston Board of Health for the week ending Dec. 9, 1913. Diphtheria, 67, of which 10 were non-residents; scarlatina, 67, of which 5 were non-residents; typhoid fever, 8; measles, 38; tuberculosis, 85, of which 1 was non-resident.

The death-rate of the reported deaths for the week was 16.24.

NEW YORK.

NEW YORK DEATH-RATES.—The recently published annual report of Dr. Lederle, health commissioner of New York, shows that during the first 11 months of 1913 the city has had a death-rate of 13.77 per 1000, a figure surpassed only by London among the large cities of the world. The death-rate of London for the corresponding period was 13.52, that of Berlin 14.39, that of Chicago 14.68, and that of Paris 16.38. In 1909 the New York death-rate was 16 per 1000. In the same year, the mortality of children under one year of age was 137 per 1000 born. In 1912 it was 110, and this year is expected to fall as low as 100.

Dedication of College of Dental and Oral Surgery.—The new College of Dental and Oral Surgery, on East 35th Street, was dedicated on Dec. 3, and among the speakers were Dr. John H. Finley, state commissioner of education and president of the University of the State of New York; Dr. J. W. Brannan, president of the board of trustees of Bellevue and Allied Hospitals, and Prof. B. Holly Smith of the Baltimore College of Dental Surgery.

Visit of Dr. Montessori.—Dr. Maria Montessori of Rome, founder of the Montessori system of education, arrived recently in New York. During her visit to America, in addition to looking into the work being done here by her own students, who it is said have now more than seventy classes in different parts of the country, she is to give a course of lectures in which she will explain her methods, and the proceeds of which will be devoted to the foundation of what she calls a laboratory school in Italy, in which it is purposed to conduct children, of different nationalities if possible, through a ten years' course of training.

Report on Height of Buildings.—The advisory committee of the Board of Estimate and Apportionment on heights of buildngs presented its report on December 4. The report recommends that in the future buildings in the city of New York shall be limited in height, along certain prescribed lines, and it is expected that the parent committee of the board, which is composed of the presidents of the boroughs of Manhattan, Brooklyn and the Bronx, after a study of this, will make its own final report before the end of the year.

Smoke Nuisance.—The Apellate Division of the New York Supreme Court has now overruled the decision of Justice Russell last summer that Section 181 of the Sanitary Code is unconstitutional. Under this section the City Health Department had charged the Edison Electric Company with maintaining a smoke nuisance, and this decision of the higher court will permit the trial of the case to proceed on its merits.

Bequests.—By the will of the late Henry Untermeyer of New York the sum of $2500 is left to the Mount Sinai Hospital Training School for Nurses in memory of his wife. The income of this is to be used for the "Carrie Untermeyer Prize," to be awarded annually at Commencement to the nurse holding the best record for the year for kindness and proficiency.

Health Reports.—The weekly reports of the Health Department show that the mortality in the city during the month of November represented an annual death-rate of 12.64, as against 11.65 in October and 12.91 in November, 1912. Among the diseases in which there was an augmented fatality were the following: The weekly average of deaths from measles increased from 2.25 in October to 6.25 in November; the weekly average from scarlet fever, from 2.75 to 4; from diphtheria and croup, from 13.75 to 19.75; from influenza, from 1.25 to 4.25; from epidemic cerebrospinal meningitis, from 2.5 to 4.25; from pulmonary tuberculosis, from 135.5 to 159.5; from acute bronchitis, from 11.5 to 13.75; from pneumonia, from 51 to 81.75; from bronchopneumonia, from 55.75 to 82.25; from cancer, from 79.75 to 81.25; from organic heart diseases, from 170 to 192.5; and from Bright's disease and acute nephritis, from 93.5 to 107.5. Among the diseases in which the mortality decreased were the following: The weekly average of deaths from typhoid fever declined from 15.75 to 13.25; from whooping-cough, from 7.75 to 4; from tuberculous meningitis, from 12 to 10.75; from diarrheals under five years of age, from 73.75 to 41.5; and from cirrhosis of the liver, from 17.75 to 14.

Society of Medical Jurisprudence.—At a meeting of the Society of Medical Jurisprudence held December 8 the following officers were elected: President, John C. West; vice-president, Dr. Frank H. Daniels; treasurer, Oscar W. Ehrhorn; secretary, Dr. L. Howard Moss; corresponding secretary, Charles P. Blaney. At this meeting a committee, headed by Dr. Daniels, on the pending "national narcotic law," presented an elaborate adverse report. The principal objections to the act urged were that it was unconstitutional, as it encroached to a greater extent upon the sovereign rights of the States than any bill heretofore passed by Congress, that it imposed great hardships and expense upon physicians and pharmacists, a very limited portion of the community, and that it permitted the unrestricted sale of patent medicines containing narcotics, the use of which is the principal cause of the formation of drug habits in this country. The report of the committee

was unanimously adopted, and a special committee was appointed to secure as much influence as possible for defeating the final passage of the bill.

INTERNATIONAL EXPOSITION OF SAFETY AND SANITATION.—On December 11, in the Grand Central Palace, there was opened, under the auspices of the American Museum of Safety, the first "international exposition of safety and sanitation" in this country. In the afternoon there was a private view of the exposition for the government and municipal delegates from Europe and America and other invited guests, and in the evening an illustrated lecture on tuberculosis was given by Dr. Millard Knowlton of the New Jersey State Board of Health.

Current Literature

MEDICAL RECORD.

NOVEMBER 29, 1913.

1. FRINK, H. W. *The Freudian Conception of the Psychoneuroses.*
2. OBERNDORF, C. P. *The Scope and Technic of Psychoanalysis.*
3. MEAD, K. C. *The Middle-Aged Woman: What Can Be Done to Increase Her Efficiency?*
4. LEVIN, I. *The Mechanism of Immunity in Experimental Cancer.*
5. *WADHAMS, S. H., AND HILL, E. C. *Results of Treatment of Syphilis with Salvarsan and Neosalvarsan.*
6. LOUNSBERRY, R. L. *Mortality—Experience—Total Abstainers.*
7. HARTSHORN, W. E. *Benign Tumors of the Female Breast: Report of a Case.*

5. Wadhams and Hill conclude from their experience with salvarsan and neosalvarsan that, while these preparations are not to be considered specifics for syphilis, they are of great value in the active forms of the disease and are especially so in cases which do not tolerate mercury. After the use of salvarsan no patient should consider himself cured until two negative Wassermann tests have been obtained, the last one being not less than a year after the last injection. [L. D. C.]

NEW YORK MEDICAL JOURNAL.

NOVEMBER 29, 1913.

1. MALONEY, W. J. M. A. *The Care of Ataxia.*
2. BISHOP, L. F. *The Diagnosis of Arteriosclerosis.*
3. JOFSON, J. H. *The Medical Treatment of Surgical Cases.*
4. HAYNES, I. S. *Infections of the Hand.*
5. FRIEDMAN, H. M. *The Criminal's Place in Psychiatry.*
6. DAVISON, R. E. *Surgical Aspects of Graves' Disease.*
7. *FINCH, S. E. *A Study of the Action of Oxygen, Hydrogen Dioxide, and Ozone Gas upon the Growth of Certain Bacteria.*
8. MAXSON, E. S. *Report of a Case of Carcinoma of the Face.*
9. SPURGIN, W. H. *Acute Pellagra, or Dermatitis Exfoliation?*

7. Finch studied the effect of oxygen, hydric dioxide and ozone on the growth of virulent strains of four micro-organisms, viz., staphylococcus aureus, streptococcus brevis, bacillus coli communis, and the tubercle bacillus. He finds that hydrogen dioxide (3%) is an active bactericide for all four organisms. Ozone under certain conditions is also an active bactericide for these organisms, its action depending upon its concentration and the intimacy and rapidity with which it is brought in contact with the bodies of all the bacteria in suspension. Oxygen inhibits the growth of the aurococcus and may kill it after prolonged and intimate contact with each micro-organism in the moist state; it does not kill the tubercle bacillus, but may inhibit its growth under the conditions just referred to; it does not even inhibit the growth in the moist state of streptococcus brevis or B. coli. [L. D. C.]

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

NOVEMBER 29, 1913.

1. *ROSENOW, E. C. *The Production of Ulcer of the Stomach by Injection of Streptococci.*
2. WARTHIN, A. S. *Miliary Tuberculosis of the Placenta with Incipient Pulmonary Tuberculosis of the Mother Becoming Latent After Birth of Child.*
3. *COFFEY, R. C. *Abdominal Adhesions.*
4. HEALY, D. J. *A Comparison Ocular.*
5. KENNEDY, F. *Myotonia Atrophica.*
6. MYER, J. S. *Polyposis Gastrica (Polyadenoma).*
7. HOWARD, H. B. *Growth and Efficiency of Hospitals.*
8. FULD, L. F. *The Selection of Hospital Employees Under Civil Service Rules.*
9. HOWELL, T. *Factors Influencing Hospital Cost.*
10. SOUTHARD, E. E. *The Psychopathic Hospital Idea.*
11. HALL, H. J. *Hospital and Asylum Workshops. Some Possibilities of Handicapped Labor.*
12. NORTON, P. *Municipal Hospitals and Their Relation to the Community.*
13. PHILLIPS, C. E. *Echinococcus Cyst of the Pancreas; Removal and Recovery.*
14. SHARPE, W., AND FARRELL, B. P. *A New Operative Treatment for Spastic Paralysis. A Preliminary Report.*
15. EUSTIS, A. *Improved Technic for Blood-Counts; Rapid Method for Securing Exact Amount of Suspension.*

1. Rosenow, by injecting streptococci intravenously produced typical single gastric ulcers in rabbits, which in their depth, tendency to hemorrhage and perforation resembled human gastric ulcer greatly. The author reasons from this that gastric ulcer in man may very likely have as its cause streptococci introduced through the blood stream from the tonsils, gums or other atria.

3. Coffey describes his method of preventing adhesions, especially in septic pelvic cases by the use of gauze packs and numerous sheets of gutta percha. The article is well illustrated. [E. H. R.]

SURGERY, GYNECOLOGY AND OBSTETRICS.

NOVEMBER, 1913.

1. *MCDILL, J. R. *Chronic Ascites: Treatment and Drainage by Lymphangioplasty Through a Trocar Wound under Local Anesthesia; an Experimental Study.*
2. *BALDY, J. M. *Incontinence of Urine, Complete and Incomplete.*

3. Percy, J. F. *Osteitis Fibrosa Cystica; Report of a Case.*
4. *Whipple, G. H., and Goodpasture, E. W. *Acute Hemorrhagic Pancreatitis; Peritoneal Exudate Non-Toxic and Even Protective under Experimental Conditions.*
5. *Randall, A. *A Study of the Benign Polyps of the Male Urethra.*
6. Kellogg, J. H. *Surgery of the Ileocecal Valve; a Method of Repairing an Incompetent Valve and a Method of Constructing an Artificial Ileocolic Valve.*
7. Bland, P. B. *The Abdominal Incision in the Treatment of Ovarian Cysts.*
8. Rupert, R. R. *Irregular Kidney Vessels Found in Fifty Cadavers.*
9. Farrar, L. K. P. *Hernia of the Uterus and Both Adnexa; with Report of a Case.*
10. Foulkrod, C. *A Consideration of the Reaction of the Human Organism to the Class of Foreign Proteids Represented by the Syncytial Cell.*
11. Schenck, B. R. *Thrombosis and Embolism Following Operation and Childbirth.*
12. Taussig, F. J. *What Are the Best Methods of Educating American Women Concerning Cancer.*
13. Kretschmer, H. L. *Pyelitis Follicularis.*
14. Prime, F. *The Possibilities of Preserving the Integrity of Potential Body Cavities by the Use of a Foreign Body to Prevent Adhesions.*
15. Pfahler, G. E. *Isolated Disease of the Scaphoid Bone of the Foot in Children (Kochler's Disease).*
16. Schmitz, H. *A Modification of Webster's Endoperitoneal Shortening of the Round Ligaments.*
17. Kolischer, G. *Eight Drawings Illustrating the Steps of Suprapubic Prostatectomy.*
18. Buford, C. G. *The Dressing and Care of Herniotomy Wounds of Infants and Small Children.*
19. Ashcraft, L. T. *The Value of the D'Arsonval Current in the Treatment of Benign and Malignant Tumors of the Urinary Bladder Through the Operating Cystoscope.*
20. Jones, E. O. *A Method of Controlling Hemorrhage in Thyroidectomy.*

1. McDill reviews the medical and surgical treatment of chronic non-malignant ascites, and describes his own fairly simple technic, which consists in draining with thread from the peritoneal cavity into the subcutaneous tissues of the thigh.

2. Baldy describes his operation for complete and incomplete incontinence of urine in the female following childbirth, which consists in so puckering the anterior vaginal wall at the neck of the bladder as to exert pressure upward on the base of the urethra, thus preventing outflow of the urine. He reports several completely successful cases. This operation should be of great value in these generally hopeless cases.

4. The authors from experimental evidence find that the peritoneal exudate in acute hemorrhagic pancreatitis contains no toxic substances. It is harmless when injected intravenously or intraperitoneally in large amounts into normal dogs or those suffering from acute pancreatitis. The ferments which escape from the injured pancreas are rapidly neutralized and this peritoneal exudate is usually free from proteolytic ferments and contains the same amount of lipase as does the blood serum. The hemorrhagic peritoneal exudate may be looked upon as having a neutralizing action, and appears to benefit rather than injure dogs suffering from acute pancreatitis. Dogs in which this exudate has been removed appear sicker than control dogs undrained. The pancreas can survive remarkable grades of injury and this factor of safety should always be considered in drawing deductions from any surgical procedure. Its capability of repair seems greatest when the gland is left undisturbed in a closed abdomen.

5. Randall's article on benign polyps of the male urethra, although too long for review, is a very thorough and well illustrated article, both in its drawings and case histories. He claims that many an obscure urethral discharge can be traced to polypoid growth. [E. H. R.]

The Lancet.

November 1, 1913.

1. Bruce, J. M. *The Harverian Oration on the Influence of Harvey's Work in the Development of the Doctrine of Infection and Immunity.*
2. Andrews, F. W. *Address on the Nature and Degree of Specific Differences Amongst Bacteria.*
3. *Morris, M., and MacCormac, H. *Two Years' Experience with Salvarsan.*
4. Osler, W. *An Arterio-venous Aneurysm of the Axillary Vessels of Thirty Years' Duration.*
5. Bland-Sutton, J. *The Visceral Complications Met With in Hysterectomy for Fibroids and the Best Method of Dealing with Them.*
6. Harris, W., and Graham, C. *A Case of Pituitary Tumor and Sellar Decompression.*

3. Morris and MacCormac describe in detail their experience with salvarsan after two years' use, including 500 injections. After analyzing the cases, they discuss technic and dosage, reaction, show in tabular form the deaths collected from the literature from salvarsan, 21 in all. They consider also the results in secondary and in tertiary cases, the relative merits of salvarsan and neosalvarsan, the importance of early treatment and whether or not salvarsan is a cure.

British Medical Journal.

November 1, 1913.

1. *Lane, W. A. *Chronic Intestinal Stasis.*
2. Bainbridge, W. S. *Remarks on Chronic Intestinal Stasis, with Reference to Conditions Found at Operation and the Mortality.*
3. Bland-Sutton, J. *The Visceral Complications Met with in Hysterectomy for Fibroids and the Best Methods of Dealing with Them.*
4. Little, E. M. *Remarks on the Treatment of Spastic Paraplegia (Little's Disease).*
5. Manson, J. S. *Hereditary Transmission of Sarcoma.*
6. Tubby, A. H. *A New Method of Dealing with Scars of Multiple Incision and Thiosinamin.*

British Medical Association.

Section of Ophthalmology.

7. Hern, J., et al. *Discussion on School Clinics in Relation to the Prevention of Myopia.*
8. Edridge-Green, F. W. *A Criticism of the Sight Tests of the Board of Trade.*
9. Butler, T. H., et al. *Discussion on the Treatment of Chronic Dacryocystitis.*
10. Maddox, E. E. *Supercorneal Sutures and an Operation for Conical Cornea.*
11. Wilson, J. A. *Nystagmus: A Review of One Hundred Cases, Chiefly Ordinary or Non-Miners' Nystagmus.*
12. Hepburn, M. L., et al. *Discussion on Question of Excision of the Eye in Cases of Injury.*
13. Pollock, W. B. I. *The Persistence of the Nerve Plexus of the Iris after Excision of Certain Ganglia.*

1. Lane reiterates his well known views on chronic intestinal stasis. Among the thirty symptoms and groups of symptoms which may be attrib-

uted to this cause, directly or indirectly, in his opinion are about all the ills to which humans are liable, kidney and heart disease, high or low blood pressure, infection of the pancreas, eye disease, tuberculosis, and others. He gives the details of seventeen cases on which he has operated with successful results for this condition. [J. B. H.]

BERLINER KLINISCHE WOCHENSCHRIFT.

No. 41. OCTOBER 13, 1913.

1. KITASATO, S. *Concerning the Plague.*
2. NOGUCHI, H. *Dementia Paralytica and Syphilis.*
3. *MELCHIOR, E. *Residual Abscesses after Appendicitis.*
4. HIRSCHBERG, M. *The Treatment of Chronic Anacidity.*
5. HUMPHRIS, F. H. *The Treatment of Pathological Blood Pressure with Modern Electrotherapeutic Measures.*
6. STERN, H. *Lymphuria (the Presence of a Considerable Number of Lymphocytes in the Urine) and Its Clinical Importance.*
7. HOLSTE, C. *Case of Eclampsia Recurring Four Times in the Same Patient.*
8. EBELER, E., AND LÖHNBERG, E. *Abderhalden's Serum Test for Pregnancy.*
9. FLATAN, T. S. *The Physico-therapy of Functional Disturbances of the Vocal Organs.*
10. TSCHERNORUTZKY, M. *The Influence of Experimental Wounds of the Conus Arteriosus, the Right and the Left Ventricles on the Curves of the Electrocardiogram in Rabbits.*
11. JOLLES, A. *On the Detection of Iodine in the Urine.*
12. *BECKER, J. *Chronic Inflammatory Tumors of the Omentum.*

3. The author reports three cases of residual abscess occurring respectively six months, fourteen months and two years after appendectomy with drainage. In each case the convalescence from the operation had been uneventful, and the patients were to all appearances perfectly well, with solidly healed wounds, until out of a clear sky, and for no apparent reason, they suddenly developed inflammatory tumors at the site of the operation, requiring surgical intervention and the evacuation of pus. In each case it was possible to rule out gauze, sutures, concretions, or other foreign matter as an etiological factor. The author considers it possible that, after a septic operation, bacteria may remain latent in the tissues until at some later time they are stirred to greater activity by one of various factors, as, for example, trauma. In this regard he speaks, in comparison, of the rôle played by trauma in the etiology of osteomyelitis. The above-mentioned cases recovered uneventfully after drainage of the abscesses.

12. Report of a case of a large, hard adherent tumor in the right lower quadrant, with attacks of colic and intestinal obstruction, the condition occurring in a man of 38, ten years after a clean operation for right inguinal hernia. On the supposition that this was malignant, exploratory laparotomy was done, and the tumor found to be a thickened and densely adherent mass of omentum—so adherent that it could not be removed. Following ileo-colostomy the tumor disappeared and the patient regained normal health. The author suggests that this condition, though rare, is a possible occurrence after any abdominal operation, clean or infected, and should always be borne in mind. [R. H. M.]

MÜNCHENER MEDIZINISCHE WOCHENSCHRIFT.

No. 45. NOVEMBER 11, 1913.

1. FRIEDRICH. *The Greek Military Hospitals at Saloniki and Athens at the End of the Second Balkan War.*
2. WEISS, K. *Clinical Observations with Digipan.*
3. *LÖWENHEIM. *Digifolin, a New Digitalis Preparation.*
4. GRASSMANN, K. *Causes of Death in Relation to the Prognosis of Heart Disease.*
5. HERXHEIMER, G. *Lymphoblastic and Myeloblastic Leukemias.*
6. SCHULTZ, W., AND GROTE, L. R. *Abderhalden's Dialysis Method in Scarlet Fever.*
7. SCHULZ, N. *The Occurrence of Albumin Splitting Ferments in the Blood During the Pre-mortal Rise in Nitrogen Excretion.*
8. FRÜHWALD. *Injections of Concentrated Neosalvarsan Solutions.*
9. BOLLAG, K. *Calcium in the Treatment of Urticaria During Pregnancy.*
10. CUNOO, F. *Rosenbach's Tuberculin.*
11. *HAUSMANN, T. *Psoas Palpation and Psoas Pain.*
12. BLEULER, E. *Dreams in Relation to Foregoing Events.*
13. WEISER, M. *A New Apparatus for the Diatherm Treatment of Diseases of the Ear.*
14. GERLACH, H. *An Oto-diatherm Electrode for Measuring the Amount of Heat Brought to the Ear by the Oto-diatherm.*
15. BITTORF, A. *The Seventieth Birthday of Friedrich Albin Hoffman.*
16. V. HENTIG, H. *Alcohol and Crime in Bavaria.*
17. NASSAUER, M. *The High School for Physicians and Patients.*

3. Digifolin is a digitalis preparation containing the glucosides of digitalis freed from saponins and other toxic bodies, and having full digitalis action without accessory symptoms. It is accurately standardized so that it may be given in exact dosage. Löwenheim has treated 150 cases of cardiac failure and insufficiency with this drug. His best results were obtained in mitral disease, myocardial insufficiency and arteriosclerosis. In such cases, after the administration of digifólin, diuresis began within a few hours, the pulse-rate slowed and became increased in volume, the dyspnea was less marked and the general condition improved rapidly.

Löwenheim considers that digifolin is better borne than digitalis. He has seen no untoward effects.

11. Hausmann believes that by deep rhythmic palpation of the abdomen during expiration it is possible to determine the course of the psoas muscle, and at the same time in many cases, to feel the cecum, appendix, colon and deeper structures. The pain phenomena brought out by such palpation are of especial importance for differential diagnosis. Normally, sharp pressure produces no symptoms. In visceral neurosis both psoas muscles may be sensitive and therefore pain on one side alone is significant. Chronic appendicitis makes the psoas tender over a sharply localized area. The muscle may be painful in disease or malposition of the female genitalia. An important cause for pain in this region is disease of the urinary passages, when the entire muscle is tender. In such cases Hausmann describes a striking symptom-complex, consisting of psoas pain, pain on lumbar percussion and the presence in the urine of abnormal elements. Such a combination always proves the presence of disease in the upper urinary passages.

Hausmann emphasizes the importance of careful training in psoas palpation. By it, more accurate diagnoses are made possible and unnecessary operating is avoided. [R. F.]

DEUTSCHES ARCHIV FÜR KLINISCHE MEDIZIN.

OCTOBER 2, 1913.

1. *STEPP, W., AND SCHLAGINTWEIT, E. *Experimental Investigation on the Mechanism of Pancreas Secretion with Disturbances of Gastric Juice Secretion.*

2. Schaefer-Hieber, H. *Phagocytosis in Acute Infectious Diseases.*
3. *Klewitz, F. *The Pulse in Sleep.*
4. Baer, G., and Engelsmann, R. *Leucocyte Picture in Health and Pulmonary Tuberculosis in High Mountains.*
5. Brösamlen, O. *The Importance of the Megalocyte Formation and the Blood Picture in the Remission Stage of Pernicious Anemia.*
6. Roth, O. *The Study of Disturbance of Impulse Transmission in the Heart.*
7. Sahli, H. *Further Simplification and Improvement of the Pneumatic Sphygmobolometer, Saving of the Loss of Energy and Transmission of Each Stroke. Also Study and Criticism of the Dynamic Pulse Investigations.*
8. Dronven, E. *Investigations with the Christen Energometer.*
9. Dunkan, E. A. *Investigations with Christen's Energometer.*
10. Filehne, W. *The Possible Source of Origin of Flemmerskotoma.*

1. These authors point out the fact noted by physiologists, that the activation of the hormone, which puts the pancreas into action, takes place when the acid gastric juice hits the mucous membrane of the duodenum. They ask the question how does the pancreas receive its stimulation in those cases in which the gastric juice does not resemble the normal and when it has no acid? They exposed the pancreas of a dog and judged the flow of pancreatic juice through a cannula. They then mixed the mucosa of the duodenum with different stomach contents to be tested, and after intravenous injection noted the result on the flow, which they have expressed by diagrams. Their results are variable, even for the same kind of cases, but as a rule the cases low in acid did not stimulate the pancreas so well. They feel, however the solution of the problem as to why and how well the pancreas performs in cases without acid gastric juice is as yet unanswered.

3. Klewitz, by listening to the heart beat during sleep on a number of patients, has added some interesting facts to the physiology of the heart rate in health and disease. He devised a method of hitching a stethoscope onto the chest and listening to it in another room by means of a long piece of tubing leading through a hole in the wall. As a rule, in healthy people the pulse is considerably slower in sleep at night. Naps during the day do not seem to affect it. Variations in rate during sleep are less than during waking hours. Irregularities in apparently healthy people do not disappear. Valvular defects well compensated for act as normal hearts. In hearts with broken compensation, however, this slowing does not occur during sleep. Tacchycardia of organic origin remains during sleep, while that of nervous origin disappears. [C. F., Jr.]

Wiener Klinische Wochenschrift.

No. 43. October 23, 1913.

1. Neusser, E. *Anemia. (Third contribution.) Pernicious Anemia.*
2. Falta, W. *Radium as a Remedy.*
3. Steiger, O. *The Coagulation, Viscosity, and Number of Blood Platelets in Morbus Maculosus Werlhofi.*
4. Purjesz, B. *Coincident Occurrence of Aenosis of Ostium Venosus and the Left Nervus Recurrans.*
5. Kysle, J., and Mucha, V. *Intravenous Injection of Arthigon.*
6. *Wagner, K. *Diagnosis and Therapy of Syphilis in the Hands of Practical Physicians.*

6. This author advocates the intramuscular injection of salvarsan because absorption is slower and it therefore acts more constantly against the virus. This is the cause of an argument that the Wassermann reaction and salvarsan as they stand at present are not an aid to the country practitioner because they are dangerous and difficult of performance. He believes, however, that the modification of the Wassermann, as developed by Dungern, is sufficient for general practice. [F. S. K.]

Die Therapie der Gegenwart.

August, 1913.

1. Schottmüller, H. *When Must We Treat Syphilitics?*
2. Klemperer, G. *Progress in the Treatment of Diseases of the Stomach. (Concluded.)*
3. Hallervorden, J. *Diagnostic and Therapeutic Observations on Basedow's Disease. (Concluded.)*
4. Steinitz, E. *The Treatment of Gonorrheal Rheumatism with Intravenous Injections of Arthigon.*
5. *Meyer, O. *The Parathyroidin Treatment of Spasmophilia*

5. Meyer reports a case of obstinate chronic spasmophilia in an infant successfully treated with parathyroidin. He does not wish to infer too much from one case, but he does believe that it suggests a new line of research in pathologic physiology. [L. D. C.]

Revue de Chirurgie.

October, 1913.

1. Delore, X. *Antonin Poncet.*
2. Lejars and Rubens-Duval. *Contribution to the Study of Non-Pathologic, Congenital, Ectopic Kidneys.*
3. Binet, A., and Mutel, M. *Radius Curvus.*
4. Grunspan, M. *Attempts to Measure the Actual Temperatures of Tissues in the Course of Treatment by Hot Air, Diathermia, and Electro-Coagulation.*
5. Brocq, P. *The Operative Treatment of Vicious Ankyloses of the Knee. (To be continued.)*

November, 1913.

1. *Brocq, P. *The Operative Treatment of Vicious Ankyloses of the Knee. (Conclusion.)*
2. Bourcart, M. *Bilocular Stomach, with Torsion of the Pyloric Pouch.*

1. In the conclusion of his long continued article, Brocq points out the advantage of his goniometer in measuring the angle of deviation, and of teleradiography in planning the operation in cases of faulty ankylosis of the knee. It is desirable to operate early to anticipate atrophy, and important in children to preserve the epiphyseal and articular cartilages. One can sometimes preserve motion in a partial ankylosis, and sometimes even restore mobility by making a new joint with grafts. Interventions on peri-articular tissues are most often complementary manoeuvres. [R. M. G.]

Revue de Médecine.

September, 1913.

1. Benon, R., and Legal, A. *Clinical Study of Epileptic Dementia.*
2. *Krokiewicz, A. *Results of One Treatment of Tuberculosis.*
3. Barbézieux, G. *Congenital Malformations Observed in Two Brothers Born of Leprous Parents.*

2. Krokiewicz places great importance in the danger of autoinfection with the Bacillus of Koch of the intestinal tract in all cases of phthisis. To offset this he is in the habit of giving pills containing lime, salol, menthol, etc., which act as antiseptics and render such complication far less frequent. In addition, to stimulate the protective power of the host, he has given subcutaneous injections of two complicated formulae, each on alternating days. The chief constituents of these solutions are thymol, novocaine, atoxyl and gujaranol. He has found that following this treatment there is an increase in the red corpuscles and disappearance of such troublesome symptoms as cough, sweats and chills, and lastly a general improvement of the individual with a gain in weight. He has made 6586 injections in 253 cases without ill effect from the operation. Rarely he has observed a tuberculous meningitis follow this treatment. What was the reason for this sequence it is difficult to say. He has reported a high percentage of recoveries and arrests while the patients lived under the rather unfavorable conditions of general hospital life. [L. H. S.]

OCTOBER, 1913.

1. *BOUCHUT, L., AND VOLMAT. *Diabetes with Cirrhosis of the Liver.*
2. *LÉPINE, R. *Progress in Our Knowledge of the Pathogenesis and Treatment of Diabetes Mellitus and Acetonemia. (Concluded.)*
3. BORDIER, H. *Biochemical Action of Radiations, with Especial Reference to Those of Roentgen.*
4. FRAGA, C. *The Liver in Chronic Malaria.*

1. The authors state that where cirrhosis occurs in conjunction with diabetes the latter is generally of the bland or "fat diabetes" type. The liver is found in these cases generally to be hypertrophic and there is generally neither ascites nor jaundice. As a rule the glycosuria in these cases is amenable to treatment and often disappears when contraction of the liver starts. It is extremely difficult to state in most instances whether the diabetes or the cirrhosis have any definite relationship, and, if such is the case, which antedated the others.

2. Lépine reviews carefully the dietetic treatment of diabetes. He considers the use of different sugars, proteins, fats, the milk cure, the vegetable cure and lastly, the use of medicines. Each case is an entity and its treatment should be the result of careful study and a combination of such regimens as are adapted to the individual. Physical therapy receives a much deserved note at the end of the article. He concludes that diabetes has become a much less grave disease, since it is now better treated.

[L. H. S.]

ANNALES DE L'INSTITUT PASTEUR.

AUGUST 25, 1913.

1. *METCHINKOFF, E., AND BESREDKA, A. *Antityphoid Vaccination.*
2. *BESREDKA, A. *Two Years of Antityphoid Vaccination with the Sensitized Living Virus.*
3. CONRY, L. *Argus and Spirochete.*
4. *ARDEN-DELLEIL, NEGRE, L., AND RAYNAUD, M. *Clinical and Experimental Researches upon the Vaccine Therapy of Typhoid Fever.*
5. MAZE, P. *Researches upon Vegetable Physiology.*
6. BEDSON, P. S. *Lesions of the Organs of Internal Secretion in Intoxication from Worms.*

1. Metchinkoff and Besredka have been writing a series of papers on the different methods of typhoid prophylactic vaccination in which they discuss the theoretical and practical results. In this paper they take up the use of the sensitized virus vaccine which they find protects chimpanzees from a dose of the typhoid bacilli which will produce typhoid fever in an untreated animal. The attenuated culture thus introduced becomes discharged at the site of inoculation and the bacilli do not pass into the blood, urine or stools, therefore these injected animals do not become carriers.

2. Besredka has tried out for two years the use of the sensitized living culture of typhoid fever to man as a means of prophylactic vaccination. He finds in the first place that this form of injection, even in considerable doses when given subcutaneously or intramuscularly, is harmless to man. He also finds that there is no fear of people so injected from becoming carriers of this disease.

4. These three authors have studied the action of the Besredka sensitized typhoid vaccine upon humans and find that the agglutinating power of the serum is not raised by the influence of the vaccine. The bactericidal power of typhoid cases is increased in those treated by the sensitized virus and the antibodies appear more rapidly in the serum. The bactericidal power increases by this method up to the end of the disease, and more antibodies are formed than in untreated cases. These clinical findings agree with the experimental work already done.

[C. F., JR.]

SEPTEMBER 25, 1913.

1. LAVERAN, A., AND NATTAN LARRIER. *Canine Piroplasmosis in Europe and Africa.*
2. *KLING, C., AND LEVADITI, C. *Studies on Acute Epidemic Poliomyelitis.*
3. HECKENROTH, F., AND BLANCHARD, W. *Studies upon the Existence of Trypanolytic Properties, Captivating, Agglutinating and Protective in the Serum of Those Ill with Trypanosomiasis in French Congo.*
4. LEGER, M. *Malaria in Corsica.*
5. VIALA, J. *Antirabic Vaccination in Pasteur Institute.*

2. Kling and Levaditi, in an article which is to be continued, have taken up the question of the source of infection in anterior poliomyelitis. They have taken up the different possible modes of infection and have discussed the literature and their own findings, experimental or statistical, in regard to them. Their knowledge of the literature, especially the American, seems to be very complete. As a result of their studies they have obtained negative results in their attempts to place the blame upon water, milk, dust, flies, bedbugs and mosquitoes. They take up at length the question of the stomoxys calcitrans as the fly which carries the disease, as brought out by Rosenau, and find that their studies make it seem improbable that these flies carry the disease in human cases. They uphold the theory that the disease is transmitted by human contact, as formulated by Wickman. They think that the abortive forms of the disease are an important factor in the transmission. The disease can be transmitted during the incubation period, which is usually two to three days, or during the prodromal symptoms. Frequently there is a considerable interval between the prodromal symptoms and the paralysis. In this interim the subject is capable of transmitting the infection. Besides the naso-pharyngeal secretions, the intestinal contents may contain the virus capable of infection. From the mouth they have not recovered the virus. [C. F., JR.]

THE SEI-I-KWAI MEDICAL JOURNAL.

OCTOBER, 1913.

1. **References from the Journal of the Tokyo Medical Association and Japanese Medical Society.*
2. HIGUCHI, S. *A Case of Repeated Extrauterine Pregnancy in the Same Woman.*
3. OINUMA, S. *The Action of Adrenalin and B-aminazotilethylamin on the Uterine Muscles of the Guinea-pig.*

4. YAMAZAKI, G. *On the Digestion of Lactic Acid Curd by the Gastric Juice.*
5. SEWAKI, H. *On the Reaction Produced by Selenium-Urea on Carcinomatous and Other Animal and Vegetable Tissues.*

1. These references include summaries of papers by Moriyasu, on liver abscess as a complication in amebic dysentery; by Ikeda, on the oxidase reaction of sections of tissues; by Nagao, on the fate of an India-ink solution injected into the blood; by Nagayama, on the influence of theine on the digestion of proteid substances by the gastric juice; and by Yosbida, on hemolysis by thymol. Moriyasu, from a study of four cases of hepatic abscess complicating amebic dysentery, concludes that the ameba reaches the liver from the dysenteric ulcer through the intestinal lymphatics; and that the lesions which it forms in the perivascular lymph-spaces lead to necrosis and abscess-formation. [R. M. G.]

Obituary.

RICHARD CRANCH GREENLEAF, M.D.

DR. RICHARD CRANCH GREENLEAF, of Lenox, Mass., who died of cardiac disease on Dec. 3 at Lawrence, L. I., was born in 1845. He received the degree of A.B. from Harvard in 1866 and that of M.D. in 1870. After studying abroad for a time, he returned to Boston, where he practised his profession until 1875. He then removed to Lenox, where, in addition to his medical practise, he became extensively interested in farming and stockherding. He also served for many years at chairman of the local board of health, and as trustee of the Lenox Academy and Library.

Miscellany.

THE POPULAR ATTITUDE TOWARDS EUGENICS.

THE following letter by Professor Karl Pearson, in a recent issue of the London *Times*, seems to deserve reprinting, in part, as a sane corrective to the hysteria and levity of the current popular attitude towards the science of eugenics.

"I should be glad if you can spare me space in a journal which reaches the more serious-minded section of our population for a word on the present position of eugenics as a science; for to those of us who wish to spend our remaining powers of work in the study of the factors which make for race-efficiency the current attitude of public opinion on the subject of eugenics is at once disheartening and exasperating.

"It is well known that the founder of the science of eugenics, the late Sir Francis Galton, thought that progress towards increased race-efficiency could be made by two routes: (1) by the scientific study of heredity and environment as they bore on racial development; and (2) by a popular movement emphasizing the importance of these factors in national welfare, and urging their proper appreciation by legislators and social reformers. It is difficult to conceive any reasonable opposition to such a view; but much difference of opinion may exist as to whether very definite progress by (1) should not be made before we start on (2). Several of us who were working on the subject differed from Sir Francis as to the relative urgency of (1) and (2); we saw the danger that before the lines of the science of race-efficiency were firmly drawn and substantial foundations laid, the whole subject of the new science would be made ridiculous by the efforts of an uninstructed press to tickle the taste of a jaded public, using catch-words from a science which implicated in certain branches—even as the sister science of medicine does—problems of sex.

"Some of us were not so young as to be ignorant of the débacle which overwhelmed sociology owing to the over-hasty popularization of an immature branch of knowledge in 'social science' congresses. We predicted a like fate for eugenics. Sir Francis Galton was in the problems of race an optimist—a splendid optimist; but even he in the last few months of his life saw that the popular movement he had started was likely to outgrow its knowledge, and feared that more evil than good might result from it. This fear seems to me to have been sadly realized in the few years that have elapsed since his death.

"Eugenics, in Sir Francis Galton's mind, was to be a science of race-efficiency, with its academic center in every university—a great and increasingly important science. It has become a subject for buffoonery on the stage and in the cheap press. We are treated to 'eugenic' marriages and to 'eugenic' babies, and to 'eugenic' plays which have nothing whatever to do with the problem of race welfare; officials of eugenic societies submit to being interviewed with regard to well-advertised babies, and any one who stands wholly apart from such absurdities may wake up one morning to find his name associated with a 'eugenic' baby, whose very existence he has never heard of! He is left with the alternatives of grinning with the rest of the world or bringing an action for libel.

"What we feared might result has become a fact. Eugenics is rapidly developing into a topic for the poseur, the 'Kongressbummler,' and the paragraphist. 'Eugenic aspirations have begun to appeal to the imagination of the public,' so the report of a eugenic society tells us, and the fitting comment is found in the public writing of the daily press and contrasting the relative effectiveness of 'eugenics' and 'ancestry'! Even on a slightly higher plane we find the same disheartening experience. eugenic publications and eugenic congresses issuing statements with regard to such vitally important topics as insanity, mental defect, or the influence of heredity and environment which are ob-

viously or demonstrably incorrect. We have not yet nearly adequate knowledge on these topics. Years of patient work in medico-social observation, in genetic experiment, and in careful study of family history are needed before the laws of eugenics as a science can be dogmatically stated. When we meet such dogmas proclaimed in the name of eugenics as "At last it is possible to give definite advice to those about to marry or who do not wish to transmit their undesirable traits. . . . Weakness in any trait should marry strength in that trait, and strength may marry weakness," we stand aghast at the evil worked by the rapid popularization of 'eugenics,' and recognize the certainty that a movement thus careless of its facts and vaunting in its conclusions must collapse, as the older 'social science' collapsed.

"The actual science of race-efficiency, the study of the relative influence of heredity and of environment on racial welfare, will not collapse; it has, I believe, a great future before it, but it will inevitably be damaged by the hasty popularization which has misapplied the word invented by Sir Francis Galton to describe a definite branch of science. My object in writing to you, Sir, is to emphasize the point that much that is posing as 'eugenics' today has nothing whatever to do with science; that students of the science of race-efficiency will be compelled more and more to drop that much-abused term, and to class their work, as the Germans have done, under the broad titles of race hygiene and genetics. Let those who have at heart the great problem of race-efficiency turn rather to the academic than the popular side of the movement. What we need in this country is in the first place knowledge, and this is only to be obtained by establishing in close connection with all our universities laboratories for the study of medico-social statistics and for inquiries as to infant and child welfare, and institutes or farms for experimental breeding and for the study of experimental evolution."

SOME RESULTS OF THE FRIEDMANN TREATMENT OF TUBERCULOSIS.

IN the November issue of the *Providence Medical Journal* is an interesting and important "Preliminary Report on 120 Cases of Tuberculosis Treated with the Friedmann Vaccine," by Dr. Harry Lee Barnes, superintendent of the state sanatorium at Wallum Lake, R. I., Dr. Barnes has made a careful study of all the patients inoculated at his sanatorium last spring by Dr. Friedmann and by Dr. W. G. Dwinell of the Friedmann Institute at Providence. He also made a series of smears, cultures, and animal experiments with reptilian tubercle bacilli recovered from abscesses at the site of inoculation. The summary of his investigations is as follows:

1. The vaccine bacilli were not always acid fast.
2. One injection of vaccine was harmless to guinea-pigs and turtles.
3. Fourteen per cent. of patients had fever reactions above 100 F.
4. Inoculation indurations after first injection were present in 70 per cent.
5. The average duration of the indurations was 41 days.
6. Abscesses occurred in 23 per cent.
7. The average duration of discharge from abscesses was 23 days.
8. The cough and expectoration showed no striking improvement.
9. Bacilli persisted in the sputum in 85 per cent. of positive cases.
10. The usual appetite continued, except in reacting patients, in whom it was worse.
11. Vaccine patients lost more weight than others.
12. Twenty per cent. had improvement in chest pain, the remainder being unchanged or worse.
13. Patients had more fever and night sweats after the vaccine than before.
14. Blood spitting was at least as frequent in vaccine-treated as in other patients.
15. There was no unusual tendency toward disappearance of physical signs, which were increased in many patients who were improving before.
16. Forty per cent. of the 85 patients whose present condition is known at an average period of four months after the first injection are worse.

From these and other data of his observations, Dr. Barnes deduces the following conclusions:

1. The one patient with joint tuberculosis showed striking improvement, which makes it desirable that similar patients who have received this vaccine should be observed and reported on by those who have had orthopedic experience. The four other patients having active tuberculosis outside the lungs have not shown unusual improvement.

2. The 120 patients having pulmonary tuberculosis have shown none of the immediate and wonderful results reported by Friedmann and others before the Berlin Medical Society. On the contrary, about 17 per cent. of the cases have shown an increased activity of the disease, which would not have been expected under ordinary sanatorium treatment. The permanent good or harm done these patients can only be measured with reasonable accuracy from one to three years after the administration of the vaccine.

It is reported that Mr. Edison, after an interview with Helen Keller, believes it possible that by some mechanism sound waves could be translated into electrical vibrations making possible actual sound perceptions.

BOUILLON CUBES NOT CONCENTRATED MEAT ESSENCE.

The belief of many people that bouillon cubes are concentrated meat essence and of high nutritive value, has been shattered by a recently issued bulletin of the Department of Agriculture which says, that while they are valuable stimulants or flavoring agents they have little or no real food value and are relatively expensive in comparison with home-made broths and soups. This bulletin (No. 27) compares the contents and food value of bouillon cubes with meat extracts and home-made preparations of meat.

The ordinary commercial bouillon cubes, according to this bulletin, consist of from one-half to three-quarters table salt. As they range in price from 10 to 20 cents an ounce, purchasers of these cubes are buying salt at a high price. The cubes do contain a small amount of protein (muscle-building material) in addition to their stimulating properties, and the makers of most of the cubes make no advertised claim that they are concentrated beef broth or essence. However, many housewives believe that they are and that they possess high nutritive value, especially for invalids. This is not the case. The fact that the cubes sell for from 1 to 2 cents each, and each cube makes a cup of broth, misleads the housewife into believing that she is securing meat extract cheaply when really she is buying it in an expensive form.

According to analyses of these cubes, besides the common salt which constitutes from 49 to 72 per cent. of the total weight, the amount of meat extract ranges from eight per cent. in the poorest brands to but 28 per cent. in the very best. The third important ingredient is plant or vegetable extract which constitutes from three to 30 per cent. This plant extract is useful because of its flavoring properties but has slight, if any, nutritive value.

Correspondence.

TOURISTS ALL.

(IN LIGHTER VEIN.)

(From Our Special Correspondent.)

PARIS, Oct. 24, 1913.

Mr. Editor: The question of the invasion of Norway by the Germans, tourists and others, has generated so much heat, and caused so much ink to flow, this summer, the following comedy in one act, which, I am creditably informed, is based on fact, may not seem untimely.

SCENE: A little village in Norway, buried away up at the head of a remote fjord. Surroundings as wild and forbidding as those of the Prometheus. General impression of the end of all things, the *Χθονὸς μὲν πηλουρὸν πέδον.* Inn built of wood, a regular sounding-board; even the falling dust can be heard from one room to the next. Time, 5 a. m.—boat leaves at 6,—after that, no further means of escape for 24 hours.

Porter knocks at a door, with the aggrieved and patient stroke of the man who knows that his first three or four efforts are always unavailing.

He,—ready for him; has in fact been lying waiting for the last half hour,—"Ja vel." (Prides himself on his silent rising, but has as yet been unable to discover a way of accomplishing it without at least that much noise.) Porter is heard to beat a puzzled retreat, unable to account for this new kind of tourist.

He,—goes to the other side of the room and lays his hand silently on the shoulder of a sleeping form completely buried beneath the huge feather *duvet.* Abundant display of wavy brown hair over the pillow.

She,—starts brusquely up, confused, out of a profound sleep; gazes unconsciously about her; evidently expects to be called on to slide instantly down the single-rope patent fire-escape hanging so suggestively by the window side,—her special dread. Finally,—"Where are we?" (*"τίς γῆ; τί γένος; . . . σήμηνον ὅπη γῆς ἡ μογερὰ πεπλάνημαι."*)

He,—finger to lips. Frowns. Pats the back of the hand with the fingers of the other, to indicate that she must get up and dress p. d. q.

She,—yawns conscientiously. Pensive, after a long pause: "What time is it?" After a still more protracted one: "*Must* we take that boat?" (The German tourist in the room to the right, who does not leave until the nine o'clock motor *up* the valley, turns significantly and very audibly in bed.)

She,—a poor early riser, at times a little snappy: "Now you needn't glare at *me.*"

He,—shrugs his shoulders and goes on with his dressing, moving about with feline precautions.

She,—finally sits up, watches him for a while; at last says in an irritated tone: "What is the use of all this mystery, everybody in the house is awake anyhow; you heard that nice Norwegian couple say they were going by the boat." (The hotel has *forty* beds!)

He,—raises his eyebrows to heaven in resignation. Continues as before.

She,—gets up and washes her face. Becomes quite chatty, now she is fully awake. Relates an amusing incident concerning a friend, and laughs. (German tourist overhead thumps a protest on the floor with the flat of his hand but does not accomplish much beyond wakening two or three fellow countrymen on the same landing.)

She,—merrily, "Ha, ha! Just hear that Tysker![1] Must have a nice disposition. Glad I'm not *his* wife. I'll bet you it is that coarse, redfaced fellow with all the cuts in front of his left ear. Isn't that a silly custom. I wonder the Emperor doesn't put a stop to it." (German tourist in room to the left, now also awakened, gives a heavy lurch; bed creaks despondently as he seeks a different position. Muttered "Donnerwetter" from German to the right.)

He,—makes imploring signs for her not to talk but to hurry up. Now fully dressed, takes in the shoes; carries hers over to her with stealthy tread of the Apache. She promptly drops one with a loud bang on the floor, then smothers a laugh with her hand while she hastily glances in different directions with simulated dismay. (Various German tourists in the rooms underneath sit violently up on end! All are starting later by the motor. "Donnerwetters" to the right and to the left. Fantasia on the boards overhead.)

She,—"There now! Didn't I tell you that the whole house was going by the boat? Do stop tiptoeing about like a burglar; anyone would think you had missed your vocation; you *are* provoking when you get into one of these moods. Why can't you say something, and not leave all the talking to me. (German to the right executes a violent contortion and brings his elbow against the partition with a resounding thump.)

She,—stops short in her toilet, turns, and casts an ominous scowl at the wall; then resumes her teeth-brushing with unnecessary strenuousness; much noisy rattling of brush in the glass. "Not sorry I

[1] Norse for "German."

woke *him* up; he must be the German who took all the cream at supper.

He,—almost in despair, assumes the air of an opera-bouffe villain and intimates to her by signs that if she is late for the boat he will jolly well leave her behind for the German tourists to devour! Then, rather comforted by the effect of this device, he closes his bag, shuts the door noiselessly, steals downstairs, breakfasts, pays the bill, and goes out on the veranda to wait. The Norwegian couple start for the boat.

She,—finally issuing from the room, calls sweetly at the top of the stairs: "Where are you?" Bedroom door has been left wide open; the stiff morning breeze from the fjord blows it instantly to with the report of a 13-inch howitzer. All the 36 German tourists in the hotel, all late starters by the motor, leap wildly in bed. All say "Donnerwetter.")

She,—joins him on the porch, convulsed. "Did you hear that door? It almost sent me headlong down the steps. Hope it didn't wake anyone, although I shouldn't mind worrying that curmudgeon next to us a bit, who behaved so rudely while we were dressing. Had your breakfast already? We must have *lots* of time. There is no use hurrying in Norway, anyhow; they are sure to be late. Just go down to the boat and tell the captain I am coming; he'll wait all right. Say: "Vaer saa god"[2] to him; y u can do anything you like with these people if you only say: "Vaer saa god."

Goes in to breakfast and makes a comfortable meal, with much clatter of knives and crockery. Rings for hot milk or cold, fresh bread or stale, salted or non-salted butter,—it matters little so long as it is something they haven't got. Then,—O final irony,—tries a little conversation in the vernacular, and is highly delighted at the dismay thereby creat d in the ranks of the dumfounded "*personnel*."

Finally, strolls composedly down to the boat, ten minutes late, nods graciously to the fuming captain, and joins her husband with the customary: "There now, didn't I tell you so?" The 36 German tourists, all starting late by the motor, utter one last heartfelt "Donnerwetter" and settle off to sleep.

"S."

[2] A very current formula of politeness.

TRAVEL STUDY CLUB OF AMERICAN PHYSICIANS.

The physicians who made a Study Tour of Europe last year under the presidency of Dr. William B. De Garmo of New York, have organized into a permanent body to be known as the "Travel Study Club of American Physicians." A constitution and by-laws have been adopted and the following officers elected: President—Dr. Louis Livingston Seaman, New York; Vice-Presidents—Dr. William B. De Garmo; New York; Dr. Edward B. Heckel, Pittsburg; and Dr. Howard Van Rensselaer, Albany; Secretary-Treasurer, Dr. Richard Kovacs, New York; Executive Committee—Dr. F. H. Albee, Dr. S. Breitenfeld, New York; Dr. A. J. Crowell, Charlotte; Dr. H. F. Foss, Philadelphia; Dr. J. P. Lord, Omaha; Dr. J. F. Percy, Galesburg; and Dr. John Punton, Kansas City. The Travel Study Club plans for a 1915 Tour to the A. A. M. meeting, the San Francisco Exposition, Honolulu, the Philippines, China and Japan.

APPOINTMENT.

DR. WILLIAM DUANE, of Philadelphia, has been appointed assistant professor of physics in Harvard University. He will devote himself particularly to experimental study of the phenomena of the action of radium at the Harvard Medical School, and at the Huntington Hospital.

RECENT DEATHS.

DR. FREDERIC M. HELBIG of New York died on November 26, in his 47th year. He was graduated from Bellevue Hospital Medical College in 1890, and at the time of his death was a member of the State Board of Pharmacy.

DR. RICHARD CRANCH GREENLEAF, a retired member of The Massachusetts Medical Society, died at Lawrence, L. I., Dec. 3, 1913, aged 68 years. Dr. Greenleaf was a resident of Lenox for many years. He was a graduate of Harvard College, 1866 and of Harvard Medical School, 1870.

DR. JOHN GREEN, who died on Dec 7 in St. Louis, Mo., was born at Worcester, Mass., in 1834. He received the degree of A.B. from Harvard College in 1855, and that of M.D. from the Harvard Medical School in 1866. During the Civil War he served as a surgeon in the Army of Tennessee and Maryland. He was noted as an ophthalmologist.

DR. T. MARSHALL HUNTINGTON, of Amesbury, Mass., who died on Dec. 9 at Newburyport, Mass., was born in 1858. He received the degree of M.D. in 1838 from Bellevue Medical College, New York.

DR. FITZWILLIAM S. WORCESTER, who died on Dec. 7 in Peabody, Mass., was born at South Framingham, Mass., in 1851, the son of a physician. He received the degree of M.D. in 1873 from the Harvard Medical School. He is survived by his widow, by one daughter, and by one son.

DR. ROLLIN CLAYTON WARD, a retired member of The Massachusetts Medical Society, died at St. Johnsbury, Vt., December 9, 1913, aged 75 years. He was a captain in the Army, during the Civil War and practised medicine in Northfield, Mass., up to 1901 when he moved to East Orange, N. J.

DR. EDGAR CLARENCE COLLINS, a Fellow of The Massachusetts Medical Society, died at Springfield, Mass., on Nov. 14, 1913, aged 55 years. He was a graduate of the Albany Medical College in the class of 1880, and had been a member of the state society since 1883.

DR. JOHN W. STAPLES, who died of apoplexy on Dec. 11, at Franklin, N. H., was born in 1855. He received the degree of M.D. in 1880 from the University of Vermont. He was a former president of the New Hampshire Medical Society.

DR. CHARLES W. STODDER, a fellow of The Massachusetts Medical Society, died on Dec. 12 at Marshfield Hills, Mass., at the age of 48. He received the degree of M.D. in 1898 from the Tufts Medical School. He is survived by his widow and one daughter.

DR. R. C. WARD, of Northfield, Mass., who died on Dec. 9 at St. Johnsbury, Vt., was born in 1838. He retired from practise in 1908.

DR. HENRY WISHARD, who died on Dec. 9 at Indianapolis, Ind., was born in 1816. He served as a volunteer surgeon throughout the Civil War, and was a charter member of the Indiana Medical Society. He retired from active practise in 1906.

DR. CARL H. VON KLEIN died on Dec. 12 at Chicago, Ill. He was known chiefly for his research in ancient medical history.

BOOKS AND PAMPHLETS RECEIVED.

The Antigenic Properties of Globin Caseinate, by Frederick P. Gay, M.D., and T. Brailsford Robertson. Reprint.

Induced Variations in the Agglutin-Ability of Bacillus Typhosus. Frederick P. Gay, M.D., and Edith J. Claypole, M.D. Reprint.

Specific and Extreme Hyperleukocytosis Following the Injection of Bacillus Typhosus in Immunized Rabbits. Frederick P. Gay, M.D., and Edith J. Claypole, M.D. Reprint.

Public Health Reports. Vol. xxviii, No. 36. Containing Information of the Current Prevalence of Disease, the Occurrence of Epidemics, Sanitary Legislation and Related Subjects.

Original Articles.

SOME MEDICAL AND SOCIAL ASPECTS OF MENTAL DISEASE DUE TO ALCOHOL: NOTES OF A CONFERENCE HELD AT THE PSYCHOPATHIC HOSPITAL, BOSTON, MASSACHUSETTS, BEFORE THE LEGISLATIVE COMMISSION ON DRUNKENNESS, NOVEMBER 24, 1913.*

I. Introductory Remarks, at the Conference on Alcoholic Mental Disease, Psychopathic Hospital, Boston, Mass., Nov. 24, 1913. Walter Channing, M.D., Chairman Trustees, Boston State Hospital.

II. Work of the Massachusetts Legislative Commission on Drunkenness, 1913. Michael J. Murray, Associate Justice of the Municipal Court, Boston, Massachusetts; Chairman of the Legislative Commission on Drunkenness.

III. Report of Clinical Demonstration of Alcoholic Mental Diseases with Remarks on Current Practice at the Psychopathic Hospital, Boston, Massachusetts. Herman M. Adler, M.D., Chief of Staff, Psychopathic Hospital, and Assistant Professor of Psychiatry, Harvard Medical School.

IV. Consensual Amyosis to Blue Light as Shown in Certain Cases of Alcoholic Mental Disease. George E. Eversole, M.D., Assistant Physician, Psychopathic Hospital, and Fellow in Psychiatry, Harvard Graduate School of Medicine.

V. Alcoholic Amentia. A. Warren Stearns, M.D., First Assistant Physician, in charge of Out-Patient Department, Psychopathic Hospital; Instructor in Nervous Diseases, Tufts Medical School; and Fellow in Psychiatry, Harvard Graduate School of Medicine.

VI. Notes on After-Care and Moral Suasion Work with Alcoholics in the Out-Patient Department of the Psychopathic Hospital, Boston, Massachusetts. A. Warren Stearns, M.D., and Mary C. Jarrett, Director, Social Service Department, Psychopathic Hospital.

VII. On Institutional Requirements for Acute Alcoholic Mental Disease in the Metropolitan District of Massachusetts in the Light of Experiences at the Psychopathic Hospital. E. E. Southard, M.D., Member of Legislative Commission on Drunkenness in Massachusetts, 1913; Director, Psychopathic Hospital, Boston; Pathologist to the Board of Insanity, Massachusetts; and Bullard Professor of Neuropathology, Harvard Medical School.

I.

Introductory Remarks at the Conference on Alcoholic Mental Disease, Psychopathic Hospital, Boston, Mass., Nov. 24, 1913.*

BY WALTER CHANNING, M.D.,

Chairman Trustees, Boston State Hospital.

I take great pleasure in welcoming your commission to this institution, the psychopathic department of the Boston State Hospital. In many respects your work has a close affiliation with the work being done here. You recognize the menace that alcohol is to the health and well-being of the community in general and seek for a remedy. Our work is naturally more restricted to alcohol as a cause of mental breakdown, but it is just in this direction we all recognize that the deadliest and most far-reaching harm results to the community, for a thing that impairs the integrity of the mind to the extent that alcohol does, is a check to the progress of the race. We all of us then have in common the same object in view, namely, the study of the alcohol problem to determine what may be done to lessen its evil effects.

I am glad to say that the director of this hospital has recognized the magnitude of the question and is at the present time, with his colleagues, carrying on an investigation, some of the results of which constitute a part of the afternoon's program.

You will appreciate what an incentive there is to earnest work here when I tell you that out of 1829 patients admitted up to Sept. 30, 1913, 217 were cases of disease directly due to alcohol, 64 being cases of delirium tremens, and the remainder developed mental disease. This makes a percentage of 11 of these patients. As a contributory factor, that is, as one factor among others, no doubt alcohol played a large part in many other cases.

Most of you know that delirium tremens patients are, under the law, excluded from admission to this hospital, but sometimes very critical cases are brought here which it would be inhuman to turn away, and I personally regard it as a sacred duty to see that such cases are admitted. In passing, it may be said that delirium tremens is not always a condition easy to determine and it may complicate other conditions. The opportunity is given here to

* Being Psychopathic Hospital Contributions, 1913. 28.

*Being Psychopathic Hospital Contributions, 1913. 28 to 1913. 34. (Bibliographical Note: the contribution previous to 1913. 28 was 1913.27 by L. H. Horton, entitled "Inventorial Record Forms of Use in Dream Analysis," *Jour. Abn. Psychol.* (in press).

Previous publications from the Psychopathic Hospital relating to the alcohol problem are:

Psychopathic Hospital Contributions, 1913. 9. A. Warren Stearns, "Delirium Tremens and Alcoholic Hallucinosis with Special Reference to Previous History. Boston Med. and Surg. Jour., vol. clxix, No. 12, Sept. 18, 1913.

Psychopathic Hospital Contributions, 1913. 10. Donald Gregg, "The Treatment of the Deliria in General Hospitals and in Hospitals for the Insane." *Ibid.*

Psychopathic Hospital Contributions, 1913. 12. John G. Blake. "Reminiscences Concerning the Treatment of Delirium. *Ibid.*

References to the problem on the basis of Psychopathic Hospital experience are also to be found in:

Psychopathic Hospital Contributions, 1913. 11, Herman M. Adler and Benjamin H. Ragle. "Note on the Influence of Hydrotherapy on the Red Blood Cell Count in the Insane." *Ibid.*

Psychopathic Hospital Contributions, 1913. 26. E. E. Southard. "The Psychopathic Hospital Idea," (with discussion at Minneapolis meeting of the American Medical Association, Hospital Section), *Jour. A. M. A.*, Vol. lxi, No. 22, Nov. 19, 1913.

E. E. Southard. "Mental Diseases of Somatic but Extranervous Origin (Symptomatic Psychoses) in White and Jelliffe, the Modern Treatment of Nervous and Mental Diseases," Lea and Febiger, vol. i, 1913.

learn from actual experience, which I regard as of great value, how to make this differentiation.

And here I am led to what is the most important practical point in these remarks, which is this:—If no hospital in Boston is willing to receive cases of threatened, or active, delirium tremens, and the Psychopathic Hospital is enjoined by law not to do so, every dictate of humanity, to say nothing of the public welfare, demands a place of reception where they can at any time be received and treated. Now I fear no private corporation will or can meet the onerous conditions of this crying need. The city, even if willing, which it would never be, I should judge from past experience, would be pretty sure to make a failure of it. We must then turn to the state, as was done by those who worked to get a psychopathic hospital, and the state will not disappoint us. She has been tried and not found wanting. In building up a large inebriate hospital a long step in the right direction has been taken. The next and most vital one, is a reception hospital here in the city, which should be a department of the main hospital. It should take immediate charge of all cases of delirium tremens and serve as a clearing house for cases of inebriety to such an extent as might be best and wise. The details of any such plan cannot be considered, of course, in these brief remarks. This reception hospital should be equipped for research work and make a careful scientific study of problems pertaining to alcohol. Further, it should conduct an extensive out-patient department. You will perhaps see in these suggestions an outline of work similar to that now being done at the psychopathic hospital. There is, however, a large field for both, and each, in many directions, will supplement and strengthen the work of the other.

For generations the world has been engaged in an effort to make life softer. More comfort has developed a social flabbiness resulting in a lessened power of resistance in the weaker members of society to disease and to moral collapse. The point has been reached where something must be done and a tremendous reaction is setting in. We are waking up to find that palliation or cure is not what is needed, but prevention, an assertion that cannot be repeated too often. The physical causes of disease have been studied for a long time and great progress made in their prevention. The next great step, and a far more difficult one, is to find out the underlying social causes, physical and moral. It is in this particular direction that this hospital is working, and I believe is destined to have a far-reaching influence in making the causes of mental disease better understood. We have a very large corps of medical and social workers, and the expense to the state in the beginning is bound to be considerable. The justification must be the results, which are certain to follow. Hitherto in the field of mental disease, there have been no such practical thorough-going investigations. There may have been men able to do the work, but no place and no money to pay expenses. Massachusetts is doing this, and if we have the patience to wait, we shall eventually find far-reaching methods of prevention being put into operation, which will result in a large saving of expenditure to the state. To work for prevention in the beginning, requires courage and faith in the future, but as in most big things, the reward will be a hundred fold.

Surely nothing can be more important to society than the prevention of drunkenness, and a most potent influence, as already suggested, will be a state reception hospital for inebriates in Boston. No doubt the need of such a hospital has become an old story to you, from its frequent reiteration, but I wish to add my testimony based both on my experience as a medical man and a trustee of this hospital, which convinces me that there should be a central hospital for inebriates in Boston if the state is to make any real progress in combating the evil of drunkenness.

II.

Work of the Massachusetts Legislative Commission on Drunkenness, 1913.*

BY MICHAEL J. MURRAY,

Associate Justice of the Municipal Court, Boston, Massachusetts; Chairman of the Legislative Commission on Drunkenness.

The commission to investigate the subject of drunkenness in this Commonwealth was created in the hope that some practical methods might be adopted in Massachusetts for the correction or control of the evil.

Already public hearings have been held, with a view to getting at the sentiment, if any existed, in different localities throughout the state. Many and varied suggestions have been made to us by those interested in this vital question.

We are here today to listen to the suggestions of medical and scientific men who have studied this problem from perhaps an angle peculiarly their own.

We expect to derive much profit from this conference, and have no purpose to lessen this chance of profit by ourselves indulging in speech.

The members of this commission have a strong conviction that the time has come when the fact should be recognized that the commitment of persons for drunkenness merely, to penal institutions has been barren of any good results for society.

For more than a century drunkenness has found a place in the category of crimes in Massachusetts. After that lapse of time, there were last year 100,000 arrests in this state for this offence alone. The expense to the Commonwealth of maintaining that portion of the

* Being Psychopathic Hospital Contributions, 1913. 29.

100,000 arrests that were placed in some one of the penal institutions in our Commonwealth is represented by the sum of $600,000.

After more than a century of the commitment of people for this offence to the penal institutions of our state, nothing comes home with more force even to the casual investigator than the fact of the utter barrenness of results from commitment to penal institutions—both to the individual and to society in general.

In the city in which we now meet there were something like 45,000 arrests for drunkenness last year. Two-thirds of this number perhaps were saved the humiliation of entering a criminal courtroom by the operation of the release law, subject to the will and discretion of the various probation officers in the different courts in Boston and the outlying towns of Suffolk County. These and other equally appalling facts doubtless induced the legislature to take the step which it entered upon last year in the passage of resolutions providing for the appointment of a commission to investigate into this evil condition in society in our state and to work out, perhaps along some new lines, suggestions by way of some other experiment in dealing with this unfortunate class of victims to the excessive use of intoxicating liquor.

We have had several public hearings in various parts of the Commonwealth. With two exceptions, a substantial public interest was evidenced by a splendid attendance at all those hearings. Representative people came to us and told us the story of the conditions which surrounded them locally and made suggestions which they thought at least pointed to a substantial lessening of the evils of the excessive use of alcoholics in the future.

Now you can very readily appreciate, I am sure, that many suggestions have been made in good faith, by well-intentioned and earnest people, that can hardly be seriously considered by our commission. For instance, the earnest extremist upon the one hand thought it to be the plain duty of the commission to suggest prohibition as a remedy for the ills from which the people suffered. Others declared it to be our sacred duty to recommend the closing of the saloons in Massachusetts. While our commission have not met to consider in conference any of the many suggestions that have been made, I have no hesitancy in saying that neither of these suggestions finds favor with me. Because of the present state of public sentiment such suggestions almost seem futile from the outset.

Yet this ought not to deter the citizens of Massachusetts from facing this unfortunate evil condition in society in a sensible, practical sort of way. There isn't a judge in Massachusets, whose sad duty it often becames to commit men and women for drunkenness to penal institutions, who would probably gainsay this declaration that to send a man or woman who has been on a drunken debauch to a penal institution, because now there is no other place to which such an one may be sent, is an experiment perilous in the extreme. It often means taking a good person out of the walks of society, who leads an upright, industrious and decent life, but now and then yields to this unfortunate temptation, sending him or her to a penal institution to have as companions and associates house-breakers, pickpockets and other equally serious offenders against the laws of the Commonwealth. It is from this viewpoint that I see largely this whole question.

I am satisfied, as one whose duty it is to thus sentence from time to time, that after a century's experience we are still working along the wrong lines. There is not a man with good red blood in his veins and with a fair measure of the "milk of human kindness" in his make-up that ought not to be willing to admit that in this particular work, Massachusetts has turned her face from the rising and directed it toward the setting sun. Think of all the misery that comes to homes from the commitment of this class of offenders to penal institutions! The expense of it ought not to make us feel unhappy or apprehensive about the future because the $600,000 that Massachusetts last year spent for this very purpose can obviously be spent in other directions, in other channels and with infinitely higher hopes of better and more splendid results.

The Commission have not come here to take up your time, ladies and gentlmen. We have come here with the rest of those deeply interested in this question to lean upon the word of science and of medicine that scarcely ever turns a deaf ear to the appeals of humanity in distress. We are sure that in addition to the practical suggestions which have been made to us by interested citizens in various localities in the Comonwealth, there yet await us the stronger and more helpful suggestions which the men of science and men of medicine, who have investigated this unfortunate situation from their own peculiar angle, stand now ready to make to us.

I simply utter these few words by way of explanation of what we have been undertaking to do, and one more word before I conclude. When our report is ready we beg you not to turn it aside because it may take a few minutes out of a busy life, but we ask men and women like you to take pains to read it; even though it may not measure up to your highest expectations of what it ought to be, remember that it represents the careful and studied efforts of men who have tried to get at facts and tried to do something to stay the march of this awful evil which now presses at the door of every home in Massachusetts that has a young boy or girl growing up in it, for the danger for all of these is greater than mere words can describe.

When that report comes before the Massachusetts Legislature we look to you and the other citizens of Massachusetts to see the men who sit there upon Beacon Hill and ask them in God's

name to do something now, and to do it with unstinted hands, that mothers whose hearts are now quickened with sorrow, mothers whose minds are anticipating danger for those they love in the pathways of temptation, may be cheered by the hope that this year will not go by without Massachusetts making a beginning which should have been made long ago and which I am sure it will make if in every community there exists the kind of sentiment which may be generally heard and expressed and which the rest of us are here and delighted to listen to.

III.

REPORT OF CLINICAL DEMONSTRATION OF ALCOHOLIC MENTAL DISEASES, WITH REMARKS ON CURRENT PRACTICE AT THE PSYCHOPATHIC HOSPITAL, BOSTON, MASSACHUSETTS.†

BY HERMAN M. ADLER, M.D.,

Chief-of-Staff, Psychopathic Hospital, and Assistant Professor of Psychiatry, Harvard Medical School.

The demonstration here reported was designed to acquaint the physicians, probation-officers, police heads, and social workers who had been invited to the conference (of which the demonstration was a part) with the difficulties of diagnosis and treatment facing the Psychopathic Hospital officers.

In addition to

1. simple *drunkenness* and
2. *delirium tremens*,

both of which are specifically excepted by law from the scope of the Psychopathic Hospital's work, we deal with

3. *Pathological intoxication.*
4. *Acute alcoholic hallucinosis.*
5. *Korsakow's psychosis.*
6. *Alcoholic jealousy-psychosis* (*Eifersuchtswahn*).
7. *Dipsomania.*
8. *Alcoholic epilepsy.*
9. Various *residual dementias* following various forms of alcoholic disease.
10. *Forms* as yet *ill-defined or not* yet generally recognized (*e.g.* the peculiar variant of delirium tremens called Stearns' *alcoholic amentia.**)

For the rough-and ready purposes of the admitting-office, we have been employing a differential diagnosis (based largely on the latest edition of Kraepelin's *Psychiatrie*) between delirium tremens and acute alcoholic hallucinosis.

Delirium Tremens	*Acute Alcoholic Hallucinosis.*
Visual hallucinations dominant.	Auditory hallucinations dominant
Clouded consciouness.	Clear consciousness.
Impaired understanding of sense impressions.	Proper understanding of sense-impressions.
Impaired attention.	Attention normal.
Disorientation.	Orientation preserved.
Delusions fugitive, not asserting change of personality, but rather a falsification of environment.	More or less consistent delusions (as a rule within possibility and based on the hallucinations, often persecutory).
Distractibility and influencibility.	Will disorder, if apparent, dependent on delusions.
Restlessness.	Conduct normal or based on delusions.
Tremors.	Tremors absent.
Rapid course.	Slower course
Termination by crisis.	Termination gradual.

However, Kraepelin remarks that an extensive review of his cases leads him to reverse his former opinion and now to hold that the two alleged diseases are variants of the same fundamental disorder.

A case, E. G., 2249, was shown by Dr. T. H. Haines, in which an error in diagnosis had been made in the admitting office, since a subsequent study of the case and observation of its speedy recovery by a species of crisis made it pretty clear that the case was one of delirium tremens and not of acute alcoholic hallucinosis. The justification for the error in diagnosis had been the apparent clearness of mind, proper orientation, and suggestion of consistent delusions in the patient. But the patient is now either amnesic for the admission-phase of her disease or else is exhibiting a normal shame-reaction about those events. In any event, she "came to" (in her own words) suddenly and without residuals.

A second case, J. O., 2262, was shown by Dr. G. E. Eversole which further illustrated the difficulty in diagnosis between delirium tremens and alcoholic hallucinosis. It was on admission impossible to say which kind of hallucinations was more prominent. Consciousness seemed clear, but sense-impressions were taken in with some impairment. Vivid visual hallucinations might possibly have given rise to an apparent disorientation, whereas orientation could be regarded as accurate, considering what the patient thought he was seeing. There was a suggestion of consistent delusions of persecution ("car-spotters" of the street railway). But there was also considerable self-accusation. Restlessness and tremors bespoke delirium tremens.

On the whole, perhaps this case belongs more properly in the delirium tremens group.

A third case, T. K., 12274, was shown to illustrate, (1) voluntary resort to the Hospital of a patient somewhat far gone into hallucinosis, (2) combination of almost pure auditory hallucinsis with tremors and other signs of severe physical impairment. This case illustrated the possibility that a patient with obstinate auditory hallucinations might rationalize them, overcome their effects to a marked extent, and become a voluntary applicant for admission.

A case, C. C., 1834, 11209, was shown which was fairly typical of Korsakow's psychosis.

The technic of a moist warm pack was demonstrated with case T. K., above mentioned, and brief mention was made of the difference between the effect of immobilizing in a moist warm

† Being Psychopathic Hospital Contributions, 1913. 30.

* See Psychopathic Hospital Contributions, 1913. 32, this issue.

pack and the effect of tying a patient in bed with bands. Tying in bed works to excite a patient. The moist warm pack quiets him. Body heat is preserved by the pack. There are alterations in the amount of fluid in the blood which are being studied at present by Adler and Ragle.

As a rule, however, the prolonged bath at body temperature must be regarded as superior to the moist warm pack. Some structural conditions, now about to be rectified, in the Psychopathic Hospital have prevented the extensive use of the prolonged bath at night.

Stress must be laid upon the desirability of starting the bath or pack treatment, if possible before the height of the excitement has been reached.

Certain physical signs have been found (and reported last June by Adler and Ragle*) which sometimes permit an attack to the foretold. Especially a blueness or cyanosis about the lips, hands, feet, or other parts of the body may precede the attack of excitement by some hours. Immersion of the patient in a bath may then ward off an attack. This point holds good both in alcoholic and other deliria.

Then were read some statements picked from Kraepelin's textbook and used by Dr. Southard to inculcate in physicians, internes, and nurses some of the best modern opinions about mental excitement and restraint.

TREATMENT OF EXCITED STATES.

Keep disturbed patients apart from others to avoid the contagion of excitement—

Try to keep the patient in bed in a small room—

Failing this, employ the prolonged warm bath (possibly a sedative beforehand)—

Failing this (as in katatonic excitements) place for two hours in a warm moist pack (perhaps a sedative at first—

Then—with regularity and patience—repeat these measures alternately—

Get the patient back to bed at signs of quieting down—

Place in pack as soon as patient comes out of tub—

"I have never known these procedures to fail, since my hospital conditions have permitted them to be kept up through the night."—KRAEPELIN, 1909.

CONCERNING STRAIT-JACKETS.

"In a really dangerous plight one might eventually resort to the strait-jacket. However, during the last twenty-two years I have failed to meet a case requiring that measure. Once during the period I did tie a patient in bed, an exceedingly disturbed epileptic in a dazed state, suffering from severe hemorrhages."—KRAEPELIN, 1909.

* Psychopathic Hospital Contributions, 1913. 11.

CONCERNING SECLUSION.

"It is a fact that the locking-up of the insane alone in rooms can under proper hospital conditions be wholly given up, to the incomparable benefit of the patients. For more than seven years I have given up such seclusion of patients. Still I might resort to this measure in a special case, as that of a dangerous criminal, if there were no other way to protect those about him."—KRAEPELIN, 1909.

IV.

CONSENSUAL AMYOSIS TO BLUE LIGHT AS SHOWN IN ALCOHOLIC CASES.*

BY GEORGE E. EVERSOLE, M.D.,

Assistant Physician, Psychopathic Hospital.

IN another paper†, it has been demonstrated that normal pupils react in a definite order and one that is constant with all normal eyes to the stimulation of light sifted through color screens. It was further shown that in certain diseases of the central nervous system the reaction to these colors was not the same as in the case of the average normal eye. It has, therefore, seemed worth while to demonstrate a small series of cases showing the irregular behavior of the pupillary reflex tested in this manner where there is evidence of alcohol being the main factor in the causation of the psychosis.

The method employed has been the same as was used in the former series of cases; *i.e.* three color screens were used, red green and blue, and the consensual pupillary reflex to these was tested.

A series of normal eyes gave the following results:—the consensual reaction is obtained with all three of the colors, being most vigorous with the red, next with the green and least of all, though distinctly visible, with the blue. On the other hand, pupils rigid to light react to none of the colors. Very slightly sluggish pupils will show a reduction in the reaction to blue light although such sluggishness is not apparent by ordinary methods. Slightly sluggish pupils will show a loss of reaction to blue light; more sluggish ones an absence of the reaction to green.

In the present series are presented thirteen cases of alcoholic mental disease which, at least, give evidence of pupillary reaction on the average lower than that in normal eyes.

From the table, it will be seen that the normal reaction was obtained in but three cases, one of delirium tremens and two of alcoholic hallucinosis. A second delirium tremens case gave a

* Being Psychopathic Hospital Contributions, 1913.31.

† "Notes on Sunlight and Flashlight Pupil Reactions and on Consensual Amyosis to Blue Light." A. Myerson and G. E. Eversole. *Jour. Nerv. Ment. Dis.*, Nov., 1913, Psychopathic Hospital Contributions, 1913. 21.

lowered reaction. Of the five other cases of alcoholic hallucinosis all gave lowered reactions, there being no response to the stimulation through the blue screen in two. Both Korsakow cases gave a reduction, as did a case of chronic alcoholism without psychosis. A marked reduction was seen in a case of protracted delirium following an alcoholic debauch, a type of case that is not described in the literature and of which we have had several cases. In this case, not only was the reaction to blue light gone but there was marked diminution in the reaction to green.

A study of that part of the table dealing with the Wassermann reaction in the serum, together with lumbar puncture findings indicates the absence of any syphilitic involvement as a possible causative factor in these cases.

The cases that gave a normal reaction were all in young people. There were, however, cases just as young that failed to give the normal reaction. Severity and recurrences of the psychosis seem in this series to be followed by changes in the pupillary reaction. A longer series is necessary to determine whether a change in formula would have any bearing on the prognosis.

Most workers on the subject have with less accurate methods noted sluggishness and even rigidity to light in alcoholic cases. Neussel found a sluggish reaction in 3% of 63 cases. Mignot in 57% of his cases showed a diminution of the light reflex. Raimann found that 30% of Korsakow cases showed an impaired reaction. J. Turner made the same observation in 4 of 12 cases of Korsakow's psychosis. On the other hand, Nonne in the examination of 1460 alcoholics found pupillary disturbances in only 78 cases; Thomsen found rigidity in 14 of 670, Uhthoffs in 10 of 1000.

It is impossible at the present time to reach any conclusion as to the exact nature of the process which must take place if the reflex arc is involved. Whether it depends on individual idiosyncrasy or whether the diminution of reflex response occurs in all severe cases and in all who have used alcohol over a period of years is still to be determined. Bumke believes that a sluggish pupil distinguishes "pathological" from "normal" drunkenness. Certainly, this series seems to indicate that with these more accurate methods sluggish reflex response to light stimulation is to be expected in the vast majority of cases of alcoholic mental disease.

					Red.	Green.	Blue.	Wass. Blood.	Fl. Sp.
Normal			Normal	O. U.	+++	++	+	—	—
2249	F.	27	Delirium tremens	O. U.	+++	++	+	—	
11434	M.	47	Delirium tremens	O. U.	++	+	×	—	—
1345	M.	35	Alcoholic hallucinosis	O. U.	+++	++	+	—	sug-
1346	M.	35							gestive
11426	M.	34	Alcoholic hallucinosis	O. U.	+++	++	+	+	—
978	F.	45	Alcoholic hallucinosis	O. U.	+++	++	×	—	
1481	M.	44	Alcoholic hallucinosis	O. U.	+++	×	—	—	
12196	F.	30	Alcoholic hallucinosis	O. U.	++	+	—	—	
916	M.	37	Alcoholic hallucinosis	O. U.	++	×	×	—	
11438	M.	33	Alcoholic hallucinosis	O. D.	++	+	+	—	—
				O. S.	++	×	×		
12009	M.	51	Korsakow	O. U.	+++	++	×	—	—
12248	M.	36	Korsakow	O. U.	+++	++	×	×	—
11295	M.	36	Protracted delirium*	O. U.	+++	×	—	—	—
11503	M.	37	Chronic alcoholism	O. U.	+++	++	—	—	—

* See Case 1 of Stearns' "Study of Alcoholic Amentia," Psychopathic Hospital Contributions 1913. 32, this issue.

Key: + reaction.
× Sluggish reaction.
— no reaction.

V.

ALCOHOLIC AMENTIA.*

BY A. WARREN STEARNS, M.D.,

First Assistant Physician, Psychopathic Hospital.

DURING the past few months there have been at the Psychopathic Hospital three striking alcoholic cases, which seem to differ enough from other recognized forms of alcoholic insanity to warrant their being placed in a group by themselves.

* Being Psychopathic Hospital Contributions, 1913. 32, read by title.

CASE 1. J. F. S., No. 11295. Male, 36, laborer, admitted Jan. 13, 1913, with history of having been arrested Dec. 27, 1912, for drunkenness. After a period of abstinence, started spree and remembered no more till near recovery. On admission was very "dull and stupid" and answers to questions "irrelevant and incoherent." Physical examination showed marked tremor, sluggish pupils, and speech defect. He was entirely disoriented, busied himself by moving bed about, tearing up clothes, and engaging in imaginary occupations. He was good-natured and easy to manage, but very untidy. Speech hardly intelligible. Attention hard to gain. A provisional diagnosis of general paralysis was made, but later negative spinal fluid and blood ruled this out; urine was also negative. He constantly talked with imaginary companions; this

even led to the statement that he was actively hallucinated. Tried to dress himself with bed-clothes for trousers. He called doctors and nurses familiar names. There was no fear or excitement. This condition lasted for about two weeks, when, following a blow on the head, he rapidly recovered. On Feb. 1 he seemed quite normal and continued so until discharged on March 26. He had complete amnesia from period before arrest—duration, five weeks.

CASE 2. A. L. R., No. 11428. Male, 47, marine diver; admitted Feb. 19, 1913, with history of having been arrested Feb. 10, 1913, for drunkenness. After a long period of abstinence he kept drunk for seven days. When arrested his mental condition was as on admission to this hospital. On admission he "had to be assisted to ward"—was "confused and disoriented" and "answered no questions." Physical examination showed "marked tremor of arms and hands," "gait and station very unsteady"—no paralysis of any part and no tenderness. The pupils were small and irregular, but reacted to light. Knee jerks active and lively—right ankle jerk more active than left. He was entirely disoriented and recognized examiner falsely. "Confabulation not elicited—patient's replies unintelligible." He was constantly busy working as a diver, trying to get to the raft and giving orders. This led to the statement that he was hallucinated. The Wassermann reaction was positive in the blood, and a provisional diagnosis of general paralysis was made, to be later disproved by a spinal fluid negative in all respects. Urine also negative. He was somewhat irritable, but showed no fear or excitement. On March 4, he was "very verbose, disoriented, and to a certain extent confabulated." His conversation was rambling, as shown by the following: Q. "Is it (his hand) in good condition?" A. "Oh, yes, a great many years, Now, I don't know why there should be any Indian blood in me. Once a person is put in the third blood, if it had been a Mohawk, but a Yankee. I was born 40 years ago."

There was a tendency to perseveration and a suggestion of paraphasia. He had no conception of his whereabouts, and though he told different stories of his daily life, true fabrication seemed absent. He recovered very rapidly, and on March 17, was discharged recovered. He had almost complete amnesia from before his arrest till within a few days after his recovery. On June 22, he was still well and running a vessel of his own. Duration, 4-5 weeks.

CASE 3. T. M., No. 12059, male, 52, manufacturer; admitted Sept. 8, 1913, with a history of having drunk seven quarts of rum in ten days following a period of about two years' abstinence. He slept most of the time, and about Aug. 25, "tried to pick things from the floor which were not there, wanted to be taken home, talked to imaginary people about the house, addressed the clothespole as 'madam,' and tried to get through the window." Then for some days lay in a stupor. "Took large quantities of veronal." On admission he "talked incoherently about law troubles, sea-captains, boats, bank and amount of money he possessed. Said he had been a banker for last four years, that he made $25,000 to $30,000 a year. Had great difficulty in finding words to

	Onset	Physical signs	Consciousness	Memory	Emotional tone	Motor state	Flow of thought	Duration	Psychosis
Delirium tremens	Spree	Tremor	Partial clouding	Remote, normal Recent poor Partial amnesia for attack	Fear and excitement	Restless	Coherent	1-2 weeks	Recovery complete
Alcoholic amentia	Spree	Tremor Sluggish pupils Speech defect	Marked clouding	Recent and remote, poor Complete amnesia for attack	Normal	Restless	Incoherent persevera tion, para-phasia	4-6 weeks	Recovery complete
Korsakow's psychosis	Steady drinking	Polyneuritis reflex changes	Clear	Remote, good Recent, poor Fabrication	Apathetic	Inactive	Normal	Many months	Dementia

express himself. When unable to do so, changed the subject. Showed some speech defect."

Physical examination showed marked tremor of hands and tongue. Knee jerks and ankle jerks brisk and equal. Pupils irregular in outline, reacted slowly to light—right less than left. Had a great deal of difficulty in walking. Very clumsy. No nerve tenderness or paralysis. Marked speech defect. "Disoriented, thought he was selling real estate." Gave his age as 70, and the date 1808. Recognized examiner as former friend. Both remote and recent memory markedly disturbed. Could not do simple mathematics or spell simple words. Talked to imaginary companions, but hallucinations probably absent. No delusion formation. Extensive fabrication, but "more like that of delirium than of Korsakow's disease." Polite, agreeable and friendly. Neither depressed nor elated. Calm; no evidence of fear or excitement. Very restless, busy with imaginary occupation. Some speech defect. Flow of thought very characteristic, perseveration, some paraphasia, making conversation incoherent and sometimes merely jargon. Answers to questions usually entirely irrelevant. Blood, spinal fluid and urine negative. Condition recognized as belonging to this group, and good prognosis given. His condition remained about the same for two weeks. He gradually became less restless and his conduct more normal. On Sept. 22, he was quiet and well behaved, but still disoriented. His extreme clouding of consciousness was shown by failure to recognize wife and by attempt to remove vest upon suggestion, though without clothes. He recovered rapidly and on Oct. 10 was practically well. He was discharged on Oct. 18 and on Nov. 20 had resumed charge of his business. Duration, 5-6 weeks.

It can readily be seen that this disease has some of the characteristics of both delirium tremens and Korsakow's psychosis. The differential diagnosis is given in the accompanying table.

The term pseudoparesis has been considered but discarded as applying to chronic disease of the Korsakow's group. Régis uses the term in a very general way, but mentions particularly that it is seen in chronic alcoholism and is associated with dementia. Tanzi, mentions "so-called" pseudoparalysis and states that "at the end of a few months the symptoms may disappear;" also, that the history shows the habitual abuse of alcohol for prolonged period, and calls attention to the absence of dysarthria. He quotes Beca as confirming his opinion. Kraepelin mentions the term "alkoholische Pseudoparalyse" but associates it with Korsakow's disease.

From the above, it would seem that pseudoparalysis is probably a type of Korsakow's disease, while alcoholic amentia bears a similar close relation to delirium tremens. This latter relation is indicated by the similar onset, course and final recovery.

It is probable that more cases of this group will get into the literature, and it is possible that a better name for the group can be selected.

VI.

NOTES ON AFTER-CARE AND MORAL SUASION WORK WITH ALCOHOLICS IN THE OUT-PATIENT DEPARTMENT OF THE PSYCHOPATHIC HOSPITAL.*

BY A. WARREN STEARNS, M.D.,

First Assistant Physician, in Charge of Out-Patient Department, Psychopathic Hospital; Instructor in Nervous Diseases, Tufts Medical School;

AND

MARY C. JARRETT,

Director Social Service, Psychopathic Hospital.

FOR some time past an attempt has been made at the Psychopathic Hospital to analyze mental disorder with the purpose of determining whether the disease was affecting more the will, the emotion or the intelligence. In years gone by different institutions may be said to have approached the alcohol problem largely through two of these divisions. The church has considered the emotional side, calling drunkards sinners, and so sought cure by conversion, their method being exhortation. The courts have considered them criminals and attempted reformation by punishment.

While I believe drinking to be a sin for some people and a crime for others, for all it is surely an error of judgment or reason. It is not only sinful and unlawful, but it is inexpedient and unwise.

The efficacy of these older methods is proven by the success of probation systems, and organizations like the Jacoby Club or the Emmanuel Church. Now, medicine has to do largely with those whose bodies and minds are affected by self-inflicted disease, and so should, I believe, seek cure by instruction and argumentation, that is, by appealing to the reason.

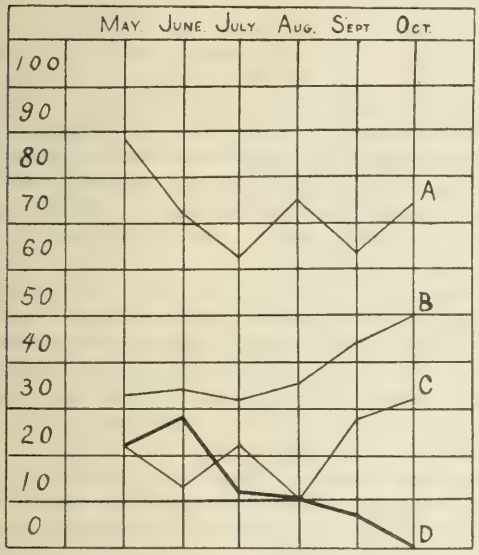
The Psychopathic Hospital does not treat alcoholism as such, (the particular province of the Foxboro State Hospital), but deals only with those who by reason of excess, have become insane. Its problem, then, is to prevent a recurrence of the attack, but as this is dependent upon sustained abstinence, the after-care problems are like those of Foxboro.

The mental attitude of our patients is unique. They have been through a terrible experience, they have seen others the same or worse than themselves, and the cause is clearly alcohol. Although the emotion fear creeps in and helps a good deal, it is largely by serious thought that they, almost to a man, see the true state of their affairs, and determine to do their best and fight hard to cure themselves. So, unlike other workers in this field, we do not have to create a desire to abstain, but to maintain a mental condition already existing. This, then, is called after-care and is the real work of after-care.

* Being Psychopathic Hospital Contributions, 1913, 33.

In our convalescent ward an excellent attitude toward alcohol is maintained by these recovering drinkers. They talk it over among themselves, offer to help each other and each week-end sees many of them return to visit doctors or fellow-patients. Recently an organization has been started for the purpose of meeting this demand for mutual service.

From the foregoing it can be seen that we are but trying to use and keep in operation natural forces already present. This is well shown by a statistical study. In the past six months there have been admitted 88 alcoholics, 63 or 72% of whom have been subsequently discharged as recovered. These have been told of our interest and of our ability to help them and have been advised to report to the hospital at frequent intervals. With no attempt at coercion, 34 or 54% have shown their continued desire to be treated by reporting. Of these 34 persons 18 or 53% are known to be abstaining; 11 or 32% have relapsed; while the condition of 5 is unknown. A study by months, shows an increase in the percentage reporting and abstaining, with a decrease in relapse. As more attention has been paid the matter in the last two months, the result seems encouraging. Could November figures be given, the progress would be even more noticeable.



A. Percentage of total alcoholic cases discharged to O. P. D.
B. Percentage of total alcoholic cases later returning to O. P. D.
C. Percentage of total alcoholic cases now abstaining.
D. Percentage of total alcoholic cases known to have relapsed.

The conclusion, then, is that a great deal can be accomplished by after-care. The results of the Foxboro State Hospital also bear this out. It is my opinion, that to allow a recovered alcoholic patient to leave the hospital with no provision for after-care is unpardonable negligence, and that there is no more fertile field in medicine than this one.

VII.

On Institutional Requirements For Acute Alcoholic Mental Disease in the Metropolitan District of Massachusetts in the Light of Experiences at the Psychopathic Hospital.*

BY E. E. SOUTHARD, M.D.,

Member of Legislative Commission on Drunkenness in Massachusetts, 1913; Director, Psychopathic Hospital, Boston; Pathologist to the Board of Insanity, Massachusetts; and Bullard Professor of Neuropathology, Harvard Medical School.

ABSTRACT.

Alcoholic mental disease forms about one-ninth of the Psychopathic Hospital's problem (217: 1829).

Legal necessity of a delicate distinction: between delirium tremens and alcoholic hallucinosis: errors in our diagnosis in about one case in every three.

Stearns' distinction between short cases (week or less) and longer cases (as a rule over three or four weeks).

Certain opportunities for improvement in diagnosis.

The high mortality of delirium tremens in general hospitals (Gregg's data).

Attitudes of general hospital authorities upon this problem.

Statistics of the Psychopathic Hospital as regards mortality.

Advantage of saving the lives of these cases.

Nature of an institution which would go far to save such lives *and improve* their after lives.

Eleven per cent. of our diagnostic problems at the Psychopathic Hospital are problems of mental disease due to alcohol. In less than sixteen months of our operations beginning June 21, 1912 and ending September 30, 1913, we classified in all 1829 cases of mental disease, and 217 of these 1829 cases were cases of alcoholic mental disease. But 64 of these 217 alcoholic cases, that is, about one third of our alcoholic admissions, or less than one twenty-fifth of all admissions, were cases of delirium tremens.

Thus it might be thought that the angle of vision as to alcohol could not be very wide at the Psychopathic Hospital, and I believe that we are all aware that others may see and know more about the problem than we do. It is clear that a hospital 89% of whose admissions are for *non*-alcoholic cases, cannot spend the bulk of its time upon the problems of alcoholism, nor could we do so without losing grasp upon the in some ways wider and deeper problems of mental disease at large.

There are still some reasons why the problems of alcoholic mental disease have attracted more than their due share of attention at our hospital.

*Being Psychopathic Hospital Contributions, 1913. 34.

Curiously enough, the law itself has sharpened our diagnostic wits. The advanced legislation of 1911 relative to the reception and temporary care of the mentally deranged (which I present in an appendix*) specified that such temporary care should not be extended to persons subject to delirium tremens or drunkenness. Among these "seven day" cases (as we term them in the slang of the clinic) there *should* be *no* cases of delirium tremens. Now during the period above mentioned as yielding 1829 admissions, there were 1193 "seven day" cases, and of these 1193, 167 or 14% were alcoholic.

The alcoholic "seven day" cases included—

Alcoholic hallucinosis	94
Delirium tremens	52
Other forms	21

Accordingly, if we tried to live up to the letter of the law, we must stand convicted of an error of diagnosis in about one case in three (52 cases of delirium tremens in a group of 167 cases of alcoholic mental cases regarded as suitable for temporary care). By consequence I find that the problems of diagnosis in the field of alcoholic mental disease have taken up far more than one ninth of our time (corresponding with our eleven per cent. alcoholic admissions), that the practical and theoretical interest of these problems remains large, and that alcohol takes its place beside neurosyphilis, dementia praecox, and feeblemindedness as a topic of investigation.

But it is not only that the law insists that we make the difficult decision between delirium tremens and alcoholic hallucinosis. We have been greatly interested in the diagnosis and treatment of these cases considered as medical and social problems. Four communications at out first annual conference, held June 24, 1913, dealt with some of these alcoholic problems. A. W. Stearns then emphasized certain diagnostic difficulties, claiming that it might be well to classify short cases (one week or minus cases) in one group (acute group) and longer cases (as a rule over three or four weeks) in another group (chronic group). He felt that the short cases were probably determined by the presence of alcohol in the body or by immediate sequelae of alcoholism, inasmuch as he found the short cases were spree-drinkers. The long cases he felt were due to other factors, since these long cases were practically all habitual heavy drinkers.

The main barrier to a decision as to the distinction raised by Stearns is the lack of thorough and systematic histories in each case. The Psychopathic Hospital has tried to meet this want by installing a lay clinical historian. The work of this historian, aided by occasional field-work by the eugenics worker or by the social service of the hospital, has done something to provide better histories and data to go upon both for diagnosis and treatment and for after-care. We may therefore hope for a speedy resolution of the issue raised by Stearns.

Another result of the practical necessity of carefully distinguishing between delirium tremens and other forms of alcoholic mental disease had been the endeavor to get more rapid methods of diagnosis.

It appears that occasional cases of the more chronic forms of alcoholic mental disease may exhibit a kind of partial Argyll-Robertson pupil, a description of which has just appeared in the *Journal of Nervous and Mental Disease* by Myerson and Eversole.* This reaction consists in the absence of contraction of the pupil of one eye to exposure of the opposite eye to blue light, when at the same time the pupil contracts readily enough if the opposite eye is stimulated by green or red light. But, since the majority even of chronic cases of alcoholic mental disease fail to exhibit this reaction, the test has but limited scope.

Myerson has at a recent meeting of the Boston Society of Psychiatry and Neurology suggested that the cerebrospinal fluid of certain cases of Korsakow's disease shows an excess of albumen without globulin or without a corresponding amount of globulin. It is conceivable that this point, if it is substantiated by further experience and by quantitative methods, will be of value in differentiating some chronic cases from the acute group. But this question is *sub judice*.

I have time merely to refer to heredity studies, by Miss Steffen, sample charts of which are displayed on the wall, and to work in progress by Mr. Grabfield with the Martin electric sensory threshold test†, as well as significant problems relating to the cerebrospinal fluid pressure, now being studied.

The impression I desire to convey to the Commission on drunkenness and the rest of my hearers is that the whole subject is still a lively subject of investigation, that even the diagnosis of the major forms of alcoholic mental disease is a lively subject of investigation, and that it is within the bounds of possibility even to improve treatment by scientific work.

This brings me to some word about treatment. Unfortunately this conference finds us in the midst of, rather than at the conclusion of, the particular problems we had set ourselves. Some of you will remember the astonishingly high mortality reported by Gregg at our first annual conference as found by him to prevail in some of the best general hospitals along the Atlantic Coast, when their current results in the treatment of uncomplicated delirium tremens were inspected.‡ Gregg showed an average mortality

* See page 942.

* Psychopathic Hospital Contributions, 1913. 21. *Jour. Nerv. Ment. Dis.*, 40, Nov., 1913.

† See E. G. Martin: "The Measurement of Induction Shocks, John Wiley, 1912.

‡ Psychopathic Hospital Contributions, 1913. 10.

of about one in four in these uncomplicated cases treated in general hospitals. Gregg also pointed out that the mortality in a similar group of cases, at the Psychopathic Hospital (on the whole older than those treated in the general hospitals) was nil.

Gregg concluded that "the results of the eliminative treatment of the deliria with relative freedom and hydrotherapy, and a minimum amount of medication" (as practiced in the Psychopathic Hospital) "far excels in effectiveness the usual treatment by restraint and depressant drugs" (as practised in some of the best general hospitals of the United States).

Further experience has only strengthened the views then expressed. It has not been possible, for various reasons, to conduct an efficiency examination, in any comprehensive way, into the results obtained in the treatment of delirium tremens by general hospitals. I have, however, personally interviewed a number of superintendents and consultants connected with general hospitals, and I find a very general agreement that the mortality in delirium tremens in hospital practice is regrettably high. One superintendent, who was quite willing that an examination be made of his records, was quite unwilling that the high percentage of his deaths in delirium tremens should be published even without the name of his hospital. This gentleman seemed to regard his mortality rate as due to his own shortcomings. As a matter of fact, his results were due to the medical standard of his community; and the chances are that, if he brought in to the powers that be an estimate providing for isolation wards permitting relative freedom to the patients, for proper hydrotherapeutic arrangements permitting the application of prolonged baths and warm packs in accordance with now well-established principles, and for a proper quota of experienced nurses and attendants, the chances are very good that the unfortunate superintendent would reckon without his host. For he would be assured that no other general hospital of the highest standing could be found which had proceeded to the great expense entailed, etc.

Some hospital men with whom I talked, and especially some who discussed my paper on the Psychopathic Hospital Idea* at the Minneapolis meeting of the American Medical Association last June, laid great stress upon the complicated cases of delirium tremens, those associated with severe injury or those apparently evoked by severe injury, (the so-called "surgical delirium tremens"), and they pointed out that many of these cases must be immobilized and hence that hydrotherapy could hardly be used. As for complicated delirium tremens and especially surgical delirium tremens, it may be that special principles apply; but I will venture the prediction that, so soon as uncomplicated delirium tremens is handled on modern principles, then the fate of the complicated cases will rapidly become less dark.

Let me proceed to give our own results in brief:

Among the 64 cases of delirium tremens admitted there were 2 deaths or 3%. As the subjoined condensed histories show there is doubt as to the diagnosis in each case. In any event both suffered from severe medical or surgical complications on entrance.

Case 1. J. M., Clin., No. 1207; was admitted under Chap. 395, Acts of 1911, Dec. 13, 1912, and died Dec. 17, 1912. Patient suffered from bilateral broncho-pneumonia, cystitis, abrasions of both feet and other parts, and a temperature of 102° on admission. Evidences of polyneuritis cast some doubt on the diagnosis of delirium tremens. Patient died with a temperature of 105°.

Case 2. R. J., Clin. No. 1028; was admitted under Chap. 395, Acts of 1911, Sept. 23, 1912, and died Sept. 26, 1912. Death due to pneumonia following fracture of rib received as a result of leap from third-story window just before admission Sept 23. This case showed both visual and auditory hallucinations (the latter more prominent) of a greatly terrifying character. It is probable that this case would have turned out a case of alcoholic hallucinosis rather than of delirium tremens.

But, it may be asked, was there not an error of diagnosis in the other direction? Did not certain cases of alcoholic hallucinosis also die which would have been classified by the ordinary internist as cases of delirium tremens? In point of fact I find two more deaths among so-called alcoholic hallucinosis cases. There were 116 cases classified as alcoholic hallucinosis, yielding a mortality of 1.7% for this group.

If as some would have it, these two diseases are but variants of one disease, then we arrive at a percentage of mortality in the combined delirium-tremens-hallucinosis group of 2.2% (4 deaths in 180 cases).

If we desired to improve our statistics somewhat, we could point out that neither of the two deaths in the alcoholic hallucinosis group is fairly attributable to the disease, since the diagnosis in each is more than doubtful, one probably belonging in the dementia praecox group and the other in the epileptic group.

Case 3. T. A., Clin. No. 971; admitted under Chap. 307, Acts of 1910, Aug. 27, 1912; died next day as the result of injuries, due to impulsive act performed unexpectedly at the end of a period of absolutely quiet behavior. The reaction was probably catatonic, and it is hardly probable that alcohol was more than a complicating factor. It seems almost necessary to admit that another occurrence of the sort could not be prevented.

Case 4. J. C., Clin. No. 982, admitted under Chap. 307, Acts of 1910, Sept. 3, 1912; died Sept. 5 in status epilepticus (perhaps a thymic death, since the thymus was persistent—patient aet. 23—and contained a large cyst).

* Psychopathic Hospital Contributions, 1913. 26.

In addition to the four deaths just mentioned in 180 cases, there were eleven other deaths in the remaining 37 cases of alcoholic mental disease.

The mortality in the form known as Korsakow's psychosis seems particularly high, since it is probable that six of these eleven deaths were in cases of Korsakow's or closely allied alcoholic mental disease. To these might perhaps be added J. M. mentioned above under the heading delirium tremens.

Thus we have had 15 deaths from all forms of alcoholic mental disease among 217 admissions or about 7%. 3% in this 7% were apparently in cases in which there was severe disease, involving fatty changes in the peripheral as well as central nervous system.

CASES OF KORSAKOW'S OR ALLIED POLYNEURITIC MENTAL DISEASE DEAD IN PSYCHOPATHIC HOSPITAL.

J. C., 11123, female, 37; admitted Nov. 8, 1912, died Nov. 12, 1912.

C. B., 11239, female, 38; admitted Dec. 23, 1912, died Dec. 29, 1912 (also syphilitic).

W. W., 11287, male, 67; admitted Jan. 10, 1913, died Jan. 12, 1913.

D. C., 11400, female, 36; admitted Feb. 10, 1913, died Feb. 16, 1913 (autopsy showed pituitary hemorrhages).

M. D., 11406, female, 39; admitted Feb. 12, 1913, died Feb. 18, 1913.

M. O., 11631, male, 48; admitted April 21, 1913, died May 8, 1913 (mitral endocarditis).

The five other deaths were:—

T. M., 11159, male, 41; admitted Nov. 19, 1912; died Nov. 21, 1912 (epileptic).

A. E., 11263, male, 47; admitted Jan. 4, 1913; died Jan. 5, 1913 (possibly general paretic).

C. W., 1317, male, 39; admitted Feb. 1, 1913; died Feb. 3, 1913 (autopsy showed toxemia from crush of hand Jan. 29).

D. G., 11788, male, 52; admitted Jan. 13, 1913; died July 18, 1913 (possibly Korsakow's disease).

A. M., 2022, male, 30?; admitted Sept. 18, 1913; died Sept. 18, 1913 (twenty minutes after admission, having plunged four stories to sidewalk of Atlantic Avenue).

SUMMARY OF ENUMERATIONS AND PERCENTAGES IN ALCOHOLIC MENTAL DISEASE AT PSYCHOPATHIC HOSPITAL.

Sixteen months' admissions, all forms of mental disease		1829
Alcoholic mental disease	217	11%
Delirium tremens	64	3%
Alcoholic hallucinosis	116	6%
Other forms	37	2%
Delirium tremens and alcoholic hallucinosis	180	9-10%
Mortality in delirium tremens, 64 cases	2	3%
Mortality in alcoholic hallucinosis, 116 cases	2	1.7%
Mortality in these combined, 180 cases	4	2.2%
Mortality in other forms, 37 cases	11	30%
Total mortality in alcoholic mental disease	15	7%
Corrected total mortality (subtracting 2 moribund suicides, 1 thymic epilepsy, 1 catatonic dementia praecox	11	5%
Corrected mortality in delirium tremens (shifting 1 case to Korsakow's group and 1 to moribund suicide group)	0	0%
Corrected mortality alcoholic hallucinosis (shifting 1 case to thymic epilepsy and 1 to moribund suicide group)	0	0%
Mortality in Korsakow's disease, 7 deaths in a minimum of 20 cases		35%

We have had in the period ending September 30, 1913, 65 deaths, of which 15 or 23% were in alcoholic cases. R. J., and M. O., were merely cases of successfully executed suicide brought to the hospital to die; although it is probably fair to say that alcohol caused the suicides indirectly. T. A. was probably a catatonic dementia praecox case in which alcohol was however a strongly contributory factor. J. C. was a case of epilepsy, perhaps of congenital (thymic) origin, in which alcohol also played an important part.

Some physicians with whom I have talked spoke gloomily of the aftermath of recovery. What can be the advantage of spending so much time and money on curing cases of delirium tremens, since they are apt to be unworthy persons to start with and liable to immediate relapse? Aside from the moral intolerability of this argument, I would point out two things: (1) scientific after-care and follow-up work with these cases can be shown to be effective in preventing at least some relapses, and (2) even if these patients were as comparatively worthless as so many apes, the experience which physicians, internes, and especially nurses would gain in the treatment of delirium tremens would stand them in good stead in the treatment of other non-alcoholic deliria occurring in more worthy subjects.

In point of fact the insane with all their heredity, long-standing predispositions, and very frequent evidences of brain-disease, are now getting better treatment than the drunkards and delirium tremens cases of the community. Yet I suppose there is no doubt that community standards are more immediately responsible for the drunkards and delirium tremens cases than for insanity in its usual sense. It is not as if the state licensed shops where so much insanity could be sold,—although if it could find such insanity shops the state would doubtless clap a tax thereon at once—but, on the other hand, on the old and sacred principle of individual liberty, the state does license the alcohol business. I take it that we must preserve the principle of individual liberty at all costs and that public sentiment would not countenance prohibition. In this situation I therefore conclude that the state, as a licensing

agency, should pay the costs of that which it permits or even encourages.

By consequence, the powers that be would be put into a very uncomfortable box if the facts were generally recognized and if, in the face of such facts, they should not appropriate money for purposes, if possible, still more humanitarian than the state's work with insanity, feeblemindedness, and epilepsy.

But, I insist, the outlook is even more encouraging than with the insane, or at least the insane as a group. For, though the principles of after-care in mental disease are not yet certain, the principles of after-care for the alcoholics are in many respects clear. They have been made clear by the Foxborough State Hospital's work and will become still clearer in the new Norfolk State Hospital when the name Foxborough has been forgotten. What Miss Jarrett and Dr. Stearns have just said concerning our still fragmentary and undeveloped work here at the Psychopathic Hospital is merely an earnest of what could be done with the after-care of alcoholics.

There should be a hospital for acute alcoholic mental disease, especially in delirium tremens, in the metropolitan district of Boston, either a branch of the Norfolk State Hospital or a branch of some existing institution under state or municipal control or possibly an independent institution. It would be far preferable to have this institution a metropolitan branch of the Norfolk State Hospital, so that ready transfer to the rural division may be effected for suitable cases. The hospital should be placed near some existing hospital for ready surgical and medical transfers of urgent cases. It would be desirable to place such hospital near the Psychopathic Hospital for ready transfer of special mental cases in which chronic mental disease is suspected.

The metropolitan hospital for acute alcoholic cases should have an adequate staff of physicians, investigators and trained workers in every department and should maintain a high standard of efficiency, combining the practical equipment of the best general and surgical hospitals.

The facilities for isolation of patients preserving their relative freedom, so that noise shall disturb neither other patients nor the public, the facilities for approved methods in hydrotherapeutics, and the quota of specially trained nurses and attendants should be as good as obtainable.

Opportunities for the teaching of students and practising physicians concerning the diagnosis and treatment of these diseases should be afforded; and the institution should be so managed as to attract the best grade of physicians and nurses, as well as investigators, to its wards.

One of the most prominent functions of such a hospital is the out-patient and after-care service, which should follow the initiative already set by the Foxborough State Hospital (now soon to become the Norfolk State Hospital). Every arm of social service should be extended to increase the number of persons now being saved, from recurrence of alcoholism. The out-patient department should adopt every device of mental and social hygiene which can be used to correct and control the drunkenness evil. Voluntary resort of prospective patients should be encouraged, and the work of the churches, various existing social agencies, such as the Alcohol Committee of the Associated Charities, and the Salvation Army, should be supplemented so far as possible.

Highly trained officers from the institution should be detailed to visit the lockups at stated hours or on special call, to pick out alcoholic or other cases of mental disease from among those arrested for drunkenness.

Where such a hospital should be, how big it should be, what should be the proportion of beds for men and beds for women, whether there should be new statutes governing its operation, and a host of other questions, can only be effectively considered by a committee of experts, medical and social, having ample time to study the situation. It is clear that something should, nay must, be done.

CONCLUSIONS.

Alcoholic mental disease forms at present about one-ninth of the Psychopathic Hospital's work (217 in 1829 admissions during 16 months). Over 50 cases of delirium tremens have been admitted against the law governing these matters, either on the ground of commonhumanity or because of errors in the very difficult differential diagnosis between delirium tremens and the more protracted disease alcoholic hallucinosis (which latter is regarded as suitable for the Psychopathic Hospital). A number of devices have been adopted at the hospital to minimize this error in diagnosis and to increase our knowledge of the two conditions (distinctive between "short" and "long" cases (Stearns), work of clinical historian, social service, and eugenics worker, the Myerson-Eversole pupil reaction, etc.).

The mortality of alcoholic cases at the Psychopathic Hospital has been extremely low (about 5%). The mortality in delirium tremens and alcoholic hallucinosis is virtually nil (0%). A high mortality attended our Korsakow cases (about 35%); this curious fact demands a special investigation.

These results are superior to those of general hospitals, and this superiority we attribute to our methods of treatment, chief among which we place hydrotherapy.

The moral and economic value of saving these cases needs no emphasis. The acutely insane are now accorded in most communities better treatment than are drunkards and cases of delirium tremens, despite the fact that the latter

are economically more promising in the light of after-care results.

A hospital for acute alcoholic mental disease is recommended for the metropolitan district, as a first step to the proper care of these cases throughout the state. Such a hospital should, in addition to its high medical standards (non-restraint, non-drugging), uphold the highest social standards by applying in its out-patient department the now well-established principles of after-care for alcoholics.

APPENDIX.

The special forms of admission under which the Psychopathic Hospital receives most of its alcoholic cases are these:

1. *An Act Relative to the Reception and Temporary Care in Certain Institutions of Persons Suffering from Mental Derangement. Chap. 395, Acts of 1911.*

"The superintendent or manager of any hospital for the insane, public or private, may, when requested by a physician, by a member of the board of health or a police officer of a city or town, by an agent of the institutions registration department of the city of Boston, or by a member of the district police, receive and care for in such hospital as a patient, for a period not exceeding seven days, any person who needs immediate care and treatment because of mental derangement other than delirium tremens or drunkenness. Such request for admission of a patient shall be put in writing and filed at the hospital at the time of his reception, or within twenty-four hours thereafter, together with a statement in a form prescribed or approved by the state board of insanity, giving such information as said board may deem appropriate. Such patient who is deemed by the superintendent or manager not suitable for such care shall, upon the request of the superintendent or manager, be removed forthwith from the hospital by the person requesting his reception, and, if he is not so removed, such person shall be liable for all reasonable expenses incurred under the provisions of this act on account of the patient which may be recovered by the hospital in an action of contract. The superintendent or manager shall cause every such patient either to be examined by two physicians, qualified as provided in section thirty-two of chapter five hundred and four of the acts of the year nineteen hundred and nine, who shall cause application to be made for his admission or commitment to such hospital or, provided he does not sign a request to remain under the provisions of section forty-five of said chapter five hundred and four, to be removed therefrom before the expiration of said period of seven days. Reasonable expenses incurred for the examination of the patient and his transportation to the hospital shall be allowed, certified and paid as provided by section forty-nine of said chapter five hundred and four, as amended by chapter four hundred and twenty of the acts of the year nineteen hundred and ten, for the allowance, certification and payment of the expenses of examination and commitment.

Approved May 4, 1911.

2. *Admissions from arrest by Boston police* (this does not of course include similar cases arrested in the metropolitan district outside Boston) *pending examination* looking to discharge, commitment of transference. The act in regard to these cases, often briefly termed *Boston police cases*, reads as follows: Chap. 307, Acts of 1910 (Sec. 1, 3).

An Act Relative to Persons suffering from Certain Mental Disorders who Are Arrested or Confined in the City of Boston.

Section. 1. All persons suffering from delirium, mania, mental confusion, delusions or hallucinations, now under arrest or in confinement, or who may hereafter be arrested by, or come under the care or protection of the police of the city of Boston and who, owing to a lack of suitable buildings or wards, are at present placed in the city prison, the house of detention or the house of correction on Deer Island, pending a medical examination and transference, shall be taken for examination directly to the hospital constructed under the provisions of chapter four hundred and seventy of the acts of the year nineteen hundred and nine, when said hospital is ready for the reception of patients, in the same manner in which persons afflicted with other diseases are taken to a general hospital. If, after examination, the physician in charge of the said hospital decides the case to be one of delirium tremens or drunkenness, the hospital shall not be obliged to admit the patient, but otherwise the said hospital shall admit observe and care for all persons suffering from delirium, mania, mental confusion, delusions or hallucinations until they can be committed or admitted to the hospital or institution appropriate in each particular case, unless the patient should recover or should be placed by the physician in charge of the said hospital in the care of his friends before such committal or admission.

Section 3. On and after the first day of May in the current year no person suffering from delirium, mania, mental confusion, delusions or hallucinations shall be harbored or confined in any penal institution within the city of Boston for a period exceeding twelve hours.

Approved March 29, 1910.

Book Reviews.

The Practitioner's Visiting-List. 1914. Thirty Patients per Week. Philadelphia and New York: Lea and Febiger. 1913.

In this thirtieth year of its issue, this useful pocket visiting list and memorandum book reappears with its familiar valuable features. The text has been thoroughly revised, and contains much handy information.

Year-Book of the Pilcher Hospital. No. 3. Brooklyn, New York. 1913.

This third issue of the Pilcher Hospital yearbook records the work of that institution from April 1, 1912, to March 31, 1913, the third year of the operation of the hospital. During this period 194 patients were received into the hospital, and 220 operations were performed. From these, 12 unusual, instructive, selected case-histories are published. A series of thirteen appendices present papers by members of the hospital staff on various topics of timely interest.

Technic of Medical Massage. For Practising Physicians. By Dr. Anton Bum. Berlin and Vienna: Urban and Schwarzenberg. New York: Rebman Company. 1913.

This small German manual of massage aims to present the substance of the author's technical course on this subject at the University of Vienna. It is intended definitely for the profession and not for the laity, and presents systematically the general and special principles and manifestations, illustrated by 54 excellent figures in the text. To those who can use a German text-book, this convenient and concise volume should prove more valuable than many larger, more pretentious works in English.

Guides to First Aid. A Book for Samaritans. By Dr. J. Lamberg. Berlin and Vienna: Urban and Schwarzenberg. New York: Rebman Company. 1913.

This German manual of first aid aims to summarize the author's experience of thirty years in the Vienna Voluntary Aid Association. After a historical introduction and a chapter on human anatomy and physiology, he discusses successively first aid in sudden diseases, injuries, and accidents, the transportation of the sick, and household nursing. The volume, which is well illustrated with one colored table and 190 partly colored figures in the text, should prove of distinct value to those who are able to use a German text-book.

Epidemic Infantile Paralysis. (Heine-Medin Disease.) By Professor Paul H. Römer, principal of the Institute of Hygiene and Experimental Medicine of Marburg. Translated by H. Ridley Prentice, M.B., B.S. (Lond.), M.R.C.P. Fifty-seven illustrations. New York: William Wood and Company. 1913

The literature on the subject of poliomyelitis has naturally assumed large proportions within the past few years. This translation of Prof. Römer's monograph should, nevertheless, be acceptable to English readers in that it gives an admirable historic review of our knowledge of the disease together with a statement of the present viewpoints regarding its etiology, pathological anatomy and general epidemiology. Cases are not extensively quoted, but the experimental work which the author has himself done is given due space. The book is admirably illustrated with many microscopic slides as well as by photographs. The translation is entirely satisfactory and the form in which the book appears, pleasing. The value of the monograph is enhanced by an excellent alphabetical bibliography and an entirely adequate index.

Diseases of the Skin. A Handbook for Students and Practitioners. By David Walsh, M.D. (Edin.). New York: William Wood and Company. 1913.

Still another introductory handbook of diseases of the skin has been added to the large numbers that have appeared during the last few years in England and America. In fact they have been issued with such frequency that one is led to demand the reason for the appearance of a new comer. Dr. Walsh's excuse is that such is the growth of dermatological knowledge that existing text-books have not been able to keep pace with it. Indeed during the twelve months that his book has been in the printer's hands he has had to revise several sections of it, on account of new facts that demanded exposition. The writer is quite hopeful of the future of dermatology in America, declaring his belief that much of the original work in this specialty is to be looked for from this country. This book lays claim to more originality than do most other elementary manuals of this type, in that the writer's own views are more frequently emphasized. The illustrations are less numerous and ambitious than those of many similar recent publications.

Anatomy and Dissector in Abstract. By Stewart L. McCurdy, A.M., M.D. Fourth edition. Pittsburgh, Pa.: Medical Abstract Publishing Company. 1913.

The first edition of "Anatomy in Abstract" was published as a convenient pocket manual of anatomic study. To this is now added, in this fourth edition, as a corollary and appendix, the "Dissector in Abstract," with 81 good illustrations. Many minor errors of previous editions have here been corrected, and the work has been made to conform to the large standard text-books. The value of all compendia in the teaching or learning of anatomy is always gravely to be questioned. The present book, however, seems a fairly innocent member of its class, and, provided its limitations be distinctly recognized, should prove harmless and perhaps definitely useful.

Skin Diseases in General Practice. Their Recognition and Treatment. By Haldin Davis. London: Henry Frowde. Oxford University Press: Hodder and Stoughton. 1913.

This book from the Oxford University Press by Haldin Davis was inspired, according to the writer, by his difficulty when a student in obtaining help from dermatological text-books, for the reason that classification was founded upon etiology so, that if one did not know the cause

of a disease it was impossible to obtain light in diagnosis. Hence the fundamental idea of the book is that of arranging skin diseases according to their topographical distribution, the various chapters dealing successively with widespread eruptions, eruptions affecting the face, eruptions affecting the limbs, etc. It was not until the book had been begun that he learned of the work of Sabouraud on much the same lines, as illustrated by his Dermatologie Topographique. Whether the aim of the writer is attained, must be decided by the consensus of opinion of the practitioners and students possessing a very elementary knowledge of dermatology for whom the publication is intended.

Dysenteries—Their Differentiation and Treatment. By LEONARD ROGERS, M.D. London and New York: Oxford University Press. 1913.

Dr. Rogers has had a wide experience with dysenteries in Calcutta. He has written an interesting book of some three hundred pages, based upon his clinical experience. His own contributions to the study of amebic dysentery have been considerable and include the introduction of emetine in the treatment.

The clinical part of the book is well done. The discussion of amebic dysentery is the most satisfactory portion of the book. The discussion of the other forms of dysentery is somewhat incomplete. Although the book might seem rather dogmatic in many of the statements, it is a distinct addition to our knowledge of the clinical aspects of amebic dysentery, especially as seen in Calcutta.

Headache, Its Varieties, Their Nature, Recognition and Treatment. By DR. SIGMUND AUERBACH, Chief of the Polyclinic for Nervous Diseases in Frankfort, A.M. Translated by ERNEST PLAYFAIR, M.B., M.R.C.P. pp. vi to 208. London: Oxford University Press. 1913.

This small volume, one of the Oxford medical publications, is a useful addition to the excellent series which has gone before. The importance of headache, both as an apparently independent disorder and as an accompaniment of various organic diseases, is not to be questioned. Nor is it open to question that headache, owing no doubt to its great frequency, is too much disregarded and consequently carelessly and inadequately treated. In this book Auerbach attempts to systematize our knowledge and to lay down certain facts which he regards as established regarding causes and treatment. In a "theoretical introduction" the author discusses the part played by the fifth nerve in its intracranial relations as the pathological basis of head pain. This is an extremely suggestive and useful statement of certain facts often overlooked. Following a practical classification of headaches the more independent forms are discussed, of which migraine naturally takes first place. The theory that migraine is due to a disproportion between cranial capacity and brain volume is considered plausible, which naturally leads to the possibility of relief through spinal puncture or even decompressive trephining. The so-called neurasthenic (exhaustion) headache receives due consideration, but undoubtedly the most important contribution of the book is the section on "nodular (rheumatic) or induration headache," upon which much stress is laid and which is regarded as peculiarly amenable to treatment by mechanical means, deep kneading of the neck and massage. Finally, headache, as it occurs in various diseases, brain tumors and constitutional affections, is considered. Many illustrative cases are given. In general, the book is a well-presented discussion of an important and neglected subject.

Epidemic Cerebrospinal Meningitis. By ABRAHAM SOPHIAN, M.D. Illustrated. St. Louis: C. V. Mosby Company. 1913.

The material for this monograph, which is perhaps the most complete in the English language since Councilman's on the same subject, was secured through studies in the research laboratories of New York and in the 1912 epidemic in Texas. The result of this research is embodied in a volume of 272 pages. The purpose in writing the book was to give a complete yet simple description both of the clinical and laboratory findings and to assist in methods of treatment, and in this the author has certainly been successful. The arrangement of the text is that sanctified by long custom, namely sections on etiology, symptomatology, laboratory diagnosis and treatment with such other matters as recent investigation of the disease has brought into prominence. The book is to be commended as a systematic treatise on an important disease.

The Protein Split Products in Relation to Immunity and Disease. By VICTOR C. VAUGHAN, M.D., LL.D.; VICTOR C. VAUGHAN, JR., M.D., A.B.; and J. WALTER VAUGHAN, M.D. 12mo., pp. 476, illustrated. Philadelphia and New York: Lea and Febiger. 1913.

This book is the record of the investigations of the Vaughans in the field of split proteins. Here they have put together in one place the result of their work and have drawn deductions from their work and the researches of others in this particular field. It is a pleasure to have available in a single book all the material on the

subject of split proteins. The authors have discussed the work of others in as much detail as they have their own. The chapter on anaphylaxis, which covers somewhat over one hundred pages is an admirable, lucid resumé of that somewhat befogged subject. The chapter on protein fever and the one on parenteral digestion of proteins are two other excellent chapters. The book is well written, clear, and painstakingly accurate. This authoritative monograph can be strongly recommended to all those who are interested in the relation of proteins to immunity and disease.

The Medical Record Visiting-List or Physician's Diary for 1914. Newly revised. New York: William Wood and Company.

The yearly appearance of this visiting list is evidence of its usefulness. In size and general form this new edition has not been materially changed. Certain information has been omitted and more added relative to emergencies. Changes as needed have also been made in the list of remedies. In general we commend this visiting list as a convenient method of keeping account of daily medical matters.

Dreams and Myths. By Karl Abraham, Berlin. New York: The Journal of Nervous and Mental Disease Publishing Company. 1913.

This translation by Dr. William A. White of Abraham's Dreams and Myths is No. 15 of the Nervous and Mental Disease Monograph Series and constitutes a welcome addition to those which have gone before. The object of the research is to prove the validity of the theory of psychoanalysis as applied to myths and sagas. It is interesting reading and certainly throws a new light upon many mythological matters, the significance of which has not been definitely understood. Whether conviction will follow a reading of the text, no doubt, will depend on the individual's training and friendliness toward what still must be regarded as a somewhat bizarre view point.

A Manual of Otology. By Gorham Bacon, A.B., M.D., professor of otology in the College of Physicians and Surgeons, Columbia University, New York; aural surgeon, New York Eye and Ear Infirmary; consulting otologist Roosevelt Hospital, New York, etc. Sixth edition, revised and enlarged. With 164 illustrations and 12 plates. New York and Philadelphia: Lea and Febiger. 1913.

In the preface to the first edition of Bacon's Manual of Otology published fifteen years ago, the author stated that his purpose in writing the book was "to meet the demands of the student, by giving him a short and compact treatise, and at the same time to afford him a book of easy reference, since he may not always find the time necessary for consulting the more exhaustive treatises upon otology." The sixth edition of the work, which has lately appeared, shows that the writer has abundantly accomplished his purpose. It is doubtful if the American student has turned to any ear treatise as often as to this one. The author of this review has before him as he writes the mellow copy of the second edition which served him in student days. Naturally the new edition is somewhat larger than the first because the science of otology has advanced rapidly of late, and the book epitomizes this progress, but it falls easily within the limits of a handy volume. With the years, the book, like the author, has put on a little weight, but like the author it preserves its dignified and distinguished bearing.

As has just been said, the book is thoroughly up to date. The student will continue to flee to it in preparing for examinations and the practitioner will, as of old, turn to it for guidance and he will find the information which he needs stated clearly, concisely and in order. The paper, the print and the illustrations are excellent. Most of the new instruments in otology are figured, and all of the new methods of diagnosis and treatment are assigned due space, but the perspective is never lost, and everywhere there is a progressive conservatism which inspires the fullest confidence and respect.

The Supposed Death-Rates of Abstainers and Non-Abstainers and Their Lack of Scientific Value. By Edward Bunnell Phelps, M.A., F.S.S. New York: Thrift Publishing Company. 1913.

In the issue of the Journal for Mar. 21, 1912 (Vol. clxvi, p. 462), we reviewed the author's previous book, "The Mortality of Alcohol," to which the present work is a sequel, reprinted from the *American Underwriter Magazine and Insurance Review* for July, 1913 (Vol. xl, No. 1.) Since his former publication, the author has become more and more convinced that the moderate use of alcohol does not necessarily impair a man's prospect of life, and that statistics quoted to prove the contrary are often misused and misinterpreted. He points out how many factors contribute to fix class mortality, as of non-abstainers, and that there is no practicable measure for determining a general death-rate of non-abstainers from alcohol. It is not so much the alcohol, as his own personality, which is bad for the drinker. Inaccuracy is a common weakness of prohibition, as of anti-vivisection, literature. "One of the worst of the characteristic failings of teetotallers is a habit of exaggeration and intemperance in their statements."

THE BOSTON

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DR. MITCHELL'S TRIBUTE TO DR. BILLINGS.

IN the issue of *Science* for Dec. 12 is an admirable memoir of the late Dr. John Shaw Billings, read in November before the National Academy of Sciences, at Baltimore, by Dr. S. Weir Mitchell, of Philadelphia. After a sketch of the principal events of Dr. Billings's life, Dr. Mitchell speaks particularly as follows of the former's service in the surgeon-general's library:

"The great work of John Shaw Billings which gave him finally a world-wide repute, began at some time after 1864, when he was asked by the surgeon-general to take charge of the army medical museum created under Surgeon General Hammond by the skilful care of Surgeon John H. Brinton. His formal assignment 'in charge of the Museum Library Division and as curator of the Army Medical Museum' dates from Dec. 28, 1883, but he had been informally librarian for many years before that time. It is quite impossible here to enter into any detailed account of the ingenuity and power of classification which has made this museum the greatest presentation of the effects of war on the bodies of men. It is, however, essential to say a few words about the varied capacities which built up and made finally available to scholars the library of the surgeon-general, now the most completely useful collection of medical works in the world.

"In some reminiscences of his younger days he speaks of his student aspiration 'to try to establish for the use of American physicians a fairly complete library and in connection with this prepare a comprehensive index which should spare medical teachers and writers the drudgery of consulting thousands or more indexes or the turning over the leaves of many volumes to find the dozen or more references of which they might be in search.' The opportunity he craved when young came now by singular good fortune into his possession. When he took hold of this work, the surgeon-general's library contained a little over a thousand volumes and all interest in its increase had been long at an end.

"The library as he left it contained 307,455 volumes and pamphlets and 4,335 portraits of physicians. At the present day in the skilful hands which took up his task, it has reached over half a million volumes and over five thousand portraits and has a unique collection of medical journals quite matchless elsewhere."

Dr. Mitchell next describes the genesis and development of the famous index catalogue and of the *Index Medicus*, both typical and enduring products of Dr. Billings's peculiar genius:

"It was thus that Dr. Billings got his trainings for the still larger task which awaited him when he was chosen as librarian of the Astor-Tilden-Lenox Library in New York. There at once this great enterprise found in him all the varied qualities which were needed in the construction of the building, the classification of its contents, the efficient administrative grasp on the forty outlying libraries of New York connected with the triple library, and in his singular power of uniting strict discipline with a capacity to attach to him those under his control."

Most striking and valuable of all, in this admirable memoir is Dr. Mitchell's account of his personal relations with Dr. Billings, since this reveals most perfectly the individuality of both men:

"Generally a rather silent man, he was capable now and then of expressing in eloquent brevities of speech the warmth of his regard for some one of the few he honored with his friendship. In the last talk I had with him, he said to me some things which remain as remembrances of this rather taciturn and reserved gentleman. I had asked him how many degrees and like honors he had received and, considering these notable recognitions, I remarked on the failure of popular appreciation. He replied with a jesting comment and then said, after a brief silence, that he was far more proud of his capacity to win the friendship of certain men and of the service he had been able to render to science in his connection with the Carnegie Institution of Washington. There indeed his always wise and broad-minded interest will be greatly missed. I served with him from its foundation on the distinguished executive committee of this body. Here, among men he liked and trusted, we saw him at his familiar best. Always a patient listener, his decisions as chairman were expressed with his quiet, courteous manner, and many times his large knowledge of the science of the day left me wondering how it could have been

attained amid the amazing number of occupations which had filled his time. But in fact he was intellectually sympathetic with every form of scientific research, a somewhat rare characteristic among investigators. I ought also to say that the men of our committee and of the board of trustees felt at times a little surprise at the shrewdness, the common sense and the commercial insight he brought to the critical financial consideration of this immense money trust. Not elsewhere was he better seen or understood as conveying the sense of character, and nowhere else was he better loved."

And finally Dr. Mitchell sums up as follows the work of Dr. Billings, and his service to the medical profession:

"Science is forever changing. The work of today is contradicted tomorrow. Few, indeed, are so fortunate as to leave in the permanent remembrance of science conclusive work. The man whose loss we regret left to medicine in his catalogue of the Surgeon-General's Library a monumental labor which none will ever better and to which he gave continuity of vigorous life."

A NEW VENTURE IN JOURNALISM.

The first number of the "*Psychoanalytic Review,* a journal devoted to the understanding of human conduct," under the editorship of Dr. William A. White of Washington and Dr. Smith Ely Jelliffe of New York, is in our hands. The object of this journal, as its sub-title implies, is to place on a firmer scientific basis the principles which underlie the conduct of life as exemplified in the widening literature commonly spoken of as psychoanalysis. There are many such publications abroad, but this is the first attempt in this country to bring into the compass of a single review the theories and facts underlying what may properly be called the new psychology. This first number contains as its leading article an instalment of the lectures given by Professor Jung last year before the Fordham Extension Course in New York. This article is of peculiar value inasmuch as it discloses the matured judgment of one of the leaders in the psychoanalytic movement who has in a certain measure departed from the teachings of Freud. Other articles by L. E. Emerson, T. H. Ames, and a practical exposition of psychoanalysis by S. E. Jelliffe complete the original contributions to this number, which also contains a critical digest on the paranoia problem, a translation of Riklin's symbolism in fairy tales and an abstract and book review department. The pamphlet is bound in the form which has become familiar through the Nervous and Mental Disease Monograph Series. It is open to question whether a somewhat smaller size might not have been desirable in view of the possibility of later binding and storage on library shelves. The print and paper are excellent and in general we commend this justified but somewhat venturesome excursion into a field of medical literature which is gradually demonstrating its usefulness as a significant and far-reaching field of research.

RACIAL ASPECTS OF TUBERCULOSIS.

In the November issue of *Public Health* is published an important paper on "Phthisis in Scotland," by Dr. A. K. Chalmers of Glasgow, being his presidential address before the Society of Medical Officers of Health of Great Britain. He points out that racial susceptibility plays a considerable part in the incidence and mortality of pulmonary tuberculosis. In 1862 the death-rate from tuberculosis in Scotland was 147 per 100,000 inhabitants. Formerly it ran as high as 367 in some counties, with an average of 250 for all Scotland. In 1912 the average rate for the entire country was 112. Obviously the natural reduction of phthisis had already begun, before the so-called "intensive crusade" against it, by the slow development of an incipient racial immunity.

In Boston during the same period, the rate rose until 1873 and has continued to decline steadily ever since. But the fall began before modern methods of combating tuberculosis were employed. Dr. Chalmers seeks to account for the decline partly also by the urbanization of the people, since hygienic measures can be far more effectively enforced in cities than in rural districts. This, he believes, more than offsets the increase of incidence due to overcrowding.

MEDICAL NOTES.

Bequest of Dr. John Green's Library.—Report from St. Louis on Dec. 12 states that the medical library of the late Dr. John Green, of that city, has been bequeathed to the Worcester (Mass.) District Medical Society. Dr. Green was a native of Worcester.

TWO IMPORTANT SCIENTIFIC MEETINGS.—Two important scientific congresses are to be held on this continent next week. The sixty-fifth annual meeting of the American Association for the Advancement of Science, and of its constituent societies, will be held in Atlanta, Ga., from Dec. 29 to Jan. 3, inclusive. One of the public lectures before this body will be by Dr. Charles Wardell Stiles, of the United States Public Health Service, on "The health of the mother in the South."

The annual meeting of the Society of American Bacteriologists will be held at Montreal, Canada, from Dec. 31 to Jan. 2, inclusive, in the medical buildings of McGill University, and at Macdonald College. The address of the president, Dr. C. E. A. Winslow, will be on "The characterization and classification of bacterial types."

BOSTON AND NEW ENGLAND.

A LIVING CENTENARIAN.—Mrs. Marion L. Johnson, of East Somerville, Mass., who is said to have been born on Dec. 16, 1810, at Malone, N. Y., celebrated recently her supposed one hundred and third anniversary. Her health is excellent, and she retains a high degree of mental alertness. She has been a widow for many years.

STATE ASSOCIATION OF BOARDS OF HEALTH.—A regular meeting of the Massachusetts State Association of Boards of Health was held last week in Boston. The president, Dr. Samuel H Durgin, delivered an address on "The practical abatement of nuisances"; and Professor Eugene Wambaugh, of the Harvard Law School, discussed "The nuisance under the law."

MASSACHUSETTS SOCIETY FOR MENTAL HYGIENE.—The first annual meeting of the Massachusetts Society for Mental Hygiene was held in Boston on Dec. 15. Addresses were made by Dr. Charles W. Eliot and Dr. Thomas W. Salmon.

EXPECTATION OF LIFE IN PROVIDENCE.—Statistics recently published by the city registrar of Providence, R. I., indicate that in 1860 the average length of human life in that city was 24.77 years, whereas in 1912 it had risen to 37.89, an increase of over 50%.

FIRE AT HARTFORD HOSPITAL.—On Dec. 11 a fire broke out in the engine-room in the basement of the Hartford (Conn.) Hospital. Forty-two patients were carried out from one of the wards. No one was injured.

INFECTIOUS DISEASES.—Cases of infectious diseases reported to the Boston Board of Health for the week ending Dec. 16, 1913: Diphtheria, 57, of which 8 were non-residents; scarlatina, 85, of which 12 were non-residents; typhoid fever, 7; measles, 19, of which 1 was non-resident; tuberculosis, 58, of which 1 was non-resident.

The death-rate of the reported deaths for the week was 18.36.

NEW YORK.

EXPOSITION OF SAFETY AND SANITATION.—At the exposition of safety and sanitation which opened on Dec. 11, there are exhibits from railroads and other large corporations, factory and special displays, showing measures for the protection of employees, and national, state, and municipal exhibits illustrating the work of protecting the public health. The U. S. Public Health Service is well represented, field and hospital work of the army medical corps is shown, and in the naval exhibit is the complete medical and surgical outfit of a modern battleship. In connection with the exposition there has been held a Conference on Safety and Sanitation. On December 10 Dr. W. H. Tolman, director of the American Museum of Safety, welcomed the delegates and gave an illustrated lecture on "Safe shops," and "The care of injured employees" was the subject of an address by Dr. Wm. O'Neil Sherman, chief surgeon of the Carnegie Steel Company. On Dec. 11, when Surgeon-General Stokes of the navy presided, there was a discussion on industrial hygiene, and among the speakers were Drs. A. H. Doty and Thomas Darlington. At the same session a paper on "The Cimex lectularius as a potent cause in the transmission of tuberculosis" was read by Dr. J. W. Beveridge, in which he added one more to the increasing list of crimes committed by the bedbug. In all cases of glandular or joint tuberculosis, he said, the source of infection was within the immediate reach of the insect. On Dec. 12 there were various addresses and discussions, and in the evening a banquet at the Waldorf-Astoria. At this the awards of several medals were announced, and among the speakers were President Hadley of Yale and Surgeon-General Stokes.

Tuberculosis Sanatorium of Metropolitan Life Insurance Company.—The tuberculosis sanatorium of the Metropolitan Life Insurance Company for its employees has recently been opened at Mount McGregor, near Saratoga Springs, and thirty patients have now been admitted to it. The site of the institution is a beautiful one, 1,200 feet above sea-level, and comprising 420 acres. When it was first proposed to provide for such a sanatorium out of the company's funds the question of the legality of the procedure was raised, and an opinion on the matter was sought from the Apellate Division of the New York Supreme Court. By it the legal right of the company was affirmed, and the scheme was indorsed in the following words: "The reasonable care of its employees, according to the enlightened sentiment of the age and the community, is a duty resting upon it, and the proper discharge of that duty is merely transacting the business of the corporation."

Problem of Feeble-Mindedness.—In the 61st annual report of the Children's Aid Society, recently published, concentration and classification in philanthropic work are advocated, and much space is given to the problem of feeble-mindedness. In an industrial school of the society in West 53rd Street a study was made of 291 children, with the result that, in accordance with present standards of mentality, 144 were classified as normal, 25 as backward, and 32 as feeble-minded. The population of this region of the city is largely native born, and of 24 families represented by the 32 feeble-minded children, no less than 21 were found to have record with either the Charity Organization Society or the Association for Improving the Condition of the Poor.

Resignation of Dr. Hermann M. Biggs.—Dr. Hermann M. Biggs, after having been for twenty-six years in the service of the City Health Department, has resigned from the position of general medical officer. He has been made chairman of the recently established public health council of the state, and also president of the tuberculosis preventorium for children.

Nassau Hospital Under Quarantine.—The Nassau Hospital at Mineola, the county seat of Nassau County, on Long Island, has been put under quarantine by Dr. Guy Cleghorn, the local health officer, on account of the appearance of diphtheria in the institution. A patient was brought in in whose case the diagnosis of typhoid fever had been made, but four days after admission post-diphtheritic paralysis developed, and after he had been transferred to the Kingston Avenue Hospital, Brooklyn, the nurse who had been attending him was taken down with diphtheria. Nine others of the nurses were also found to be harboring diphtheria germs.

Gaynor Playground.—The William J. Gaynor Playground, on upper Amsterdam Avenue, which has been established as a memorial to the late mayor, was opened on Dec. 20 by Mayor Kline. This park, which extends from 151st Street to 152nd Street, includes an attractive recreation house, which has been equipped with playrooms and shower baths.

Current Literature

Medical Record.

December 6, 1913.

1. Dana, C. L. *The Serological Tests in Cerebral Hemiplegia.*
2. *Richter, C. M. *Colds and Their Relation to the Physics of the Atmosphere.*
3. Williams, E. H., and Brown, J. S. *Venereal Diseases and Practical Eugenics in Small Communities.*
4. Fauntleroy, A. M. *Vienna, the Postgraduate Medical and Surgical Mecca.*
5. Rush, J. O. *Gumma of Prostate and Bladder.*
6. Rosenbluth, B. *Partial Facial Paralysis Due to Traumatism.*
7. Shalet, L. *Tuberculosis, and the Von Pirquet Test in Children.*
8. Rueck, G. A. *A Case of Pneumococcus Septicemia.*
9. Miller, A. M. *A Hemostat as a Safety Blade Holder.*
10. Vincent, W. G. *A New Kidney Cushion.*

2. Richter believes that bacteria are very rarely the primary cause of the common "cold," and by no means always of any etiological importance. The real cause, he says, is atmospheric—an excess of moisture in the inspired air. Acute coryza is a physiological vasomotor process, the profuse and continuous nasal secretion being an effort to relieve the respiratory apparatus of the effects of overcharge of moisture. [L. D. C.]

New York Medical Journal.

December 6, 1913.

1. Knopf, S. A. *The Physical, Mental and Moral Vigor of Our School Children.*
2. Gwathmey, J. T. *Oil-Ether Anesthesia.*
3. Brown, L. *Cancer of the Uterus and the American Society for the Control of Cancer.*

4. SCHELL, J. T. *Diagnosis of Acute Abdominal Conditions.*
5. COCKS, G. H. *The Indications for Operating in Acute Mastoiditis.*
6. *BUCKLEY, A. C. *The Relation of Hyperthyroidism to the Nervous System.*
7. WIENER, S. *High Frequency Cauterization in the Treatment of Urethral Caruncle.*
8. GUTHRIE, J. A. *Cancer.*

6. Buckley discusses the various theories which have been advanced as to the cause of Graves' disease. There is unquestionably a very close relationship between hyperthyroidism and the nervous system. Whether the thyroid gland or the nervous system is the primary seat of this disease, a vicious circle is established between the two. The excessive secretion affects the nervous mechanism controlling the circulation in the organ, which in turn intensifies the state of hypersecretion. [L. D. C.]

THE ARCHIVES OF INTERNAL MEDICINE.

OCTOBER, 1913.

1. CUMMINS, W. T., AND BROWN, P. K. *Atypical Typhoid Infection.*
2. *VAN ALSTYNE, E. I. *Absorption of Protein Without Digestion.*
3. ROSENBLOOM, J. *The Cholesterol and Cholesterol-Ester Content of the Blood in Xanthoma Tuberosum.*
4. *MELLON, R. R. *The Relation of Fatigue to Paralysis Localization in Plumbism.*
5. *CROWDER, T. R. *On the Reinspiration of Expired Air.*
6. FOSTER, N. B. *Functional Tests of the Kidney in Uremia.*
7. *PETERS, L. S., AND BULLOCH, E. S. *Blood Pressure Studies in Tuberculosis at a High Altitude. Report of Six Hundred Cases.*
8. FULTON, F. T. *"Auricular Flutter" with Report of Two Cases.*

2. Van Alstyne reports the results of elaborate experiments on protein absorption in dogs. She finds that protein may be absorbed unaltered through the intact epithelium of the gastro-intestinal tract. Conditions which interfere with normal digestive function markedly increase the amount of protein absorbed. The amount of protein absorbed without digestion is insignificant under physiological conditions. Absorption in the duodenum differs from that in other portions of the intestine in that ligation of this portion does not facilitate absorption of unaltered protein. The writer finds that only a very small amount of protein is required to sensitize an animal or seriously intoxicate a sensitive animal, and she suggests that the absorption of unaltered protein may bear a causal relation to asthma, skin eruptions and other anaphylactic phenomena.

4. Mellon studied the relation of fatigue to paralysis localization in lead poisoning in an extensive series of experiments on frogs. He is very emphatic in his conclusion that lead in itself has no predilection for any group of muscles except as the choice is made possible by their over-use. Fatigue is, therefore, the main factor in the localization of lead palsies.

5. Crowder reports results of experiments on the composition of expired air and the effect of its reinspiration. With each breath, he says, we take back into the lungs the air contained in the nose and larger bronchi—the "dead-space" air. Rebreathing of the ordinary dead-space air is a normal and conservative process; it prevents pure air from entering the lungs and reducing the carbon dioxide below the amount required for stimulating the respiratory center, thus making of breathing a regular and continuous, rather than an irregular and interrupted function. The idea that the good effects of efficient ventilation are due to the chemical purity of the air is erroneous. Within a wide variation in the purity of the air we breathe, the respiratory function is perfectly adapted to maintain its normal balance. Ventilation, fresh air and outdoor life are important for the heat economy of the body, rather than for the chemical purity of the air we breathe. Outdoor air takes up rapidly the heat which is constantly being formed in the body, thus stimulating healthy functions and increasing resistance to disease, but it does not make the alveolar air purer. As a matter of fact, the proportion of carbon dioxide in the alveolar air is lower in a warm room than out of doors because metabolism is reflexly retarded by a warm atmosphere.

7. Peters and Bullock have made a study of blood pressure in 600 cases of tuberculosis at Silver City, N. M., situate about 6000 feet above sea level. They find that pressure tends to increase up to certain limits with continued residence. There is no relation between the degree of involvement and blood pressure, but a constant relation between degree of toxemia and blood pressure. The blood pressure findings were of great prognostic value in these cases.

[L. D. C.]

THE LANCET.

NOVEMBER 8, 1913.

1. MERCIER, C. *An Address on Heredity and Inheritance as They Concern the Physician.*
2. GLYNN, T. R. *The Bradshaw Lecture on Hysteria in Some of Its Prospects.*
3. MALCOLM, J. D. *On the State of the Blood Vessels in Shock.*
4. DAVIES, D. S., HALL, I. W., WILLIAMSON, G. S., AND PETERS, B. A. I. *Fourth Report on Typhoid Carriers.*
5. HOPKINS, F. G. *Diseases Due to Deficiencies in Diet.*
6. CRIVEILHIER, L. *Sensitized Virus Vaccination in Gonorrhea, and Especially Its Complications.*
7. TUBBY, A. H. *Some Additional Experiences of Nerve Surgery.*
8. *RAW, N. *Public Measures for the Prevention of Tuberculosis.*
9. TULLOCH, W. J. *The Bacteriological Diagnosis of a Case of Plague.*
10. CAMMIDGE, P. J. *The Estimation and Significance of Amino-Acids in the Urine in Diabetes Mellitus.*
11. BREND, W. A. *The Mortality of Children from Burning.*
12. SMITH, H. O. *Research Work in Insanity and the Study of Curative Treatment of the Insane.*

8. Among the other public measures which Raw advises for the prevention of tuberculosis, he mentions and discusses voluntary and compulsory notification, removal of affected children from school and home, treatment of children in special children's sanatoria, education of the public with regard to the disease, provision of municipal dispensaries in every community, provision of sanatoria for early cases and hospitals for advanced cases, home training and supervision among the working classes, rigorous supervision of the milk supply, extermination of tuberculosis among cattle, assistance to the family when the bread winner is gone and provision of suitable employment to cured cases and those in whom the disease is arrested. [J. B. H.]

NOVEMBER 15, 1913.

1. MOTT, F. W. *The Degeneration of the Neurone in the Light of Recent Research, Especially in Relation to Syphilis and General Paralysis.*

2. Harrison, L. W. *Gonorrhea Phylacogen: Report on an Investigation into Its Value in the Treatment of Some Gonococcal Infections.*
3. Jones, G. H., Hodges, G. M. W., and Roth, P. B. *Report and Remarks on a Small Epidemic of Poliomyelitis.*
4. Tubb, G. *Notes of an Outbreak of Acute Anterior Poliomyelitis at West Kirby.*
5. Nash, W. G. *Two Cases of Ascites Treated by Multiple Paracentesis and by Femoral Drainage.*
6. Sutherland, H. *Polyvalent Tuberculin and the Types of Temperature Reaction; a New Technic.*
7. Nairn, R. *Tubal Gestation Continuing to the Sixth Month after Rupture at the Sixth Week.*
8. Brockman, R. S., and L. *The Diagnostic Value of Abderhalden's Method in Carcinoma.*
9. MacFie, J. W. S., and Johnston, J. E. L. *A Note on Five Cases of Porocephaliasis in Man from Southern Nigeria.*

British Medical Journal.

November 8, 1913.

1. Glynn, T. R. *The Bradshaw Lecture on Hysteria in Some of Its Aspects.*
2. *Rogers, L. *The Rational Treatment of Chronic Bacillary Dysentery, and the Advantages of Enemata of Silver Gellatose.*
3. *Irwin, W. K. *Gastric Tetany in the Adult.*
4. Richardson, V. G. *A Case of Acute Dilatation of the Stomach Occurring in the Course of an Operation for Duodenal Ulcer.*
5. *Tubby, A. H. *Dupuytren's Contraction Successfully Treated by Open Incision and (Theosinamin) Fibrolysin.*
6. Barber, H. *Chronic Interstitial Nephritis in Children: a Brother and Sister Affected.*
7. Craik, R. *Yeast Infection in Children.*
8. Mackintosh, J. S. *Salicylic Ionization in Acute Pericarditis.*

British Medical Association.

Section of Neurology and Psychological Medicine.

8. *Savage, G., et al. *Discussion on Sleep and the Treatment of Sleeplessness.*
9. Boyd, W., and Brunton, G. L. *On the Occurrence of Micrococci in the Blood and Cerebro-spinal Fluid of Two Cases of Mania.*
10. Eder, M. D. *The Present Position of Psychoanalysis.*
11. Wingfield, H. E. *The Treatment of Alcoholism by Suggestion.*
12. Brown, W. *Extensive Amnesia Cured by Psychoanalysis and Hypnosis.*
13. Russell, J. S. R., et al. *Discussion on Vertigo.*
14. Williams, T. A. *Truths About Mental Healing.*

2. Rogers strongly recommends the use of enemata of silver gelatose in chronic bacillary dysentery. He discusses the lesions and their bearing on treatment, the indications for the use of medicated enemata, and in addition he reports in detail several cases successfully treated by this method.

3. Irwin describes gastric tetany and discusses its etiology and treatment. He has collected from the literature 39 cases, of whom only 11 recovered.

5. Tubby reports a case of Dupuytren's contraction successfully treated by open incision and fibrolysin.

8. Savage and others discuss in an interesting way sleep and sleeplessness and its treatment by drugs, diet, hydrotherapy, suggestion and hypnosis. There is much practical information in this article and the discussion of it. [J. B. H.]

Münchener Medizinische Wochenschrift.

No. 44. November 4, 1913.

1. Heine, L. *Cerebral Pressure in Diseases of the Eye.* (*Second Communication.*)
2. *Bürker, K. *The Physiological Effect of Altitude on the Blood and Its Significance.*
3. Versé, M. *The Presence of Spirochaeta Pallida in Early and Late Syphilitic Lesions of the Central Nervous System.*
4. Müller, C. *Physical and Biological Factors in the Activity of Radio-containing Substances, Especially of Mesothorium, and Their Substitution by Roentgen Rays.* (*Preliminary Communication.*)
5. Beyer, B. *Abderhalden's Dialysis Method in Psychiatricial Diagnosis.*
6. Rabinowitsch, M. *The Cause of Typhus Fever.*
7. *Von Litzner. *The Diagnosis and Treatment of Non-tuberculous Lesions of the Apex of the Lung.*
8. Riedel, K. *The Subcutaneous and Intramuscular Use of Melubrin.*
9. Käsbohrer, M. *Noviform.*
10. Hofmann, A. *Operation in Acute Pancreatitis.*
11. Zalewski, E. *Observation of a Beginning Spontaneous Rupture of the Uterus Incidental to a Suprapubic Section.*
12. Keil, A. *Movements of the Chest Wall in Respiration.*
13. V. Bergmann, G. *The Relation of the Nervous System to the Motor Function of the Stomach.*
14. Massini, R. *Radiological Studies on the Relation of the Nervous System to the Motor Function of the Stomach.*
16. Gennerich. *Further Observations on Syphilitic Re-infection after Salvarsan and on the Biology of Human Syphilis.* (*Conclusion.*)
17. Rupprecht. *Physicians and the Public Care of Children.*
18. Nassauer, M. *The High School for Physicians and Patients.*

2. Bürker and two other subjects experimented on themselves as to the effect of altitude on the hemoglobin and red cell content of the blood. Examinations were made in Tübingen, 314 meters above sea-level, and then at Schatzalk, 1874 meters above sea-level. Experiments were conducted here over a period of four weeks. Final observations were again made at Tübingen on returning and after a month had elapsed. In each case a marked increase in the number of red cells and the hemoglobin content per red cell was found, lasting for at least a month.

Bürker discusses these results. Barcroft, Galeotti, and Barcroft and Orbelli have shown that in high altitudes the CO_2 tension of the expired air is diminished, with an increase in the blood acids and a diminished alkalinity of the blood. Bürker concludes that the increased red count, and hemoglobin content found in his observations was not due to atmospheric changes, but was a physiological attempt to regulate the acid metabolism of the body, and to offset the accumulation of carbonic and other acids.

7. Von Litzner states that the majority of pathological lesions at the apices of the lungs are of a tubercular nature. Pneumonokoniosis, anthracosis, pneumonomycosis and the bacillus of influenza may produce chronic inflammatory processes in that area causing signs and symptoms similar to tuberculosis. More rarely, infarcts and tumors are found at the apices, giving evidence of consolidation.

Litzner quotes characteristic cases of non-tubercular lesions of the apices and concludes that there are many pathological lung lesions in this area of a non-tubercular nature. The determination of their cause remands a thorough investigation, but is of utmost importance to the patient for diagnosis, prognosis and treatment. [R. F.]

No. 46. NOVEMBER 18, 1913.

1. WEBER, A. *Right Auricular Pressure, and the Value of Esophageal Cardiograms in the Explanation of the Jugular Venous Pulse.*
2. ANITSCHKOW, N. *The Accumulation of Fat and Cholesterin-Containing Cells in the Subcutaneous Connective Tissue of Rabbits Following Experimental Abscesses.*
3. EICHOLZ, W. *The Injection of Dried Anti-toxic Serum to Avoid Anaphylaxis.*
4. *VEIEL, E. *Arteriitis Obliterans.*
5. PAGENSTECHER, A. *The Practical Similarity of Radium and Roentgen Rays.*
6. V. SALIS, H. *Adrenalin in the Treatment of Recurrent Osteomalacia.*
7. TRÜMMER, F. *Ortizon.*
8. MAGNUS, R., AND DE KLEIJN, R. *A Case of Tonic "Neck Reflexes" in Man.*
9. V. GZLAT-WELLENBURG. *A Case of Rumination.*
10. DÖLLNER. *A Method for the Determination of Vision in Patients Unable to Read.*
11. FRIEDRICH. *The Greek Military Hospitals at Saloniki and Athens at the End of the Second Balkan War.*
12. HERXHEIMER, G. *Lymphoblastic and Myeloblastic Leukemias.* (*Conclusion.*)
13. SUDHOFF, K. *Johann Christian Reil in 1813.*
14. NASSAUER, M. *The High School for Physicians and Patients.*

4. Veiel reports two cases in young adults of probable arteriitis obliterans with symptoms of intermittent claudication. In neither case was there evidence of syphilis nor of arterio-sclerosis, as determined by physical signs and by Roentgen rays. One patient used an excessive amount of tobacco. In both the symptoms developed after trauma which, Veiel believes may have been of etiological significance. Veiel concludes that these two cases were the result of a vaso-motor neurosis and were similar to those reported by Erb, Curschmann, Oppenheim and others. [R. F.]

BERLINER KLINISCHE WOCHENSCHRIFT.

No. 40. OCTOBER 20, 1913.

1. BAGINSKY, A. *Heart Lesions Resulting from the Nephritis of Scarlet Fever, and Their Treatment.*
2. NOGUCHI. *Cultivation of the Causative Agent of Hydrophobia.*
3. FRANKEL, A. *The Resistance, Outside the Body, of White Blood Cells.*
4. CUNNINGHAM, J. H., JR. *New Methods of General Anesthesia.*
5. *PINKUSS AND KLONINGER. *The Treatment of Cancer by Autogenous Vaccine.*
6. *HENDERSON, Y. *The Pathology of Shock.*
7. BLUMENTHAL, F. *The Present Status of the Treatment of Malignant Tumors.*
8. KROHL, P. *Immunization of the Blood (with Mercury) against Septic Infection.*
9. BÖHM, M. *Congenital Failure of Development of the Bones of the Trunk.*
10. BEHLA, R. *Total Mortality Statistics of Adults in Prussia since 1876, and Special Statistics of Tuberculosis of Children.*
11. ALEXANDER, S. *The Position of the Criminal Law Commission of the Imperial Court Toward the Right of Doctors to Operate.*
12. *The Rizzoli Orthopedic Institute in Boulogne.*

5. The author has treated a few cases with an extract made from the patient's own tumor after autolysis for forty-eight hours. His cases are too few, and the time of observation too short, for one to draw any definite conclusions whatever.

6. The researches of Henderson, as well as those of von Seeling and Lyon, have convinced him that in shock the arteries are not contracted, but relaxed; and that the pathological picture results from disturbance with the venous blood pressure. In the author's mind the two chief problems are to find out just what regulates the venous pressure, and the blood supply to the right heart. Moreover, he thinks that the mechanism of venous pressure is not an affair of the contractility of the veins, but rather that it is a question of the blood volume of the body. He says that shock is not a vasomotor failure, and that its essential causes are not of a nervous but rather of a chemical nature. [R. H. M.]

DEUTSCHES ARCHIV FÜR KLINISCHE MEDIZIN.

OCTOBER 31, 1913.

1. *RAFF, K. *Measurement of Blood Pressure in Alcoholics and Cases of Functional Neuroses Free from Disturbances of the Circulation.*
2. MALIVA, E. *Study on the Chemistry of the Sputum.*
3. GUGGENHEIMER, H. *Increase of Autolytic Enzyme Action in Pathologic Sera and in Sera of Pregnancy.*
4. BERGER, V. *Anatomical Investigation of the Heart in Perpetually Irregular Pulse.*
5. *FAHRENKAMP, K. *Electrocardiogram Studies of Perpetual Arrhythmia.*
6. SCHOLZ, B., AND HINKEL, A. *The Question of Chlorine Retention.*
7. DAVIS, S. *Traumatic Thrombosis.*
8. PEL, L. *With HCl Deficiency is Albumen Especially Well Split Up?*
9. LEHMANN, G. *Diagnostic Importance of the Determination of Colloidal Nitrogen in the Urine According to the Method of Salkowski and Kojo.*

1. In a study of blood pressure in people free from evidence of cardiac or renal disease who had been hard drinkers, Raff found that on entrance to the hospital the systolic pressure rose. Alcohol was taken away from the patients on entrance to the hospital. The systolic pressure then remained level for a time and gradually sank to its former level, or in other cases it tended to immediately return gradually to its former level after the rise. The diastolic pressure, however, preserved a very constant level throughout. Thus a marked change in the pulse pressure occurred, which the author thinks might be of diagnostic value in doubtful cases.

5. Fahrenkamp brings out several interesting points about irregularities of the heart as studied by the electrocardiograph. He shows good tracings from three different leads and emphasizes the importance of trying out the different leads in each case, as frequently one will give auricular waves when another will not. He speaks of three kinds of auricular conditions which are associated with irregular ventricles. In the first place the auricular fibrillation. This condition he does not think will continue indefinitely, and he reports several cases in which the condition changes as time goes on to one of the other types of auricular irregularities. Another condition he describes is rhymical rapid rate of the auricle, often between 300-400 a minute. This is similar to Lewis' auricular flutter, only the ventricle is irregular. A third type of auricular disorder which he mentions is a very rapid auricular rate which is irregular. This also frequently goes to 300 or more. Here again the ventricle is irregular and usually ranging from 70 to 120. He also describes a case of rapid and irregular heart in which the auricles remained normal. He thinks that most of the cases of auricular fibrillation would show what he calls auricular tachysystole for some of the time if studied frequently with different leads. [C. F., JR.]

Die Therapie der Gegenwart.

November, 1913.

1. Lazarus, P. *The Physical Therapy of Joint Diseases, Especially Gout.*
2. Bergmann, H. *Our Experience with Rosenbach's Tuberculin.*
3. Donath, J. *The New Method of Treatment of Tabes Dorsalis and Progressive Paralysis.*
4. *Ochsenius. *Whooping Cough and Its Treatment.*
5. Meidner, S. *New Remedies.*
6. Disqué. *Vegetable Protein in Treatment.*
7. Sternberg, W. *Pilsner Beer and the German Light Beers in Treatment.*
8. Kohnstamm, O. *Elarson, Especially in Basedow's Disease.*

4. Ochsenius recommends systematic swabbing of the throat with silver nitrate solution in cases of whooping cough. He finds that this treatment not only reduces the number of paroxysms but also lessens the subsequent predisposition of the bronchial mucous membranes to inflammatory conditions. The action of the nitrate is probably specific, attacking the disease process itself. [L. D. C.]

Revue de Médicine.

November, 1913.

1. Bret, J., and Blanc-Perducit. *Closed Renal Tuberculosis in the Form of Bright's Disease.*
2. *Bonnamour, S., and Badolle, A. *The Syndrome of Osteomalacia: Its Different Causes.*

2. The authors consider the different causes of osteomalacia under separate headings. The acid theory, while plausible, is not applicable in many instances. Certain cases arise from undoubted infectious origin. Others seem entirely dependent upon perversion of glandular activity, by hyper- or hypo-secretion of the ovary, testicle, suprarenal, hypophysis, thyroid and parathyroid. In rare cases the thymus and the liver seem involved. Therapeutic results prevent the broad conclusion that the glands of internal secretion are alone at fault. Castration and the use of milk of animals deprived of thyroid or thymus fail in many instances to bring relief. On the other hand, opotherapy is at times of no avail. That the nervous system plays a part of importance is shown by the frequency of spontaneous fractures in many diseases of the spinal cord. In the same way, disturbances of circulation are of great importance. An excitation of the vaso-dilator nerves, produced by over-activity of certain of the glands of internal secretion, provokes a hyperemia by venous stasis in the bone. This action enables the calcium to be dissolved by the carbonic acid of the blood. It seems reasonable to suppose that osteomalacia is merely a syndrome which may be produced by infection, by perverted glandular activity or by faults of nutrition. The nervous system plays a rôle in any instance, which often seems of primordial nature. This syndrome, varied as is its origin, presents a uniform chemical aspect, *i.e.* bone decalcification. [L. H. S.]

The Sei-I-Kwai Medical Journal.

November, 1913.

1. *Higuchi, S. *An Observation on the Transplantation of Japanese Mouse Cancer.*
2. Sewaki, H. *An Experimental Study on the Action of "Hectol."*
3. Kuranari, Y. *Regarding the Use of Stevenson's Tamponing.*
4. Motomatsu, S. *A Case of Dystocia Due to Tumor of the Fetus.*

1. Higuchi reports a series of experiments with the inoculation of Japanese mouse cancer into 278 Japanese and 7 English mice. In 109, or 38.2%, the tumor developed by the seventeenth day. In 63 more, or 22.2%, it developed by the thirty-first day. All the inoculations into English mice were successful. [R. M. G.]

Miscellany.

ORGANIZATION OF PUBLIC HEALTH WORK.

At the annual meeting of the Association of Life Insurance Presidents, held in New York on Dec. 12, Professor William T. Sedgwick, of the Massachusetts Institute of Technology, made an address on "The Increase in Longevity Wrought by the Modern Public Health Movement." He spoke in part as follows about the organization of public health work:—

"Mankind has often struggled fiercely for existence and sometimes for home, but seldom with equal energy for health. The world-wide movement of today towards public health is a product of the great pathological discoveries made largely between 1880 and 1890. By 1890, though the foundations of sanitary science were firmly laid, practical sanitation and public health work had scarcely begun. But within the last few years there has come about a mighty change. Our cities, towns and states now bristle with boards of health, and although we still lack a national board working under that name, we really have a National Board of Health, and one doing splendid work, in the now well-organized and powerful United States Public Health Service. There can be no doubt as to the line along which progress is most needed, and therefore most likely to be made, and that is the line of organization and administration. At the present time our public health forces may be likened to a great army of enthusiastic but untrained and poorly officered soldiers. For this condition, perhaps, no one is much to blame, since it arises in large measure from the unexpectedly rapid development of the subject, which may be said to have taken the people unawares, and even today most of our medical and scientific schools pay but scant attention to the preparation of their graduates in the subjects of public health, preventive medicine or hygiene, and still less to the training of health officers. Hence the fundamental and national importance of the step recently taken by Harvard University and the Massachusetts Institute of Technology, acting in coöperation, in organizing for the first time in this country a special high-grade School for Health Officers, including studies and observations specifically designed and arranged for the professional training of medical men, sanitary engineers and graduates in biology and public health.

"Our State boards of health still leave much to be desired alike in organization, equipment and administration. Some of them are well organized, fairly equipped, and doing excellent work; but most of them need thorough overhauling and repairing, if not entire reconstruction. When we come to the organization and administration of municipal health affairs, we find things in a much more serious condition, because while the state boards may be no better organized, they are, as a rule, less powerful and, therefore, less responsible. Few, indeed, are the boards of health which today have either the vision, the ability or the training to realize their opportunities. It has become comparatively easy to have one central headquarters, furnished with a well-equipped laboratory, for public health administration; and we are at the moment conducting an experiment of this kind in the suburbs of Boston, under which several towns are coöperating in common organization with mutual advantage and general satisfaction."

In conjunction with the above, may be noted as particularly pertinent some remarks in a recent address by Dr. Rupert Blue, surgeon-general of the United States Public Health Service:

"The most needed reforms in public health administration are greater coöperation between public officials, the employment of full-time workers, establishment of laboratories, accurate collection of vital statistics and the setting aside of sufficient funds to accomplish these things. The future sanitary administration in this country depends upon the interest which the citizens take in its development. Our slow progress in the direction of a perfect national health is due to the fact that the people have not as yet fully demanded that protection against preventable disease which they have a right to expect from their administrative officials. Neither have they demanded legislation and appropriations which are essential to the successful prosecution of public health work. There are two main causes for the paucity of sanitary legislation, public indifference and economic opposition. A single case of leprosy in a city will create widespread excitement, while a thousand cases of measles, which in their final results are infinitely more dangerous, are permitted to occur without remark.

"We have learned from oft-repeated failure and sore disappointment that in sanitary work, as in all the other efforts of the human race, the greatest good can be accomplished in the shortest space of time and with a minimum expenditure of funds and labor by a concentrated cooperative effort. The most-needed reform in the administration of all of the various parts of the public health arm of the nation is an active and generous coöperation one with the other. The Public Health Service cannot succeed in the fullest extent if it is not assisted by the state and local health authorities. The state departments of health cannot discharge their duties with greatest profit without the help of the county and municipal boards of health, and all of them to succeed in the broadest way must coöperate one with the other and all as a whole. The form which this coöperation should take is capable of endless variation and untold multiplicity, but the first and one of the most important single factors is in the collection of vital statistics."

THE LAST DAYS OF CARDINAL RICHELIEU.

IN a study of the last days of Richelieu, quoted in the issue of the *British Medical Journal* for Dec. 6, A. Corlieu says that "the Cardinal was a tall, thin man, of nervous, bilious temperament. He had been drugged, or drugged himself, to an extent almost beyond belief by us in these days. In one year (1635), when he was 50, he took seventy-five enemas and one hundred and twenty-seven boluses of cassia, without reckoning laxative medicines prepared by his apothecary, the bill for which was 1,401 livres, 14 sous. He was used up by the strenuous life he had led. About the middle of August, 1642, Richelieu fell ill. For some time abscesses formed in the right arm, so that he could not write. The arm had wasted considerably, and when he dictated his will on May 23, 1642, the notary signed for him. Besides these abscesses, which had to be opened, he had ulcerated hemorrhoids, which prevented his riding in a carriage. Montchal, Archbishop of Toulouse, who did not like him, reports in his *Memoirs* that the Cardinal's hand was rotten, as a consequence of a disease called *carbunculus*. He added the qualifying word *Narbonicus*, doubtless by way of allusion to the town of Narbonne in which were arrested Cinq-Mars and de Thou, who were tied up in a boat attached to that of the Cardinal. It was by boat that he reached Lyons on September 9th, and there the two young men were tried and beheaded on the 12th. While the Cardinal was at Lyons there was made for him a vast wooden machine in which was a bed. This was carried by twelve men who took it in turn. Some forty men accompanied him. He was thus carried to Roanne, where he embarked on the Loire to Baire, took the canal to Montargis, joined the Loing to Nemours, travelled by his machine again to Fontainebleu, where he slept and finally arrived in Paris on October 7. He left St. Germain on the 26th in his machine to go to his castle of Rueil, where on the 30th he was visited by the Queen. He returned to the Palais Cardinal on November 4, still very unwell. In the night of Friday, November 28, he was seized with violent shivering, with fever and pain in the side. On the 30th, as the pain increased as well as the fever, he called in Charles Bouvard, first physician to the king. Bouvard was a great bleeder, and in the night Sunday to Monday the Cardinal was bled twice. On the Monday morn-

ing there was some improvement, which did not last long, for on the afternoon of the same day the fever increased; there was spitting of blood with difficulty of breathing. The case was evidently one of pneumonia. After some further bleedings on December 2 there was a consultation of physicians, who naturally approved of what the first physician had done, and decided on purgings and further bleedings. Wishing to know his exact state, Richelieu begged the doctors to tell him the truth; but they answered vaguely, saying that God could work a wonder to preserve him, but that they could give no definite opinion before seven days. Chicot, one of the king's physicians, being called privately, told the patient that he would be dead or cured in twenty-four hours. The Cardinal understood, but submitted to more bleedings and even took a pill prescribed by a quack who was called in. This seemed to do good, but about midday on Dec. 4 he died quietly. The skull was opened and the brain examined. According to the report, all the organs of understanding were doubled and trebled; by this probably nothing more was meant than that the brain was remarkably developed. Like Napoleon, Richelieu had a brain which worked in separate compartments. If Richelieu shed a good deal of human blood it may be said that his doctors punished him in the same way. It was the age of bleeding and Bouvard was a great bleeder even for that day. He is said to have bled Louis XIII forty-seven times in one year, and Gui Patin in one of his letters says that he bled sixty-four times in eight months his nephew Cousinot, a doctor, for acute rheumatism. Another doctor, Jacques Mentel, was bled thirty-two times for a continuous fever. Patin himself was bled seven times for a bad cold, and Brayer eighteen times for a malignant continuous fever."

WATER STERILIZATION BY ELECTRICITY.

In a recent issue of the *Engineering Record* is a description of a new apparatus for the electric sterilization of water.

"In this apparatus the water passes first through an electrode box consisting of a series of pure iron plates separated by marginal insulating gaskets. These plates are perforated at alternate ends, so that the water passes through the holes and between the plates through the whole series, and is exposed in a film to the surfaces of the plates in succession. Electric connections are so arranged that the entire series of water films is in the circuit at the same time. The effect of the current passing through these films of water is partly to dissociate the hydrogen and oxygen of which the water is composed, and at the same time to throw off hydroxide from the pure iron plates. The oxygen in its nascent form permeates the entire water-body, and by oxidation is said to assist in destroying all animal and vegetable life in the water. The iron hydroxide surrounds the matter in suspension, forming a sponge-like mass. The water then passes from this electrode box into a settling chamber, where the heavier matters settle. Thence it passes to a filter, through which it flows to a second filter, after which it is ready for consumption. There are special arrangements for preventing clogging of the filters and for cleaning.

"The machine works with a direct current of from 110 to 220 volts, and the electrode box is arranged to take any number of plates, the voltage between the plates being regulated by the number of plates put in series."

Correspondence.

Butler Hospital,

Providence, R. I., Dec. 15, 1913.

Mr. Editor: The following account of an early case of transfusion of blood from one animal to another may be of interest to your readers, even the youngest of them. I found the reference in the *Columbian Magazine* (Philadelphia) for January, 1787, in the form of a translation from "*Bibliothèque physico-économique instructive et amusante*," Paris, an annual which first appeared in 1783.

"A new experiment, communicated by M. Hassenfratz, physician.

"Being at Vienna, I met M. Ingen Houzs in the botanical garden—he accosted me, and said, 'I have just come from M. le comte de Dietrickstein's, where I saw the repetition of an experiment in the transfusion of blood. A sheep having been bled to the point of death, the vein of a calf was opened, and by means of a glass tube the blood of the calf was transfused into the veins of the sheep—the sheep revived by degrees, and the wound being closed, I had the satisfaction of seeing him run in the meadow and join his flock.' Some days afterwards M. Ingen Houzs assured me that the sheep was in perfect health."

G. Alder Blumer, M.D.

UNITED STATES CIVIL-SERVICE EXAMINATION. MEDICAL ASSISTANT (MALE).

January 12, 1914.

The United States Civil Service Commission announces an open competitive examination for medical assistant, for men only. From the register of eligibles resulting from this examination certification will be made to fill a vacancy in this position in the Bureau of Chemistry, Department of Agriculture, Washington, D. C., at $1800 a year, and vacancies as they may occur in positions requiring similar qualifications, unless it is found to be in the interest of the service to fill any vacancy by reinstatement, transfer, or promotion.

The duties of this position will be to study the claims and representations made in conjunction with proprietary remedies, look up medical literature, assist in preparing cases, etc., under the Food and Drugs Act. A knowledge of French and German is desirable.

Graduation from a medical school of recognized standing and at least three years' subsequent experience in the practice of medicine, or two years' subse-

quent experience in either pharmacological investigations or the actual examination of drug products with reference to the claims made therefor by manufacturers, are prerequisites for consideration for this position.

If a thesis is submitted it must present the results of original investigational work on the part of the applicant in some phase of medicine or pharmacology.

Statements as to training, experience and fitness are accepted subject to verification.

Applicants must have reached their twenty-fifth but not their forty-fifth birthday on the date of the examination.

Under an act of Congress applicants for this examination must have been actually domiciled in the state or territory in which they reside for at least one year previous to the date of the examination.

This examination is open to all men who are citizens of the United States and who meet the requirements.

Persons who meet the requirements and desire this examination should at once apply for application Form 304, and special form, to the United States Civil Service Commission, Washington, D. C.; the Secretary of the United States Civil Service Board, Post Office, Boston, Mass.; Philadelphia, Pa.; Atlanta, Ga.; Cincinnati, Ohio; Chicago Ill.; St. Paul, Minn.; Seattle, Wash.; San Francisco, Cal.; Customhouse New York, N. Y.; New Orleans, La; Honolulu, Hawaii; Old Customhouse St. Louis, Mo.; or to the Chairman of the Porto Rican Civil Service Commission, San Juan, P. R. No application will be accepted unless properly executed and filed, in complete form, with the Commission at Washington prior to the hour of closing business on January 12, 1914. In applying for this examination the exact title as given at the head of this announcement should be used.

RECENT DEATHS.

DR. FRANCIS LE LAU PARKER, who died on Dec. 15, at Charleston, S. C., was a former dean of the South Carolina Medical College. He served throughout the Civil War as a surgeon in the Confederate Army.

DR. WILLIAM H. WHEELER, a United States Navy surgeon, who died on Dec. 14, at Washington, D. C., was born in New York City in 1874. He was last stationed at the Norfolk (Va.) Navy Yard. He is survived by his widow and by three children.

DR. JESSE FRANK FRISBIE, who died on Dec. 17 in Newton, Mass., was born at Rochester, N. H., in 1838. He received the degree of M.D. in 1861 from the Harvard Medical School, and served throughout the Civil War as a surgeon in the United States Army and Navy. He was a member of the Newton Board of Health from 1885 to 1890, and was for a time connected with the Newton Hospital. He was a Fellow of The Massachusetts Medical Society, and a member of the Boston Gynecological Society.

DR. NORMAN EUGENE FAREWELL of Brooklyn, N. Y., died from pneumonia on December 11, at the age of 37 years. He was a native of Ottawa, Canada, and was graduated from the medical school of Trinity College, Toronto, in 1897. At the time of his death he was assistant surgeon to the Brooklyn Eye and Ear Hospital.

DR. FRANK E. AGNEW of Paterson N. J., died from pneumonia on December 16. Dr. Agnew was graduated from the College of Physicians and Surgeons, New York, in 1885, and was formerly city physician of Paterson and visiting physician to St. Joseph's Hospital. At the time of his death he was medical director of the Paterson Isolation Hospital.

DR. ALVARD E. MOSSMAN of Westminster died at his home December 20, 1913, aged 56 years. He had been a member of the Massachusetts Medical Society since 1885 and was a councillor from the Worcester North District at the time of his death. He was born in Sweetland, Calif., and had practised in Westminster for 30 years.

SOCIETY NOTICE.

A NEW ENGLAND SOCIETY OF DERMATOLOGY AND SYPHILIS.—At a recent meeting of the Boston Dermatological Club it was voted to consider the feasibility of the formation of a New England Society of Dermatology and Syphilis, and to ascertain the names of physicians throughout the New England States who might be interested in the formation of such an organization.

Will, therefore, physicians especially interested in these branches of medicine, who would care to identify themselves with the creation of a New England Society, please send their names and addresses to

DR. FREDERICK S. BURNS,
237 Marlborough Street, Boston.

HOME VISITING PHYSICIAN WANTED

for the Home for Destitute Jewish Children, Canterbury Street, Boston. Salary, $500 per year. Applications must be in on or before January 1, 1914. Apply to Dr. M. Gerstein, 493 Warren Street, Roxbury.

BOOKS AND PAMPHLETS RECEIVED.

Sixth Annual Report of the Trustees of Massachusetts Hospitals for Consumptives. Nov. 30, 1912.

Third Annual Report of the Providence City Hospital for the year ending December 31, 1912.

Gov. Sulzer's Message on Public Health with Report of Special Public Health Commission. Albany, N. Y.

United States Public Health Service. Rocky Mountain Spotted or Tick Fever, by L. D. Fricks. Reprint No. 139 from the Public Health Reports. Washington, D. C.

Public Health Reports. Vol. xxviii. No. 37. September 12, 1913. Washington, D. C.

Massachusetts Commission for the Blind. Sixth Annual Report.

Climate in the Homeland of the Nation. Issued by the Southern Railway System.

WEEKLY RETURN OF DEATHS.

from diseases declared by the State Board of Health to be dangerous to the public health, from cities and towns of more than 10,000 population, for the week ending Dec. 13, 1913:—

Boston	26
Worcester	7
Lowell	3
Cambridge	6
New Bedford	5
Springfield	3
Lawrence	2
Somerville	1
Holyoke	3
Brockton	2
Malden	1
Fitchburg	2
Taunton	1
Everett	1
Waltham	1
Brookline	1
Medford	2
North Adams	1
Northampton	2
Beverly	1
Attleborough	2
Peabody	1
Newburyport	1
Adams	1
Framingham	1

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